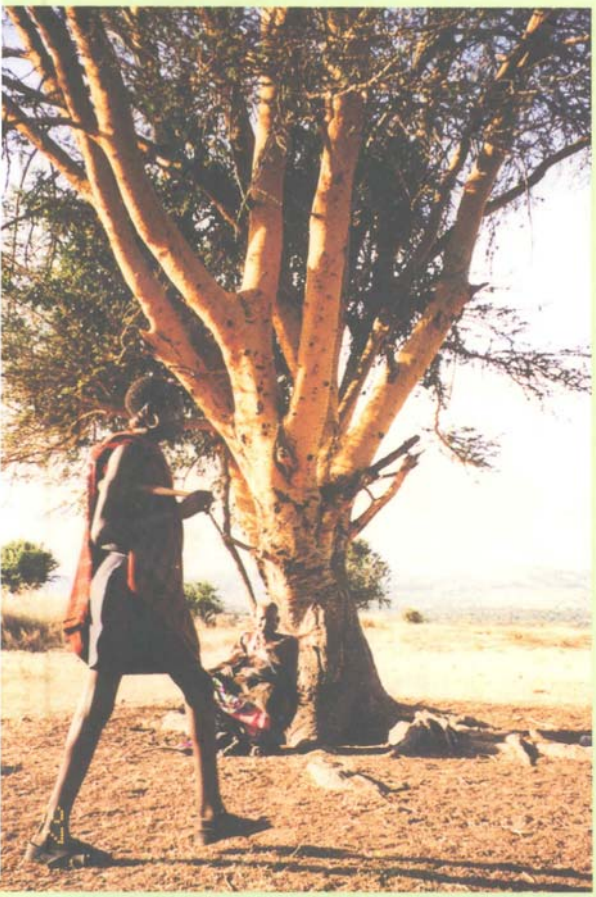
TECHNICAL HANDBOOK No. 35

Useful trees and shrubs for Kenya

Edited by Patrick Maundu and Bo Tengnäs
Principal illustrators: Nicholas Muema and Ann Birnie



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Nicholas Muema and Ann Birnie

World Agroforestry Centre

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World Agroforestry Centre—Eastern and Central Africa Regional Programme

2005

THE WORLD AGROFORESTRY CENTRE, formerly the International Centre for Research in Agroforestry (ICRAF), contributes to alleviating poverty, improving food security and conserving the environment through the use of trees, tree products and agroforestry. These goals are pursued through research, education and development activities. The production of this publication has been funded by the Swedish International Development Cooperation Agency (Sida).

Publisher
World Agroforestry Centre—Eastern and Central Africa Regional Programme (ICRAF-ECA)
P.O. Box 30677-00100, Nairobi, Kenya

Series editor: Anna K Lindqvist, RELMA in ICRAF
Copy editing: Helen van Houten
Layout, typesetting and production: Caroline Agola
Cover design: Sandra Limley

Photos: All photos by P. Maundu or B. Tengnäs except where indicated.
Cover photos:
Top: *Acacia brevispica*, Mwala, Machakos District
Bottom left: Chief Maasai Laibon, Mokombo ole Simel, resting under an *Acacia xanthophloea* (fever tree), Loita, Narok District. His son in the foreground.
Bottom right: Making a canoe from a trunk of *Ficus sycomorus*, Mnazini, Tana River

Cataloguing-in-Publication Data
Maundu P and Tengnäs T (eds). Useful trees and shrubs for Kenya. 2005. Technical handbook No. 35. Nairobi, Kenya: World Agroforestry Centre—Eastern and Central Africa Regional Programme (ICRAF-ECA). 484 p. + 10; colour section; includes bibliography.

ISBN 9966-896-70-8

Printed by English Press Ltd, P.O.Box 30127, Nairobi, Kenya

In memoriam—Caroline Agola

Caroline Agola was responsible for editing, designing and laying out this book. She worked diligently to produce this volume, but sadly she did not live to see the fruits of this work—she passed away on 22 December 2004, just after she had completed the layout.

Over the years, Caroline was involved in many similar productions: the first edition of *Useful Trees and Shrubs for Kenya*, and the *Useful Trees and Shrubs* volumes for Ethiopia, Tanzania, Uganda and Eritrea; *Wild Food Plants and Mushrooms of Uganda*; and *Edible Wild Plants of Tanzania*, to mention a few. Her meticulous eye and practical mind, the breadth and depth of her knowledge of biological science, and her tireless work have greatly contributed to the quality and importance of these productions.

The entire team involved in the production of this book would like to recognize Caroline's efforts. ICRAF and RELMA would like to recognize her enormous contribution to the field of agroforestry in the eastern African region. This book will remain a good testimony of her dedication and commitment.

Contents

Foreword

The interest in agroforestry and in promoting tree growing in rural areas has increased drastically during the last few decades. In the late 1970s and early 1980s, serious concern was expressed all over the world about looming energy crises in rural areas. Projects to promote tree planting to counteract the expected firewood crises were established in Kenya and in many other developing countries. From the 1980s, interest in the capacity of trees and shrubs to ameliorate soil fertility also grew and technologies were developed that would provide solutions to the energy crises and improve agricultural productivity.

Gradually, the interests of the farmers and pastoralists were put higher on the agenda. It was realized that farming systems are complex, with innumerable combinations of crops, trees and animals, and that this complexity is important as it provides multiple outputs and a safety net for the livelihoods of local people. Therefore, there is need for knowledge not only of a few exotic species of trees and shrubs, but of a whole range of woody species that are relevant and important for farmers and pastoralists.

Such knowledge was at that time either unavailable or not well synthesized. Earlier literature focused mainly on taxonomic descriptions and lacked detailed information on uses and propagation. Some small booklets were produced and published for Kenya during the 1980s followed by *A Selection of Useful Trees and Shrubs for Kenya* published by ICRAF in 1992.

Since then research has progressed and much more information has been gathered from local communities with regard to their preferences and uses of trees and shrubs. Therefore, a decade after the first edition was published, it was felt that there is need to incorporate all the new information and produce an updated book with more information on each species and with more species added.

I would like to commend the authors, Patrick Maundu and Bo Tengnas, and the principal illustrators, Nicholas Maundu and Ann Birnie, and all others who have taken part in the teamwork that generated, compiled and processed all the information contained in this very useful publication.

During the 1990s ICRAF evolved into the World Agroforestry Centre with a vision that by 2010, 80 million agricultural poor would get access to agroforestry research innovations that will improve their livelihoods and help sustain the global environment. This publication will go a long way in advancing this vision.

Popularization of the rich flora of trees and shrubs that exists in Kenya is an important element for conserving and continuing use of these resources. Indigenous knowledge on the usefulness of the flora is also important—in fact, as important as the conservation of the flora itself.

This publication is intended to be a handbook that is useful for a wide range of people. By making information on trees and shrubs available to a broad range of Kenyans, the World Agroforestry Centre hopes that more Kenyans will take an interest in tree growing and forest conservation. It is our sincere hope that the book will contribute to a greener Kenya!

Bashir Jama
Regional Coordinator
Eastern and Central Africa Regional Programme
World Agroforestry Centre

Acknowledgements

This publication is a result of a truly participatory process extending over close to 15 years. It draws heavily on an earlier book, *A Selection of Useful Trees and Shrubs for Kenya*, published by the then International Centre for Research in Agroforestry, ICRAF, in 1992.

This earlier publication was compiled by a team of people with technical input coming from Amare Getahun, Ann Birnie (who also drew many of the illustrations), Abineah Chavangi, Karin Fahlström, Alice Kaudia and Bo Tengnäs. Editorial input came from Jan Beniest and David Brett (who also oversaw the production). Many other people also provided inputs, among them: E. Barrow, D. Boland, N. Gachathi, R. Haller, D. Lowe, P. Maundu, F.W. Mbote, G. Mungai, P. Mung'ala, L. Omoro, F. Owino, A. Robertson, P. von Carlowitz and A. Wacira.

Since then, significant progress has been made in our understanding of Kenya's flora of trees and shrubs and how they are used in various parts of the country, thanks to research by both local and international organizations such as the World Agroforestry Centre (ICRAF), the International Plant Genetics Research Institute (IPGRI), the Kenya Agricultural Research Institute (KARI), the Kenya Forestry Research Institute (KEFRI), the National Museums of Kenya and institutions of higher learning. Working with farmers and local people has also widened our understanding of these plants. In the forefront in this area are the Ministry of Agriculture, the Forest Department and a number of NGOs, among them the VI Agroforestry Project, which now has a long history in the country.

In the early stages of compiling material for this book a group of people from different institutions contributed their knowledge at a workshop organized at KEFRI in Muguga, and another at Gede Museum in Kenya's Coast Province. The participants at these two workshops are listed in the appendix. The contributions made by the following experts deserve special mention as they contributed not only during the workshop but also by providing written information: J. Ahenda, F.N. Gachathi, S. Gitonga, G. Mashauri, M.T.E. Mbuvi, A.M. Mohamed, C.J.A. Mullah, B. Muok and T. Omenda, all of KEFRI, and S. Jembe, S. Kibet, P. Kirika, J. Muasya and M. Pakia, all of the National Museums of Kenya. A number of other persons contributed their knowledge as well: A. Birnie, M. Imbumi, J. Kimani of the Ministry of Agriculture, A. Mnyenze, B. Owuor and A. Robertson. Material was also extracted from other sources. It should be noted here that the production of the earlier book was followed by production of similar books for Tanzania, Ethiopia, Uganda and Eritrea that were published by the Regional Soil Conservation Unit (RSCU) of the Swedish International Cooperation Agency (Sida). The information gathered during these processes was useful also in developing this publication. Two prominent East African 'Messrs Trees' who have contributed from their wealth of knowledge deserve special mention: A.B. Katende of Uganda and C.K. Ruffo of Tanzania. We also thank Inga Hedberg, Associate Professor of Systematic Botany, Uppsala University, Sweden, for her advice on nomenclature and taxonomy.

Data for the distribution maps were extracted by a team of staff at the Kenya Resource Centre for Indigenous Knowledge (KENRIK) at the National Museums of Kenya led by R. Adeka and J. Wanjiku and assisted by J. Ayayo, J. Mutisya, R. Kamau, A. Mumbua and G. Otieno. The data were obtained from KENRIK and from sheets at the East African Herbarium. The plotting was done by N. Muema and R. Wamukoya. We are grateful to the National Museums of Kenya for the data and general support. GIS analysis for the preparation of other maps included in the book was done by G. Aike and F. Muchori of GIS Unit, ICRAF, with technical input from P. Maundu and Bo Tengnäs.

Most new illustrations for this book were prepared by N. Muema at KENRIK. A. Birnie provided important technical input. In addition, a large number of her illustrations that were prepared for earlier books have been used here. Some illustrations that originate from other sources and were used with permission in the earlier book have been used in this book too. ICRAF attempted to contact the original publishers for permission to use illustrations and successfully got in touch with the following, who were kind enough to grant their permission:

- Food and Agriculture Organization of the United Nations: *Acacia nilotica* in P.J. Skerman, *Tropical Forage Legumes*. Rome, 1977.
- Kenya Energy and Environment Organizations (KENGO): *Afzelia quanzensis, Senna (Cassia) siamea, Dombeya goetzenii, Faurea saligna, Maesopsis eminii, Olea capensis (O. hochstetteri), Piliostigma thonningii, Prosopis chilensis, P. juliflora, Terminalia spinosa, Vitex*

keniensis and *Ziziphus mauritiana* in W. Teel, *A Pocket Directory of Trees and Seeds in Kenya*, Nairobi, 1984.

- Mennonite Central Committee: *Phoenix dactylifera* in T. Gammell, *Date Palms in Kenya*, African Centre for Technology Studies (ACTS), Nairobi, 1989.
- Oxford University Press: *Cadaba farinosa* in F.R. Irvine, *Woody plants of Ghana,* Oxford, 1961
- Royal Botanic Gardens, Kew: *Cordeauxia edulis* in D. Prain (ed.), *Hooker's Icones Plantarum,* vol. 29, London, 1909; *Berchemia discolor, Boscia coriacea, Calodendrum capense, Entada abyssinica, Hymenaea verrucosa, Olea capensis (O. welwitschii), Salvadora persica* and *Zanthoxylum chalybeum* in various volumes of the *Flora of Tropical East Africa,* earlier published by Crown Agents for Oversea Governments and Administration and later in Rotterdam by A.A. Balkema.
- Zimbabwe. Department of Natural Resources. *Brachystegia spiciformis* and *Strychnos spinosa,* in R.D. Drummond, *Common Trees of the Central Watershed Woodlands of Zimbabwe*, Harare, 1981.

The copyright for all illustrations mentioned above remains with the publishers and individual illustrators. The copyright of photos rests with the photographers. ICRAF would also like to acknowledge its dependence on other sources of material that are listed in the bibliography and apologizes to any publishers and authors with whom it was not able to make contact and would be happy to hear from them so that due acknowledgment may be made in any future edition of this publication.

Production of this book would not have been possible without the farmers, pastoral groups and other local communities in Kenya who over the years have shared their knowledge on trees and shrubs with researchers.

The editors enjoyed the efficient administrative support and good spirit of Yasmin Kalyan. She assisted with word processing at various stages and also made arrangements for the workshop in Muguga. Anna Karlsson-Lindqvist coordinated the final stages of the book and oversaw its production. Language editing and layout were handled by Caroline Agola, as always with the highest degree of professionalism.

Last but not least, the financial support received from Sida—both directly and through the Regional Land Management Unit (RELMA)—is very gratefully acknowledged.

Patrick Maundu *Bo Tengnäs*

Introduction

This handbook has been prepared with the purpose of giving answers to everyday questions related to useful trees and shrubs in Kenya and to provide helpful information for people working with them at a practical level.

Botanical and ecological diversity

Plants are essential for human existence. Some species are the source of the world's staple foodstuffs, while others are important sources of herbal medicine, drugs and their derivatives. Other species provide products or services that people depend on directly or indirectly, for example by fixing nitrogen in the soil, conserving soil and water, providing shade, fodder for livestock, fibre, materials for construction—the list is a long one!

Kenya owes its high biological diversity to the enormous variation in climate and topography, which results in a great range of habitats (see maps on Colour plates 14 and 16). This in turn has provided a wide variety of ecological niches and a rich flora of about 7,000 native plant species. Several hundred of these are endemic to the country. The land rises from the hot and humid coast adjacent to the Indian Ocean and adjoining dry lowlands of the east and north-east of the country to the cool highlands and mountains at the centre of the country, where the Aberdare Range (3,999 m) and the snow-covered summit of Mt Kenya at 5,199 m are the dominating features. The land drops abruptly in the west to the floor of the Great Rift Valley with numerous lakes, the main ones being Turkana, Baringo, Nakuru, Naivasha, Magadi and Amboseli. The Rift Valley splits the Kenyan highlands into eastern and western highlands, the later rising to over 3,000 m in the Mau Range and Cherangani Hills. The western highlands give way to the lowlands of the Lake Victoria basin in the south-west. Mt Elgon (4,321 m), on the border with Uganda, is the highest mountain of the Western Highlands. The rest of the country is interspersed with smaller mountain ranges, mountain peaks and hills, but these are still capable of influencing the local climate significantly. This wide altitudinal range has a great influence on temperatures and precipitation, both of which are important factors influencing vegetation types and land use. Day maximum temperatures range from about 40°C in the dry north to sub-zero on the high mountain peaks. Precipitation ranges from about 150 mm annually in the dry low-lying deserts of the north and north-east, such as the Chalbi Desert, to over 2,000 mm on the slopes of Mt Kenya and parts of western Kenya. Likewise, vegetation changes enormously from almost bare rock in the deserts of the north, through *Acacia–Commiphora* bushland and scrub to grassland with scattered trees, tropical rain forests, dry highland forests to afro-alpine vegetation on the higher mountains and mangrove forests at the coast.

Ethnic diversity

Along with the high diversity in physical features is a high cultural diversity. Kenya is a meeting point of three major groups of people: Bantu, Nilotic and Cushitic speakers, each with a diversity of language groups (see Table 1 and map on page 4).

Altogether, over 55 distinct languages are spoken in Kenya, most of which have a number of dialects. Some of the ethnic groups speaking these languages, such as the Kikuyu and the Luo, comprise many millions of people, but others, like the Suba and the El Molo, are small and their languages are on the verge of extinction. The cultural landscape has been enriched significantly by later migrants from the Arabian peninsula, India and Europe. Each of these cultures bring with them a rich knowledge of local plant use accumulated over time through interactions with plants and the environment as a whole. It is through this knowledge that we discover plants with desired characteristics such as good shade trees, timber trees, soil improvers and medicinal plants—all of which can be tapped to enhance community livelihoods.

Table 1. Linguistic Classification of the Communities of Kenya

- **BANTU**
  - **COASTAL**
    - **Malakote**[1]
    - **Pokomo**
    - **Mijikenda**
      - Giriama[2]
      - Chonyi
      - Jibana[3]
      - Kauma
      - Ribe[4]
      - Kambe
      - Rabai[5]
      - Duruma
      - Digo
    - **Taita**
      - Dabida
      - Kasigau
      - Saghala
    - **Taveta**
    - **Segeju**
  - **CENTRAL**
    - **Kikuyu**[a]
    - **Embu**
    - **Meru**
      - Imenti
      - Tigania
      - Igembe
    - **Tharaka**
    - **Mbeere**
    - **Kamba**[b]
      - Chuka
      - Mwimbi
      - Igoji
      - Muthambi
  - **WESTERN**[19]
    - **Kuria**
    - **Kisii**
    - **Suba**
    - **Luhya**
      - Bukusu
      - Tachoni[6]
      - Marachi
      - Khayo
      - Samia
      - Nyala
      - Marama
      - Tsotso
      - Kakelelwa
      - Maragoli
      - Tiriki
      - Nyore
      - Kisa
      - Idakho
      - Isukha
      - Kabras
      - Wanga
      - Gishu
- **NILOTIC**
  - **LAKE**[20]
    - **Luo**
  - **HIGHLAND**
    - **Kalenjin**
    - Nandi
    - Terikeek[7]
    - Kipsigis
    - Ogiek[8]
    - Keiyo
    - Tugen
    - Marakwet
      - Sengwer
      - Endo
    - Kony[9]
    - Sabaot
    - Bongomek[10]
    - Pokot
  - **PLAINS**
    - **Maasai**[c]
    - **Samburu**
    - **Ilchamus**[11]
    - **Teso**
    - **Turkana**[d]
- **CUSHITIC**
  - **OROMO**
    - **Korokoro**[12]
    - **Gabra**[13]
    - **Burji**
    - **Borana**
    - **Orma**
    - **Sanya**
    - **Sakuye**
    - **Yaaku**
  - **DAHALO**[22]
  - **SOMALI**
    - **Daasanach**[14]
    - **Elmolo**[15]
    - **Rendille**
    - **Somali**
    - **Boni**
      - Murule
      - Gare
      - Degodia
      - Ajuran
      - Ogaden
        - Geri Kombe
        - Bah Geri
        - Magabul
        - Aulihan
        - Muhammed Zubeir
        - Abudwaq
        - Abdalle
      - Issaq[17]
      - Harti[17]
      - Shekhaal[18]
- **OTHERS**
  - **Swahili**[16]
    - Bajun
  - **Arabic**
  - **Asian**
  - **European**
  - Others

Key to the superscript numerals

1 = Ilwana
2 = Jiriama
3 = Jihana
4 = Rive
5 = Rahai
6 = Nandi x Maragoli
7 = Terik = Nyang'ori
8 = Also affiliated to Kisii and Maasai
9 = Elgony (Kony), Sebei in Uganda
10 = Pok or Pongomek
11 = Njemps, Ilchamus
12 = Munyo
13 = Linguistically not distinct from Boran
14 = Ng'i-Marille (by Turkana), Shangila (by Gabra/Borana), Geleba (by Rendille)
15 = Classified as Cushitic but now speak a dialect closely related to Samburu
16 = Bantu (and others) x Arabic (and others)
17 = Mainly in urban centres
18 = Mainly religious and urban
19 = interacustrine Bantu
20 = River–Lake Nilotes
21 = Divided into Southern and Eastern speakers. Both the Oromo and Somali divisions belong to the Eastern Cushitic speakers.
22 = The Dahalo, near the Tana River, are the only Southern Cushitic speakers in Kenya.

Further divisions

- **[a]Kikuyu**
  - Mathira
  - Gicugu
  - Ndia
- **[b]Kamba**
  - Masaku
  - Kilungu
  - Kikumbulyu
  - Ngulia
  - Kitui
  - Ngura
- **[c]Maasai sub-groups**
  - Ilkisonko
  - Matapato
  - Ilkaputei
  - Ilpurko
  - Ildalalekutuk
  - Ildamat
  - Ilkeekonyokie
  - Illoodokilani
  - Iloitai
    - Ilkidong'i
  - Isiria
  - Ilmoitanik
  - Ilwuasinnkishu
  - Iltiamus
  - Laikipiak
  - Ilsampur
- **[d]Turkana**
  - Ng'isonyoka
  - Ng'ibelai
  - Ng'ikebootok
  - Ng'esetou
  - Ng'ikamatak
  - Ng'imasuk
  - Ng'ing'atunyo
  - Ng'inyang'among
  - Ng'iwoiyakwara
  - Ng'ilukumong...
  - Ng'igiramuk
  - Ng'kwatela
  - Ng'ikalacha
  - Ng'inyang'atom
  - Ng'iyapakuno
  - Ng'isiger
  - Ng'ikuniya
  - Ng'ikajik
  - Ng'ibochoros
  - Ng'imonia
  - Ng'ibelae
  - Ng'ichuro

Source: Maundu et al., 1999

Overexploitation of species

The twentieth century has brought more change for the people of Kenya than perhaps any other century. With a population growth rate of over 3.2%, demand for local resources such as fuelwood and wood for construction has been increasing, and with only 20% of the land being arable the pressure for space to cultivate has been intense, with the result that natural vegetation has suffered most with some species now facing a real threat of extinction. For a long time, the focus in research and extension has been on a few exotic trees such as *Acacia mearnsii, Cupressus* spp., *Eucalyptus* spp., *Grevillea robusta* and *Pinus patula.* As a result the development and understanding of indigenous trees has lagged behind. This, combined with poor planning and reluctance to grow these indigenous trees to replenish lost trees, has reduced indigenous forest cover to less than 2% of land in the country. Some high-value species have been severely overexploited. Good examples include *Brachylaena huillensis* (muhuhu) and *Dalbergia melanoxylon* (mpingo), both of which were the backbone of the woodcarving industry until the late 1990s. The pencil cedar, *Juniperus procera,* has been poached continuously for poles and door frames, and the high extraction rate combined with its low rate of regeneration has now pushed this species to critical levels. Mvule (*Milicia excelsa*), Elgon teak (*Olea capensis*), Meru oak (*Vitex keniensis*) and East African camphorwood (*Ocotea usambarensis)* have long been declining due to exploitation for their hardwood, which is excellent for timber and furniture. In spite of this, there have been no concerted efforts to grow these species in plantations or on farms, and the country now has to import hardwood (often illegally) for the carving, furniture and timber industries. There is, therefore, an urgent need to adopt the replanting of these species, both in their original natural habitats and on the farm, where they can be a source of cash for rural people. In addition, policies that support the replanting of these trees should be adopted and implemented.

Underutilized species

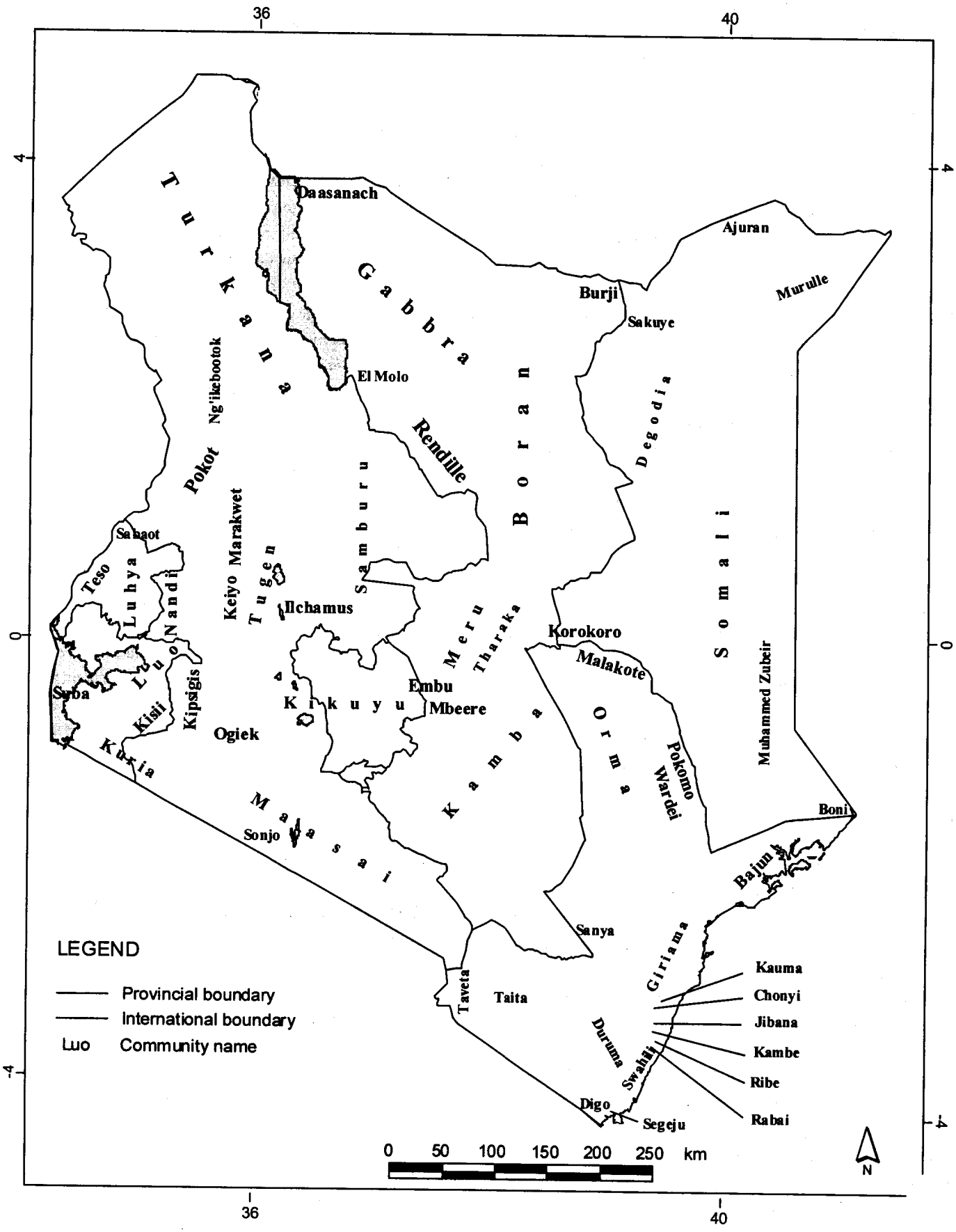
Most species presented in this book can be termed underutilized as their full potential is yet to be realized. However, the potential of a few indigenous species was recognized early on and they are now widely used. Good examples are the Nandi flame (*Spathodea campanulata*), podo (*Podocarpus* spp.), Cape chestnut (*Calodendrum capense*), Meru oak (*Vitex keniensis*), *Markhamia lutea* and *Croton megalocarpus.* Most of these are planted as ornamentals or shade trees. A great majority of indigenous trees are still in the wild and need to be brought to cultivation. One underutilized group is for hedges and live fences. Most people depend on kei apple (*Doryalis caffra*), *Plectranthus barbatus,* cypress (*Cupressus* spp.), finger euphorbia (*Euphorbia tirucalli*), *Croton megalocarpus* and a few others for these purposes. This book provides many more alternatives such as *Carissa* spp., *Saba comorensis* and *Landolphia* spp., which also bear important fruits, as well as *Acokanthera oppositifolia, Commiphora* spp., *Euphorbia candelabrum* and *Maytenus* spp. Food plants too are underutilized. In spite of their delicious fruit, most indigenous fruits are picked only from the wild. Among these are the rubber vine (*Landolphia kirkii*), tamarind (*Tamarindus indica*), the marula tree (*Sclerocarya birrea*), *Strychnos* spp., *Vangueria* spp., *Rubus* spp. and *Ximenia americana.*

Species introductions: the pros and cons

It would be hard to imagine a Kenya without some important introduced plants, e.g. fruit trees like mango and avocado, but also others like neem (now the backbone of the woodcarving industry and source of important medicinal products); *Grevillea* (a main source of fuelwood and now a key source of timber after the depletion of plantation timber); *Eucalyptus* spp. and *Acacia mearnsii*, or black wattle (both of which are a main source of poles and fuelwood), and others like *Senna siamea* and *Senna spectabilis,* which are important ornamentals. But some introductions have done more harm than good. *Prosopis*, or the mesquite, in northern Kenya has blocked rivers, made large areas useless and interfered with plant diversity. *Lantana camara*, or the 'curse of India', which is easily distributed by birds, is an aggressive colonizer that is not only expensive to eradicate but also a threat to other species and a hideout for tsetse flies. The later is a typical example of plants that were introduced with good intentions but have now got out of control. In addition to potential invasive species, introductions pose a high risk of bringing with them pests and diseases that can affect or even eradicate local species. In spite of all this, introductions are likely to continue to be made as humans will always find new species of interest as they move round the globe. While existing policies and laws regarding introductions need to be enforced, there is also a need to formulate comprehensive policies for controlling the expansion of invasive species.

Agroforestry, biodiversity and livelihoods

Indigenous trees provide local farmers with a wide range of products and services. With increasing pressure on land and decreasing size of land holdings, it is vital to promote the cultivation of a range of species on the farm to provide basic products and services the family needs. Multi-storeyed planting ensures the growing of many species with different uses over a relatively small area. By tapping into local knowledge resources, the characteristics of each tree or shrub may be determined, and farmers and extension workers can predict the best combinations, e.g. shade-tolerant shrubs planted under trees while climbing plants are grown next to appropriate trees to climb on. We can consciously and actively maintain high biodiversity at the farm level. A live fence, for example, need not be one species or one type



Language groups of Kenya

only. *Carissa spinarum* (*C. edulis*), a liana with delicious fruits but vicious thorns, makes a good protective hedge, and *Saba comorensis*, also a fruit plant, can form another type of hedge without thorns, and both can climb on an existing fence of another species. Many exotic species yield important benefits and therefore can be combined with indigenous trees. It is this potential diversity that offers future generations the choices they need to be able to re-design farming systems to suit new situations and to meet new demands.

Selection of the trees and shrubs included in this book

This book covers 333 species of trees and shrubs as main entries and a similar number for which further information is added under the 'Remarks' sections. Altogether, these still represent only about 25% of the woody plant species found in Kenya. Reference is made to *Kenya Trees, Shrubs and Lianas* (Beentje 1994) for a more comprehensive botanical coverage of most indigenous tree and shrub species. The selection of species included in this handbook was based on extensive consultation among scientists and with farmers and field staff (see Acknowledgements). Most species were included because of their potential for more extensive use by Kenyan farmers and pastoralists. Some well-known species, for example *Citrus* spp., apples, pears, plums and grapes, were excluded because they are so well known and widely covered in other publications.

Species included under 'Remarks' are those for which there was related or interesting information available but it was judged insufficient to justify inclusion as a main entry.

Clearly, many other species that might be worthy of coverage in a handbook such as this have been omitted, and the authors would be happy to receive comments on this.

Medicinal use of wild plants

Many of the plants described in this book are also known to be used as medicines for treating human and livestock diseases. Often, wild plants provide the only medicines cheaply and readily available to many rural dwellers in Kenya, as is the case in many other developing countries in the world. They are also a source of many active ingredients in the industrial manufacture of pharmaceuticals. However, local knowledge on precise methods of preparation and dosages is needed, and the guidance of an authentic herbal practitioner should always be sought before using these plants medicinally. This is important as the side effects and active compounds for most of them have still not been precisely determined.

A note for genetic and information prospectors

Most of the information on the uses of the species included in this book has been obtained from local communities, and such knowledge belongs to the communities concerned. Any proposed commercialization of this intellectual property, and the associated genetic resources, should be initiated in good faith with acknowledgement to and the full participation and knowledge of the relevant peoples.

Notes on the contents and use of this book

This handbook consists of six major sections:

- This introduction with an illustrated glossary of botanical terms
- Part I: A list of the common (vernacular) names for the species included
- Colour plates of selected species or their products
- Part II: The main section, which describes the species with regard to their ecology, uses and methods of propagation and management
- Part III. A summary table listing uses of the species
- A list of families and species and an index of species with page references to text as well as to colour plates where applicable.

If you wish to find information about a particular plant but know its name only in your own language:

1. Look for the language you want in the list of common names (the languages are organized alphabetically)
2. Find the name you are looking for in that list
3. Check the scientific (botanical) name that is listed next to it
4. Look up the page for that plant in its alphabetical place in the main section of the book (or simply go to the index at the end of the book).

Common names

Although the inclusion of vernacular names is potentially useful, it is recognized that there are two limitations associated with their use in this book—variable spelling and the existence of several dialects within a particular language. The editors would be glad to receive feedback on correct names and spellings as well as missing alternative spellings.

Description

Proper identification of a tree or a shrub is of paramount importance if it is to be planted for a specific use. Striking or important identifying characteristics have been emphasized in bold type. All sizes should be taken only as a rough guide as there can be great variation in the sizes and shapes (habits) of the trees themselves and of various parts such as the leaves.

Ecology

The Agroclimatic Zones listed for each species are shown on the agroclimatic map (see Colour plate 16). Occasionally indications are provided on the time of the year when the tree is usually in flower or fruit. It should be noted, however, that this varies a great deal from year to year and from area to area as rainfall patterns and other factors are not uniform.

Uses

It is important to note that the uses listed are those that have been *reported or deemed to be worth reporting*. The use of

trees and other plants in herbal medicine is a huge subject, and for several reasons this book does not provide details on local preparations and administration of herbal medicines.

Propagation

Most trees and shrubs are propagated through seed but often vegetative reproduction is possible.

If a species is propagated by seed, information is given on the number of seeds per kilogram, seed properties with regard to storage, simple pre-sowing treatment (if required or recommended) and whether the species can best be raised through direct seed sowing at the desired site, seedlings raised in a nursery (the word 'seedlings' is used to indicate this method), or by collecting naturally growing seedlings from the wild for transplanting at the desired site (the word 'wildings' is used). When raising seedlings in a nursery, seeds can either be sown in seedbeds for germination and later pricked out into containers or directly in containers. For species well suited for sowing in containers this method is mentioned. When no particular method is mentioned, this indicates that sowing in a seedbed for germination and subsequent pricking out is likely to give the best result.

Before sowing, seed of many species should be treated to encourage germination. Different species require different treatment. The most common method of seed treatment is soaking in cold water, or immersing the seed in hot water then allowing the water to cool and the seed to soak in it for some time. In fact, using water in the right way for seed treatment solves most problems relating to germination. However, for some seed other methods are recommended. Some seeds with a hard shell germinate better if cracked, but this should be done only lightly to avoid damaging the inner part of the seed. Seeds with a wing often germinate better if the wing is removed ('de-winging'). For yet other seeds germination may be enhanced if the hard seed coat is nicked with a knife or a nail clipper. Only a small nick is required and care must be taken not to nick the end of the seed where the germ is located. Nicking seed is time consuming and can only be recommended for small quantities of seed. The different forms of seed treatment generally work because they improve penetration of water into the seed, which in turn stimulates germination. Seed should be sown immediately after treatment.

Some species are easy to multiply vegetatively. An advantage with vegetative multiplication is that the 'new' trees and shrubs obtained by this technique have exactly the same characteristics as the one from which they originated since they are genetically identical. They also often grow quicker than seedlings. The more common vegetative multiplication techniques listed are use of cuttings and root suckers. Other approaches—grafting, air layering, budding, etc.—have not been tried for many species and require more complicated techniques that are not elaborated on in this handbook.

Seed

The length of time for which seed can be stored is indicated under the sub-heading 'storage'. The information given is as precise as is available, but readers are encouraged to carry out their own experiments. If the text indicates that seeds can be stored, then unless otherwise stated, the reader should assume that this means they should be well dried and then kept dry and cool to prevent mould and insect infestation. Insect attack can also be prevented or reduced by mixing the seeds with ash and keeping them in tightly closed containers. Check seed once in a while during storage and take action immediately if there are signs of damage.

Management

Several management techniques allow tree growers to optimize or maximize tree and shrub products or services. The most common practices associated with management involve removing parts of the tree or shrub by pruning roots or branches, coppicing (cutting the main stem for the stump to resprout), lopping (cutting branches, e.g. for fodder or firewood), or pollarding (cutting the whole crown but leaving the main stem to resprout). Other management practices (e.g. thinning and weeding that reduce competition for light, nutrients and water) aim at improving the development of the plant. The relative growth rate of the different trees and shrubs is also mentioned as far as this was known.

Remarks

Some of the available knowledge on certain trees and shrubs could not be accommodated under any of the specific headings mentioned above. Such information has been included as a remark if it was deemed to be useful. Comments on related or similar species are also included under this heading.

Illustrations

Line drawings have been included for each main entry. It should be noted that habit (general shape of the tree) is a very variable feature and so are leaf shapes.

Distribution maps

The maps in the species accounts section indicate localities where specimens of each plant have been collected or sighted by botanical collectors and other workers over many years. Most of these specimens are stored at the East African Herbarium at the National Museums of Kenya in Nairobi. These maps should, however, not be regarded as providing a definite and complete picture of each species' distribution in Kenya as it may also occur in other areas not represented in the Herbarium collection. Records from the Herbarium that appeared to be unreliable have been excluded, and localities where the species is known to occur but from which it is not represented in the Herbarium have occasionally been added. The latter is more common in the case of plants with cumber-

some or fleshy parts that are hard to collect, transport or preserve. The coverage for cultivated species is poor in the Herbarium because generally botanists seem to be keener on the natural flora than on commonly planted exotic trees. For some exotic species that are widely planted, including a distribution map was deemed not meaningful as the records may not be a good representation of where the species are actually grown.

Further reading

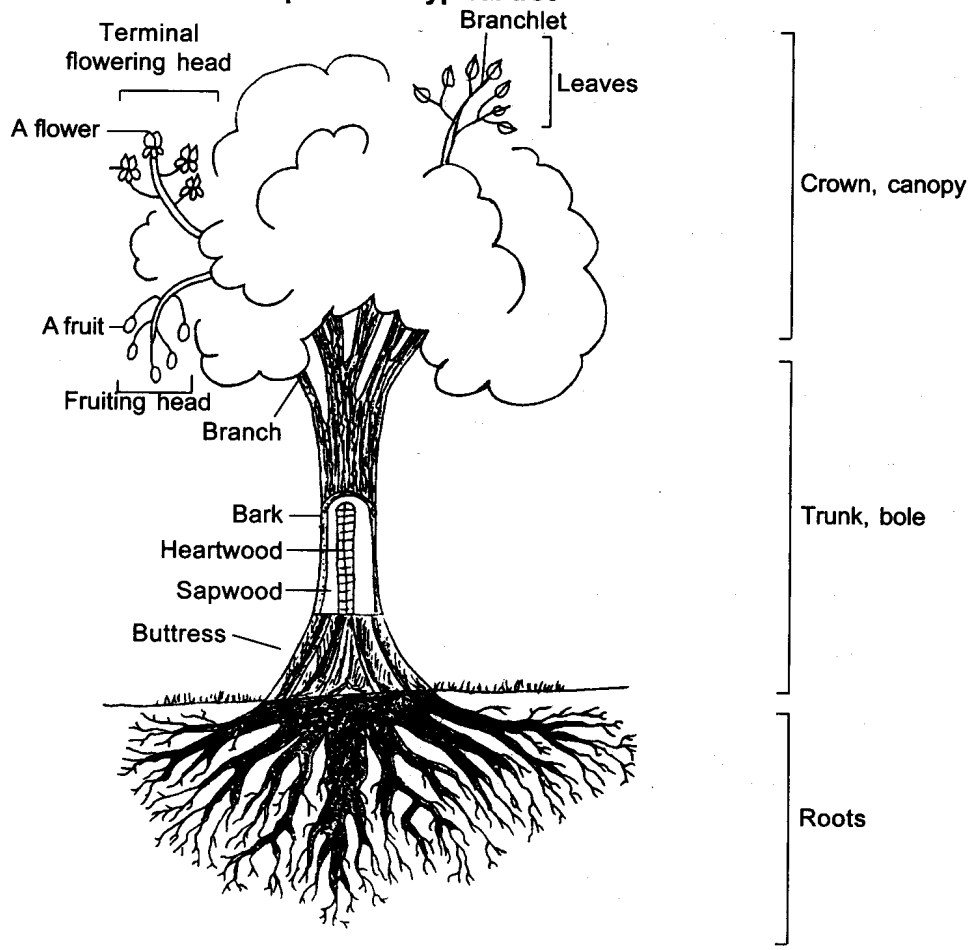
Many books providing useful information on trees and shrubs have been published during the last few decades. Nowadays the Internet is a useful source of information. This book does not provide exhaustive references to main tree and shrub species, but a few specific references are included. Reasons for choosing these books as suggested further reading were to:

- Give hints on the occurrence and uses of the species in other parts of Africa, and especially in the countries neighbouring Kenya
- Provide details from Asia on some Asian fruit trees and other trees from Asia that have been introduced into eastern Africa
- Provide information on where colour photos of the species can be found
- Provide a source of further details on specific uses such as medicine and veterinary medicine, beekeeping, agroforestry, firewood, on leguminous trees and shrubs for soil improvement, and edible species.
- Provide additional reading suggestions and open a window to the world literature on the trees of Africa
- Provide sources of more detailed information on particular areas of Kenya, e.g. Bungoma.

Details on the books and database referred to at the end of each species account can be found in the Bibliography, pages 475–477.

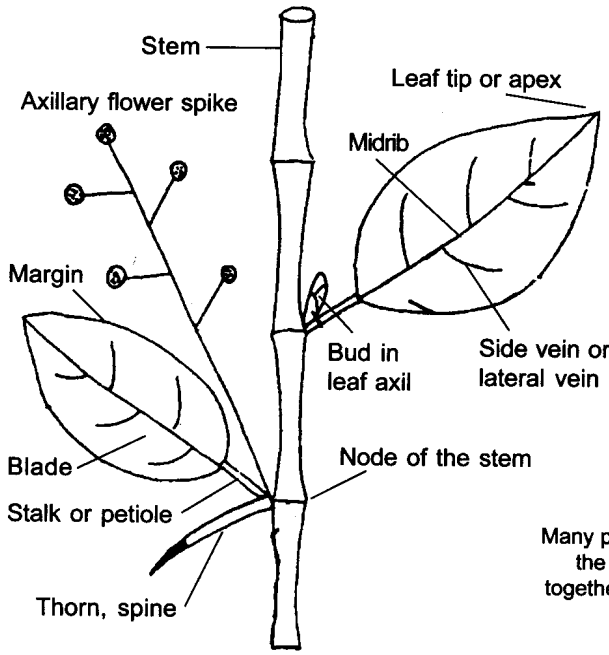
Illustrated glossary of botanical terms

The parts of a typical tree

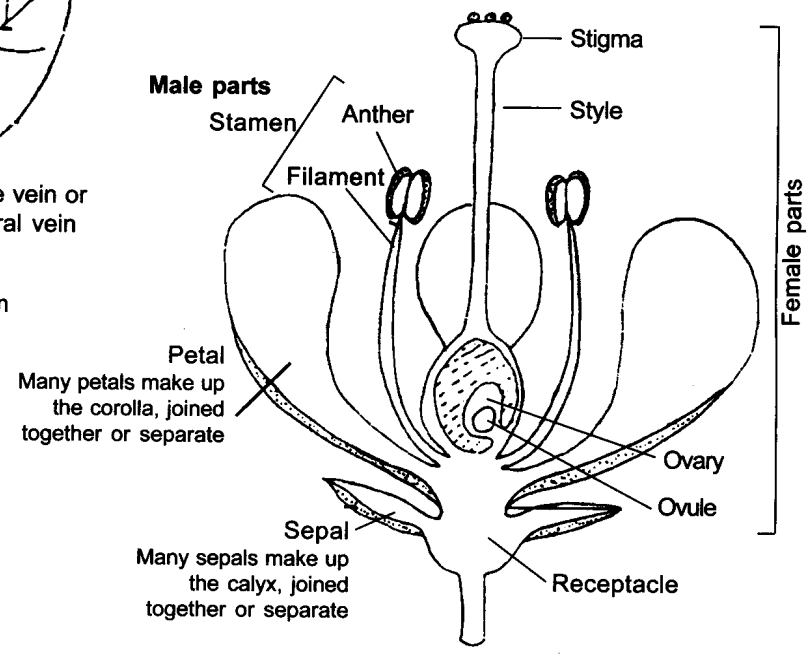


Leaves and stems

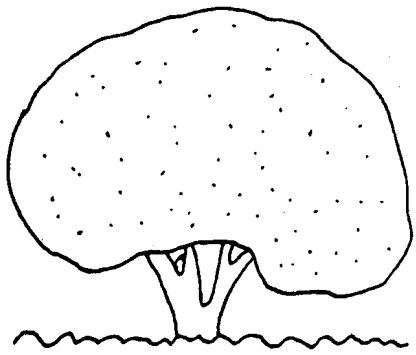
Diagram showing two simple leaves alternate on a stem



Diagrammatic section through a typical flower

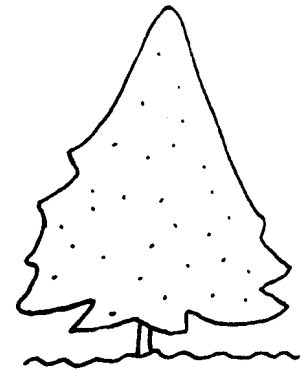


Tree shapes

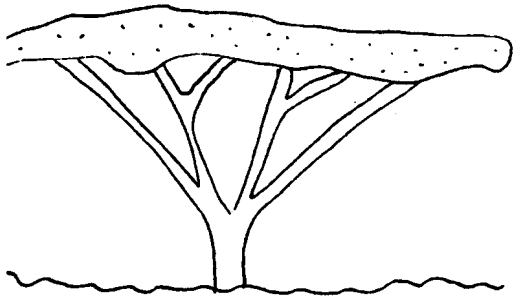


Rounded crown, dense, shady canopy

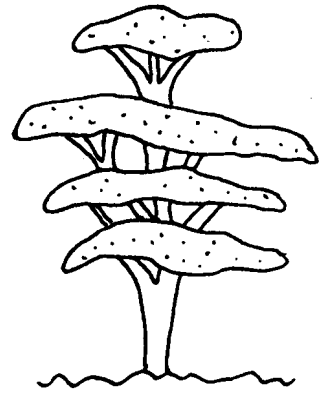
Narrow open crown, light shade



Conical crown



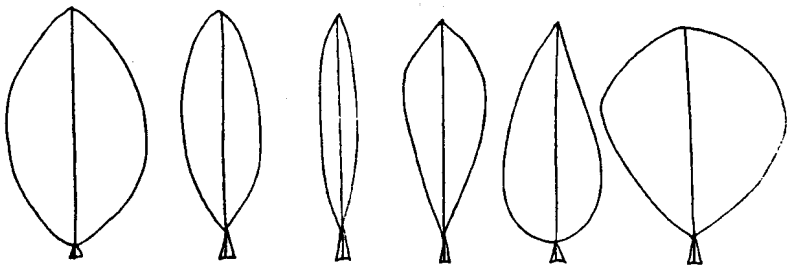
Flat-topped, spreading crown



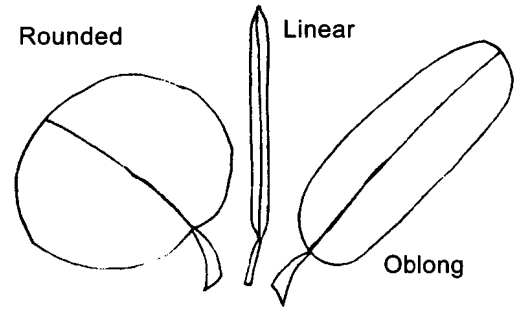
Canopy in layers

Tall bole, small dense crown

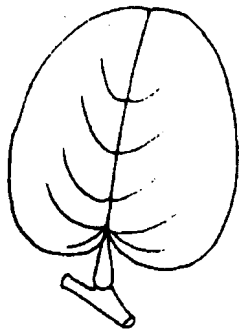
Leaves



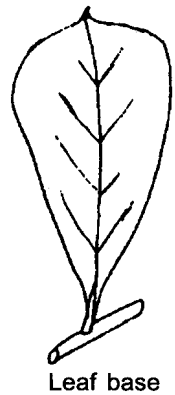
A variety of simple oval-shaped leaves



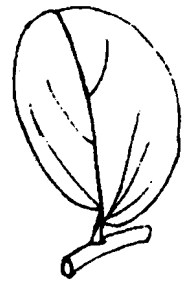
No leaf stalk, sessile



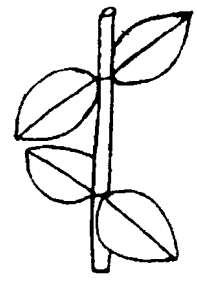
Leaf base heart shaped



Leaf base narrowed



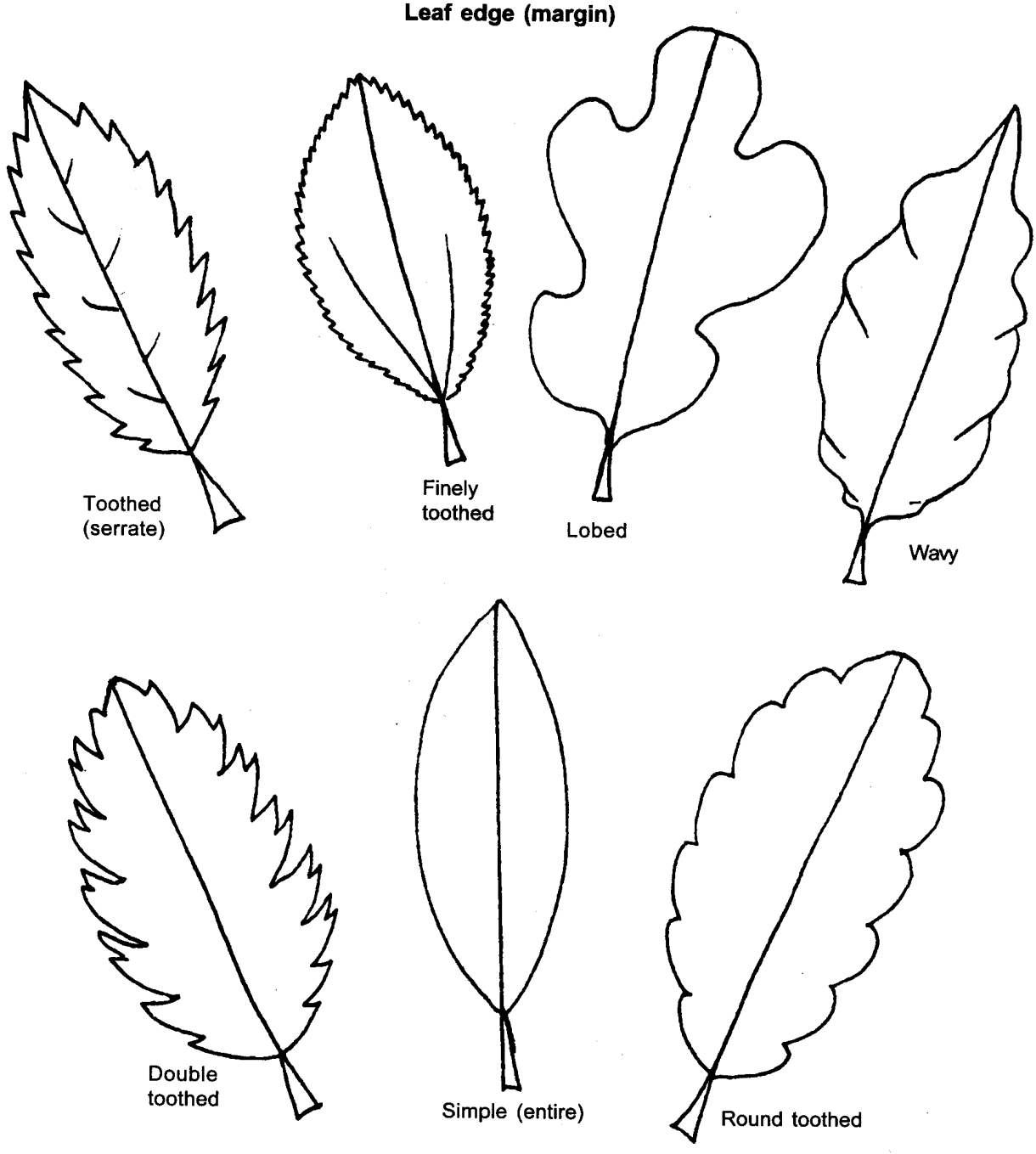
Leaf base unequal, asymmetric



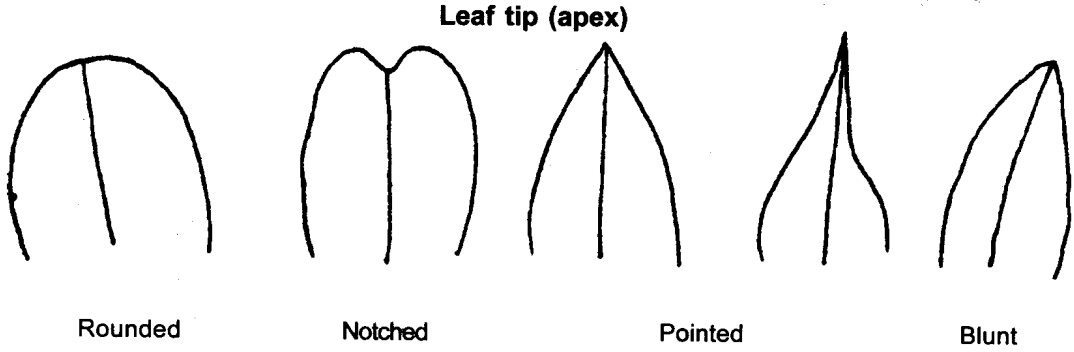
Opposite pairs of leaves

Four-whorled leaves

Leaf edge (margin)

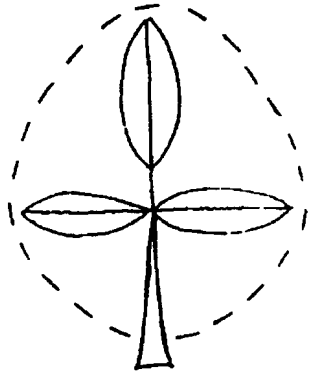


Leaf tip (apex)

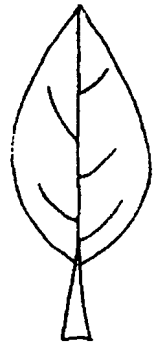


Leaves may be simple or compound

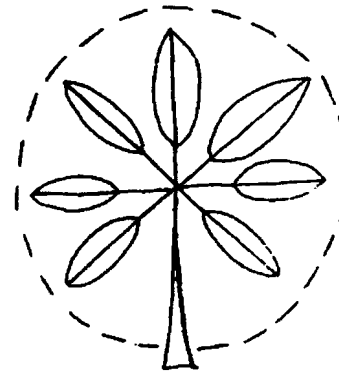
A compound leaf is a leaf whose blade is divided into smaller leaflets



A compound trifoliate leaf
Three leaflets, e.g. *Rhus*

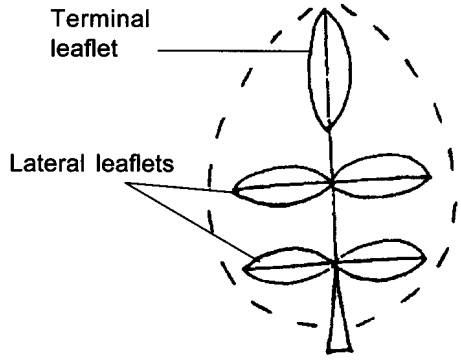


A simple leaf



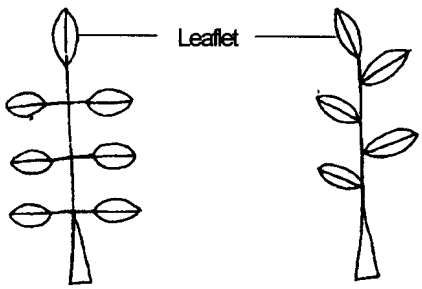
A compound palmate leaf (digitate)
Many leaflets spread like fingers of the hand, e.g. *Adansonia*

A compound pinnate leaf

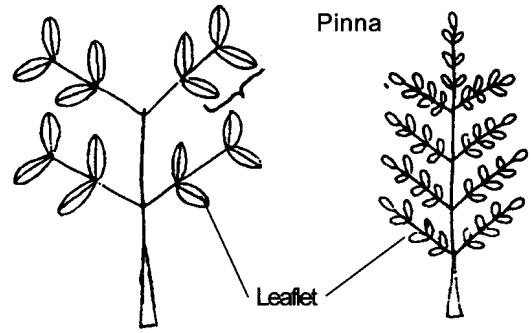


Five or more leaflets arise on either side of the leaf stalk, resembling a bird's feather (Latin *pinna*: wing)

Pinnate compound leaves are of several types.
Those with very small leaflets have 'feathery leaves'



Compound pinnate leaves
Once-compound leaves, e.g. *Markhamia*



Two pairs of pinnae Four pairs of pinnae
Twice-compound leaves (bipinnate), e.g. *Acacia* spp.

PART I

Common names

Common names

Bajun

Abiro	*Maerua decumbens*
Buruu	*Erythrina sacleuxii*
Kilua	*Uvaria denhardtiana*
Mbazanzi	*Cassipourea euryoides*
Mbembakoshi	*Erythrina sacleuxii*
Mchawanda	*Markhamia zanzibarica*
Mchundakula	*Ximenia americana*
Mkengewa	*Acacia polyacantha*
Mkurati	*Manilkara sulcata*
Mkwamba kerengende	*Elaeodendron schweinfurthianum*
Mlalozi	*Combretum aculeatum*
Mnanyadia	*Ehretia bakeri*
Mpotowandovu mkuu	*Ekebergia capensis*
Mtengewa	*Acacia senegal*
Mtetewe	*Acacia nilotica*
Mukorobasha	*Grewia villosa*
Murukatwa	*Uvaria denhardtiana*
Mutu	*Avicennia marina*
Muyu	*Adansonia digitata*
Mvuma nyuki	*Lawsonia inermis*
Myae	*Strychnos spinosa*
Ukwaju	*Tamarindus indica*
Warendi	*Manilkara mochisia*

Boni

Abozi	*Brachylaena huillensis*
Abubeu	*Bridelia cathartica*
Atame	*Cussonia zimmermannii*
Avud	*Brachylaena huillensis*
Balambali	*Thespesia danis*
Bangoe	*Ozoroa obovata*
Baraidi	*Euphorbia candelabrum*
Chona	*Lecaniodiscus fraxinifolius*
Daber	*Landolphia kirkii*
Darab	*Sterculia africana*
Gomojia	*Lawsonia inermis*
Gonyooriya	*Phoenix reclinata*
Halas	*Uvaria denhardtiana*
Halas	*Uvaria lucida*
Hobocho	*Albizia anthelmintica*
Hurub	*Dobera glabra*
Idamula	*Rhus natalensis*
Jah	*Adansonia digitata*
Kang	*Cassia abbreviata*
Kedula	*Ozoroa obovata*
Keruki	*Ehretia bakeri*
Kihere	*Rauvolfia mombasiana*
Kina	*Erythrophleum suaveolens*
Kionge	*Cassia afrofistula*
Komochi	*Lawsonia inermis*
Kone	*Hyphaene compressa*
Kornochi	*Lawsonia inermis*
Kuling	*Balanites wilsoniana*
Kuragi	*Manilkara sulcata*
Kurkoi	*Gardenia ternifolia*
Leh heli	*Terminalia kilimandscharica*
Malamuti	*Annona senegalensis*
Mangales	*Garcinia livingstonei*
Mangula	*Strychnos spinosa*
Mangula	*Strychnos madagascariensis*
Mawachandovu	*Oncoba spinosa*
Mbabare	*Terminalia sambesiaca*
Medi	*Hyphaene compressa*
Merfured	*Dombeya taylorii*
Milanje	*Dombeya taylorii*
Minarui	*Milicia excelsa*
Mkalijote	*Vitex ferruginea*
Mkalijote	*Vitex mombassae*
Mkulangi	*Cassipourea euryoides*
Mlambale	*Thespesia danis*
Mlamote	*Annona senegalensis*
Mogalishat	*Vitex ferruginea*
Mogalishat	*Vitex mombassae*
Mpotscho ndovu	*Ormocarpum kirkii*
Mpotscho ndovu	*Ormocarpum trachycarpum*
Mrongoleh	*Ekebergia capensis*
Msativu	*Dichrostachys cinerea*
Msingoni	*Dichrostachys cinerea*
Mugurure	*Combretum schumannii*
Mukai	*Tamarindus indica*
Mulilago	*Antidesma venosum*
Mulimuli	*Carissa spinarum*
Ngogaje	*Antidesma venosum*
Nothake	*Capparis sepiaria*
Ong	*Borassus aethiopum*
Qoone	*Hyphaene compressa*
Safara	*Moringa stenopetala*
Samachi	*Dalbergia melanoxylon*
Sauini	*Harrisonia abyssinica*
Shelola	*Kigelia africana*
Shelole	*Kigelia africana*
Sheshubla	*Dialium orientale*
Shishobli	*Dialium orientale*
Siricha	*Populus ilicifolia*
Tiella	*Encephalartos hildebrandtii*
Tomorr	*Uvaria acuminata*
Tsina	*Scutia myrtina*
Tuari	*Newtonia erlangeri*
Unglise	*Garcinia livingstonei*
Vugu	*Erythrina sacleuxii*
Waharr	*Lannea schweinfurthii*
Yamed	*Afzelia quanzensis*

Boran

Abairtubata	*Piliostigma thonningii*
Abratu	*Cussonia holstii*
Adama	*Euphorbia candelabrum*
Adesa	*Rhus natalensis*
Agarnyaab	*Maerua decumbens*
Akoku	*Oncoba spinosa*
Amares	*Acacia brevispica*
Ammess	*Commiphora africana*
Amo	*Euphorbia tirucalli*
Andarak	*Lannea triphylla*
Andaraka	*Lannea schimperi*
Anona	*Trichilia emetica*
Aru	*Juniperus procera*
Awagino	*Flueggea virosa*
Baabido (gum)	*Acacia senegal*
Baddan	*Balanites aegyptiaca*
Baddan	*Balanites rotundifolia*
Balanga	*Delonix baccal*
Bamba	*Melia volkensii*
Baresa	*Terminalia brownii*

Boran (cont)

Bariyub	*Maerua decumbens*
Barnha	*Melia volkensii*
Bebek	*Boswellia microphylla*
Biress	*Terminalia kilimandscharica*
Bissik	*Terminalia orbicularis*
Boria	*Albizia amara*
Burguge	*Acacia nilotica*
Buriri (Moyale)	*Vangueria madagascariensis*
Burkuke	*Acacia elatior*
Burquqe	*Acacia nilotica*
Burquqis	*Acacia nilotica*
Burra	*Acacia elatior*
Burra diima	*Acacia senegal*
Buruuri	*Vangueria apiculata*
Butiye	*Dracaena ellenbeckiana*
Butiye	*Ormocarpum kirkii*
Butiye	*Ormocarpum trichocarpum*
Butte	*Dracaena ellenbeckiana*
Chachalleh	*Combretum aculeatum*
Chachane	*Acacia paolii*
Dabasso	*Boswellia microphylla*
Dabobes	*Ximenia americana*
Daboobes	*Rhus natalensis*
Dadach	*Acacia tortilis*
Dadacha	*Acacia tortilis*
Dadessa	*Premna resinosa*
Dagams	*Carissa spinarum*
Dainjo	*Commiphora rostrata*
Daisa	*Sesbania sesban*
Dakkar	*Boswellia microphylla*
Dakkar	*Boswellia neglecta*
Dakkar gurate	*Boswellia neglecta*
Deeka	*Grewia tenax*
Deeka dima	*Grewia tembensis*
Deeka imimo	*Grewia tenax*
Dekoku	*Cadaba farinosa*
Denyo	*Mimusops obtusifolia*
Didissa	*Sclerocarya birrea*
Dirraa	*Commiphora rostrata*
Durte	*Sueda monoica*
Ejarse	*Olea europaea*
Elan	*Lawsonia inermis*
Elmi	*Lawsonia inermis*
Gabbe	*Combretum aculeatum*
Gadda	*Zanthoxylum chalybeum*
Gadida	*Allophylus africanus*
Gale	*Rhamnus staddo*
Galgacha hareh	*Boscia coriacea*
Garri	*Ozoroa insignis*
Garse	*Dobera glabra*
Godgodub	*Opilia campestris*
Goldigoloba	*Opilia campestris*
Gorgor	*Caesalpinia trothae*
Gorrah gel	*Capparis tomentosa*
Groha	*Tamarindus indica*
Guduba	*Populus ilicifolia*
Gura gala	*Capparis fascicularis*
Hammaress	*Acacia brevispica*
Hancha dakkara (resin)	*Boswellia neglecta*
Hancha lubadin (incense)	*Boswellia neglecta*
Harores	*Cordia sinensis*
Harowessa	*Grewia bicolor*
Hawacho	*Albizia anthelmintica*
Hidesa	*Dodonaea viscosa*
Horobbo	*Terminalia spinosa*
Hororessa	*Grewia bicolor*
Huda	*Salvadora persica*
Hundad	*Entada leptostachya*
Hwacho dima	*Acacia xanthophloea*
Iddaado	*Acacia senegal*
Ile	*Lannea schweinfurthii*
Irgegud	*Grewia tenax*
Jajab	*Berchemia discolor*
Jirime	*Dichrostachys cinerea*
Kada	*Syzygium guineense*
Karaa	*Strychnos henningsii*
Karaa	*Strychnos mitis*
Karraru	*Acokanthera schimperi*
Karro	*Bridelia taitensis*
Khumbi	*Commiphora myrrha*
Kiltaa	*Ficus glumosa*
Kobor	*Ricinus communis*
Kodi	*Parkinsonia scioana*
Korabo	*Terminalia polycarpa*
Korobo	*Terminalia prunioides*
Kumbi	*Commiphora myrrha*
Kumude	*Lannea alata*
Kurkuurah	*Ziziphus mauritiana*
Kurquura	*Ziziphus mucronata*
Kurrawa	*Dovyalis abyssinica*
Ladana	*Canthium glaucum*
Lalaftu	*Sesamothamnus busseanus*
Locho	*Diospyros scabra*
Mader	*Cordia sinensis*
Mader boor	*Cordia sinensis*
Mader qoowe	*Cordia sinensis*
Mara sisa	*Clerodendrum myricoides*
Meti	*Phoenix reclinata*
Mokh lidi	*Boswellia microphylla*
Moorodah	*Grewia villosa*
Muqli	*Boswellia microphylla*
Murie	*Grewia tenax*
Muruudo	*Grewia villosa*
Nfike	*Teclea simplicifolia*
Nyapo	*Croton megalocarpus*
Obbe	*Adenium obesum*
Oda	*Ficus sur*
Oda	*Ficus sycomorus*
Odda	*Ximenia americana*
Ogomdi	*Grewia tembensis*
Ogomdi	*Grewia villosa*
Pika	*Pappea capensis*
Qaaleda	*Meyna tetraphylla*
Qadu	*Thylachium africanum*
Qadu	*Thylachium thomasii*
Qordobo	*Terminalia polycarpa*
Qotte	*Cordia monoica*
Quaqura	*Ziziphus mauritiana*
Rabiya	*Cassia abbreviata*
Raga	*Harrisonia abyssinica*
Roho	*Diospyros abyssinica*
Rokess	*Combretum molle*
Roqa	*Tamarindus indica*
Sabansa gurach	*Acacia mellifera*
Sadeema	*Acacia senegal*
Saeteh	*Terminalia spinosa*
Sapans	*Acacia senegal*
Sarkam	*Grewia tenax*
Sililach	*Dombeya kirkii*
Siricho	*Spirostachys venenifera*
Siska	*Clausena anisata*
Sukella	*Delonix elata*
Tatessa	*Premna resinosa*

Boran (cont)

Tile	*Lannea schweinfurthii*
Uda	*Ximenia americana*
Urrur	*Lawsonia inermis*
Waachu adi	*Acacia seyal*
Waachu dima	*Acacia seyal var. fistula*
Waachu hallu	*Acacia seyal*
Waddessa	*Cordia africana*
Walena	*Erythrina melanacantha*

Chonyi

Dungatundu (fruit)	*Dovyalis abyssinica*
Fudu (fruit)	*Vitex doniana*
Fudu (fruit)	*Vitex mombassae*
Fudu madzi (fruit)	*Vitex ferruginea*
Fudu unga (fruit)	*Vitex payos*
Fula (fruit)	*Sclerocarya birrea*
Koma	*Hyphaene compressa*
Kunazi (fruit)	*Ziziphus mauritiana*
Kwamba (fruit)	*Flueggea virosa*
Mbalazi (fruit)	*Cajanus cajan*
Mdungatundu	*Dovyalis abyssinica*
Mdungatundu	*Flacourtia indica*
Mdungu	*Zanthoxylum chalybeum*
Mfudu madzi	*Vitex ferruginea*
Mfudu madzi	*Vitex mombassae*
Mfudu unga	*Vitex payos*
Mfula	*Sclerocarya birrea*
Mgugune	*Ziziphus mucronata*
Mkayamba	*Piliostigma thonningii*
Mkayukayu	*Cordia sinensis*
Mkoma	*Hyphaene compressa*
Mkone	*Grewia bicolor*
Mkuha	*Dobera glabra*
Mkuha	*Dobera loranthifolia*
Mkwakwa	*Strychnos madagascariensis*
Mngambo	*Manilkara sansibarensis*
Mng'ambo kapehe	*Mimusops obtusifolia*
Mpweke	*Diospyros squarrosa*
Mswaki	*Salvadora persica*
Mtamba chiko	*Canthium glaucum*
Mtamba chiko	*Meyna tetraphylla*
Mtandamboo	*Carissa spinarum*
Mtsungwi	*Dialium orientale*
Mtundukula	*Ximenia americana*
Mubalazi	*Cajanus cajan*
Muchinjiri	*Dichrostachys cinerea*
Mudzaladowe	*Uvaria scheffleri*
Mueza moyo	*Salvadora persica*
Muizu wa arisa	*Thylachium thomasii*
Mukunazi	*Ziziphus mauritiana*
Mukuyu	*Ficus sur*
Mukuyu	*Ficus sycomorus*
Mukwamba	*Flueggea virosa*
Munago	*Manilkara mochisia*
Mungambo	*Manilkara sansibarensis*
Musumbiji	*Antidesma venosum*
Mutsumbwi	*Dialium orientale*
Mutunguru	*Thylachium thomasii*
Muyu	*Adansonia digitata*
Muzungi	*Moringa oleifera*
Nago (fruit)	*Manilkara mochisia*
Ngambo (fruit)	*Manilkara sansibarensis*

Daasanach

Barbar	*Grewia villosa*
Damich	*Grewia tenax*
Damich arab	*Grewia tembensis*
Damis (plural)	*Grewia tenax*
Dang'ite	*Acacia senegal*
Dhuorich	*Boscia coriacea*
Dong'od nee dhieroka	*Boswellia neglecta*
Gaba	*Ziziphus mauritiana*
Gabite	*Ziziphus mauritiana*
Haluf	*Maerua decumbens*
Hancha dakkara (gum)	*Boswellia neglecta*
Hocholoch	*Moringa oleifera*
Hocholoch	*Moringa stenopetala*
Kada (plural)	*Dobera glabra*
Kadite	*Dobera glabra*
Kulidhe	*Hyphaene compressa*
Kuusam (plural)	*Balanites rotundifolia*
Kuute	*Balanites rotundifolia*
Nyaa (plural)	*Salvadora persica*
Nyedhe	*Salvadora persica*
Saetch	*Acacia elatior*
Seechgeebe	*Acacia tortilis*
Siesgeebe (plural)	*Acacia tortilis*
Suriech	*Grewia bicolor*
Yierit etha	*Kedrostis pseudogijef*

Digo

Chibambara	*Commiphora africana*
Chidori	*Harrisonia abyssinica*
Chigundigundi	*Acacia nilotica*
Chikuro	*Antidesma venosum*
Chikwata	*Acacia senegal*
Chimwemwe	*Gardenia posoquerioides*
Chingade	*Mkilua fragrans*
Chinyapala	*Clausena anisata*
Chitadzi	*Ormocarpum kirkii*
Chitadzi	*Ormocarpum trachycarpum*
Dzova	*Borassus aethiopum*
Ganga	*Euphorbia candelabrum*
Kigundi	*Acacia nilotica*
Kihuro	*Antidesma venosum*
Kikombetsui	*Capparis tomentosa*
Kikwata	*Acacia senegal*
Kirumbuta	*Melia volkensii*
Kisambwe	*Garcinia livingstonei*
Kitoria (fruit)	*Landolphia kirkii*
Libugu	*Landolphia kirkii*
Makindu	*Phoenix reclinata*
Mbalazi	*Cajanus cajan*
Mbambakofi	*Afzelia quanzensis*
Mbanda tchitswa	*Allophylus rubifolius*
Mbara	*Diospyros mespiliformis*
Mbibo	*Anacardium occidentale*
Mbibu	*Anacardium occidentale*
Mbirimbi	*Averrhoa bilimbi*
Mbokwe	*Annona senegalensis*
Mbonobono	*Harungana madagascariensis*
Mbonobono	*Trema orientalis*
Mburuga	*Caesalpinia volkensii*
Mbwale	*Dombeya taylorii*
Mbwana nyahi	*Rhus vulgaris*
Mbwananyahi	*Rhus natalensis*
Mbwanyahi	*Rhus vulgaris*
Mchani	*Albizia lebbeck*
Mchani ndovu	*Albizia versicolor*
Mchimwemwe	*Gardenia volkensii*
Mchindu	*Phoenix reclinata*
Mchiza tsaka	*Xylopia parviflora*
Mchofi	*Bruguiera gymnorrhiza*

Digo (cont)

Mdudu	*Bridelia micrantha*
Mdungu	*Zanthoxylum chalybeum*
Mfenesi	*Artocarpus heterophyllus*
Mfudu	*Vitex ferruginea*
Mfudu	*Vitex payos*
Mfudu madzi	*Vitex mombassae*
Mfunda	*Craibia brevicaudata*
Mfunda	*Craibia brevicaudata*
Mfunda	*Crotalaria agatiflora*
Mfune	*Sterculia appendiculata*
Mfunga tanzu	*Garcinia livingstonei*
Mgama	*Mimusops somalensis*
Mgongolo	*Combretum schumannii*
Mgorodo	*Ziziphus mucronata*
Mgoza	*Sterculia africana*
Mgwanyahi	*Rhus natalensis*
Mkalakala	*Bridelia cathartica*
Mkapu	*Pandanus kirkii*
Mkapu	*Pandanus rabaiensis*
Mkelekele	*Crotalaria axillaris*
Mkilifi	*Azadirachta indica*
Mkitaji	*Ormocarpum kirkii*
Mkitaji	*Ormocarpum trachycarpum*
Mkoma	*Hyphaene compressa*
Mkoma lume	*Hyphaene compressa*
Mkone	*Grewia tembensis*
Mkonga	*Balanites wilsoniana*
Mkonotsaka	*Harungana madagascariensis*
Mkpwoko	*Rhizophora mucronata*
Mkua	*Paramacrolobium coeruleum*
Mkue	*Julbernardia magnistipulata*
Mkulu	*Diospyros cornii*
Mkulu	*Diospyros mespiliformis*
Mkunguma	*Sorindeia madagascariensis*
Mkwadzu	*Tamarindus indica*
Mkwakwa	*Strychnos madagascariensis*
Mkwamba	*Flueggea virosa*
Mleha	*Newtonia paucijuga*
Mnazi	*Cocos nucifera*
Mng'ambo	*Manilkara sansibarensis*
Mng'ongo	*Sclerocarya birrea*
Mnguonguo	*Antiaris toxicaria*
Mngweni	*Uvaria acuminata*
Mnyala	*Cussonia zimmermannii*
Mnyapala	*Clausena anisata*
Mnyondoiya	*Flacourtia indica*
Mnyumbu	*Lannea schweinfurthii*
Mnyungwinyungwi	*Cordyla africana*
Mongololi	*Acacia drepanolobium*
Moza nyama	*Ehretia bakeri*
Mpalawanda	*Markhamia zanzibarica*
Mpingo	*Dalbergia melanoxylon*
Mpira	*Landolphia buchananii*
Mpira	*Landolphia kirkii*
Mpwakapwaka	*Blighia unijugata*
Mrihi	*Brachystegia spiciformis*
Mrihi	*Paramacrolobium coeruleum*
Msalasanga	*Ozoroa obovata*
Msami	*Synsepalum brevipes*
Msandarusi	*Hymenaea verrucosa*
Msangasanga	*Ozoroa insignis*
Msufi	*Ceiba pentandra*
Mswaki	*Salvadora persica*
Mtambuu	*Carissa spinarum*
Mtomoko	*Annona cherimola*
Mtsamvia	*Synsepalum brevipes*
Mtsamvia	*Synsepalum msolo*
Mtsani ndovu	*Albizia versicolor*
Mtsapu	*Encephalartos hildebrandtii*
Mtsekeshe	*Piliostigma thonningii*
Mtsezi	*Manilkara sulcata*
Mtsokolangongo	*Maytenus senegalensis*
Mtsunga mbuzi	*Apodytes dimidiata*
Mtundukula	*Ximenia americana*
Muarubaini	*Azadirachta indica*
Mudhungu	*Zanthoxylum chalybeum*
Mudi madi	*Trichilia emetica*
Mudzwi	*Avicennia marina*
Mugandi	*Ficus bussei*
Mugugune	*Ziziphus mucronata*
Muhonga	*Strychnos madagascariensis*
Muhonga	*Strychnos spinosa*
Muhowe	*Thespesia danis*
Muhuhu	*Brachylaena huillensis*
Muhumba	*Cassia afrofistula*
Muhumba	*Senna singueana*
Muhumba mkulu	*Cassia abbreviata*
Mujehe	*Faidherbia albida*
Mukunazi	*Ziziphus mauritiana*
Mukungu	*Terminalia catappa*
Mungambo	*Manilkara sansibarensis*
Mungowengowe	*Apodytes dimidiata*
Mungweni	*Uvaria lucida*
Munwa madzi	*Trichilia emetica*
Munwa madzi	*Rhoicissus tridentata*
Munyama	*Hymenaea verrucosa*
Murindaziya	*Sesbania bispinosa*
Mursapungu	*Premna resinosa*
Mursapungu	*Strychnos spinosa*
Musikiro	*Strychnos madagascariensis*
Mutambuu	*Celtis philippensis*
Mutseketse	*Piliostigma thonningii*
Muungo	*Saba comorensis*
Muuyu	*Adansonia digitata*
Muvudza kondo	*Allophylus rubifolius*
Muvuma	*Vangueria apiculata*
Muziahi	*Syzygium cordatum*
Muziahi	*Syzygium guineense*
Mviru	*Vangueria infausta*
Mvuma	*Premna chrysoclada*
Mvuma	*Premna resinosa*
Mvumo	*Borassus aethiopum*
Mvure	*Milicia excelsa*
Mwadiga	*Adenium obesum*
Mwagaivu	*Stereospermum kunthianum*
Mwambangoma	*Balanites aegyptiaca*
Mwanga kululu	*Terminalia spinosa*
Mwanga	*Terminalia spinosa*
Mwarobaini	*Azadirachta indica*
Mwawa	*Hirtella zanzibarica*
Mwono	*Ricinus communis*
Myenze	*Parkia filicoidea*
Mzambarau	*Syzygium cumini*
Mzengatsongo	*Antidesma venosum*
Mzihae	*Syzygium cordatum*
Mzuwari	*Thylachium thomasii*
Nchivuri	*Blighia unijugata*
Ndimu wa takani	*Teclea simplicifolia*
Ndondu	*Stereospermum kunthianum*
Ngolokolo (fruit)	*Borassus aethiopum*
Nzezi	*Manilkara sulcata*
Utudi	*Euphorbia tirucalli*

Duruma

Kifunga tanzu	*Scorodophloeus fischeri*
Madungatundu	*Flacourtia indica*
Manga msuri	*Terminalia brevipes*
Maringo	*Dalbergia melanoxylon*
Mgala	*Erythrina abyssinica*
Mgala	*Erythrina sacleuxii*
Mgundi	*Acacia nilotica*
Mkoko	*Rhizophora mucronata*
Mkunazi	*Ziziphus mucronata*
Mlalali	*Populus ilicifolia*
Mnyandakanda	*Lecaniodiscus fraxinifolius*
Mpweke	*Diospyros mespiliformis*
Msanzanza	*Sorindeia madagascariensis*
Msarakana	*Spirostachys africana*
Mtanga	*Spirostachys venenifera*
Mtsonga mbanga	*Boscia salicifolia*
Mugoto	*Combretum molle*
Mukurasa	*Pandanus rabaiensis*
Mulowe	*Carissa spinarum*
Munga	*Acacia elatior*
Muyamavi	*Ehretia bakeri*
Mvumo	*Borassus aethiopum*
Mwadiga	*Adenium obesum*
Nyaeppo	*Croton megalocarpus*

Embu

Kirurite	*Tithonia diversifolia*
Kithare	*Dracaena steudneri*
Kitherema	*Lannea triphylla*
Mburu (fruit)	*Vitex payos*
Mubebu	*Trema orientalis*
Muburu	*Vitex payos*
Muchugu	*Cajanus cajan*
Muchunguchungu	*Crotalaria axillaris*
Mugucua	*Zanthoxylum chalybeum*
Mugumo	*Ficus thonningii*
Mukawa	*Carissa spinarum*
Mukeu	*Dombeya burgessiae*
Mukinduri	*Croton megalocarpus*
Mukunguu	*Erythrina melanacantha*
Mukuu	*Ficus sur*
Mukuu	*Ficus sycomorus*
Munyanwe	*Harungana madagascariensis*
Mura	*Parinari curatellifolia*
Muringa	*Cordia africana*
Murithi	*Combretum collinum*
Mururi	*Milicia excelsa*
Mururuka	*Combretum collinum*
Mururuku	*Terminalia brownii*
Musemba	*Adansonia digitata*
Mushishuna	*Rhus ruspolii*
Mutandambogo	*Capparis sepiaria*
Mutare	*Rubus pinnatus*
Mutathi	*Kigelia africana*
Mutero	*Olea europaea*
Muthaguta	*Cassipourea malosana*
Muthigira	*Acacia mellifera*
Muthigiu	*Rhus vulgaris*
Muthithi	*Tamarindus indica*
Muthithio	*Antidesma venosum*
Muu	*Markhamia lutea*
Muvangta	*Millettia dura*
Muvuti	*Erythrina abyssinica*
Muzura	*Ocotea usambarensis*
Mwacariki	*Ricinus communis*
Ndare (fruit)	*Rubus pinnatus*
Nguyu	*Ficus sur*
Nguyu	*Ficus sycomorus*
Njugu (seeds)	*Cajanus cajan*
Nkawa (fruit)	*Carissa spinarum*

English

Abyssinian coral tree	*Erythrina abyssinica*
Abyssinian diospyros	*Diospyros abyssinica*
Abyssinian jujube	*Ziziphus abyssinica*
African blackwood	*Dalbergia melanoxylon*
African ebony	*Dalbergia melanoxylon*
African ebony	*Diospyros mespiliformis*
African fan palm	*Borassus aethiopum*
African holly	*Ilex mitis*
African locust bean	*Parkia filicoidea*
African star chestnut	*Sterculia africana*
African sterculia	*Sterculia africana*
African tulip tree	*Spathodea campanulata*
African wild olive	*Olea europaea*
Afrocrania	*Cornus volkensii*
Akasinga	*Celtis africana*
Ant-gall acacia	*Acacia drepanolobium*
Apple-ring acacia	*Faidherbia albida*
Areca nut	*Areca catechu*
Areca palm	*Areca catechu*
Arrow poison tree	*Acokanthera schimperi*
Athel tree	*Tamarix aphylla*
Avocado pear	*Persea americana*
Azanza	*Thespesia garckeana*
Baobab	*Adansonia digitata*
Barkcloth fig	*Ficus natalensis*
Bastard almond	*Terminalia catappa*
Bauhinia	*Bauhinia variegata*
Beach she-oak	*Casuarina equisetifolia*
Beechwood	*Faurea saligna*
Ben oil tree	*Moringa oleifera*
Benjamin's fig	*Ficus benjamina*
Betel nut	*Areca catechu*
Bilimbi	*Averrhoa bilimbi*
Bird cherry	*Berchemia discolor*
Bitter albizia	*Albizia amara*
Bitter leaf	*Vernonia amygdalina*
Black plum	*Vitex doniana*
Black plum	*Vitex payos*
Black wattle	*Acacia mearnsii*
Black-galled acacia	*Acacia drepanolobium*
Borassus palm	*Borassus aethiopum*
Brachystegia	*Brachystegia spiciformis*
Breadfruit	*Artocarpus altilis*
Buffalo thorn	*Ziziphus mucronata*
Bunya bunya	*Araucaria bidwillii*
Bunya pine	*Araucaria bidwillii*
Calabash nutmeg	*Monodora myristica*
Calliandra	*Calliandra calothyrsus*
Camdeboo stinkwood	*Celtis africana*
Camel's foot	*Bauhinia variegata*
Camel's foot	*Piliostigma thonningii*
Cape chestnut	*Calodendrum capense*
Cape fig	*Ficus sur*
Cape mahogany	*Trichilia emetica*
Cape pappea	*Pappea capensis*
Cape thorn	*Ziziphus mucronata*
Carambola	*Averrhoa carambola*
Cashewnut	*Anacardium occidentale*
Castor oil plant	*Ricinus communis*
Catch thorn	*Ziziphus abyssinica*
Catjang	*Cajanus cajan*

English (cont)

Charcoal tree	*Trema orientalis*
Cherimoya	*Annona cherimola*
China tree	*Melia azedarach*
Chinaberry	*Melia azedarach*
Chorisia	*Ceiba insignis*
Circassian bead tree	*Adenanthera pavonina*
Coconut palm	*Cocos nucifera*
Common flacourtia	*Flacourtia indica*
Common wild medlar	*Vangueria madagascariensis*
Congo pea	*Cajanus cajan*
Cucumber tree	*Averrhoa bilimbi*
Custard apple	*Annona cherimola*
Custard apple	*Annona squamosa*
Date palm	*Phoenix dactylifera*
Desert date	*Balanites aegyptiaca*
Desert rose	*Adenium obesum*
Diamond-leaved euclea	*Euclea divinorum*
Dombeya	*Dombeya rotundifolia*
Doum palm	*Hyphaene compressa*
Drumstick tree	*Moringa oleifera*
Dwarf date palm	*Phoenix reclinata*
Dwarf doum palm	*Hyphaene coriacea*
East African camphor wood	*Ocotea usambarensis*
East African cedar	*Juniperus procera*
East African cotton tree	*Bombax rhodognaphalon*
East African greenheart	*Warburgia ugandensis*
East African olive	*Olea capensis*
East African sandalwood	*Osyris lanceolata*
East African satinwood	*Zanthoxylum gilletii*
East African yellow-wood	*Podocarpus latifolius*
East Indian walnut	*Albizia lebbeck*
Egyptian rattle pod	*Sesbania sesban*
Ekebergia	*Ekebergia capensis*
Elephant orange	*Strychnos spinosa*
Elgon olive	*Olea capensis*
Falcon's claw acacia	*Acacia polyacantha*
False medlar	*Vangueria infausta*
False mvule	*Antiaris toxicaria*
False sandalwood	*Ximenia americana*
Fern tree	*Filicium decipiens*
Fever tree	*Acacia xanthophloea*
Finger euphorbia	*Euphorbia tirucalli*
Flamboyant	*Delonix regia*
Flame tree	*Delonix regia*
Flat-top acacia	*Acacia abyssinica*
Frankincense	*Boswellia neglecta*
Giant yellow mulberry	*Myrianthus holstii*
Gmelina	*Gmelina arborea*
Governor's plum	*Flacourtia indica*
Guava	*Psidium guajava*
Guinea waterberry	*Syzygium guineense*
Gum arabic acacia	*Acacia senegal*
Gum arabic tree	*Acacia senegal*
Gum copal tree	*Hymenaea verrucosa*
Gum myrrh tree	*Commiphora myrrha*
Gunpowder tree	*Trema orientalis*
Henna	*Lawsonia inermis*
Henning's strychnos	*Strychnos henningsii*
Hildebrandt's encephalartos	*Encephalartos hildebrandtii*
Hog plum	*Spondias cytherea*
Honey acacia	*Acacia mellifera*
Hoop pine	*Araucaria cunninghamii*
Horse-radish tree	*Moringa oleifera*
Horsetail tree	*Casuarina equisetifolia*
Indian almond	*Terminalia catappa*
Indian ash	*Acrocarpus fraxinifolius*
Indian plum	*Flacourtia indica*
Jacaranda	*Jacaranda mimosifolia*
Jackal berry	*Diospyros mespiliformis*
Jackfruit	*Artocarpus heterophyllus*
Jambolan	*Syzygium cumini*
Java fig	*Ficus benjamina*
Java plum	*Syzygium cumini*
Jerusalem thorn	*Parkinsonia aculeata*
Jujube	*Ziziphus mauritiana*
Kapok tree	*Ceiba pentandra*
Kei apple	*Dovyalis caffra*
Knobwood	*Zanthoxylum chalybeum*
Lead tree	*Leucaena leucocephala*
Lemon bottlebrush	*Callistemon citrinus*
Leucaena	*Leucaena diversifolia*
Leucaena	*Leucaena leucocephala*
Lion's claw	*Crotalaria agatiflora*
Long-pod cassia	*Cassia abbreviata*
Loquat	*Eriobotrya japonica*
Macadamia nut	*Macadamia integrifolia*
Madagascar terminalia	*Terminalia mantaly*
Madras thorn	*Pithecellobium dulce*
Mahogany bean	*Afzelia quanzensis*
Mango	*Mangifera indica*
Mangrove	*Avicennia marina*
Manila tamarind	*Pithecellobium dulce*
Marula	*Sclerocarya birrea*
Mauritius thorn	*Caesalpinia decapetala*
Melina	*Gmelina arborea*
Meru oak	*Vitex keniensis*
Mexican apple	*Casimiroa edulis*
Mexican ash	*Fraxinus pennsylvanica*
Mexican cypress	*Cupressus lusitanica*
Mexican lilac	*Gliricidia sepium*
Mexican sunflower	*Tithonia diversifolia*
Mexican weeping pine	*Pinus patula*
Milk berry	*Manilkara mochisia*
Milkwood	*Mimusops kummel*
Mimusops	*Mimusops kummel*
Mobola plum	*Parinari curatellifolia*
Mombia plum	*Spondias cytherea*
Monkey pod	*Albizia saman*
Moreton Bay pine	*Araucaria cunninghamii*
Moringa	*Moringa oleifera*
Mother of cocoa	*Gliricidia sepium*
Mountain bamboo	*Arundinaria alpina*
Mulberry	*Morus alba*
Mysore thorn	*Caesalpinia decapetala*
Naivasha thorn	*Acacia xanthophloea*
Nandi flame	*Spathodea campanulata*
Natal rhus	*Rhus natalensis*
Neem	*Azadirachta indica*
Nile thorn	*Acacia nilotica*
Orange-milk tree	*Harungana madagascariensis*
Orchid tree	*Bauhinia variegata*
Ozoroa	*Ozoroa insignis*
Palmyra palm	*Borassus aethiopum*
Parasol tree	*Polyscias fulva*
Pear wood	*Apodytes dimidiata*
Pencil cedar	*Juniperus procera*
Pepper tree	*Schinus molle*
Persian lilac	*Melia azedarach*
Peruvian mastic	*Schinus molle*
Peruvian thevetia	*Thevetia peruviana*
Pod mahogany	*Afzelia quanzensis*
Prickly sesbania	*Sesbania bispinosa*
Purging nut	*Jatropha curcas*

English (cont)

Quinine tree	*Rauvolfia caffra*
Raffia palm	*Raphia farinifera*
Rain tree	*Albizia saman*
Rapanea	*Myrsine melanophloeos*
Red gram	*Cajanus cajan*
Red milkwood	*Mimusops kummel*
Red sandalwood tree	*Adenanthera pavonina*
Red thorn	*Acacia lahai*
Red-fruited podo	*Podocarpus latifolius*
Red-hot-poker tree	*Erythrina abyssinica*
River bean	*Sesbania sesban*
River litchi	*Lecaniodiscus fraxinifolius*
River oak	*Casuarina cunninghamiana*
River red gum	*Eucalyptus camaldulensis*
River she-oak	*Casuarina cunninghamiana*
Saman	*Albizia saman*
Sand olive	*Dodonaea viscosa*
Sandpaper tree	*Cordia monoica*
Sausage tree	*Kigelia africana*
Scarlet bottlebrush	*Callistemon citrinus*
Screwpine	*Pandanus kirkii*
Sedge plant	*Lippia javanica*
Sesbania	*Sesbania sesban*
Shingle tree	*Acrocarpus fraxinifolius*
Siamese senna	*Senna siamea*
Silk-cotton tree	*Ceiba pentandra*
Silky oak	*Grevillea robusta*
Siris	*Albizia lebbeck*
Snot apple	*Thespesia garckeana*
Sour plum	*Ximenia americana*
Soursop	*Annona muricata*
Spiny monkey ball	*Strychnos spinosa*
Star fruit	*Averrhoa carambola*
Steudner's dragon tree	*Dracaena steudneri*
Strangler fig	*Ficus thonningii*
Sweetsop	*Annona squamosa*
Sycamore fig	*Ficus sycomorus*
Sydney blue gum	*Eucalyptus saligna*
Tall sterculia	*Sterculia appendiculata*
Tallow nut	*Ximenia americana*
Tamarind	*Tamarindus indica*
Tamarisk	*Tamarix nilotica*
Tana River poplar	*Populus ilicifolia*
Tasmanian blue gum	*Eucalyptus globulus*
Thika fern leaf	*Filicium decipiens*
Tipu tree	*Tipuana tipu*
Tithonia	*Tithonia diversifolia*
Toon tree	*Toona ciliata*
Toothbrush tree	*Salvadora persica*
Tree cassava	*Manihot glaziovii*
Tree hibiscus	*Thespesia garckeana*
Tree tomato	*Cyphomandra betacea*
Umbrella thorn	*Acacia tortilis*
Variegated bauhinia	*Bauhinia variegata*
Wait-a-bit thorn	*Acacia brevispica*
Waterberry tree	*Syzygium cordatum*
Waterwood	*Syzygium cordatum*
Whistling pine	*Casuarina equisetifolia*
Whistling thorn	*Acacia drepanolobium*
White pear	*Apodytes dimidiata*
White sapote	*Casimiroa edulis*
White thorn acacia	*Acacia seyal*
White thorn	*Acacia seyal*
Wild banana	*Ensete ventricosum*
Wild custard apple	*Annona senegalensis*
Wild date palm	*Phoenix reclinata*
Wild kapok	*Bombax rhodognaphalon*
Wild medlar	*Vangueria infausta*
Wild tea	*Lippia javanica*
Willow-leaved hakea	*Hakea salicifolia*
Woman's tongue tree	*Albizia lebbeck*
Yeheb nut	*Cordeauxia edulis*
Yellow mombin	*Spondias cytherea*
Yellow oleander	*Thevetia peruviana*
Yellow-barked acacia	*Acacia xanthophloea*

Gabra

Aadde	*Salvadora persica*
Adama	*Euphorbia candelabrum*
Baddana	*Balanites aegyptiaca*
Baddana	*Balanites rotundifolia*
Burkuke	*Acacia nilotica*
Burquqe	*Acacia nilotica*
Bur'uk'e	*Acacia nilotica*
Butiye	*Ormocarpum trichocarpum*
Butte	*Dracaena ellenbeckiana*
Chachane	*Acacia paolii*
Chanchali	*Combretum aculeatum*
Dabobbessa	*Rhus natalensis*
Daddach	*Acacia tortilis*
Dagams	*Carissa spinarum*
Dagamsa	*Carissa spinarum*
Dakkara	*Boswellia neglecta*
D'eeka	*Grewia tenax*
Deekuku	*Cadaba farinosa*
Diaddaca	*Acacia tortilis*
Durte	*Sueda monoica*
Gaale	*Kedrostis gijef*
Gaddaa	*Zanthoxylum chalybeum*
Hammeessa	*Commiphora africana*
Hikho	*Combretum aculeatum*
Idaado	*Acacia senegal*
Iddado	*Acacia seyal*
K'arraaru	*Acokanthera schimperi*
K'orrobo	*Terminalia spinosa*
K'alk'acha	*Boscia coriacea*
K'arrari	*Sterculia africana*
K'urk'uura	*Ziziphus abyssinica*
Lookko	*Diospyros abyssinica*
Madeer	*Cordia sinensis*
Meetti	*Hyphaene compressa*
Nyaap'po	*Croton megalocarpus*
Obbe	*Adenium obesum*
Ogomdi	*Grewia villosa*
Rukeesa	*Combretum molle*
Sa'pans gurrach	*Acacia mellifera*
Sukella	*Delonix elata*
Waleena	*Erythrina melanacantha*

Giriama

Dungatundu	*Dovyalis abyssinica*
Fula	*Sclerocarya birrea*
Howe (fruit)	*Thespesia danis*
Kathimi kapala	*Clausena anisata*
Kindu (fruit)	*Phoenix reclinata*
Kindwi (fruit)	*Phoenix reclinata*
Kinuka muhondo	*Sesbania sesban*
Kitadzi	*Ormocarpum kirkii*
Kitadzi	*Ormocarpum trachycarpum*
Kithongothongo	*Euphorbia candelabrum*
Kitsapu	*Encephalartos hildebrandtii*
Koma (fruit)	*Hyphaene compressa*
Kone (fruit)	*Grewia plagiophylla*

Giriama (cont)

Konga (fruit)	*Balanites aegyptiaca*
Kunazi (fruit)	*Ziziphus mauritiana*
Kwaju (fruit)	*Tamarindus indica*
Kwamba (fruit)	*Flueggea virosa*
M'bathe	*Strychnos henningsii*
M'bat'the	*Diospyros consolatae*
M'belenga	*Lecaniodiscus fraxinifolius*
M'birimbi	*Averrhoa bilimbi*
M'bono	*Ricinus communis*
M'buruga	*Caesalpinia bonduc*
M'bwaga zembe	*Newtonia hildebrandtii*
M'bwaga zembe	*Newtonia paucijuga*
M'thupa	*Millettia usaramensis*
Madzala (fruit)	*Uvaria lucida*
Majaje (fruit)	*Strychnos madagascariensis*
Manga	*Lannea alata*
Masuzi	*Cassipourea euryoides*
Matongazi (fruit)	*Landolphia kirkii*
Maungo (fruit)	*Landolphia kirkii*
Mauyu (fruit)	*Adansonia digitata*
Maviru (fruit)	*Vangueria infausta*
Mbalazi	*Cajanus cajan*
Mbarawa	*Xylopia parviflora*
Mderia	*Cordia sinensis*
Mdevere	*Flacourtia indica*
Mdimu mwitu	*Balanites wilsoniana*
Mdungatundu	*Dovyalis abyssinica*
Mdungatundu	*Flacourtia indica*
Mdzaladowe	*Uvaria scheffleri*
Mfenesi	*Artocarpus heterophyllus*
Mfudu madzi	*Vitex ferruginea*
Mfudu	*Vitex payos*
Mfula	*Sclerocarya birrea*
Mfunda	*Craibia brevicaudata*
Mfunda	*Crotalaria agatiflora*
Mfunda	*Cynometra webberi*
Mfune	*Sterculia appendiculata*
Mfuranje	*Canthium glaucum*
Mgalana	*Trichilia emetica*
Mgugune	*Ziziphus mucronata*
Mgugune	*Ziziphus pubescens*
Mhirondo	*Antidesma venosum*
Mjafari	*Zanthoxylum chalybeum*
Mjombo	*Brachystegia spiciformis*
Mjungumoto	*Salvadora persica*
Mkadi	*Pandanus kirkii*
Mkalakala	*Bridelia cathartica*
Mkanju	*Anacardium occidentale*
Mkaraza	*Pandanus rabaiensis*
Mkayamba	*Piliostigma thonningii*
Mkayukayu	*Cordia sinensis*
Mkilifi	*Azadirachta indica*
Mkilua	*Mkilua fragrans*
Mkimwemwe	*Gardenia volkensii*
Mkindu	*Phoenix reclinata*
Mkindwi	*Phoenix reclinata*
Mkithunga	*Harrisonia abyssinica*
Mkitsano	*Premna resinosa*
Mkoko	*Bruguiera gymnorrhiza*
Mkoko	*Rhizophora mucronata*
Mkokoa	*Maytenus senegalensis*
Mkoma	*Hyphaene compressa*
Mkone	*Grewia plagiophylla*
Mkone kilaa	*Grewia tenax*
Mkonga	*Balanites aegyptiaca*
Mkonga	*Balanites wilsoniana*
Mkuha	*Dobera glabra*
Mkuha	*Dobera loranthifolia*
Mkulu	*Berchemia discolor*
Mkulu	*Diospyros cornii*
Mkulu gongo	*Berchemia discolor*
Mkulube	*Maerua decumbens*
Mkulukulu	*Dobera glabra*
Mkuluwe	*Diospyros mespiliformis*
Mkulwe	*Diospyros mespiliformis*
Mkumbo	*Thespesia danis*
Mkungu	*Terminalia catappa*
Mkunguma	*Sorindeia madagascariensis*
Mkwaju	*Tamarindus indica*
Mkwakwa	*Strychnos madagascariensis*
Mkwamba	*Flueggea virosa*
Mlala	*Diospyros abyssinica*
Mlala	*Hyphaene compressa*
Mlalambuzi	*Boscia angustifolia*
Mnazi	*Cocos nucifera*
Mng'ambo kapehe	*Mimusops obtusifolia*
Mng'ambo maziya	*Manilkara sansibarensis*
Mnguonguo	*Antiaris toxicaria*
Mnthungu	*Lannea alata*
Mnyala	*Cussonia zimmermannii*
Mnyumbu	*Lannea schweinfurthii*
Mrihi	*Brachystegia spiciformis*
Msange	*Hymenaea verrucosa*
Msigande	*Opilia amentacea*
Msimbiji	*Antidesma venosum*
Mswaki	*Salvadora persica*
Mtamba kiko	*Meyna tetraphylla*
Mtandamboo	*Carissa spinarum*
Mtomoko	*Annona cherimola*
Mtoria	*Landolphia kirkii*
Mtsani	*Mimusops obtusifolia*
Mtsedzi	*Manilkara sulcata*
Mtsemeri	*Acacia nilotica*
Mtsodzagunga	*Capparis tomentosa*
Mtsungwi	*Dialium holtzii*
Mtsungwi	*Dialium orientale*
Mtswi	*Avicennia marina*
Mtundukula	*Ximenia americana*
Muchalanda	*Markhamia zanzibarica*
Muchinjiri	*Dichrostachys cinerea*
Mudhungu	*Zanthoxylum chalybeum*
Mudodoma	*Cynometra webberi*
Mudzala	*Uvaria lucida*
Mudzala dowe	*Uvaria lucida*
Mudzala simba	*Monodora grandidieri*
Mudzaladowe	*Uvaria scheffleri*
Mudzu	*Avicennia marina*
Mueza moyo	*Salvadora persica*
Mufudzohi	*Garcinia livingstonei*
Mufula	*Sclerocarya birrea*
Mugandi	*Ficus bussei*
Mugugune	*Ziziphus mucronata*
Mugumo	*Borassus aethiopum*
Mugurure	*Combretum schumannii*
Mugwada paka	*Capparis sepiaria*
Mugwada paka	*Capparis tomentosa*
Muhawa	*Millettia usaramensis*
Muhegakululu	*Acacia nilotica*
Muhingo	*Dalbergia melanoxylon*
Muhowe	*Thespesia danis*
Muhuhu	*Brachylaena huillensis*
Muhumba	*Cassia afrofistula*
Muhumba mkulu	*Cassia abbreviata*

Giriama (cont)

Muhumbu	*Senna singueana*
Muizu wa arisa	*Thylachium thomasii*
Mujaje	*Strychnos madagascariensis*
Mujaje	*Strychnos spinosa*
Mukironda	*Ehretia bakeri*
Mukivure	*Lannea schweinfurthii*
Mukololo	*Margaritaria discoidea*
Mukuikwaiyu	*Ozoroa obovata*
Mukulu	*Dobera glabra*
Mukuna mbawa	*Xylopia parviflora*
Mukunazi	*Ziziphus mauritiana*
Munago	*Manilkara mochisia*
Mung'ambo	*Manilkara sansibarensis*
Munwamadzi	*Trichilia emetica*
Munyahi	*Scutia myrtina*
Munyanga kitswa	*Allophylus rubifolius*
Munyee	*Dovyalis macrocalyx*
Muoria	*Sterculia africana*
Mupweke	*Diospyros squarrosa*
Muratina	*Kigelia africana*
Murori	*Uvaria acuminata*
Musishwi	*Commiphora africana*
Mutakuma	*Annona senegalensis*
Mutanga	*Spirostachys venenifera*
Mutongazi	*Landolphia kirkii*
Mutsani	*Sideroxylon inerme*
Mutsugutsugu	*Trema orientalis*
Mutsungwi	*Dialium orientale*
Mutunguru	*Thylachium thomasii*
Muungo	*Landolphia kirkii*
Muuyu	*Adansonia digitata*
Muviru	*Vangueria infausta*
Muyama	*Croton megalocarpus*
Muzungi	*Moringa oleifera*
Mviru	*Vangueria infausta*
Mvuma nyuchi	*Premna chrysoclada*
Mvuma nyuchi	*Premna resinosa*
Mvuma	*Premna chrysoclada*
Mvuma	*Premna resinosa*
Mvure	*Milicia excelsa*
Mwadiga	*Adenium obesum*
Mwamba	*Afzelia quanzensis*
Mwanakagwagwa	*Lannea schimperi*
Mwanga	*Terminalia mantaly*
Mwanga	*Terminalia prunioides*
Mwanga	*Terminalia spinosa*
Mware	*Bombax rhodognaphalon*
Mzahe	*Julbernardia magnistipulata*
Mzambarau	*Syzygium cumini*
Mziazia	*Maytenus senegalensis*
Mzongolo	*Hymenaea verrucosa*
Mzunguzungu	*Trema orientalis*
Nago (fruit)	*Manilkara mochisia*
Nazi (fruit)	*Cocos nucifera*
Ng'ambo (fruit)	*Manilkara sansibarensis*
Tomoko (fruit)	*Annona cherimola*
Tsungwi (fruit)	*Dialium orientale*
Tundukula (fruit)	*Ximenia americana*
Utungu	*Acokanthera schimperi*
Virori (fruit)	*Uvaria acuminata*
Zambarau (fruit)	*Syzygium cumini*

Ilchamus

Afuguba	*Opilia amentacea*
Afuguba	*Opilia campestris*
Lama	*Ximenia americana*
Lamalogi	*Maerua decumbens*
Lamaloki	*Maerua decumbens*
Lderendei	*Ziziphus mucronata*
Lderkesi	*Acacia senegal*
Lera	*Acacia seyal*
Lgweita	*Cordia sinensis*
Lkiloriti	*Acacia nilotica*
Lkogomi	*Grewia tembensis*
Lkunyi	*Acacia tortilis*
Llkogomi	*Grewia tenax*
Lmampaai	*Ziziphus mauritiana*
Lmang'wa	*Sclerocarya birrea*
Lmisigiyo	*Rhus natalensis*
Lmisigiyoi	*Rhus natalensis*
Lmuleel	*Cordia monoica*
Lnaboli	*Ficus sur*
Lnaboli	*Ficus sycomorus*
Loisuki	*Zanthoxylum chalybeum*
Longoosoiron	*Flueggea virosa*
Lousukui	*Zanthoxylum chalybeum*
Lowa	*Balanites aegyptiaca*
Lowei	*Balanites aegyptiaca*
Lparrua	*Hyphaene compressa*
Lparruai	*Hyphaene compressa*
Lpupo	*Grewia villosa*
Lpupoi	*Grewia villosa*
Lsek	*Cordia monoica*
Lseki	*Cordia monoica*
Ltepes	*Acacia tortilis*
Mobonu	*Ricinus communis*
Mulalati	*Populus ilicifolia*
Muleelin	*Cordia monoica*
Nkampiror	*Lannea triphylla*
Nkampurori	*Lannea triphylla*
Salapani	*Cordia sinensis*
Sericho	*Boscia coriacea*
Serichoi	*Boscia coriacea*
Sukele	*Delonix elata*

Kamba

Ikengeta	*Senna siamea*
Ikoloviu	*Persea americana*
Ikulutui	*Ensete ventricosum*
Ilaa	*Tithonia diversifolia*
Ilala (Kitui: Mbitini)	*Hyphaene compressa*
Ilangala	*Solanecio mannii*
Ilawa	*Grewia bicolor*
Isavi	*Albizia glaberrima*
Itandamboo	*Capparis sepiaria*
Itithi	*Combretum collinum*
Iunga (plural)	*Acacia drepanolobium*
Iviinzi	*Crotalaria agatiflora*
Kalamba	*Sesamothamnus busseanus*
Kiae	*Strychnos spinosa*
Kiathani	*Flacourtia indica*
Kikaanga kanywa	*Garcinia livingstonei*
Kikaati	*Faurea saligna*
Kikaitha	*Dobera glabra*
Kikalawa	*Grewia bicolor*
Kikambua	*Dovyalis caffra*
Kikathani	*Flacourtia indica*
Kikawa	*Carissa spinarum*
Kikethuki	*Faurea saligna*
Kikolakolania	*Strychnos madagascariensis*
Kikole	*Acacia senegal*
Kikolya (Makueni)	*Lannea alata*

Kamba (cont)

Kikomoa	*Vangueria madagascariensis*
Kikumi	*Grewia mollis*
Kikunguu	*Erythrina burtii*
Kikwasu (Makueni)	*Tamarindus indica*
Kilali	*Uvaria scheffleri*
Kilia (Makueni)	*Saba comorensis*
Kiliva	*Commiphora eminii*
Kilului	*Balanites glabra*
Kimee	*Strychnos spinosa*
Kimwea	*Acacia kirkii*
Kimweya	*Acacia xanthophloea*
Kinako (Kibwezi)	*Manilkara mochisia*
King'ola (Mwingi)	*Acacia senegal*
King'ole (Machakos)	*Acacia senegal*
King'olola	*Acacia senegal*
Kinondo	*Boswellia neglecta*
Kinyua	*Acacia hockii*
Kiongoa	*Saba comorensis*
Kiongoa (Makueni)	*Landolphia buchananii*
Kiongwa (Kitui)	*Saba comorensis*
Kionywe	*Ficus glumosa*
Kionywe	*Ficus ingens*
Kisaa (Mwala)	*Manilkara mochisia*
Kisaaya (Makueni)	*Berchemia discolor*
Kisanawa (Kitui)	*Berchemia discolor*
Kisewa (Machakos)	*Acacia seyal*
Kisewa	*Acacia nilotica*
Kisiu	*Dobera glabra*
Kisiu	*Dobera loranthifolia*
Kisya	*Albizia gummifera*
Kisya	*Sterculia africana*
Kitae	*Morus alba*
Kitae	*Rubus pinnatus*
Kitandamboo	*Caesalpinia decapetala*
Kitangure	*Milicia excelsa*
Kiteangwai	*Clerodendrum myricoides*
Kitelanthia	*Antidesma venosum*
Kithaala	*Lannea rivae*
Kithaala	*Lannea triphylla*
Kithaalwa	*Lannea triphylla*
Kithaalwa kya kiima	*Lannea rivae*
Kithauna (Kitui)	*Lannea schimperi*
Kithawa	*Osyris lanceolata*
Kithea	*Cordia sinensis*
Kithei	*Cordia monoica*
Kithembathembe	*Ozoroa insignis*
Kithethuki	*Maytenus senegalensis*
Kitheu	*Rhus tenuinervis*
Kitheu	*Rhus vulgaris*
Kithia	*Cordia sinensis*
Kithiw'a	*Clausena anisata*
Kithongoi	*Dodonaea viscosa*
Kithoona	*Lannea schimperi*
Kithu	*Euphorbia candelabrum*
Kithumula	*Tamarindus indica*
Kitiliku	*Lawsonia inermis*
Kitolanthia (Makueni)	*Antidesma venosum*
Kitolosuu (Kitui)	*Ziziphus abyssinica*
Kitolosuu (Kitui)	*Ziziphus mucronata*
Kitolousuu	*Meyna tetraphylla*
Kitomoko	*Annona cherimola*
Kitomoko	*Annona senegalensis*
Kitotoo	*Meyna tetraphylla*
Kitumbuu	*Scutia myrtina*
Kitunda	*Eriobotrya japonica*
Kitundu	*Croton macrostachyus*
Kitungu (Mwingi)	*Lannea alata*
Kitungu	*Commiphora africana*
Kitungulu	*Thylachium thomasii*
Kiumo	*Ficus thonningii*
Kiundua	*Albizia amara*
Kiunga	*Acacia drepanolobium*
Kiusya	*Sterculia africana*
Kiuuka	*Capparis tomentosa*
Kiuuku	*Terminalia kilimandscharica*
Kivai	*Acokanthera schimperi*
Kivela	*Psidium guajava*
Kivosyanguguu	*Rhoicissus tridentata*
Kivovoa	*Acacia polyacantha*
Kivuena	*Syzygium guineense*
Kivuini	*Syzygium cordatum*
Kivundangiti	*Maytenus senegalensis*
Kivunu	*Ricinus communis*
Kivuw'a (Kitui)	*Balanites wilsoniana*
Kyaa	*Euphorbia candelabrum*
Kyae (Kitui)	*Strychnos spinosa*
Kyaiki	*Ricinus communis*
Kyaiki kya kyeni	*Jatropha curcas*
Kyanga	*Manihot glaziovii*
Kyathandathe	*Cassia abbreviata*
Kyongoa (Kitui)	*Saba comorensis*
Kyoo	*Markhamia lutea*
Kyooya	*Plectranthus barbatus*
Kyooya kyovai	*Tetradenia riparia*
Kyowa	*Albizia anthelmintica*
Kyoya	*Plectranthus barbatus*
Kyuasi	*Lannea schweinfurthii*
Kyundua	*Albizia amara*
Kyusya	*Sterculia africana*
Maembe (fruit)	*Mangifera indica*
Makueni (Machakos	*Carissa edulis*)
Makulo	*Annona senegalensis*
Makuyu (fruit)	*Ficus sycomorus*
Malendi	*Cussonia arborea*
Malendi	*Cussonia holstii*
Mamee (fruit)	*Strychnos spinosa*
Maongoa (fruit)	*Landolphia buchananii*
Matomoko (fruit)	*Annona senegalensis*
Matoo (fruit)	*Thespesia garckeana*
Matote (fruit)	*Carissa spinarum*
Maua (fruit)	*Sclerocarya birrea*
Maumo (fruit)	*Ficus thonningii*
Mauw'a (fruit)	*Sclerocarya birrea*
Mba (fruit)	*Pappea capensis*
Mbitini (Kitui)	*Hyphaene compressa*
Mbu (fruit)	*Grewia villosa*
Mongoa (fruit, Kitui)	*Saba comorensis*
Mooa	*Solanecio mannii*
Muaa	*Acacia tortilis*
Muae	*Ziziphus abyssinica*
Muae	*Ziziphus mucronata*
Mualandathe	*Cassia abbreviata*
Muama	*Combretum molle*
Muamba	*Adansonia digitata*
Muange	*Delonix elata*
Muangi	*Arundinaria alpina*
Muasi	*Lannea schweinfurthii*
Muathandathe	*Cassia abbreviata*
Muatine (tree/fruit)	*Kigelia africana*
Muema nzou	*Ormocarpum kirkii*
Muema nzou	*Ormocarpum trachycarpum*
Muembe	*Mangifera indica*
Mukaakaa	*Premna chrysoclada*

Kamba (cont)

Mukaakaa	*Premna resinosa*
Mukaati	*Faurea saligna*
Mukai	*Crotalaria goodiiformis*
Mukala (Kitui)	*Antidesma venosum*
Mukalaliki	*Nuxia congesta*
Mukambua	*Dovyalis abyssinica*
Mukame	*Newtonia hildebrandtii*
Mukanga	*Garcinia livingstonei*
Mukanga kanywa	*Garcinia livingstonei*
Mukanu (Kitui)	*Zanthoxylum chalybeum*
Mukau	*Melia volkensii*
Mukauw'u	*Kedrostis pseudogijef*
Mukawa (Machakos: Makueni)	*Carissa spinarum*
Mukayau	*Salvadora persica*
Mukenea	*Zanthoxylum chalybeum*
Mukengeka	*Senna singueana*
Muketa	*Garcinia volkensii*
Muketa munene	*Myrsine melanophloeos*
Muketa munini	*Myrsine africana*
Mukiliulu	*Harrisonia abyssinica*
Mukima	*Grevillea robusta*
Mukindu	*Phoenix reclinata*
Mukinyai	*Euclea divinorum*
Mukolokolo	*Piliostigma thonningii*
Mukololo	*Diospyros abyssinica*
Mukoloso	*Anacardium occidentale*
Mukoma	*Hyphaene compressa*
Mukomoa	*Vangueria apiculata*
Mukomoa	*Vangueria infausta*
Mukomoa	*Vangueria madagascariensis*
Mukomoa	*Vangueria volkensii*
Mukongo	*Diospyros cornii*
Mukongu	*Ekebergia capensis*
Mukoo	*Diospyros mespiliformis*
Mukukuma	*Uvaria scheffleri*
Mukulati	*Macaranga kilimandscharica*
Mukululu (Mwingi)	*Flueggea virosa*
Mukumuti	*Gardenia ternifolia*
Mukumuti	*Gardenia volkensii*
Mukuswi	*Acacia brevispica*
Mukuthi (Machakos: Mwala)	*Euclea divinorum*
Mukuu	*Juniperus procera*
Mukuyu	*Ficus sur*
Mukuyu	*Ficus sycomorus*
Mukweo	*Acokanthera oppositifolia*
Mulaa	*Acacia tortilis*
Mulaa	*Tithonia diversifolia*
Mulaliondo	*Garcinia volkensii*
Mulasi	*Zanthoxylum usambarense*
Mulawa	*Grewia bicolor*
Mulului	*Balanites aegyptiaca*
Mulundu	*Elaeodendron buchananii*
Mumbaume	*Prunus africana*
Mumbumbwa	*Dalbergia lactea*
Mumee (Machakos)	*Strychnos spinosa*
Mumuu	*Vitex payos*
Munatha	*Maerua decumbens*
Munathi	*Cocos nucifera*
Mungai	*Populus ilicifolia*
Munina	*Acacia elatior*
Munyangati	*Faurea saligna*
Munyenyo	*Pavetta abyssinica*
Munyenyo	*Pavetta crassipes*
Munyongo	*Sesbania sesban*
Munyoonyoo	*Acacia mearnsii*
Munyunga nai	*Senna singueana*
Musaa	*Pistacia aethiopica*
Musambo	*Trichilia emetica*
Musanduku	*Eucalyptus camaldulensis*
Musemei (Machakos)	*Acacia nilotica*
Musemeli (Kitui)	*Acacia nilotica*
Musewa	*Acacia xanthophloea*
Musewa (Kitui)	*Acacia polyacantha*
Musili	*Crotalaria agatiflora*
Musilikina	*Eucalyptus saligna*
Musua ndui	*Rauvolfia mannii*
Musuu	*Cajanus cajan*
Musya	*Albizia gummifera*
Mutandamboo	*Capparis tomentosa*
Muteangwai	*Clerodendrum johnstonii*
Muteta	*Strychnos henningsii*
Muteteli	*Vangueria infausta*
Muthaalwa	*Lannea triphylla*
Muthata	*Olea europaea*
Muthei	*Cordia monoica*
Muthei munini	*Cordia sinensis*
Mutheu	*Rhus natalensis*
Mutheu	*Rhus tenuinervis*
Mutheu	*Rhus vulgaris*
Mutheu munene	*Rhus vulgaris*
Muthi	*Acacia gerrardii*
Muthi	*Craibia brownii*
Muthieti	*Lippia kituiensis*
Muthiia	*Acacia mellifera*
Muthiiti	*Lippia javanica*
Muthilia	*Crotalaria goodiiformis*
Muthingii	*Ormocarpum kirkii*
Muthingii	*Ormocarpum trachycarpum*
Muthithiu	*Acacia elatior*
Muthongoi	*Dodonaea viscosa*
Muthongoli	*Cassipourea celastroides*
Muthulu	*Croton megalocarpus*
Muthungwa	*Clausena anisata*
Muti woosi	*Populus ilicifolia*
Mutianzunu	*Strombosia scheffleri*
Mutimailu	*Prunus africana*
Mutisi	*Craibia brownii*
Mutithi	*Combretum collinum*
Mutomoko wa kitheka	*Annona senegalensis*
Mutomoko	*Annona cherimola*
Mutomoko	*Annona muricata*
Mutoo	*Dombeya kirkii*
Mutoo	*Dombeya rotundifolia*
Mutoo	*Terminalia prunioides*
Mutoo	*Thespesia garckean*
Mutote (Kitui)	*Carissa spinarum*
Mutuiu	*Teclea simplicifolia*
Mutula	*Terminalia spinosa*
Mutula	*Ximenia americana*
Mutuluku	*Trichilia emetica*
Mutumoko	*Annona muricata*
Mutundu	*Croton macrostachyus*
Mutuva	*Grewia tembensis*
Mutuva wa kiima (Machakos)	*Grewia similis*
Muu (fruit)	*Vitex payos*
Muu	*Brachylaena huillensis*
Muu	*Nuxia congesta*
Muuku	*Brachylaena huillensis*
Muuku	*Terminalia brownii*
Muuku	*Terminalia kilimandscharica*
Muumbwa	*Clerodendrum eriophyllum*
Muusi	*Erythrina burtii*
Muusya	*Sterculia africana*

Kamba (cont)

Muuw'a	*Sclerocarya birrea*
Muvai wa ngo	*Acokanthera oppositifolia*
Muvau	*Dombeya burgessiae*
Muvau	*Dombeya kirkii*
Muvau	*Dombeya rotundifolia*
Muvembe	*Pavetta abyssinica*
Muvembe	*Pavetta crassipes*
Muvengea	*Podocarpus latifolia*
Muvilisya	*Dichrostachys cinerea*
Muvingo	*Dalbergia melanoxylon*
Muvou	*Plectranthus barbatus*
Muvu	*Grewia villosa*
Muvuena	*Syzygium cordatum*
Muvueni	*Syzygium cordatum*
Muvueni	*Syzygium guineense*
Muvuli	*Milicia excelsa*
Muvulu	*Zanthoxylum usambarense*
Muvuluvulu	*Opilia amentacea*
Muvuluvulu	*Opilia campestris*
Muvumba	*Brachylaena huillensis*
Muvuti	*Erythrina abyssinica*
Muvutu	*Cordia africana*
Muvuu	*Caesalpinia volkensii*
Muvuu	*Zanthoxylum usambarense*
Muvweia	*Clerodendrum myricoides*
Mwaamba	*Adansonia digitata*
Mwaanzia	*Bridelia taitensis*
Mwaiki	*Ricinus communis*
Mwaitha	*Entada leptostachya*
Mwala (Machakos)	*Euclea divinorum*
Mwathandathe	*Cassia abbreviata*
Mwea	*Acacia kirkii*
Mwea	*Acacia xanthophloea*
Mwelele	*Acacia polyacantha*
Mwethi	*Lannea schweinfurthii*
Mwethia	*Albizia gummifera*
Mweya	*Acacia seyal*
Mweya	*Acacia xanthophloea*
Mwithongoi	*Pavetta gardeniifolia*
Mwiyumbi	*Cassipourea celastroides*
Mwooya	*Plectranthus barbatus*
Mwowa	*Albizia anthelmintica*
Mwoya	*Plectranthus barbatus*
Namba (fruit)	*Adansonia digitata*
Ndae (fruit)	*Morus alba*
Ndae (fruit)	*Rubus pinnatus*
Ndau	*Euphorbia tirucalli*
Ndawa (fruit)	*Grewia bicolor*
Ndelanthia (fruit)	*Antidesma venosum*
Ndende (fruit)	*Phoenix dactylifera*
Ndote (fruit)	*Carissa spinarum*
Ndula (fruit)	*Ximenia americana*
Ndului (fruit)	*Balanites aegyptiaca*
Ndungu (fruit)	*Commiphora africana*
Ndungu (fruit)	*Lannea alata*
Nduva (fruit)	*Grewia tembensis*
Ngaanga kanywa (fruit)	*Garcinia livingstonei*
Ngaawa (fruit)	*Carissa spinarum*
Ngala	*Antidesma venosum*
Ngalawa (fruit)	*Grewia bicolor*
Ngalwa (fruit)	*Grewia bicolor*
Ngambua (fruit)	*Dovyalis abyssinica*
Ngambua (fruit)	*Dovyalis caffra*
Nginyai (fruit)	*Euclea divinorum*
Ngoloso (fruit)	*Anacardium occidentale*
Ngolya (fruit)	*Lannea alata*
Ngomoa (fruit)	*Vangueria madagascariensis*
Ngukuma (fruit)	*Uvaria scheffleri*
Ngwasu (fruit)	*Tamarindus indica*
Ngweo (fruit)	*Acokanthera oppositifolia*
Nthei (fruit)	*Cordia monoica*
Ntheu (fruit)	*Rhus natalensis*
Ntheu (fruit)	*Rhus vulgaris*
Nthoona (fruit)	*Lannea schimperi*
Nthulu (fruit)	*Croton megalocarpus*
Nthumula (fruit)	*Tamarindus indica*
Nzaala (fruit)	*Lannea triphylla*
Nzaaya (fruit)	*Berchemia discolor*
Nzanawa (fruit)	*Berchemia discolor*
Nzinzinda	*Tamarix nilotica*
Nzumula (fruit)	*Tamarindus indica*
Nzunu (fruit, Kitui)	*Carissa spinarum*
Nzuu (fruit)	*Cajanus cajan*
Witulu	*Kedrostis gijef*
Yangu	*Calodendrum capense*

Kambe

Fudu (fruit)	*Vitex doniana*
Fudu (fruit)	*Vitex payos*
Kunazi (fruit)	*Ziziphus mauritiana*
Kwamba (fruit)	*Flueggea virosa*
Mbalazi (fruit)	*Cajanus cajan*
Mdungu	*Zanthoxylum chalybeum*
Mfudu unga	*Vitex payos*
Mgugune	*Ziziphus mucronata*
Mkayamba	*Piliostigma thonningii*
Mkoma	*Hyphaene compressa*
Mkone	*Grewia bicolor*
Mkuha	*Dobera glabra*
Mkulwe	*Diospyros mespiliformis*
Mkwakwa	*Strychnos madagascariensis*
Mngambo	*Manilkara sansibarensis*
Mng'ambo kapehe	*Mimusops obtusifolia*
Mnyumbe	*Lannea triphylla*
Mswaki	*Salvadora persica*
Mtamba chiko	*Canthium glaucum*
Mtandamboo	*Carissa spinarum*
Mtsumbwi	*Dialium orientale*
Mtundukula	*Ximenia americana*
Mubalazi	*Cajanus cajan*
Mudungatundu	*Flacourtia indica*
Mudzaladowe	*Uvaria scheffleri*
Mueza moyo	*Salvadora persica*
Muizu wa arisa	*Thylachium thomasii*
Mukunazi	*Ziziphus mauritiana*
Mukwamba	*Flueggea virosa*
Musimbiji	*Antidesma venosum*
Mutsumbwi	*Dialium orientale*
Mutunguru	*Thylachium thomasii*
Muzungwi	*Moringa oleifera*
Tamba kiko	*Meyna tetraphylla*

Keiyo

Auoun	*Polyscias fulva*
Auoun	*Polyscias kikuyensis*
Benet	*Podocarpus falcatus*
Boloet	*Dombeya torrida*
Bomondet	*Olea capensis*
Kakaruet	*Schrebera alata*
Kimolwet	*Vangueria infausta*
Kiprutyot	*Acacia nilotica*
Komoluet	*Vangueria volkensii*
Loliondet	*Olea capensis*

Keiyo (cont)

Mateluk	*Acacia lahai*
Natiatia	*Sesbania sesban*
Ng'osonaik	*Balanites aegyptiaca*
Ng'oswet	*Balanites aegyptiaca*
Ng'osyet (fruit)	*Balanites aegyptiaca*
Serti	*Podocarpus latifolius*
Sirik	*Faurea saligna*
Situtua	*Myrsine melanophloeos*
Tamanges (plural)	*Uvaria scheffleri*
Tamangesig	*Uvaria scheffleri*
Tamangesyat	*Uvaria scheffleri*
Tenduet	*Prunus africana*
Tungururak (fruit)	*Flacourtia indica*
Tungururwet	*Flacourtia indica*
Yemit	*Olea europaea*

Kikuyu

Ihindu	*Ensete ventricosum*
Kaiyaba	*Dovyalis caffra*
Kamiti	*Filicium decipiens*
Kariaria	*Euphorbia tirucalli*
Kiage	*Oncoba spinosa*
Kimuanga	*Manihot glaziovii*
Kinoa	*Synsepalum brevipes*
Kiruru	*Acokanthera oppositifolia*
Kithuri	*Euphorbia candelabrum*
Kiururu	*Acokanthera oppositifolia*
Maguna ngui (fruit)	*Persea americana*
Maigoya	*Plectranthus barbatus*
Maruru	*Tithonia diversifolia*
Matindia ariithi	*Embelia schimperi*
Mbiru (fruit)	*Vangueria madagascariensis*
Minoria	*Eriobotrya japonica*
Morogorogo	*Cussonia holstii*
Mubage	*Caesalpinia decapetala*
Mubariti	*Grevillea robusta*
Mubau	*Eucalyptus camaldulensis*
Mubau	*Eucalyptus globulus*
Mubau	*Eucalyptus saligna*
Mubera	*Psidium guajava*
Mubiribiri	*Schinus molle*
Mubiru	*Vangueria apiculata*
Mubiru	*Vangueria madagascariensis*
Mubiru	*Vangueria volkensii*
Mubiru ng'ombe	*Vangueria volkensii*
Mubura	*Rhamnus staddo*
Muburuti	*Eriobotrya japonica*
Mubuthi	*Caesalpinia volkensii*
Mucakaranda	*Jacaranda mimosifolia*
Mucarage	*Olea capensis*
Mucemeki	*Cornus volkensii*
Muchagatha	*Zanthoxylum gilletii*
Muchangire	*Crotalaria axillaris*
Mucherere	*Pistacia aethiopica*
Muchinda nugu	*Pinus patula*
Muchingiri	*Crotalaria goodiiformis*
Muchingiri	*Senna spectabilis*
Muchogi	*Apodytes dimidiata*
Muchorowe	*Nuxia congesta*
Mucohi	*Lippia kituiensis*
Mucuthi	*Caesalpinia volkensii*
Mugaa	*Acacia abyssinica*
Mugaa	*Acacia hockii*
Mugaa	*Acacia lahai*
Mugaa	*Acacia nilotica*
Mugaa	*Acacia seyal*
Mugaita	*Myrsine africana*
Mugaita	*Myrsine melanophloeos*
Mugonyoni	*Apodytes dimidiata*
Mugu	*Landolphia buchananii*
Mugu wa munyati	*Landolphia buchananii*
Muguchwa	*Zanthoxylum usambarense*
Mugumo ciano	*Mimusops kummel*
Mugumo	*Ficus thonningii*
Muhathi	*Sapium ellipticum*
Muhatia	*Millettia dura*
Muhehete	*Pistacia aethiopica*
Muheheti (Nyeri)	*Zanthoxylum usambarense*
Muhethu	*Trema orientalis*
Muhoigwa	*Antidesma venosum*
Muhooru	*Hagenia abyssinica*
Muhugu	*Brachylaena huillensis*
Muhukura	*Mondia whytei*
Muhurangware	*Pavetta abyssinica*
Muhurangware	*Scutia myrtina*
Muhuru	*Vitex doniana*
Muhuru	*Vitex keniensis*
Muhuti	*Erythrina abyssinica*
Muigaigua	*Oncoba spinosa*
Muikoni	*Blighia unijugata*
Muiri	*Prunus africana*
Muirongi	*Casaeria battiscombei*
Muiruthi	*Diospyros abyssinica*
Mukambura	*Dovyalis abyssinica*
Mukandamia	*Macadamia integrifolia*
Mukaragati	*Fagaropsis angolensis*
Mukarakinga	*Rhamnus prinoides*
Mukarara	*Margaritaria discoidea*
Mukau	*Melia volkensii*
Mukawa	*Carissa spinarum*
Mukeu	*Dombeya burgessiae*
Mukeu	*Dombeya kirkii*
Mukeu	*Dombeya torrida*
Mukima	*Grevillea robusta*
Mukindu	*Phoenix reclinata*
Mukinduri	*Croton megalocarpus*
Mukinyai	*Euclea divinorum*
Mukoe	*Syzygium guineense*
Mukoigo	*Bridelia micrantha*
Mukondwe	*Antidesma venosum*
Mukorobea	*Persea americana*
Mukorombothi	*Cornus volkensii*
Mukubu	*Craibia brownii*
Mukuhakuha	*Macaranga kilimandscharica*
Mukui	*Ehretia cymosa*
Mukui	*Newtonia buchananii*
Mukungugu	*Commiphora eminii*
Mukunguu	*Erythrina melanacantha*
Mukuo	*Cordia monoica*
Mukura	*Combretum molle*
Mukurue	*Albizia gummifera*
Mukuu	*Cordia monoica*
Mukuyu	*Ficus sur*
Mukuyu	*Ficus sycomorus*
Mulangari	*Scutia myrtina*
Mumondo	*Hagenia abyssinica*
Muna	*Pouteria adolfi-friedericii*
Munderendu	*Teclea simplicifolia*
Munderendu	*Vepris nobilis*
Munieria	*Rauvolfia mannii*
Munjugu	*Clerodendrum myricoides*
Munoa	*Synsepalum brevipes*
Mununga	*Ekebergia capensis*

Kikuyu (cont)

Munyamati	*Ilex mitis*
Munyenye	*Strombosia scheffleri*
Munyua mai	*Eucalyptus camaldulensis*
Munyua mai	*Eucalyptus globulus*
Munyua mai	*Eucalyptus saligna*
Munyukwa	*Fraxinus pennsylvanica*
Murangi	*Arundinaria alpina*
Muraracii	*Calodendrum capense*
Muratina	*Kigelia africana*
Murema muthua	*Dodonaea viscosa*
Murema	*Combretum molle*
Murembu	*Ehretia cymosa*
Murera	*Acacia xanthophloea*
Muricu	*Acokanthera schimperi*
Muringa	*Cordia africana*
Muringamu	*Eucalyptus globulus*
Muringamu	*Eucalyptus saligna*
Muringo	*Clerodendrum johnstonii*
Muriru	*Syzygium cordatum*
Muroro	*Flacourtia indica*
Muroroa	*Calodendrum capense*
Muruai	*Acacia drepanolobium*
Murumia andu	*Bersama abyssinica*
Murundu	*Celtis africana*
Murungati haru	*Eriobotrya japonica*
Mururi	*Trichilia emetica*
Mururu	*Acokanthera oppositifolia*
Musaa	*Celtis gomphophylla*
Musariki	*Solanecio mannii*
Mutamaiyu	*Olea europaea*
Mutanga	*Elaeodendron buchananii*
Mutarakwa	*Cupressus lusitanica*
Mutarakwa	*Juniperus procera*
Mutare	*Morus alba*
Mutare	*Rubus apetalus*
Mutare	*Rubus pinnatus*
Mutare	*Rubus volkensii*
Mutare kigombe	*Rubus volkensii*
Mutathi	*Clausena anisata*
Mutati	*Polyscias fulva*
Mutati	*Polyscias kikuyensis*
Muteta	*Strychnos henningsii*
Muthaiga	*Warburgia ugandensis*
Muthaithi	*Cassipourea malosana*
Muthaiti	*Ocotea kenyensis*
Muthaiti	*Ocotea usambarensis*
Muthakwa wathi	*Solanecio mannii*
Muthandi	*Bersama abyssinica*
Muthanduku	*Acacia mearnsii*
Muthare	*Dracaena steudneri*
Muthari	*Dracaena afromontana*
Muthathi	*Sapium ellipticum*
Muthengera	*Podocarpus falcatus*
Muthengera	*Podocarpus latifolius*
Mutheregendi	*Grewia similis*
Mutheredendu	*Grewia similis*
Mutheringende	*Dombeya kirkii*
Muthi	*Acacia gerrardii*
Muthiga	*Warburgia ugandensis*
Muthigi	*Cordia monoica*
Muthigio	*Rhus natalensis*
Muthigio	*Rhus ruspolii*
Muthigio	*Rhus vulgaris*
Muthigira	*Acacia mellifera*
Muthimbari	*Buddleia polystachya*
Muthiringu	*Strombosia scheffleri*
Muthiriti	*Lippia javanica*
Muthiriti	*Lippia kituiensis*
Muthithi	*Osyris lanceolata*
Muthithiku	*Hagenia abyssinica*
Muthithinda	*Cupressus lusitanica*
Muthumura	*Ilex mitis*
Muthuroti	*Lippia kituiensis*
Mutikani	*Strychnos mitis*
Mutikani	*Strychnos usambarensis*
Mutoma	*Schrebera alata*
Mutongo	*Rauvolfia caffra*
Mutongo	*Rauvolfia mannii*
Mutongoga	*Commiphora eminii*
Mutoo	*Dombeya rotundifolia*
Mutorothua	*Faurea saligna*
Mutuhacu	*Flacourtia indica*
Mutumutua	*Rhoicissus tridentata*
Mutundu	*Croton macrostachyus*
Mutundu wa njora	*Croton macrostachyus*
Mutura	*Ximenia americana*
Mutuya	*Myrianthus holstii*
Muu	*Markhamia lutea*
Mwanda	*Nuxia congesta*
Mwariki	*Ricinus communis*
Mwaritha	*Dalbergia lactea*
Mwathathi	*Solanecio mannii*
Mwathathia	*Pavetta abyssinica*
Mwenyiere	*Cussonia spicata*
Mwerere	*Rauvolfia caffra*
Mwethia	*Crotalaria agatiflora*
Mwethia	*Sesbania sesban*
Mwiembe	*Mangifera indica*
Mwigaigwa	*Oncoba routledgei*
Mwikunya	*Acacia brevispica*
Ndare (fruit)	*Rubus pinnatus*
Ndare (fruit)	*Rubus volkensii*
Ndirikumi	*Pappea capensis*
Ngambura (fruit)	*Dovyalis abyssinica*
Ngiloliti	*Acacia nilotica*
Ngoe (fruit)	*Syzygium guineense*
Nguyu (fruit)	*Ficus sur*
Nguyu (fruit)	*Ficus sycomorus*
Njugu	*Cajanus cajan*
Ruti	*Buddleia polystachya*
Rutie	*Dichrostachys cinerea*
Theregendu (fruit)	*Grewia similis*

Kipsigis

Aounet	*Polyscias fulva*
Aounet	*Polyscias kikuyensis*
Arareut	*Prunus africana*
Araruet	*Ekebergia capensis*
Belbeliet	*Pavetta abyssinica*
Bondet	*Hagenia abyssinica*
Borowet	*Allophylus rubifolius*
Chackweet	*Embelia schimperi*
Chebitet	*Acacia lahai*
Chebitet	*Acacia nilotica*
Chebitet	*Acacia tortilis*
Chekeleliet	*Allophylus rubifolius*
Chekurbet	*Solanecio mannii*
Chemul mogoyuet	*Ficus ingens*
Chepitet	*Acacia gerrardii*
Chepitet	*Acacia lahai*
Chepitet	*Acacia nilotica*
Chepkeleliet	*Celtis africana*
Chepkomon	*Caesalpinia decapetala*

Kipsigis (cont)

Chepkorokwet	*Pistacia aethiopica*
Chepnyaliliet	*Acacia kirkii*
Chepruyaliet	*Acacia elatior*
Cheptatet	*Pouteria adolfi-friedericii*
Cheptoroguet	*Bersama abyssinica*
Cheptuiyet	*Diospyros abyssinica*
Chesamisiet	*Clerodendrum myricoides*
Chesarebut	*Grewia tembensis*
Chesimboliet	*Apodytes dimidiata*
Chilgotwet	*Ficus glumosa*
Chorua	*Nuxia congesta*
Chorwet	*Pavetta gardeniifolia*
Dorodwet	*Rhoicissus tridentata*
Emitiot	*Olea europaea*
Engongaat	*Pappea capensis*
Imanek	*Ricinus communis*
Kabigiriet	*Schrebera alata*
Kapturesut	*Bridelia scleuroneura*
Katet	*Dichrostachys cinerea*
Keliot	*Acokanthera schimperi*
Kelyot	*Acokanthera schimperi*
Kemeliet	*Combretum molle*
Kepurwet	*Osyris lanceolata*
Kerichsani	*Acacia lahai*
Ketarwet	*Rhamnus staddo*
Kibirirgorokiet	*Pistacia aethiopica*
Kibung'ongiit	*Embelia schimperi*
Kimolonik	*Vangueria infausta*
Kimolonik	*Vangueria madagascariensis*
Kimolwet	*Vangueria apiculata*
Kimolwet	*Vangueria infausta*
Kimolwet	*Vangueria madagascariensis*
Kimolwet	*Vangueria volkensii*
Kimolwet ne ming'in	*Vangueria volkensii*
Kipkaria	*Calodendrum capense*
Kipkururiet	*Crotalaria agatiflora*
Kipsoeniot	*Rubus volkensii*
Kiptabeliet	*Capparis fascicularis*
Kochutoi	*Clerodendrum rotundifolium*
Koetiot ab osnet	*Pavetta oliverana*
Kogoruet	*Erythrina abyssinica*
Koipeyot ab tiriita	*Ormocarpum trichocarpum*
Kopko	*Acacia nilotica*
Kosisitiet	*Rhamnus prinoides*
Kosisitiet	*Rhamnus staddo*
Kuriot	*Vepris nobilis*
Labatiet	*Dracaena afromontana*
Lalwet	*Mimusops bagshawei*
Lamaiyak	*Schrebera alata*
Lamaiyat	*Syzygium guineense*
Legetetyet	*Carissa spinarum*
Legetiet	*Carissa spinarum*
Lemechwet	*Tamarindus indica*
Lemejwet	*Ozoroa insignis*
Lemeyet	*Syzygium cordatum*
Logomaita	*Macaranga kilimandscharica*
Lulukwet	*Cussonia holstii*
Mase	*Strychnos mitis*
Maset	*Strychnos henningsii*
Menuet	*Ricinus communis*
Mimanbiliot	*Ziziphus mucronata*
Mogoiwet	*Ficus sur*
Mogoiwet	*Ficus sycomorus*
Moissot	*Terminalia brownii*
Moissot	*Warburgia ugandensis*
Motiet	*Dracaena ellenbeckiana*
Msaita	*Olea capensis*
Muangaita	*Cassipourea malosana*
Mugurit	*Acacia drepanolobium*
Mugurit	*Acacia seyal*
Muguruit	*Acacia drepanolobium*
Mukuruit	*Acacia drepanolobium*
Mulkelwet	*Vitex doniana*
Munjororriat	*Rhus vulgaris*
Mutereriet	*Ehretia cymosa*
Mututuriet	*Ocotea kenyensis*
Mwokiot	*Dovyalis abyssinica*
Mwokiot	*Lippia javanica*
Mwokiot	*Lippia kituiensis*
Nemingin	*Rubus volkensii*
Ng'iingichet	*Landolphia buchananii*
Ngirgirit	*Acacia brevispica*
Ngonyet	*Pappea capensis*
Ng'oswet	*Balanites aegyptiaca*
Nogirwet	*Cordia monoica*
Nokirwet	*Cordia sinensis*
Nukiat	*Dovyalis abyssinica*
Nyasiat	*Celtis africana*
Obetiot	*Clerodendrum myricoides*
Ochmnyaliliet	*Acacia xanthophloea*
Ororuewet	*Bersama abyssinica*
Osegeteti	*Myrsine africana*
Poponet	*Trema orientalis*
Porowet ap teta	*Cadaba farinosa*
Ratuinet	*Kigelia africana*
Rerendet	*Rauvolfia caffra*
Sagawaita	*Zanthoxylum chalybeum*
Sagawaita	*Zanthoxylum usambarense*
Sagawoita	*Zanthoxylum gilletii*
Saonet	*Elaeodendron buchananii*
Saounet	*Myrianthus holstii*
Saptet	*Podocarpus falcatus*
Sasuriet	*Calodendrum capense*
Sasuriet	*Ensete ventricosum*
Sawanet	*Elaeodendron buchananii*
Sebetaiyet	*Spathodea campanulata*
Seet	*Albizia gummifera*
Selebwet	*Dombeya kirkii*
Setetit	*Grewia bicolor*
Seyet	*Albizia gummifera*
Silibwet	*Dombeya burgessiae*
Simbejwet	*Scutia myrtina*
Simotuet	*Ficus thonningii*
Sirtuet	*Acacia abyssinica*
Sitetet	*Grewia bicolor*
Sitetooik (plural)	*Grewia bicolor*
Sogoet	*Warburgia ugandensis*
Soke	*Warburgia ugandensis*
Sokwet	*Cussonia spicata*
Sosiyot	*Phoenix reclinata*
Suriat	*Rhus natalensis*
Suriet	*Rhus vulgaris*
Tagaimamiet	*Rubus volkensii*
Takungwuiet	*Oncoba routledgei*
Tangaimamiet	*Rubus pinnatus*
Tarotuet	*Rhoicissus revoilii*
Tebesuet	*Croton macrostachyus*
Tegaat	*Arundinaria alpina*
Tenduet	*Prunus african*
Terga	*Arundinaria alpina*
Tongotuet	*Ilex mitis*
Toroguet	*Bersama abyssinica*
Tunguroloet	*Flacourtia indica*

Kipsigis (cont)

Tungurwet	*Oncoba spinosa*
Tunoiyet	*Landolphia buchananii*
Usuet	*Euclea divinorum*

Kisii

Amaua amaroro	*Tithonia diversifolia*
Chinkomoni (fruit)	*Vangueria madagascariensis*
Egesanga	*Rhoicissus tridentata*
Ekenagwa	*Caesalpinia decapetala*
Ekeragwati	*Eriobotrya japonica*
Ekomoni	*Vangueria apiculata*
Enkanda	*Elaeodendron buchananii*
Enkomoni (fruit)	*Vangueria madagascariensis*
Esarara	*Flueggea virosa*
Eyesurura	*Acacia abyssinica*
Getembe	*Ensete ventricosum*
Kumukira	*Combretum molle*
Kumunyali	*Acacia abyssinica*
Mbaazi	*Cajanus cajan*
Mutahuru (fruit)	*Vitex doniana*
Mwongwa	*Millettia dura*
Oinokunakuna	*Hagenia abyssinica*
Omenyakige	*Warburgia ugandensis*
Omobakora	*Cupressus lusitanica*
Omobono	*Ricinus communis*
Omogumu	*Ficus thonningii*
Omoiri	*Prunus africana*
Omokabiria	*Grevillea robusta*
Omokobokobo	*Cordia africana*
Omokomoni	*Vangueria apiculata*
Omokomoni	*Vangueria infausta*
Omokomoni	*Vangueria madagascariensis*
Omokonge	*Acacia gerrardii*
Omokorogoinwa	*Dovyalis abyssinica*
Omokorogunya	*Dovyalis abyssinica*
Omoku	*Ficus sycomorus*
Omonmanengo	*Rhamnus staddo*
Omonyakerede	*Cassipourea malosana*
Omonyamavi	*Ekebergia capensis*
Omonyambeche	*Rhoicissus tridentata*
Omonyangateti	*Carissa spinarum*
Omonyenya	*Acacia abyssinica*
Omonyenya	*Acacia lahai*
Omonyia	*Trema orientalis*
Omoraa	*Parinari curatellifolia*
Omoringarnu	*Eucalyptus saligna*
Omororia	*Vernonia amygdalina*
Omosabisabi	*Sesbania sesban*
Omosambarao	*Syzygium cordatum*
Omosaria	*Jacaranda mimosifolia*
Omosocho	*Croton macrostachyus*
Omotandege	*Acacia mearnsii*
Omotarakaranga	*Bridelia micrantha*
Omotembe	*Erythrina abyssinica*
Omubamba	*Bersama abyssinica*
Omugonjoro	*Albizia gummifera*
Omukunakuna	*Hagenia abyssinica*
Omumure	*Rauvolfia caffra*
Omungura	*Rhamnus prinoides*
Rieembe	*Mangifera indica*

Kuria

Omongusu	*Dombeya burgessiae*
Omuhuruhuru	*Vitex fischeri*
Omunyoke	*Carissa spinarum*
Omutaburu	*Parinari curatellifolia*

Luhya

Abaki	*Warburgia ugandensis*
Apachi	*Warburgia ugandensis*
Butunduli	*Rubus niveus*
Eshimwani	*Garcinia livingstonei*
Imbindi	*Cassia bicapsularis*
Irojo	*Trichilia emetica*
Kitandawabasia	*Cussonia arborea*
Kumufutu	*Vitex doniana*
Kumusubasubi	*Sesbania sesban*
Libono	*Ricinus communis*
Liembe	*Mangifera indica*
Lipera	*Psidium guajava*
Logat	*Eriobotrya japonica*
Luavari	*Caesalpinia decapetala*
Lubambo	*Nuxia congesta*
Lubushi	*Monodora myristica*
Ludolia	*Mimusops bagshawei*
Lukhule	*Sesbania sesban*
Lulala	*Grewia bicolor*
Lunduli	*Manilkara butugi*
Lusala	*Clerodendrum johnstonii*
Lusiola	*Markhamia lutea*
Lusui	*Diospyros abyssinica*
Lutoto	*Ficus thonningii*
Mahorlu	*Stereospermum kunthianum*
Masaba	*Apodytes dimidiata*
Maua amalulu	*Tithonia diversifolia*
Mbako	*Piliostigma thonningii*
Mboyela	*Piliostigma thonningii*
Mmonyo	*Nuxia congesta*
Mrembe	*Erythrina abyssinica*
Mubonebone	*Ricinus communis*
Mudarakwa	*Cupressus lusitanica*
Muendu	*Dodonaea viscosa*
Mufutumwe	*Vitex fischeri*
Mugoso	*Sapium ellipticum*
Muhandi	*Craibia brownii*
Muholu	*Vitex doniana*
Muhunya	*Maesopsis eminii*
Mukamari	*Cordia africana*
Mukhonzuli	*Albizia gummifera*
Mukhungula	*Combretum molle*
Mukoloho	*Cassipourea ruwensorensis*
Mukomari	*Cordia africana*
Mukusa	*Dombeya burgessiae*
Mulundu	*Antiaris toxicaria*
Mungalikuru	*Premna angolensis*
Munyama	*Trichilia emetica*
Munyenya	*Acacia abyssinica*
Munyenya	*Acacia lahai*
Murembe	*Erythrina abyssinica*
Muruli	*Ximenia americana*
Murumba	*Milicia excelsa*
Musa	*Celtis gomphophylla*
Musakala	*Trema orientalis*
Musaretsi	*Lepisanthes senegalensis*
Musembe	*Entada abyssinica*
Musine	*Croton megalocarpus*
Musinzi	*Trichilia emetica*
Musuritsa	*Vernonia amygdalina*
Musutsu	*Croton macrostachyus*
Muswa	*Euclea divinorum*
Mutarai	*Podocarpus latifolius*
Mutavo	*Vepris nobilis*
Mutere	*Maesopsis eminii*
Mutsulia	*Spathodea campanulata*

Luhya (cont)

Mutukuyu	*Olea capensis*
Muvulu	*Annona senegalensis*
Mwanzu	*Polyscias fulva*
Mwarubaini	*Azadirachta indica*
Mwenya	*Celtis africana*
Mweyu	*Celtis africana*
Mwiritsa	*Prunus africana*
Namasinzi	*Casaeria battiscombei*
Okulu	*Acacia seyal*
Olokhongwe	*Terminalia mollis*
Olunani	*Caesalpinia decapetala*
Omubele	*Albizia coriaria*
Omufutu	*Vitex doniana*
Omulusya	*Vernonia amygdalina*
Omurembe	*Erythrina abyssinica*
Omuswitswi	*Croton macrostachyus*
Omutukuyu	*Olea capensis*
Shekutu	*Ehretia cymosa*
Sheraha	*Combretum collinum*
Sheraha	*Combretum molle*
Shiarambatsa	*Blighia unijugata*
Shigulutsu	*Zanthoxylum rubescens*
Shikanganya	*Bridelia micrantha*
Shikata	*Carissa spinarum*
Shikhoni	*Euphorbia tirucalli*
Shikhuma	*Zanthoxylum gilletii*
Shikomoli	*Vangueria apiculata*
Shikomoli	*Vangueria infausta*
Shikumbumbu	*Capparis tomentosa*
Shikuti	*Ehretia cymosa*
Shilauha	*Plectranthus barbatus*
Shilokha	*Plectranthus barbatus*
Shimanyamunyi	*Vangueria apiculata*
Shingulotso	*Fagaropsis angolensis*
Shingulutsi	*Clausena anisata*
Shirakalu	*Oncoba routledgei*
Shirha	*Terminalia brownii*
Shirikamabinga	*Bersama abyssinica*
Shisilangokho	*Clerodendrum myricoides*
Shisimbari	*Clausena anisata*
Shiuna	*Gardenia volkensii*
Shiviambinga mekundi	*Bersama abyssinica*
Shungoma	*Zanthoxylum rubescens*
Shunza	*Celtis mildbraedii*
Simbari	*Zanthoxylum milbraedii*
Umtembe	*Erythrina abyssinica*
Wakhuisi	*Grevillea robusta*
Wanda	*Apodytes dimidiata*

Luhya (Bukusu)

Bukararambi	*Rubus apetalus*
Bukararambi	*Rubus pinnatus*
Bukhakasu (fruit)	*Antidesma venosum*
Burwa (fruit)	*Carissa spinarum*
Busangura busecha (fruit)	*Rhus vulgaris*
Busangura nabili (fruit)	*Rhus natalensis*
Busitole (fruit)	*Syzygium guineense*
Busongolomunwa (fruit)	*Dovyalis macrocalyx*
Chifutu (fruit)	*Vitex doniana*
Chisubasubi	*Sesbania sesban*
Kamachabungwe (fruit)	*Saba comorensis*
Kamakhuyu (fruit)	*Ficus sycomorus*
Kamarinda (fruit)	*Parinari curatellifolia*
Kamaua	*Tithonia diversifolia*
Kiming'ulie	*Tithonia diversifolia*
Kumubono	*Ricinus communis*
Kumubumbu	*Lannea fulva*
Kumubumbu	*Lannea schimperi*
Kumuchabungwe (plant)	*Saba comorensis*
Kumuchanjaasi	*Euclea divinorum*
Kumuchaso	*Sapium ellipticum*
Kumuchaswa	*Sapium ellipticum*
Kumuchirisia	*Spathodea campanulata*
Kumuchuri	*Spathodea campanulata*
Kumuchwichwi	*Croton macrostachyus*
Kumufungu	*Kigelia africana*
Kumufuniu	*Grewia bicolor*
Kumufutu	*Vitex doniana*
Kumufutumbwe	*Vitex fischeri*
Kumufwora	*Annona senegalensis*
Kumukalukha	*Combretum collinum*
Kumukhakasu	*Antidesma venosum*
Kumukhendie	*Cordia monoica*
Kumukhendu	*Phoenix reclinata*
Kumukhomeli	*Garcinia buchananii*
Kumukhongwe	*Terminalia mollis*
Kumukhubwe	*Strychnos henningsii*
Kumukhubwe	*Strychnos mitis*
Kumukhubwe	*Strychnos spinosa*
Kumukhulang'wa	*Bridelia micrantha*
Kumukhuwa	*Tamarindus indica*
Kumukhuyu	*Ficus sycomorus*
Kumukikhili	*Cordia africana*
Kumukimila	*Combretum molle*
Kumukokwe	*Acacia polyacantha*
Kumukomari	*Cordia africana*
Kumukombera	*Mondia whytei*
Kumukomboti	*Ziziphus abyssinica*
Kumukomosi kumukhasi	*Vangueria madagascariensis*
Kumukomosi kumusecha	*Vangueria apiculata*
Kumukomosi	*Vangueria infausta*
Kumukoyakoye	*Rhoicissus tridentata*
Kumukulanyuni	*Elaeodendron buchananii*
Kumukunusia	*Croton macrostachyus*
Kumukusa	*Dombeya rotundifolia*
Kumukusa	*Dombeya torrida*
Kumulaha	*Combretum collinum*
Kumulamalama	*Piliostigma thonningii*
Kumulondang'ombe	*Bridelia micrantha*
Kumulukhu	*Albizia gummifera*
Kumululusia	*Vernonia amygdalina*
Kumunandebe	*Rauvolfia caffra*
Kumung'ang'a	*Acacia senegal*
Kumuniopo	*Trema orientalis*
Kumunyaali	*Acacia abyssinica*
Kumunyabubi	*Clausena anisata*
Kumunyamanyama	*Pappea capensis*
Kumunyanyakhanu	*Allophylus africanus*
Kumunyekerwe	*Bridelia scleuroneura*
Kumunyenya	*Acacia lahai*
Kumunyenya	*Acacia seyal*
Kumunyofwe	*Elaeodendron buchananii*
Kumunyubuti	*Olea europaea*
Kumunyungululwe	*Flacourtia indica*
Kumupeli	*Albizia coriaria*
Kumupepenambusi	*Pavetta abyssinica*
Kumupepenambusi	*Pavetta crassipes*
Kumurembe	*Erythrina abyssinica*
Kumurinda (tree)	*Parinari curatellifolia*
Kumuruba	*Ficus natalensis*
Kumurukuru	*Erythrina abyssinica*
Kumurumba	*Milicia excelsa*
Kumurwa (plant)	*Carissa spinarum*

Luhya (Bukusu) (cont)

Kumusangura kumusecha (tree)	*Rhus natalensis*
Kumusangura nabili (tree)	*Rhus natalensis*
Kumusembe	*Entada abyssinica*
Kumusemwa	*Syzygium cordatum*
Kumusesi	*Spathodea campanulata*
Kumusikhu	*Warburgia ugandensis*
Kumusikhu	*Zanthoxylum gilletii*
Kumusikiria	*Bersama abyssinica*
Kumusilamosi	*Senna singueana*
Kumusilangokho	*Clerodendrum myricoides*
Kumusilisisi	*Ekebergia capensis*
Kumusitole (tree)	*Syzygium guineense*
Kumusongolamunwa	*Dovyalis macrocalyx*
Kumusoola	*Markhamia lutea*
Kumutamaywa	*Olea capensis*
Kumutarakwa	*Juniperus procera*
Kumutare	*Vepris nobilis*
Kumutoboso	*Croton macrostachyus*
Kumutoto kumusecha	*Ficus thonningii*
Kumutotoa	*Croton macrostachyus*
Kumutua	*Euphorbia candelabrum*
Kumutuli	*Ximenia americana*
Kumutumolo	*Stereospermum kunthianum*
Kumuturu	*Prunus africana*
Kumuumbu	*Lannea schimperi*
Kumuyebeye	*Albizia coriaria*
Kumuyenjayenje	*Piliostigma thonningii*
Kumwandanda	*Ozoroa insignis*
Kumwayakhafu	*Maytenus senegalensis*
Kumwifubulu	*Cussonia arborea*
Kumwikalangwe	*Ziziphus abyssinica*
Kumwilulusia	*Vernonia amygdalina*
Kumwimbirichi	*Lepisanthes senegalensis*
Lunani	*Caesalpinia decapetala*
Lunani	*Capparis fascicularis*
Lunani	*Scutia myrtina*
Lusecha	*Scutia myrtina*
Namalasile	*Harungana madagascariensis*
Nandebe	*Solanecio mannii*
Sipondwe	*Harrisonia abyssinica*
Sirwa	*Carissa spinarum*
Siuna	*Gardenia ternifolia*

Luhya (Kisa)

Omwinyala amatsai	*Harungana madagascariensis*

Luhya (Marachi)

Lushindu	*Phoenix reclinata*
Omugombera	*Mondia whytei*

Luhya (Maragoli)

Mukhomoli	*Vangueria infausta*
Mukhomoli	*Vangueria madagascariensis*
Musioma	*Syzygium cordatum*

Luhya (Marama)

Omukombera	*Mondia whytei*
Tsisirinya	*Syzygium cordatum*

Luhya (Tachoni)

Amakhuyu (fruit)	*Ficus sycomorus*
Amarinda (fruit)	*Parinari curatellifolia*
Busecha (fruit)	*Rhus natalensis*
Chifutu (fruit)	*Vitex doniana*
Obukararambi	*Rubus apetalus*
Obukararambi	*Rubus pinnatus*
Oburwa	*Carissa spinarum*
Obusangura	*Rhus natalensis*
Obusangura (fruit)	*Rhus vulgaris*
Obusemwa (fruit)	*Syzygium cordatum*
Obusitole (fruit)	*Syzygium guineense*
Omikombela	*Mondia whytei*
Omufutu	*Vitex doniana*
Omukhuyu	*Ficus sycomorus*
Omurinda (tree)	*Parinari curatellifolia*
Omusangura (tree)	*Rhus vulgaris*
Omusemwa (tree)	*Syzygium cordatum*
Omusitole (tree)	*Syzygium guineense*
Yifutu (fruit)	*Vitex doniana*

Luhya (Tiriki)

Kaibaraki	*Solanecio mannii*

Luo

Abaki	*Warburgia ugandensis*
Abuna	*Saba comorensis*
Abuno	*Saba comorensis*
Achacho	*Vepris nobilis*
Achak	*Ozoroa insignis*
Achak	*Sapium ellipticum*
Achaka	*Sapium ellipticum*
Achondradoho	*Euclea divinorum*
Adugo	*Acacia drepanolobium*
Adugo	*Combretum collinum*
Adugo	*Combretum molle*
Ajua	*Caesalpinia volkensii*
Akado marachar	*Boscia salicifolia*
Akado marateng'	*Cadaba farinosa*
Akado	*Boscia salicifolia*
Akado	*Euclea divinorum*
Akech	*Tithonia diversifolia*
Akudho	*Dovyalis abyssinica*
Akudho	*Dovyalis macrocalyx*
Akurukuru	*Acacia gerrardii*
Akwalakwala liech	*Strychnos spinosa*
Alaktar	*Acacia lahai*
Alii	*Acacia seyal*
Amoyo	*Maerua decumbens*
Amoyo	*Sapium ellipticum*
Amurukia	*Rhamnus staddo*
Ang'were rao	*Lippia javanica*
Anyuka	*Vangueria apiculata*
Anyuka	*Vangueria madagascariensis*
Anyuka	*Vangueria volkensii*
Anyuka (Homa Bay)	*Vangueria infausta*
Apindi	*Vangueria apiculata*
Apindi (Siaya)	*Vangueria infausta*
Apindi	*Vangueria madagascariensis*
Arech	*Crotalaria agatiflora*
Aremo	*Harungana madagascariensis*
Arumbe	*Acacia hockii*
Arupien	*Commiphora africana*
Arupiny	*Commiphora africana*
Atego	*Margaritaria discoidea*
Athuno	*Bridelia micrantha*
Avokado	*Persea americana*
Awayo (Siaya)	*Rhus vulgaris*
Bao	*Eucalyptus camaldulensis*
Bao	*Eucalyptus globulus*
Bao	*Eucalyptus saligna*
Bap kaladali	*Eucalyptus camaldulensis*
Bap kaladali	*Eucalyptus globulus*

Luo (cont)

Bap kaladali	*Eucalyptus saligna*
Bawo	*Eucalyptus camaldulensis*
Bawo	*Eucalyptus globulus*
Bawo	*Eucalyptus saligna*
Bilo	*Blighia unijugata*
Bondo	*Euphorbia candelabrum*
Bongo	*Lannea schweinfurthii*
Bongu	*Ficus sur*
Bumwe	*Rhoicissus revoilii*
Bwombwe liech	*Rhoicissus tridentata*
Cha mama	*Thevetia peruviana*
Chwaa	*Tamarindus indica*
Det	*Ormocarpum trichocarpum*
Dugna	*Acacia drepanolobium*
Dunga	*Acacia drepanolobium*
Dwele	*Melia azedarach*
Jamna	*Syzygium cumini*
Jathohonda	*Pavetta abyssinica*
Jathohonda	*Pavetta crassipes*
Jobune	*Saba comorensis*
Jok	*Jatropha curcas*
Jwelu	*Vitex doniana*
Jwelu	*Vitex fischeri*
Kaera	*Flueggea virosa*
Kagena	*Flueggea virosa*
Kagna	*Flueggea virosa*
Kagna	*Vangueria apiculata*
Kalemba	*Vitex doniana*
Kang'o	*Olea europaea*
Kang'o	*Synsepalum brevipes*
Kech rachar	*Combretum collinum*
Keyo	*Combretum molle*
Kiluor	*Acacia senegal*
Kuogo	*Lannea schimperi*
Kuogo	*Lannea schweinfurthii*
Kuogo	*Lannea triphylla*
Kurgweno	*Clerodendrum myricoides*
Kuth ataro	*Acacia xanthophloea*
Kwogo	*Lannea schimperi*
Kwogo	*Lannea schweinfurthii*
Lang'o	*Ziziphus abyssinica*
Lang'o	*Ziziphus mucronata*
Lemo	*Apodytes dimidiata*
Luochuoga	*Apodytes dimidiata*
Lusina	*Leucaena leucocephala*
Madhari	*Ozoroa insignis*
Madungudungu	*Spathodea campanulata*
Maembe	*Mangifera indica*
Manera	*Terminalia brownii*
Mang'u	*Sclerocarya birrea*
Mapera	*Psidium guajava*
Maroo	*Solanecio mannii*
Marowo	*Solanecio mannii*
Matata	*Caesalpinia decapetala*
Mathari	*Maytenus senegalensis*
Maua madongo	*Tithonia diversifolia*
Maua makech	*Tithonia diversifolia*
Mauwa	*Tithonia diversifolia*
Mawembe	*Mangifera indica*
Mbas	*Cajanus cajan*
Mbengo	*Senna siamea*
Mid	*Vepris nobilis*
Midat	*Vepris nobilis*
Migodha	*Scutia myrtina*
Mikumi	*Pavetta abyssinica*
Mikumi	*Pavetta crassipes*
Mrembe	*Erythrina abyssinica*
Mswak	*Salvadora persica*
Muhogo mar opira	*Manihot glaziovii*
Mukutan achak	*Syzygium cordatum*
Muombo	*Mondia whytei*
Murembe	*Erythrina abyssinica*
Musabibu	*Eriobotrya japonica*
Mwanda	*Lecaniodiscus fraxinifolius*
Mweny	*Lippia javanica*
Mwodi	*Arundinaria alpina*
Naas	*Cocos nucifera*
Ndek owinu	*Senna siamea*
Nduga	*Acacia drepanolobium*
Ner powo	*Grewia villosa*
Ng'owo	*Ficus sur*
Ng'owo	*Ficus vallis-choudae*
Ng'owo matundo	*Ficus sur*
Ngong'ngong' (Migori)	*Croton macrostachyus*
Ng'ongo	*Sclerocarya birrea*
Ng'owu	*Ficus sycomorus*
Nyabolo	*Annona senegalensis*
Nyabondo	*Mimusops kummel*
Nyakom ondiek	*Polyscias fulva*
Nyalewe yom	*Sapium ellipticum*
Nyaludhi	*Allophylus africanus*
Nyamage	*Maytenus senegalensis*
Nyamit amita	*Salvadora persica*
Nyamoch	*Allophylus africanus*
Nyamtotia	*Dovyalis macrocalyx*
Nyamwoch	*Allophylus rubifolius*
Nyandema	*Maytenus senegalensis*
Nyandumira	*Ozoroa insignis*
Nyariango	*Stereospermum kunthianum*
Nyawend agwata	*Celtis gomphophylla*
Nyawend agwata	*Spathodea campanulata*
Obala ndagwa	*Ricinus communis*
Ober	*Albizia coriaria*
Obokeran	*Rauvolfia caffra*
Obolo (Migori)	*Annona senegalensis*
Obolobolo	*Annona senegalensis*
Obudo	*Cupressus lusitanica*
Ochog dhok	*Rhoicissus revoilii*
Ochol	*Blighia unijugata*
Ochol	*Diospyros abyssinica*
Ochol	*Euclea divinorum*
Ochol	*Lepisanthes senegalensis*
Ochol	*Schrebera alata*
Ochond achak	*Blighia unijugata*
Ochond achak	*Mimusops kummel*
Ochond atego	*Allophylus africanus*
Ochond athuth	*Trichilia emetica*
Ochond obok	*Apodytes dimidiata*
Ochond radoho	*Euclea divinorum*
Ochond rateng'	*Trichilia emetica*
Ochuoga	*Carissa spinarum*
Ochwaa	*Tamarindus indica*
Odagwa	*Ricinus communis*
Odar (Siaya)	*Vepris nobilis*
Odhidho	*Dombeya kirkii*
Odok	*Flueggea virosa*
Odok (Ugenya)	*Ficus sycomorus*
Oduga	*Acacia drepanolobium*
Odughu kulo	*Bridelia micrantha*
Odugno	*Combretum collinum*
Odugu	*Combretum collinum*
Ofito	*Dracaena steudneri*
Ogalo	*Piliostigma thonningii*
Ogandi	*Rauvolfia caffra*
Ogombo	*Mondia whytei*

Luo (cont)

Ogongo	*Acacia abyssinica*
Ogongo	*Acacia polyacantha*
Oguambula	*Antidesma venosum*
Oguombula	*Antidesma venosum*
Ohoro	*Combretum collinum*
Ojuog pap	*Euphorbia tirucalli*
Ojuok	*Euphorbia tirucalli*
Okikacha	*Podocarpus latifolius*
Oking'	*Dodonaea viscosa*
Okiri	*Dichrostachys cinerea*
Okita	*Plectranthus barbatus*
Okita lang'o	*Tetradenia riparia*
Okuoro (Siaya)	*Pappea capensis*
Okwato	*Caesalpinia decapetala*
Okwato	*Parkinsonia aculeata*
Okwergweno	*Clerodendrum myricoides*
Okwero	*Clerodendrum myricoides*
Okworo	*Clerodendrum myricoides*
Okworo	*Pappea capensis*
Olam	*Ficus sycomorus*
Olemb ochok (yellow fruit)	*Ximenia americana*
Olemo (red fruit)	*Ximenia americana*
Olua	*Antiaris toxicaria*
Olua	*Milicia excelsa*
Olua madhako	*Antiaris toxicaria*
Oludh kuon	*Allophylus africanus*
Olulusia	*Vernonia amygdalina*
Olusia	*Vernonia amygdalina*
Olwa	*Milicia excelsa*
Omaange (Homa Bay)	*Pappea capensis*
Ondati (Migori)	*Vepris nobilis*
Onduongi	*Gardenia ternifolia*
Ong'ono	*Capparis fascicularis*
Ong'ora	*Parinari curatellifolia*
Ong'an'g	*Terminalia brownii*
Ong'ong'o	*Sclerocarya birrea*
Ongono	*Capparis tomentosa*
Onunga	*Morus alba*
Onunga	*Rubus apetalus*
Opok	*Terminalia mollis*
Orembe	*Erythrina abyssinica*
Oriang'	*Acacia hockii*
Osangla	*Rhus natalensis*
Oseke	*Clerodendrum myricoides*
Oseklele	*Allophylus africanus*
Osembe	*Entada abyssinica*
Oseno	*Cordia monoica*
Osiri	*Acacia brevispica*
Osiri	*Scutia myrtina*
Oswekele	*Allophylus africanus*
Otagalo	*Piliostigma thonningii*
Otamo liech	*Ormocarpum trichocarpum*
Otego	*Margaritaria discoidea*
Othith	*Phoenix reclinata*
Othoo	*Balanites aegyptiaca*
Otiep	*Acacia senegal*
Otiep	*Acacia tortilis*
Oturbam	*Albizia lebbeck*
Owich	*Dombeya burgessiae*
Oyieko (Siaya)	*Sesbania sesban*
Oyuelo	*Vitex doniana*
Pedo	*Harrisonia abyssinica*
Pocho	*Ficus thonningii*
Pololok	*Stereospermum kunthianum*
Powo	*Ficus sycomorus*
Powo	*Grewia bicolor*
Powo	*Grewia mollis*
Rabong'o	*Rhoicissus revoilii*
Rabuor	*Pavetta abyssinica*
Rabuor	*Pavetta crassipes*
Rahande	*Rhamnus staddo*
Rayudh	*Flueggea virosa*
Rayudhi	*Gardenia ternifolia*
Roko	*Erythrina excelsa*
Roko	*Zanthoxylum chalybeum*
Roko	*Zanthoxylum usambarense*
Ruga	*Albizia amara*
Saa	*Oncoba spinosa*
Sale	*Acacia gerrardii*
Sangla	*Clerodendrum myricoides*
Sangla	*Rhus natalensis*
Sangla madhako (Migori)	*Rhus vulgaris*
Sangla maduong (S. Nyanza)	*Rhus vulgaris*
Sangla minwa	*Clerodendrum rotundifolium*
Sao	*Oncoba routledgei*
Sawo sawo	*Sesbania sesban*
Siala	*Markhamia lutea*
Siunya	*Clausena anisata*
Sogo maitha	*Zanthoxylum gilletii*
Soko	*Warburgia ugandensis*
Songola	*Dovyalis abyssinica*
Suahowe	*Acacia polyacantha*
Swaruri	*Acacia polyacantha*
Tagalo	*Piliostigma thonningii*
Tende	*Phoenix dactylifera*
Tido	*Ekebergia capensis*
Wadhare	*Ozoroa insignis*
Wire	*Dracaena steudneri*
Yago	*Kigelia africana*
Yuma	*Erythrina excelsa*
Yuoma	*Erythrina excelsa*

Maasai

Eirri narok	*Grewia tenax*
Elereta nanyokie	*Acacia seyal*
Elereta	*Acacia seyal*
Eluaai	*Acacia drepanolobium*
Eluai	*Acacia drepanolobium*
Emankulai	*Grewia villosa*
Emaroroi	*Combretum molle*
Emungushi	*Rhus vulgaris*
Enchapalani	*Acacia hockii*
Endalai ekutuk	*Ehretia cymosa*
Endalati ekotok	*Ehretia cymosa*
Enderkesi	*Acacia senegal*
Engaiyaguji	*Rubus pinnatus*
Engaiyaguji	*Rubus volkensii*
Engamai	*Ximenia americana*
Engangolol	*Opilia campestris*
Engarani	*Rhus vulgaris*
Engaroji	*Erythrina burtii*
Engese mbaus	*Ormocarpum trichocarpum*
Engirushai	*Opilia amentacea*
Engirushai	*Opilia campestris*
Engumi eker	*Vangueria apiculata*
Engumi etari (Loita)	*Vangueria infausta*
Enkapalases	*Boscia coriacea*
Enkarashi	*Calodendrum capense*
Enkenya sirkon	*Cadaba farinosa*
Enkike empan	*Ormocarpum kirkii*
Enkike empan	*Ormocarpum trachycarpum*
Enkoduai	*Myrsine africana*
Enkoponi	*Erythrina abyssinica*

Maasai (cont)

Enkoshopini	*Dovyalis macrocalyx*
Enongeperen	*Garcinia livingstonei*
Entarakwai	*Juniperus procera*
Entiangege (Narok)	*Landolphia buchananii*
Entuyesi	*Strychnos henningsii*
Erankun	*Acacia drepanolobium*
Eseketeti	*Myrsine africana*
Eseki	*Cordia monoica*
Ilama (plural)	*Ximenia americana*
Ilamuriak (plural)	*Carissa spinarum*
Ilgum (plural)	*Vangueria apiculata*
Ilkinyei (plural)	*Euclea divinorum*
Ilmanguai (plural)	*Sclerocarya birrea*
Ilmangulai (plural)	*Grewia villosa*
Ilmisigiyo (plural)	*Rhus natalensis*
Ilmisigiyoi (plural)	*Rhus vulgaris*
Ilmorok (plural)	*Dovyalis abyssinica*
Ilmotoo (plural)	*Dombeya rotundifolia*
Ilokwa (fruit)	*Balanites aegyptiaca*
Ilsagararam (plural)	*Piliostigma thonningii*
Ilseki (plural)	*Cordia monoica*
Ilsinon (plural)	*Lippia javanica*
Ilsinon (plural)	*Lippia kituiensis*
Iluaa (plural)	*Acacia drepanolobium*
Interkes (plural)	*Acacia senegal*
Iremito (plural)	*Salvadora persica*
Iri (plural)	*Grewia tembensis*
Iri (plural)	*Grewia tenax*
Isek (plural)	*Cordia monoica*
Isojon (plural)	*Euclea divinorum*
Mutoyo	*Ficus vallis-choudae*
Natua ekongu	*Pappea capensis*
Natwa ongo	*Pappea capensis*
Oirri	*Grewia tembensis*
Oirri	*Grewia tenax*
Oiti orok	*Acacia mellifera*
Oiti orok	*Caesalpinia decapetala*
Oiti	*Acacia mellifera*
Olaimurunyai	*Dovyalis macrocalyx*
Olaimurunyai	*Maytenus senegalensis*
Olairagai	*Syzygium guineense*
Olairamirami	*Solanecio mannii*
Olalwait	*Mimusops bagshawei*
Olamai	*Ximenia americana*
Olamalogi	*Cadaba farinosa*
Olamuriaki	*Carissa spinarum*
Olanget	*Cassipourea malosana*
Olarioi	*Cassipourea malosana*
Olasiti	*Faidherbia albida*
Olaturdei	*Capparis fascicularis*
Olaturdiai	*Capparis tomentosa*
Olawoshai	*Trema orientalis*
Olawu	*Dombeya kirkii*
Olawuo	*Dombeya rotundifolia*
Olayakuji	*Rubus apetalus*
Olbiran	*Buddleia polystachya*
Olbungo	*Pavetta oliverana*
Olchartuyan orok	*Diospyros abyssinica*
Olchartuyan	*Diospyros abyssinica*
Oldangudwa	*Pistacia aethiopica*
Oldarpoi	*Kigelia africana*
Olderkesi	*Delonix elata*
Oldiani	*Arundinaria alpina*
Oldiasimbol	*Apodytes dimidiata*
Oldisigon	*Dalbergia lactea*
Oldongurgurwo	*Flacourtia indica*
Oldorko	*Cordia sinensis*
Oldule	*Ricinus communis*
Olduyesi	*Strychnos mitis*
Olebenyan	*Dracaena afromontana*
Olegidong	*Dracaena ellenbeckiana*
Olemudongo	*Rauvolfia caffra*
Olengabura	*Myrsine melanophloeos*
Olepangi	*Erythrina abyssinica*
Oleragai (Narok)	*Syzygium guineense*
Oleragai	*Lepisanthes senegalensis*
Oleragia	*Bridelia micrantha*
Olerai oibor	*Acacia seyal*
Olerai	*Acacia elatior*
Olerai	*Acacia seyal*
Olerai	*Acacia xanthophloea*
Olerai	*Faidherbia albida*
Oleteti	*Adenium obesum*
Olgelai	*Teclea simplicifolia*
Olgelai	*Vepris nobilis*
Olgeriantus	*Faurea saligna*
Olgeturai	*Dodonaea viscosa*
Olgirigiri orok	*Acacia brevispica*
Olgumi	*Vangueria apiculata*
Olgumi	*Vangueria infausta*
Olgumi	*Vangueria madagascariensis*
Olgumi	*Vangueria volkensii*
Oliala	*Schrebera alata*
Oljatuyan	*Diospyros abyssinica*
Oljerai (Ngong)	*Acacia seyal*
Olkakawa	*Schrebera alata*
Olkeparke	*Croton macrostachyus*
Olkharasha	*Sterculia africana*
Olkiage	*Maerua decumbens*
Olkifulwa	*Garcinia livingstonei*
Olkilenyei	*Rhoicissus tridentata*
Olkiloriti	*Acacia nilotica*
Olkinyei	*Euclea divinorum*
Olkoijuk	*Prunus africana*
Olkokola	*Rhamnus staddo*
Olkonyil	*Rhamnus prinoides*
Ol-larashi	*Calodendrum capense*
Ol-lerai	*Acacia kirkii*
Ol-loiroroi	*Flacourtia indica*
Olmakarikara	*Premna resinosa*
Olmakutukut	*Clerodendrum myricoides*
Olmang'uai	*Sclerocarya birrea*
Olmankulai	*Grewia villosa*
Olmaroroi	*Combretum molle*
Olmatakuroi	*Parinari curatellifolia*
Olmatasia	*Clausena anisata*
Olmerguet	*Croton megalocarpus*
Olmerumuri	*Dichrostachys cinerea*
Olmesera	*Adansonia digitata*
Olmisigiyioi	*Rhus vulgaris*
Olmisigiyoi	*Rhus natalensis*
Olmisigiyoi	*Rhus tenuinervis*
Olmorijoi	*Acokanthera oppositifolia*
Olmorijoi	*Acokanthera schimperi*
Olmorogi	*Dovyalis abyssinica*
Olmositet	*Celtis africana*
Olmotoo	*Dombeya rotundifolia*
Olmugutan	*Albizia anthelmintica*
Olmungushi	*Rhus vulgaris*
Olmusakwa entim	*Solanecio mannii*
Olmusalala	*Ensete ventricosum*
Olng'oswa	*Balanites aegyptiaca*
Olng'oswa	*Balanites glabra*

Maasai (cont)

Olngaboli	*Ficus glumosa*
Olngaboli	*Ficus sycomorus*
Olng'ongwenyi	*Acacia gerrardii*
Olnkulankulei	*Caesalpinia volkensii*
Olnyarusa	*Sueda monoica*
Olobayie tiang'ata	*Bersama abyssinica*
Olobaiye tiong'ata	*Ekebergia capensis*
Oloilalei	*Ziziphus mauritiana*
Oloilalei	*Ziziphus mucronata*
Oloile	*Euphorbia tirucalli*
Oloiragai	*Syzygium cordatum*
Oloireroi	*Boscia angustifolia*
Oloirien	*Olea europaea*
Oloisijoi	*Tamarindus indica*
Oloisugi	*Zanthoxylum chalybeum*
Oloisugi	*Zanthoxylum usambarense*
Oloisuki	*Zanthoxylum chalybeum*
Oloiurrur	*Cussonia holstii*
Oloiyangalani	*Sesbania sesban*
Olokunonoi	*Ozoroa insignis*
Olokwai	*Balanites aegyptiaca*
Ololiondo	*Olea capensis*
Ololiondoi	*Olea capensis*
Oloponi	*Erythrina abyssinica*
Olorien	*Olea europaea*
Olorten	*Faurea saligna*
Olosesiai	*Osyris lanceolata*
Olotwalan	*Crotalaria agatiflora*
Olperetini	*Ziziphus mucronata*
Olpiripiri	*Podocarpus falcatus*
Olpiron	*Nuxia congesta*
Olpiron	*Pavetta gardeniifolia*
Olpoiripiri	*Podocarpus latifolius*
Olpompoi	*Grewia villosa*
Olpopong'i	*Euphorbia candelabrum*
Olremit	*Salvadora persica*
Olreteti	*Ficus thonningii*
Olripande	*Commiphora eminii*
Olsagararam	*Piliostigma thonningii*
Olsamakupe	*Albizia gummifera*
Olsani onyukie	*Embelia schimperi*
Olsati	*Faidherbia albida*
Olseketeti	*Myrsine africana*
Olseki	*Cordia monoica*
Olsinoni	*Lippia kituiensis*
Olsubukiai	*Ekebergia capensis*
Olsubukiai orok	*Dombeya torrida*
Olsuburiiai	*Dombeya torrida*
Oltagurguriet	*Gardenia volkensii*
Oltakurukuriet	*Gardenia ternifolia*
Oltakurukuriet	*Gardenia volkensii*
Oltangoringoroi	*Delonix elata*
Oltangotua	*Pistacia aethiopica*
Oltangururua	*Flacourtia indica*
Oltarakwai	*Juniperus procera*
Oltarpoi	*Kigelia africana*
Oltepesi	*Acacia lahai*
Oltepesi	*Acacia tortilis*
Olterkesi	*Acacia senegal*
Oltimigomi	*Pappea capensis*
Oltipilikwa	*Strychnos henningsii*
Oltukai	*Phoenix reclinata*
Oltumaroi	*Cussonia holstii*
Oltuyesi	*Dodonaea viscosa*
Olurur	*Cussonia spicata*
Olyalilingi	*Polyscias fulva*
Onogoret	*Ficus ingens*
Orcharpalani	*Acacia hockii*
Oremit	*Salvadora persica*
Oreteti	*Ficus thonningii*
Oringlagaldes	*Tetradenia riparia*
Orkisikong'u	*Pappea capensis*
Orkorirr	*Pentarrhinum insipidum*
Ormokoriongo	*Ekebergia capensis*
Ormoso	*Albizia gummifera*
Ormungushi	*Rhus vulgaris*
Ormusanduku	*Podocarpus falcatus*
Orng'aboli	*Ficus sur*
Orpaliki	*Ricinus communis*
Orpande	*Lannea schweinfurthii*
Orpande	*Lannea triphylla*
Orperelon'go	*Albizia amara*
Orpiripiri	*Podocarpus falcatus*
Orpiron	*Nuxia congesta*
Ortuba	*Albizia lebbeck*
Osanangururi	*Scutia myrtina*
Osapukupes	*Albizia gummifera*
Osaragi	*Balanites glabra*
Oseki	*Cordia monoica*
Osilalei	*Commiphora africana*
Osingarwa	*Clerodendrum rotundifolium*
Osinoni	*Lippia javanica*
Osinoni	*Lippia kituiensis*
Ositeti	*Grewia bicolor*
Ositeti	*Grewia mollis*
Osoget	*Elaeodendron buchananii*
Osogonoi	*Warburgia ugandensis*
Osojo (Narok)	*Euclea divinorum*
Osoket	*Elaeodendron buchananii*
Osokonoi	*Warburgia ugandensis*
Osongoroi	*Ekebergia capensis*
Osupukiai orok	*Dombeya burgessiae*
Osyaiti orok	*Allophylus rubifolius*
Oyirri	*Grewia similis*
Oyirri	*Grewia tembensis*
Oyirri	*Grewia tenax*
Sagararam (fruit)	*Acacia tortilis*
Seketeti (seed)	*Myrsine africana*
Sitet	*Grewia bicolor*
Warkisik-ong'u	*Pappea capensis*

Malakote

Baagasa	*Maytenus senegalensis*
Bisiqa	*Terminalia orbicularis*
Choneh	*Commiphora rostrata*
Chyachyaneh	*Acacia paolii*
Dadacha	*Acacia tortilis*
Dawa aaze	*Maerua decumbens*
Dawa nyoka	*Maerua decumbens*
Durtya jovu	*Tamarix nilotica*
Durtya wachaloh	*Tamarix nilotica*
Fahfa	*Grewia plagiophylla*
Gedo	*Phoenix reclinata*
Gora	*Harrisonia abyssinica*
Gora za jovu	*Capparis tomentosa*
Goranyilo	*Capparis tomentosa*
Huda hudo	*Ximenia americana*
Jajabho	*Berchemia discolor*
Kaka mchangani	*Carissa spinarum*
Kalaqacha	*Boscia coriacea*
Kalaqacha	*Cadaba farinosa*
Loguo	*Saba comorensis*
Lupiki	*Rauvolfia mombasiana*

Malakote (cont)

Mchaanda	*Markhamia zanzibarica*
Mokalakala	*Carissa spinarum*
Mokokola	*Terminalia brevipes*
Mokoma	*Hyphaene compressa*
Mokopa	*Dobera glabra*
Mokororo	*Flueggea virosa*
Mokowlo	*Diospyros mespiliformis*
Mokoyo	*Ficus sycomorus*
Morhoqa	*Tamarindus indica*
Mosholole	*Uvaria leptocladon*
Motemwelo	*Albizia gummifera*
Motobwi	*Lecaniodiscus fraxinifolius*
Mubadana	*Balanites aegyptiaca*
Mubadana	*Balanites rotundifolia*
Mubururi	*Meyna tetraphylla*
Mubuyu	*Adansonia digitata*
Muchaagu	*Oncoba spinosa*
Mudaanisa	*Thespesia danis*
Mufaate	*Trichilia emetica*
Mufuno	*Sterculia appendiculata*
Mujajabho (fruit)	*Berchemia discolor*
Munugau	*Mimusops obtusifolia*
Mupakata	*Cynometra lukei*
Muqanto	*Lepisanthes senegalensis*
Murifate	*Borassus aethiopum*
Musigisigi	*Antidesma venosum*
Muswaki	*Salvadora persica*
Mutaale	*Cordia sinensis*
Mutalya chana (Tana River)	*Cordia sinensis*
Muuga	*Acacia elatior*
Muwarale	*Newtonia hildebrandtii*
Muwarande	*Manilkara mochisia*
Mwacha	*Spirostachys venenifera*
Mwangata	*Terminalia prunioides*
Mwebebe	*Sorindeia madagascariensis*
Mwenze banya	*Allophylus rubifolius*
Namwaliko	*Capparis tomentosa*
Qararhi	*Sterculia africana*
Qugube	*Thylachium thomasii*
Rhemanguzi	*Capparis sepiaria*
Sampasa	*Acacia mellifera*
Sufi bara	*Lannea alata*
Tulata	*Adenium obesum*

Marakwet

Adomoyon	*Cordia sinensis*
Aiman	*Acacia brevispica*
Arol	*Sclerocarya birrea*
Aron	*Tamarindus indica*
Asubgwa	*Euphorbia tirucalli*
Auoun	*Polyscias fulva*
Bapchebilil	*Dovyalis abyssinica*
Belel	*Acacia mellifera*
Ben	*Podocarpus falcatus*
Benet	*Podocarpus falcatus*
Borowa	*Dombeya torrida*
Chebillio (plural)	*Maerua decumbens*
Chebobet	*Clerodendrum myricoides*
Cheboinoiywa	*Clausena anisata*
Chepiliowo	*Maerua decumbens*
Chesagon	*Clerodendrum myricoides*
Chorua	*Buddleia polystachya*
Chorua	*Nuxia congesta*
Chotwa	*Commiphora africana*
Gelelwa	*Buddleia polystachya*
Goloswa	*Terminalia brownii*
Gorot	*Lannea fulva*
Iwambova	*Rhoicissus tridentata*
Jeleikta	*Cussonia spicata*
Jemokabyl	*Osyris lanceolata*
Jeptabirirwa	*Pavetta abyssinica*
Jersegao	*Clerodendrum johnstonii*
Kabonbonet	*Ehretia cymosa*
Kapkerelwa	*Harrisonia abyssinica*
Kapsagas	*Bersama abyssinica*
Kerbut	*Ekebergia capensis*
Kibgetouoa	*Macaranga kilimandscharica*
Kibiriokwo	*Pappea capensis*
Kipchochin	*Pavetta oliverana*
Kipiriokwa	*Pappea capensis*
Kipser	*Rhamnus staddo*
Kipset	*Bersama abyssinica*
Kiptare	*Acacia brevispica*
Kitangwa	*Albizia anthelmintica*
Komohro	*Vangueria volkensii*
Komol (plural)	*Vangueria madagascariensis*
Komolwo	*Vangueria madagascariensis*
Kornisw	*Acacia brevispica*
Koros (plural)	*Dobera glabra*
Korosion	*Dobera glabra*
Kosisit	*Rhamnus prinoides*
Kunyat	*Ximenia americana*
Kunyotwo (plural)	*Ximenia americana*
Kurteswa	*Trichilia emetica*
Kwiril	*Fagaropsis angolensis*
Latat (plural)	*Lannea rivae*
Latat (plural)	*Lannea schimperi*
Leketeet (plural)	*Carissa spinarum*
Leketetwa	*Carissa spinarum*
Leketetwo	*Carissa spinarum*
Lemaiyua	*Syzygium guineense*
Liss	*Casaeria battiscombei*
Lolotwa	*Lannea fulva*
Lolotwa	*Lannea schimperi*
Lolowe	*Lannea rivae*
Lom (plural)	*Balanites pedicellaris*
Lomion	*Balanites pedicellaris*
Lomion	*Balanites rotundifolia*
Lonwa	*Tetradenia riparia*
Maiyokwa	*Faurea saligna*
Makany (plural)	*Ficus sycomorus*
Malkach	*Uvaria scheffleri*
Malkatwa	*Uvaria scheffleri*
Man	*Lannea triphylla*
Manwa	*Ricinus communis*
Mendililwo	*Dovyalis abyssinica*
Mokongwo	*Ficus sycomorus*
Mokungua	*Ficus sycomorus*
Momoon	*Rubus pinnatus*
Mongurwa	*Grewia villosa*
Monwo (plural)	*Lannea triphylla*
Morori	*Ehretia cymosa*
Munyinyia	*Clausena anisata*
Musat	*Olea capensis*
Musereti	*Buddleia polystachya*
Mutungwa	*Ozoroa insignis*
Nerkwo	*Garcinia livingstonei*
Ng'eng'ech (plural)	*Landolphia buchananii*
Ng'eng'echwo	*Landolphia buchananii*
Ngoswa	*Balanites aegyptiaca*
Njugu	*Cajanus cajan*
Ochon	*Saba comorensis*
Oroluo	*Sclerocarya birrea*

Marakwet (cont)

Oron	*Tamarindus indica*
Piriak (plural)	*Pappea capensis*
Rena	*Acacia seyal*
Reno	*Acacia xanthophloea*
Reper	*Syzygium cordatum*
Reperwo (plural)	*Syzygium cordatum*
Rotio	*Kigelia africana*
Sayit	*Cornus volkensii*
Se	*Albizia gummifera*
Segatet	*Myrsine africana*
Seger	*Ilex mitis*
Segetetwa	*Myrsine africana*
Seite	*Pouteria adolfi-friedericii*
Sekwan	*Warburgia ugandensis*
Serti	*Podocarpus latifolius*
Ses	*Acacia tortilis*
Set	*Albizia gummifera*
Seweruwa	*Hagenia abyssinica*
Simat	*Ficus thonningii*
Simotuet	*Ficus thonningii*
Simotwo	*Ficus thonningii*
Sirite	*Faurea saligna*
Siti (plural)	*Grewia bicolor*
Sitotwet	*Myrsine melanophloeos*
Songoiywa	*Zanthoxylum chalybeum*
Songorurwa	*Zanthoxylum chalybeum*
Sosurwa	*Ensete ventricosum*
Ste	*Albizia gummifera*
Sumbeyiwa	*Scutia myrtina*
Tabirirwo	*Vangueria volkensii*
Taboswa	*Croton macrostachyus*
Tamalak (plural)	*Uvaria scheffleri*
Tarakwet	*Juniperus procera*
Tarokwa	*Juniperus procera*
Tegaat	*Arundinaria alpina*
Telak	*Acacia lahai*
Tendewa	*Cassipourea malosana*
Tenduet	*Prunus africana*
Terga	*Arundinaria alpina*
Tergekwa	*Solanecio mannii*
Terwech	*Pavetta oliverana*
Tilam (plural)	*Ziziphus mauritiana*
Tiling'wo	*Meyna tetraphylla*
Tiliny (plural)	*Meyna tetraphylla*
Tilomwo	*Ziziphus mauritiana*
Tolgokwa	*Scutia myrtina*
Tomolokwo	*Uvaria scheffleri*
Torak (plural)	*Ziziphus mucronata*
Torokwo	*Ziziphus mucronata*
Torotwa	*Rhoicissus tridentata*
Tungururwa	*Flacourtia indica*
Tuyunwa	*Balanites aegyptiaca*
Yemit	*Olea europaea*

Mbeere

Gindarithi	*Maerua decumbens*
Gitangira	*Boscia coriacea*
Kikiare	*Boscia coriacea*
Maura (fruit)	*Parinari curatellifolia*
Mbiruiru	*Vangueria infausta*
Moino	*Lannea schweinfurthii*
Mubaa	*Pappea capensis*
Mubage	*Strychnos spinosa*
Mubebiaiciya	*Rhus vulgaris*
Mubiru	*Vangueria madagascariensis*
Mubiruiaru	*Vangueria volkensii*
Mububua	*Balanites aegyptiaca*
Muburu	*Vitex doniana*
Muburu	*Vitex payos*
Mubuu	*Grewia villosa*
Muce	*Bridelia taitensis*
Mucemeri	*Acacia nilotica*
Mudundi	*Flacourtia indica*
Mugaa	*Acacia tortilis*
Mugagu	*Ziziphus abyssinica*
Mugambu	*Acacia drepanolobium*
Mugucwa	*Zanthoxylum chalybeum*
Mugumo ciano	*Mimusops kummel*
Mugumo	*Ficus thonningii*
Mugunga	*Acacia drepanolobium*
Mukanga arithi	*Antidesma venosum*
Mukawa	*Carissa spinarum*
Mukenenga	*Zanthoxylum chalybeum*
Mukiare	*Boscia coriacea*
Mukiinyi	*Euclea divinorum*
Mukindaarithi	*Maerua decumbens*
Mukinyi	*Euclea divinorum*
Mukomboiru	*Vangueria volkensii*
Mukomora	*Vangueria infausta*
Mukoro	*Diospyros mespiliformis*
Mukui	*Syzygium cordatum*
Mukui	*Syzygium guineense*
Mukunya nthegere	*Ziziphus mucronata*
Mukururu	*Flueggea virosa*
Mukuura	*Piliostigma thonningii*
Mukuyu	*Ficus sycomorus*
Mulemeti	*Acacia nilotica*
Mundarithi	*Maerua decumbens*
Mungo	*Saba comorensis*
Mung'ora	*Acacia senegal*
Munyei	*Commiphora rostrata*
Muracu	*Lannea triphylla*
Muraga	*Dovyalis abyssinica*
Muraga	*Flacourtia indica*
Muragwa	*Grewia bicolor*
Muramba	*Adansonia digitata*
Murawa	*Grewia bicolor*
Mureera	*Acacia seyal*
Muriru	*Syzygium cordatum*
Muriru	*Syzygium guineense*
Muruba	*Grewia tembensis*
Muruguci	*Zanthoxylum chalybeum*
Mururu	*Acokanthera oppositifolia*
Mutambi	*Strychnos henningsii*
Mutangira	*Boscia coriacea*
Muthanguta	*Rhus natalensis*
Muthanguta	*Rhus vulgaris*
Mutheru	*Rhus natalensis*
Mutheru	*Rhus vulgaris*
Muthethuka	*Antidesma venosum*
Muthigiyo	*Rhus vulgaris*
Muthigiyu	*Rhus natalensis*
Muthiigi	*Rhus natalensis*
Muthiigi	*Rhus vulgaris*
Muthithi	*Tamarindus indica*
Muthithio	*Antidesma venosum*
Muthiu	*Boscia coriacea*
Muthwana	*Berchemia discolor*
Mutoo	*Thespesia garckeana*
Mutoroma	*Diospyros consolatae*
Mutunguarithi	*Maerua decumbens*
Mutuura	*Ximenia americana*
Muura	*Parinari curatellifolia*

Mbeere (cont)

Mwange	*Strychnos spinosa*
Mwange wa ndue	*Strychnos spinosa*
Rwonge	*Saba comorensis*

Meru

Dilikoni	*Pappea capensis*
Gikobo	*Ensete ventricosum*
Ikuo	*Cordia monoica*
Kamuria	*Carissa spinarum*
Kiankware	*Clerodendrum johnstonii*
Kithare	*Dracaena steudneri*
Mchunguchungu	*Crotalaria axillaris*
Mirimamuthua	*Rhus vulgaris*
Mirimuthu	*Rhus vulgaris*
Monde	*Dombeya burgessiae*
Monde	*Dombeya torrida*
Morogorogo	*Cussonia holstii*
Mubiribiri	*Podocarpus falcatus*
Mubiribiri	*Podocarpus latifolius*
Mubiru	*Vangueria infausta*
Mubiru	*Vangueria madagascariensis*
Muchai	*Osyris lanceolata*
Mucharage	*Olea capensis*
Muchichio	*Premna maxima*
Muchimbi	*Strychnos henningsii*
Muchogomo	*Ekebergia capensis*
Muengera	*Cussonia spicata*
Muethu	*Trema orientalis*
Mugaruturu	*Margaritaria discoidea*
Mugeta	*Myrsine melanophloeos*
Mugonyone	*Cornus volkensii*
Mugorona	*Rhamnus prinoides*
Mugucua	*Zanthoxylum chalybeum*
Mugucua	*Zanthoxylum usambarense*
Mugumo	*Ficus thonningii*
Muiramba	*Adansonia digitata*
Muiru	*Vangueria volkensii*
Mujai	*Calodendrum capense*
Mujogajoga	*Hagenia abyssinica*
Mujura	*Calodendrum capense*
Mujuthi	*Caesalpinia volkensii*
Mukarakara	*Capparis tomentosa*
Mukarati	*Macaranga kilimandscharica*
Mukeu	*Dombeya burgessiae*
Mukeu	*Dombeya torrida*
Mukiinyei	*Euclea divinorum*
Mukinduri	*Croton megalocarpus*
Mukirinyei	*Euclea divinorum*
Mukithia	*Clausena anisata*
Mukoko	*Ensete ventricosum*
Mukui	*Ehretia cymosa*
Mukui	*Newtonia buchananii*
Mukunguu	*Erythrina melanacantha*
Mukuo	*Cordia monoica*
Mukuria mbungu	*Fagaropsis angolensis*
Mukurukuru	*Polyscias fulva*
Mukurukuru	*Polyscias kikuyensis*
Mukuruu	*Rhamnus staddo*
Mukuruwe	*Albizia gummifera*
Mukuu	*Ficus sur*
Mukuu	*Ficus sycomorus*
Mukuyu	*Ficus sur*
Mukuyu	*Ficus sycomorus*
Mukwegwe	*Bridelia micrantha*
Munati	*Elaeodendron buchananii*
Mung'uani	*Markhamia lutea*
Munogo	*Casaeria battiscombei*
Munyanwe	*Harungana madagascariensis*
Mura	*Sclerocarya birrea*
Muraana	*Juniperus procera*
Muraga	*Flacourtia indica*
Murama	*Combretum molle*
Muramba	*Adansonia digitata*
Murati	*Ilex mitis*
Muratina	*Kigelia africana*
Murembu	*Ehretia cymosa*
Murera	*Acacia xanthophloea*
Murikitha	*Rhus natalensis*
Muringa	*Cordia africana*
Muriru	*Syzygium guineense*
Murithi	*Strombosia scheffleri*
Muro	*Dovyalis abyssinica*
Muroko	*Diospyros mespiliformis*
Muroo	*Flacourtia indica*
Muruanje	*Celtis mildbraedii*
Murumbega	*Dalbergia lactea*
Murumu	*Fagaropsis angolensis*
Murundu	*Celtis africana*
Mururi	*Milicia excelsa*
Mururu	*Acokanthera oppositifolia*
Mururu	*Acokanthera schimperi*
Musunui	*Warburgia ugandensis*
Mutandambogo	*Capparis sepiaria*
Mutarakwa	*Juniperus procera*
Muteratu	*Vepris nobilis*
Mutero	*Olea europaea*
Muthaguta	*Cassipourea malosana*
Muthandathande	*Bersama abyssinica*
Mutharagwe	*Diospyros abyssinica*
Muthare	*Dracaena steudneri*
Muthata	*Olea europaea*
Muthiama	*Blighia unijugata*
Muthigiu	*Rhus vulgaris*
Muthirith	*Lippia kituiensis*
Muthiritii	*Lippia javanica*
Muthiritii	*Lippia kituiensis*
Muthitha	*Myrsine melanophloeos*
Muthithi	*Tamarindus indica*
Muthoroma	*Ximenia americana*
Mutimueru	*Calodendrum capense*
Mutimuiru	*Strombosia scheffleri*
Mutimwiro	*Diospyros abyssinica*
Mutira nkong'u	*Ozoroa insignis*
Mutomboro	*Solanecio mannii*
Mutonye	*Antidesma venosum*
Mutoo	*Celtis gomphophylla*
Mutuati	*Trichilia emetica*
Mutuja	*Myrianthus holstii*
Mutungugu	*Commiphora eminii*
Mutunguru	*Pouteria adolfi-friedericii*
Mutunguu	*Commiphora eminii*
Mutuntu	*Croton macrostachyus*
Mutuu	*Rauvolfia caffra*
Muu	*Markhamia lutea*
Muuga ruturu	*Flacourtia indica*
Muukuru	*Olea capensis*
Muungu	*Landolphia buchananii*
Muura	*Ocotea usambarensis*
Muuru	*Vitex keniensis*
Muuru	*Vitex payos*
Muuti	*Erythrina abyssinica*
Mwanga	*Millettia dura*
Mwaraka	*Plectranthus barbatus*

Meru (cont)

Mwariki	*Ricinus communis*
Mwege	*Oncoba routledgei*
Mwege	*Oncoba spinosa*
Mwengo	*Dalbergia melanoxylon*
Mwenjera	*Cussonia holstii*
Mweria	*Prunus africana*
Mwiramwanki	*Apodytes dimidiata*
Nangu	*Cajanus cajan*
Nchugu	*Cajanus cajan*
Ndoroma (fruit)	*Ximenia americana*
Ngakula	*Rhamnus staddo*
Nguyu (fruit)	*Ficus sur*
Nguyu (fruit)	*Ficus sycomorus*
Nkawa mwimbi (fruit)	*Carissa spinarum*
Ntare	*Rubus pinnatus*
Ntirikomi	*Pappea capensis*
Thilarii	*Ziziphus abyssinica*
Tigiji	*Myrsine africana*

Nandi

Asenuet	*Combretum collinum*
Bembet	*Dalbergia lactea*
Boranet	*Ehretia cymosa*
Cheburiandet	*Vernonia amygdalina*
Chemegulde	*Bridelia micrantha*
Chemnialiuet	*Acacia elatior*
Chepchabeyet	*Casaeria battiscombei*
Chepkeleriet	*Celtis africana*
Chepsebil	*Harungana madagascariensis*
Cheptokoriet	*Casaeria battiscombei*
Cheptuiyet	*Diospyros abyssinica*
Chorenet	*Buddleia polystachya*
Chorua	*Buddleia polystachya*
Chorua	*Nuxia congesta*
Diamagaldad	*Brachylaena huillensis*
Didiyot	*Grewia mollis*
Emidit	*Olea europaea*
Irakwet	*Plectranthus barbatus*
Kagaruet	*Erythrina abyssinica*
Kaimetiet	*Acacia lahai*
Kakaawet	*Schrebera alata*
Kakaruet	*Erythrina abyssinica*
Kapkawet	*Grevillea robusta*
Kaptowinet	*Dovyalis macrocalyx*
Katutet	*Entada abyssinica*
Keliot	*Acokanthera schimperi*
Kenduiwet	*Diospyros abyssinica*
Keriondet	*Vepris nobilis*
Kibuimetiet	*Bersama abyssinica*
Kilipchet	*Dombeya burgessiae*
Kimolwet	*Vangueria infausta*
Kipkarkuriat	*Calodendrum capense*
Kipsarkiat	*Piliostigma thonningii*
Kwetingwet	*Lannea schimperi*
Lamayuet	*Syzygium guineense*
Lamayuet	*Tamarindus indica*
Lebekuek	*Dracaena afromontana*
Legetetuet	*Carissa spinarum*
Legetetwa	*Carissa spinarum*
Leliat	*Mimusops bagshawei*
Lichet	*Flacourtia indica*
Limaiyua	*Syzygium guineense*
Limaiyua	*Tamarindus indica*
Marteet	*Cassipourea ruwensorensis*
Martit	*Cassipourea malosana*
Mashembut	*Entada abyssinica*
Masineitet	*Croton megalocarpus*
Mjororuet	*Hagenia abyssinica*
Mobet	*Markhamia lutea*
Monjororioyat	*Rhus vulgaris*
Monjororioyot	*Rhus natalensis*
Mosomboriet	*Faurea saligna*
Mseset	*Sapium ellipticum*
Muargua	*Faurea saligna*
Murguiwet	*Olea capensis*
Murguiywet	*Olea capensis*
Murigat	*Acacia seyal*
Mushembut	*Entada abyssinica*
Nakuk	*Dovyalis abyssinica*
Neunet	*Craibia brownii*
Ngorouet	*Bridelia micrantha*
Ngungyet	*Landolphia buchananii*
Njebitet	*Acacia lahai*
Njororuet	*Hagenia abyssinica*
Noiywet	*Fagaropsis angolensis*
Nokok	*Dovyalis abyssinica*
Nyingiget	*Landolphia buchananii*
Pirripirriet	*Podocarpus falcatus*
Ratinuet	*Kigelia africana*
Sagawoita	*Zanthoxylum gilletii*
Samutet	*Cordia africana*
Saptet	*Podocarpus latifolius*
Sasuriet	*Ensete ventricosum*
Sebesebet	*Macaranga kilimandscharica*
Sebetaiyet	*Spathodea campanulata*
Sebetuet	*Ficus sycomorus*
Seet	*Albizia gummifera*
Seketetwa	*Myrsine africana*
Seretuet	*Acacia abyssinica*
Seretuet	*Faidherbia albida*
Sertwet	*Acacia nilotica*
Sesya	*Acacia tortilis*
Seyet	*Albizia gummifera*
Shamut	*Ehretia cymosa*
Sibukuet	*Dombeya torrida*
Silipchet	*Dombeya torrida*
Simotuet	*Ficus thonningii*
Situtwa	*Myrsine melanophloeos*
Soget	*Warburgia ugandensis*
Soiyet	*Polyscias fulva*
Tarakiet	*Cornus volkensii*
Tarakwet	*Juniperus procera*
Tebesuet	*Croton macrostachyus*
Tegat	*Arundinaria alpina*
Telatibilet	*Acacia hockii*
Teldet	*Ekebergia capensis*
Tendwet	*Prunus africana*
Tungururiet	*Flacourtia indica*
Turkwet	*Juniperus procera*
Usuet	*Euclea divinorum*
Walbaiyondet	*Sesbania sesban*

Ogiek

Arapsoi	*Rhamnus staddo*
Chepcharaiyet	*Casaeria battiscombei*
Chumnalilet	*Cornus volkensii*
Kikomit	*Zanthoxylum gilletii*
Kipteleliet	*Bersama abyssinica*
Kipuimetuet	*Bersama abyssinica*
Kipworbet	*Pouteria adolfi-friedericii*
Koriot	*Vepris nobilis*
Korsosiat	*Rhamnus staddo*
Kwarabariet	*Myrsine melanophloeos*

Ogiek (cont)

Kwasisitiet	*Rhamnus prinoides*
Leinet	*Acacia abyssinica*
Logomaita	*Macaranga kilimandscharica*
Longononoi	*Ozoroa insignis*
Maldai	*Vangueria volkensii*
Mangweta	*Cassipourea malosana*
Marabet	*Podocarpus falcatus*
Marut	*Warburgia ugandensis*
Masaieta	*Olea capensis*
Mase	*Celtis africana*
Mosaita	*Olea capensis*
Muachet	*Polyscias fulva*
Muluet	*Vangueria madagascariensis*
Muluet	*Vangueria volkensii*
Mundereriet	*Ehretia cymosa*
Muruguguyet	*Olea capensis*
Ororuet	*Ekebergia capensis*
Oroyuet	*Ekebergia capensis*
Otorouet	*Ekebergia capensis*
Pinet	*Buddleia polystachya*
Rararuet	*Ekebergia capensis*
Silibuet	*Dombeya torrida*
Sirontet	*Rhus natalensis*
Teet	*Juniperus procera*
Tegat	*Arundinaria alpina*
Tenduet	*Prunus africana*
Tongotuet	*Ilex mitis*
Yemdit	*Olea europaea*

Orma

Adhe	*Salvadora persica*
Afgub	*Opilia campestris*
Alango	*Terminalia brevipes*
Araba	*Cordia monoica*
Baddan	*Balanites aegyptiaca*
Baddan	*Balanites rotundifolia*
Bires	*Terminalia prunioides*
Bisik	*Terminalia orbicularis*
Bogh	*Kigelia africana*
Bura	*Acacia elatior*
Bura diima	*Acacia senegal*
Bururi	*Meyna tetraphylla*
Chachane	*Acacia paolii*
Chalado	*Acacia nilotica*
Dabaso	*Acacia tortilis*
Dadech	*Acacia tortilis*
Dakar	*Boswellia neglecta*
Danis	*Thespesia danis*
Darsa	*Combretum aculeatum*
Deka dubra	*Grewia tembensis*
Dende	*Dobera loranthifolia*
Dika	*Thylachium thomasii*
Durte galana	*Tamarix nilotica*
Gashir	*Dobera glabra*
Gora	*Capparis fascicularis*
Gora	*Capparis sepiaria*
Gora	*Harrisonia abyssinica*
Gudis (young)	*Acacia tortilis*
Habacha	*Albizia anthelmintica*
Habakoles	*Acacia mellifera*
Hadaraku	*Lannea triphylla*
Hamares	*Caesalpinia trothae*
Hararaku	*Lannea triphylla*
Haririgo	*Terminalia brownii*
Haroru	*Grewia bicolor*
Haroru hadda	*Grewia plagiophylla*
Huda hudo	*Ximenia americana*
Jajab	*Berchemia discolor*
Kalkach	*Boscia coriacea*
Kalkach	*Elaeodendron buchananii*
Kalkalch hare	*Cadaba farinosa*
Kararaku	*Lannea triphylla*
Kate dimtu	*Premna resinosa*
Kate gurati	*Cadaba farinosa*
Kharandri	*Sterculia africana*
Kharrari	*Sterculia africana*
Koboo	*Ricinus communis*
Kolati gurati	*Diospyros mespiliformis*
Kolati	*Mimusops obtusifolia*
Konchor	*Phoenix reclinata*
Kone	*Hyphaene compressa*
Kororo	*Flueggea virosa*
Kukube dik	*Maerua decumbens*
Kukube tari	*Maerua decumbens*
Kumudhe	*Lannea alata*
Lalafto	*Populus ilicifolia*
Lilu	*Sesamothamnus busseanus*
Mader	*Cordia sinensis*
Mafuno	*Sterculia appendiculata*
Marafa	*Borassus aethiopum*
Meti (young)	*Hyphaene compressa*
Mirole	*Newtonia hildebrandtii*
Muk bee	*Parkinsonia aculeata*
Mukfadjie	*Adenium obesum*
Odha	*Ficus sycomorus*
Qolati	*Mimusops obtusifolia*
Roqa	*Tamarindus indica*
Sadek	*Caesalpinia bonduc*
Shiko	*Oncoba spinosa*
Sholole	*Uvaria leptocladon*
Soke	*Trichilia emetica*
Sukele	*Delonix elata*
Udesi	*Commiphora rostrata*
Waradhe	*Manilkara mochisia*
Woles	*Erythrina melanacantha*
Wolkon	*Spirostachys venenifera*
Yak	*Adansonia digitata*

Pokomo

Bungo	*Strychnos spinosa*
Cheewa	*Harrisonia abyssinica*
Kitweo	*Erythrina melanacantha*
Koliya	*Adenium obesum*
Lalaftu	*Populus ilicifolia*
Madanchui	*Elaeodendron buchananii*
Maungo	*Saba comorensis*
Mbarabara	*Trema orientalis*
Mbaraka mtoni	*Cassia abbreviata*
Mbutula	*Capparis tomentosa*
Mbwiga	*Saba comorensis*
Mbwoka	*Kigelia africana*
Mchachampili	*Albizia glaberrima*
Mchachampili	*Albizia gummifera*
Mchalaka	*Spirostachys venenifera*
Mcharara	*Cadaba farinosa*
Mchochozi	*Oxystigma msoo*
Mdudu	*Bridelia micrantha*
Mfuno	*Sterculia appendiculata*
Mgombakompfe	*Afzelia quanzensis*
Mhadana	*Balanites pedicellaris*
Mhahe	*Trema orientalis*
Mhali	*Cordia sinensis*
Milala (plural)	*Hyphaene compressa*

Pokomo (cont)

Mkarara	*Thespesia danis*
Mkindu	*Phoenix reclinata*
Mkokola	*Terminalia brevipes*
Mkole	*Grewia plagiophylla*
Mkoma (tree)	*Hyphaene compressa*
Mkote wa guba	*Grewia tenax*
Mkupha	*Dobera loranthifolia*
Mkuro	*Diospyros mespiliformis*
Mkwamba	*Flueggea virosa*
Mkwayu	*Tamarindus indica*
Mlala (leaf)	*Hyphaene compressa*
Mlalahe	*Populus ilicifolia*
Mlalanche	*Carissa spinarum*
Mpakata	*Cynometra lukei*
Mphumphune	*Premna resinosa*
Mpuju	*Bridelia micrantha*
Mpuju	*Oncoba spinosa*
Msadoka	*Caesalpinia volkensii*
Msoka	*Cassia abbreviata*
Mtolo	*Spirostachys venenifera*
Mtongotongo	*Spirostachys venenifera*
Mtsamvia	*Synsepalum msolo*
Muade	*Salvadora persica*
Mualango	*Terminalia brevipes*
Muaraghidhe	*Manilkara sulcata*
Muasimini	*Lawsonia inermis*
Mubo	*Blighia unijugata*
Mubonyéni	*Blighia unijugata*
Muchancha	*Terminalia spinosa*
Muchochozi	*Garcinia livingstonei*
Muchovi	*Capparis tomentosa*
Muchoyoko	*Dalbergia lactea*
Mufune	*Sterculia appendiculata*
Muh'puju	*Oncoba spinosa*
Muhale	*Cordia sinensis*
Muhumbi mweupe	*Lecaniodiscus fraxinifolius*
Muhumbi	*Lecaniodiscus fraxinifolius*
Mukami	*Newtonia erlangeri*
Mukirikonko	*Premna chrysoclada*
Mukirikonko	*Premna resinosa*
Mukorobo	*Terminalia spinosa*
Mukukube	*Boscia coriacea*
Mukumbe	*Thylachium thomasii*
Mukupha	*Dobera glabra*
Munguvwe	*Mimusops obtusifolia*
Munyambembe	*Sorindeia madagascariensis*
Munyiza	*Euclea divinorum*
Musasusi	*Antidesma venosum*
Musawasa	*Acacia mellifera*
Musurua	*Lawsonia inermis*
Mutapa	*Borassus aethiopum*
Mutongotango	*Spirostachys venenifera*
Muunga	*Acacia elatior*
Muungo	*Saba comorensis*
Mvuma	*Ficus natalensis*
Mwadhesa	*Thespesia danis*
Mwaragidthe	*Ziziphus pubescens*
Mwaro	*Thespesia danis*
Mwiya maji	*Maerua decumbens*
Nguvwe (fruit)	*Mimusops obtusifolia*

Pokot

Adome (fruit)	*Cordia sinensis*
Adomeyon	*Cordia sinensis*
Akwichanian	*Maytenus senegalensis*
Alakanta	*Cussonia spicata*
Apetaa	*Terminalia prunioides*
Arerenyon	*Cadaba farinosa*
Arol (plural)	*Tamarindus indica*
Asiokonion	*Salvadora persica*
Atat	*Acacia abyssinica*
Atat	*Acacia elatior*
Chebliswo	*Maerua decumbens*
Cheluptet	*Cussonia spicata*
Chemalokutan	*Mimusops kummel*
Chemanga	*Acacia senegal*
Chemangayan	*Acacia senegal*
Chemchai	*Lippia carviodora*
Chepchai	*Lippia javanica*
Chepchai	*Lippia kituiensis*
Chepiliswo	*Maerua decumbens*
Chepkokai	*Allophylus rubifolius*
Chepochepkai	*Flueggea virosa*
Cheporosto	*Combretum molle*
Cheprukwa	*Lannea schimperi*
Cheprukwo	*Lannea schimperi*
Cheptuya	*Euclea divinorum*
Cheptuyis (plural)	*Euclea divinorum*
Chepuluswo	*Maerua decumbens*
Chepurosho	*Combretum molle*
Chesakisyon	*Leptadenia hastata*
Chesams	*Acacia gerrardii*
Chetoye	*Schrebera alata*
Chokowo	*Salvadora persica*
Chooh	*Acacia seyal*
Chowogh	*Acacia seyal*
Chuchween (plural)	*Dovyalis macrocalyx*
Chuchwenion	*Dovyalis macrocalyx*
Chuwan	*Acacia hockii*
Epat	*Grewia mollis*
Kalas (plural)	*Terminalia brownii*
Kamakitan	*Albizia anthelmintica*
Kaparamenion	*Lawsonia inermis*
Kapka	*Acacia nilotica*
Kapkamkam	*Strychnos henningsii*
Kaptarun	*Acacia brevispica*
Karaturwa	*Dovyalis abyssinica*
Karkar (plural)	*Erythrina abyssinica*
Katagh	*Commiphora africana*
Kekechwo	*Premna resinosa*
Keresion	*Dobera glabra*
Kinyat (plural)	*Ximenia americana*
Kinyotwo	*Ximenia americana*
Kolion	*Acokanthera schimperi*
Koloswo	*Terminalia brownii*
Kolyon	*Acokanthera schimperi*
Komel	*Combretum molle*
Komol (plural)	*Vangueria infausta*
Komolwo	*Vangueria infausta*
Komolwo	*Vangueria madagascariensis*
Kopko	*Acacia nilotica*
Kopkwo	*Acacia nilotica*
Korkorwo	*Erythrina abyssinica*
Korosion	*Dobera glabra*
Korteswa	*Trichilia emetica*
Koyopkwo	*Piliostigma thonningii*
Kresua	*Euphorbia candelabrum*
Kromwa	*Ozoroa insignis*
Kukugho onyot	*Oncoba spinosa*
Kukugho	*Strychnos spinosa*
Kukuwol	*Strychnos spinosa*
Lalat (plural)	*Lannea fulva*
Lamaiyua	*Syzygium guineense*

Pokot (cont)

Lokimet	*Commiphora rostrata*
Lokotetwo	*Carissa spinarum*
Lolotwo	*Lannea fulva*
Lolotwo	*Lannea rivae*
Loma (fruit)	*Balanites rotundifolia*
Lomaiwo	*Syzygium guineense*
Lomion	*Balanites pedicellaris*
Lomion	*Balanites rotundifolia*
Lonuo	*Tetradenia riparia*
Makaran	*Ormocarpum trichocarpum*
Makow (plural)	*Grewia villosa*
Mangang (plural)	*Ficus sycomorus*
Markwa	*Faurea saligna*
Merwo	*Garcinia livingstonei*
Mikisia	*Uvaria scheffleri*
Mindarotwo	*Commiphora africana*
Mintirilwo	*Dovyalis abyssinica*
Moino	*Lannea triphylla*
Mojonyon	*Lippia kituiensis*
Mokoghio	*Grewia villosa*
Mokongwo	*Ficus sycomorus*
Mokuwo	*Grewia villosa*
Molkotwo	*Canthium glaucum*
Monmonwo	*Rubus pinnatus*
Monmoon (plural)	*Rubus pinnatus*
Moronguton	*Dracaena ellenbeckiana*
Mosonyon	*Lippia javanica*
Mosonyon	*Lippia kituiensis*
Muchuk (plural)	*Berchemia discolor*
Muchukwo	*Berchemia discolor*
Mugerswa	*Dombeya rotundifolia*
Mukotonwo	*Albizia anthelmintica*
Mukurkona	*Harrisonia abyssinica*
Mulakech	*Uvaria scheffleri*
Mulksion	*Uvaria leptocladon*
Mundorotwo	*Commiphora africana*
Murmurwo	*Osyris lanceolata*
Muruuguyet	*Olea capensis*
Ng'eng'echwo	*Landolphia buchananii*
Ng'eng'eech (fruit)	*Landolphia buchananii*
Ngowin	*Ziziphus abyssinica*
Nokow'o	*Ficus vallis-choudae*
Ocharasliit	*Calodendrum capense*
Orolwo	*Lannea schweinfurthii*
Orolwo	*Sclerocarya birrea*
Oron	*Tamarindus indica*
Panan	*Albizia amara*
Panyarit	*Acacia mellifera*
Pondon	*Ricinus communis*
Priak (plural)	*Pappea capensis*
Priokwo	*Pappea capensis*
Ptar	*Acacia brevispica*
Ptarin (plural)	*Acacia brevispica*
Puriokwo	*Pappea capensis*
Pusyooni	*Mimusops kummel*
Rena	*Acacia seyal*
Reper (plural)	*Syzygium cordatum*
Reperwo	*Syzygium cordatum*
Repko	*Spathodea campanulata*
Ririon	*Delonix elata*
Roti (plural)	*Kigelia africana*
Rotin	*Kigelia africana*
Sangak	*Faidherbia albida*
Sangale	*Faidherbia albida*
Sayit	*Cornus volkensii*
Ses	*Acacia tortilis*
Ses	*Albizia gummifera*
Sesoy (plural)	*Acacia tortilis*
Sigikwa	*Casaeria battiscombei*
Simotwo	*Ficus thonningii*
Siria (plural)	*Rhus natalensis*
Siriewo	*Rhus natalensis*
Siriewo kaptamu	*Rhus vulgaris*
Sirtuot	*Myrsine melanophloeos*
Sitet	*Grewia bicolor*
Sitowonyon	*Acacia drepanolobium*
Sloghoonion (plural)	*Acacia drepanolobium*
Songolulwo	*Boswellia microphylla*
Songoogh (plural)	*Zanthoxylum chalybeum*
Songowo	*Zanthoxylum chalybeum*
Sorich (plural)	*Boscia coriacea*
Sorichon	*Boscia coriacea*
Stoghon	*Acacia drepanolobium*
Talamoghion	*Acacia mellifera*
Talamoh	*Acacia mellifera*
Tamrenwo	*Uvaria scheffleri*
Tangayua	*Hyphaene compressa*
Tangayween (plural)	*Hyphaene compressa*
Tapa murkutwo	*Lippia carviodora*
Tapirpirwa	*Vangueria volkensii*
Taran (plural)	*Grewia tenax*
Taratwo	*Rhoicissus tridentata*
Tarokwa	*Juniperus procera*
Tiin	*Dichrostachys cinerea*
Tikit	*Terminalia prunioides*
Tikit	*Terminalia spinosa*
Tilam (plural)	*Ziziphus mauritiana*
Tiling (plural)	*Meyna tetraphylla*
Tiling'wo	*Meyna tetraphylla*
Tilomwo	*Ziziphus mauritiana*
Tingas (plural)	*Flacourtia indica*
Tingoswo	*Flacourtia indica*
Tipoyuo	*Capparis tomentosa*
Tirak (plural)	*Ziziphus abyssinica*
Tirkirwa	*Vitex doniana*
Tirokwo	*Ziziphus mucronata*
Tiyin	*Dichrostachys cinerea*
Tlomwo	*Ziziphus mauritiana*
Tobolokwo	*Dodonaea viscosa*
Toboswa	*Croton macrostachyus*
Topirpirwo	*Vangueria apiculata*
Toporewo	*Cordia monoica*
Toronwo	*Grewia tembensis*
Toronwo	*Grewia tenax*
Tuwot	*Diospyros scabra*
Tuyun (plural)	*Balanites aegyptiaca*
Tuyunwo	*Balanites aegyptiaca*

Rendille

Akhai (fruit)	*Salvadora persica*
Arlilo (fruit)	*Grewia bicolor*
Baar	*Hyphaene compressa*
Bejelo	*Lannea alata*
Bilahen	*Acacia mellifera*
Bubunto	*Delonix elata*
Bubunto	*Ficus sycomorus*
Chachalleh	*Combretum aculeatum*
Dabach	*Grewia bicolor*
Dabach	*Grewia mollis*
Dahar	*Acacia tortilis*
Domook (fruit)	*Grewia tenax*
Domook derle	*Grewia tenax*
Dook gudhan	*Grewia tembensis*

Rendille (cont)

Fololo	*Ricinus communis*
Fulaay	*Acacia drepanolobium*
Fulai	*Acacia seyal*
Gab	*Ziziphus mauritiana*
Gab	*Ziziphus mucronata*
Gaer	*Cordia sinensis*
Gahar	*Acacia tortilis*
Galafu	*Lippia carviodora*
Galdayan (Korr)	*Commiphora rostrata*
Gayer	*Cordia sinensis*
Geikuku	*Cadaba farinosa*
Gey-i-khoona	*Hyphaene compressa*
Godhoom boor	*Carissa spinarum*
Gomor	*Acacia paolii*
Hadhaadh	*Acacia senegal*
Halale	*Boswellia microphylla*
Halale	*Boswellia neglecta*
Hanja (resin)	*Boswellia neglecta*
Hayay	*Salvadora persica*
Ilbule	*Balanites pedicellaris*
Ilgiliti	*Acacia nilotica*
Ilmo (fruit)	*Ficus sycomorus*
Irigormosso	*Vangueria madagascariensis*
Koh	*Cordia sinensis*
Kulum	*Balanites rotundifolia*
Lufute hadu'un	*Sueda monoica*
Lyoror	*Boscia coriacea*
Madeer	*Cordia sinensis*
Mirgi	*Acacia senegal*
Mulahanyo	*Grewia tembensis*
Mulahanyo	*Grewia tenax*
Muun	*Kigelia africana*
Namaniela	*Premna resinosa*
Niondoh	*Lannea triphylla*
Obhoob	*Grewia villosa*
Santau	*Berchemia discolor*
Yaga aqurra	*Diospyros scabra*
Yeho	*Meyna tetraphylla*
Yoror	*Boscia coriacea*

Sabaot

Asenuet	*Combretum collinum*
Bongwet	*Faurea saligna*
Borowa	*Dombeya rotundifolia*
Bulgelwa	*Vitex doniana*
Bumet	*Ekebergia capensis*
Cheburiundet	*Vernonia amygdalina*
Chemetio	*Maytenus senegalensis*
Chepkitowiondet	*Ozoroa insignis*
Cheptapasya	*Ficus ingens*
Cheptua	*Diospyros abyssinica*
Cheptuishak	*Euclea divinorum*
Chiesamiss	*Crateva adansonii*
Chorua	*Nuxia congesta*
Chuuandet	*Balanites aegyptiaca*
Dabulwa	*Gardenia ternifolia*
Dalyet	*Faidherbia albida*
Duget	*Faidherbia albida*
Duyet	*Faidherbia albida*
Ematso	*Acacia lahai*
Ewondet	*Polyscias fulva*
Kaborte	*Erythrina abyssinica*
Kaptebema	*Macaranga kilimandscharica*
Katagi	*Ziziphus abyssinica*
Katagi	*Ziziphus mauritiana*
Katetalam	*Sclerocarya birrea*
Kembel	*Combretum molle*
Kimesan	*Oncoba spinosa*
Kimet	*Acacia lahai*
Kipumetet	*Ekebergia capensis*
Kotelalam	*Sclerocarya birrea*
Lemaiyua	*Syzygium guineense*
Lemaiyua	*Tamarindus indica*
Letwa	*Scutia myrtina*
Luliondet	*Pouteria adolfi-friedericii*
Lulyo	*Pouteria adolfi-friedericii*
Maakwet	*Faurea saligna*
Maiyokwo	*Faurea saligna*
Marambajet	*Acacia abyssinica*
Masgat	*Olea capensis*
Mastet	*Celtis africana*
Mastitet	*Celtis africana*
Mololosti	*Dracaena steudneri*
Mongunyet	*Allophylus africanus*
Morgenet	*Bersama abyssinica*
Mosididiet	*Celtis africana*
Moyawarura	*Rhamnus prinoides*
Muapuarua	*Rhamnus prinoides*
Mugunguret	*Cordia africana*
Mundililwet	*Dovyalis abyssinica*
Murosuet	*Nuxia congesta*
Mushembut	*Entada abyssinica*
Musiembu	*Entada abyssinica*
Mutoywo	*Ximenia americana*
Ndiniet	*Acacia hockii*
Njowaruwa	*Rhus ruspolii*
Njowaruwa	*Rhus vulgaris*
Oromoti	*Prunus africana*
Pulgelwet	*Vitex doniana*
Reberwo	*Syzygium guineense*
Sakiandet	*Piliostigma thonningii*
Sapta	*Podocarpus falcatus*
Saptet	*Podocarpus falcatus*
Seger	*Ilex mitis*
Seruondet	*Casaeria battiscombei*
Seruwa	*Casaeria battiscombei*
Shiendet	*Euclea divinorum*
Sigirwo	*Bersama abyssinica*
Simotuet	*Ficus thonningii*
Sirwa	*Rhus natalensis*
Sitatet	*Podocarpus latifolius*
Situtwa	*Myrsine melanophloeos*
Sokoruet	*Hagenia abyssinica*
Sunwa	*Elaeodendron buchananii*
Tegendet	*Arundinaria alpina*
Tombolokwa	*Dodonaea viscosa*
Torokio	*Juniperus procera*
Totokio	*Cornus volkensii*
Tungururu	*Flacourtia indica*
Uluteywa	*Ximenia americana*
Uswa	*Euclea divinorum*
Wuswet	*Euclea divinorum*
Yemit	*Olea europaea*

Samburu

Arakaulu	*Apodytes dimidiata*
Borillo	*Cussonia spicata*
Chibulukwa	*Cordia africana*
Dorgo	*Cordia sinensis*
Elmugi	*Newtonia hildebrandtii*
Eyaonet	*Apodytes dimidiata*
Garacha	*Erythrina abyssinica*
Ibukoi	*Terminalia brownii*

Samburu (cont)

Ichanai orok	*Diospyros abyssinica*
Iderendei	*Ziziphus mucronata*
Igirigiri	*Acacia brevispica*
Ikarayoi	*Grewia tenax*
Ikenyeli	*Rhamnus prinoides*
Ikerimichoi	*Meyna tetraphylla*
Ikilositi	*Acacia nilotica*
Ikinoi	*Lannea alata*
Ikirebuk	*Flueggea virosa*
Ikogomi	*Grewia tenax*
Ikokokai	*Rhamnus staddo*
Ikoromosien	*Vangueria infausta*
Ikoromosyieoi	*Vangueria apiculata*
Ikoromosyoi	*Vangueria infausta*
Ikweite	*Cordia sinensis*
Ilberi	*Trichilia emetica*
Ilchinge	*Euclea divinorum*
Ilerendei	*Ziziphus mauritiana*
Ilgoita	*Cordia sinensis*
Ilkisiriko	*Lepisanthes senegalensis*
Ilmisingiyot	*Rhus natalensis*
Ilmorijoi	*Acokanthera schimperi*
Ilporowai	*Dombeya burgessiae*
Iltorel	*Pistacia aethiopica*
Iltumbach	*Casaeria battiscombei*
Imombi	*Kigelia africana*
Imoroo	*Dovyalis abyssinica*
Ingongomi	*Grewia tenax*
Iparwa	*Hyphaene compressa*
Ipirintai	*Adenium obesum*
Ipusan	*Grewia tenax*
Ipuusani	*Grewia tenax*
Irri	*Grewia tembensis*
Irri	*Grewia tenax*
Itagurmut	*Strychnos mitis*
Iti	*Acacia mellifera*
Itooj	*Manilkara mochisia*
Kinoi	*Lannea alata*
Kokilai	*Rhamnus staddo*
Labuli	*Ficus thonningii*
Lachachur	*Ehretia cymosa*
Lagrat denai	*Grewia bicolor*
Laibelelhi	*Ricinus communis*
Laichimi	*Delonix elata*
Laimurunyai	*Maytenus senegalensis*
Lairakai	*Syzygium cordatum*
Lairakai	*Syzygium guineense*
Lakirdinga	*Capparis sepiaria*
Lamai	*Adansonia digitata*
Lamai	*Ximenia americana*
Lamantume	*Cordia monoica*
Lampalegi	*Ricinus communis*
Lamulii	*Syzygium cordatum*
Lamulii	*Syzygium guineense*
Lamuriai	*Carissa spinarum*
Lamuriei	*Carissa spinarum*
Lamuyaki	*Maerua decumbens*
Lapironit	*Bridelia micrantha*
Lapironit	*Bridelia taitensis*
Lapuroi	*Lannea triphylla*
Larachi	*Calodendrum capense*
Larai	*Faidherbia albida*
Larasoro	*Cadaba farinosa*
Lasamarai	*Pistacia aethiopica*
Lasaramai	*Harrisonia abyssinica*
Laturidei	*Capparis fascicularis*
Laturudei	*Scutia myrtina*
Lawai	*Delonix elata*
Lboringo	*Cordia africana*
Lcheningiro	*Commiphora africana*
Lchinge	*Euclea divinorum*
Ldalampo	*Entada leptostachya*
Lderkesi	*Acacia senegal*
Lebokich	*Terminalia orbicularis*
Lecholo	*Piliostigma thonningii*
Lecholoo	*Boswellia neglecta*
Legili	*Dichrostachys cinerea*
Lehenioibor	*Ilex mitis*
Lejoro	*Rhus vulgaris*
Lekawai	*Phoenix reclinata*
Lekweita	*Ormocarpum trachycarpum*
Lemaloni	*Premna resinosa*
Leminyani	*Lippia carviodora*
Leperei	*Syzygium cordatum*
Leperei	*Syzygium guineense*
Lereday	*Capparis fascicularis*
Leroi	*Faidherbia albida*
Leroongo	*Pappea capensis*
Leturmet	*Meyna tetraphylla*
L'gilai	*Vepris nobilis*
Lgotoi	*Diospyros scabra*
Lgueita	*Cordia sinensis*
Lgumi	*Vangueria volkensii*
Lgurongui	*Pappea capensis*
Lgurugu	*Pappea capensis*
Lgweita orok	*Cordia sinensis*
Limoro	*Dovyalis abyssinica*
Lkarraiyo	*Grewia bicolor*
Lkasiyoi	*Garcinia livingstonei*
Lkinoo	*Boswellia neglecta*
Lkormosiyoi	*Vangueria madagascariensis*
Lkoromosien	*Vangueria madagascariensis*
Lkutetei	*Landolphia buchananii*
Lmaim	*Commiphora rostrata*
Lmakutikuti	*Lippia carviodora*
Lmanturre	*Cordia sinensis*
Lmisigiyoi	*Rhus natalensis*
Lmuki	*Newtonia hildebrandtii*
Lmuldai	*Vangueria volkensii*
Lmuria	*Carissa spinarum*
Lng'aboli	*Ficus sur*
Lngaboli	*Ficus sycomorus*
Lng'arboi	*Pentarrhinum insipidum*
Lnyalikoi	*Trema orientalis*
Lobbobo	*Cassipourea malosana*
Loberondo	*Nuxia oppositifolia*
Loilalei	*Ziziphus mucronata*
Loisugi	*Zanthoxylum chalybeum*
Loisugi	*Zanthoxylum usambarense*
Loisuki	*Zanthoxylum chalybeum*
Loitipai	*Grewia tenax*
Loiyangalani	*Sesbania sesban*
Lokononoi	*Ozoroa insignis*
Loliontoi	*Olea capensis*
Loloroi	*Flacourtia indica*
Lomunyanyi	*Lippia carviodora*
Lopisedi	*Pappea capensis*
Loposeta	*Pappea capensis*
Lorsanjo	*Moringa stenopetala*
Lositet	*Trema orientalis*
Lowai	*Balanites aegyptiaca*
Lparwai	*Hyphaene compressa*
Lpision	*Encephalartos tengulaneus*

Samburu (cont)

Lpupoi	*Grewia villosa*
Ltepes	*Acacia tortilis*
Ltilimani	*Commiphora rostrata*
Luai	*Acacia drepanolobium*
Lugugutt	*Solanecio mannii*
Lyoret	*Garcinia livingstonei*
Makutukuti	*Clerodendrum myricoides*
Malala	*Hyphaene compressa*
Manok (gum)	*Acacia senegal*
Marakuet	*Croton megalocarpus*
Maramarui	*Melia volkensii*
Mnorotshi	*Erythrina melanacantha*
Muchanja	*Cassipourea malosana*
Mumnyani	*Combretum schumannii*
Muruguti	*Harrisonia abyssinica*
Najipouwis	*Grewia villosa*
Nchipilikwa	*Strychnos henningsii*
Ng'arboi	*Pentarrhinum insipidum*
Ngela	*Teclea simplicifolia*
Ngeliot	*Tetradenia riparia*
Ngereni	*Sapium ellipticum*
Ngurangura	*Buddleia polystachya*
Ngururusi	*Vangueria volkensii*
Ngururusia	*Vangueria volkensii*
Nkokidong	*Dracaena ellenbeckiana*
Nkujit ae nkeok	*Hyphaene compressa*
Olbolorio	*Cussonia holstii*
Olbugui	*Faurea saligna*
Olchani	*Podocarpus latifolius*
Olmukutan	*Albizia anthelmintica*
Olng'onwenyi	*Acacia gerrardii*
Olongoronok	*Pistacia aethiopica*
Piripirindi	*Podocarpus falcatus*
Rankau	*Acacia drepanolobium*
Reexam	*Lippia carviodora*
Reteti	*Ficus thonningii*
Rikoyo	*Combretum aculeatum*
Rogei	*Tamarindus indica*
Rokess	*Combretum molle*
Sakurdumii	*Kedrostis pseudogijef*
Sangaretei	*Thylachium africanum*
Santaiti	*Berchemia discolor*
Sanunguri	*Scutia myrtina*
Sarai	*Balanites pedicellaris*
Sarai	*Balanites rotundifolia*
Sebit	*Landolphia buchananii*
Seeki	*Cordia monoica*
Seketeta	*Myrsine africana*
Senetoi	*Senna singueana*
Senoni	*Lippia kituiensis*
Serichoi	*Boscia coriacea*
Serri	*Dobera glabra*
Sesiai	*Acacia elatior*
Seteti	*Grewia bicolor*
Shinghe	*Euclea divinorum*
Silapani	*Cordia sinensis*
Sinoni	*Lippia javanica*
Sinoni	*Lippia kituiensis*
Sioloran	*Rhus vulgaris*
Sitet	*Grewia bicolor*
Siteti	*Grewia mollis*
Sogore	*Albizia gummifera*
Sogorogurri	*Albizia gummifera*
Sokotei	*Salvadora persica*
Sokotu	*Salvadora persica*
Tamiyai	*Olea europaea*

Sanya

Adhe	*Maytenus senegalensis*
Adhei	*Salvadora persica*
Anwaki	*Hyphaene compressa*
Arawithargi	*Clausena anisata*
Badan	*Balanites wilsoniana*
Badhesa	*Mimusops obtusifolia*
Balacha	*Encephalartos hildebrandtii*
Bamba	*Bombax rhodognaphalon*
Boja	*Maytenus senegalensis*
Boja	*Scutia myrtina*
Bombo	*Annona senegalensis*
Bombo	*Vangueria infausta*
Dane	*Thespesia danis*
Danis	*Thespesia danis*
Dhabel	*Encephalartos hildebrandtii*
Dhembela	*Garcinia livingstonei*
Dhoka	*Manilkara sansibarensis*
Doka	*Manilkara sansibarensis*
Gadhayu korm	*Zanthoxylum chalybeum*
Garbithi hadaa	*Sideroxylon inerme*
Garse	*Dobera glabra*
Gonyora	*Phoenix reclinata*
Gorra adhi	*Capparis tomentosa*
Gur kolu	*Ormocarpum kirkii*
Gur kolu	*Ormocarpum trachycarpum*
Gurura	*Carissa spinarum*
Hakthame	*Cussonia zimmermannii*
Harki thokochi	*Antidesma venosum*
Haroru korma	*Grewia tenax*
Haroru	*Grewia bicolor*
Haroru	*Grewia plagiophylla*
Hoorocha	*Cordia sinensis*
Hudahuda	*Scutia myrtina*
Hudahuda	*Ximenia americana*
Itkindu	*Phoenix reclinata*
K'arari	*Sterculia africana*
Kararacha	*Diospyros consolatae*
Kimanjala	*Piliostigma thonningii*
Kolathi	*Berchemia discolor*
Korm	*Ziziphus mucronata*
Korocha	*Strychnos madagascariensis*
Korubo	*Terminalia prunioides*
Kunazi (fruit)	*Ziziphus mauritiana*
Kuraga	*Manilkara sulcata*
Kurubo	*Terminalia spinosa*
Lkonga	*Hyphaene compressa*
Magadhoguyo	*Garcinia livingstonei*
Magugu	*Trema orientalis*
Maibo	*Anacardium occidentale*
Malalai	*Populus ilicifolia*
Mangula	*Strychnos madagascariensis*
Mangula	*Strychnos spinosa*
Marafa	*Borassus aethiopum*
Mbalazi	*Cajanus cajan*
Mbirimbi	*Averrhoa bilimbi*
Mkadi	*Pandanus kirkii*
Mkibonyea	*Flueggea virosa*
Mkidonyathi	*Dovyalis abyssinica*
Mkidonyathi	*Dovyalis macrocalyx*
Mkingili	*Dichrostachys cinerea*
Mklifi	*Azadirachta indica*
Mkoko	*Rhizophora mucronata*
Mkufu	*Vitex mombassae*
Mkukura	*Ziziphus mucronata*
Mogodonya	*Flacourtia indica*
Mpweke	*Diospyros squarrosa*

Sanya (cont)

Mshenzi	*Brachylaena huillensis*
Mtanga	*Spirostachys venenifera*
Mtomoko badah	*Annona cherimola*
Muka	*Encephalartos hildebrandtii*
Muki barawa	*Xylopia parviflora*
Muki go jama	*Boscia angustifolia*
Muki ku'faa	*Vitex ferruginea*
Mukunazi	*Ziziphus mauritiana*
Mungaa	*Hyphaene compressa*
Murgulule	*Combretum schumannii*
Muthompa	*Lecaniodiscus fraxinifolius*
Muzungwa	*Moringa oleifera*
Mvule	*Milicia excelsa*
Mzambarau	*Syzygium cumini*
Odha	*Ficus sycomorus*
Omukbare	*Caesalpinia volkensii*
Rigathu	*Salvadora persica*
Roka	*Tamarindus indica*
Rorogithi	*Euphorbia candelabrum*
Sakucha	*Cynometra webberi*
Shilole	*Uvaria acuminata*
Shilolekorm	*Uvaria lucida*
Shoshobli	*Dialium orientale*
Shusholwe	*Dialium orientale*
Sibile	*Hymenaea verrucosa*
Soso	*Brachystegia spiciformis*
Wales	*Sterculia appendiculata*
Wasamara	*Cassia afrofistula*
Watho	*Brachylaena huillensis*
Yak	*Adansonia digitata*
Yamicha	*Afzelia quanzensis*

Somali

Abaa	*Acacia tortilis*
Abak	*Acacia tortilis*
Abarmog (Mandera)	*Maerua decumbens*
Adad	*Acacia senegal*
Adadak	*Pappea capensis*
Adhee (Mandera)	*Salvadora persica*
Adhei	*Salvadora persica*
Adishabel	*Carissa spinarum*
Afgub	*Opilia campestris*
Allan	*Terminalia brevipes*
Alol	*Phoenix reclinata*
Alool	*Phoenix reclinata*
Amaressa	*Sueda monoica*
Amasha	*Grewia tenax*
Amba	*Mangifera indica*
Anri	*Lannea rivae*
Anri	*Lannea triphylla*
Anthri	*Lannea triphylla*
Asel	*Pappea capensis*
Ayab	*Pentarrhinum insipidum*
Ayabedeo	*Spirostachys venenifera*
Baar	*Hyphaene compressa*
Baaror	*Lannea triphylla*
Bakal	*Delonix baccal*
Bamba	*Melia volkensii*
Bardah	*Ficus glumosa*
Bardah	*Ficus sur*
Bardah (Tana River)	*Ficus sycomorus*
Bebeh	*Boswellia microphylla*
Bilil	*Acacia mellifera*
Bisakh	*Terminalia orbicularis*
Bisiiq	*Terminalia orbicularis*
Bukuraal	*Kigelia africana*
Bura	*Erythrina melanacantha*
Burra	*Acacia elatior*
Chana	*Lecaniodiscus fraxinifolius*
Chieh	*Boscia angustifolia*
Dabell (young tree)	*Hyphaene compressa*
Dagayar	*Boscia coriacea*
Dainjo	*Commiphora rostrata*
Dakaja	*Saba comorensis*
Dakkiyar	*Boscia coriacea*
Damaas	*Conocarpus lancifolius*
Dana	*Euphorbia tirucalli*
Danfarur (Mandera)	*Grewia tenax*
Danrab	*Sterculia africana*
Danu	*Commiphora rostrata*
Danusagar	*Commiphora rostrata*
Daresa (Garissa)	*Garcinia livingstonei*
Debhi	*Grewia plagiophylla*
Debhi (Tana River)	*Grewia bicolor*
Debhi ad	*Grewia mollis*
Deen	*Berchemia discolor*
Deka	*Grewia tenax*
Demag	*Grewia tembensis*
Demak	*Grewia tenax*
Denisa	*Thespesia danis*
Depi	*Grewia bicolor*
Dhamag	*Grewia tembensis*
Dhangalow	*Saba comorensis*
Dhaye dhabe	*Lippia carviodora*
Dheenden ro'o	*Berchemia discolor*
Ditar	*Dichrostachys cinerea*
Domaderi	*Cassia abbreviata*
Dongola	*Saba comorensis*
Dowee	*Grewia bicolor*
Dughdughow	*Cadaba glandulosa*
Dumag	*Grewia tembensis*
Dumei	*Cadaba farinosa*
Duur	*Tamarix aphylla*
Duur	*Tamarix nilotica*
Edad	*Acacia senegal*
Eddi shabel	*Combretum aculeatum*
Eddi shibeel (Mandera)	*Combretum aculeatum*
Ehb	*Cordeauxia edulis*
Elan	*Lawsonia inermis*
Erip	*Lawsonia inermis*
Feyid	*Adenium obesum*
Frim	*Dialium orientale*
Fulay	*Acacia seyal*
Fulay wajol	*Acacia seyal var. fistula*
Fullai	*Acacia drepanolobium*
Furgorri	*Acacia brevispica*
Furgurgur	*Caesalpinia trothae*
Galgnal	*Cadaba farinosa*
Gammur	*Acacia paolii*
Garas	*Dobera glabra*
Garso	*Dobera glabra*
Ged hamu	*Lippia carviodora*
Ged mured	*Grewia mollis*
Gedh chala	*Capparis sepiaria*
Gessreb	*Albizia amara*
Get kharerow	*Azadirachta indica*
Get mariid	*Acokanthera schimperi*
Get suuf	*Bombax rhodognaphalon*
Gitkalat	*Ricinus communis*
Giyapp	*Clerodendrum eriophyllum*
Gob	*Ziziphus mauritiana*
Gombor lik	*Capparis tomentosa*
Gommor	*Acacia paolii*

Somali (cont)

Goob	*Ziziphus mauritiana*
Gora	*Caesalpinia trothae*
Gora	*Capparis fascicularis*
Gora	*Capparis sepiaria*
Gorgor	*Acacia brevispica*
Gradha gradha	*Premna resinosa*
Gup	*Ziziphus mauritiana*
Gurb	*Clerodendrum eriophyllum*
Hadesa	*Strychnos henningsii*
Haiyah badad	*Spirostachys venenifera*
Hamaar	*Tamarindus indica*
Hamar	*Tamarindus indica*
Hammes sagara	*Commiphora africana*
Hamur gob	*Ziziphus mucronata*
Hanguli (Eldas)	*Commiphora rostrata*
Harar	*Terminalia brownii*
Hareri biins	*Terminalia brownii*
Hareri	*Terminalia polycarpa*
Hareri	*Terminalia prunioides*
Hareri	*Terminalia spinosa*
Idi shibel bured	*Allophylus rubifolius*
Jahjahneh	*Acacia paolii*
Janau (Wajir)	*Commiphora rostrata*
Jano (Isiolo)	*Commiphora rostrata*
Jenau	*Commiphora rostrata*
Jerin	*Acacia paolii*
Jidwey	*Lannea rivae*
Kalejeje	*Ficus thonningii*
Kamasha	*Grewia tenax*
Karro	*Gardenia fiorii*
Khaphan	*Thespesia danis*
Kobagor	*Entada leptostachya*
Kobbish	*Grewia villosa*
Kobhan	*Thespesia danis*
Kolati	*Diospyros cornii*
Kolati	*Diospyros mespiliformis*
Kolati (Tana River)	*Mimusops obtusifolia*
Korati (Tana River)	*Diospyros mespiliformis*
Kor'guba	*Berchemia discolor*
Koshum	*Dovyalis abyssinica*
Kullan	*Balanites aegyptiaca*
Kullan	*Balanites rotundifolia*
Kulung (Mandera)	*Balanites aegyptiaca*
Kumudhe (Tana River)	*Lannea alata*
Labi	*Delonix elata*
Lamblesha	*Boscia salicifolia*
Lamloch	*Boscia salicifolia*
Langeed	*Sesamothamnus busseanus*
Lebbi	*Delonix elata*
Lebi sauwer	*Ormocarpum kirkii*
Lebi sauwer	*Ormocarpum trachycarpum*
Lowee (Mandera)	*Delonix elata*
Magafur	*Boswellia neglecta*
Maleqa	*Phoenix reclinata*
Malmal	*Commiphora myrrha*
Mandurcet	*Ximenia americana*
Marah	*Acacia nilotica*
Mardafa (Tana River)	*Borassus aethiopum*
Mareer	*Cordia sinensis*
Mareer booy	*Uvaria scheffleri*
Marer girgir (Tana River)	*Cordia monoica*
Marer	*Cordia sinensis*
Marer gob	*Cordia monoica*
Marfis	*Vitex ferruginea*
Marfis	*Vitex mombassae*
Marud	*Adenium obesum*
Mathafur	*Boswellia neglecta*
Mathenge	*Prosopis chilensis*
Mau	*Moringa stenopetala*
Mawali	*Moringa stenopetala*
Mawe (Mandera)	*Moringa stenopetala*
Mirafur (Tana River)	*Boswellia neglecta*
Mogole	*Boswellia microphylla*
Mugle	*Boswellia microphylla*
Munyangatta	*Sterculia appendiculata*
Murcud	*Ximenia americana*
Mured (Garissa)	*Grewia tenax*
Mured bonati (Tana River)	*Grewia tembensis*
Murfur aad	*Boswellia neglecta*
Murie	*Grewia tenax*
Natana	*Canthium glaucum*
Obe	*Adenium obesum*
Ohia	*Thylachium thomasii*
Ohia sagara (Tana River)	*Maerua decumbens*
Qalanqal	*Boscia coriacea*
Qharanri	*Sterculia africana*
Qoona (fruit)	*Hyphaene compressa*
Qud	*Cordeauxia edulis*
Quda	*Cordeauxia edulis*
Qura	*Acacia tortilis*
Raqee (Tana River)	*Tamarindus indica*
Reidep	*Albizia anthelmintica*
Reidup	*Albizia anthelmintica*
Roge	*Tamarindus indica*
Roqhe	*Tamarindus indica*
Sasaante	*Dracaena steudneri*
Selelma	*Sesamothamnus busseanus*
Shan faroth	*Garcinia livingstonei*
Sholole	*Uvaria leptocladon*
Siko	*Oncoba spinosa*
Sirkh	*Populus ilicifolia*
Sogdu	*Markhamia lutea*
Tebi	*Grewia bicolor*
Timir	*Phoenix dactylifera*
Tuger	*Acacia nilotica*
Tukh	*Cadaba farinosa*
Tuwer	*Acacia nilotica*
Uba	*Adenium obesum*
Waanri (Tana River)	*Lannea triphylla*
Wadad	*Cussonia holstii*
Wanreh	*Lannea alata*
Waradhe (Tana River)	*Manilkara mochisia*
Wera	*Olea europaea*
Yaaq	*Adansonia digitata*
Yak	*Adansonia digitata*
Zeitun	*Psidium guajava*

Standard or trade name (also see English names)

Afzelia	*Afzelia quanzensis*
Algaroba	*Prosopis juliflora*
Pouteria	*Pouteria adolfi-friedericii*
Antiaris	*Antiaris toxicaria*
Black plum	*Vitex doniana*
Brown olive	*Olea europaea*
Butterfly bush	*Clerodendrum myricoides*
Cashewnut	*Anacardium occidentale*
Chilean mesquite	*Prosopis chilensis*
Cordyla	*Cordyla africana*
East African bombax	*Bombax rhodognaphalon*
East African greenheart	*Warburgia ugandensis*
East African sandalwood	*Osyris lanceolata*
Ekebergia	*Ekebergia capensis*
False iroko	*Antiaris toxicaria*

Standard or trade name (cont)

Iroko	*Milicia excelsa*
Kenya oak	*Vitex keniensis*
Mathenge (Kenya)	*Prosopis chilensis*
Mathenge (Kenya)	*Prosopis juliflora*
Mchani mbao	*Albizia glaberrima*
Meru oak	*Vitex keniensis*
Mesquite	*Prosopis juliflora*
Mfune	*Sterculia appendiculata*
Mkilua	*Mkilua fragrans*
Mkoko	*Rhizophora mucronata*
Mkwadju	*Tamarindus indica*
Mngambo	*Manilkara sansibarensis*
Mnienzi	*Parkia filicoidea*
Mpepeta	*Dialium orientale*
Mpingo	*Dalbergia melanoxylon*
Mrihi	*Brachystegia spiciformis*
Mshiwi	*Syzygium guineense*
Mtandarusi	*Hymenaea verrucosa*
Muhugu	*Brachylaena huillensis*
Muhuhu	*Brachylaena huillensis*
Muia	*Bruguiera gymnorrhiza*
Mukau	*Melia volkensii*
Muna	*Pouteria adolfi-friedericii*
Musizi	*Maesopsis eminii*
Mutati	*Polyscias fulva*
Mutere	*Maesopsis eminii*
Mvule	*Milicia excelsa*
Mwikuni	*Blighia unijugata*
Myrrh	*Commiphora myrrha*
Newtonia	*Newtonia buchananii*
Pear wood	*Apodytes dimidiata*
Pillar wood	*Cassipourea malosana*
Prunus (Kenya)	*Prunus africana*
Red stinkwood	*Prunus africana*
Screw pine	*Pandanus kirkii*
Strombosia	*Strombosia scheffleri*
Tamarind	*Tamarindus indica*
Teldet	*Ekebergia capensis*
Terminalia	*Terminalia spinosa*
Trichilia	*Trichilia emetica*
Vitex	*Vitex doniana*
White nongo	*Albizia glaberrima*
White pear	*Apodytes dimidiata*
Wild olive	*Olea europaea*

Swahili

Bonoo	*Ricinus communis*
Bungo (fruit)	*Saba comorensis*
Doka	*Manilkara sansibarensis*
Karacha	*Antidesma venosum*
Kibilazi mwitu	*Cadaba farinosa*
Kiburabura	*Prunus africana*
Kikandaa	*Lumnitzera racemosa*
Kikwakwa	*Strychnos madagascariensis*
Kikwata	*Acacia mellifera*
Kikwata	*Acacia senegal*
Kilungwana	*Landolphia kirkii*
Kimwemwe	*Gardenia ternifolia*
Lusina	*Leucaena leucocephala*
Makarakara	*Bridelia cathartica*
Maramata	*Pithecellobium dulce*
Matoje (fruit)	*Rubus pinnatus*
Mbaazi	*Cajanus cajan*
Mbada paka	*Capparis tomentosa*
Mbalibali	*Acacia drepanolobium*
Mbamba ngoma	*Balanites rotundifolia*
Mbambakofi	*Afzelia quanzensis*
Mbambangoma	*Erythrina abyssinica*
Mbambangoma	*Erythrina sacleuxii*
Mbambara	*Commiphora africana*
Mbambaro	*Terminalia kilimandscharica*
Mbaraka mkuu	*Erythrophleum suaveolens*
Mbaraka mtoto	*Cassia afrofistula*
Mbaraka	*Cassia abbreviata*
Mbaraka	*Senna singueana*
Mbarao	*Terminalia brownii*
Mbariki	*Ricinus communis*
Mbibo	*Anacardium occidentale*
Mbirimbi	*Averrhoa bilimbi*
Mbomba maji	*Cussonia zimmermannii*
Mbombaro	*Terminalia sambesiaca*
Mbua nono	*Antidesma venosum*
Mbua ya nuno msasuzi	*Antidesma venosum*
Mbunga	*Landolphia kirkii*
Mbungo	*Landolphia buchananii*
Mbungo	*Saba comorensis*
Mbura	*Harungana madagascariensis*
Mbuyu	*Adansonia digitata*
Mbwale	*Dombeya taylorii*
Mbwewe	*Lecaniodiscus fraxinifolius*
Mchambigi	*Manilkara sulcata*
Mchani	*Albizia glaberrima*
Mchani mbao	*Albizia gummifera*
Mchani ndovu	*Albizia versicolor*
Mchapa	*Borassus aethiopum*
Mche	*Newtonia paucijuga*
Mchedi	*Manilkara sulcata*
Mchegi	*Manilkara sansibarensis*
Mcheje mume	*Manilkara sulcata*
Mchekeche	*Piliostigma thonningii*
Mchekecheke	*Crotalaria axillaris*
Mchikichi	*Piliostigma thonningii*
Mcho	*Uvaria kirkii*
Mchofu	*Uvaria kirkii*
Mchongoma	*Flacourtia indica*
Mchu	*Avicennia marina*
Mdaa mwitu	*Diospyros abyssinica*
Mdundungoma	*Erythrina sacleuxii*
Mfenesi	*Artocarpus heterophyllus*
Mforsadi	*Morus alba*
Mfudu maji.	*Vitex mombassae*
Mfudu	*Vitex doniana*
Mfudu	*Vitex payos*
Mfufu	*Vitex payos*
Mfukufuku	*Grewia bicolor*
Mfunda	*Cynometra suaheliensis*
Mfunda	*Cynometra webberi*
Mfunda mweupe	*Craibia brevicaudata*
Mfunda mweupe	*Crotalaria agatiflora*
Mfune	*Sterculia appendiculata*
Mgambari	*Entada leptostachya*
Mganda simba	*Uvaria acuminata*
Mganda simba	*Uvaria lucida*
Mgegi	*Vitex ferruginea*
Mgiriti	*Diospyros mespiliformis*
Mgodoma	*Scorodophloeus fischeri*
Mgombe	*Diospyros mespiliformis*
Mgongolo	*Combretum schumannii*
Mgongolo	*Rhoicissus revoilii*
Mgovigovi	*Flacourtia indica*
Mgoza	*Sterculia africana*
Mguguni	*Balanites wilsoniana*
Mgunga	*Acacia nilotica*
Mgunga	*Acacia senegal*

Swahili (cont)

Mgunga	*Acacia seyal*
Mgunga	*Acacia tortilis*
Mgunga	*Newtonia hildebrandtii*
Mgurure	*Combretum schumannii*
Mguvi	*Manilkara sansibarensis*
Mgwata	*Cordyla africana*
Mgwende	*Encephalartos hildebrandtii*
Mhina	*Lawsonia inermis*
Mhomba	*Senna spectabilis*
Mikoche	*Grewia bicolor*
Mjafari	*Zanthoxylum holtzianum*
Mjangari	*Margaritaria discoidea*
Mjohoro	*Delonix regia*
Mjungu	*Acacia nilotica*
Mjunju	*Balanites aegyptiaca*
Mkaa pwani	*Dodonaea viscosa*
Mkaa	*Warburgia stuhlmannii*
Mkadi	*Diospyros mespiliformis*
Mkadi	*Pandanus kirkii*
Mkamasi	*Cordia sinensis*
Mkandaa mwitu	*Lumnitzera racemosa*
Mkandaa	*Ceriops tagal*
Mkanju	*Anacardium occidentale*
Mkarakara	*Bridelia micrantha*
Mkarambati	*Brachylaena huillensis*
Mkaranga mti	*Bombax rhodognaphalon*
Mkarati	*Bridelia cathartica*
Mkarati	*Bridelia micrantha*
Mkelekele	*Erythrophleum suaveolens*
Mkengewa	*Acacia polyacantha*
Mkidori	*Harrisonia abyssinica*
Mkilifi	*Azadirachta indica*
Mkilua	*Mkilua fragrans*
Mkimwemwe	*Gardenia volkensii*
Mkindu	*Phoenix reclinata*
Mkingili	*Flacourtia indica*
Mkingiri	*Flacourtia indica*
Mkitaji	*Ormocarpum kirkii*
Mkitaji	*Ormocarpum trachycarpum*
Mkobokobo	*Cordia africana*
Mkoche	*Hyphaene compressa*
Mkoko	*Rhizophora mucronata*
Mkokoa	*Lawsonia inermis*
Mkokobara	*Sideroxylon inerme*
Mkoma wa pwani	*Hyphaene coriacea*
Mkoma	*Hyphaene compressa*
Mkomafi	*Xylocarpus granatum*
Mkomafi	*Xylocarpus moluccensis*
Mkomwe	*Caesalpinia bonduc*
Mkona chuma	*Allophylus rubifolius*
Mkone	*Grewia plagiophylla*
Mkonga	*Balanites wilsoniana*
Mkono chuma	*Rhus vulgaris*
Mkono chuma	*Rhus natalensis*
Mkonokono	*Annona senegalensis*
Mkororo	*Commiphora africana*
Mkorosho	*Anacardium occidentale*
Mkue	*Julbernardia magnistipulata*
Mkue	*Paramacrolobium coeruleum*
Mkufi	*Rauvolfia caffra*
Mkuju	*Ficus sur*
Mkulu	*Diospyros cornii*
Mkulu	*Berchemia discolor*
Mkumba mbega	*Albizia glaberrima*
Mkuna chuma	*Rhus natalensis*
Mkunazi	*Ziziphus mauritiana*
Mkunde	*Antiaris toxicaria*
Mkunde	*Parkia filicoidea*
Mkungu	*Terminalia catappa*
Mkungu	*Albizia lebbeck*
Mkunguma	*Lecaniodiscus fraxinifolius*
Mkunguma	*Sorindeia madagascariensis*
Mkupa	*Dobera glabra*
Mkuyu	*Ficus sur*
Mkuyu	*Ficus sycomorus*
Mkwaju	*Tamarindus indica*
Mkwamba	*Flueggea virosa*
Mkwanga	*Encephalartos hildebrandtii*
Mlala sungura	*Diospyros consolatae*
Mlala	*Hyphaene compressa*
Mlama mwitu	*Rhus vulgaris*
Mlambusi mbage	*Apodytes dimidiata*
Mlandege	*Ficus thonningii*
Mlilana	*Sonneratia alba*
Mlishangwa	*Allophylus rubifolius*
Mlishangwe	*Rhus vulgaris*
Mlua	*Mkilua fragrans*
Mnafisi	*Boscia coriacea*
Mnago	*Berchemia discolor*
Mnago	*Manilkara mochisia*
Mnanyakanda	*Lecaniodiscus fraxinifolius*
Mnazi	*Cocos nucifera*
Mnembenembe	*Bridelia cathartica*
Mng'ambo kapee	*Mimusops obtusifolia*
Mngambo	*Manilkara sansibarensis*
Mng'ongo	*Sclerocarya birrea*
Mnguvi	*Mimusops obtusifolia*
Mnienze	*Parkia filicoidea*
Mnya mate	*Cordia sinensis*
Mnyaa	*Hyphaene compressa*
Mnyakwaa	*Commiphora eminii*
Mnyanza	*Hymenaea verrucosa*
Mnyumbu	*Lannea schweinfurthii*
Mongo	*Sclerocarya birrea*
Mongo	*Lannea schweinfurthii*
Morula	*Sclerocarya birrea*
Moyo	*Landolphia kirkii*
Mpapayi mwitu	*Cussonia zimmermannii*
Mpapura chui	*Capparis sepiaria*
Mpekechu	*Dialium holtzii*
Mpekechu	*Garcinia livingstonei*
Mpeketo	*Garcinia livingstonei*
Mpepeta	*Dialium holtzii*
Mpepeta	*Dialium orientale*
Mpera mwitu	*Combretum schumannii*
Mpera	*Psidium guajava*
Mperemende	*Elaeodendron schweinfurthianum*
Mpesi	*Trema orientalis*
Mpingi	*Ximenia americana*
Mpingo	*Dalbergia melanoxylon*
Mpira	*Saba comorensis*
Mpira	*Landolphia kirkii*
Mpira	*Manihot glaziovii*
Mponda	*Commiphora africana*
Mporojo	*Albizia anthelmintica*
Mpotowa ndovu mkuu	*Ekebergia capensis*
Mpweke	*Diospyros mespiliformis*
Mpweke	*Diospyros squarrosa*
Mpyo	*Landolphia kirkii*
Mrihi	*Brachystegia spiciformis*
Mrindazia	*Sesbania bispinosa*
Mrinja kondo	*Rhus vulgaris*
Mroma	*Cordyla africana*

Swahili (cont)

Mrongo	*Moringa oleifera*
Msamburini	*Harrisonia abyssinica*
Msamvia	*Synsepalum brevipes*
Msamvia	*Synsepalum msolo*
Msanaka	*Dracaena steudneri*
Msanaka	*Pandanus rabaiensis*
Msandali	*Osyris lanceolata*
Msandarusi	*Hymenaea verrucosa*
Msapa	*Manilkara mochisia*
Msapo	*Encephalartos hildebrandtii*
Msarakana	*Spirostachys africana*
Msasa	*Cordia monoica*
Msefu	*Sterculia appendiculata*
Msega	*Dobera glabra*
Msega	*Dobera loranthifolia*
Msegese	*Piliostigma thonningii*
Mshonjie	*Manilkara sansibarensis*
Msigande	*Opilia amentacea*
Msikukuu	*Delonix regia*
Msindi	*Bruguiera gymnorrhiza*
Msindi	*Diospyros mespiliformis*
Msisi	*Tamarindus indica*
Msofu	*Uvaria kirkii*
Mstafeli	*Annona cherimola*
Mstafeli	*Annona muricata*
Msuaga	*Antidesma venosum*
Msufi mwitu	*Bombax rhodognaphalon*
Msufi	*Ceiba pentandra*
Msunguti	*Acokanthera oppositifolia*
Mswaki	*Dobera glabra*
Mswaki	*Dobera loranthifolia*
Mswaki	*Salvadora persica*
Mtalawanda	*Manilkara mochisia*
Mtandamboo	*Carissa spinarum*
Mtandarusi	*Hymenaea verrucosa*
Mtanga	*Spirostachys venenifera*
Mtapa	*Borassus aethiopum*
Mtawanda	*Markhamia zanzibarica*
Mteja	*Flueggea virosa*
Mtengeji	*Canthium glaucum*
Mtetewe	*Acacia nilotica*
Mteweji	*Manilkara sulcata*
Mti chuma	*Manilkara sansibarensis*
Mti chuma	*Millettia usaramensis*
Mti sumu	*Rauvolfia mombasiana*
Mti sumu	*Stereospermum kunthianum*
Mtigonzi	*Cordyla africana*
Mtimai	*Trichilia emetica*
Mtimbao	*Eucalyptus saligna*
Mtishangwe	*Rhus natalensis*
Mtobo	*Thespesia garckeana*
Mtoje	*Rubus pinnatus*
Mtomoko	*Annona squamosa*
Mtomoko mwitu	*Annona senegalensis*
Mtonga	*Strychnos madagascariensis*
Mtonga	*Xylocarpus granatum*
Mtonga	*Strychnos spinosa*
Mtopetope	*Annona cherimola*
Mtopetope	*Annona squamosa*
Mtotozi	*Garcinia livingstonei*
Mtsani ndovu	*Albizia versicolor*
Mtsu	*Avicennia marina*
Mtunda	*Sideroxylon inerme*
Mtunda wa ngombe	*Sideroxylon inerme*
Mtundakula	*Ximenia americana*
Mtunguma	*Sorindeia madagascariensis*
Mtunguru	*Thylachium africanum*
Mtupa mwitu	*Euphorbia tirucalli*
Mturituri	*Commiphora africana*
Mtutu	*Bridelia micrantha*
Muaa	*Hyphaene compressa*
Muchunju	*Balanites aegyptiaca*
Mugome	*Cassipourea euryoides*
Muhonda	*Thespesia danis*
Muhowe	*Thespesia danis*
Muhuhu	*Brachylaena huillensis*
Muia	*Bruguiera gymnorrhiza*
Muizu wa kirisa	*Thylachium thomasii*
Mukhalita	*Ziziphus mauritiana*
Mukorobosho	*Grewia villosa*
Mukuwa	*Julbernardia magnistipulata*
Mukuyu	*Ficus sycomorus*
Mumbwa	*Cordyla africana*
Munga	*Acacia tortilis*
Mungango	*Sclerocarya birrea*
Muuyu	*Adansonia digitata*
Muwamaji	*Trichilia emetica*
Muwatata	*Thespesia garckeana*
Muyumbu maji	*Lannea schweinfurthii*
Mvinje	*Casuarina equisetifolia*
Mviru	*Vangueria infausta*
Mviru	*Vangueria madagascariensis*
Mvoo	*Cordyla africana*
Mvule	*Milicia excelsa*
Mvuma nyuki	*Premna chrysoclada*
Mvumba ngombe	*Premna resinosa*
Mvumo	*Borassus aethiopum*
Mvungunya	*Kigelia africana*
Mvunja kondo	*Rhus natalensis*
Mvunja vumo	*Cadaba farinosa*
Mvuti	*Lippia javanica*
Mvuti	*Lippia kituiensis*
Mwaa	*Diospyros consolatae*
Mwaale	*Raphia farinifera*
Mwaalika	*Ozoroa insignis*
Mwaalika	*Ozoroa obovata*
Mwadiga	*Adenium obesum*
Mwakamwatu	*Blighia unijugata*
Mwambangoma	*Erythrina abyssinica*
Mwambo	*Manilkara sansibarensis*
Mwanga	*Terminalia polycarpa*
Mwanga	*Terminalia spinosa*
Mwanga jini ndogo	*Strychnos mitis*
Mwangati	*Terminalia brevipes*
Mwangati	*Terminalia polycarpa*
Mwangati	*Terminalia prunioides*
Mwangati	*Terminalia spinosa*
Mwangati punda	*Terminalia prunioides*
Mwanzangu	*Cassipourea euryoides*
Mwanzi	*Arundinaria alpina*
Mwarara	*Acacia brevispica*
Mwarubaini	*Azadirachta indica*
Mwegea	*Kigelia africana*
Mwembe mwitu	*Rauvolfia caffra*
Mwembe	*Mangifera indica*
Mwengea	*Kigelia africana*
Mwinamia maji	*Sueda monoica*
Mwinamia ziwa	*Antidesma venosum*
Mwinyonye	*Sueda monoica*
Myamayu	*Syzygium cordatum*
Myombo	*Brachystegia spiciformis*
Mzambarau	*Syzygium cordatum*
Mzambarau	*Syzygium cumini*

Swahili (cont)

Mzambarau	*Syzygium guineense*
Mziwaziwa	*Antidesma venosum*
Mzuari	*Syzygium cordatum*
Mzuari	*Syzygium guineense*
Mzunze	*Moringa oleifera*
Nduwe	*Thespesia garckeana*
Ngozo	*Sterculia africana*
Poyi	*Dalbergia melanoxylon*
Ubani	*Boswellia neglecta*
Ukwaju (fruit)	*Tamarindus indica*
Ulimbo	*Landolphia kirkii*
Utupa	*Euphorbia tirucalli*

Taita

Chariso	*Boscia coriacea*
Chugu	*Cajanus cajan*
Dunguu	*Dichrostachys cinerea*
Igandaiyu	*Adenium obesum*
Isengeru	*Ensete ventricosum*
Issai	*Dracaena steudneri*
Iti	*Faidherbia albida*
Kangalige	*Maerua decumbens*
Kidabita	*Dombeya taylorii*
Kidadongo	*Cussonia spicata*
Kidongadi	*Cussonia spicata*
Kidongadi	*Polyscias stuhlmannii*
Kigangachi	*Phoenix reclinata*
Kijulu	*Osyris lanceolata*
Kinyondo	*Dalbergia lactea*
Kipungupungu	*Brachylaena huillensis*
Kirimba	*Carissa spinarum*
Kirumbutu	*Melia volkensii*
Kisambo	*Encephalartos kisambo*
Kitarika	*Rhus natalensis*
Kiwowa	*Balanites aegyptiaca*
Kiwowa	*Balanites pedicellaris*
Kizingumoto	*Salvadora persica*
Luafumbo	*Crotalaria axillaris*
Maisa	*Podocarpus latifolius*
Makuruma	*Newtonia buchananii*
Mamapemba	*Rauvolfia mannii*
Mameru (plural)	*Saba comorensis*
Manuki masi	*Ekebergia capensis*
Maratua	*Rubus pinnatus*
Matomoko	*Annona squamosa*
Mboghombogho	*Vangueria infausta*
Mbonu	*Ricinus communis*
Mbuche	*Dovyalis abyssinica*
Mdana	*Ehretia bakeri*
Meru	*Saba comorensis*
Mfirifiri	*Croton macrostachyus*
Mgamia	*Premna resinosa*
Mgaraso	*Nuxia congesta*
Mgerugeru	*Rhoicissus tridentata*
Mkababu	*Faidherbia albida*
Mkalamke	*Ozoroa insignis*
Mkangu	*Cassia abbreviata*
Mkanya	*Polyscias fulva*
Mkenga	*Markhamia zanzibarica*
Mkigara	*Croton megalocarpus*
Mkongo	*Ocotea usambarensis*
Mkongo	*Syzygium guineense*
Mkongori	*Pappea capensis*
Mkorombosha	*Solanecio mannii*
Mku	*Ficus sycomorus*
Mkufi	*Newtonia buchananii*
Mkumbi	*Olea europaea*
Mkungu	*Rhus vulgaris*
Mkunguruli	*Sorindeia madagascariensis*
Mkwachu	*Tamarindus indica*
Mlamba	*Adansonia digitata*
Mmara	*Grewia bicolor*
Mmbogha	*Grewia tembensis*
Mmbuku	*Euclea divinorum*
Mmeru sukari	*Landolphia kirkii*
Mndana	*Ehretia cymosa*
Mndendele	*Pappea capensis*
Mnganga	*Garcinia livingstonei*
Mngombe	*Buddleja pulchella*
Mofu	*Newtonia buchananii*
Mogorusi	*Calodendrum capense*
Moja	*Sterculia africana*
Mora	*Nuxia congesta*
Mora	*Nuxia floribunda*
Mora	*Nuxia oppositifolia*
Mrangi	*Arundinaria alpina*
Mringaringa	*Cordia africana*
Mroma	*Cordyla africana*
Msarawachi	*Albizia gummifera*
Msangana.	*Strombosia scheffleri*
Msangano	*Terminalia prunioides*
Msasa	*Rauvolfia mannii*
Msegembe	*Schrebera alata*
Mshiga	*Lannea alata*
Mshoshote	*Grewia villosa*
Msidu	*Dodonaea viscosa*
Msimakwari	*Cadaba farinosa*
Msoko	*Cassia abbreviata*
Msu	*Syzygium cordatum*
Msu	*Syzygium guineense*
Msua	*Senna singueana*
Msungusungu	*Acokanthera oppositifolia*
Mtugo	*Acacia gerrardii*
Mtagashiko	*Ximenia americana*
Mtundukula	*Ximenia americana*
Mtungu	*Boswellia neglecta*
Mtunguru	*Thylachium africanum*
Mtunguru	*Thylachium thomasii*
Mulungu	*Erythrina abyssinica*
Munyanga	*Garcinia livingstonei*
Mvudi	*Lippia javanica*
Mvudi	*Lippia kituiensis*
Mvumo	*Ficus thonningii*
Mvumu	*Ficus thonningii*
Mwagari	*Commiphora africana*
Mwasina	*Kigelia africana*
Mwama	*Combretum molle*
Mwangia	*Senna singueana*
Mwarigaso	*Nuxia floribunda*
Mwasina	*Kigelia africana*
Mwaya	*Cussonia holstii*
Mwensu	*Trema orientalis*
Myingo	*Dalbergia melanoxylon*
Mzwana	*Berchemia discolor*
Mzwaule	*Acacia lahai*
Ndaendae	*Rubus pinnatus*
Ndaindai	*Rubus apetalus*
Ndaindai	*Rubus pinnatus*
Ndandangoma	*Carissa spinarum*
Ndendele (fruit)	*Pappea capensis*
Ndimu	*Saba comorensis*
Ndomoko	*Grewia bicolor*
Ndowa	*Dombeya rotundifolia*

Taita (cont)

Ndundukula (fruit)	*Ximenia americana*
Ngarizo	*Lannea alata*
Seria	*Rhus vulgaris*
Shighiri	*Acacia nilotica*
Shoshoti	*Grewia villosa*
Usungu	*Acokanthera oppositifolia*
Wangombei	*Capparis tomentosa*

Taveta

Irara	*Hyphaene compressa*
Ivungu	*Saba comorensis*
Kezia	*Acacia mellifera*
Kiririgiti	*Albizia gummifera*
Kiririgwi	*Albizia gummifera*
Kizia	*Acacia mellifera*
Lungoswa	*Balanites aegyptiaca*
Mase	*Syzygium guineense*
Mase	*Tamarindus indica*
Mavale	*Raphia farinifera*
Mbaranyungu	*Trema orientalis*
Mbariabari	*Rauvolfia caffra*
Mdaria	*Vangueria madagascariensis*
Mdaria	*Vangueria volkensii*
Mfirifiri	*Croton macrostachyus*
Mfurugaji	*Albizia glaberrima*
Mhongana	*Phoenix reclinata*
Mkowe	*Melia volkensii*
Mseri	*Newtonia buchananii*
Msesevu	*Diospyros abyssinica*
Mtugo	*Acacia gerrardii*
Mugongolo	*Diospyros mespiliformis*
Mukababu	*Faidherbia albida*
Mukisha	*Kigelia africana*
Mukowe	*Melia volkensii*
Mundaraha	*Sorindeia madagascariensis*
Murei	*Calodendrum capense*
Murie	*Milicia excelsa*
Muringaringa	*Cordia africana*
Musiwa	*Sueda monoica*
Muzumura	*Tamarindus indica*
Mvure	*Milicia excelsa*
Mwaale	*Raphia farinifera*
Mwelela	*Acacia xanthophloea*
Mwemba	*Grewia tembensis*
Rubandi	*Lannea schweinfurthii*
Rumbara	*Acokanthera oppositifolia*

Teso

Akong'o ka leur	*Lantana trifolia*
Ampera	*Psidium guajava*
Atenum	*Garcinia livingstonei*
Eborborei	*Ficus sycomorus*
Ebubu	*Rhus natalensis*
Echomai	*Balanites aegyptiaca*
Edukut	*Borassus aethiopum*
Edurkoit	*Faidherbia albida*
Eduro	*Ficus sycomorus*
Efenesi	*Artocarpus heterophyllus*
Ekaereret	*Ficus ingens*
Ekajikai	*Sclerocarya birrea*
Ekakale	*Spathodea campanulata*
Ekapelimen	*Acacia nilotica*
Ekarikwei	*Vitex doniana*
Ekarukei	*Vitex doniana*
Ekisim	*Acacia hockii*
Ekodokodoi	*Acacia senegal*
Ekodokodoi	*Ziziphus abyssinica*
Ekoromai	*Acacia seyal*
Ekum	*Diospyros mespiliformis*
Ekunoit	*Acacia senegal*
Ekwalakwala	*Garcinia livingstonei*
Ekwatet	*Rhus vulgaris*
Ekwayu	*Rhus vulgaris*
Elachas	*Flueggea virosa*
Elamai	*Ximenia americana*
Eluwa	*Milicia excelsa*
Emaua	*Tithonia diversifolia*
Eme	*Syzygium cumini*
Emuriei	*Carissa spinarum*
Emus	*Euclea divinorum*
Emusogot	*Phoenix reclinata*
Epana	*Cajanus cajan*
Epapai	*Piliostigma thonningii*
Epeduru	*Tamarindus indica*
Epwatet	*Rhus vulgaris*
Ereret	*Ficus ingens*
Eruaka	*Bridelia micrantha*
Esilang	*Ziziphus mauritiana*
Etekwa	*Albizia coriaria*
Eturukurut	*Strychnos spinosa*
Eusuk	*Zanthoxylum chalybeum*
Ewayo	*Rhus natalensis*
Ewelo	*Vitex doniana*
Eyelel	*Acacia drepanolobium*
Igasha	*Senna spectabilis*
Lusengo	*Margaritaria discoidea*
Obengele	*Lantana camara*
Olimu	*Ximenia americana*
Usuat	*Markhamia lutea*

Tharaka

Kauru	*Opilia campestris*
Makayayu	*Salvadora persica*
Mituungu	*Lannea alata*
Muboobua	*Balanites aegyptiaca*
Mubuu	*Grewia villosa*
Mubuuyu	*Ziziphus mucronata*
Mucigi	*Combretum aculeatum*
Mugaa	*Acacia tortilis*
Mugokora	*Lawsonia inermis*
Mugugutu	*Maytenus senegalensis*
Muguna kirindi	*Adansonia digitata*
Mugunkuma	*Craibia brownii*
Muguta	*Albizia anthelmintica*
Muguuchwa	*Zanthoxylum chalybeum*
Muguunda	*Moringa oleifera*
Muguunda	*Moringa stenopetala*
Mukame	*Newtonia hildebrandtii*
Mukarakara	*Premna resinosa*
Mukau	*Melia volkensii*
Mukiindu	*Phoenix reclinata*
Mukinduri munene	*Rauvolfia caffra*
Mukonde	*Euclea divinorum*
Mukubu	*Lepisanthes senegalensis*
Mukurungu	*Meyna tetraphylla*
Mukururu	*Flueggea virosa*
Mukuura	*Piliostigma thonningii*
Munatha	*Maerua decumbens*
Mung'oora	*Acacia senegal*
Mungaritha	*Dobera glabra*
Munua	*Acacia brevispica*
Munwa	*Acacia brevispica*
Muraagwa	*Grewia bicolor*

Tharaka (cont)

Murama	*Combretum molle*
Muramba	*Adansonia digitata*
Muratina	*Kigelia africana*
Murawa	*Grewia bicolor*
Mureetha	*Spirostachys venenifera*
Muriira	*Pandanus kirkii*
Muroroma	*Ximenia americana*
Muruguyu	*Hyphaene compressa*
Mururuku	*Terminalia brownii*
Mutengerete	*Allophylus rubifolius*
Muthigira	*Acacia mellifera*
Muthigoora	*Combretum aculeatum*
Muthigu	*Kigelia africana*
Muthithi	*Tamarindus indica*
Muthiuthiu	*Boscia coriacea*
Muthuchi	*Lannea schweinfurthii*
Muthugagu	*Cordia monoica*
Muthuthuura	*Garcinia livingstonei*
Muthuthuura	*Garcinia volkensii*
Muthwana	*Berchemia discolor*
Mutinda	*Albizia amara*
Mutooro	*Terminalia prunioides*
Mutuati	*Trichilia emetica*
Mutugangu	*Cordia monoica*
Mutunkuuri	*Commiphora rostrata*
Muyee	*Bridelia taitensis*
Mwaawra	*Albizia anthelmintica*
Mwarange	*Delonix elata*
Mware	*Raphia farinifera*
Mwemba	*Acacia nilotica*
Mwembe	*Mangifera indica*
Ngurungu (fruit)	*Meyna tetraphylla*
Njugu	*Cajanus cajan*

Tugen

Adomewa	*Cordia sinensis*
Adumewa	*Cordia sinensis*
Arariet	*Ekebergia capensis*
Arwe (tree)	*Tamarindus indica*
Aryek (fruit)	*Tamarindus indica*
Auwe	*Polyscias fulva*
Auweis	*Polyscias kikuyensis*
Barsute	*Salvadora persica*
Benet	*Podocarpus falcatus*
Biriokwo	*Pappea capensis*
Birirwet	*Cadaba farinosa*
Boroa	*Dombeya torrida*
Borowa	*Dombeya torrida*
Buruburuti	*Ehretia cymosa*
Chebiwo	*Acacia nilotica*
Chepkomonit	*Ziziphus mauritiana*
Cheptewo	*Craibia brownii*
Chessia	*Acacia lahai*
Edoma (leaves)	*Cordia sinensis*
Ekaburu	*Capparis fascicularis*
Gobetie	*Clerodendrum myricoides*
Gornista	*Acacia brevispica*
Gotutwet	*Albizia amara*
Kakaawet	*Schrebera alata*
Kakabuiwo	*Capparis fascicularis*
Kapkendogi	*Strychnos usambarensis*
Kekech	*Premna resinosa*
Kelwon	*Acokanthera schimperi*
Kelyon	*Acokanthera schimperi*
Kemelet	*Combretum molle*
Kerruwa	*Nuxia congesta*
Ketetia	*Acacia lahai*
Kipkonorowa	*Pavetta abyssinica*
Kipumetiet	*Bersama abyssinica*
Kipworbet	*Pouteria adolfi-friedericii*
Knaget	*Ocotea kenyensis*
Kokian	*Zanthoxylum chalybeum*
Kokiin (plural)	*Zanthoxylum chalybeum*
Koleonik	*Crateva adansonii*
Koloswet	*Terminalia brownii*
Koloswo	*Terminalia brownii*
Komolik (fruit)	*Vangueria infausta*
Komolik (fruit)	*Vangueria madagascariensis*
Komolwe (tree)	*Vangueria infausta*
Komolwo (tree)	*Vangueria madagascariensis*
Kotutwo	*Albizia amara*
Kukutua	*Rhamnus prinoides*
Kukutwo	*Albizia amara*
Kunyukwa	*Prunus africana*
Kurionde	*Vepris nobilis*
Lamaek (fruit)	*Syzygium guineense*
Lamaywet (tree)	*Syzygium guineense*
Legatetwo (tree)	*Carissa spinarum*
Legetetik (fruit)	*Carissa spinarum*
Lelnet	*Acacia seyal var. fistula*
Lito	*Boscia angustifolia*
Lokoek (fruit)	*Ficus sycomorus*
Lokoiwo	*Ficus sycomorus*
Lolowa	*Mimusops kummel*
Lomoiwo	*Syzygium guineense*
Maiti	*Cassipourea malosana*
Makongiet	*Ehretia cymosa*
Mizisitwa	*Rhamnus prinoides*
Mokuiwo	*Grewia villosa*
Momonwo	*Rubus pinnatus*
Mowonwo	*Rubus pinnatus*
Muchukwa	*Berchemia discolor*
Musisetiet	*Celtis africana*
Musomboriet	*Faurea saligna*
Musumboriet	*Faurea saligna*
Mutungwa	*Ozoroa insignis*
Nagarida	*Crateva adansonii*
Nejebbe	*Pouteria adolfi-friedericii*
Ng'oswo (tree)	*Balanites aegyptiaca*
Ngecheberet	*Pouteria adolfi-friedericii*
Ngoronet	*Acacia mellifera*
Ngoswa	*Balanites aegyptiaca*
Ngosyek (fruit)	*Balanites aegyptiaca*
Ngowo	*Acacia drepanolobium*
Ninoiwa	*Ziziphus mucronata*
Noswo	*Manilkara mochisia*
Orisuet	*Apodytes dimidiata*
Ortuet	*Croton megalocarpus*
Porowet	*Dombeya rotundifolia*
Roke	*Dracaena steudneri*
Samut	*Cordia africana*
Se	*Albizia gummifera*
Sebeldit	*Acacia gerrardii*
Segetetwa	*Myrsine africana*
Seot	*Albizia gummifera*
Septa	*Podocarpus latifolius*
Sesiet	*Acacia tortilis*
Sesya	*Acacia tortilis*
Set	*Albizia gummifera*
Siriande	*Rhus natalensis*
Sirkwa	*Boscia coriacea*
Sirwa	*Rhus ruspolii*
Sisiet	*Acacia tortilis*

Tugen (cont)

Sitewo	*Grewia bicolor*
Siwopyoyon	*Rhus ruspolii*
Sogotaiwa	*Salvadora persica*
Soke	*Warburgia ugandensis*
Sorget	*Warburgia ugandensis*
Soya	*Cussonia holstii*
Soya	*Cussonia spicata*
Sumboywa	*Scutia myrtina*
Tabilikuet	*Dodonaea viscosa*
Takuriya	*Oncoba spinosa*
Talatany (fruit)	*Flacourtia indica*
Tamingetwo	*Uvaria scheffleri*
Tandimu	*Celtis africana*
Tandimwo	*Celtis africana*
Tapuya	*Lannea triphylla*
Taran	*Grewia tenax*
Tarokwa	*Juniperus procera*
Tebesuet	*Croton macrostachyus*
Ternwa	*Ekebergia capensis*
Tikitua	*Terminalia prunioides*
Tilatil	*Acacia hockii*
Tilingwo	*Meyna tetraphylla*
Tilinyek (fruit)	*Meyna tetraphylla*
Tilomwo	*Ziziphus mauritiana*
Tinet	*Dichrostachys cinerea*
Tingoswo	*Flacourtia indica*
Tirikikwa	*Balanites rotundifolia*
Tololokwo	*Sclerocarya birrea*
Tongurua	*Oncoba spinosa*
Tulda	*Pistacia aethiopica*
Tungururwo	*Flacourtia indica*
Turonwet	*Grewia tenax*
Turukukwa	*Strychnos henningsii*
Turukukwa	*Strychnos mitis*
Tusuandet	*Margaritaria discoidea*
Tuwot	*Diospyros scabra*
Uswet	*Euclea divinorum*
Yemit	*Olea europaea*

Turkana

Akwanga	*Nuxia congesta*
Apong'at	*Dombeya burgessiae*
Apong'at	*Dombeya torrida*
Atopojo	*Lannea triphylla*
Ebei	*Balanites rotundifolia*
Ebenyo	*Acacia mellifera*
Ebolis	*Dombeya rotundifolia*
Ebune	*Ricinus communis*
Echekereng	*Acacia hockii*
Echekereng	*Acacia seyal*
Echeme	*Tamarix nilotica*
Echoge	*Flacourtia indica*
Echoke	*Ficus sycomorus*
Edapal	*Dobera glabra*
Edome	*Cordia sinensis*
Edot	*Kigelia africana*
Edurkoit	*Faidherbia albida*
Edurukoit	*Faidherbia albida*
Eedung'	*Boscia coriacea*
Eeng'ol	*Hyphaene compressa*
Eerdung	*Boscia coriacea*
Eerut	*Maerua decumbens*
Egales	*Adenium obesum*
Egum	*Diospyros mespiliformis*
Egumoit	*Diospyros mespiliformis*
Eguyen	*Combretum molle*
Eikwangat	*Olea capensis*
Eireng'	*Cadaba farinosa*
Eiyellel	*Acacia drepanolobium*
Eiyoroit	*Crateva adansonii*
Ekabekebeke	*Combretum aculeatum*
Ekaburu	*Maytenus senegalensis*
Ekadeli	*Commiphora africana*
Ekadetewa	*Rhus natalensis*
Ekaiyi	*Myrsine africana*
Ekajiket	*Sclerocarya birrea*
Ekakwait	*Albizia gummifera*
Ekalale	*Ziziphus mauritiana*
Ekali	*Grewia bicolor*
Ekamiro	*Combretum molle*
Ekamong'o	*Leptadenia hastata*
Ekamuria	*Carissa spinarum*
Ekapilimen	*Acacia nilotica*
Ekarai	*Allophylus rubifolius*
Ekatha	*Cassipourea malosana*
Ekeweit	*Albizia gummifera*
Ekimeng'	*Combretum collinum*
Ekinyaate	*Boswellia neglecta*
Ekokwait	*Markhamia lutea*
Ekoramait	*Acacia seyal*
Ekorokorait	*Capparis tomentosa*
Ekunoit	*Acacia senegal*
Ekurau	*Acacia brevispica*
Ekurichanait	*Delonix elata*
Ekurichenait	*Faidherbia albida*
Ekuyen	*Trichilia emetica*
Ekwanget	*Pavetta oliverana*
Elakis	*Flueggea virosa*
Elamach	*Balanites glabra*
Elamach	*Balanites pedicellaris*
Elamai	*Ximenia americana*
Elim	*Diospyros scabra*
Elkaisekiseki	*Cordia monoica*
Emaleger	*Grewia tembensis*
Emaleker	*Grewia tembensis*
Emaler	*Vangueria apiculata*
Emaler	*Vangueria infausta*
Emeyan	*Berchemia discolor*
Emidakan	*Canthium glaucum*
Eminet	*Juniperus procera*
Emith	*Dracaena ellenbeckiana*
Eng'amwo	*Ekebergia capensis*
Eng'ol	*Hyphaene compressa*
Engomo	*Grewia tenax*
Entuntun	*Cordia monoica*
Eonochorie	*Nuxia congesta*
Epat	*Grewia bicolor*
Epat	*Grewia mollis*
Epata	*Terminalia spinosa*
Epeduru	*Tamarindus indica*
Epiey	*Terminalia brownii*
Epikororok	*Apodytes dimidiata*
Epoko	*Grewia villosa*
Epongae	*Grewia villosa*
Epongoi	*Dombeya burgessiae*
Erdung	*Boscia coriacea*
Ereng'	*Cadaba farinosa*
Eroronyit	*Balanites aegyptiaca*
Esaiyeiit	*Juniperus procera*
Esajait	*Lawsonia inermis*
Esanyanait	*Acacia elatior*
Esekon	*Salvadora persica*
Eseperai	*Ormocarpum trichocarpum*

Turkana (cont)

Esilang'	*Ziziphus abyssinica*
Esilang'	*Ziziphus mucronata*
Esilant	*Ziziphus abyssinica*
Esokon	*Salvadora persica*
Esugumaran	*Meyna tetraphylla*
Etait	*Terminalia spinosa*
Eterai	*Prosopis chilensis*
Eterai	*Prosopis juliflora*
Etete	*Sterculia africana*
Etir (young)	*Acacia tortilis*
Etirak	*Dichrostachys cinerea*
Etoboka	*Pavetta gardeniifolia*
Etolerh	*Pappea capensis*
Etopojo	*Lannea rivae*
Etopojo	*Lannea schimperi*
Etopojo	*Lannea triphylla*
Etoukoroe	*Canthium glaucum*
Eugomamur	*Piliostigma thonningii*
Eur	*Lippia carviodora*
Euriepei	*Olea europaea*
Eurumosing	*Commiphora rostrata*
Eusugu	*Zanthoxylum chalybeum*
Ewoi	*Acacia tortilis*
Eyelel	*Acacia drepanolobium*
Eyelel	*Acacia paolii*
Ikorderedet	*Premna resinosa*
Kisriku	*Lepisanthes senegalensis*
Lekora	*Commiphora rostrata*
Lokimeta	*Commiphora rostrata*
Lopsok orongole	*Ozoroa insignis*
Lotimat	*Podocarpus falcatus*
Muyee	*Sueda monoica*
Nakadoki	*Phoenix reclinata*
Ng'akalalio (fruit)	*Ziziphus mauritiana*
Nyakabur	*Stereospermum kunthianum*
Yopoliss	*Strychnos henningsii*

Wardei

Abaq	*Acacia tortilis*
Afgub	*Opilia campestris*
Alan	*Terminalia brevipes*
Belel	*Acacia mellifera*
Bura	*Erythrina melanacantha*
Cadaad	*Acacia senegal*
Cidishabeel	*Harrisonia abyssinica*
Cilaan	*Terminalia brevipes*
Dekoa	*Grewia tenax*
Dhebi	*Grewia plagiophylla*
Dheeka	*Cordia monoica*
Garas weyna	*Dobera glabra*
Garas winlah	*Dobera loranthifolia*
Gesi reebu	*Newtonia erlangeri*
Goraa	*Scutia myrtina*
Habasho	*Albizia anthelmintica*
Hafeer	*Terminalia spinosa*
Hareeri	*Terminalia brevipes*
Hareeri madow	*Terminalia spinosa*
Ilgabata	*Cadaba ruspolii*
Jana	*Lecaniodiscus fraxinifolius*
Kabxan	*Terminalia spinosa*
Kabxan	*Thespesia danis*
Kigaba gaolo	*Acacia seyal*
Kullan	*Balanites pedicellaris*
Kullan	*Balanites rotundifolia*
Marer	*Cordia sinensis*
Nagar	*Cadaba farinosa*
Oalangal	*Maerua decumbens*
Ohia dameerod	*Thylachium thomasii*
Ohia sagcared	*Maerua decumbens*
Qalangal	*Thylachium thomasii*
Qalanqal	*Boscia coriacea*
Quaranari	*Thespesia danis*
Shan forodla	*Garcinia livingstonei*
Walkon	*Spirostachys venenifera*
Waradeya	*Manilkara sulcata*

PART II

The species

Acacia abyssinica subsp. *calophylla*

Fabaceae (Mimosaceae)

Indigenous

COMMON NAMES: **English:** Flat-top acacia; **Kikuyu:** Mugaa; **Kipsigis:** Sirtuet; **Kisii:** Eyesurura, Omonyenya; **Luhya (Bukusu):** Kumunyaali; **Luhya:** Munyenya; **Luo:** Ogongo; **Nandi:** Seretuet; **Ogiek:** Leinet; **Pokot:** Atat; **Sabaot:** Marambajet.

DESCRIPTION: A large tree to 20 m high, **flat-topped** when mature. BARK: Dark to greyish brown, rough on the stem of old trees, papery and peeling on young trees. THORNS: Very variable, in pairs at the nodes; whitish, as short as 4 mm or long to 40 mm, sometimes none. LEAVES: Divided into **very small leaflets, to 5 mm long**, sometimes glands at leaf base. FLOWERS: Numerous heads of **white flowers, buds pink.** FRUIT: Grey to brown pods to **12 cm,** leathery, **straight** or slightly curved, often softly hairy, splitting open.

ECOLOGY: Found in Africa from Ethiopia and Sudan south to Mozambique and Zimbabwe; also in Saudi Arabia and Yemen. Well distributed in Rift Valley and Nyanza Provinces of Kenya, where it is common in the Lake Victoria basin. Also common around Muguga in Kiambu District. Wooded grassland and forest edges, especially in highlands, 1,200–2,300 m. Very common in Agroclimatic Zones II–III. Flowers in March–May and seeds in November–December in Bungoma.

USES: Firewood, charcoal, poles, posts (susceptible to beetle attack), medicine, fodder, bee forage, shade, ornamental, nitrogen-fixing.

PROPAGATION: Seedlings, direct sowing at site, wildings.

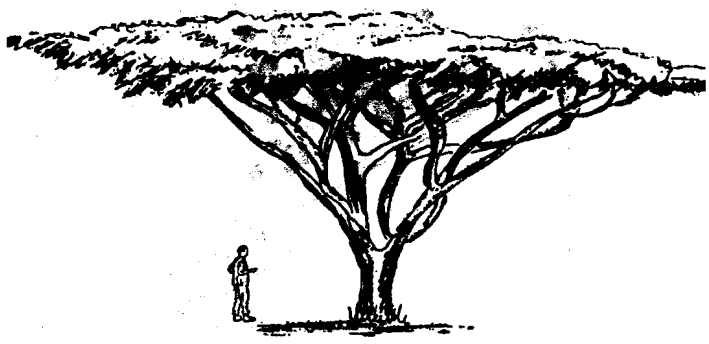
SEED: Seed quite small; 16,000–18,000 per kg. Highly susceptible to beetle attack while still in the pod, as well as after extraction. Damaged seeds should be separated by floating.

treatment: Seeds are extracted by drying and threshing the pods. Nick or immerse in hot water, allow to cool and soak for 36–48 hours before sowing to break seed dormancy.

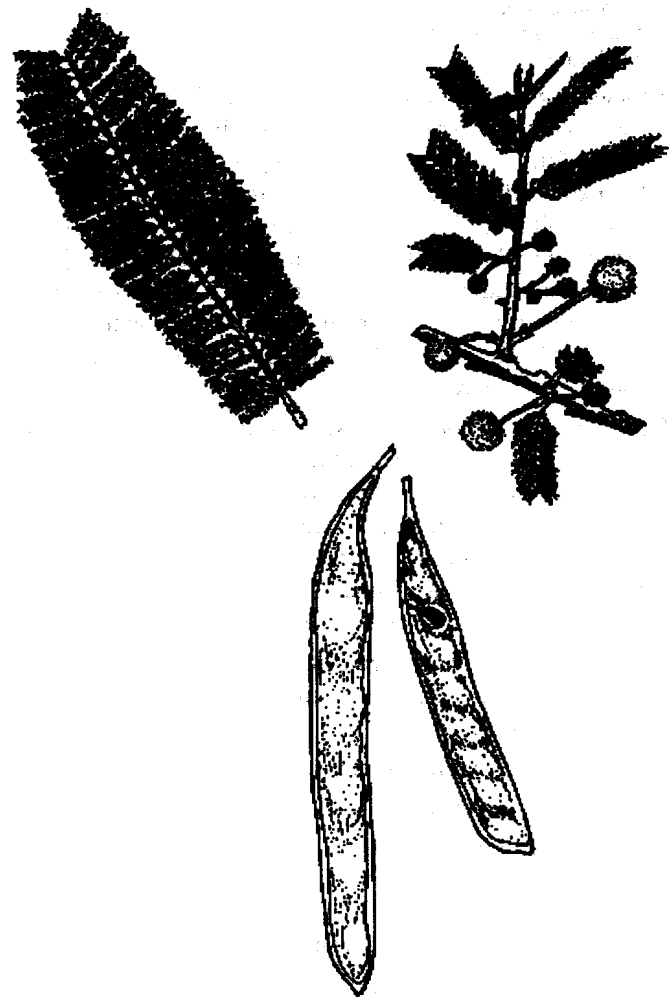
storage: Seed can be stored for long periods. Add ash to reduce insect damage.

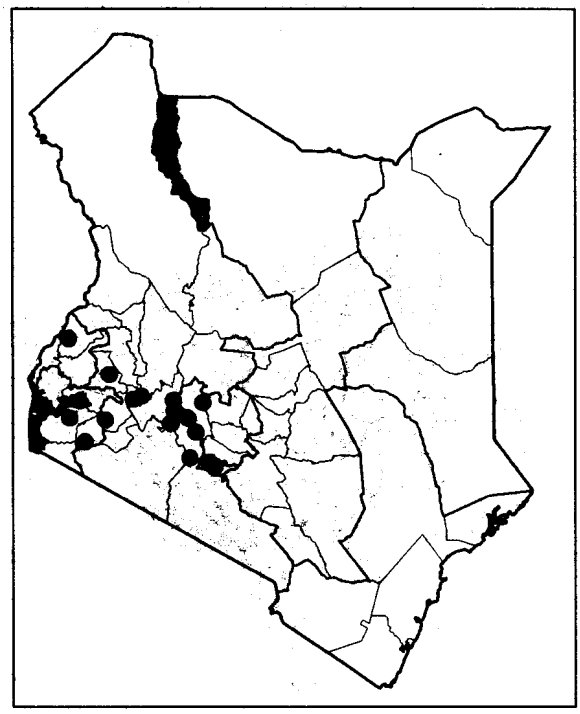
MANAGEMENT: Growth rate is medium to fast. Self-prunes, but some pruning may be required when young. Often left in pastures and crop fields. Coppices when young. Can be lopped and pollarded.

REMARKS: Drought tolerant. Good for degraded land and along gullies. Not recommended around homesteads since branches tend to fall off. Subsp. *abyssinica* is confined to the Ethiopian highlands.



FURTHER READING: Albrecht, 1993; Backes and Ahenda, 1998; Beentje, 1994; Bein et al., 1996; Bekele-Tesemma et al., 1993; Fichtl and Adi, 1994; Katende et al., 1995; Noad and Birnie, 1989; Palgrave and Palgrave, 2002; Sommerlatte and Sommerlatte, 1990.





Acacia brevispica subsp. *brevispica*

Fabaceae (Mimosaceae)

Indigenous

COMMON NAMES: **Boran:** Amares, Hammaress; **English:** Wait-a-bit thorn; **Kamba:** Mukuswi; **Kikuyu:** Mwikunya; **Kipsigis:** Ngirgirit; **Luo:** Osiri; **Maasai:** Olgirigiri orok; **Marakwet:** Aiman, Kiptare, Kornisw; **Pokot:** Kaptarun, Ptar, Ptarin (plural); **Samburu:** Igirigiri; **Somali:** Furgorri, Gorgor; **Swahili:** Mwarara; **Tharaka:** Munwa, Munua; **Tugen:** Gornista; **Turkana:** Ekurau.

DESCRIPTION: A low shrub or small tree to 5 m, often scrambling. Young stems hairy, with characteristically zigzag form. THORNS: **Small, single prickles, mostly hooked, scattered** all along the stems (hence the name 'wait-a-bit thorn'). LEAVES: Twice-divided into tiny leaflets. FLOWERS: Fragrant, in **round heads on branching stalks to 10 cm,** numerous. FRUIT: Usually straight pods to 15 cm, can be smaller, dotted with reddish glands; brown when ripe, bulging over seed, splitting on the tree.

ECOLOGY: A common *Acacia* species in dry as well as semi-humid parts of Africa, from Ethiopia and Sudan south to South Africa. In Kenya, very widespread in thickets, dry acacia bushland and forest margins, 0–2,100 m. When in flower, conspicuous over large areas, as in Kitui and Kajiado. Agroclimatic Zones II–VI. Flowers in March–April, fruits in July–August in Kajiado.

USES: Firewood, rafters, medicine (roots), fodder (pods, leaves and twigs, mainly for goats), bee forage, live fence, veterinary medicine.

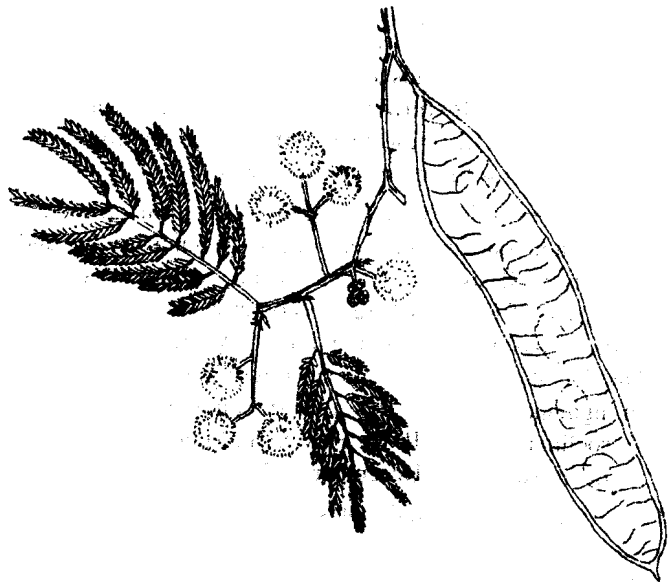
PROPAGATION: Seedlings, direct sowing at site.

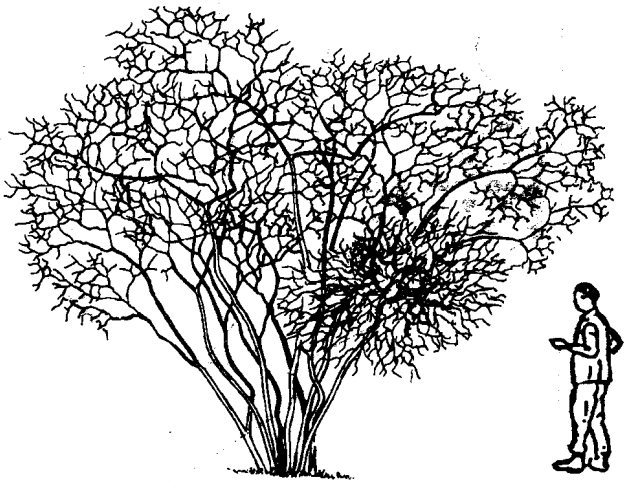
SEED: 7,000–9,000 per kg.
treatment: Immerse seed in hot water, allow to cool and soak for 24 hours before sowing to break seed dormancy.
storage: Seed can be stored for long periods.

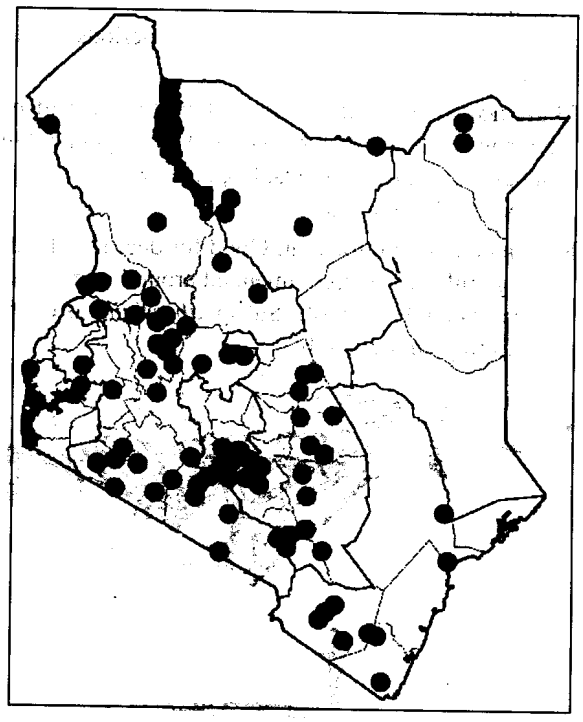
MANAGEMENT: Fairly fast growing. Coppices well.

REMARKS: This plant can be a troublesome weed in pasture, commonly regenerating even after burning and clearing. Often forms impenetrable thickets in semi-arid areas. Good fodder for fattening goats, camels and cattle, which eat the young pods.

FURTHER READING: Beentje, 1994; Noad and Birnie, 1989; ITDG and IIRR, 1996; Palgrave and Palgrave and Palgrave and Palgrave, 2002; Blundell, 1987; Bekele-Tesemma et al., 1993; Kokwaro, 1993; Dharani, 2002.







Acacia drepanolobium

Fabaceae (Mimosaceae)

Indigenous

COMMON NAMES: **Digo:** Mongololi; **English:** Whistling thorn, Ant-gall acacia, Black-galled acacia; **Kamba:** Kiunga, Iunga (plural); **Kikuyu:** Muruai; **Kipsigis:** Mugurit, Muguruit, Mukuruit; **Luo:** Adugo, Dugna, Dunga, Nduga, Oduga; **Maasai:** Eluai, Eluaai, Erankun, Iluaa (plural); **Mbeere:** Mugambu, Mugunga; **Pokot:** Sitowonyon, Stoghon, Sloghoonion (plural); **Rendille:** Fulaay; **Samburu:** Luai, Rankau; **Somali:** Fullai; **Swahili:** Mbalibali; **Teso:** Eyelel; **Tugen:** Ngowo; **Turkana:** Eiyellel, Eyelel.

DESCRIPTION: A **spiny low bush**, shrub or small tree to 6 m high with an open spreading crown, **flat-topped** at maturity. Most commonly a **small shrub** 1.5–3.5 m. BARK: Grey, usually smooth, older bark finely fissured. THORNS: **White, straight, some with galls** at their base. Galls fleshy, hollow, up to 5 cm in diameter, dark green to reddish purple when fresh, **turning dark grey to black and usually inhabited by fierce black or brown ants** as they dry. LEAVES: Twice-divided into tiny leaflets. FLOWERS: Numerous, in **white heads**. FRUIT: A narrow reddish brown pod to 7 cm long, splitting.

ECOLOGY: Grows in eastern and Central Africa, i.e. Uganda, Tanzania, Ethiopia, Sudan, Somalia and the Democratic Republic of Congo. In Kenya, very common in Rift Valley and in drier parts of the highlands, e.g. Kaputei Plains, Loita Plains, Kedong Valley, Lambwe Valley, Ndaragwa, Naivasha and Morpus (West Pokot); 750–2,550 m. Most common in open black clay plains, on dry rocky hillsides or in wooded grassland. Often the dominant shrub in plains with black cotton soil at 1,300–2,400 m; less often dominant in red clay soil. Its occurrence often indicates poor drainage. Rainfall: 500–1,300 mm. Agroclimatic Zones III–V. Flowers in October–November in southern Rift Valley.

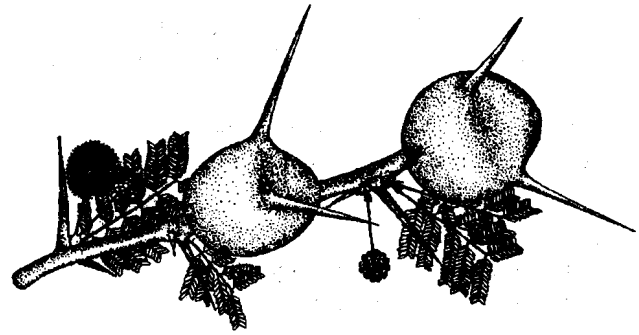
USES: Firewood, charcoal, food (fresh galls and inner bark edible), medicine (bark), fodder (leaves, pods, young galls and shoots), bee forage, live fence, dead fence (thorny branches), veterinary medicine.

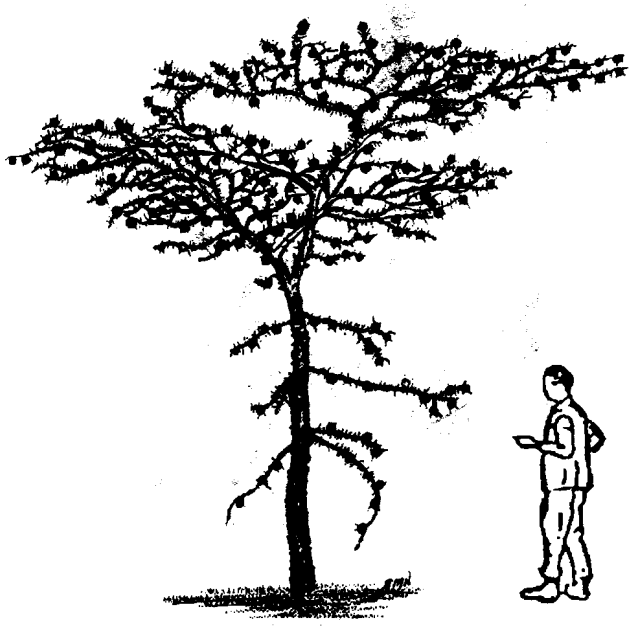
PROPAGATION: Seedlings, wildings. Produces root suckers.

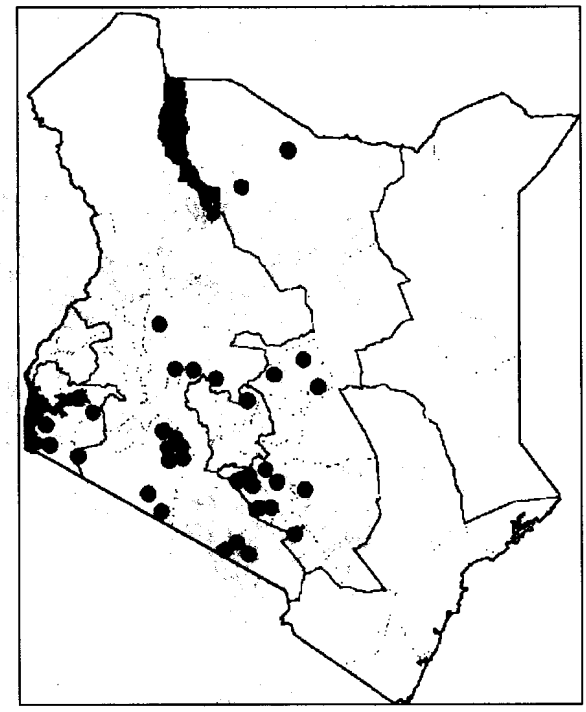
SEED: About 21,000 per kg.
treatment: Immerse seed in hot water, allow to cool and soak for 24 hours before sowing to break seed dormancy.
storage: Seed can be stored for long periods.

REMARKS: A variable species in Kenya. Fresh galls found during active growth, mainly after the rainy season. Locally very common. The soft fleshy galls are edible, having a sweet, often slightly bitter taste, and are a favourite food for herdsmen. The inner bark fibre, which has a sweetish bitter taste, may be chewed (Machakos). A good source of firewood. Leaves, shoots and fresh soft galls are good fodder for goats, camels, cattle and donkeys. Giraffes like browsing on this plant.

FURTHER READING: Beentje, 1994; Blundell, 1987; Dharani, 2002; ITDG and IIRR, 1996; Kokwaro, 1993; Maundu et al., 1999; Noad and Birnie, 1989; Young 1997.







Acacia elatior

Fabaceae (Mimosaceae)

Indigenous

COMMON NAMES: **Boran:** Burra, Burkuke; **Daasanach:** Saetch; **Duruma:** Munga; **Kamba:** Munina, Muthithiu; **Kipsigis:** Chepruyaliet; **Maasai:** Olerai; **Malakote:** Muuga; **Nandi:** Chemnialiuet; **Orma:** Bura; **Pokomo:** Muunga; **Pokot:** Atat; **Samburu:** Sesiai; **Somali:** Burra; **Turkana:** Esanyanait.

DESCRIPTION: A **tall riverine tree**, usually to about 25 m, with a large trunk and drooping branches. BARK: **Distinctive brown-black** and deeply grooved, on young branchlets green with papery scales. THORNS: In pairs, **white, some short to 7 mm, others longer to 9 cm**, sometimes swollen at the base. FLOWERS: In round heads, cream. FRUIT: **Purple-brown pods, nearly straight to 12 cm,** splitting.

ECOLOGY: Confined to arid and semi-arid areas of Uganda, Sudan, and in Kenya, e.g. Turkana, Tana River, Kitui and Machakos. Only common along rivers and lake shores, or in dry riverbeds. Strictly riverine in the driest areas, 0–1,750 m. Agroclimatic Zones IV–VII.

USES: Firewood, charcoal, timber, posts, utensils (containers and bowls), medicine (bark), fodder (pods and young shoots), bee forage, shade, nitrogen-fixing, river-bank stabilization, dry fencing around bomas

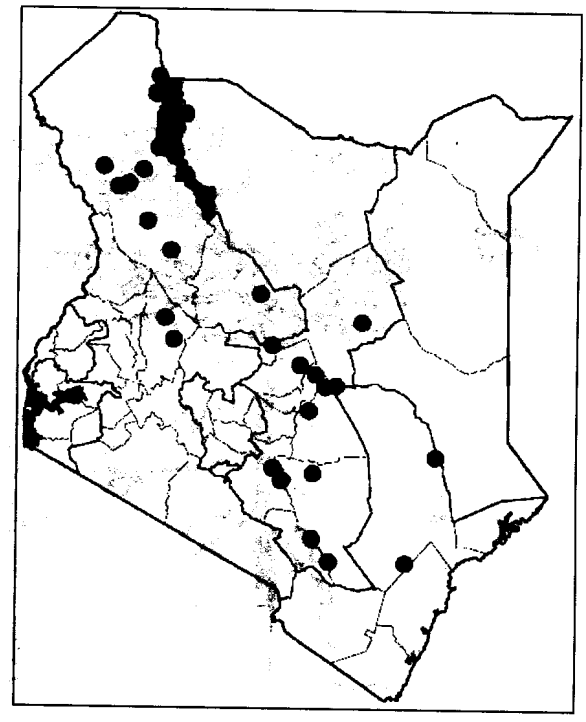
PROPAGATION: Seedlings, wildings.

SEED: Seed thin and round, about 6–7 mm in diameter; 25,000–35,000 per kg.
treatment: Immerse in hot water, allow to cool and soak for 24 hours before sowing to break seed dormancy. Alternatively nick seed coat.
storage: Seed can be stored for long periods.

MANAGEMENT: Fast growing in riverbeds and places with a high water table; slow growing elsewhere. Lopping, self-pruning.

REMARKS: Young plants are slow to start their upward growth. Meanwhile the tap root grows deep into the soil.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Beentje, 1994; Dharani, 2002; Kokwaro, 1993; Noad and Birnie, 1989.



Acacia gerrardii

Fabaceae (Mimosaceae)

Indigenous

COMMON NAMES: **Kamba:** Muthi; **Kikuyu:** Muthi; **Kipsigis:** Chepitet; **Kisii:** Omokonge; **Luo:** Akurukuru, Sale; **Maasai:** Olng'ongwenyi; **Pokot:** Chesams; **Samburu:** Olng'onwenyi; **Taita:** Mtugo; **Taveta:** Mtugo; **Tugen:** Sebeldit.

DESCRIPTION: A tree to 15 m with somewhat flattened or irregular crown. Branchlets thick and leafy. BARK: **Dark grey, rough and grooved on the trunk**, brown to grey and smooth on branches. THORNS: **In pairs, very short and hooked, to 1 cm**, but occasionally up to 6 cm long and straight. Long thorns are often quite conspicuous in young plants but feature less in mature trees. LEAVES: Twice-divided into tiny leaflets. **Leaves usually arising from nodes and several together**. FLOWERS: Round, cream heads, stalks hairy. FRUIT: Reddish brown to grey pods, slightly curved, **up to 20 cm long and about 2 cm wide, hang in clusters, veins clear**. Splitting on drying.

ECOLOGY: Widely distributed from Nigeria to Sudan through East Africa south to KwaZulu Natal in South Africa. In Kenya it is quite common in Rift Valley, Nyanza and Eastern Provinces in wooded grassland; 1,300–2,200 m. Usually riverine in arid and semi-arid areas. Common around Muhoroni, Gilgil, Kajiado and Nairobi. Agroclimatic Zones III–V. Flowers in February in Machakos.

USES: Firewood, charcoal, timber, poles, posts, carvings, edible gum, medicine (bark), fodder, bee forage, shade, nitrogen-fixing.

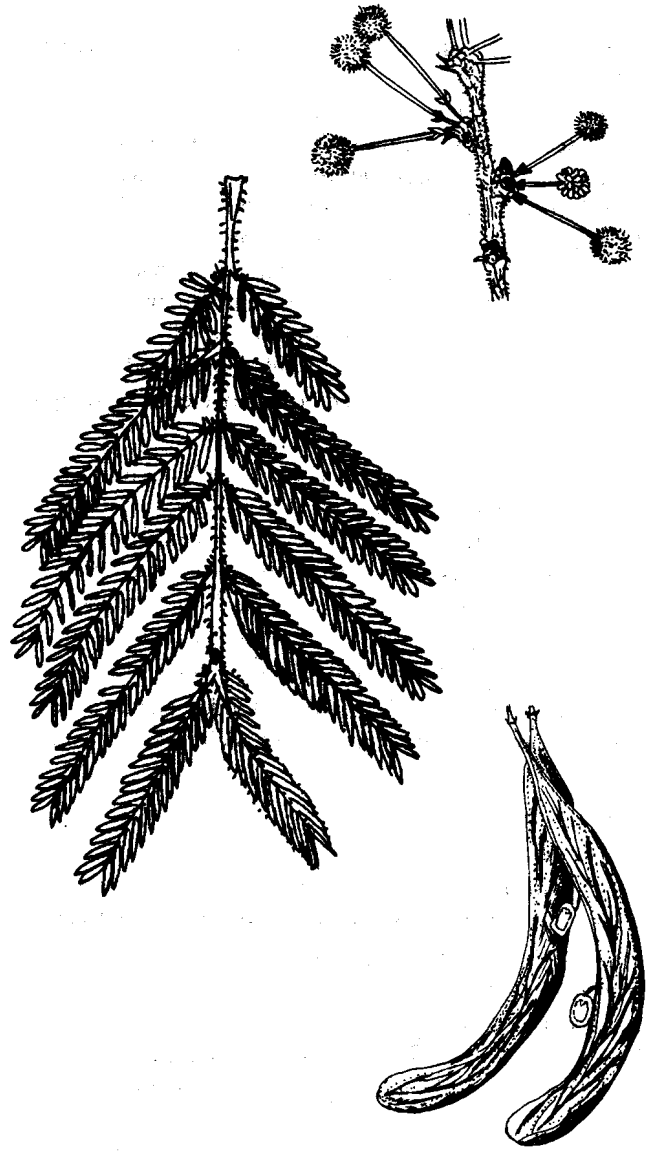
PROPAGATION: Seedlings, direct sowing at site, wildings.

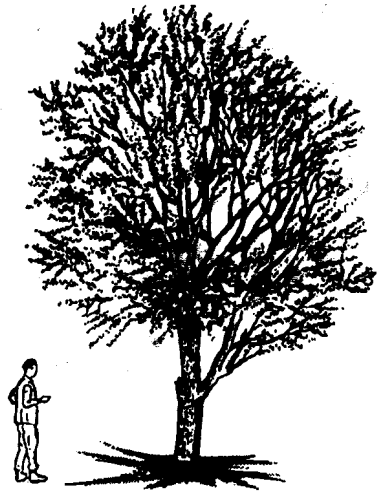
SEED: Flat, about 1 cm long and 0.5 cm wide; 10,000–13,000 per kg.
treatment: Immerse seed in hot water, allow to cool and soak for 24 hours before sowing to break seed dormancy.
storage: Seed can be stored for long periods.

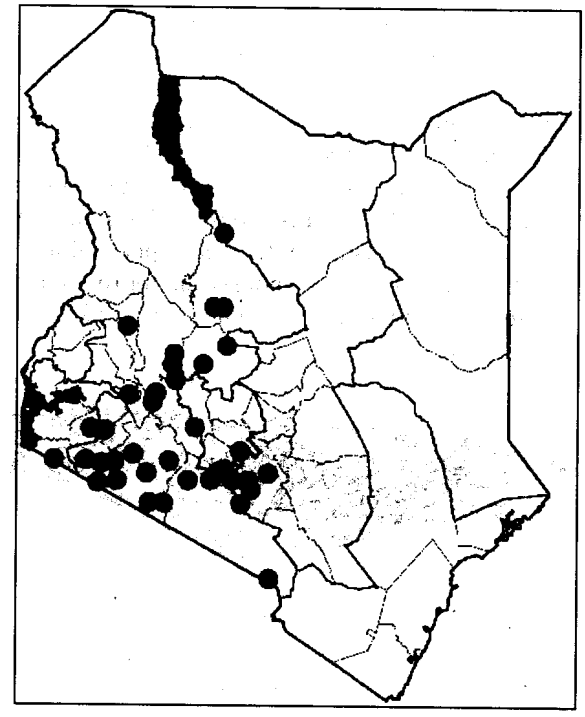
MANAGEMENT: Fast growing where groundwater is within reach. Coppices well and can be pruned or pollarded. Left scattered within pasture.

REMARKS: A good shade tree. Produces copious amounts of gum that is edible but rather bitter.

FURTHER READING: Beentje, 1994; Dharani, 2002; Katende et al., 1995; Kokwaro, 1993; National Academy of Sciences, 1979; Noad and Birnie, 1989; Palgrave and Palgrave, 2002; Storrs, 1979.







Acacia kirkii

Fabaceae (Mimosaceae)

Indigenous

COMMON NAMES: **Kamba:** Kimwea, Mwea; **Kipsigis:** Chepyaliliet; **Maasai:** Ol-lerai.

DESCRIPTION: A handsome flat-topped thorn tree to 15 m with **ascending branches radiating from low down the trunk.** BARK: **Orange-yellow, smooth, peeling thinly in scrolls to show greenish yellow underbark.** THORNS: In pairs, straight, up to 8 cm long, greyish white. LEAVES: Twice-divided, 6–14 pairs of pinnae, 7–20 pairs leaflets. FLOWERS: Reddish pink in buds, **creamy white when fully open, in round heads,** slightly fragrant. FRUIT: Brown straight pods, **much constricted between the seeds,** often with a raised boss above each seed, up to 9 cm long.

ECOLOGY: The species is widespread from West to East Africa and south to Namibia and Botswana. In Kenya, mainly in Central and Rift Valley Provinces. Common in Narok, Kiambu, Nairobi, Machakos and Kajiado areas. Found in riverine woodlands, grasslands and areas of seasonal drainage; 1,300–1,900 m. Agroclimatic Zone III. Flowers in June–July around Nairobi and Kajiado.

USES: Firewood, charcoal, medicine, fodder, shade, dead fence (thorny branches), inner bark is chewed to quench thirst.

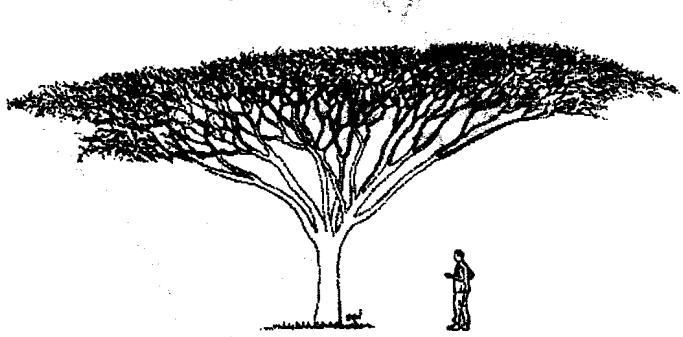
PROPAGATION: Seedling, wildings.

SEED: 6,500 per kg.
treatment: Immerse seed in hot water, allow to cool and soak for 24 hours before sowing to break seed dormancy. Dormancy also broken by fire.
storage: Seed can be stored for long periods.

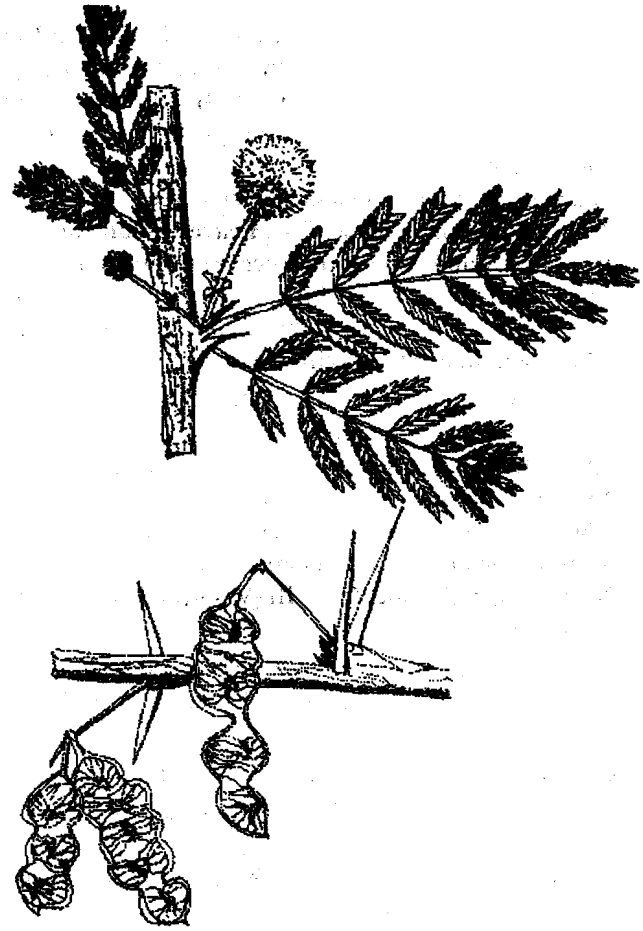
MANAGEMENT: Fast growing. Self-pruning, but prune lower branches if necessary. May affect crops negatively due to its rather thick and spreading canopy and shallow lateral roots.

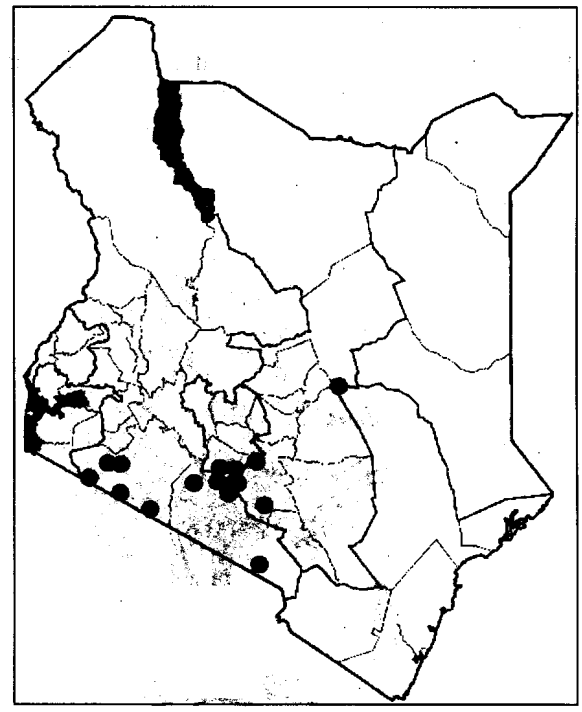
REMARKS: Commonly used to fence homesteads. The tree produces good-quality firewood and charcoal.

A. hockii (**Kamba**: Kinyua; **Kikuyu**: Mugaa; **Luo**: Arumbe, Oriang'; **Maasai**: Enchapalani, Orcharpalani; **Nandi**: Telatibilet; **Pokot**: Chuwan; **Teso**: Ekisim; **Tugen**: Tilatil; **Sabaot**: Ndiniet; **Turkana**: Echekereng) is a related but smaller acacia with peeling bark and yellow flower heads. It is widespread in Kenya but lacking at the coast. It prefers rocky places. Fibre from its bark is used for building bomas and for ropes. Inner bark fibre is chewed for its sweet juice. Also used for firewood, fodder and fencing.



FURTHER READING: Beentje, 1994; Blundell, 1987; Kokwaro, 1993; Maundu et al., 1999 (*A. hockii*); Noad and Birnie, 1989; Palgrave and Palgrave, 2002.





Acacia lahai

Fabaceae (Mimosaceae)

Indigenous

COMMON NAMES: **English:** Red thorn; **Keiyo:** Mateluk; **Kikuyu:** Mugaa; **Kipsigis:** Chebitet, Chepitet, Kerichsani; **Kisii:** Omonyenya; **Luhya:** Munyenya; **Luhya (Bukusu):** Kumunyenya; **Luo:** Alaktar; **Maasai:** Oltepesi; **Marakwet:** Telak; **Nandi:** Kaimetiet, Kaimetiet, Njebitet; **Sabaot:** Kimet, Ematso; **Taita:** Mzwaule; **Tugen:** Chessia, Ketetia.

DESCRIPTION: A conspicuously **flat-topped highland tree** to 15 m. BARK: Grey to dark brown, **rough, grooved,** branchlets brown, hairy. THORNS: In pairs, straight, grey-brown, 0.5–7 cm. FLOWERS: Cream–pale yellow spikes, to 7 cm long, flowering branchlets covered with **red gland dots.** FRUIT: **Short and wide pods,** to 7 cm, straight or curved, shiny brown, splitting on the tree.

ECOLOGY: An upland acacia found in Uganda, Ethiopia, Eritrea, Kenya and Tanzania in wooded grassland and woodland of cool, moist areas, 1,500–2,700 m. Common in the highlands of Rift Valley Province and in western Kenya in grasslands and former forest areas. Left as a shade tree in pastures and fields. Agroclimatic Zones I–III.

USES: Firewood, charcoal, timber (heavy construction, bridges, etc.), posts, edible gum, bee forage, shade, nitrogen-fixing, dye (crushed bark mixed with water gives a solution that, when sprinkled on hot pots, gives them a reddish colour).

PROPAGATION: Seedlings, direct sowing at site, wildings.

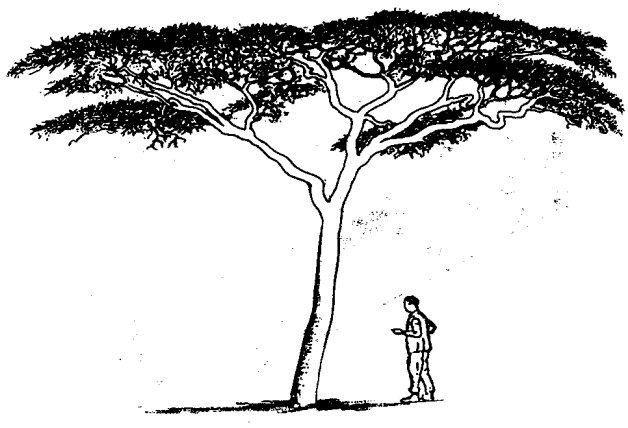
SEED: Many seeds damaged by insects while still in pods. These can be separated from good seeds through immersion in water; bad seeds float. About 4,000–5,000 seeds per kg.

treatment: Immerse in hot water, allow to cool and soak for 24 hours before sowing to break seed dormancy. Alternatively nick seed coat.

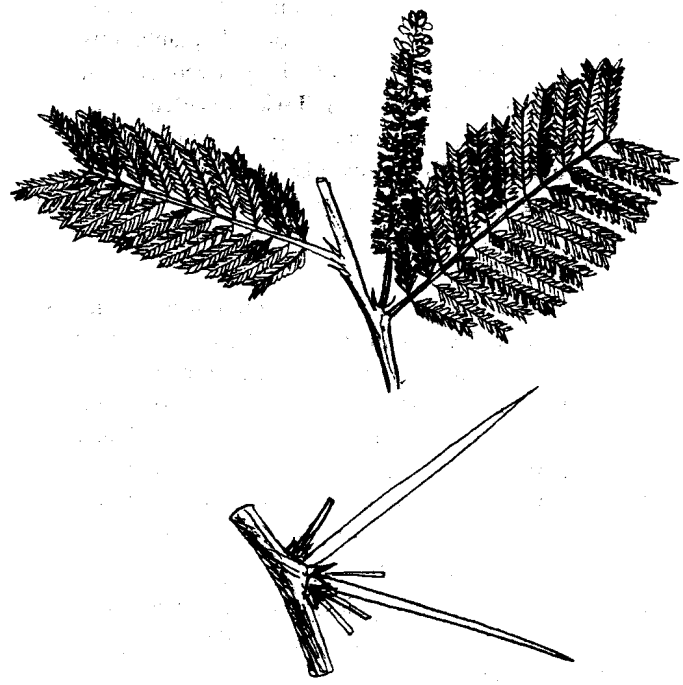
storage: Seed can be stored for long periods. Add ash to reduce insect damage.

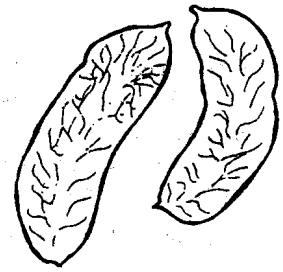
MANAGEMENT: Slow growing; lopping, prune when young if required. Leave scattered trees to provide some shade in pastures.

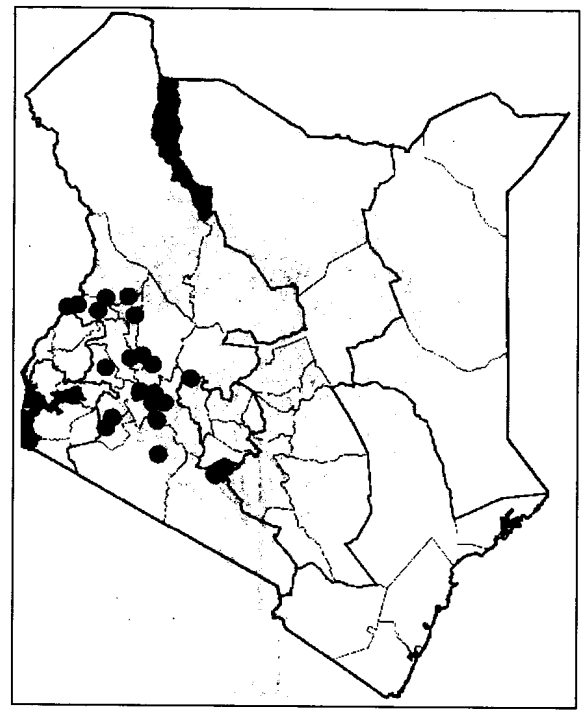
REMARKS: The tree has a broad canopy but gives only light shade.



FURTHER READING: Beentje, 1994; Bein et al., 1996; Bekele-Tesemma et al., 1993; Fichtl and Adi, 1994; Katende et al., 1995; Kokwaro, 1993; Mbuya et al., 1994; Noad and Birnie, 1989.







Acacia mearnsii (*Racosperma mearnsii*) — Fabaceae (Mimosaceae)

South-eastern Australia

COMMON NAMES: **English:** Black wattle; **Kamba:** Munyoonyoo; **Kikuyu:** Muthanduku; **Kisii:** Omotandege.

DESCRIPTION: A round or shapeless tree, 2–15 m, trunk often bent when trees are grown outside plantations. BARK: Smooth green, later **black,** grooved, splitting to give **resinous gum.** LEAVES: **Twice-divided, dull green,** leaflets extremely small, upper surface of **leaf stalk scattered with glands.** FLOWERS: Many, **pale yellow,** fragrant, in small round heads. FRUIT: Numerous pods, with 3–12 **joints,** drying dull brown, straight or bent. Seeds small and black.

ECOLOGY: A small tree native to Australia, where it grows from southern New South Wales to Tasmania. Introduced worldwide and now found both in temperate regions and in cool tropical highlands. Grown in plantations and also naturalized in highland parts of Kenya such as Trans Nzoia, Kisii, Limuru, Muguga and around Eldoret and Nairobi. A plant of cool, moist areas at mid-altitudes, mainly 1,500–2,500 m. Common in most soil types. Agroclimatic Zones I–III.

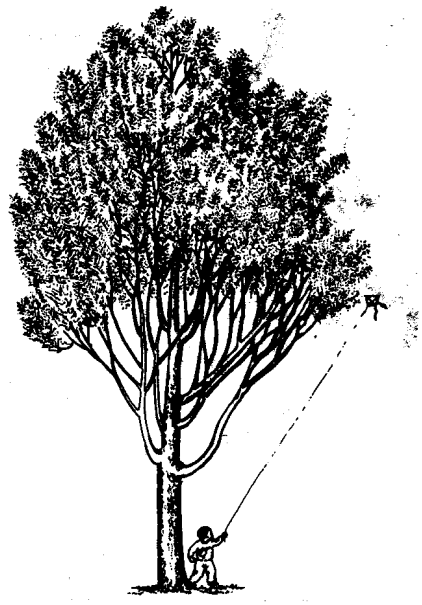
USES: Firewood, charcoal, poles, posts, tool handles, medicine, bee forage, ornamental, windbreak, fibre (bark), gum, tannin.

PROPAGATION: Seedlings, direct sowing at site.

SEED: Germination rate 50–80% in 7–15 days; 50,000–85,000 per kg.
treatment: Immerse seed in hot water, allow to cool and soak for 12 hours before sowing to break dormancy. Burning dry twigs with mature pods spread on an area will usually result in profuse natural regeneration.
storage: Seed can be stored for long periods.

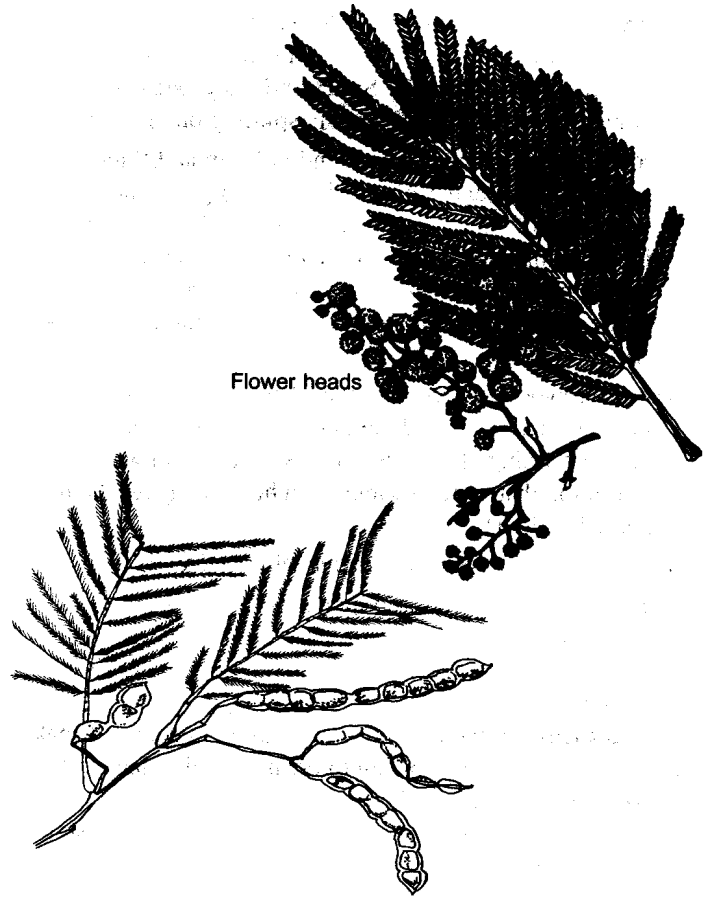
MANAGEMENT: Fast growing but short lived. Thin if established by direct sowing at site. It coppices poorly.

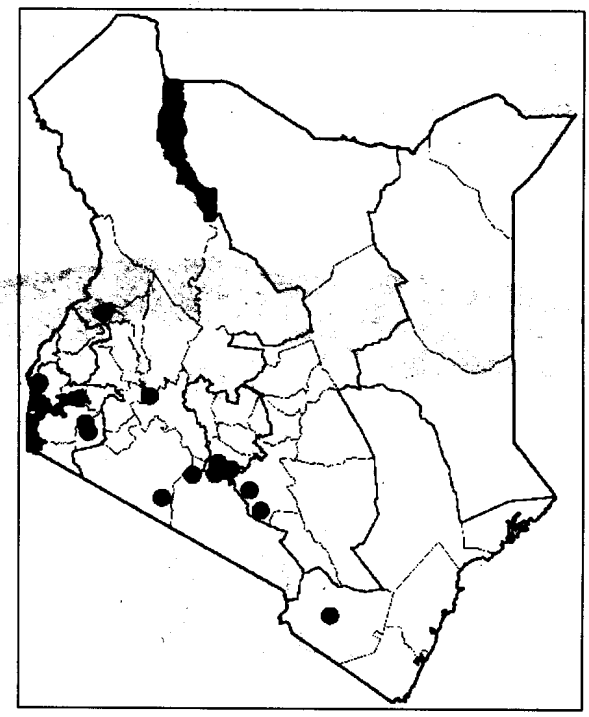
REMARKS: A tree for woodlots. Potentially a weed on farmland. Can be difficult to eradicate. It should not be intercropped as it competes for nutrients and light.



Introduced to Kenya for its tannin-rich bark used as a source of tannin for tanning leather. Also appreciated as a quick-growing tree for firewood. Suppresses undergrowth and thus not suited for erosion-prone areas.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Albrecht, 1993; Bein et al., 1996; Bekele-Tesemma et al., 1993; Dharani, 2002; Mbuya et al., 1994; National Academy of Sciences, 1980; Noad and Birnie, 1989; Palgrave and Palgrave, 2002; Turnbull, 1986.





Acacia mellifera

Fabaceae (Mimosaceae)

Indigenous

COMMON NAMES: **Boran:** Sabansa gurach; **Embu:** Muthigira; **English:** Honey acacia; **Gabra:** Sa'pans gurrach; **Kamba:** Muthiia; **Kikuyu:** Muthigira; **Maasai:** Oiti, Oiti orok; **Malakote:** Sampasa; **Marakwet: Belel**; **Orma:** Habakoles; **Pokomo:** Musawasa; **Pokot:** Panyarit, Talamoghion, Talamoh; **Rendille:** Bilahen; **Samburu:** Iti; **Somali:** Bilil; **Swahili:** Kikwata; **Taveta:** Kezia, Kizia; **Tharaka:** Muthigira; **Tugen:** Ngoronet; **Turkana:** Ebenyo; **Wardei:** Belel.

DESCRIPTION: Usually a low shrub, sometimes a tree up to 9 m. BARK: Pale grey-brown, smooth. THORNS: Distinctive, small to 6 mm long, **hooked prickles, in pairs, grey with black tips.** LEAVES: Only **2–3 pairs of blue-green leaflets** each to 2 cm. FLOWERS: White or creamy spikes to 4 cm, attracting bees. FRUIT: Short and wide pods, tapering abruptly at both ends, **flat, papery, pale brown–yellow, splitting; rarely to 8 cm,** veined, 3 seeds within.

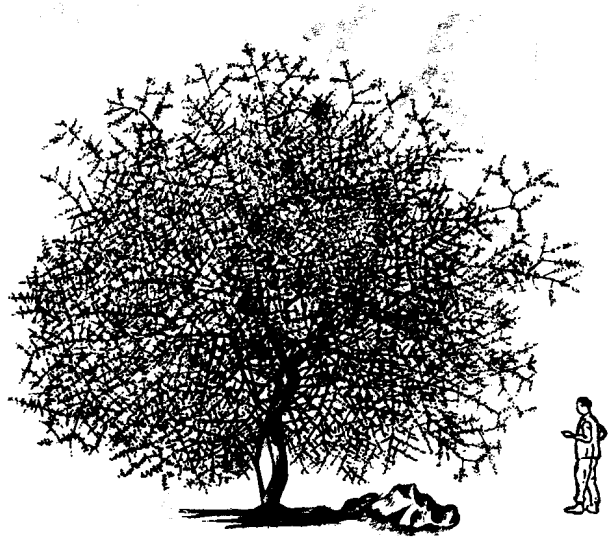
ECOLOGY: A widely distributed acacia found from western Asia, the Middle East and Egypt south to South Africa and Angola. Widespread in all arid and semi-arid areas of Kenya, 0–1,800 m. Not recorded in the Lake Victoria basin. Rainfall 400–900 mm. May be dominant in dry *Acacia–Commiphora* bushland. Thrives in a variety of soils including gravelly, loam, volcanic and sandy. Agroclimatic Zones I–VI (riverine in VII). Flowers in February–March (Mwingi).

USES: Firewood, charcoal, timber, pestles, clubs, sticks, carvings, edible gum (sparingly), medicine (bark), fodder (pods, twigs, leaves, flowers browsed by camels and goats), bee forage, nitrogen-fixing, soil conservation, live fence, dead fence, veterinary medicine.

PROPAGATION: Direct sowing at site, seedlings, wildings.

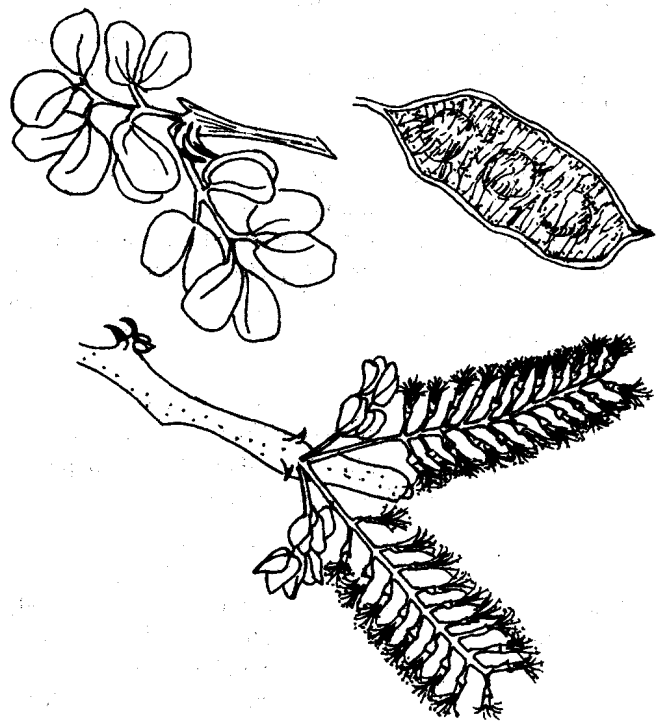
SEED: Germination: 60–80% in 2 weeks with good seed; 17,000–20,000 per kg.
treatment: No treatment is required for fresh seed. For stored seeds immerse in hot water, allow to cool and then soak for 24 hours before sowing to break seed dormancy.
storage: Seed can be stored for long periods.

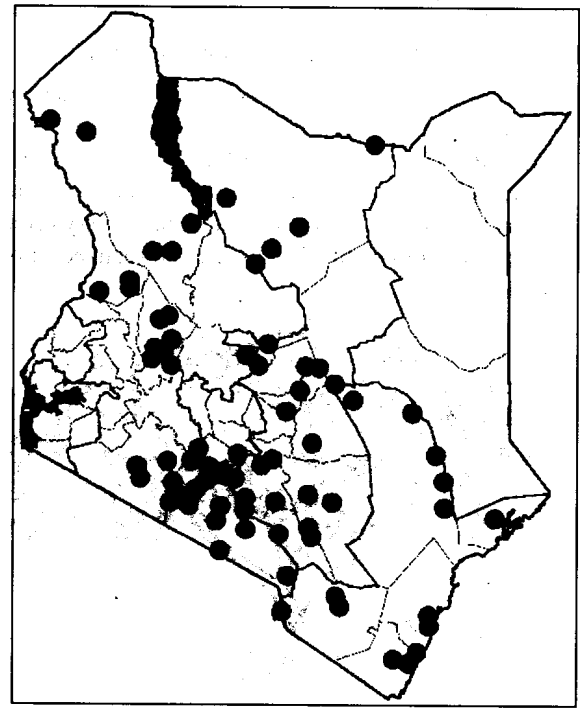
MANAGEMENT: Pruning in pastures, lopping, thinning if too dense. Trim as fence.



REMARKS: The flowers produce excellent-quality honey ('mellifera' = producing honey). Heavily browsed by game and goats in areas where few trees grow. Can make impenetrable thickets. The dark heartwood is very heavy, strong and termite resistant. The black Maasai clubs and sticks are made of such wood. Stingless bees like to live in it. The tree occasionally hosts an edible root parasite, *Hydnora abyssinica*.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Albrecht, 1993; Beentje, 1994; Bein et al., 1996; Blundell, 1987; Dharani, 2002; ITDG and IIRR, 1996; Katende et al., 1995; Kokwaro, 1993; Maundu et al., 1999; Mbuya et al., 1994; National Academy of Sciences, 1979; Noad and Birnie, 1989; Palgrave and Palgrave, 2002; von Maydell, 1990.





Acacia nilotica

Fabaceae (Mimosaceae)

Indigenous

COMMON NAMES: **Bajun:** Mtetewe; **Boran:** Burguge, Burquqe, Burquqis; **Digo:** Chigundigundi, Kigundi; **Duruma:** Mgundi; **English:** Nile thorn; **Gabra:** Burkuke, Bur'uk'e, Burquqe; **Giriama:** Mtsemeri, Muhegakululu; **Ilchamus:** Lkiloriti; **Kamba:** Kisewa, Musemei (Machakos), Musemeli (Kitui); **Keiyo:** Kiprutyot; **Kikuyu:** Mugaa, Ngiloliti; **Kipsigis:** Chebitet, Chepitet, Kopko; **Maasai:** Olkiloriti; **Mbeere:** Mulemeti, Mucemeri; **Nandi:** Sertwet; **Orma:** Chalado; **Pokot:** Kopkwo, Kopko, Kapka; **Rendille:** Ilgiliti; **Samburu:** Ikilositi; **Somali:** Tuger, Tuwer, Marah; **Swahili:** Mgunga, Mjungu, Mtetewe; **Taita:** Shighiri; **Teso:** Ekapelimen; **Tharaka:** Mwemba; **Tugen:** Chebiwo; **Turkana:** Ekapilimen.

DESCRIPTION: Usually a small tree seldom exceeding 6 m. Crown scattered when young, later umbrella shaped. BARK: **Brown-black, rough,** deeply grooved; young shoots red-brown, hairy. THORNS: Greyish, to 10 cm long, usually shorter. FLOWERS: Fragrant, **round heads, bright yellow to orange.** FRUIT: Straight or slightly curved pods that do not split open, 12 cm long to 1.2 cm wide.

ECOLOGY: Distributed from India to North Africa and south to South Africa and Namibia. Widely distributed in Kenya in acacia bushland and wooded grassland, e.g. growing in Kaputei Plains (Kajiado), Kedong Valley and Kerio Valley, 0–2,500 m. Common in both dry lowlands and highlands. Often a dominant species. Soils variable from sandy to black cotton. Usually in areas with 500–1,000 mm rainfall. Agroclimatic Zones III–VI. Flowers in January (Kitui), May–June (Laikipia) or September–October (Naivasha, Kajiado). Seeds in August–September (Kitui, Kajiado) or October (Laikipia).

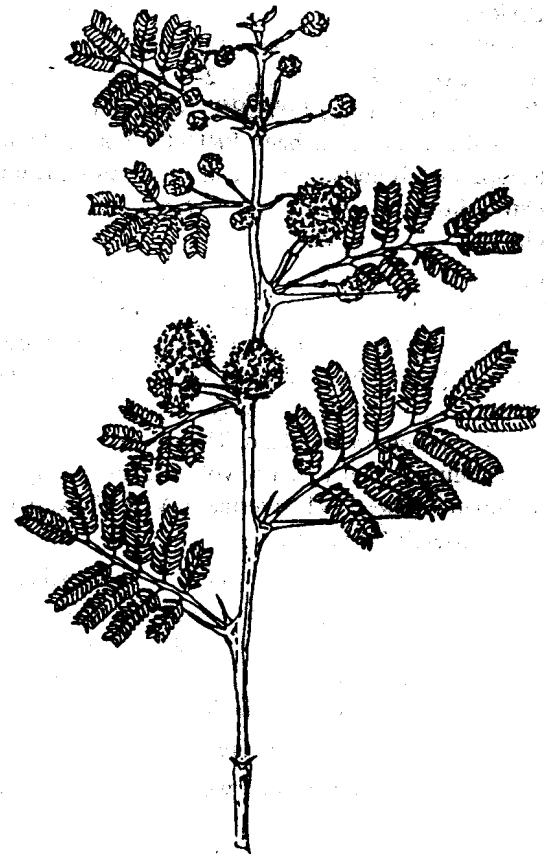
USES: Firewood, charcoal, poles, tools, carving, tenderizer for meat (bark), drink (boiled bark or fruit pulp drunk like tea), medicine (sap, fruit and bark), fodder (leaves, pods), bee forage, shade, dune fixation, nitrogen-fixing, soil conservation, soil stabilization, windbreak, gum, tannin (bark), dye (bark), live fence, dead fence, toothbrushes, veterinary medicine.

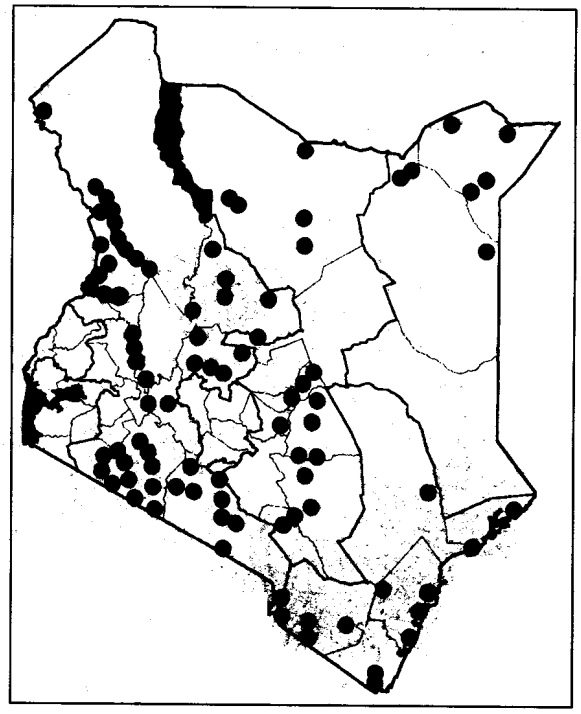
PROPAGATION: Seedlings, direct sowing at site.

SEED: Separate through immersion in water; bad seeds float. Germination rate 60–90%; 7,000–11,000 per kg. **treatment**: Not necessary for fresh seed. For stored seed only, nick or soak in cold water for 24 hours. Immersing in hot sulphuric acid for 8–10 minutes is very effective. Germination rates of 75–95% can be realized in one week. **storage**: Seed can be stored for long periods.

MANAGEMENT: Fairly fast growing on good sites: Lopping, pollarding, pruning in pastures.

REMARKS: The bark is commonly used as a substitute for tea. Juice from the fruits gives a black dye that is rubbed on the eyelids by Digo women. The bark is used for

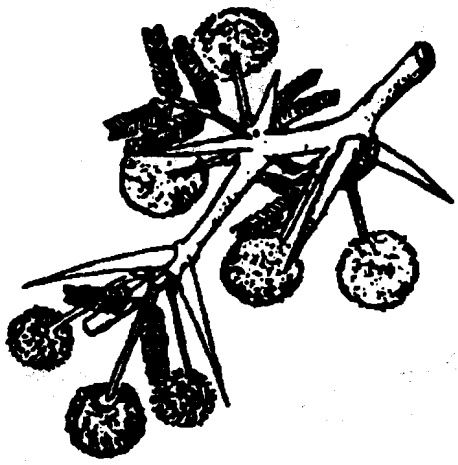




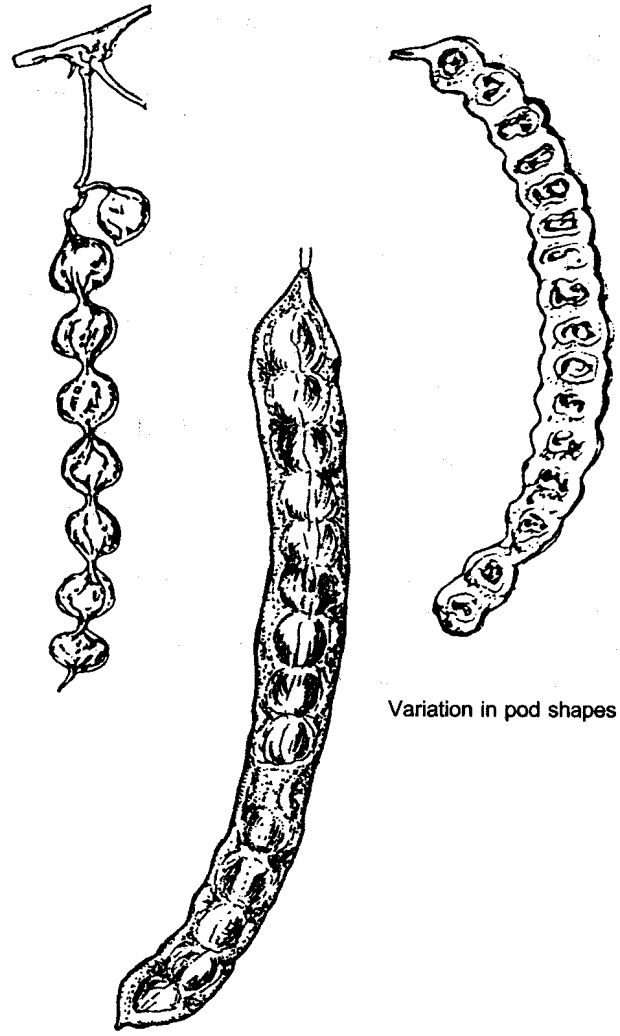
Acacia nilotica (cont)

tanning and dying leather (red-brown colour). Thorns used for piercing ears and as plugs for gourds. The wood is hard, tough, termite resistant and durable, used as posts for grain stores and as roof support in traditional Maasai homes. Young trees do not compete well so weeding is necessary. Can form thickets.

One of the most widespread acacias. An extremely variable species in its entire range, with at least 7 subspecies.



FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Albrecht, 1993; Beentje, 1994; Bein et al., 1996; Bekele-Tesemma et al., 1993; Blundell, 1987; Dharani, 2002; ITDG and IIRR, 1996; Katende et al., 1995; Kokwaro, 1993; Maundu et al., 1999; Mbuya et al., 1994; National Academy of Sciences, 1980; Noad and Birnie, 1989; Palgrave and Palgrave, 2002; Ruffo et al., 2002; Storrs, 1979; von Maydell, 1990.



Variation in pod shapes

Acacia paolii

Fabaceae (Mimosaceae)

Indigenous

COMMON NAMES: Boran: Chachane, Wanga; **Gabra:** Chachane; **Malakote:** Chyachyaneh; **Orma:** Chachane; **Rendille:** Gomor; **Somali:** Gammur, Gommor, Jerin, Jahjahneh; **Turkana:** Eyelel.

DESCRIPTION: A multi-stemmed deciduous shrub or small tree with spreading flat-topped crown to 4.5 m high. BARK: Smooth, **dark green, dotted with white lenticels.** THORNS: Straight, in pairs up to 5 cm long. LEAVES: Grey-green, twice-divided, usually 4–9 pairs of pinnae; leaflets in 7–15 pairs. FLOWERS: **In round heads, cream, produced when tree is leafless.** FRUIT: Red or brownish pods with spreading white hairs. Splits open.

ECOLOGY: Found only in north-eastern Uganda, Sudan, Ethiopia, Somalia and Kenya. Widespread in acacia bushlands or dwarf shrub grasslands of northern and eastern Kenya, 100–1,250 m. May be locally common near Lake Turkana, in Isiolo, Tana River and in Mandera Districts in depressions with clay soil and on gently undulating slopes with clay-loam soils, mainly in lowlands. Agroclimatic Zones VI–VII.

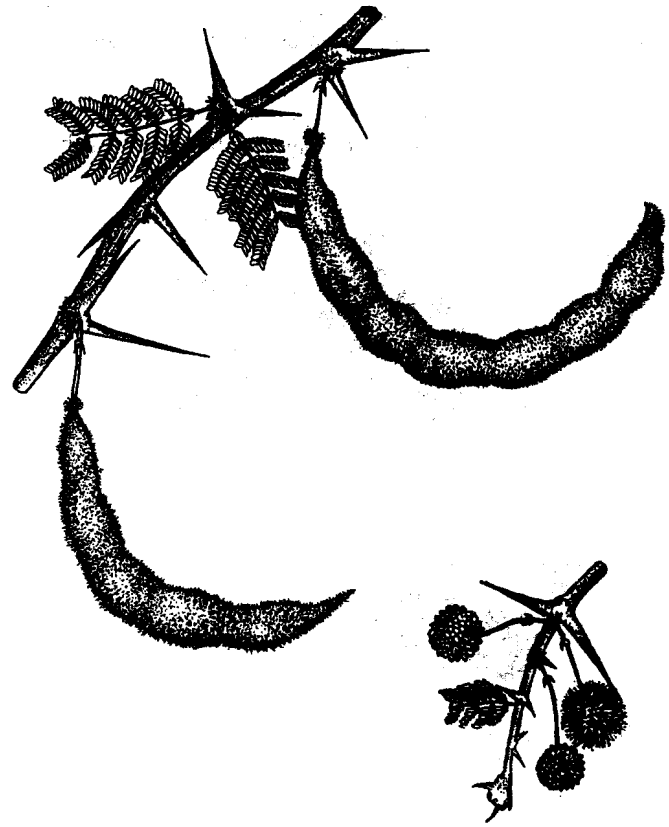
USES: Firewood, edible gum, medicine, fodder (leaves), bee forage, dead fence (thorny branches).

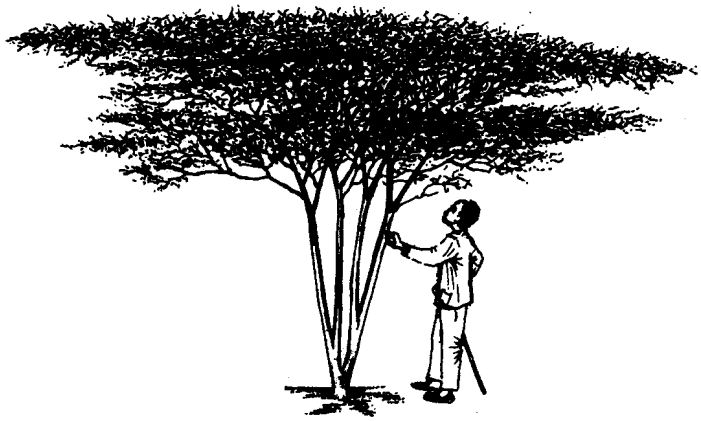
PROPAGATION: Seedlings, wildings. Seed germinates easily after fire.

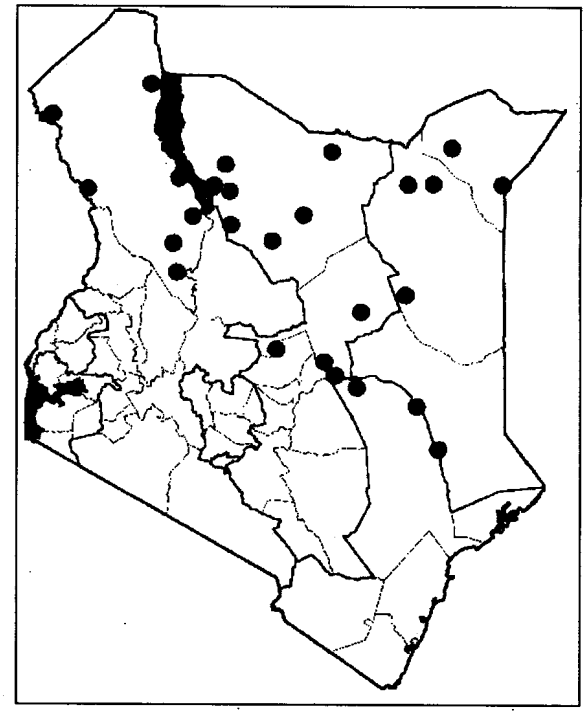
MANAGEMENT: No management practice is commonly applied. Can be pruned if needed.

REMARKS: The species is an indicator of areas that can be cultivated. Used for making bomas (Somali).

FURTHER READING: Beentje, 1994.





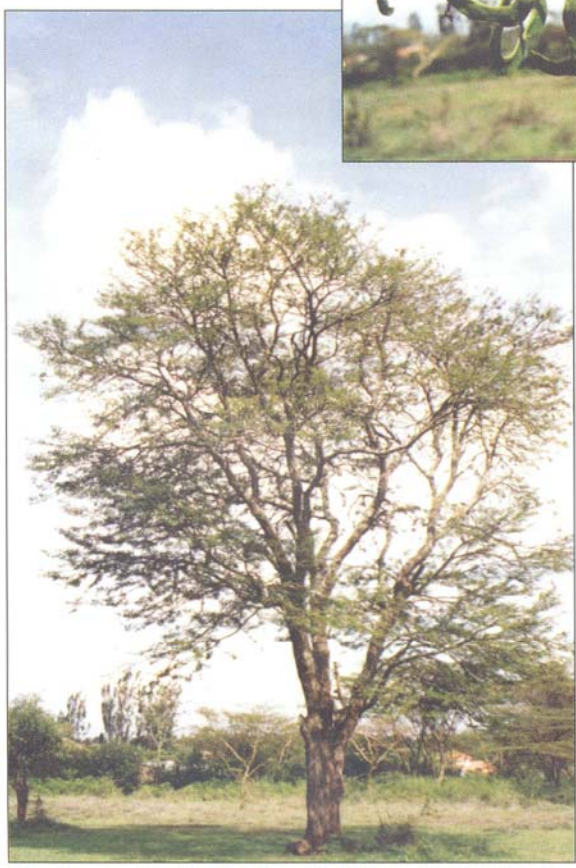


Acacia abyssinica, Loita highlands, Narok District

Acacia brevispica, Mwala, Machakos District

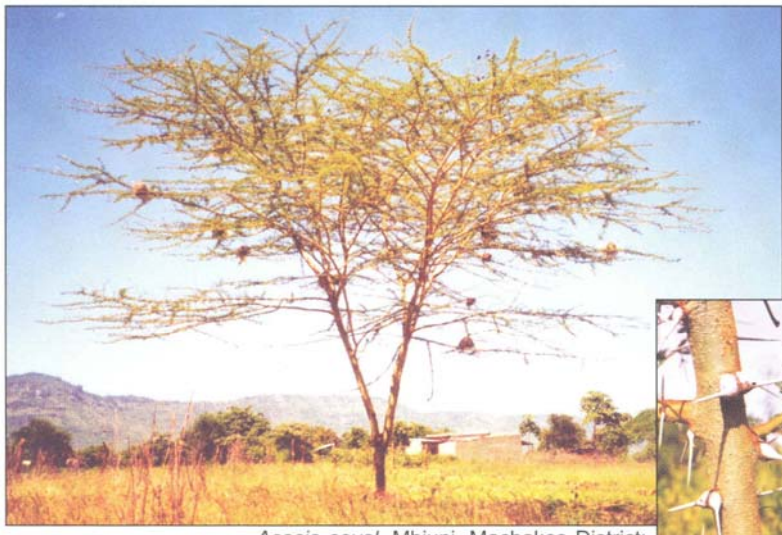
Acacia drepanolobium, Kaputei plains, Kajiado District

Grassland with scattered *Acacia gerrardii* at Corner Baridi, Ngong, Kajiado District

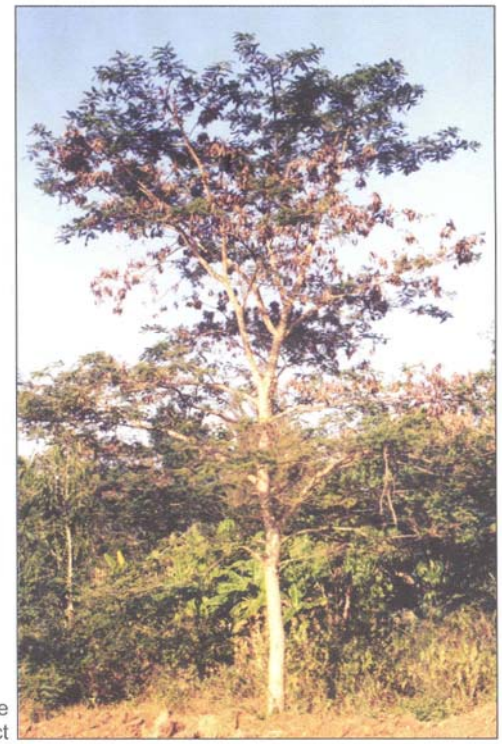


Acacia gerrardii, Ong'ata Rongai, Kajiado District; (inset) pods

Acacia kirkii woodland is common around Nairobi; (inset) bark

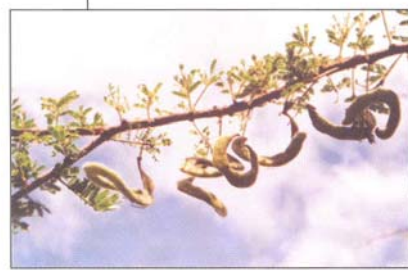


Acacia seyal, Mbiuni, Machakos District; (inset) var. *fistula*, thorns with ant galls

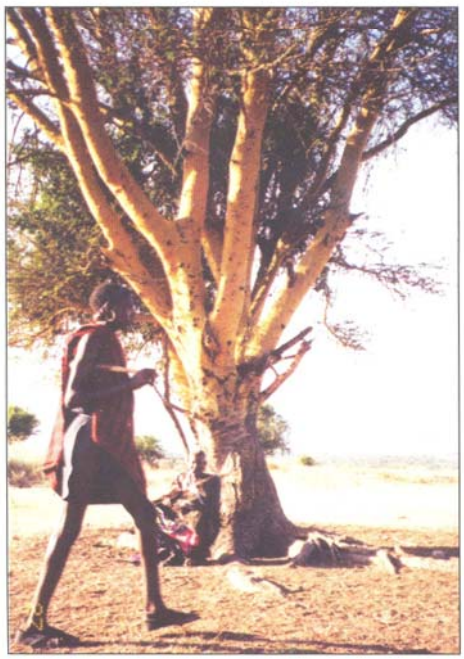


Acacia polyacantha with mature pods, Kyanika, Kitui District

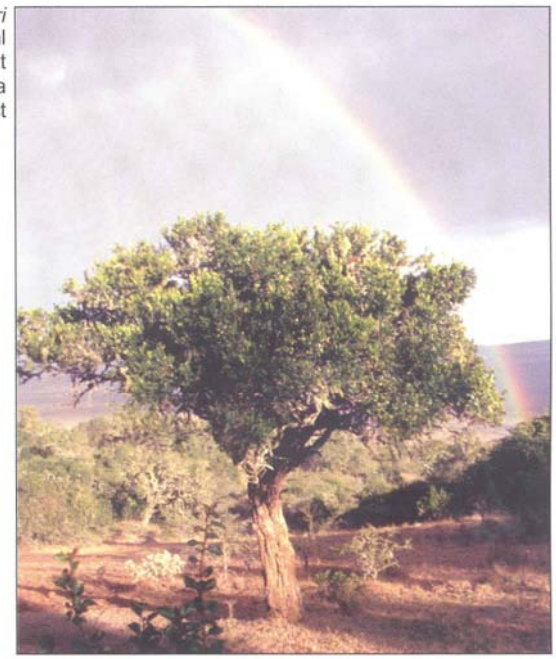
Acacia nilotica pods; the coastal variety, Lamu District



Acacia tortilis trees are often left in cropland, Mwea, Mbeere District; (inset) pods, which are important fodder

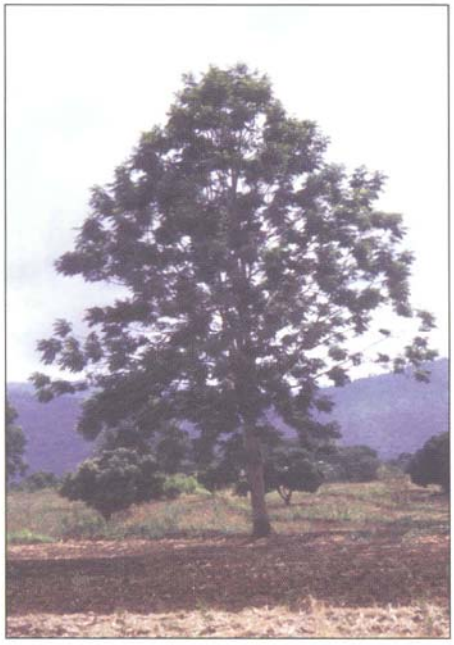


Acokanthera schimperi (arrow-poison tree), typical of wooded grasslands at higher altitudes, Loita highlands, Narok District

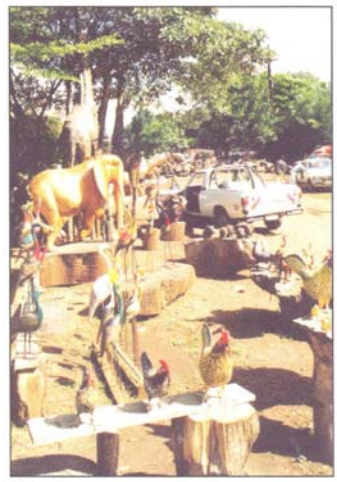


Acacia xanthophloea (fever tree) is easily recognized by its yellow bark and great size, Loita, Narok District

Plate 2



Acrocarpus fraxinifolius; young tree, Kamuuw'ani, Machakos District



Woodwork products in an open-air market, Nairobi; the large carvings are from *Acrocarpus fraxinifolius*

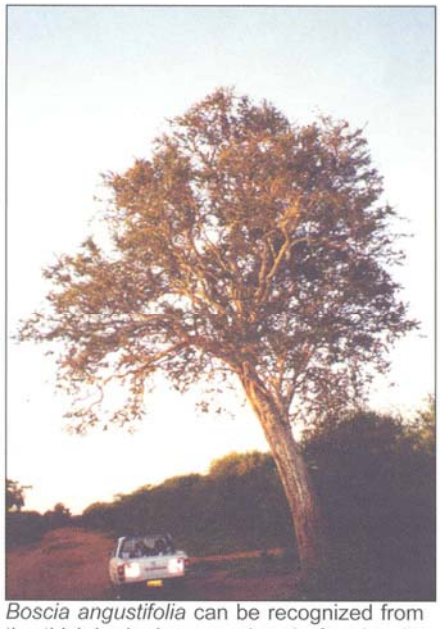
Adenium obesum (desert rose), near Wenje, Tana River District

Antiaris toxicaria trunk, Kaya Kinondo, Kwale District

Adansonia digitata (baobab), Kibaoni, Malindi District; (inset) a traditional hive placed in the fork of baobab branches

Neem (*Azadirachta indica*), leaves and flowers, Kilifi District; (above) a trunk stripped of bark for medicine

Neem wood for carving in Mombasa

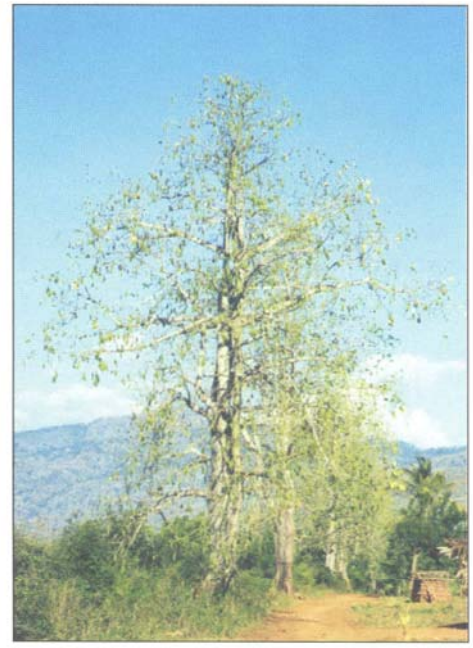


Boscia angustifolia can be recognized from the thick-barked, grooved and often leaning trunk, Katangi, Yatta, Machakos District

Calodendrum capense (Cape chestnut), Nairobi

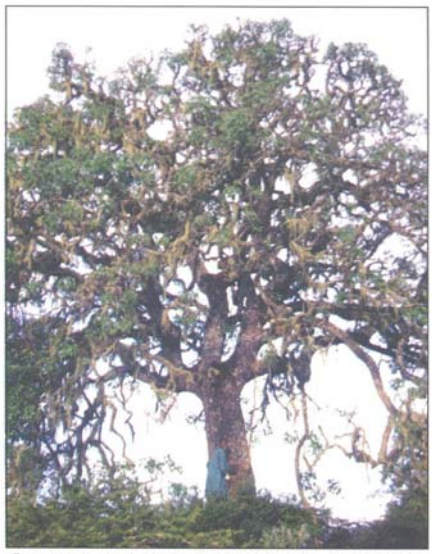
Cassia abbreviata near Mzima Springs, Tsavo West, Taita Taveta District

Balanites aegyptiaca fruit, West Pokot District



Ceiba pentandra

Ceiba speciosa (bombax), Nairobi; (inset) flowers



Cussonia holstii, Loita highlands, Narok District

Dalbergia melanoxylon (*mpingo* or African blackwood) was an important woodcarving species in Kenya; (inset) close-up of trunk

Plate 4

A. Njenga

Delonix regia, Sagana, Kirinyaga District; (inset) the bright red flowers have earned it names like 'flame tree', 'flamboyant' and 'flame of the forest'

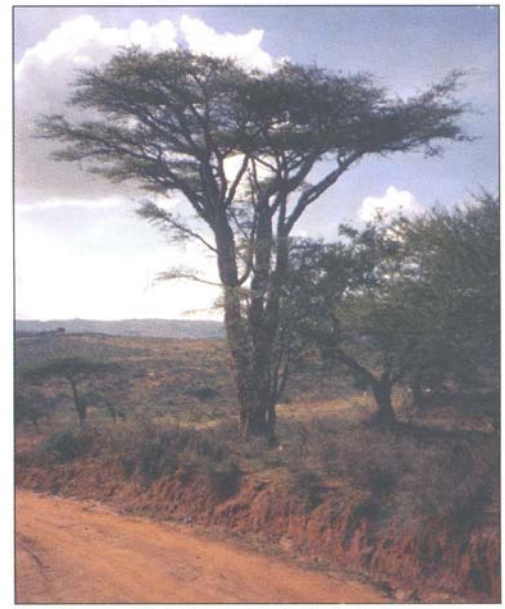
Dovyalis macrocalyx, Nairobi; the fruits are edible

Dracaena steudneri, Chiromo, Nairobi

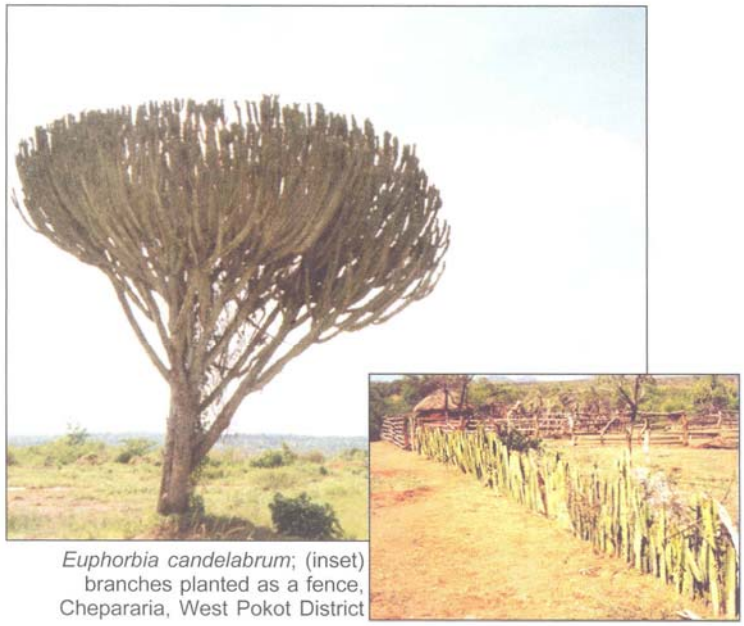
Dobera glabra, Tana River District

Entada rheedii, Kilifi District; the pods can be over a metre long

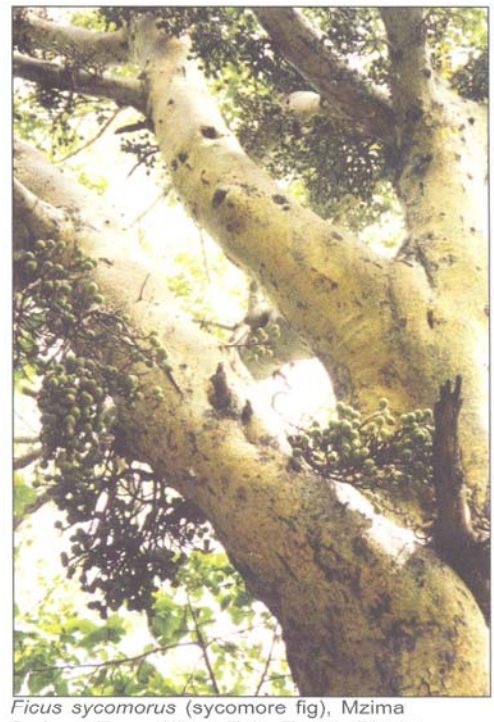
Encephalartos hildebrandtii, Kilifi District



Erythrina burtii, Katumani, Machakos



Euphorbia candelabrum; (inset) branches planted as a fence, Chepararia, West Pokot District

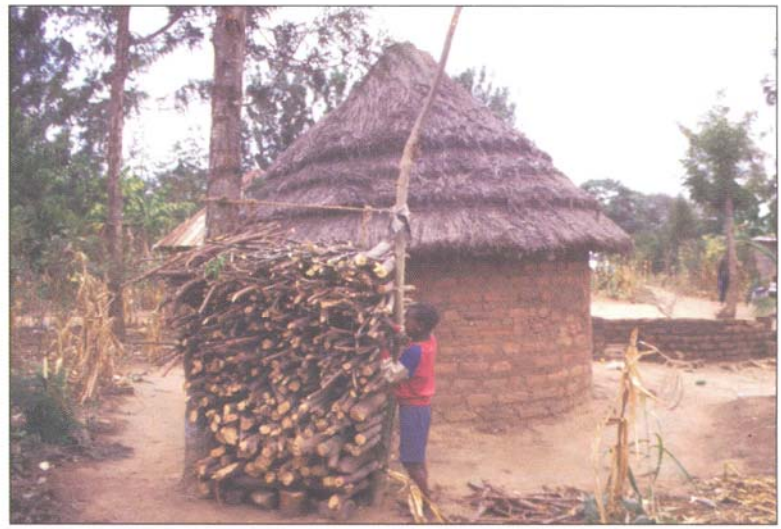


Ficus sycomorus (sycomore fig), Mzima Springs, Tsavo West, Taita-Taveta District

Making a canoe from the trunk of *Ficus sycomorus*, Mnazini, Tana River District

A fig tree in lowland rain forest, Kaya Kinondo, Kwale District

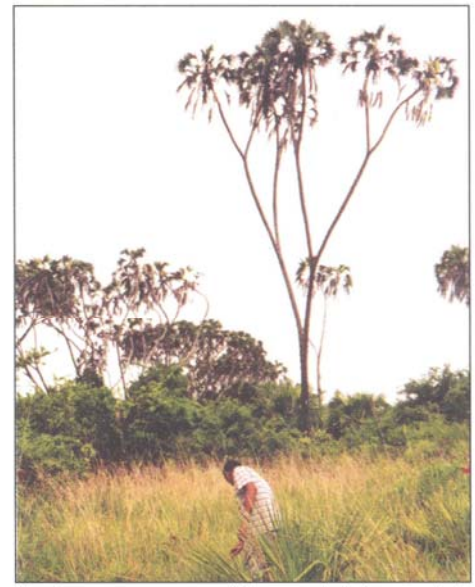
Garcinia livingstonei in riverine forest, Mchelelo, Tana River District



Fuelwood harvested from a *Grevillea robusta* woodlot at a homestead in Kyangwithya, Kitui

Plate 6

Gardenia volkensii has beautiful large flowers; Ramogi Hill, Bondo District



Hyphaene compressa (doum palm) in wooded grassland, Lake Kenyatta, Lamu District

A. Njenga

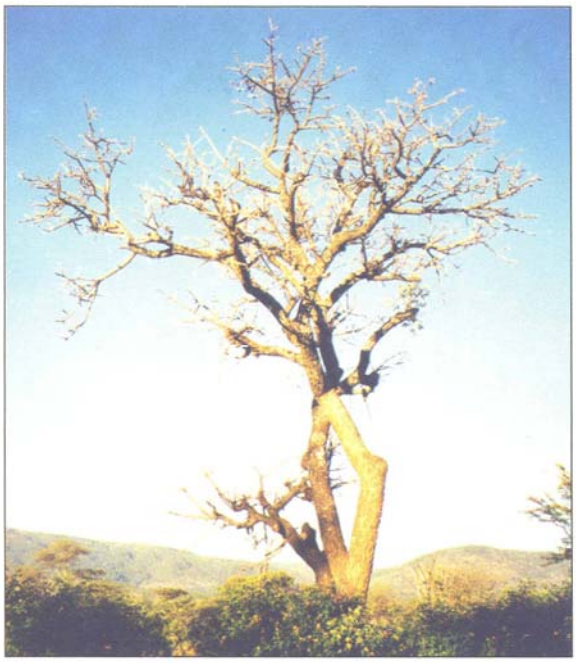
Jacaranda mimosifolia in bloom, Machakos District

Juniperus procera (East African cedar); this tree was felled illegally by loggers, Loita, Narok District

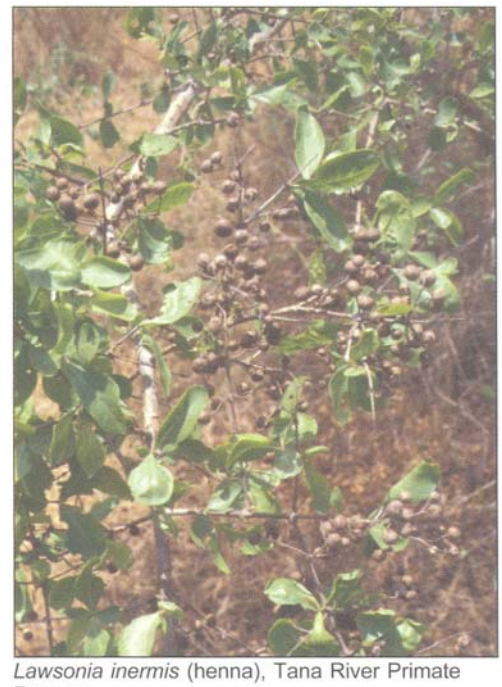
Jatropha curcas (physic nut), National Museums of Kenya, Nairobi

Kigelia africana (sausage tree), Bondo District

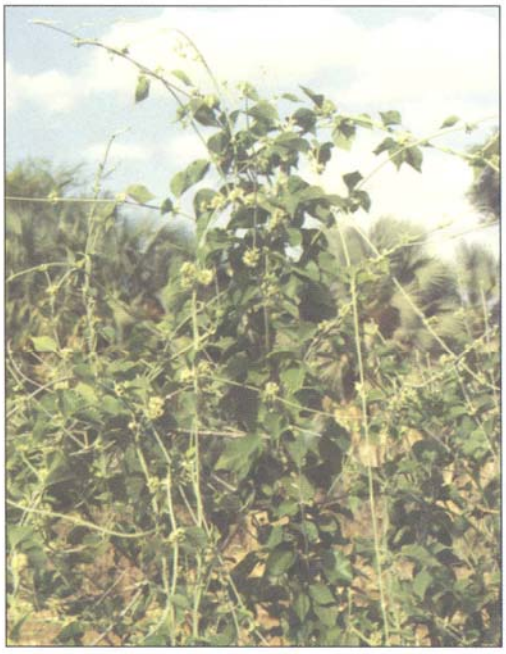
Lannea rivae, Matuu, Machakos District



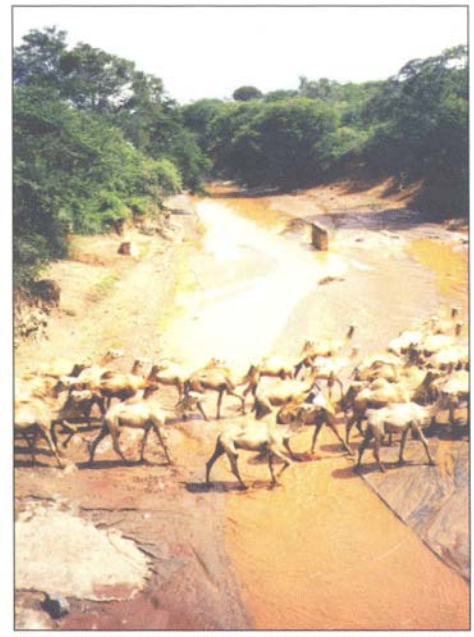
Lannea schimperi, West Pokot District; this tree sheds all its leaves in the dry season



Lawsonia inermis (henna), Tana River Primate Reserve



Leptadenia hastata, West Pokot District; the leaves are used as a vegetable



Seasonal rivers are called luggas in north and north-eastern Kenya; Tyaa lugga, Mwingi District

A. Njenga

Macadamia integrifolia, Embu

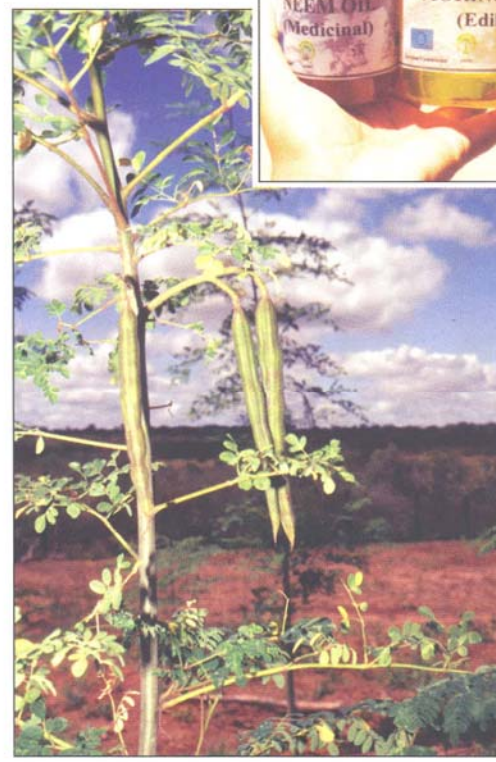
Melia volkensii, Tsavo near Mtito Andei, Makueni District; (inset) fruits

Plate 8

Manilkara sulcata, Kilifi

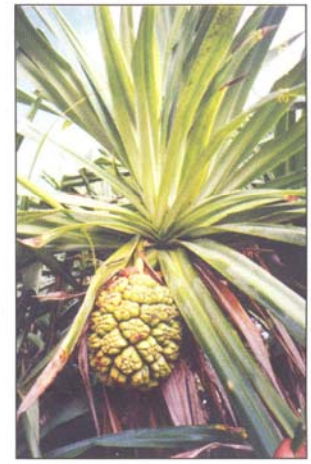
Mimusops obtusifolia, Kitere, Tana River District

Mondia whytei; edible roots on sale, Kakamega District; (inset) roots also have medicinal uses



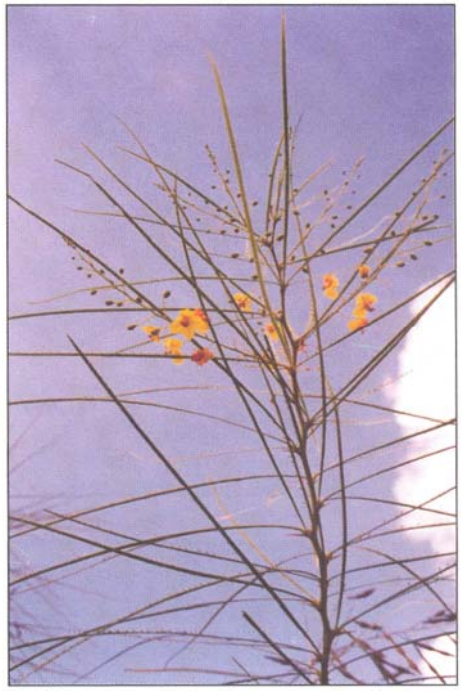
Moringa oleifera fruiting branch; (inset) edible oil extracted from seed, Sokoke, Malindi District

Morus sp. (mulberry), Karaba, Mbeere District



Pandanus kirkii growing on the sea shore, Ukunda, South Coast; (right) fruit

Pappea capensis, Kitui District



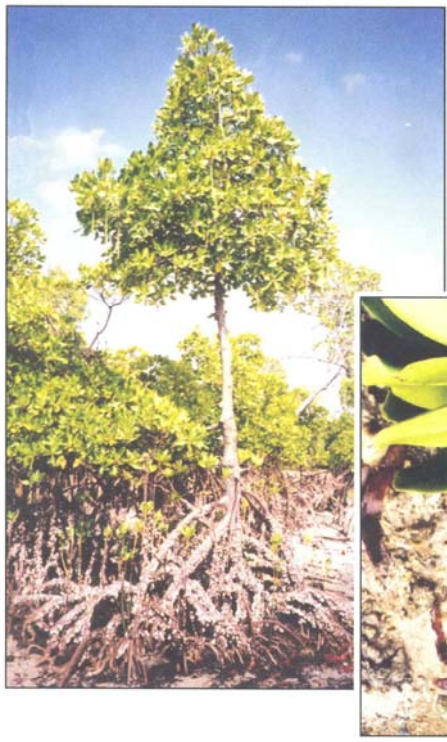
Parkinsonia aculeata (Jerusalem thorn), Mbeere District

Pithecellobium dulce (Madras thorn), Bombolulu, Mombasa

Phoenix reclinata (wild date palm) in fruit, Ong'ata Rongai near Nairobi

Podocarpus latifolius (podo) in subhumid highland forest, Mt Elgon District

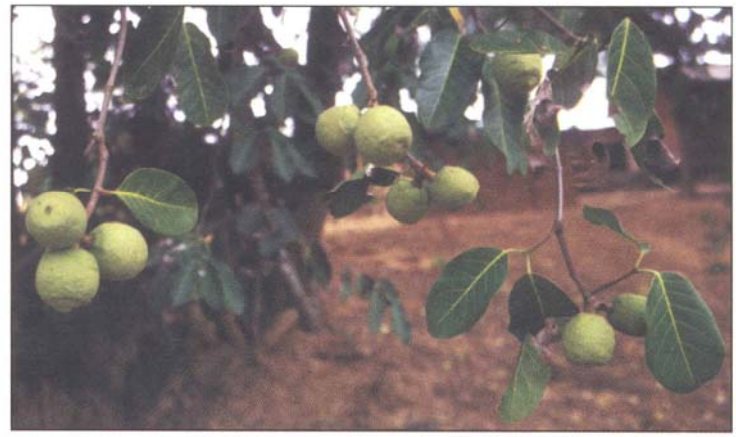
Prosopis juliflora (mesquite) near the banks of the Tana at Wenje, Tana River District



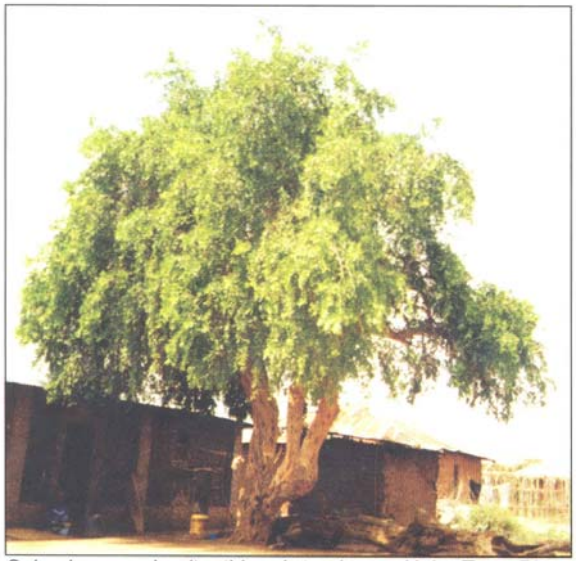
Rhizophora mucronata (common mangrove or *mkoko*) with prop roots; (inset) seedling germinated on the tree (viviparous), Mkowe, Lamu District

Rhus natalensis (Natal rhus), Nairobi Museum; fruits are edible

Ricinus communis (castor oil plant), Makutano, Machakos District



Saba comorensis, Kitui Hills, Kitui District; the fruits are edible

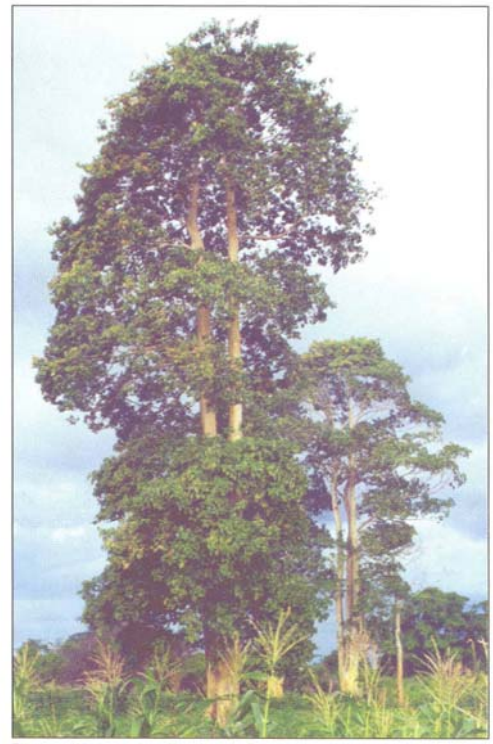


Salvadora persica (toothbrush tree) near Hola, Tana River District

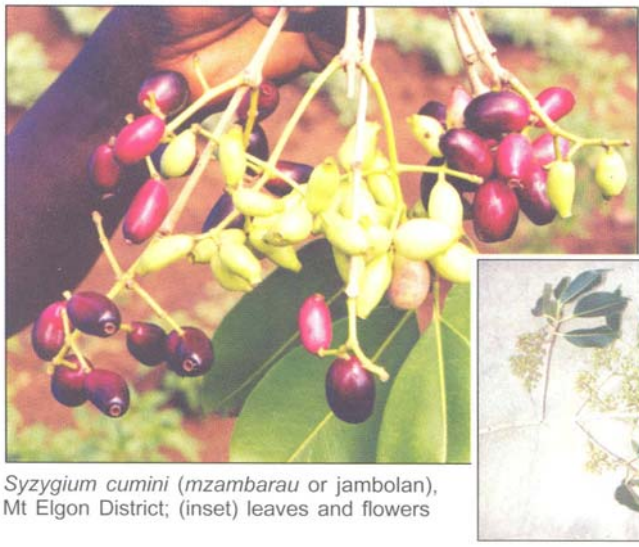
Senna singueana, Siathani, Machakos District

Senna siamea, Got Ramogi, Bondo District

Sonneratia alba fruit, Chale area, Kwale District



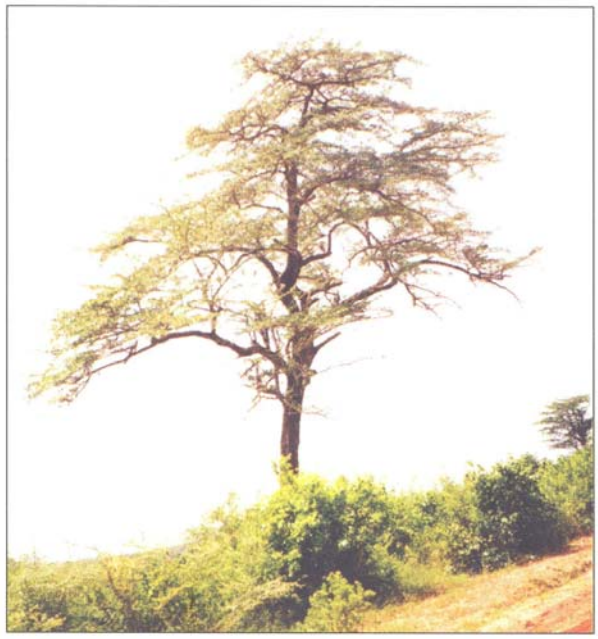
Sterculia appendiculata, Baricho, Malindi District



Syzygium cumini (*mzambarau* or jambolan), Mt Elgon District; (inset) leaves and flowers

Terminalia brownii fruits, Karaba, Mbeere District

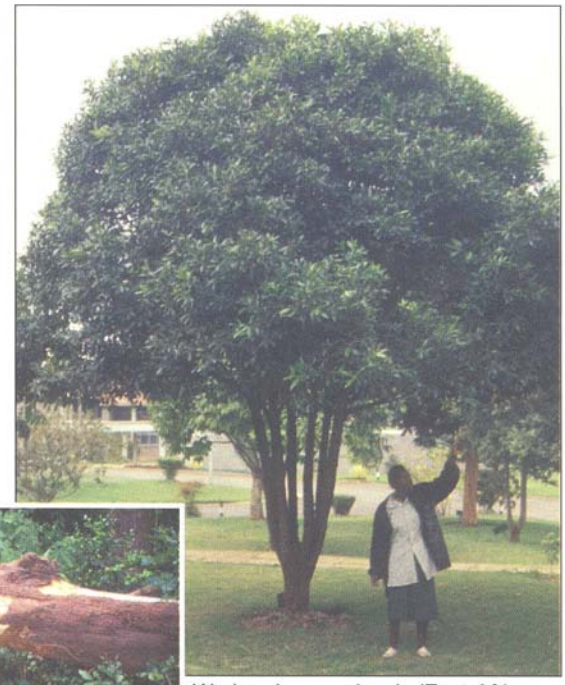
Terminalia catappa (Indian almond); young tree, Rabai Museum, Kilifi District



Terminalia spinosa, Hola, Tana River District

Tithonia diversifolia, Masinga reservoir, Machakos District

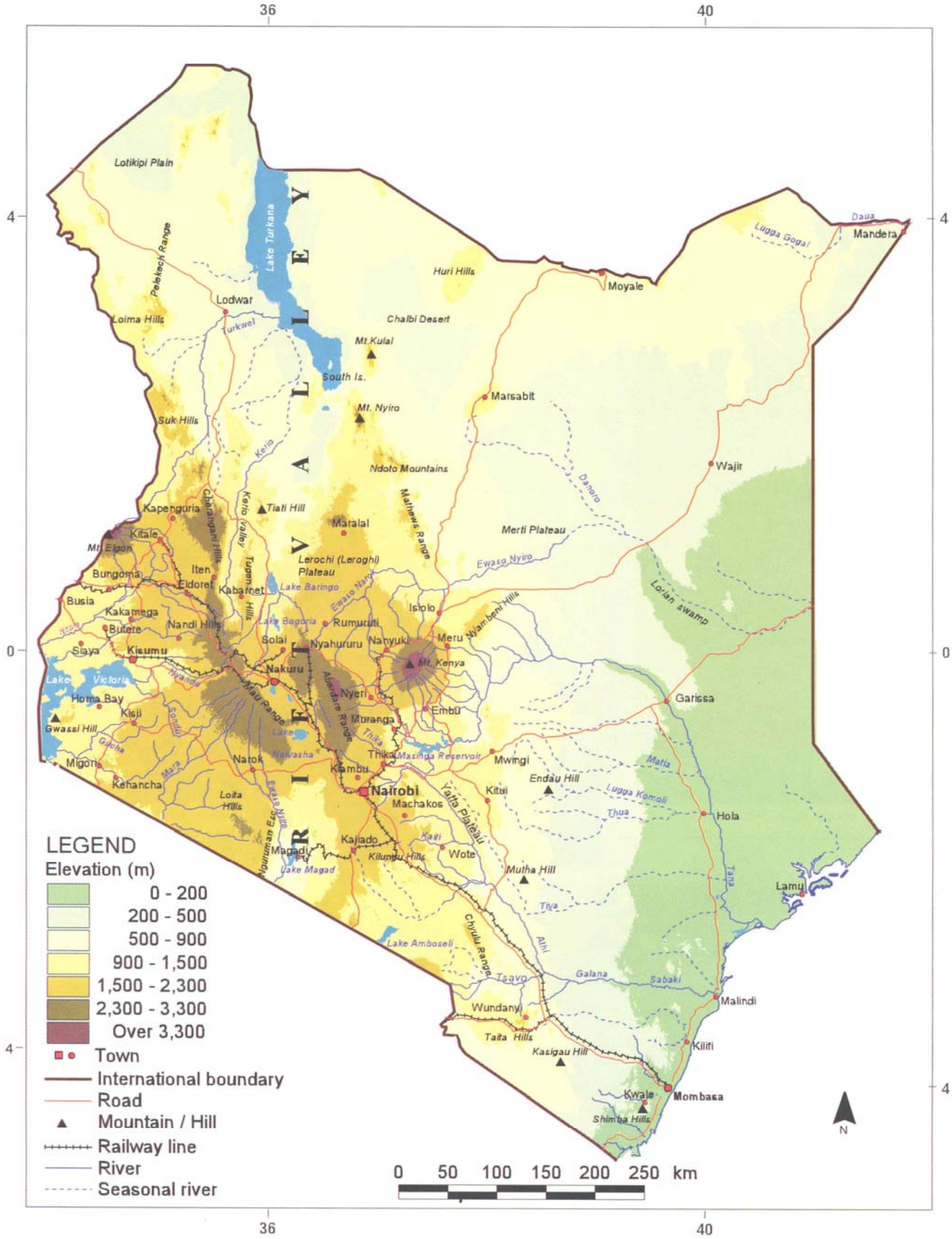
Vitex payos; unripe fruits, Kitui District



Warburgia ugandensis (East African greenheart); (inset) tree felled for medicine, Loita, Narok District

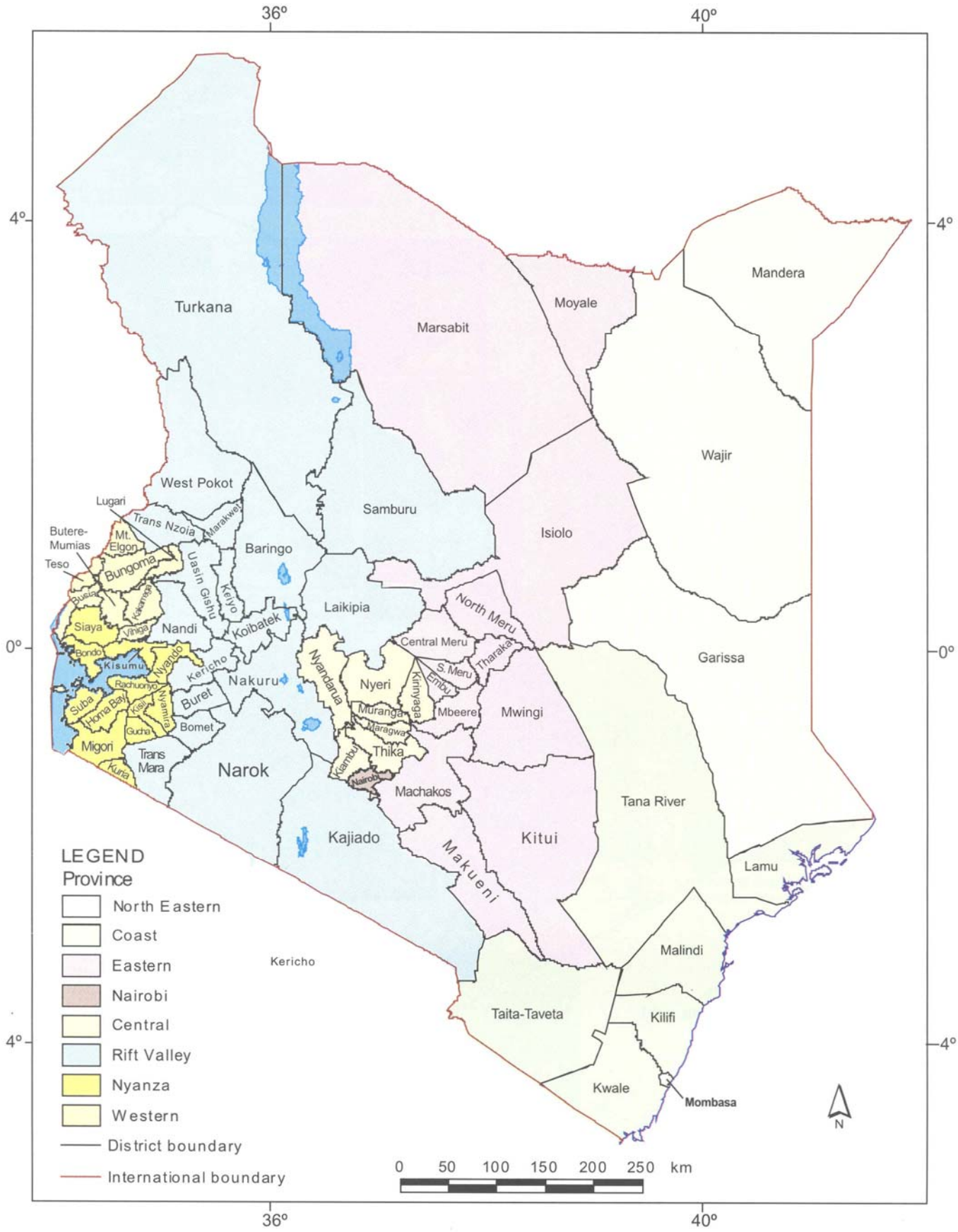
Ximenia americana, Ramogi Hill, Bondo District

Ximenia americana; variation in fruits

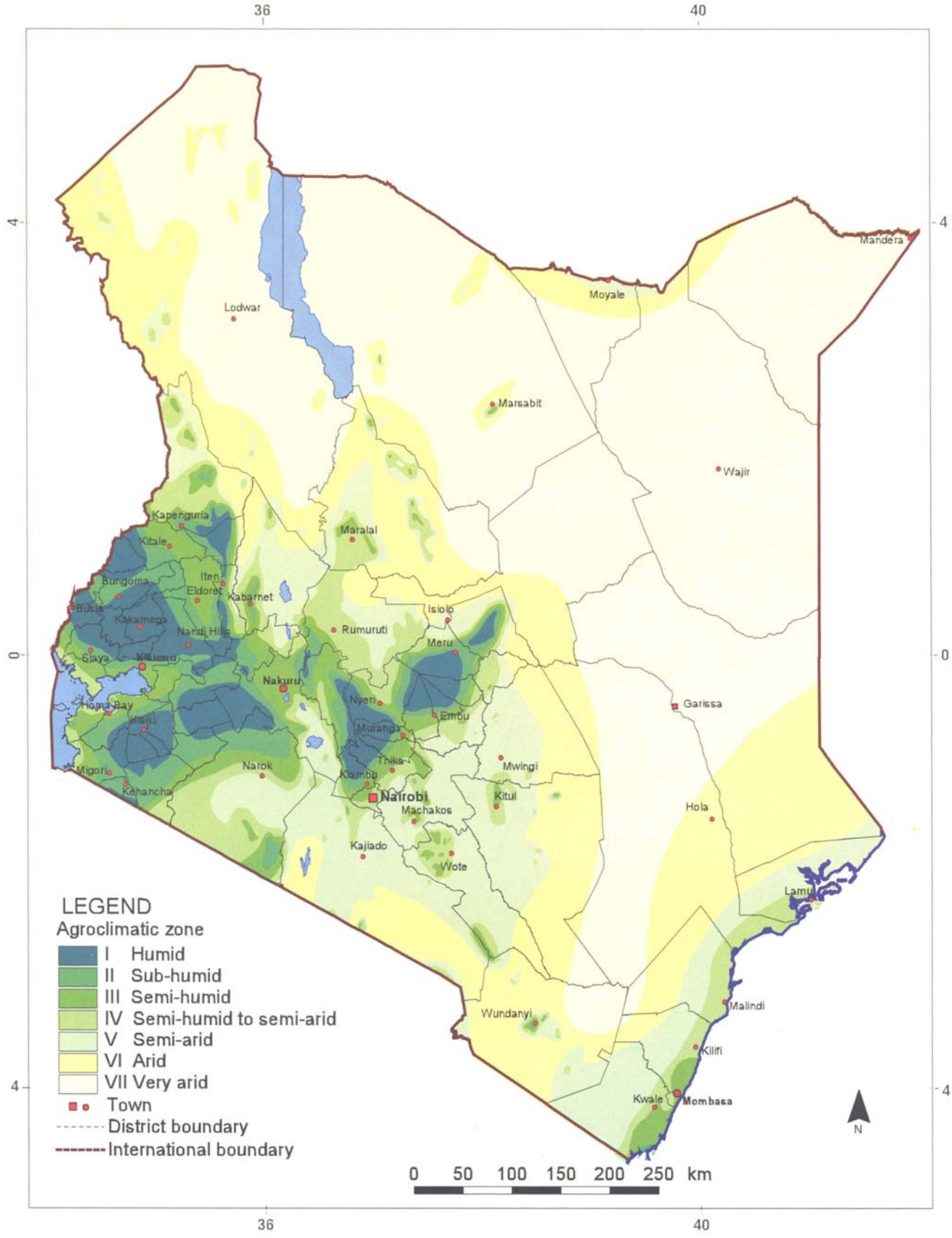


Physical features of Kenya

Plate 14



Administrative divisions of Kenya



Agroclimatic zones of Kenya

Plate 16

Acacia polyacantha subsp. *campylacantha* Fabaceae (Mimosaceae)

Indigenous

COMMON NAMES: **Bajun:** Mkengewa; **English:** Falcon's-claw acacia; **Kamba:** Kivovoa, Mwelele, Musewa (Kitui); **Luhya (Bukusu):** Kumukokwe; **Luo:** Ogongo, Suahowe, Swaruri; **Swahili:** Mkengewa.

DESCRIPTION: A tree to 18 m with **an open canopy.** BARK: Ash-grey to yellow brown, scaling, old trees deeply grooved. THORNS: In pairs, just below the nodes, brown with black tips, small, to 10 mm and hooked, sometimes absent. LEAVES: Leaflets very small, numerous and narrow, leaf stalk hairy with glands. FLOWERS: Large, **cream-white spikes,** to 12 cm, 2 or 3 together, fragrant. FRUIT: Straight and flat smooth pods, brown, to 18 cm, tip pointed, splitting open.

ECOLOGY: A widespread acacia found from India to tropical Africa. In Kenya, found in wooded grassland and riverine woodland, 200–1,800 m, often in poorly drained soils. May indicate fertile soil and ground water but can also grow on stony soil. Common along Nairobi–Thika road, in Kisumu, South Nyanza, Narok, Taita-Taveta, Machakos and Kilifi. Agroclimatic Zones III–IV.

USES: Firewood, charcoal, timber, tool handles, farm implements, medicine, edible gum, fodder (pods, leaves, seeds), bee forage, ornamental, nitrogen-fixing, soil conservation.

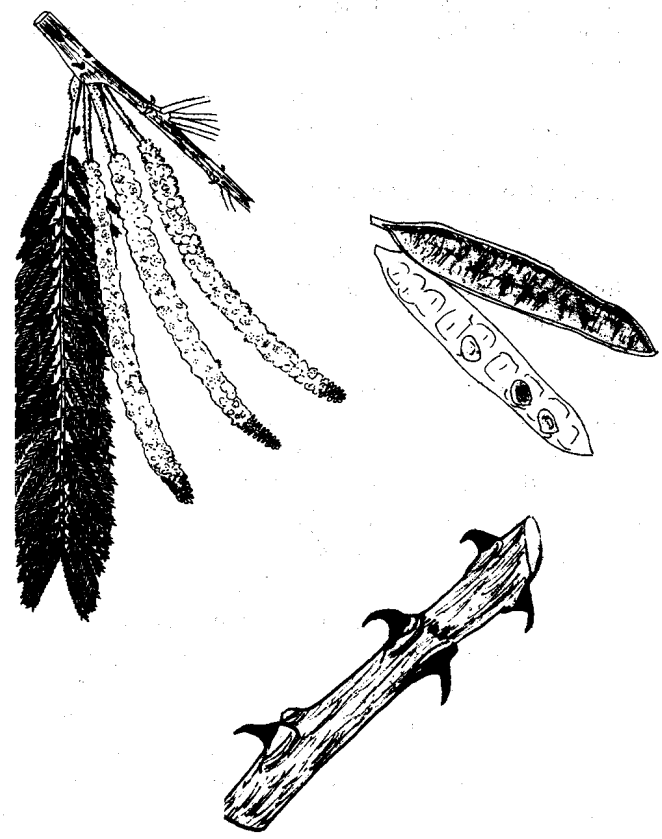
PROPAGATION: Seedlings, wildings, direct sowing at site.

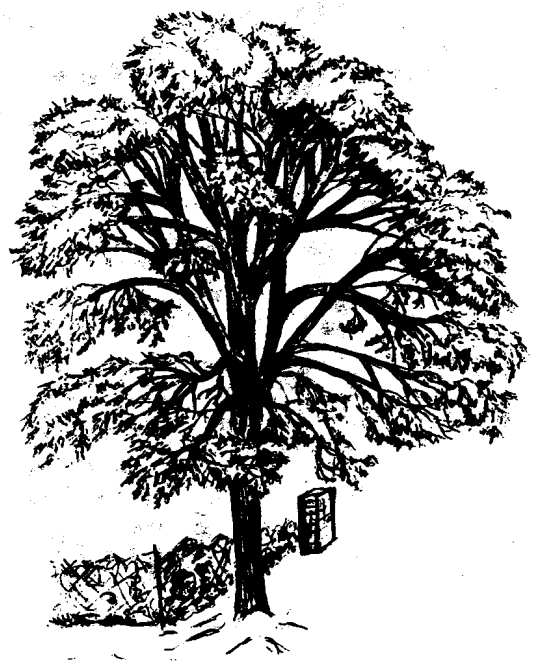
SEED: Seeds prolifically; 14,000–16,000 seeds per kg. Good seeds germinate in 10–20 days, germination rate 60–90%.
treatment: Immerse in hot water, allow to cool and soak for 24 hours or nick seed at cotyledon end.
storage: Seed can be stored for long periods if kept insect free.

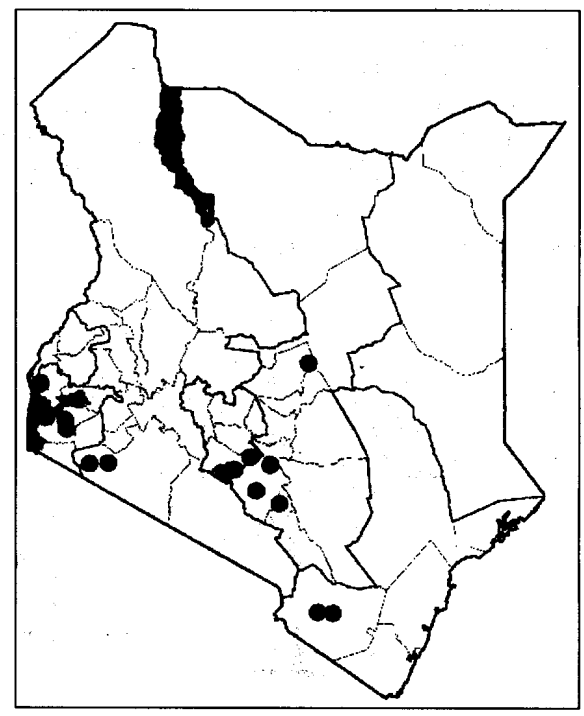
MANAGEMENT: Fast growing on good sites; pollarding, coppicing, pruning to avoid large branches breaking with heavy winds.

REMARKS: Wood is resinous, hence termite resistant. The tree is a host to many insects. Subsp. *polyacantha* is found in India.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Albrecht, 1993; Backes and Ahenda, 1998;Beentje, 1994; Bein et al.,.1996; Bekele-Tesemma et al., 1993; Dharani, 2002; Fichtl and Adi, 1994; Kokwaro, 1993; Mbuya et al., 1994; Noad and Birnie, 1989; Palgrave and Palgrave, 2002; Storrs, 1979; von Maydell, 1990.







Acacia senegal

Fabaceae (Mimosaceae)

Indigenous

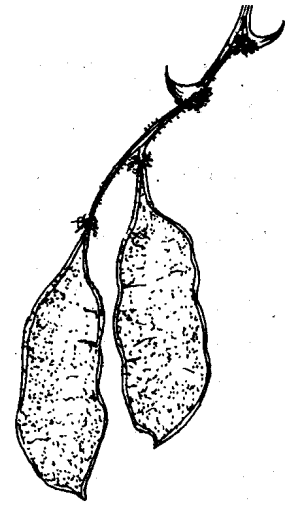
COMMON NAMES: **Bajun:** Mtengewa; **Boran:** Baabido (gum), Burra diima, Iddaado, Sadeema, Sapans; **Daasanach:** Dang'ite; **Digo:** Chikwata, Kikwata; **English:** Gum arabic tree, Gum arabic acacia; **Gabra:** Idaado; **Ilchamus:** Lderkesi; **Kamba:** Kikole, King'olola, King'ola (Mwingi), King'ole (Machakos); **Luhya (Bukusu):** Kumung'ang'a; **Luo:** Kiluor, Otiep; **Maasai:** Enderkesi, Interkes (plural), Olterkesi; **Mbeere:** Mung'ora; **Orma:** Bura diima; **Pokot:** Chemanga, Chemangayan; **Rendille:** Hadhaadh, Mirgi; **Samburu:** Lderkesi, Manok (gum); **Somali:** Adad, Edad; **Swahili:** Kikwata, Mgunga; **Teso:** Ekodokodoi, Ekunoit; **Tharaka:** Mung'oora; **Turkana:** Ekunoit; **Wardei:** Cadaad.

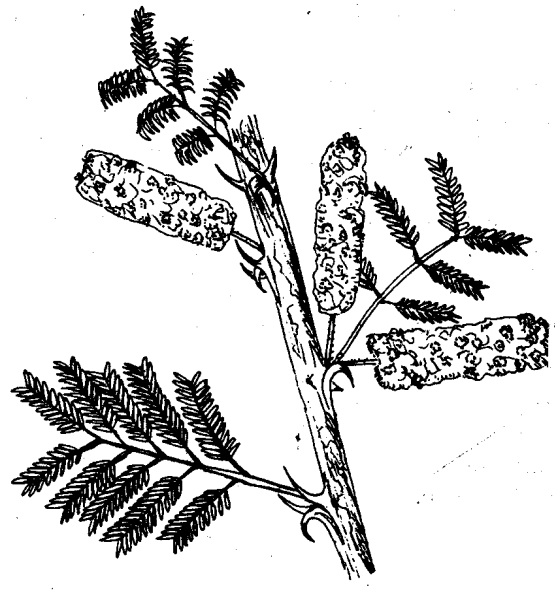
DESCRIPTION: Shrub or small tree up to 9 m, more often 2–4 m, usually with many low branches. Flat-topped crown in mature trees. BARK: Waxy, smooth, then **peeling and papery from red-brown base.** THORNS: Usually **in 3s,** the central one hooked downwards, the 2 laterals curved up, brown to black. FLOWERS: Buds red, opening to long white or cream spikes, borne in 2s or 3s or sometimes singly, 8 cm long, fragrant, usually develop before the rainy season. FRUIT: Variable pods, flat, oblong to 10 cm, **tapering both ends,** often constricted between seeds, soft grey-yellow becoming **papery brown, veins prominent, splitting** to release usually 3–5 greenish brown, flattened seed with a circular outline.

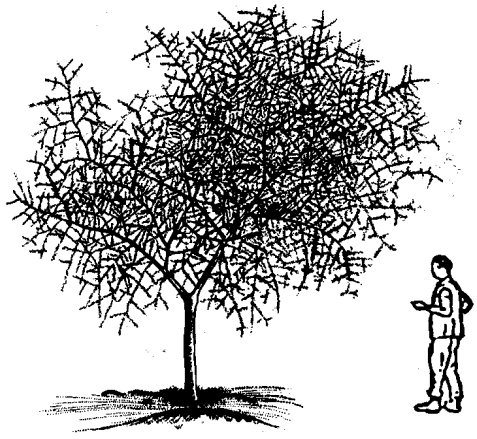
ECOLOGY: A common acacia in dry parts of Africa and Asia. Found from West Africa and North Africa south to South Africa. Widespread in most arid and semi-arid zones of Kenya in dry *Acacia–Commiphora* bushland, also wooded grassland often found at edges of luggas (dry riverbeds). Very common in the dry northern districts. Often a dominant species on raised rocky ground in very dry areas, 0–1,900 m. Prefers well-aerated soils, especially rocky, loam or sandy soils. Rainfall: 200–800 mm. Agroclimatic Zones III–VII. Flowers in July (Kitui); fruits in August–September (Turkana, Baringo, Ngong); flowers in March–May and seeds in October–November in Bungoma.

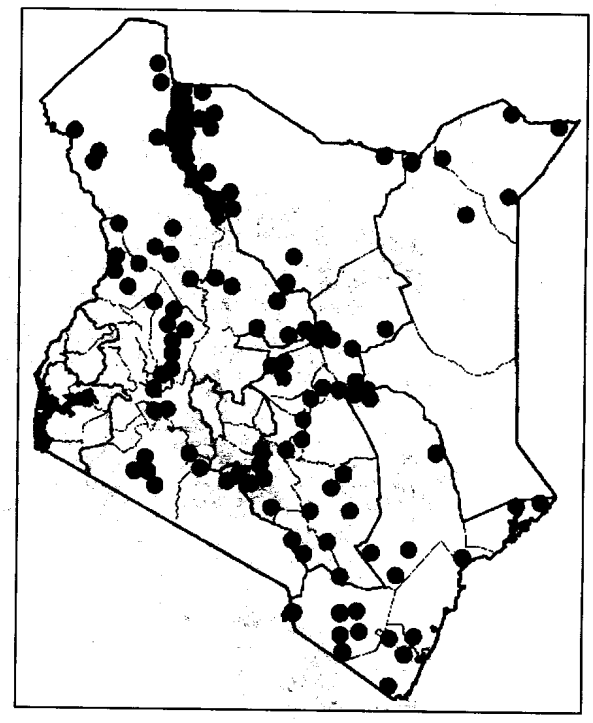
USES: Firewood, charcoal, poles, posts, tools, handles, edible gum, medicine (roots), fodder (pods and leaves for camels and goats), bee forage, soil conservation, sand stabilization, fibre, commercial 'gum arabic' (food stabilizer, glue, pharmaceutical uses), veterinary medicine.

PROPAGATION: Direct sowing at site.









Acacia senegal (cont)

SEED: Not a prolific seeder; 8,000–11,000 per kg. Seed susceptible to beetle attack. Germination rate is uniform and good, up to 80–90% after 15 days.
treatment: Soak seed in cold water for 24 hours or nick seed coat. Treatment not necessary when seeds are sown fresh.
storage: Seed store well. Prolonged storage increases seed-coat dormancy.

MANAGEMENT: Slow growing in arid lands; lopping, coppicing, pruning and appropriate injury for production of gum arabic.

REMARKS: Clear to pink or yellow edible gum produced when the tree bark is wounded. It is picked and eaten casually by people living in the dry north of Kenya, and extensively cultivated in Sudan for its gum, which may ooze out spontaneously during periods of stress, or a long strip of bark is removed to induce exudation. Gum production is best when the tree is grown on poor soils.

This gum is the commercial gum arabic. Gum arabic contains neutral sugars (rhamnose, arabinose and galactose), organic acids and mineral salts and has numerous applications in the food industry. It is also used widely in the manufacture of dyes, polish, glue, thickeners in confectionery and the manufacture of emulsions and tablets.

The tree has extensive, long surface roots that absorb water from showers, but also a deep taproot. It is very drought resistant and therefore useful for afforestation and soil stabilization in arid lands. The species is extremely variable with at least 3 varieties in Kenya. It often hosts the root parasite *Hydnora abyssinica*.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Albrecht, 1993; Backes and Ahenda, 1998; Beentje, 1994; Bein et al., 1996; Bekele-Tesemma et al., 1993; Blundell, 1987; Dharani, 2002; Fichtl and Adi, 1994; ITDG and IIRR, 1996; Katende et al., 1995, 1999; Kokwaro, 1993; Maundu et al., 1999; Mbuya et al., 1994; National Academy of Sciences, 1979, 1980; Noad and Birnie, 1989; Palgrave and Palgrave, 2002; Ruffo et al., 2002; Sommerlatte and Sommer-latte, 1990; von Maydell, 1990.

Acacia seyal

Fabaceae (Mimosaceae)

Indigenous

COMMON NAMES: **Boran:** Waachu adi, Waachu hallu; **English:** White-thorn acacia, White thorn; **Gabra:** Iddado; **Ilchamus:** Lera; **Kamba:** Mweya, Kisewa (Machakos); **Kikuyu:** Mugaa; **Kipsigis:** Mugurit; **Luhya:** Okulu; **Luhya (Bukusu):** Kumunyenya; **Luo:** Alii; **Maasai:** Olerai, Elereta, Elereta nanyokie, Oljerai (Ngong), Olerai oibor; **Marakwet:** Rena; **Mbeere:** Mureera; **Nandi:** Murigat; **Pokot:** Chooh, Chowogh, Rena; **Rendille:** Fulai; **Somali:** Fulay; **Swahili:** Mgunga; **Teso:** Ekoromai; **Turkana:** Echekereng, Ekoramait; **Wardei:** Kigaba gaolo.

DESCRIPTION: Thorny medium-sized tree up to 10 m high with an open flat-topped crown at maturity. BARK: Distinctive **powdery greenish white** to pale green or **orange-red**. THORNS: Diverging pairs, **white, stout, to 8 cm,** sometimes smaller or none. Some trees bear ant galls. FLOWERS: In very many bright yellow to orange **round**, fluffy heads; **fragrant**. FRUIT: Narrow, **curved, shiny light brown pods, in bunches, slightly constricted between seeds, splitting on the tree.**

ECOLOGY: A typical savanna acacia. Widespread in semi-arid areas of Africa from Senegal to Egypt south to Malawi and Zimbabwe. Found in Kenya in open or bushed grassland and woodland, especially at the foot of hills and on plains, often as the dominant tree. Thrives in seasonally flooded plains with black-cotton soil and in river valleys, 200–2,200 m; most common at about 1,500 m. Common also on rocky soils, less frequently on red soils. Agroclimatic Zones III–V. Flowers in September–October (Naivasha, Narok, Kajiado) and February–March (Mwingi, Kitui). Flowers in March–May, August–November and seeds in November–March in Bungoma.

USES: Firewood, charcoal, poles, posts, edible gum, edible inner bark, drink (tea from ground bark), medicine (bark), fodder (leaves, pods, flowers, also bark in dry season, mainly for goats and camels), bee forage, nitrogen-fixing, windbreak, dead fence (thorny branches), gum, tannin, dye (ground bark).

PROPAGATION: Seedlings, wildings, direct sowing at site; produces root suckers.

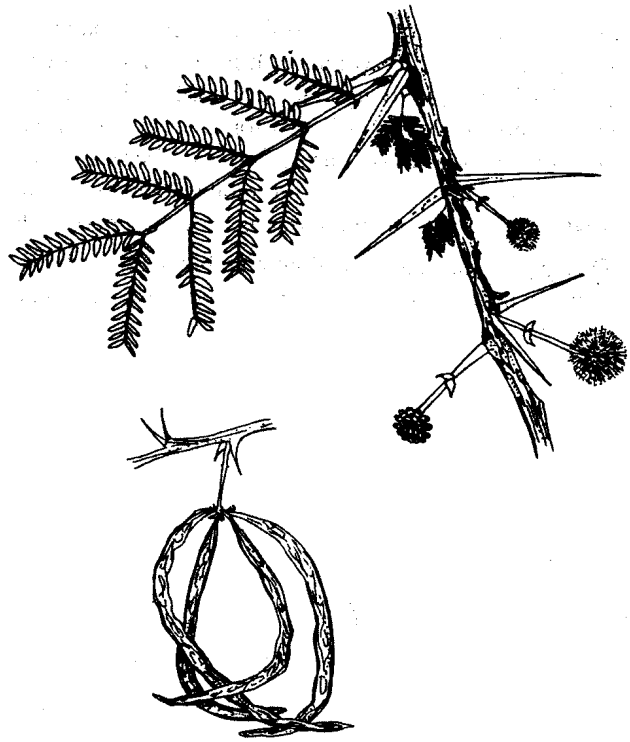
SEED: 15,000–22,000 seeds per kg. Germination rate: 70–80%.

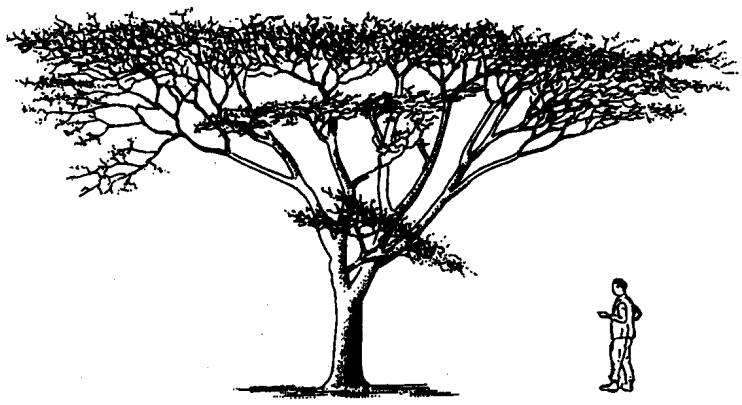
treatment: Not necessary for fresh seed. For stored seed, nick or soak in cold water for 24 hours.

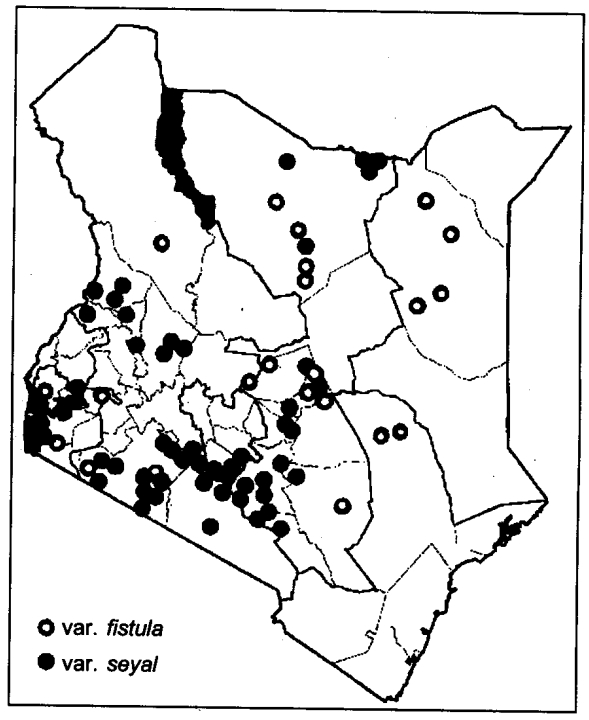
storage: Seed can be stored for long periods if kept free of insects.

MANAGEMENT: Medium to fast growing; lopping, pollarding, coppicing, pruning.

REMARKS: The tree produces a clear edible gum sold to generate income, although of less value than that of *A. senegal*. A local wood preservative called 'asal' is derived by boiling the bark in water. In the Luo community it is believed that planting the tree within the homestead causes the elder wife either to die or to remain childless. The Boran extract a red dye from the bark.



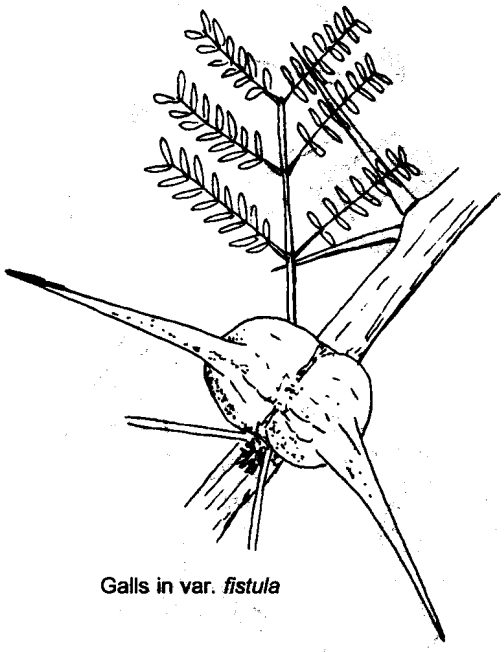




Acacia seyal (cont)

Two varieties of this species occur in Kenya: var. *seyal* is the more common and has no galls, while var. *fistula* (**Boran**: Waachu dima; **Somali**: Fulay wajol; **Tugen**: Lelnet) has ant galls.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Albrecht, 1993; Backes and Ahenda, 1998; Beentje, 1994; Bein et al., 1996; Bekele-Tesemma et al., 1993; Blundell, 1987; Dharani, 2002; Fichtl and Adi, 1994; Katende et al., 1995; Kokwaro, 1993; Maundu et al., 1999; Mbuya et al., 1994; National Academy of Sciences, 1979, 1980; Noad and Birnie, 1989.



Galls in var. *fistula*

Acacia tortilis

Fabaceae (Mimosaceae)

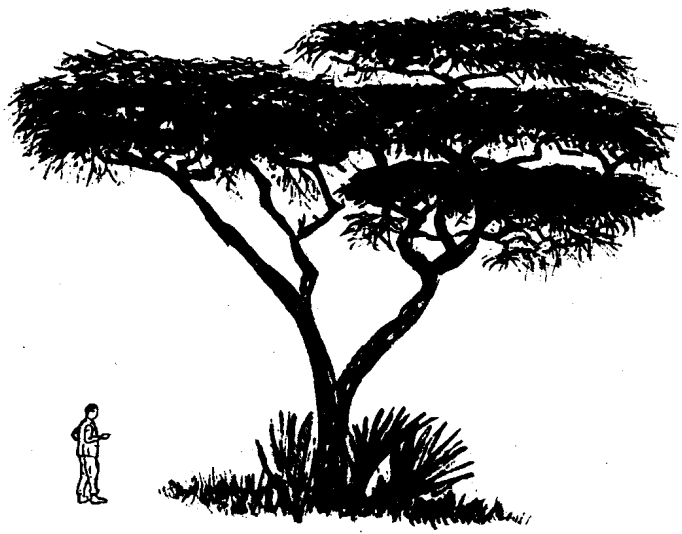
Indigenous

COMMON NAMES: **Boran:** Dadach, Dadacha; **Daasanach:** Seechgeebe, Sies-geebe (plural); **English:** Umbrella thorn; **Gabra:** Daddach, Diaddaca; **Ilchamus:** Lkunyi, Ltepes; **Kamba:** Muaa, Mulaa; **Kipsigis:** Chebitet; **Luo:** Otiep; **Maasai:** Oltepesi, Sagararam (fruit); **Malakote:** Dadacha; **Marakwet:** Ses; **Mbeere:** Mugaa; **Nandi:** Sesya; **Orma:** Dabaso, Dadech, Gudis (young); **Pokot:** Ses, Sesoy (plural); **Rendille:** Dahar, Gahar; **Samburu:** Ltepes; **Somali:** Abaa, Abak, Qura; **Swahili:** Mgunga, Munga; **Tharaka:** Mugaa; **Tugen:** Sesya, Sesiet, Sisiet; **Turkana:** Ewoi, Etir (young); **Wardei:** Abaq.

DESCRIPTION: A spiny acacia, usually 5–8 m high in dry land but attaining a height of up to 20 m in riverine vegetation. Crown narrow when young, spreading, flat-topped or umbrella-like at maturity. BARK: Longitudinally fissured, dark grey. THORNS: Pairs of small **hooked thorns,** also pairs of long **white thorns** to 8 cm, sometimes mixed pairs. FLOWERS: In white-to-cream heads, fragrant. FRUIT: Greenish yellow to **yellow-brown** pods, each containing up to 10 brown seeds, hang in dense bunches **spirally twisted,** sometimes in **rings.** Seeds smooth, greenish grey.

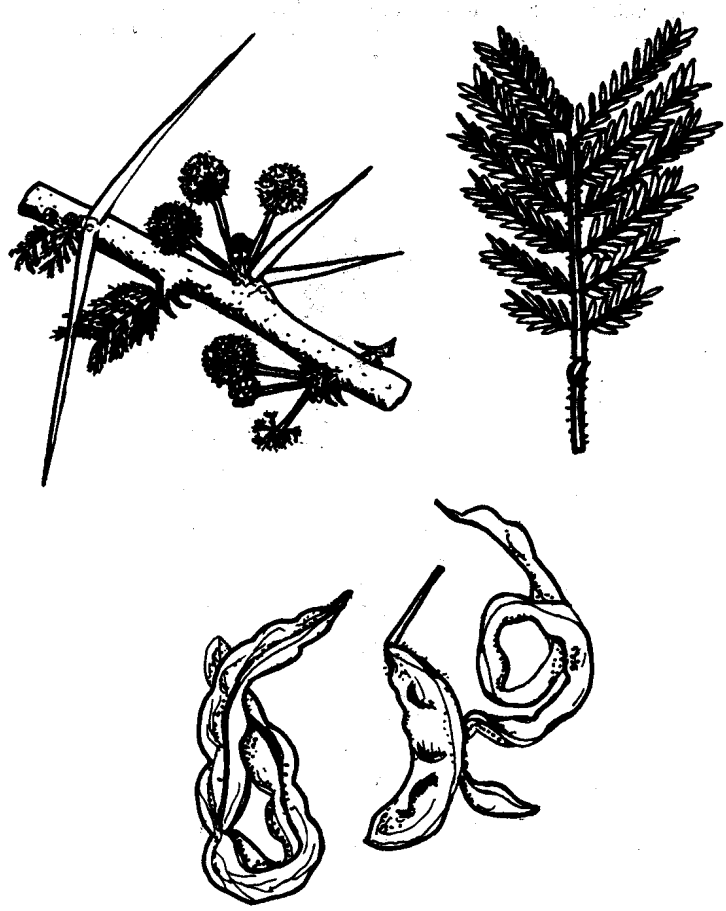
ECOLOGY: A common acacia in most of dry Africa from North and West Africa to South Africa. Widespread in lowland arid and semi-arid areas of Kenya, particularly in the northern and eastern parts. Dry bushland, bushed grassland, wooded grassland, riverine vegetation, along luggas, and in arid scrub. Tolerates a wide range of soils, from sandy, silty to black-cotton soils. May be dominant on dry red soils and prefers slightly alkaline conditions. Often in stands along rivers, 0–1,650 m. Can grow in shallow soils. Among the most drought-resistant of the acacias in Kenya, it produces enormous, deep roots (up to 35 m deep) penetrating a wide area to collect water. Rainfall 150–900 mm. Agroclimatic Zones IV–VII. Flowers in February (Mwingi); fruits in September–October (Machakos, Kajiado, Kitui, Tharaka).

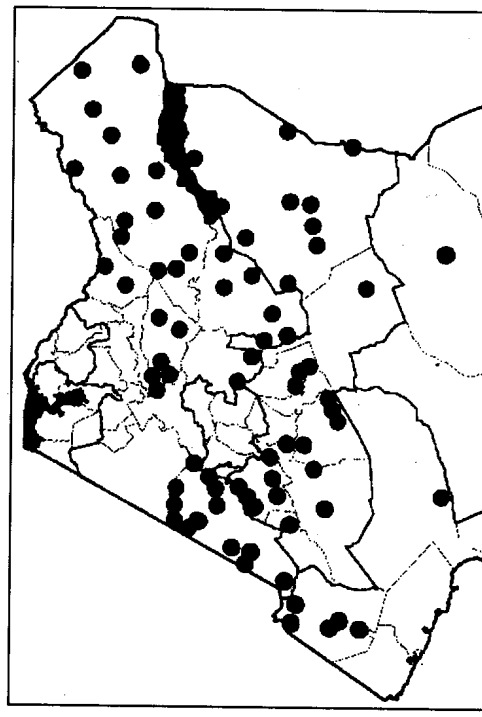
USES: Firewood, charcoal, timber, poles, edible pods, medicine, fodder (pods and leaves, especially for goats and camels), bee forage, shade (meeting place for Turkana), ornamental, dune fixation, nitrogen-fixing, soil conservation, fibre (strings made from bark), live fence, tannin, dye, thorn used as pins or needles, veterinary medicine.



PROPAGATION: Seedlings, wildings, direct sowing at site. Seeds taken straight from the pod seldom germinate due to seed dormancy.

SEED: Smooth, greenish; 21,000–31,000 seeds per kg. Germination rates up to 80–90% if pre-treated but germination may be slow, within 30 days. Beetle infestation lowers germination rate.





Acacia tortilis (cont)

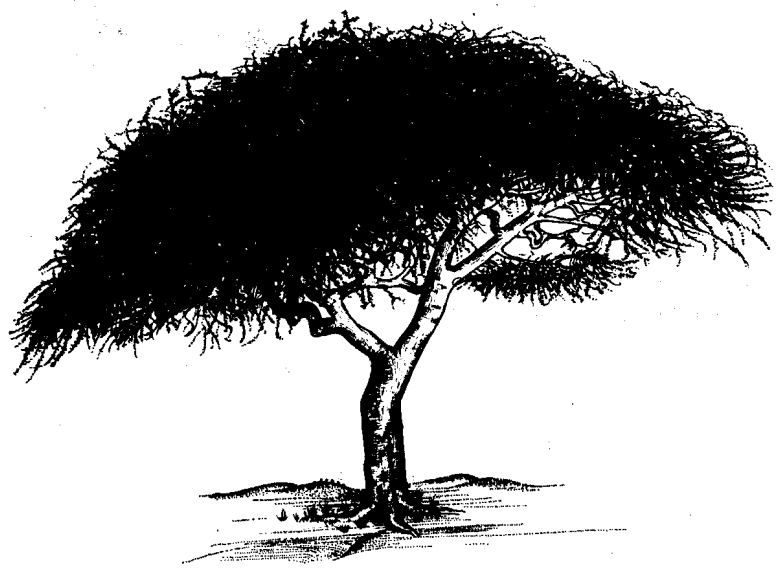
treatment: Dormancy is broken when seeds pass through an animal gut or by bushfire or hot-water treatment. Immerse in hot water, allow to cool and leave to soak for 24 hours. Nicking the distal end of the seed is another option. Immersing in cold sulphuric acid for one hour or in hot sulphuric acid for 3–5 minutes is also very effective.

storage: Seed can be stored for long periods. Add ash to reduce insect damage.

MANAGEMENT: Slow growing but may grow relatively fast on dry sandy soils if weeding is done and goats are kept away. Withstands moderate lopping. Does not coppice well, prune when young.

REMARKS: Often indicates the tree limit into desert areas. Pods very popular feed for livestock. They are collected and stored for dry-season fodder and even sold in northern Kenya for livestock feed. Dry pods are edible (Turkana, Daasanach, Pokot, Maasai, Somali, Gabra). The gum is also eaten (Pokot, Turkana, Somali) but is of inferior quality, sticky and may cause choking. Should not be planted near homes because of its thorns and the likelihood of attracting caterpillars that feed on the tree at certain seasons. Protection of some areas for some time to give young plants time to grow above the reach of goats may be the simplest way to propagate this useful tree. This is the most important acacia among the pastoral communities. Two subspecies occur in Kenya: subsp. *spirocarpa* (fruit rather hairy, most common) and subsp. *raddiana* (fruit non-hairy and non-glandular; coastal islands of Faza and Manda and along the Kenya coast, Somalia to North Africa).

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Albrecht, 1993;Beentje, 1994; Bein et al., 1996; Bekele-Tesemma et al., 1993; Dharani, 2002; Fichtl and Adi, 1994; ITDG and IIRR, 1996; Katende et al., 1995; Kokwaro, 1993; Maundu et al., 1999; Mbuya et al., 1994; National Academy of Sciences, 1979, 1980; Noad and Birnie, 1989; Palgrave and Palgrave, 2002; Storrs, 1979; van Wyk, 1998; von Maydell, 1990.



Acacia xanthophloea

Fabaceae (Mimosaceae)

Indigenous

COMMON NAMES: **Boran:** Hwacho dima; **English:** Fever tree, Yellow-barked acacia, Naivasha thorn; **Kamba:** Kimweya, Musewa, Mwea, Mweya; **Kikuyu:** Murera; **Kipsigis:** Ochmnyaliliet; **Luo:** Kuth ataro; **Maasai:** Olerai; **Marakwet:** Reno; **Meru:** Murera; **Taveta:** Mwelela.

DESCRIPTION: A large tree to 25 m with a flat crown and light foliage. BARK: This acacia is easily recognized by its **yellow-green bark,** smooth and powdery, cracked when older. THORNS: Conspicuous when young, straight, white, in pairs, up to 10 cm long. May be missing in old branches FLOWERS: **Round heads, white,** or pink in Kenya. FRUIT: Yellow-brown pods, to 13 cm, flat, slightly **constricted between seeds, breaking into segments.**

ECOLOGY: A tree found from Kenya south to South Africa. Often many grow together where the groundwater table is high, beside lakes or rivers, 600–2,300 m, often on black-cotton soil. Can be grown as an ornamental in much drier soils. Found mainly inland but not recorded in the Lake Victoria basin, or in extreme northern and eastern parts of Kenya. Only riverine in very dry areas. Very common around Nairobi, Naivasha, Kajiado, Nakuru and Narok. Agroclimatic Zones III–V.

USES: Firewood, charcoal, timber, poles, posts, edible gum, inner bark chewed, medicine (bark), fodder (foliage and pods), bee forage, ornamental, nitrogen-fixing, river-bank stabilization, dead fence (dry branches).

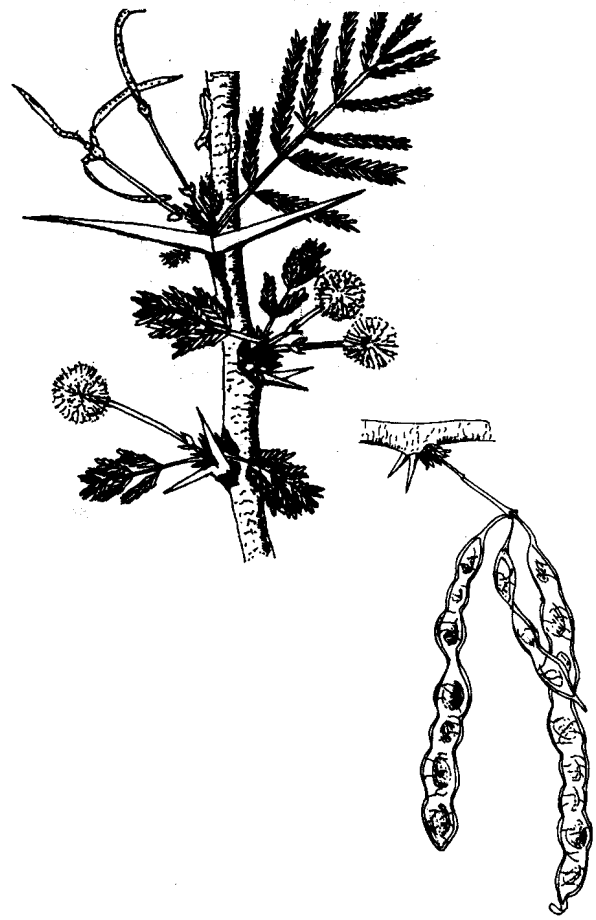
PROPAGATION: Seedlings, wildings, direct sowing at site.

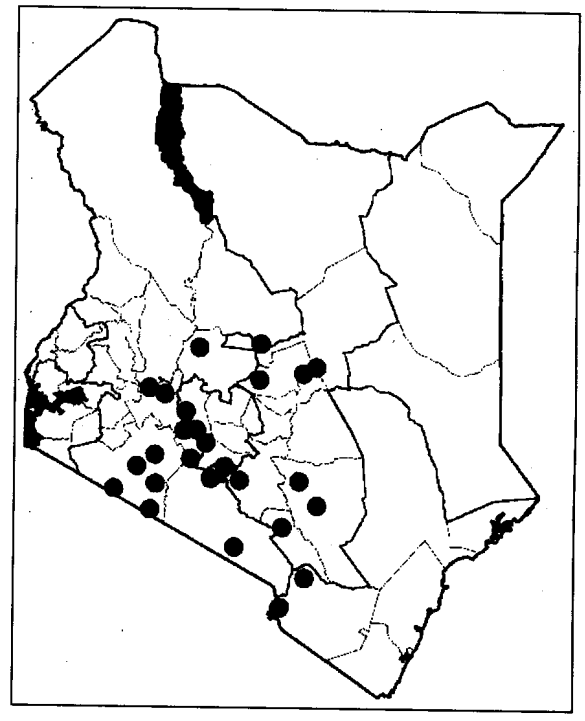
SEED: Germination is good and fairly uniform, reaching 70% after 14 days; 24,000–30,000 seeds per kg.
treatment: Not necessary for fresh seed. Stored seed should be soaked in cold water for 24 hours or nicked at the cotyledon end.
storage: Seed very susceptible to insect damage.

MANAGEMENT: A fast-growing tree. Lopping, pruning and thinning in pastures. Also tolerates pollarding.

REMARKS: Bark extract traditionally used for malaria treatment. A useful tree for protection of watercourses. Good in pastures due to its light crown. The wood is susceptible to attack by wood borers. Planted at the coast as an ornamental.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Albrecht, 1993; Beentje, 1994; Dharani, 2002; Mbuya et al., 1994; Noad and Birnie, 1989; Maundu et al., 1999; Palgrave and Palgrave, 2002; van Wyk, 1998.





Acokanthera oppositifolia (*A. longiflora*)

Apocynaceae

Indigenous

COMMON NAMES: **Kamba:** Mukweo, Muvai wa ngo, Ngweo (fruit); **Kikuyu:** Kiruru, Kiururu, Mururu; **Maasai:** Olmorijoi; **Mbeere:** Mururu; **Meru:** Mururu; **Swahili:** Msunguti; **Taita:** Msungusungu, Usungu; **Taveta:** Rumbara.

DESCRIPTION: An evergreen shrub, forest scrambler or small tree, normally 3–5 m high **with white latex and reddish branchlets**. BARK: Grey, rough, deeply fissured in older trees. LEAVES: Opposite, **shiny**, to 13 cm long with a sharp tip, veins conspicuous. FLOWERS: In clusters, made up of 5 parts, with a pink tube and white lobes, sweet smelling. FRUIT: Oval, 2–3.5 cm long, green with purple tinge turning red or purple and fleshy when ripe.

ECOLOGY: Distributed from southern Kenya and Democratic Republic of Congo south to South Africa. In Kenya, for example, in Taita, Kajiado, Kanzalu Range and Kalama (Machakos), Kiambu and around Nairobi. Bushland (especially on rocky hillsides) and riverine forest edges and margins of dry highland forests and forest remnants, usually from 1,000 m (rarely lower) up to 2,400 m. Thrives in rocky soils, red clay and clay-loam with rainfall 600–1,000 mm. Uncommon. Agroclimatic Zone III. Fruits in February–March (Machakos).

USES: Edible fruit (when ripe), shade, ornamental, live fence.

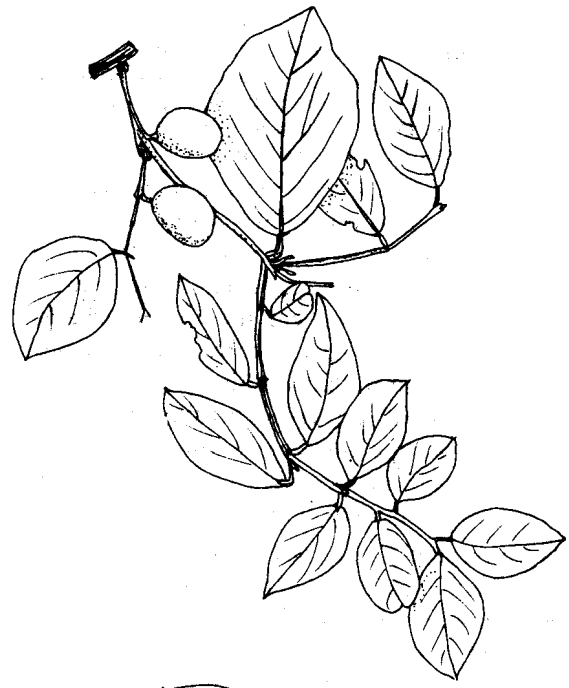
PROPAGATION: Seedlings, wildings.

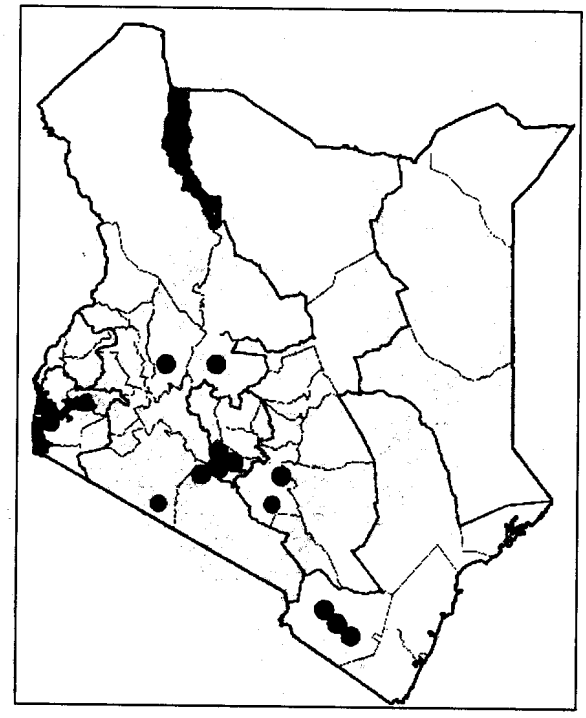
SEED:

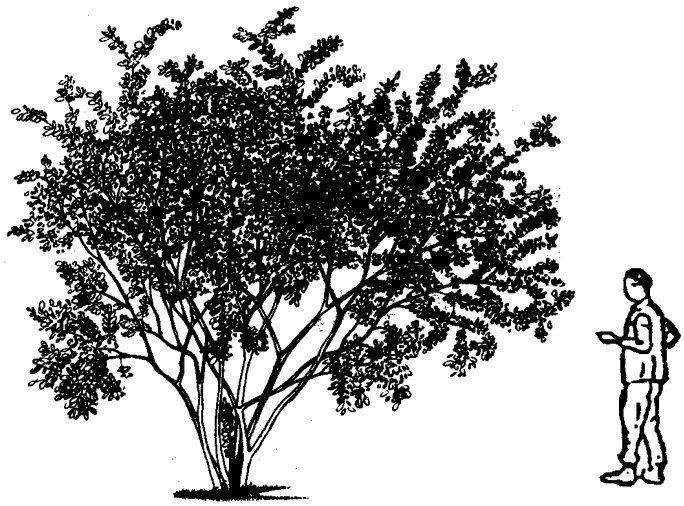
treatment: Not required, seeds should be sown fresh.
storage: Seeds have a high natural water content and therefore lose viability if stored.

REMARKS: Usually with fruits and leaves larger than those of *A. schimperi*. Plant roots and other plant parts may be poisonous. Fruit edible, but only when ripe, sweet but rather bitter. Latex from fruit used as chewing gum by children. Its large shiny leaves, numerous pinkish white and fragrant flowers and the purplish red fruits render this species an ideal ornamental.

FURTHER READING: Beentje, 1994; Dharani, 2002; Kokwaro, 1993; Noad and Birnie, 1989; Palgrave and Palgrave, 2002; Ruffo et al., 2002.







Acokanthera schimperi (A. friesiorum) Apocynaceae

Indigenous

COMMON NAMES: **Boran:** Karraru; **English:** Arrow-poison tree; **Gabra:** K'arraaru; **Giriama:** Utungu; **Kamba:** Kivai; **Kikuyu:** Muricu; **Kipsigis:** Keliot, Kelyot; **Maasai:** Olmorijoi; **Meru:** Mururu; **Nandi:** Keliot; **Pokot** Kolion, Kolyon; **Samburu:** Ilmorijoi; **Somali:** Get mariid; **Tugen:** Kelyon, Kelwon.

DESCRIPTION: An evergreen shrub or small **tree to 10 m with a dense rounded crown and a short bole**. BARK: Dark brown, grooved with age, young twigs flattened. LEAVES: Opposite, dark shiny green above, **stiff and leathery, oval to rounded, 4–7 cm, the tip pointed and sharp.** FLOWERS: Appearing with early rains, in dense, fragrant clusters, **almost stalkless, white–pink tubular.** FRUIT: Oval berries **to 2 cm, green, turning green-yellow to purple, on ripening** the ripe fruit is edible and also eaten by birds and monkeys. Seeds are cream with an ivory appearance, compressed on one side.

ECOLOGY: Widespread in East Africa and south to Zimbabwe, Mozambique, Swaziland and north-eastern South Africa. Grows in Kenya in bushland on rocky hillsides, especially on red or black rocky soils, e.g. at Muumandu (Machakos), Ongata-Rongai, Oloosaiyeti Hill (Kajiado), Rumuruti (Laikipia), Loita and Chepelion (north Baringo). Found in dry woodland, thickets and grasslands, often at the margins of dry forest or forest remnants, as at Ngong. Prefers rich well-drained forest soil but also grows on black-cotton soil and poor soils of dry sites, 1,100–2,400 m. Common in dry highland forests and bushed grasslands. Rainfall: 500–900 mm. Agroclimatic Zone III. Fruits in February–March (Machakos).

USES: Spear shafts, edible fruit (when ripe), shade, ornamental, veterinary medicine, arrow poison.

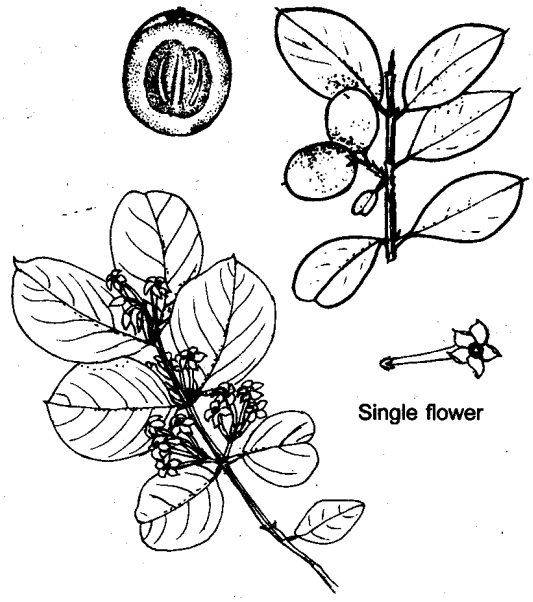
PROPAGATION: Seedlings.

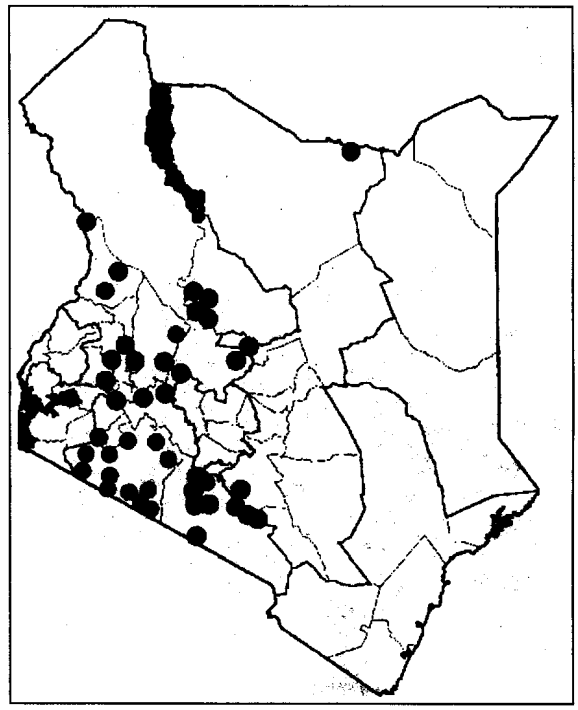
SEED: Seed germination is good but sporadic; 400–450 seeds per kg.
treatment: None.
storage: Seeds have a high natural water content and therefore lose viability if stored.

MANAGEMENT: The growth rate is medium; pruning.

REMARKS: A species more widespread and better known than *A. oppositifolia*. This is the plant used to make arrow poison (Pokot, Kamba, Kipsigis, Embu, Tharaka, Maasai) and by many other communities in Central, eastern and southern Africa. Roots (or other parts of the plant) are boiled in a secluded place for up to 10 hours when the poison is prepared. Ripe fruits are edible. They are sweet with a slightly bitter taste, but should be eaten only when ripe. Otherwise the whole plant is poisonous. Birds have been known to drop dead on sucking nectar from the flowers.

FURTHER READING: Beentje, 1994; Bein et al., 1996; Bekele-Tesemma et al., 1993; Blundell, 1987; Dharani, 2002; ITDG and IIRR, 1996; Katende et al., 1995; Kokwaro, 1993; Maundu et al., 1999; Mbuya et al., 1994; Noad and Birnie, 1989; Palgrave and Palgrave, 2002; Ruffo et al., 2002.





Acrocarpus fraxinifolius

Caesalpiniaceae (Fabaceae)

India, South East Asia

COMMON NAMES: **English:** Indian ash, Shingle tree.

DESCRIPTION: A very large deciduous or semi-deciduous tree, to 40 m, with a clean usually straight trunk BARK: Pale grey, rather smooth, buttressed, trunk and branches bear leaf scars. LEAVES: **Large,** compound (twice-divided) in **distinctive fan shapes to 1 m,** leaflets oval, wavy and pointed to 14 cm, thin and shiny. **Young red leaves** look like blossoms. FLOWERS: **Appear on the bare tree** along the branches and twigs, up to 20 **dense heads** hang down from branch ends, each 12 cm long, dripping nectar from the **red-green or scarlet flowers,** short-lived. FRUIT: Big **bunches of dark brown flattened pods** persistent on the tree. They split easily.

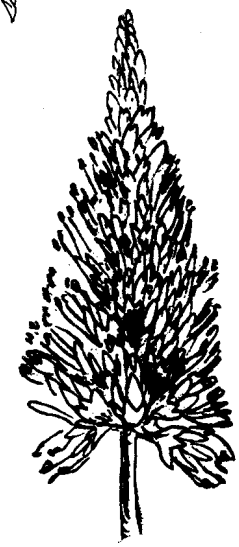
ECOLOGY: An Asian tree widely planted in tropical areas in Asia, Africa and Latin America. Also widely planted in eastern and southern Africa, originally introduced as a plantation shade tree. Does best with good rainfall at medium altitudes to 1,900 m, but will stand some drought. Prefers red soils. In Kenya, it is mainly grown in urban areas and quite common in Nairobi. Agroclimatic Zones II–V. Seeds in February–March (Machakos).

USES: Firewood, timber (boxes, light construction), furniture, beehives, bee forage, shade, ornamental, mulch, windbreak.

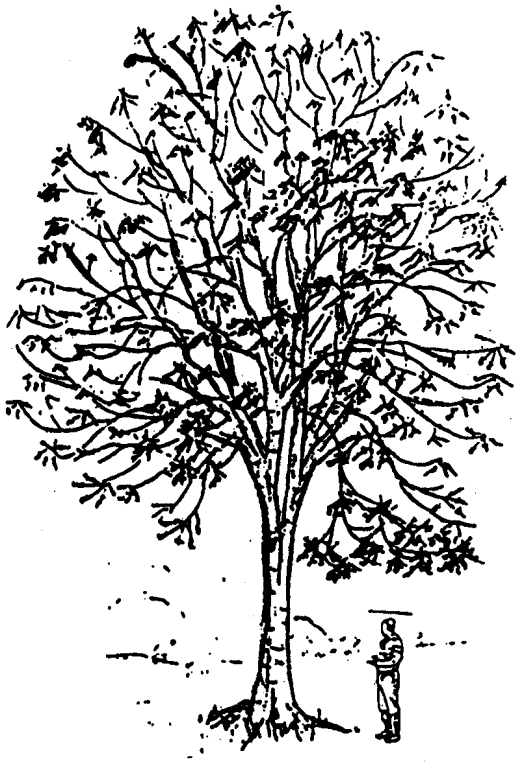
PROPAGATION: Seedlings, wildings.

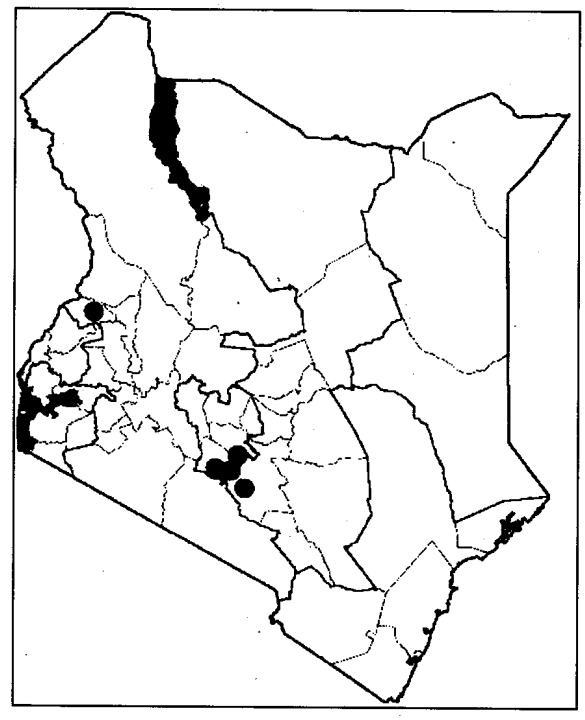
SEED: 24,000–29,000 seeds per kg. Germination rates up to 60–80% but often much lower.
treatment: Nick, or soak seed in cold water.
storage: Seed loses viability gradually during storage. Best to use fresh seed.

MANAGEMENT: Very fast growing, attaining up to 5 m in less than 2 years; pollarding, coppicing.



Flower head

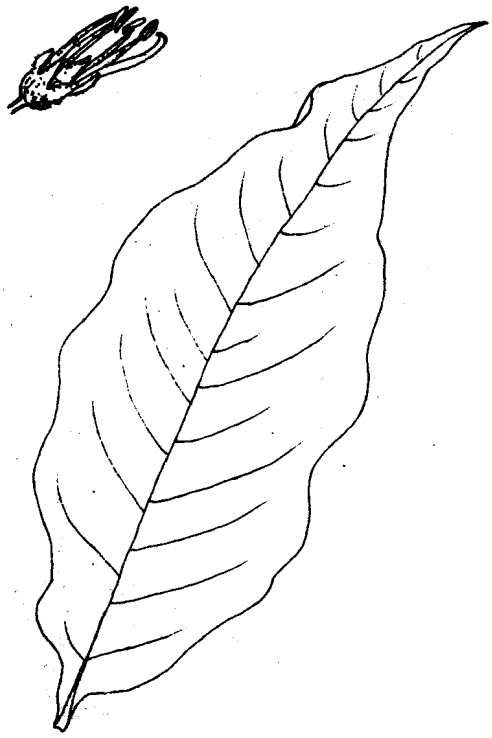




Acrocarpus fraxinifolius (cont)

REMARKS: Young trees may resemble palms due to the single stem and large leaves. The tree should not be planted near houses as dry branches drop off. In addition, it should not be planted in cropland as it competes with crops for nutrients. Young plants susceptible to termite attack. In its original home, the tree is said to reach 60 m with a massive trunk. The genus *Acrocarpus* consists of only 2 species.

FURTHER READING : http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Dharani, 2002; Katende et al., 1995; Mbuya et al., 1994; National Academy of Sciences, 1979; Noad and Birnie, 1989.



Adansonia digitata

Bombacaceae

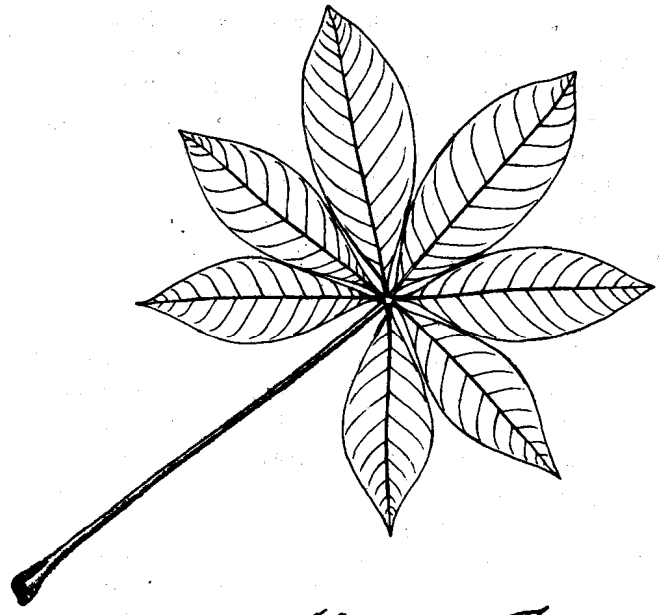
Indigenous

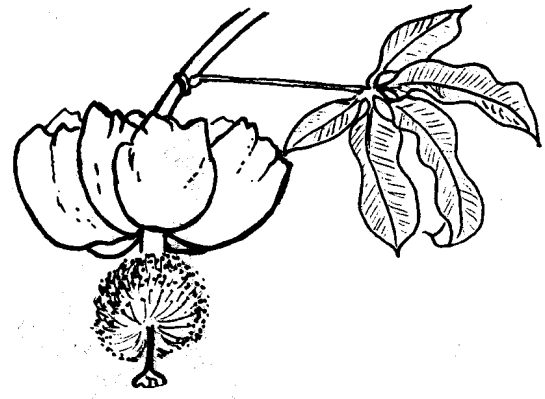
COMMON NAMES: **Bajun:** Muyu; **Boni:** Jah; **Chonyi:** Muyu; **Digo:** Muuyu; **Embu:** Musemba; **English:** Baobab; **Giriama:** Muuyu, Mauyu (fruit); **Kamba:** Muamba, Mwaamba, Namba (fruit); **Maasai:** Olmesera; **Malakote:** Mubuyu; **Mbeere:** Muramba; **Meru:** Muiramba, Muramba; **Orma:** Yak; **Samburu:** Lamai; **Sanya:** Yak; **Somali:** Yak, Yaaq; **Swahili:** Mbuyu, Muuyu; **Taita:** Mlamba; **Tharaka:** Muguna kirindi, Muramba.

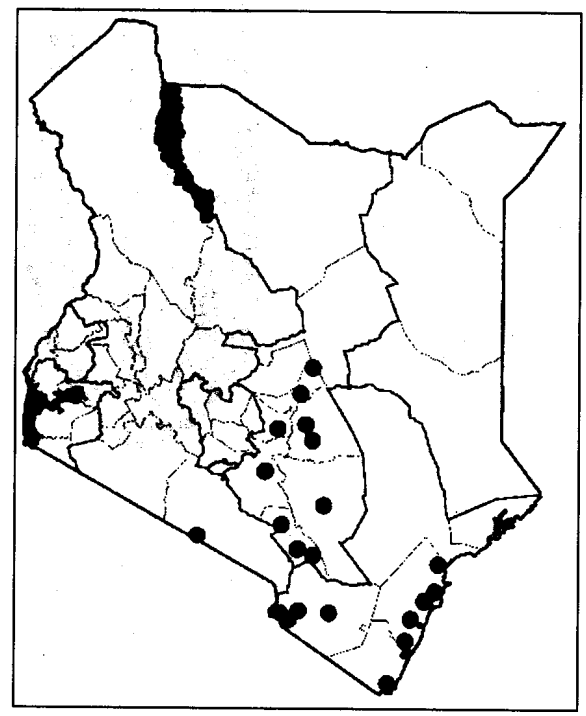
DESCRIPTION: A large deciduous tree with a hugely swollen trunk, and often branching near the ground. The trunk diameter may reach 6 m, the girth 20 m, and up to 20 m high. Bare for up to 9 months, the stiff bare branches resemble roots (upside-down tree). The trunk is sometimes hollow. BARK: **Smooth, shiny, grey to 10 cm thick,** young spongy wood can hold much water. LEAVES: Seedlings have simple leaves, mature leaves with up to 9 leaflets, usually 5. FLOWERS: **Large and white,** opening at night, the unpleasant-smelling nectar attracts pollinating fruit bats. FRUIT: **Very big, hairy, yellow-brown capsules, hanging on long stalks,** usually on the bare tree. Many seeds embedded in white-pink, dry, edible pulp.

ECOLOGY: A well-known tree of tropical Africa, from West Africa and Somalia to southern Africa. In Kenya, a common tree in the coastal region but it also grows further inland, e.g. Taveta, Kibwezi, south-eastern Makueni, dry parts of Kitui, Meru National Park and at Torosei in Kajiado, 0–1,300 m. Also planted as an ornamental outside this range. Grows in dry low country in *Sterculia–Delonix alata–Acacia–Commiphora* bushland and in low, hot, high-humidity coastal areas. Grows in most well-drained soils, deep rooted, drought hardy, prefers a high water table. Common on red soils, sandy loam and in rocky areas. Rainfall: 300–900 mm. Agroclimatic Zones II–VI.

USES: Edible fruit pulp (sweet–sour to taste), edible fried seed, vegetable, flavouring (fruits dissolved in water), medicine (bark, roots, fruit juice, leaves), fodder (leaves, shoots and fruits), bee forage, ornamental, mulch, snares, fibre (ropes, baskets, fibre cloth, musical-instrument strings, waterproof hats), roofing (bark), resin, gum, dye, veterinary medicine, water storage in the trunk.







Adansonia digitata (cont)

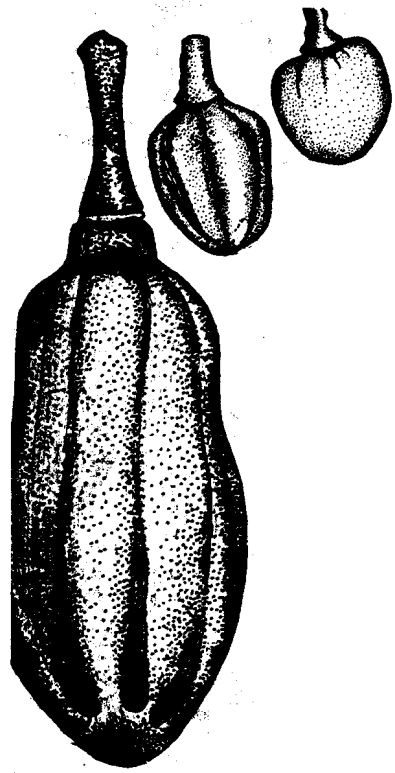
PROPAGATION: Seedlings, direct sowing at site.

SEED: Germination is fair but sporadic in up to 3 months; 1,500–2,500 seeds per kg. Germination rates 30–40%; good and well-treated seeds can germinate in 30–50 days.
treatment: Nick, or pour boiling water over seed, remove at once and cool to room temperature. Naturally the seed may take several years to germinate and be induced by fire, hence the observation that it only germinates after people abandon a current homestead (Giriama). Passing through the digestive tract of large mammals such as elephants also breaks seed dormancy.
storage: Seed can be stored for long periods.

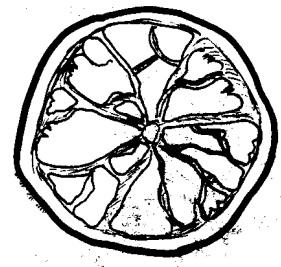
MANAGEMENT: A slow-growing tree. The tree should not be planted near houses. Lateral roots may reach out over 100 m.

REMARKS: The tree is fire resistant. Despite its soft wood, it is one of the longest-living trees in the world—to 3,000 years. The baobab tree is surrounded by myths and beliefs among most peoples in areas where it grows. Fruits and strings have a commercial value. It is said to produce its first fruits after 60 years (Kitui). The dry, cream-coloured pulp is eaten raw or is dissolved in water and used as sauce (*mboga*) or added to sour porridge. Young leaves are used as a vegetable (Giriama, Mbeere). The pulp-coated seeds (*mabuyu*) are coloured, sugar-coated and sold as sweets in coastal towns (Swahili). Fibre from the trunk is used as a string and for weaving baskets and ropes. The tree is used for placing beehives. Appearance of new leaves or flowers signals the start of the rainy season (Kamba, Mbeere). Fallen trees improve the soil quality considerably and are a substrate for edible mushrooms. Fruit shells are used as firewood, containers, bowls and for making a variety of items, including rat traps (Giriama). The shoots and trunks are eaten by elephants. Fallen leaves are eaten by livestock. Too many baobab trees together in cropland may be a problem as they take up a large amount of space. There are 9 species in this genus, 7 of which are endemic to Madagascar. Two species are found in north-western Australia: *A. gregorii* (Australian baobab or dead rat) has a strong resemblance to the African baobab but does not usually grow as high.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Albrecht, 1993; Beentje, 1994; Bein et al., 1996; Bekele-Tesemma et al., 1993; Blundell, 1987; Dharani, 2002; Fichtl and Adi, 1994; ITDG and IIRR, 1996; Kokwaro, 1993; Maundu et al., 1999; Mbuya et al., 1994; Noad and Birnie, 1989; Palgrave and Palgrave, 2002; Ruffo et al., 2002; Storrs, 1979; van Wyk, 1998; von Maydell, 1990.



Variation in fruit



Cross-section of fruit

Adenanthera pavonina

Fabaceae (Mimosaceae)

India, South East Asia

COMMON NAMES: **English:** Circassian bead tree, Red sandalwood tree.

DESCRIPTION: A deciduous, spreading tree, 4–20 m, with low leafy branches; hard, reddish heartwood. LEAVES: Compound, alternate, to 40 cm, the **leaflets oval, 4 cm long, 2 cm wide, the tip rounded,** short stalks. FLOWERS: Very small, **yellow-brown on slender drooping stalks,** fragrant. FRUIT: Brown, narrow pods, about 20 cm long, curved and bulging with seeds. Pods split into **2 twisted halves to show shiny scarlet seeds against the yellow inner pod.** Seeds are flat, like pills, very hard.

ECOLOGY: A thornless tree from India and South East Asia. It has long been planted in the coastal areas of East Africa as an ornamental and shade tree, often naturalized, 0–300 m. Agroclimatic Zones II–III. Flowers in April, pods emerge in June and seeds ripen in September (coast).

USES: Firewood, timber, edible leaves, bee forage, shade, ornamental, beads, tannin, dye (red).

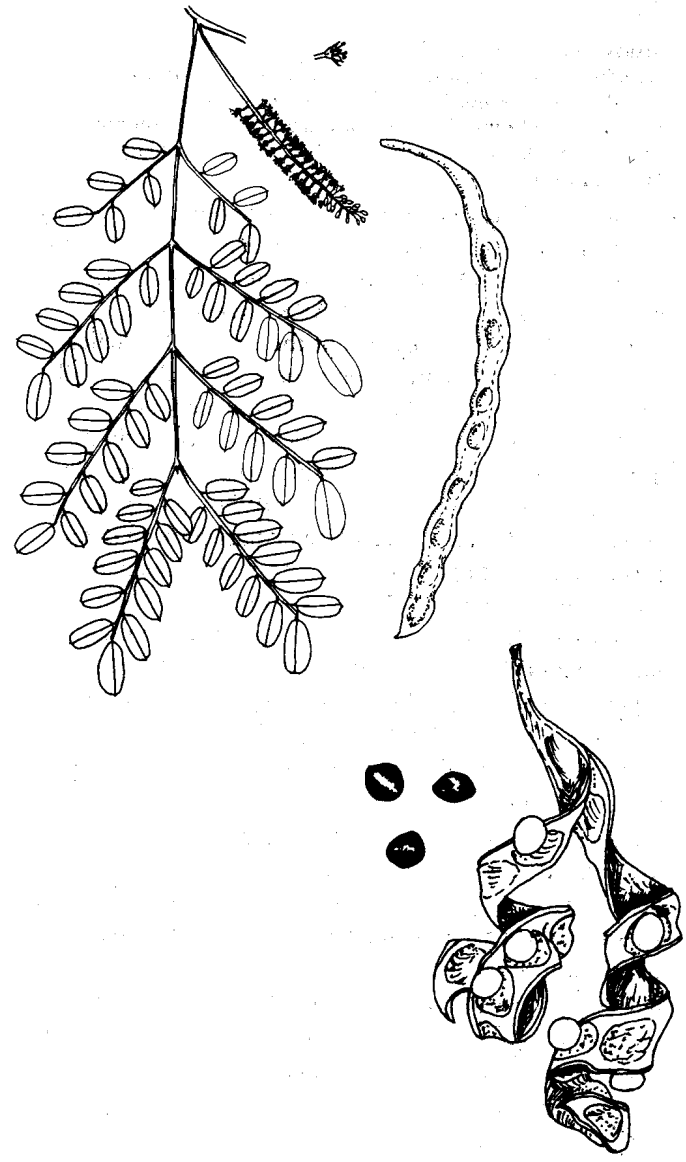
PROPAGATION: Seedlings, cuttings, direct sowing at site.

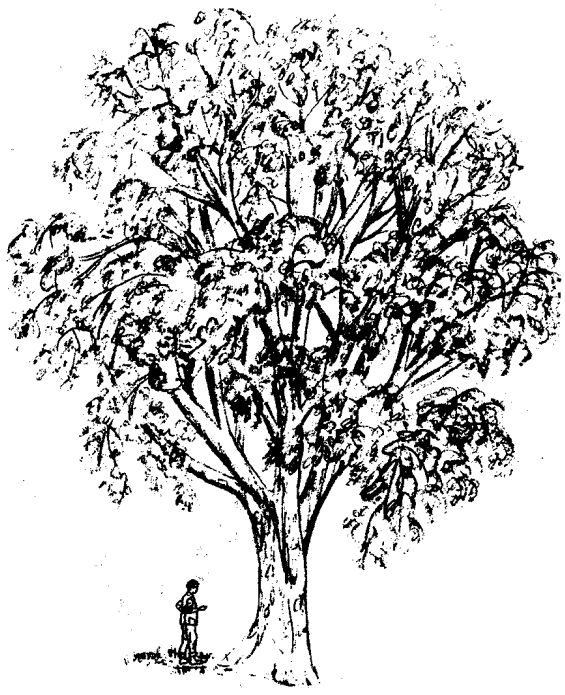
SEED: Hard seed; about 4,000 seeds per kg. Germination is good, up to 80–90% after only 7 days provided the seeds are treated. Germination of untreated seeds is erratic, may take 12 months.
treatment: Nick the hard seed coat, or immerse seed in hot water, allow to cool and soak for 24 hours.
storage: Seed can be stored for long periods.

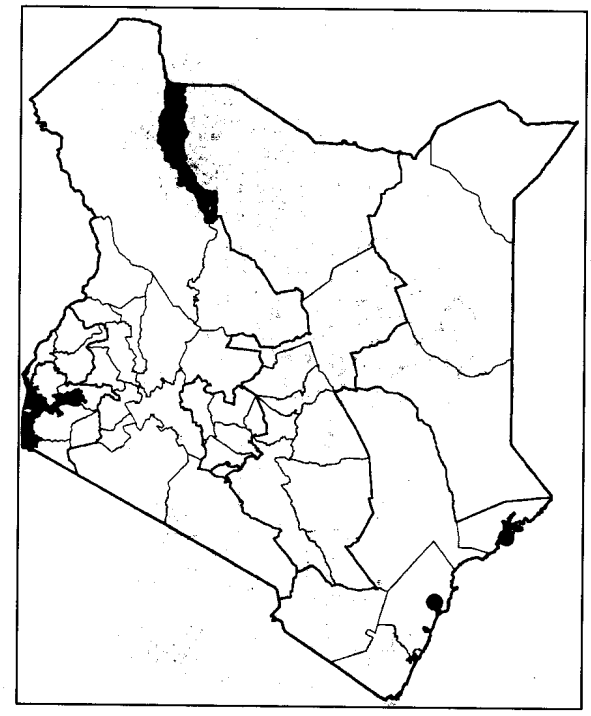
MANAGEMENT: Fast growing on good sites.

REMARKS: Seeds are used as beads in South East Asia (Circassian seeds) and at one time as weights by goldsmiths, and roasted seeds are eaten. Raw seeds are poisonous. They are high in oil (25%) and protein (39%). The young leaves are used as a vegetable in India. The heartwood is hard and red.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Mbuya et al., 1994.







Adenium obesum

Apocynaceae

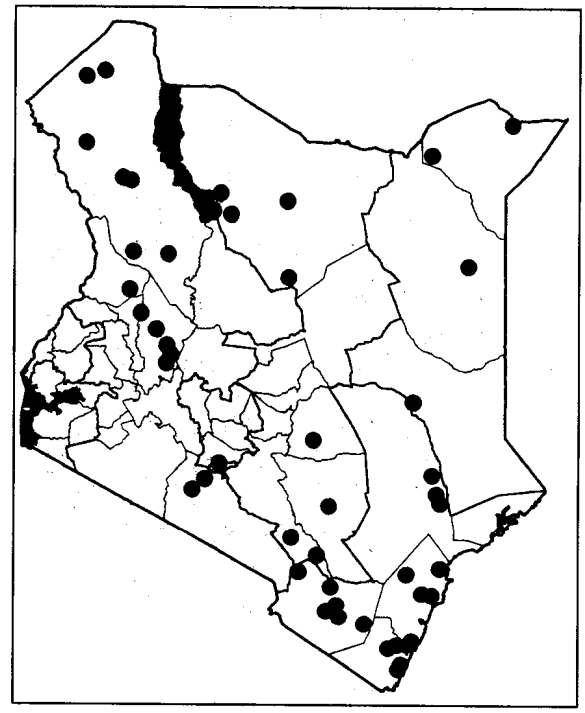
Indigenous

COMMON NAMES: **Boran:** Obbe; **Digo**: Mwadiga; **Duruma:** Mwadiga; **English:** Desert rose; **Gabra:** Obbe; **Giriama:** Mwadiga; **Malakote:** Tulata; **Maasai:** Oleteti; **Orma:** Mukfadjie; **Pokomo:** Koliya; **Samburu:** Ipirintai; **Somali:** Obe, Uba, Feyid, Marud; **Swahili:** Mwadiga; **Taita:** Igandaiyu; **Turkana:** Egales.

DESCRIPTION: A **succulent deciduous shrub** or tree, usually less than 2 m but may occasionally reach 6 m. The **stem-base may be swollen and bulbous** and up to 1 m across, branches strong and upright. BARK: **Grey-green, smooth**. LEAVES: **Crowded at the ends of branches,** rather fleshy, shiny dark green to blue-green above, dull below, usually about 12 cm long, tip rounded, often notched or with a sharp point, wider towards the tip then narrowed to the base, veins conspicuous. When cut, clear or white latex drips out at once. FLOWERS: Very showy, especially on the bare tree, **white or pale pink to deep rose, trumpet-shaped**, to 5 cm across, the edge darker pink or red, often tightly wavy; 3–5 flowers together, all parts in 5s. FRUIT: Long thin pink-green **capsules, in pairs to 24 cm long by 2 cm**, tapering at both ends, drying brown. They split to release **cylindrical seeds 1 cm long**. These have tufts of long silky white or golden **hairs at each end** so seed is blown along the ground (the hairs acting like 2 wheels on the 'axle' of the seed).

ECOLOGY: A conspicuous succulent plant found from Arabia to South Africa. Widespread in hot areas of Kenya, in dry bushland and coastal hinterland woodland, often on rocky sites and along runnels that have gravel, sand or loam, 0–1,500 m. It sometimes develops a fleshy taproot. Does not tolerate waterlogging. Agroclimatic Zones III–VI.

USES: Medicine (latex and roots), bee forage, ornamental, live fence, arrow poison (sap), fodder, fish poison (pounded roots), rat poison (pounded seeds or roots), veterinary medicine.



Adenium obesum (cont)

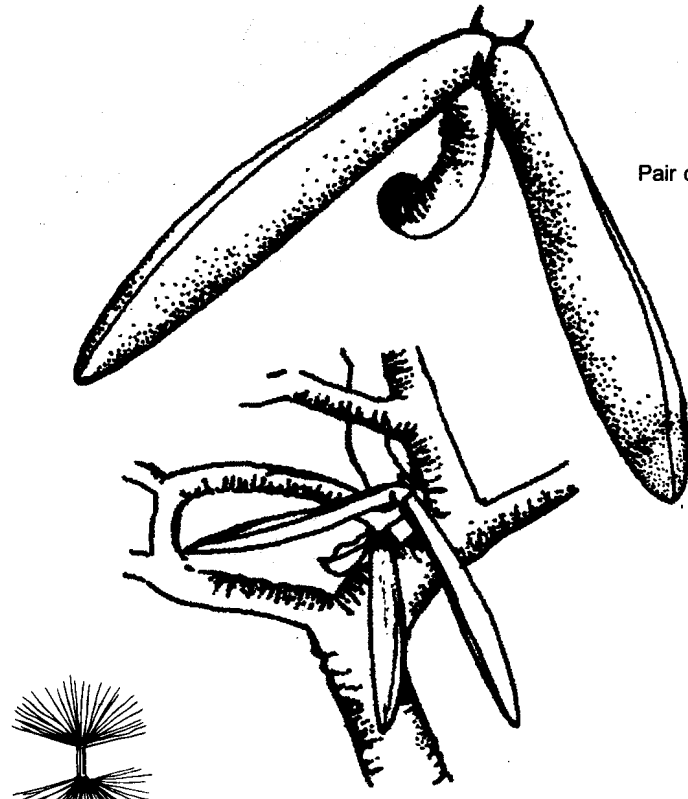
PROPAGATION: Cuttings, wildings, direct sowing at site. It is easy to transplant but seeds germinate only if protected against insects. Seedlings are easily killed by over-watering.

SEED: Good germination.
treatment: None.
storage: Store in sealed containers in a cool place.

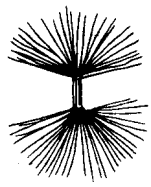
MANAGEMENT: Slow growing. Soil must be very well drained or the stems will rot.

REMARKS: This is a very popular plant in gardens. Planted for its decorative value or for hedges. The sap is used as a component of arrow poison. Latex and roots are used to treat boils and venereal diseases. All parts may be heavily browsed by game and stock. Caution must be exercised in medical applications since the latex is very poisonous. This plant may easily fall victim to collectors for ornamental purposes and so needs to be protected. The species is very variable along its geographical range, leading some scientists earlier on to consider these variants as separate species. The genus name is derived from its Arabic name *aden*.

FURTHER READING: Beentje, 1994; Blundell, 1987; Dharani, 2002; Fichtl and Adi, 1994; ITDG and IIRR, 1996; Katende et al., 1995; Kokwaro, 1993; Lötschert and Beese, 1983; Noad and Birnie, 1989; Palgrave and Palgrave, 2002; von Maydell, 1990.



Pair of fruit capsules



Seed

Afzelia quanzensis

Fabaceae (Caesalpiniaceae)

Indigenous

STANDARD/TRADE NAME: Afzelia.

COMMON NAMES: Boni: Yam ed; **Digo:** Mbambakofi; **English:** Mahogany bean, Pod mahogany; **Giriama:** Mwamba; **Pokomo:** Mgombakomfe; **Sanya:** Yamicha; **Swahili:** Mbambakofi.

DESCRIPTION: A large spreading leafy semi-deciduous forest tree, usually to 12 m but can reach 20 m. BARK: Grey-brown, flaking in large pieces leaving **pale patches below.** LEAVES: To 30 cm, divided into 4 pairs of leaflets, each one to 13 cm long, oblong, **tip rounded.** FLOWERS: Distinctively **bilobed at apex,** green outside, pink-red inside, 2–3 cm wide, sweet-scented, in small groups on erect heads. FRUIT: Dark-brown, flat **woody pods to 3 cm long, 10 cm wide, with shiny black seeds** in a soft orange-red cup at their base (fleshy aril).

ECOLOGY: Distributed from Somalia to South Africa. In Kenya it is only coastal. Typical of coastal forests, including Arabuko-Sokoke, Shimba Hills, Lower Tana, Boni and Witu. Also found in coastal woodland, 0–450 m. Deep roots. Prefers medium light soils. Agroclimatic Zones I–III. Flowers at the coast in March–April, seeds in October–December.

USES: Timber (construction, doors), poles (for main support in houses, very hard), furniture, boat building (canoes and dhows), medicine, shade, ornamental, curios, necklaces (seeds).

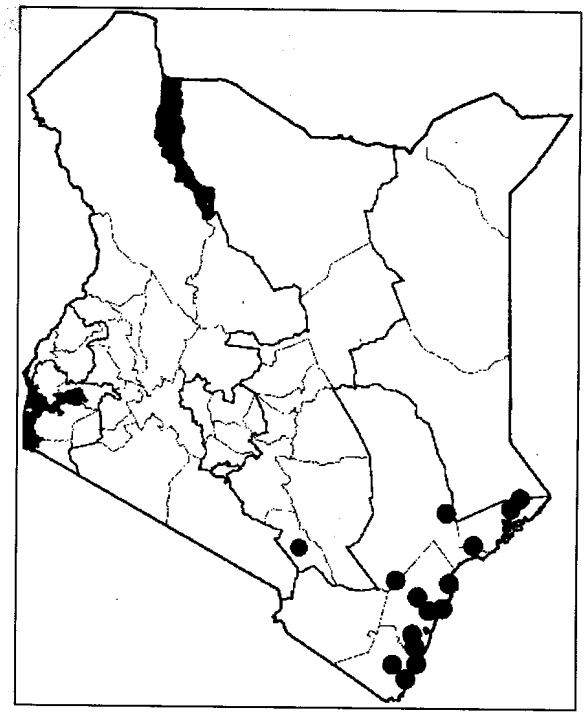
PROPAGATION: Seedlings, wildings, direct sowing at site.

SEED: 200–500 seeds per kg. Germination good, reaching 90% after 28 days.
treatment: The aril should be removed, no other treatment needed.
storage: Seed can be stored for up to a year. Add ash to reduce insect damage.

MANAGEMENT: Slow growing, fast at early stages; lopping, pollarding. Prune to give clear bole. It withstands lopping and pollarding but does not coppice.

REMARKS: The wood is termite and fire resistant. The tree is becoming rare in unprotected areas due to exploitation for timber. Timber light brown, hard and heavy. It works well taking a fine polish, durable. An excellent shade tree. Leaves are food for butterfly larvae, reaped by coastal farmers for export.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Albrecht, 1993; Beentje, 1994; Kokwaro, 1993; Mbuya et al., 1994; Noad and Birnie, 1989; Palgrave and Palgrave, 2002; Storrs, 1979; van Wyk, 1998.



Albizia amara

Mimosaceae (Fabaceae)

Indigenous

COMMON NAMES: **Boran:** Boria; **English:** Bitter albizia; **Kamba:** Kiundua, Kiundwa, Kyundua; **Luo:** Ruga; **Maasai:** Orperelon'go; **Pokot:** Panan; **Somali:** Gessreb; **Tharaka:** Mutinda; **Tugen:** Gotutwet, Kotutwo, Kukutwo.

DESCRIPTION: A deciduous tree to 15 m, often smaller, with spreading crown, fairly dense canopy, trunk often crooked, usually single-stemmed. BARK: Dark brown, cracked. LEAVES: Have a **feathery** appearance with numerous **small leaflets.** FLOWERS: Numerous, **small cream-pink heads,** half-spherical about 2.5 cm across. FRUIT: Large pods, to 20 cm or more long, 3 cm wide, thin, bulging over few seeds, purple when young, later brown and papery.

ECOLOGY: An attractive deciduous tree found in India and Sri Lanka and in East Africa south to north-eastern South Africa. Widespread in Kenya in bushland, in wooded grassland, bushed grassland, often with *Combretum*, *Terminalia* and *Tarchonanthus*, especially in red and sandy soils, 500–2,000 m. Rainfall: 400–1,000 mm. Agroclimatic Zones IV–V.

USES: Firewood, charcoal, timber (construction), farm implements, furniture, poles, soup additive (wood extract), edible gum, medicine, fodder (leaves), bee forage, ornamental, green manure, nitrogen-fixing, soil conservation, tannin, resin, detergent (roots and leaves), live fence.

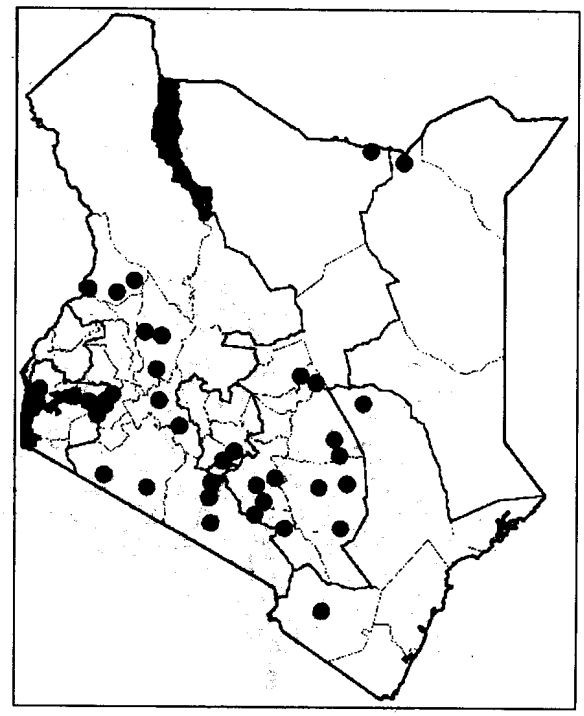
PROPAGATION: Seedlings, direct sowing at site.

SEED: 10,000–13,000 seeds per kg. Germination of treated seed is good, up to 80% in 7–10 days.
treatment: Immerse in hot water, allow to cool and soak for 12 hours, or nick the seed.
storage: Seed can be stored for long periods but are susceptible to insect damage. Add ash.

MANAGEMENT: Coppicing, lopping, pollarding.

REMARKS: The wood is hard and good for charcoal and firewood and it is an excellent shade tree. Pieces of stem wood are used in the preparation of soup (Maasai). There are 2 subspecies in Kenya: subsp. *amara*, with fewer pinnae (to 12 pairs) and leaflets, is only found in the central and northern parts of Kenya, while subsp. *sericocephala* (numerous pinnae, to 46 pairs) and leaflets (48 pairs) is more widespread in the country.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Beentje, 1994; Bein et al., 1996; Dharani, 2002; Maundu et al., 1999; Mbuya et al., 1994; Noad and Birnie, 1989; Palgrave and Palgrave, 2002; Storrs, 1979.



Albizia anthelmintica

Fabaceae (Mimosaceae)

Indigenous

COMMON NAMES: **Boni:** Hobocho; **Boran:** Hawacho; **Kamba:** Kyowa, Mwowa; **Maasai:** Olmugutan; **Marakwet:** Kitangwa; **Orma:** Habacha; **Pokot:** Kamakitan, Mukotonwo; **Samburu:** Olmukutan; **Somali:** Reidep, Reidup; **Swahili:** Mporojo; **Tharaka:** Mwaawra, Muguta; **Wardei:** Habasho.

DESCRIPTION: A **deciduous** shrub or, more usually, a small tree about 4 m, but can reach 10 m. BARK: Smooth, pale grey, later red-brown, rough. Branchlets often sharp-tipped. LEAVES: Twice-divided, **2–4 pairs of smaller leaves** each with 1–4 pairs of leaflets, **1–4 cm long and almost as wide**, the tip wider and usually blunt; **clear net veins**, shiny above, dull and pale below. The leaf stalk ends in a characteristic stiff, hooked point. FLOWERS: **Half spherical fluffy heads about 2.5 cm across** appear on leafless twigs, white stamens reach beyond the pale green calyx and corolla, 1–2 cm. FRUIT: Bright green when young, turning into **pale yellow, shiny, papery pods 8–16 cm long**, narrowed both ends, containing 3–5 flat, round seeds.

ECOLOGY: A tree widely distributed in Africa from Sudan and Eritrea southwards to Natal and Namibia. In Kenya, widely distributed in drier and hot parts of the country in dry bushland and scrub, often along seasonal rivers, even on lava; locally common. Often on strongly saline deep soils. Very common in Tsavo, lower parts of Kajiado, Kitui, Machakos and along the coast, 0–1,350 m. Less often in wooded or bushed grasslands or woodlands. Agroclimatic Zones III–VI.

USES: Firewood, timber (construction), furniture, medicine (bark as vermifuge), fodder, bee forage, shade, nitrogen-fixing, tannin, veterinary medicine.

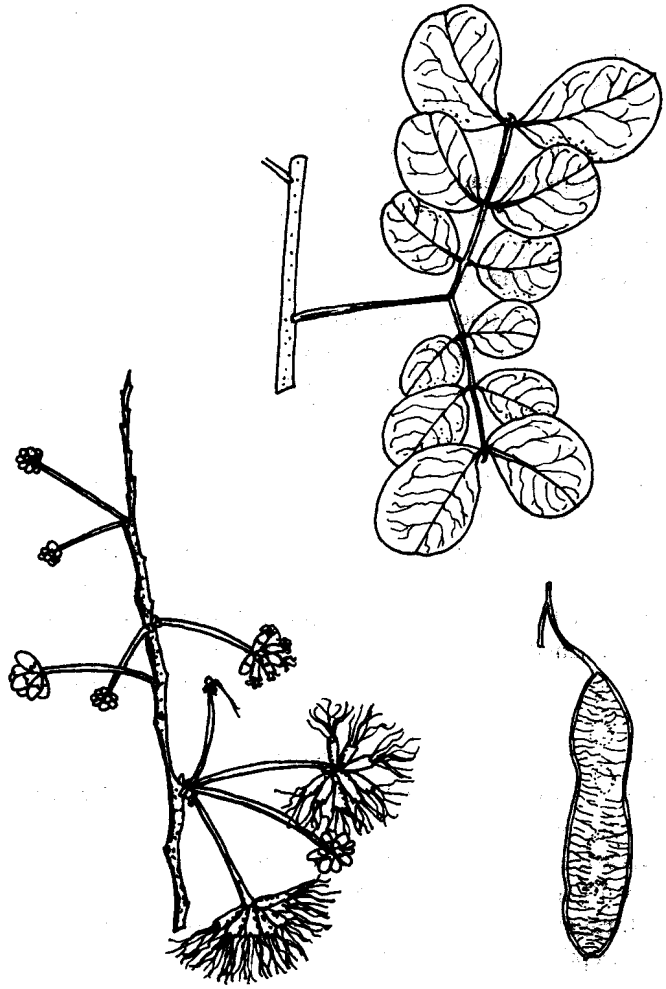
PROPAGATION: Seedlings. Regenerates well naturally.

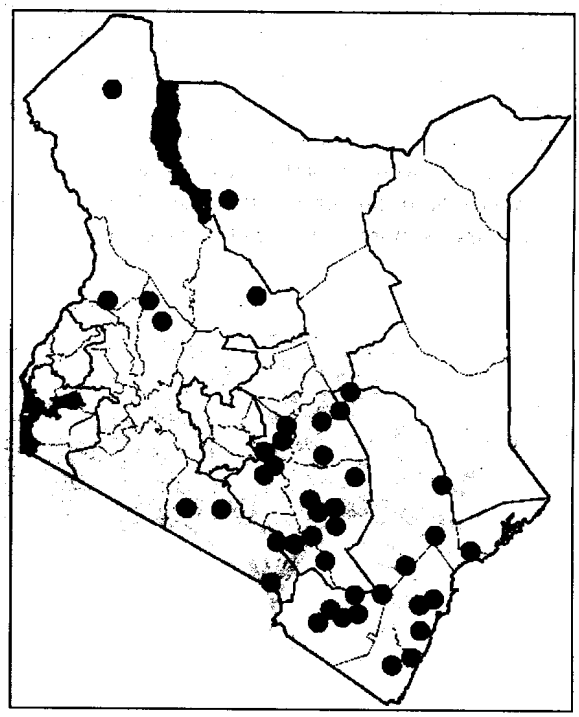
SEED: 10,000–20,000 seeds per kg. Germination rate may be 30% in 3 weeks.
treatment: Fresh seeds do not need pretreatment. With stored seeds, immerse in hot water, allow to cool and soak for 24 hours.
storage: Can be stored for about a year in airtight containers.

MANAGEMENT: Pollarding, coppicing when young.

REMARKS: A bark extract has been used in many areas to expel worms, hence the meaning of the specific name. It is especially effective against tapeworms. The hard red-brown wood is a useful timber.

FURTHER READING: Beentje, 1994; Bein et al., 1996; Blundell, 1987; ITDG and IIRR, 1996; Kokwaro, 1993; Palgrave and Palgrave, 2002.





Albizia coriaria

Fabaceae (Mimosaceae)

Indigenous

COMMON NAMES: **Luhya:** Omubele; **Luhya (Bukusu):** Kumupeli, Kumuyebeye; **Luo:** Ober; **Teso:** Etekwa.

DESCRIPTION: Usually a large, spreading tree to 15 m, often smaller, trunk twisted. BARK: Grey-black rough, flaking. LEAVES: Bright green when young, **leaflets 6–11 pairs, to 3 cm long,** oblong, **tip rounded.** FLOWERS: Very many, sweet-smelling, pink-white, half-spherical heads, **stamen threads red above, white below.** FRUIT: Flat purple-brown pods, often shiny, **10–21 cm, long** base pointed, flat rounded seeds about 1 cm.

ECOLOGY: From West Africa to Sudan and south to Angola. In Kenya, only in the Lake Victoria region, 1,140–1,700 m. Widespread in riverine and lakeside forest to open or wooded grassland. Often left in crop fields. Grows in a variety of soils including gravel. Agroclimatic Zones II–III. Flowers in March–May and seeds in October–December in Bungoma.

USES: Firewood, charcoal, timber, furniture, poles, boat building, medicine (roots and bark), fodder, bee forage, shade, ornamental, nitrogen-fixing, toothbrushes, veterinary medicine, leaves used to speed up ripening of bananas.

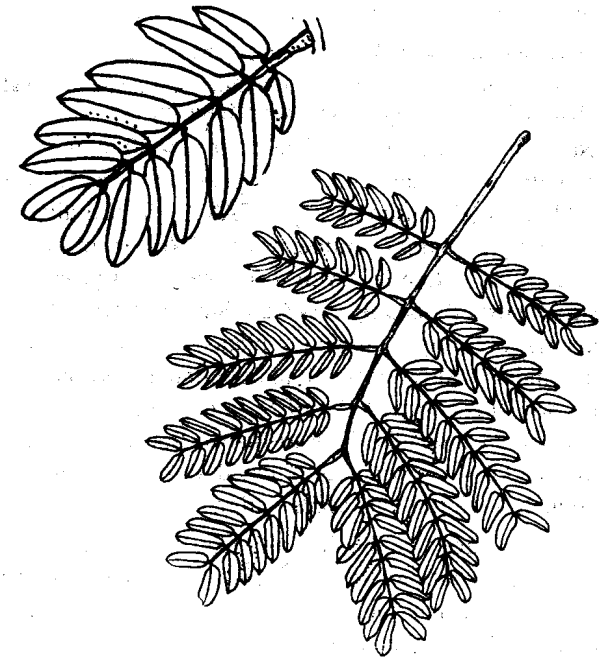
PROPAGATION: Seedlings, wildings.

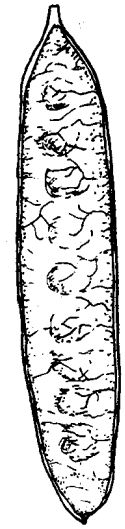
SEED: Seed is susceptible to beetle attack, often while still on the tree, which lowers germination to 30–40%. A prolific seeder; 14,000–16,000 seeds per kg.
treatment: Not necessary for fresh seed. Nick stored seeds for better germination or soak in cold water.
storage: Seed can be stored for long periods.

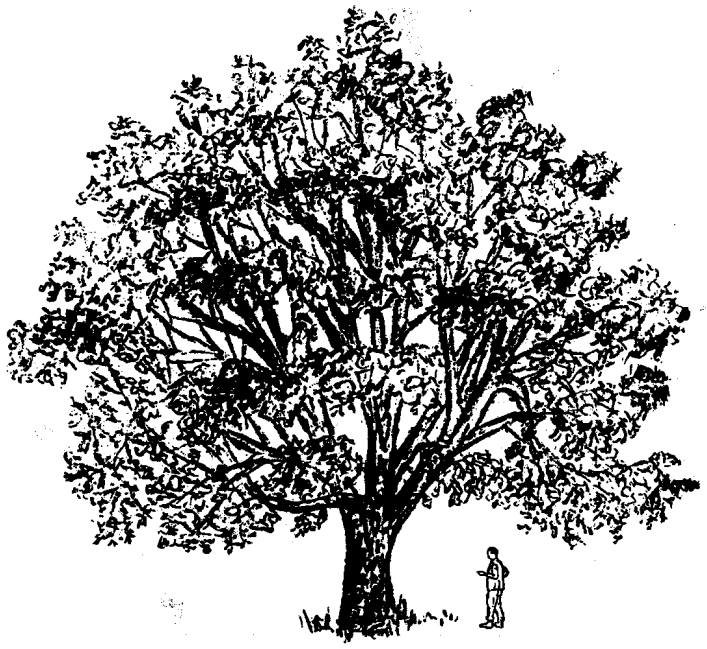
MANAGEMENT: Slow growing; lopping, pollarding, pruning.

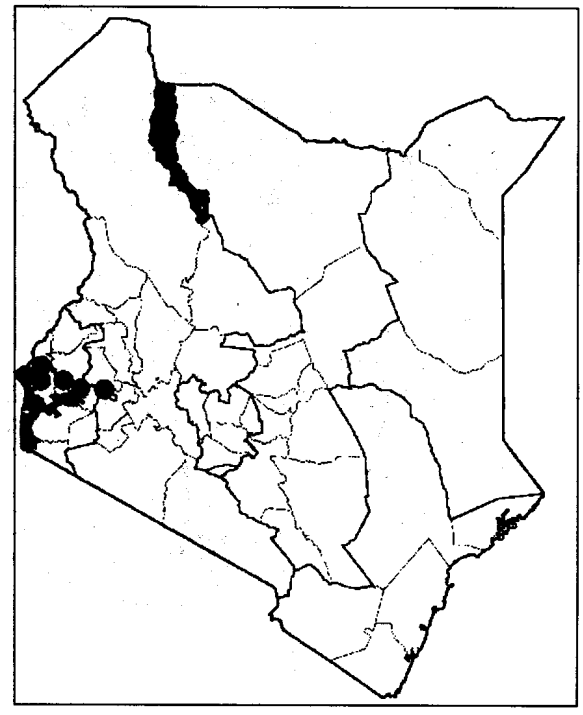
REMARKS: The species is highly regarded in the Luo community. The heartwood is particularly hard and durable.

FURTHER READING: Backes and Ahenda, 1998; Beentje, 1994; ITDG and IIRR, 1996; Katende et al., 1995; Kokwaro, 1993.









Albizia glaberrima

Fabaceae (Mimosaceae)

Indigenous

STANDARD/TRADE NAME: White nongo, Mchani mbao.

COMMON NAMES: **Kamba:** Isavi; **Pokomo:** Mchachampili; **Swahili:** Mchani, Mkumba mbega; **Taveta:** Mfurugaji.

DESCRIPTION: An evergreen forest tree, 15–30 m, the cylindrical bole spreading to a somewhat flattened crown. BARK: Finely fissured, grey. LEAVES: Twice-divided with only **1–4 pairs pinnae**, having 3–6 pairs of medium-sized leaflets. **Leaflets widest towards the tip, very one-sided, curved, usually 2.5–5 cm long and 1.5–3.5 cm across** (even bigger in young plants—up to 10 cm long), the midrib nearly diagonal and continued into the leaf tip, which is blunt. FLOWERS: In half-spherical heads, small and white. FRUIT: **Red-brown flat pods**, 12–26 cm long and 3–4 cm wide, tip rounded, **dull and well veined**, 6–12 flat oval seeds within.

ECOLOGY: A tree found at low altitudes from Senegal to Sudan and south to Angola, mainly in coastal or riverine forests. In Kenya, found in coastal and adjoining inland areas, 0–900 m. Agroclimatic Zones III–IV.

USES: Firewood, charcoal, timber, fodder (leaves), shade, nitrogen-fixing.

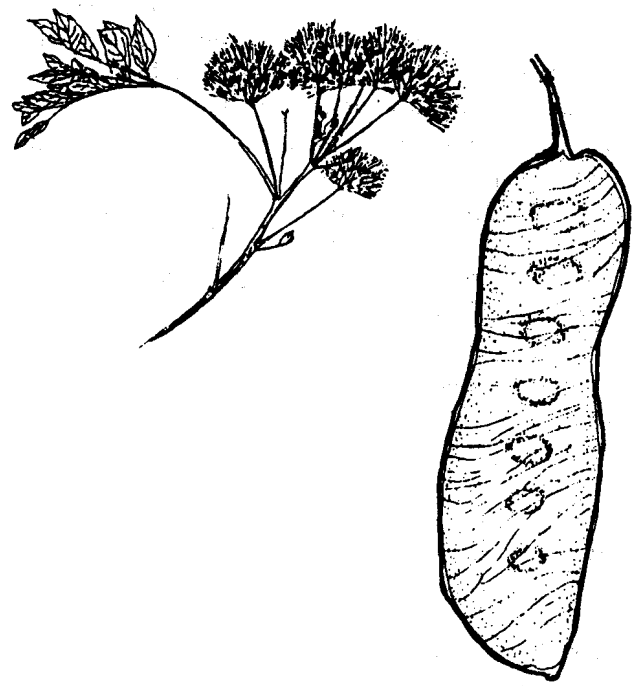
PROPAGATION: Seedlings, wildings.

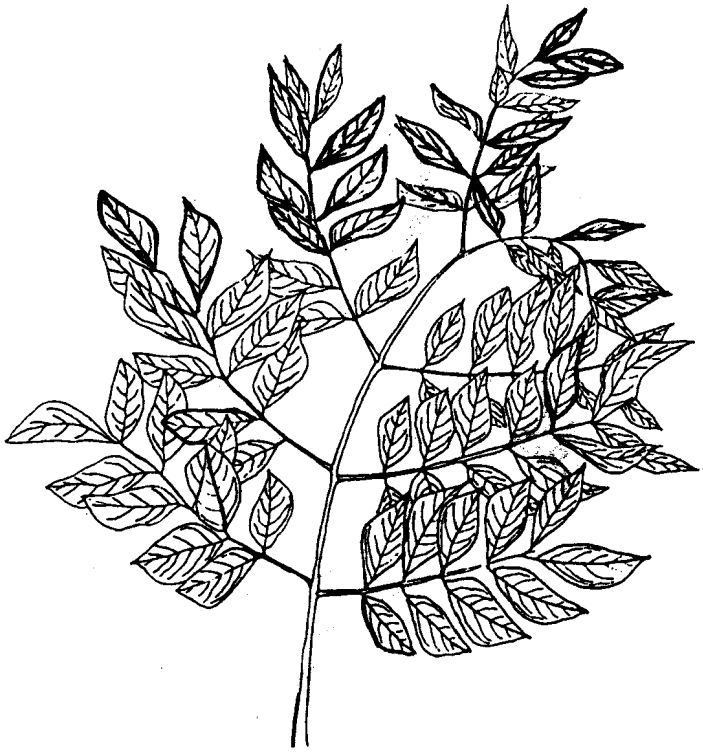
SEED: When the pod splits open the seeds remain on one side of the pod and are blown long distances by the wind. Difficult to collect.
treatment: Immerse in boiling water, allow to cool and soak for 24 hours.
storage: Seed can be stored for a few months, but are very susceptible to insect attack. Add ash to reduce insect damage.

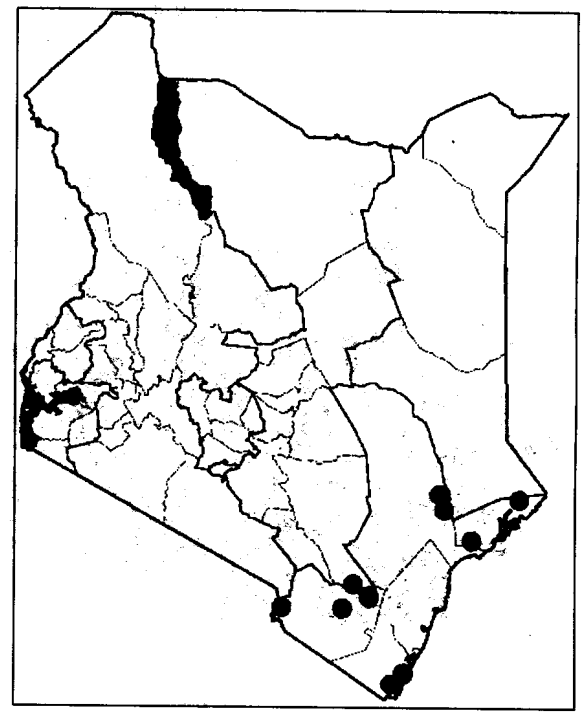
MANAGEMENT: Slow growing; coppicing, pollarding.

REMARKS: Produces good durable timber. *A. versicolor* (**Swahili and Digo**: Mtsani ndovu, Mchani ndovu) is another useful species found only at the southern part of the Kenyan coast in wooded grassland.

FURTHER READING: Beentje, 1994; Katende et al., 1995; Palgrave and Palgrave, 2002.







Albizia gummifera

Fabaceae (Mimosaceae)

Indigenous

COMMON NAMES: **Kamba:** Kisya, Musya, Mwethia; **Kikuyu:** Mukurue; **Kipsigis:** Seet, Seyet; **Kisii:** Omugonjoro; **Luhya:** Mukhonzuli; **Luhya (Bukusu):** Kumulukhu; **Malakote:** Motemwelo; **Maasai:** Ormoso, Olsamakupe, Osapukupes; **Marakwet:** Se, Set, Ste; **Meru:** Mukuruwe; **Nandi:** Seet, Seyet; **Pokomo:** Mchachampili; **Pokot:** Ses; **Samburu:** Sogore, Sogorogurri; **Swahili:** Mchani mbao; **Taita:** Msarawachi; **Taveta:** Kiririgiti, Kiririgwi; **Tugen:** Se, Set, Seot; **Turkana:** Ekakwait, Ekeweit.

DESCRIPTION: A large deciduous tree, branches ascending to a **flat top,** to 20 m or more, trunk up to 75 cm in diameter. BARK: **Grey and usually smooth.** LEAVES: Shiny, dark green **leaflets, almost rectangular, usually less than 3 cm long,** midrib diagonal, one outer corner rounded. FLOWERS: White-pink clusters, long **stamens hang out,** tips crimson. FRUIT: Very many pods in bundles, shiny brown, flat with raised edges, 20 cm long, 3 cm wide, often shorter.

ECOLOGY: A forest tree found from West Africa east to Ethiopia and south to Zimbabwe, Mozambique and Madagascar. The most common *Albizia* in humid and subhumid parts of Kenya, 0–2,400 m, from coastal hills to western Kenya. Very common in Nairobi and adjoining districts. Also found in Marsabit, Kakamega and Mara at forest edges and in riverine forests. Agroclimatic Zones II–IV. Very common in Zone III. Flowers in March–May and seeds in October–November in Bungoma.

USES: Firewood, timber, bee hives, utensils (mortars, water troughs), boat building, medicine (pods, roots, bark), fodder (mainly goats), bee forage, ornamental, mulch, nitrogen-fixing, soil conservation, leaves used to speed up the ripening of bananas.

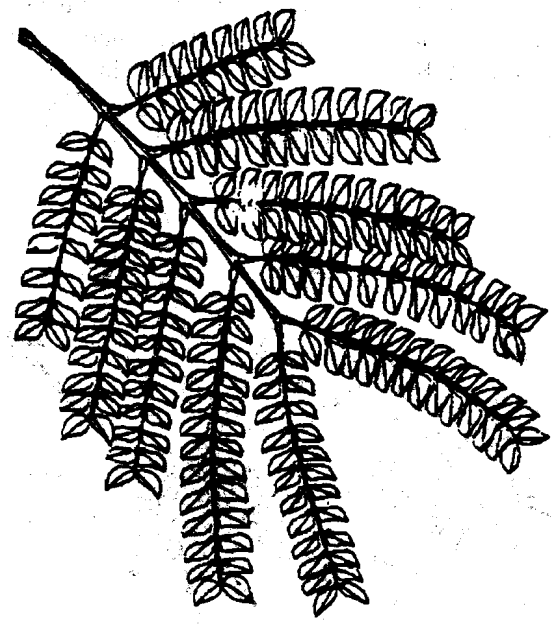
PROPAGATION: Seedlings, produces root suckers.

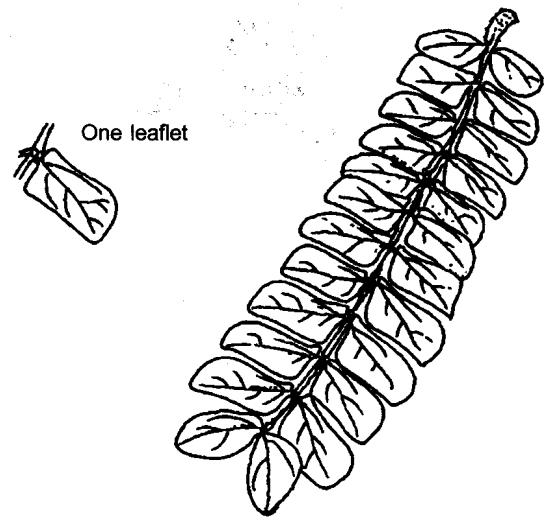
SEED: 10,000–14,000 seeds per kg. Germination rate 40–60%.

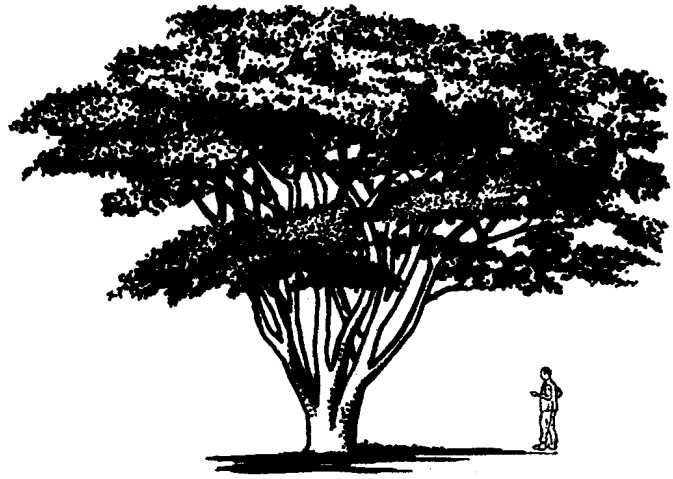
treatment: Fresh seed requires no pretreatment. Previously stored seeds should be nicked or soaked in cold water for 24 hours.

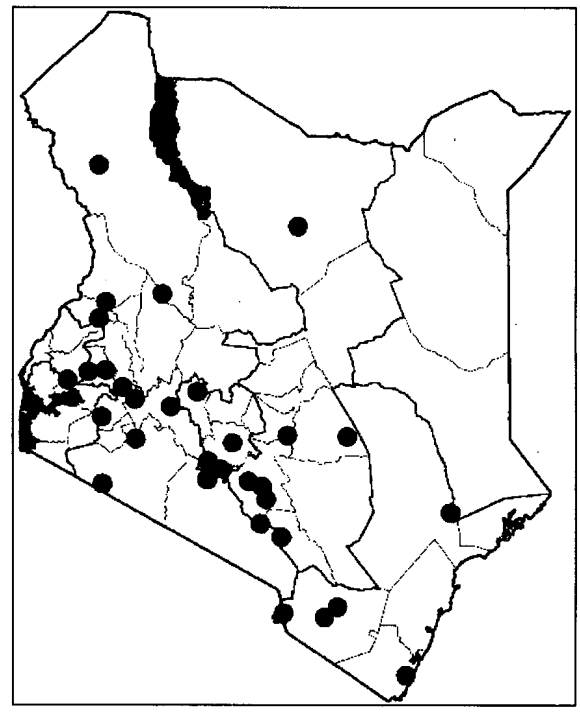
storage: Seed can be stored for long periods but very susceptible to insect attack.

MANAGEMENT: Fairly fast growing, lopping, pollarding, coppicing while young.



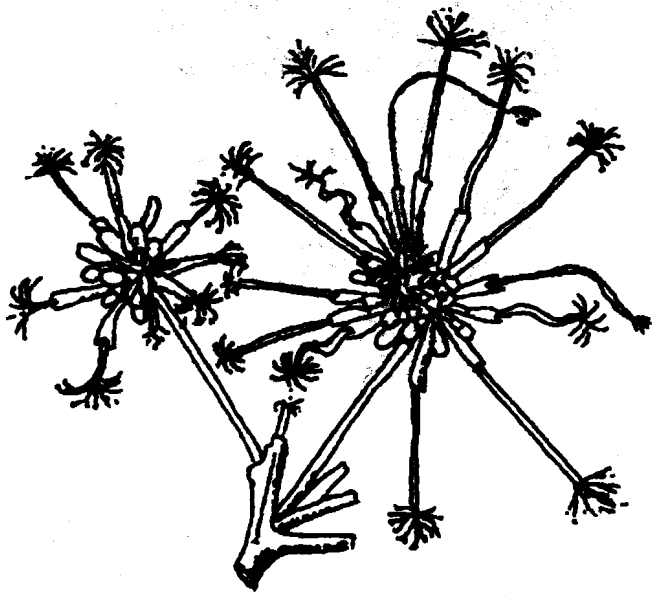




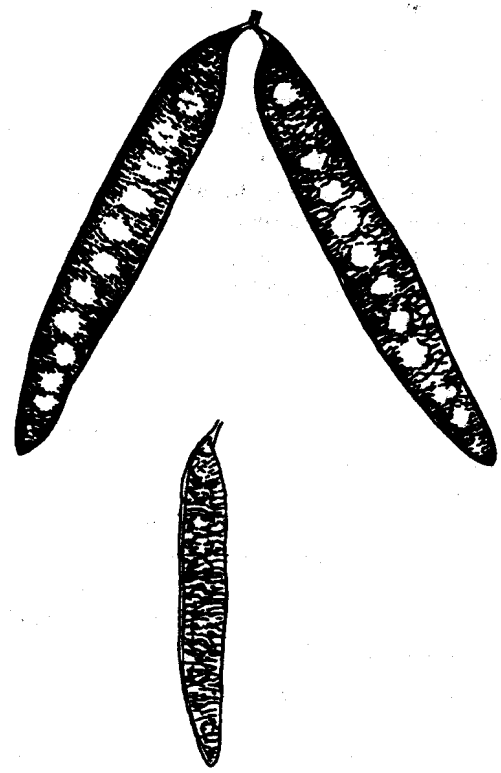


Albizia gummifera (cont)

REMARKS: Seed should be collected while still on the tree to prevent insect damage. Timber is not very durable, rather soft and light. Bees are often found inhabiting holes within the trunk. The trunk exudes clear gum. The *A. gummifera* found in Kenya belong to var. *gummifera*.



FURTHER READING: Albrecht, 1993; Backes and Ahenda, 1998; Beentje, 1994; Bekele-Tesemma et al., 1993; Dharani, 2002; Fichtl and Adi, 1994; Katende et al., 1995; Kokwaro, 1993; Mbuya et al., 1994; National Academy of Sciences, 1979; Noad and Birnie, 1989; Palgrave and Palgrave, 2002; Sommerlatte and Sommerlatte, 1990; Storrs, 1979.



Albizia lebbeck

Fabaceae (Mimosaceae)

Tropical Asia

COMMON NAMES: **Digo:** Mchani; **English:** Woman's-tongue tree, Siris, East Indian walnut; **Luo:** Oturbam; **Maasai:** Ortuba; **Swahili:** Mkungu.

DESCRIPTION: An attractive deciduous tree that may reach 20 m, usually 8–14 m; the trunk often short. BARK: **Grey-violet with rusty-brown breathing pores.** LEAVES: **3–11 pairs of leaflets**, each oblong, tip rounded, usually 2–3 cm. FLOWERS: Green-yellow, fragrant brush heads on a stalk; short lived. FRUIT: **Shiny yellow-brown pods in clusters** decorate the tree for a long time; each pod up to 30 cm long, bulging over seeds, the seeds and pods 'chatter' in the wind.

ECOLOGY: Naturalized in parts of Africa and the Caribbean. Commonly planted in the tropics as a shade tree. Found in the Lake Victoria basin and at the coast, 0–1,800 m, in some places naturalized. Extensive roots near the surface. Prefers black-cotton soil but will grow in a wide range of soils, acid, alkaline and saline. Agroclimatic Zones II–III.

USES: Firewood, charcoal, timber, furniture, poles, posts, flooring, fodder, bee forage, shade, ornamental, mulch, green manure, soil conservation, nitrogen-fixing, gum, tannin, detergent (dried and pounded bark).

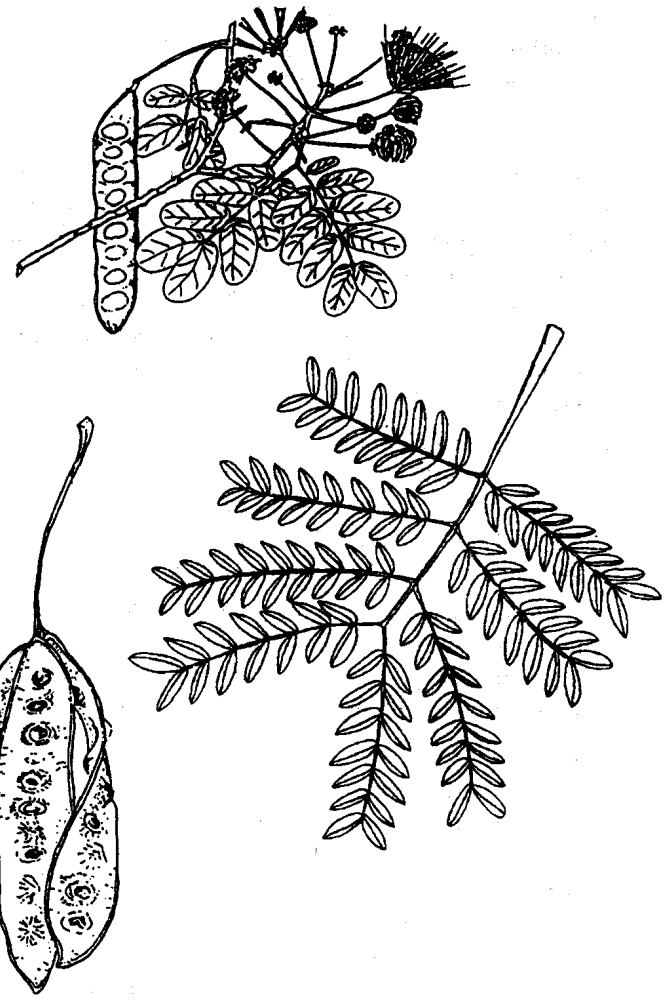
PROPAGATION: Seedlings, direct sowing at site, produces root suckers.

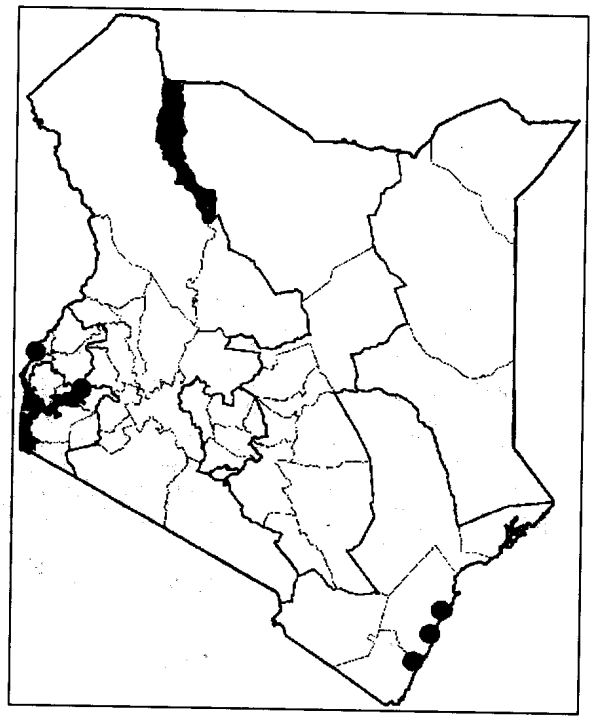
SEED: A prolific seed producer; 7,000–12,000 seeds per kg. Seed germination is good. Seed collection is done at the coast from February to March.
treatment: Not necessary, but soaking in cold water for 24–48 hours or immersing and soaking in boiling water for a few seconds may hasten germination.
storage: Seed can be stored for long periods if kept free from insects.

MANAGEMENT: Fast growing on good sites; lopping, pollarding, coppicing, pruning.

REMARKS: Hard and heavy wood. Introduced and became an invasive species in Venezuela and the Caribbean.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Bein et al., 1996; Bekele-Tesemma et al., 1993; Fichtl and Adi, 1994; Jensen, 1999; Katende et al., 1995; Mbuya et al., 1994; National Academy of Sciences, 1979, 1980; Noad and Birnie, 1989; Palgrave and Palgrave, 2002; von Maydell, 1990.





Albizia saman (*Samanea saman*)

Fabaceae (Mimosaceae)

Tropical America

COMMON NAMES: **English:** Saman, Rain tree, Monkey pod.

DESCRIPTION: A conspicuous **semi-deciduous tree** to 25 m tall when mature with a **short, thick trunk**. Its **branches spread horizontally** reaching an amazing 30 m occasionally. BARK: Distinctive yellow- to cream-brown, smooth or shallowly grooved. LEAVES: **Fern-like foliage**, twice-divided leaves at the end of branches, 25–40 cm long, with 2–4 pairs of leaf branches, and 3–8 pairs of leaflets that are bright green, oblong, to 6 cm long, longest pairs at the end of the stalk. FLOWERS: **Large stalked heads**, each flower with **fluffy pink stamens** from a cream-yellow base, 3–5 cm across, often in flower in the dry season. FRUIT: **Pods to 20 x 2 cm, thick, straight, green then black, with an edible sticky pulp** around the seeds. Pods do not break open.

ECOLOGY: Occurs naturally in open country and along streams in forests in the northern parts of South America. Does well at the Kenyan coast, preferring humid lowlands, 0–1,300 m, and well-watered soils. Tolerates a wide range of soils. Agroclimatic Zones I–III.

USES: Firewood, charcoal, timber, tools, carvings, utensils, edible fruit (sweet pulp of the pods), medicine (bark, leaves), fodder (pods), shade, ornamental, avenue tree, nitrogen-fixing, soil improvement, gum.

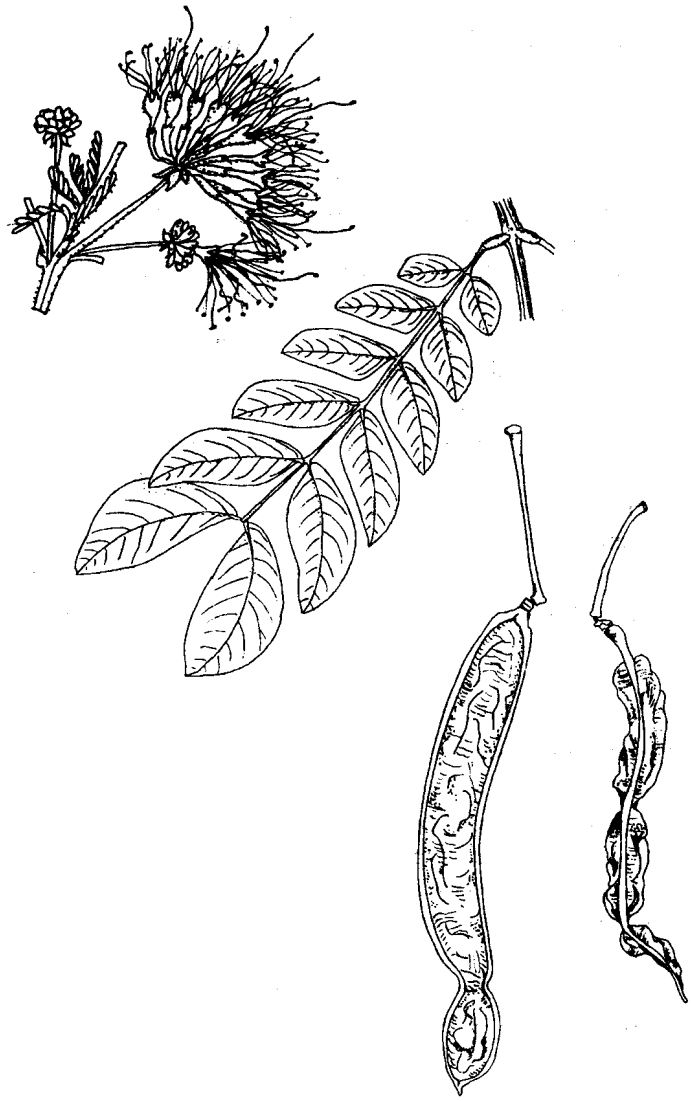
PROPAGATION: Seedlings.

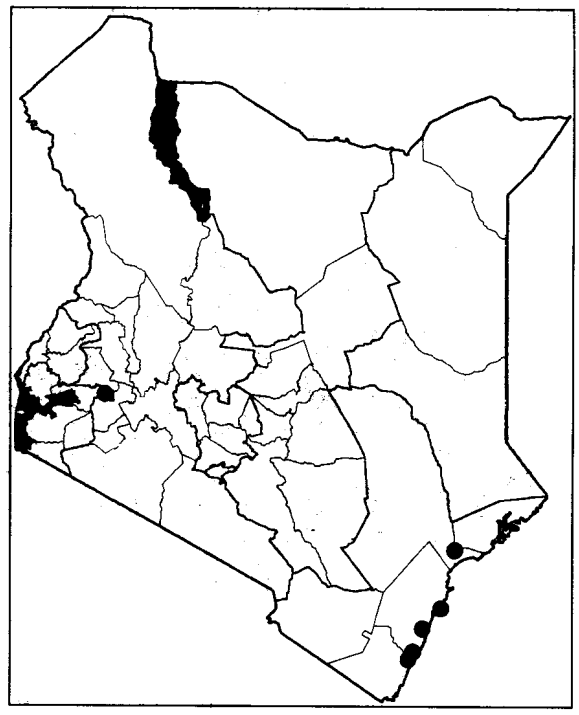
SEED: 5,000–7,400 seeds per kg.
treatment: Immerse seed in hot water for 3 minutes, transfer to cool water and soak for 12–24 hours.
storage: Seed can be stored if well dried. Viability is maintained for more than 3 years if stored in airtight containers at room temperature.

MANAGEMENT: Fast growing in best conditions, mature in a few years; coppicing.

REMARKS: Widely grown as a street tree. Gone wild and now naturalized in lower parts of Tana River at the site of an old irrigation scheme. A popular tree at the coast. Provides excellent shade, and in some countries the timber is valued for furniture and carving. The leaves fold inward at night and in cool weather.

FURTHER READING : http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Beentje, 1994; Jensen, 1999; Katende et al., 1995; National Academy of Sciences, 1979; Storrs, 1979.





Allophylus africanus

Sapindaceae

Indigenous

COMMON NAMES: **Boran:** Gadida; **Luhya (Bukusu):** Kumunyanyakhanu; **Luo:** Nyaludhi, Nyamoch, Ochond atego, Oludh kuon, Oseklele, Oswekele; **Sabaot:** Mongunyet.

DESCRIPTION: An evergreen shrub or small tree up to 6 m high with **spreading branches** and fairly dense foliage. BARK: Grey and smooth. LEAVES: Divided into **3 leaflets** on a stalk to 7 cm long, very variable, dark shiny green above, **leaflets wider beyond the middle, without stalk, margin toothed**. FLOWERS: **Small, cream-white, fragrant**, arranged in heads from leaf axils or at the tip of the shoot, heads up to 12 cm long. FRUIT: Soft berries arranged **in bunches, orange, turning dark red to black** when ripe, 6 mm in diameter, without hairs. Many small seeds inside.

ECOLOGY: Found from Sierra Leone in West Africa through Central Africa and Uganda and western Kenya south to Mozambique and Zimbabwe. In Kenya it is found in Western Province, Trans Nzoia, Uasin Gishu, where it is common in moist wooded grassland, often along rivers or on termite mounds. Agroclimatic Zones III–IV. Flowers in May–September in Rift Valley and western Kenya; fruit October–January.

USES: Medicine, fodder, bee forage, fibre (thin fibrous stems used for granaries), soil conservation.

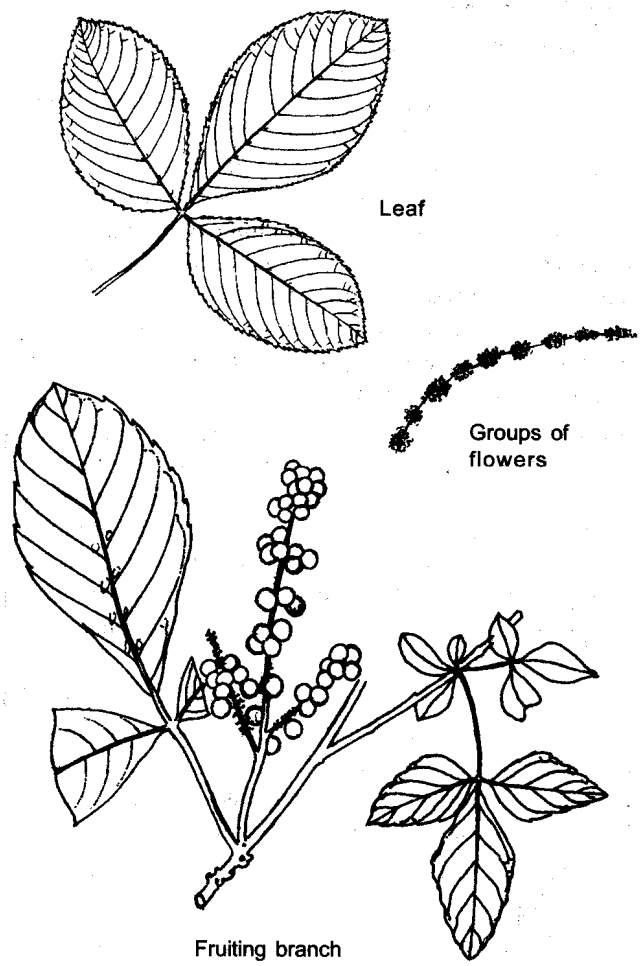
PROPAGATION: Seedlings.

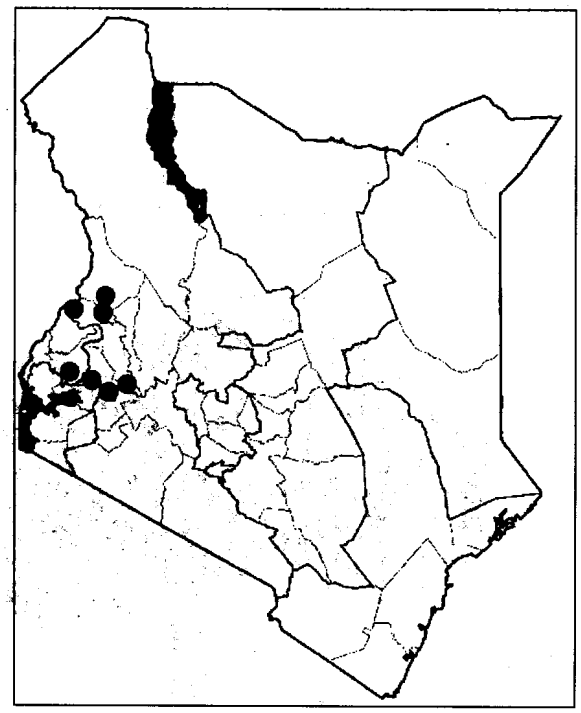
SEED: Collect mature fruit and allow to dry.
treatment: Not necessary.
storage: Seed can be stored for long periods.

MANAGEMENT: Fairly fast growing.

REMARKS: Tolerates trampling by livestock, but susceptible to browsing. Another species, *A. rubifolius* (**Digo**: Mbanda tchitswa, Muvudza kondo; **Giriama;** Munyanga kitswa; **Kipsigis**: Chekeleliet, Borowet; **Luo**: Nyamwoch; **Maasai**: Osyaiti orok; **Malakote**: Mwenze banya; **Pokot**: Chepkokai; **Somali**: Idi shibel bured; **Swahili**: Mlishangwa, Mkona chuma; **Tharaka**: Mutengerete; **Turkana**: Ekarai) is more widely distributed in Kenya. It is usually shrubby, very variable, occupying a great variety of habitats, 0–2,000 m. It is used for medicine.

FURTHER READING: Backes and Ahenda, 1998; Beentje, 1994; Kokwaro, 1993; Palgrave and Palgrave, 2002; Storrs, 1979.





Anacardium occidentale

Anacardiaceae

Brazil, Caribbean

STANDARD/TRADE NAME: Cashewnut.

COMMON NAMES: **Digo:** Mbibo, Mbibu; **English:** Cashewnut; **Giriama:** Mkanju; **Kamba:** Mukoloso, Ngoloso (fruit); **Sanya:** Maibo; **Swahili:** Mkanju, Mkorosho, Mbibo.

DESCRIPTION: A medium-sized, spreading tree to 15 m but usually smaller. BARK: Rough dark brown. LEAVES; Leathery dark green, **oval, 15 cm long, 8 cm wide, rounded tip,** wavy. FLOWERS: In terminal clusters, **small and star-like, cream–pink coloured.** FRUIT: Hard, **kidney-shaped nuts** attached to the base of a shiny **orange-yellow 'cashew-apple',** or 'bibo' (swollen flower stalk). Nuts fall to the ground when mature.

ECOLOGY: A tree now naturalized at the Kenya coast. One of the oldest cash crops, widely planted all over the tropics. Prefers deep sandy soils but not saline or poorly drained ones. Found where there is groundwater in the drier areas. It has been grown on poor eroded soils with unreliable rainfall and can be intercropped. Agroclimatic Zones I–IV. Flowering in May–August, occasionally October–November.

USES: Firewood, charcoal, timber, furniture, posts, edible nut and cashew-apple, livestock feed (cake after oil extraction from fruit), medicine, shade, ornamental, dune fixation, soil conservation, windbreak, gum (for book binding), resin and nut-shell oil (varnish, inks, tiles).

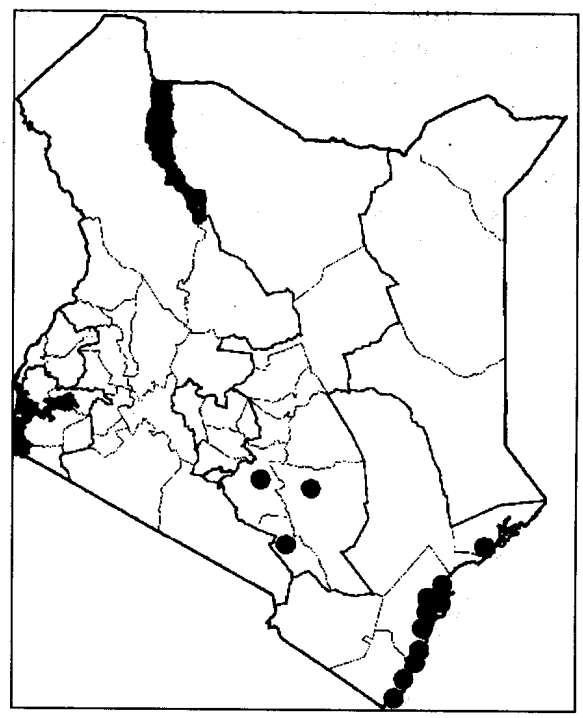
PROPAGATION: Direct sowing at site, grafting, air layering, ground layering.

SEED: 150–300 seeds per kg. Germinate in 10–12 days. **treatment**: Immerse seed in cold water, allow to cool and soak for 24 hours. Not necessary for fresh seed. **storage**: Seed can be stored but viability is gradually reduced, 50% after 10 months and total loss after 13–14 months. Dry nuts in the sun for several weeks before storing or sowing.

MANAGEMENT: Slow growing; lopping, coppicing.

REMARKS: The outer covering of the nuts contains an irritating poisonous oil, so the cover must be removed before the nuts can be eaten. Grown in plantations at the coast for its nuts. Occasionally found in upland areas but mainly as an ornamental. Cashew apples are favourite food for baboons and vervet and Syke's monkeys. Bees enjoy nectar from the flowers but the honey from this plant is bitter. This is the only species among the 11 in the genus that has been cultivated extensively for commercial purpose.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Beentje, 1994; Dharani, 2002; Jensen, 1999; Katende et al., 1995; Lötschert and Beese, 1983; Mbuya et al., 1994; Noad and Birnie, 1989; Palgrave and Palgrave, 2002; Verheij and Coronel, 1993; von Maydell, 1990.



Annona cherimola

Annonaceae

Ecuador, Peru

COMMON NAMES: **Digo:** Mtomoko; **English:** Cherimoya, Custard apple; **Giriama:** Mtomoko; **Kamba:** Kitomoko, Mutomoko; **Sanya:** Mtomoko badah; **Swahili:** Mstafeli, Mtomoko, Mtopetope.

DESCRIPTION: A small deciduous tree, 3–10 m, often branched from the base. LEAVES: Alternate, light green, oval and pointed, sometimes narrow, 12–20 cm long with few hairs above but characteristic **golden-brown hairs below**. FLOWERS: Fragrant, usually solitary (or 2–3), hang down on short hairy stalks, 3 outside **petals narrow to 3 cm, pale yellow** with a purple spot at the base, 3 inner petals red-purple, tiny. FRUIT: **Green and compound, 8–15 cm across**, variable, heart-shaped, round or oval with regular **overlapping fleshy scales** or the surface patterned with U-shaped depressions, spirally arranged like fingerprints. The ripe soft flesh is **cream-white, granular**, acid-sweet, easily separated from numerous seeds, each one brown, about 1.5 cm long.

ECOLOGY: A tree growing at 800 m or higher in the Andes of Peru and Ecuador where the well-flavoured refreshing fruit was known to the ancient people of the area. It cannot tolerate a hot lowland climate and is grown commercially in Chile, Spain, USA and New Zealand. In East Africa the name 'custard apple' has been used for 2 different *Annona* species (*A. cherimola* and *A. squamosa*) and hybrids. They grow best in cooler tropical uplands over 1,000 m. *A. cherimola* tolerates lower temperatures for growth and fruiting than *A. squamosa* (custard apple or sweetsop). Agroclimatic Zones I–III.

USES: Edible fruit.

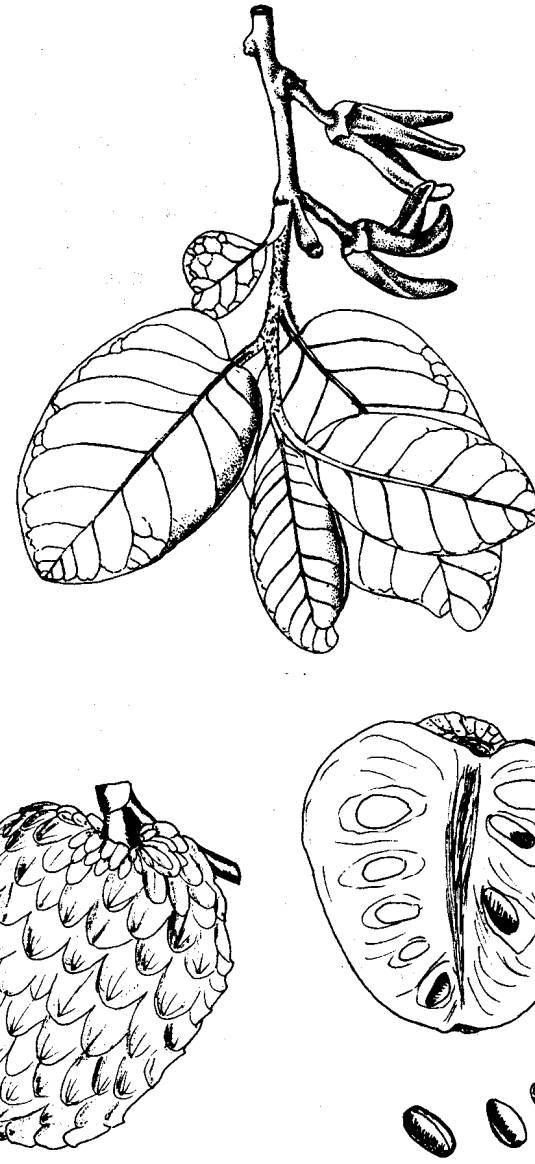
PROPAGATION: All annonas can be grown from seed and cuttings. Budding or grafting is recommended. *A. cherimola* or *A. squamosa* are usually used as rootstock.

SEED: Extracted by hand or after maceration from ripe fruits collected off and below existing trees. Germination takes 2–4 weeks.
treatment: Not necessary.
storage: If stored in cool dry conditions the seed can retain viability for 6–12 months.

MANAGEMENT: Bud or graft. Small beetles usually pollinate the flowers. Hand pollination improves fruit set. Fruit ripens 4–5 months after pollination.

REMARKS: The genus *Annona* belongs to the family Annonaceae and produces aggregate fruits, usually fleshy and edible. Green fruit, seed and leaves of *Annona* spp. are reported to have insecticidal properties. Fruit and seed are effective against worms. Fruit are eaten fresh and the pulp can be used to flavour ice cream. Fruits of annona are commonly seen in markets.

FURTHER READING: Lötschert and Beese, 1983; Maundu et al., 1999; Mbuya et al., 1994; Verheij and Coronel, 1993.



Annona muricata

Annonaceae

West Indies, Tropical America

COMMON NAMES: **English:** Soursop; **Kamba:** Mutomoko, Mtumoko; **Swahili:** Mstafeli.

DESCRIPTION: A slender evergreen tree 5–7 m in height, usually less, with a bole that may be 30 cm in diameter, the **branches very low** and wide, giving an open shady crown. In drought conditions it may lose all its leaves. BARK: Grey with a pattern of shallow grooves. LEAVES: Alternate, **dark green, shiny** and leathery, 8–15 cm long, **oval with a sharp tip**, dull or yellowish below where there are **small pits in vein axils**. Crushed leaves have a strong, unpleasant smell. FLOWERS: **Solitary and large**, 2–5 cm across, often opposite leaves and hanging down, **3 outer fleshy petals**, curved, almost triangular, **3 inner yellow-green petals, thinner** and rounded, edges overlapping. FRUIT: Kidney- or **heart-shaped to 25 cm long**, the leathery dark green skin covered with **soft curved spines**. Inside **woolly white fibrous pulp** covers many large brown-black seeds. The flesh and fruit walls are edible and have a distinctive acid-sweet taste. (Single fruits grown together making one 'compound' fruit, but the outline of individual fruits can be seen on the skin, each with its own spine. As pollination is often incomplete the fruit may have a distorted shape.) It has large 'fruit' of 0.5–5 kg in weight.

ECOLOGY: An exotic fruit tree planted throughout the warm tropical lowlands. In Kenya, it is grown in semi-arid and arid lowland areas of Eastern Province (mainly Ukambani) and at the coast, where it is grown along water courses through irrigation. When young, it requires frequent watering of about 5 litres per week but becomes tolerant to drought once it establishes. Agroclimatic Zones I–III.

USES: Fruit, drink, flavouring, medicine, ornamental, insecticide, fish poison.

PROPAGATION: Seedlings (sow seed in pots), grafting and budding.

SEED:

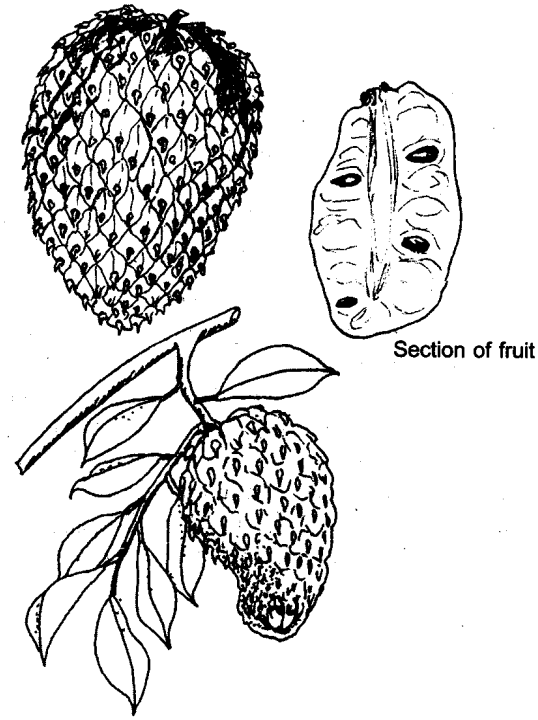
treatment: Not necessary.

storage: Seed can be stored for long periods.

MANAGEMENT: Slow growing. Application of manure may be necessary in the early stages. Mulching will reduce weeds. Bud or graft. Manage crown above 1 m height to encourage branching. Protect fruit from birds.

REMARKS: One of several *Annona*, this species has the largest fruit. The flesh is highly acid. This is a desirable tree in home gardens as the delicious fruit can earn good cash and can be used for juice and ice cream. However, one tree rarely produces more than a dozen fruits, which take 3 months to ripen, and are often attacked by birds such as mousebirds. All parts have insecticidal properties and can also be used to kill fish—a fruit can be used as bait. A powder or oil from the seeds has been used to kill lice and bedbugs. Contact with the eyes causes great irritation. It may be attacked by mealybugs and scale insects, resulting in a reduction of yield or even complete failure. In Machakos and Makueni Districts yields are reliable and make a large contribution to farmers' incomes.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Bein et al., 1996; Bekele-Tesemma et al., 1993; Jensen, 1999; Katende et al., 1995; Lötschert and Beese, 1983; Mbuya et al., 1994; Verheij and Coronel, 1993.



Section of fruit

Annona senegalensis subsp. *senegalensis* (*A. chrysophylla*) Annonaceae

Indigenous

COMMON NAMES: **Boni:** Malamuti, Mlamote; **Digo:** Mbokwe; **English:** Wild custard apple; **Giriama:** Mutakuma; **Kamba:** Makulo, Kitomoko, Matomoko (fruit), Mutomoko wa kitheka; **Luhya:** Muvulu; **Luhya (Bukusu):** Kumufwora; **Luo:** Nyabolo, Obolobolo, Obolo (Migori); **Sanya:** Bombo; **Swahili:** Mkonokono, Mtomoko mwitu.

DESCRIPTION: A spreading shrub or small tree to 6 m, rarely higher. BARK: **Grey and smooth,** thick and folded when old, young stems hairy and orange-red. LEAVES: **Broadly oval,** to 15 cm x 10 cm wide, blue-green, **hairy below,** fragrant when crushed. FLOWERS: 1–2 small **flowers hang down below twigs, yellowish with petals and sepals in 3s.** FRUIT: **Rounded, 2–7 cm, smooth,** with divisions. Green when unripe, turning orange-yellow and smelling like pineapple on ripening. The sweet pulp is edible. Seeds smooth, shiny brown.

ECOLOGY: The species is widespread in tropical Africa, from Senegal to South Africa and Madagascar in semi-arid to subhumid regions. In Kenya, in wet lowland savanna at the coast, in the Lake basin and in the highlands east of Mt Kenya, including Kitui Hills, in bushed grassland, humid, riverine woodland, coastal bushed grassland and forests, mostly as an understorey shrub, 0–2,400 m. Grows well in a variety of soils: deep sandy, alluvial or light red loam. Agroclimatic Zones I–III. Very common in Zone III. Flowers in February–March and seeds in June–August in Bungoma.

USES: Firewood of low quality, edible fruit, medicine (bark, root, gum, fruit), fodder (leaves), ornamental, windbreak, fibre (bark), brown dye (bark).

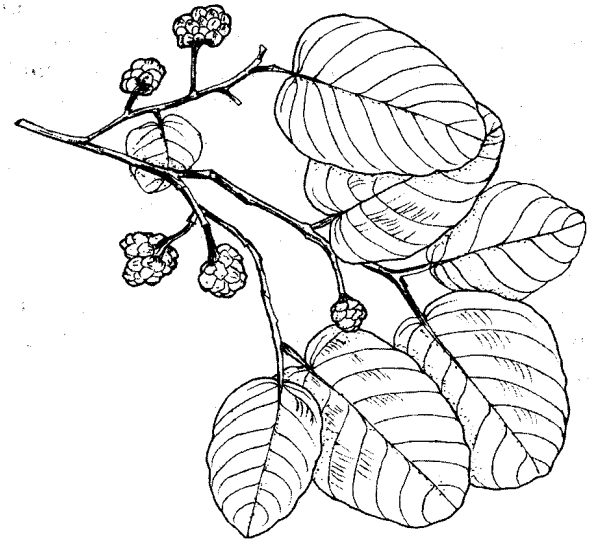
PROPAGATION: Seedlings (sow seeds in pots), wildings, root suckers from exposed or injured roots.

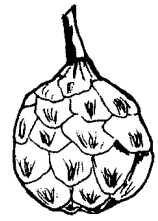
SEED: 2,500–3,000 seeds per kg. Germination is good but sporadic.
treatment: Not necessary.
storage: Seeds susceptible to insect damage and lose viability within 6 months. Add ash to reduce insect damage.

MANAGEMENT: Very susceptible to fire and weeds. Needs shade from other trees but cannot live under tropical forest conditions. Plant under trees with light shade. Slow growing. Coppices well. Pick fruit green and slightly unripe and keep it indoors for ripening to avoid bird damage.

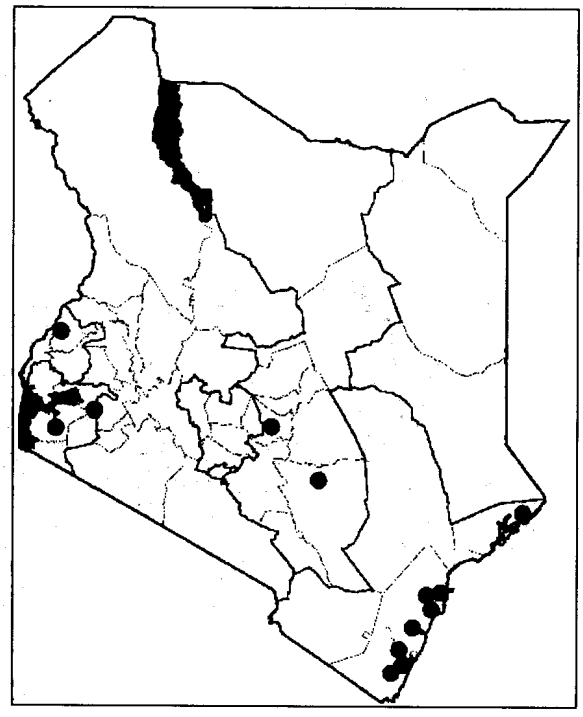
REMARKS: Fruit eaten raw. It has an acid–sweet taste.

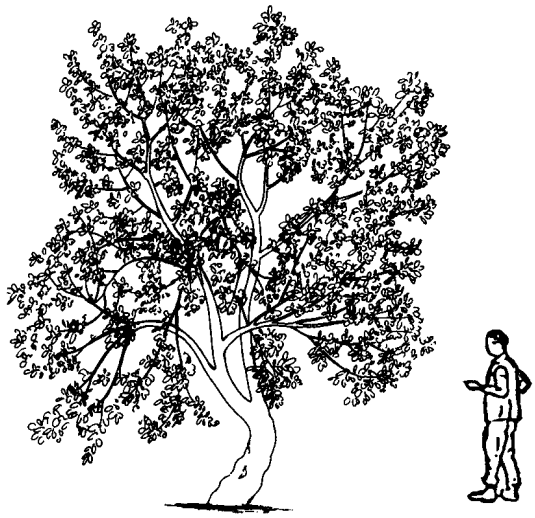
FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Backes and Ahenda, 1998; Beentje, 1994; Bekele-Tesemma et al., 1993; Katende et al., 1995, 1999; Kokwaro, 1993; Mbuya et al., 1994; Palgrave and Palgrave, 2002; Ruffo et al., 2002; Sommerlatte and Sommerlatte, 1990; von Maydell, 1990.





Section of fruit





Annona squamosa

Annonaceae

Tropical South America

COMMON NAMES: **English:** Custard apple, Sweetsop; **Swahili:** Mtopetope, Mtomoko; **Taita:** Matomoko.

DESCRIPTION: A small tree to 7 m, the bole less than 1 m high and up to 20 cm in diameter. Branches spread widely and typically their tip ends bend over or touch the ground. Crown open. BARK: Grey with **interlaced pattern of shallow fissures**. LEAVES: Simple, alternate, dull green, **long oval in shape, 7–17 cm**, a few hairs below. The tree may keep its leaves or shed them for a brief period each year. FLOWERS: Individual flowers produced **singly or in pairs** beside leaves or on the other side of the shoot from a leaf. They **hang down**, yellow-green and **about 2 cm across when open, parts in 3s.** FRUIT: **Compound, heart-shaped, 8–10 cm across, surface green-yellow with a papery bloom, having the appearance of scales**. When ripe it has a white pulp containing seeds within each section. The flesh is aromatic with a sugary sweet taste, surrounding the shiny brown-black seeds.

ECOLOGY: A tree that is very widely distributed through the tropics and particularly well known in Africa, Australia and South East Asia. It performs well in lowlands up to 1,200 m with medium rainfall (over 800 mm), and is tolerant of a wide range of soils provided drainage is good. Slightly acid soils (pH 5.5–6.5) are best. Grows well near Lake Victoria. Agroclimatic Zones I–III.

USES: Firewood, edible fruit, ornamental, windbreak.

PROPAGATION: Seedlings (sow seeds in pots). Budding and grafting.

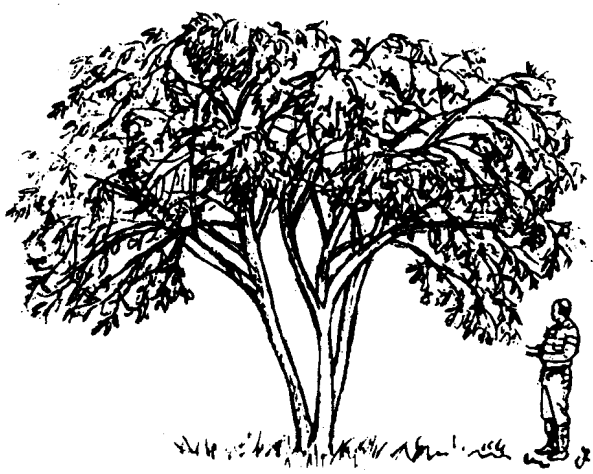
SEED: Extracted by hand or after maceration from ripe fruits collected off and below existing trees. Germination takes 2–4 weeks.
treatment: Not necessary.
storage: If stored in cool dry conditions the seed retain viability for 6–12 months, although this period is reduced if stored at room temperature.

MANAGEMENT: Plant the trees 5–6 m apart; when combining with mango 10–12 m. Weeding; slow growing. Pick fruit green and slightly unripe and keep it indoors for ripening to avoid bird damage.

REMARKS: A fruit tree worth growing more in Kenya.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Jensen, 1999; Katende et al., 1995; Lötschert and Beese, 1983; Maundu et al., 1999; Mbuya et al., 1994; Verheij and Coronel, 1993.

Section of fruit



Antiaris toxicaria

Moraceae

Indigenous

STANDARD/TRADE NAME: Antiaris, False iroko.

COMMON NAMES: **Digo:** Mnguonguo; **English:** False mvule; **Giriama:** Mnguonguo; **Luhya:** Mulundu; **Luo:** Olua madhako, Olua; **Swahili:** Mkunde.

DESCRIPTION: A magnificent deciduous tree of the forest canopy, often 20 m, up to 40 m, the crown rounded, branchlets drooping. A large tree may have a **tall clear bole** with some buttresses at the base. BARK: **Smooth, pale grey**, marked with lenticel dots and ring marks. When cut, **thin cream latex** drips out, becoming darker. LEAVES: Variable, usually oval, 5–16 cm x 4–11 cm, often widest towards the apex with a blunt or pointed tip, **the base unequal and rounded**. Saplings and coppice shoots have long narrow leaves, the **edge toothed**, but rarely in mature leaves. Leaves **rough, papery with stiff hairs above** but softer below. FLOWERS: Small male flowers **yellow-green**, in clusters about 1.5 cm across, growing just below leaves. Female flowers in **disc- or kidney-shaped heads** to 3 cm across. FRUIT: **Bright red, dull and furry, 1.5 cm long**, scarlet and velvety when mature; the swollen receptacle contains just **one seed**. The soft fruit is liked by birds, bats, monkeys and antelope and therefore dispersed by them.

ECOLOGY: A tree found from Sierra Leone, east to Sudan and south to Angola in moist forests. In Kenya, found in the Lake basin and at the coast (Shimba Hills, kaya forests, Gede Forest), mainly in remnant forests, 0–400 m (coast) and 1,350–1,700 m inland in moist forests (Kakamega Forest, Kisii). Agroclimatic Zones I–II. Fruits December–March (Coast, Kakamega) also August–September at the coast (less common).

USES: Timber, veneer, boat building (canoes), medicine (leaves, roots), fodder, barkcloth.

PROPAGATION: Wildings and seedlings (sow seeds in pots).

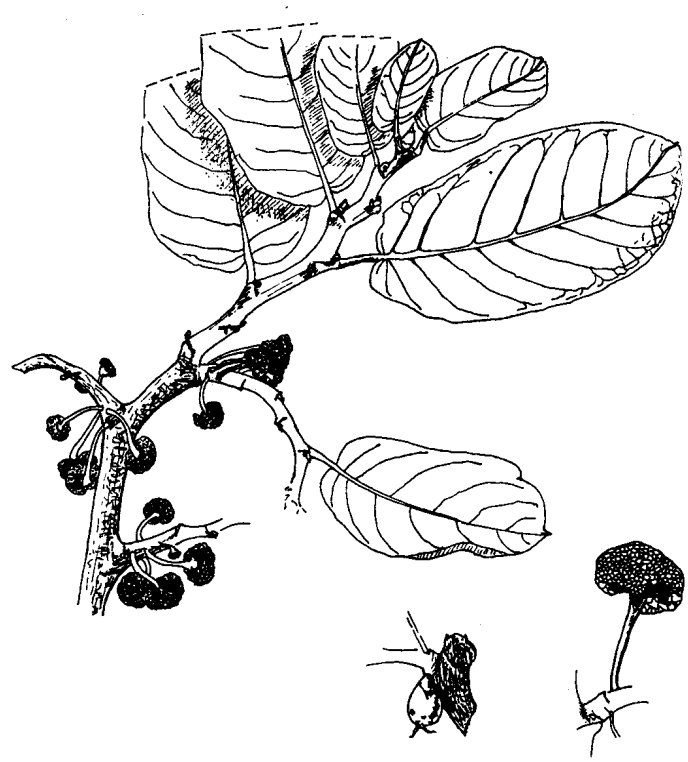
SEED: Large amounts of seed; easy to collect from the ground.

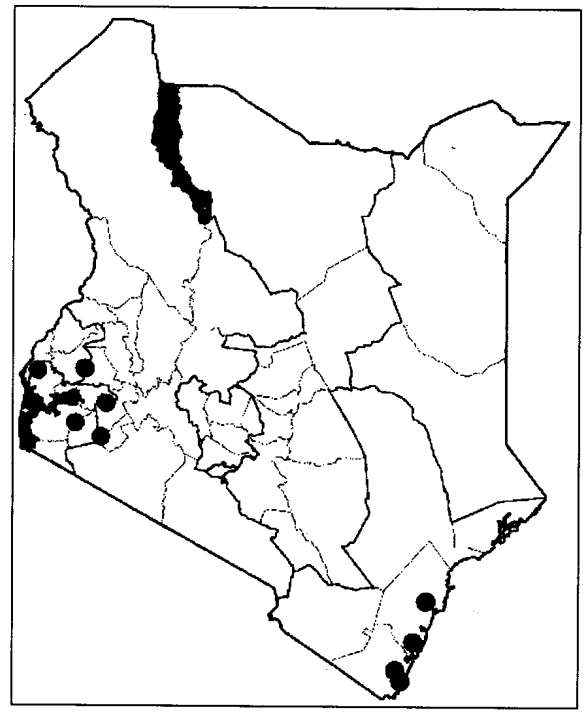
treatment: None.
storage: Loses viability quickly; sow as soon as collected.

MANAGEMENT: Fast growing, attaining full size within 20 years.

REMARKS: The tree does not compete with crops. Plant individual trees for shade, as avenue trees or as a pure stand. There is little difference between heart and sapwood; it is yellow-white and soft, easily attacked by termites and borers. It can make a tough veneer for the plywood industry.

FURTHER READING: Beentje, 1994; Katende et al., 1995; Sommerlatte and Sommerlatte, 1990.



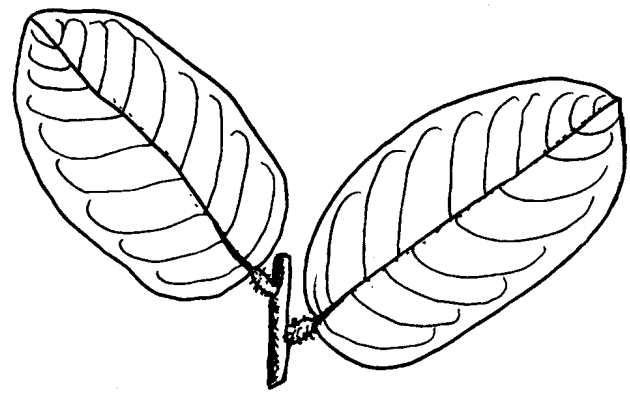


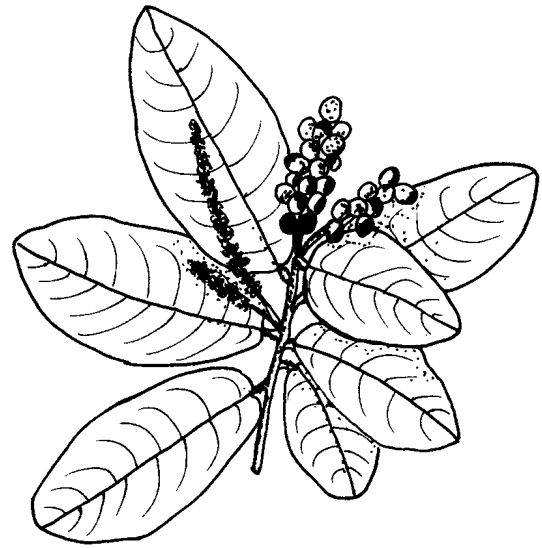
Antidesma venosum

Euphorbiaceae

Indigenous

COMMON NAMES: **Boni:** Ngogaje, Mulilago; **Chonyi:** Musumbiji; **Digo:** Mzengatsongo, Kihuro, Chikuro; **Embu:** Muthithio; **Giriama:** Mhirondo, Msimbiji; **Kamba:** Mukala (Kitui), Kitelanthia, Kitolanthia (Makueni), Ngala, Ndelanthia (fruit); **Kambe:** Musimbiji; **Kikuyu:** Mukondwe, Muhoigwa; **Luhya (Bukusu):** Kumukhakasu, Bukhakasu (fruit); **Luo:** Oguambula, Oguombula; **Malakote:** Musigisigi; **Mbeere:** Mukanga arithi, Muthithio, Muthethuka; **Meru:** Mutonye; **Pokomo:** Musasusi; **Sanya:** Harki thokochi; **Swahili:** Mbua nono, Mbua ya nuno msasuzi, Karacha, Mziwaziwa, Mwinamia ziwa, Msuaga.





DESCRIPTION: A shrub or, less often, a small tree to 6 m tall, with **spreading branches**. BARK: Rough. LEAVES: Large, elliptic, **densely hairy and light green to reddish brown beneath.** FLOWERS: Male and female separate, yellow-green in axillary and terminal spikes. **Flowering head often galled, drooping.** FRUIT: Numerous in bunches, **light green, turning red to reddish purple** to almost black on ripening.

ECOLOGY: Widespread in Africa from Gambia east to Ethiopia and south to Namibia, South Africa and Madagascar. In Kenya, in Boni Forest, Thui Hill (Makueni), Kitui Hills, Nzaui Hills (Makueni), Mavuria (Embu) and in Central, Coast and Nyanza Provinces, in bushed grassland, coastal bushland, forest edges, riverine bushland, 0–1,900 m. In Coast Province it is found in farmland, at forest edges and also along the seashore on coral outcrops. Rainfall: 850–1,000 mm. Agroclimatic Zones III–IV. Two fruiting seasons at the coast: July and November–December. Fruits mainly in March in Makueni, but also less abundantly at other times.

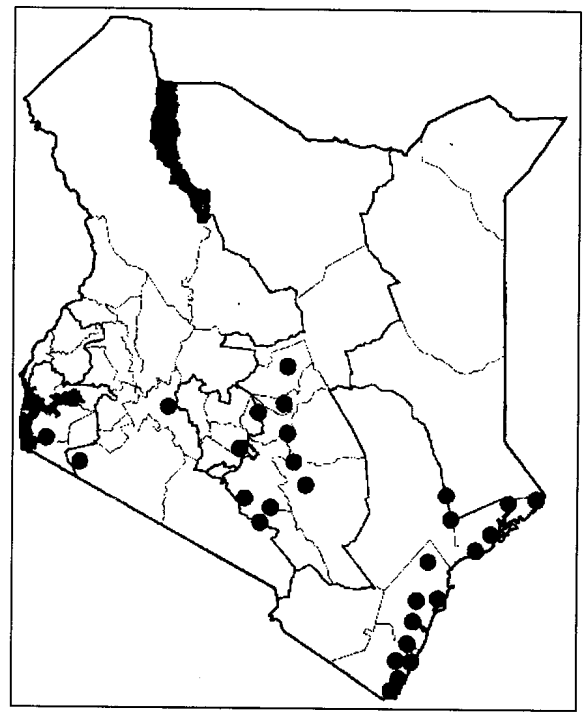
USES: Firewood, tool handles, knife sheaths, edible fruit, medicine (leaves, seeds, twigs and roots), bee forage, shade, ornamental, dye (fruit used by children as an ink substitute).

PROPAGATION: Seedlings, cuttings. Easy to propagate by seed.

MANAGEMENT: Produces suckers.

REMARKS: The Sanya believe that the fruit must be eaten with only one hand, otherwise it will lose its sweetness. Roots are said to be poisonous. Reported to be an invasive weed in fallows in Tanzania.

FURTHER READING: Beentje, 1994; Kokwaro, 1993; Maundu et al., 1999; Palgrave and Palgrave, 2002; Ruffo et al., 2002.



Apodytes dimidiata

Icacinaceae

Indigenous

STANDARD/TRADE NAME: Pear wood, White pear.

COMMON NAMES: **Bondei:** Mfret; **Digo:** Mungowengowe, Mtsunga mbuzi; **English:** Pear wood, White pear; **Kikuyu:** Mugonyoni, Muchogi; **Kipsigis:** Chesimboliet; **Luhya:** Masaba, Wanda; **Luo:** Lemo, Luochuoga, Ochond obok; **Maasai:** Oldiasimbol; **Meru:** Mwiramwanki; **Samburu:** Arakaulu, Eyaonet; **Swahili:** Mlambusi mbage; **Tugen:** Orisuet; **Turkana:** Epikororok.

DESCRIPTION: A tall evergreen forest tree, growing to 25 m in high-rainfall areas but elsewhere smaller and more rounded, often branching at the base. **Trunk often ridged in large trees,** branchlets generally thin and **rather right-angled**. BARK: Pale grey-brown, fairly **smooth**, darker, flaking and slightly fissured with age. LEAVES: Alternate, **shiny dark green above**, **drying black**; shape variable, usually oval, up to 13 cm long but often smaller; tip tapering, edge very regularly wavy, sometimes slightly toothed, midrib paler, ridged only below, other veins inconspicuous, dividing irregularly. **Young leaf stalks and part of the midrib are reddish**. FLOWERS: Small, delicate, white, **star-like** with black anthers, fragrant, in striking sprays at the end of branches over much of the tree. The **flowering branchlets persist after the flowers fade**, giving the tree a twiggy appearance. FRUIT: Small, 8 mm, flattened, black, with a **fleshy scarlet appendage on one side** giving the fruit a kidney shape.

ECOLOGY: Distributed in most countries in eastern and Central Africa southwards to Mozambique and South Africa. Also on Madagascar, the Comoros and Mascarene Islands, India, tropical Asia and as far east as south-western China and the Moluccas. In Kenya, widely distributed from the coast to 2,400 m, in forest ranging from the Shimba Hills to Kakamega Forest; common in the wet regions of southern and eastern Mt Kenya and occasionally found around Nairobi. Also in dry forests, forest edges, remnants, in clump bushland and in coastal woodland. May be locally dominant in dry forest. Agroclimatic Zones I–III.

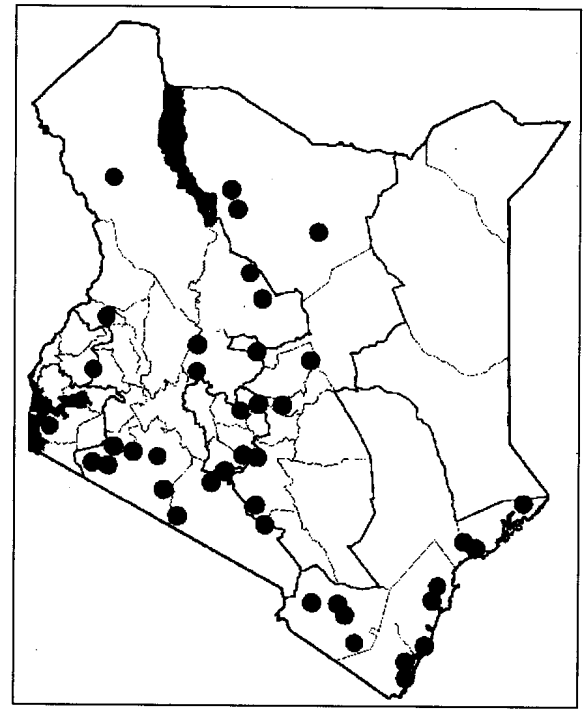
USES: Firewood, charcoal, timber (construction, indoor carpentry, doors, veneer), tool handles, medicine (bark), bee forage, ornamental.

PROPAGATION: Seedlings.

MANAGEMENT: Slow growing.

REMARKS: The wood is light pink and very hard, earlier much favoured for making wagon wheels; easy to plane and polish. Pieces of wood are used as earplugs by the Maasai. Honeybees forage vigorously for the abundant nectar and pollen from the flowers. The pollen is valuable for stimulating brood rearing and is important for strengthening the colonies. A good yield of honey is produced when many trees are available. Recommended for planting.

FURTHER READING: Beentje, 1994; Fichtl and Adi, 1994; Kokwaro, 1993; Noad and Birnie, 1989; Palgrave and Palgrave, 2002.



Araucaria cunninghamii

Araucariaceae

Eastern Australia, New Guinea

COMMON NAMES: **English:** Hoop pine, Moreton Bay pine.

DESCRIPTION: A tall evergreen tree up to 36 m with **spreading, widely spaced upcurved branches bearing dense tufts of branchlets**. The trunk can reach a massive 3 m in diameter. BARK: Shiny with a copper hue when young. With age, rough, **flaking, exposing shiny brown underbark, hoop-like rings made by horizontal cracking**. LEAVES: **Young leaves rather triangular, sharply pointed, 1–2 cm long**, but mature leaves softer, narrow and curved inwards, overlapping, crowded along the branchlets, all dark green. CONES: Male cones soft, to 7 cm long, in hanging clusters, turning orange-red with pollen; female cones hard and green about 8 cm and erect, covered with scales, each with a sharp recurved tip.

ECOLOGY: A native of rainforests in eastern Australia and New Guinea. It has been introduced into East Africa mainly as an ornamental and avenue tree, but also planted in plantations at low altitudes in central Uganda. Occasional in Nairobi. Agroclimatic Zones I–III.

USES: Timber, ornamental, Christmas tree.

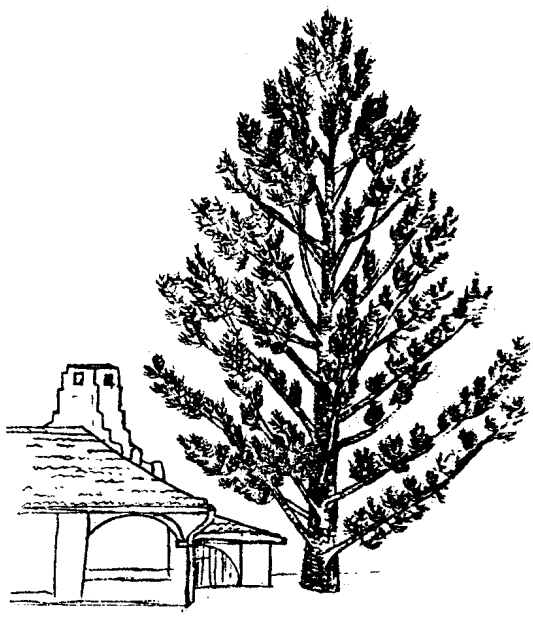
PROPAGATION: Seedlings.

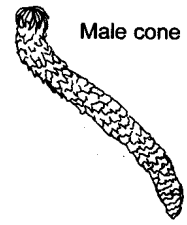
SEED: Mature cones collected and seed collected by shaking out. Seedlings are difficult to raise as germination and survival rates are low. Sow seeds in beds and transplant into pots; 2,400–4,000 seeds per kg.
treatment: Street nurseries in Nairobi soak seeds in water until they send out a radical (about 5 days later). They are then transplanted individually into pots.
storage: Seeds can be dried and stored but it is best to sow as soon as possible after collection.

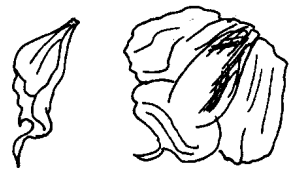
MANAGEMENT: A moderately fast-growing tree. Some pruning may be required.

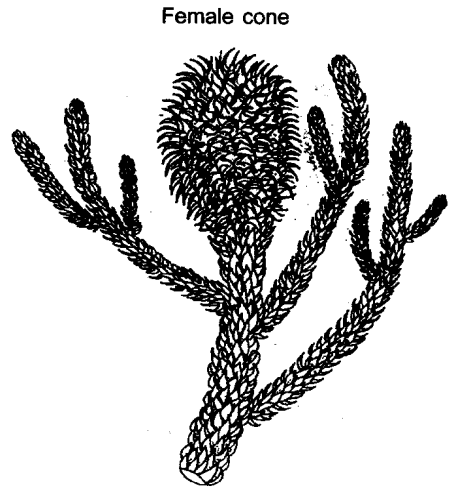
REMARKS: Occasionally used as a Christmas tree. Several other araucarias are found in Kenya. Probably the most noticeable is Chile pine (*A. araucana*) or the monkey puzzle, so named due to its spiny nature that 'would puzzle a monkey to climb'. This Chilean tree can grow to 24 m with a trunk diameter of 1.2 m. Leaves glossy, dark green, rigid, long lasting and fiercely prickly. Branches long and interwoven, especially in young trees. Cones globular, to 15 cm long, bearing edible seeds (Chile nuts). It does well in cool humid climates. Young trees need pruning. Another fairly common species is *A. bidwillii* (**English**: Bunya pine, Bunya bunya) originally from the rainforests of south-east Queensland, Australia. This rather slow grower can reach a height of 36 m, developing a domed crown as it matures. Branches are long, rather sparse and arising from the main trunk almost at right angles. Leaves are up to 5 cm long, flat, dark and prickly. Cones are large, pineapple-like and weighing up to 7 kg or more with large edible seeds. Needs good rainfall in warm areas but does well in dry cool highlands. Does not thrive well at seashores. Other araucarias include *A. heterophylla* or Norfolk Island pine, a beautiful fast-growing tree to 30 m with a regular branching pattern. This can thrive well near the shore. *A. cunninghamii* is less regular in shape than other araucarias, the wide-spreading branches having tufts of leafy branchlets. Altogether, the genus has about 18 species.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Bein et al., 1996; Jensen, 1999; Katende et al., 1995; Noad and Birnie, 1989; Storrs, 1979.









Areca catechu

Arecaceae (Palmae)

South East Asia

COMMON NAMES: **English:** Betel nut, Areca palm, Areca nut.

DESCRIPTION: **A slender, erect palm** to 30 m tall and 25–40 cm in diameter. Crown about 2.5 m in diameter. TRUNK: Straight, **green when young, later becoming greyish brown**, with rings from leaf scars. LEAVES: **8–12 leaves, up to 2 m long.** Each leaf divided, with 30–50 leaflets, each 30–70 cm long and 3–7 cm wide, with 3 or more folds. FLOWERS: A **single-branched bunch of flowers from the trunk under the crown.** Male flowers numerous, small, borne above female flowers. Female flowers on thickened base of branches, 1.2–2 cm long, green and creamy white. FRUIT: Oval or almost round, to 10 cm long and 5 cm wide, variable in shape, **yellow to orange when ripe**, 50–400 fruits on one stand.

ECOLOGY: Origin unclear, but probably in Indonesia. Now also found in most parts of South East Asia and in many other tropical regions, including Tanzania and Kenya. Grows from sea level to about 900 m, particularly in coastal climates where evenly distributed annual rainfall of 1,500–5,000 mm ensures ample soil moisture throughout the year. In Kenya, planted but also naturalized in Coast Province, especially around Lamu and the lower Tana River area. Riverine in very dry areas. Agroclimatic Zones III–V.

USES: Fruit (chewed as a stimulant), tannin (fruit), red dye (fruit), medicine (chewing fruit acts as a vermifuge and strengthens gums), soil improvement.

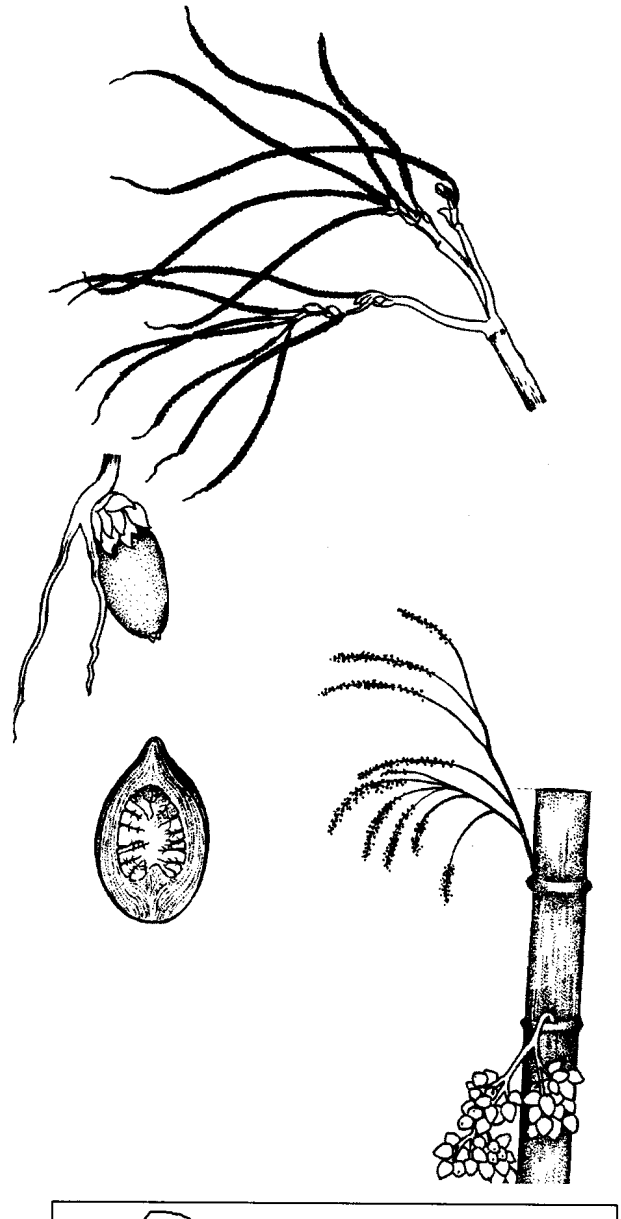
PROPAGATION: Seedlings, direct sowing at site.

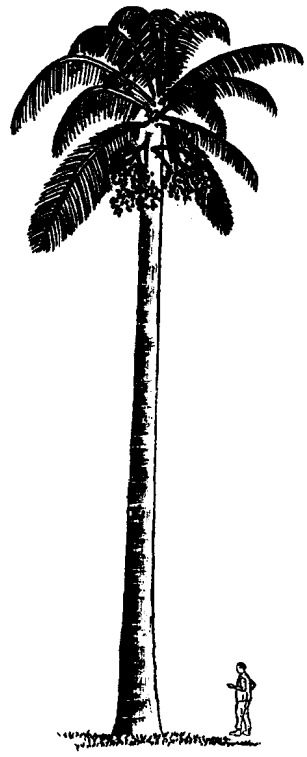
SEED: About 60 seeds per kg.
treatment: Nuts should be allowed to ripen fully on the tree. Drying of seeds for 1–2 days before sowing improves germination.

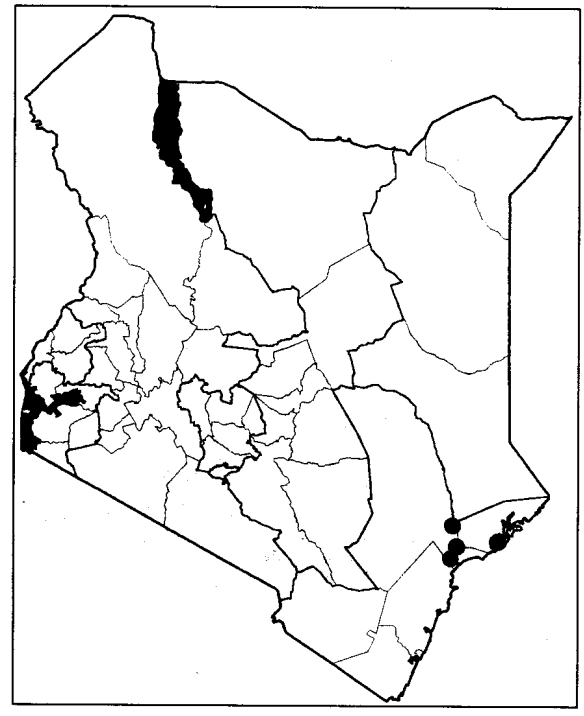
MANAGEMENT: Young seedlings need protection from sunlight. Areca nut is sensitive to drought.

REMARKS: Grown in Kenya mainly for aesthetic and landscaping purposes. In Asia, cut slices of the seed mixed with lime and wrapped in leaves of *Piper betle* (Betel pepper) are chewed as a stimulating masticatory. It turns saliva, lips, tongue and teeth red or black. The skin of the fruit of betel nut is edible.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Beentje, 1994; Jensen, 1999; Lötschert and Beese, 1983.







Artocarpus heterophyllus

Moraceae

India

COMMON NAMES: **Digo:** Mfenesi; **English:** Jackfruit; **Giriama:** Mfenesi; **Swahili:** Mfenesi; **Teso:** Efenesi.

DESCRIPTION: A medium-sized tree with thick branches, to 25 m. The **bole is short**, cylindrical and straight, up to 1 m in diameter in old specimens, branching less than 2 m from the ground. BARK: Rough bark on the bole, grey but smooth on the branches. LEAVES: **Glossy, oval to 15 cm long** and 10 cm wide. FLOWERS: Separate male and female, all very small but the female flowers have a stronger smell. The **flowers are borne on the trunk** or on large branches where the fruit—the largest known—develops. FRUIT: Massive and irregular 'cauliflowery', **yellow-green compound fruit with a spiky rind**, reaching a record 20 kg in weight and **1 m in length**. The flesh is sweet and edible but definitely an acquired taste. Seeds, up to 5 cm, are edible when roasted.

ECOLOGY: Originates from Asia, probably in the forests of the Western Ghats in India. Today it is widespread in other parts of the tropics and most popular in Sri Lanka. Introduced in East Africa and now widely planted in the coastal areas of Kenya and Tanzan vasive in places. Grows in sandy soil but prefers well-drained and fertile soils and will not tolerate coral rag, shallow soil, drought or waterlogging. Agroclimatic Zones I–II. Flowers during rainy seasons, April–May and October–November at the coast.

USES: Firewood, charcoal, timber (carts, doors, etc.), furniture, edible fruit and seed, medicine (leaves and roots), fodder (leaves and rind), shade, gum.

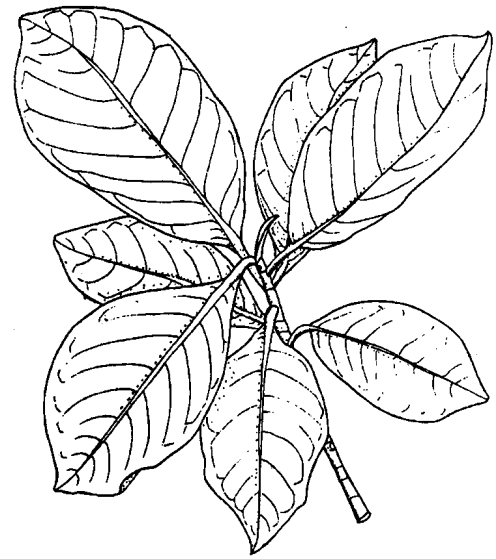
PROPAGATION: Direct sowing at site, wildings. Vegetative propagation (bud grafting, air layering, root cuttings) to get good varieties. Direct sowing at site is better than to raise seedlings in a nursery due to early growth of the taproot. Seedlings do not tolerate root pruning well. Add ash around young seedlings and newly sown seeds to keep insects away.

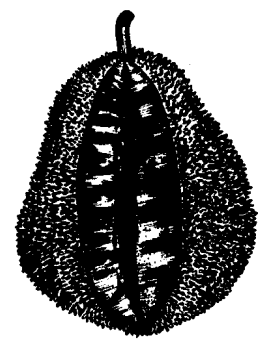
SEED: Seeds are hand picked individually from the fruit flesh. Wash to remove the flesh and sow. About 400 seeds per kg. Germination starts within 10 days and 80–100% germination can be achieved within 35–40 days. **treatment**: Not necessary. **storage**: Seed should not be allowed to dry. Use fresh seed.

MANAGEMENT: For good fruit productivity, a spacing of 10–12 m is needed. Fast growing; most cultivars fruit in about 8 years. Cut back fruiting twigs after harvesting.

REMARKS: Suitable around homesteads as a shade tree or support for climbing crops like yams and passion fruit. The fruit may be especially important in times of drought and crop failure. A related species, *A. altilis* (**English**: Breadfruit) is probably of Malaysian origin. It grows to about 18 m, in other countries even taller, and has a round dense crown and ascending branches with large, deeply incised leaves. Flower spikes are inconspicuous. Fruit is globular, yellow-green with starchy flesh eaten after baking or boiling. The tree is grown at the coast. *Artocarpus* is a large genus of evergreen trees of tropical Asia. They exude a milky sap when damaged. Female flowers are crowded on short spikes that, after fertilization, develop into an aggregation of many fleshy fruits.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Dharani, 2002; Jensen, 1999; Katende et al., 1995; Lötschert and Beese, 1983; Mbuya et al., 1994; Noad and Birnie, 1989; Verheij and Coronel, 1993.





Arundinaria alpina

Poaceae (Gramineae)

Indigenous

COMMON NAMES: **English:** Mountain bamboo; **Kamba:** Muangi; **Kikuyu:** Murangi; **Kipsigis:** Terga, Tegaat; **Luo:** Mwodi; **Maasai:** Oldiani; **Marakwet:** Terga, Tegaat; **Nandi:** Tegat; **Ogiek:** Tegat; **Sabaot:** Tegendet; **Swahili:** Mwanzi; **Taita:** Mrangi.

DESCRIPTION: A large hollow-stemmed grass, **usually 6–8 m** but can reach 12–25 m. STEMS (culms): Smooth, woody, hollow, **yellow-green to brown**, growing from swollen underground stems (rhizomes). **Whorls of thin branches grow at the thickened upper nodes**. Stems can reach 7–10 cm in diameter. LEAVES: Grow from branchlet nodes, pale green, up to 20 cm long and 1 cm wide, **the tip long and thin; rough to the touch** because of short hairs. Leaves appear from a **large yellow leaf sheath to 50 cm long, with purple hairs.** FLOWERS: Rarely seen, in heads 10–20 cm long. After flowering the plant dies back.

ECOLOGY: The species forms the bamboo zone in moist highlands at 2,400–3,000 m. It grows in irregular patches from 2,150 m. Found in the Timboroa Plateau and on Mts Kenya and Elgon and on Loita Hills and the Mau Range. The species has an upper limit of about 3,360 m. Agroclimatic Zones I–II.

USES: Furniture, poles, construction, utensils, food (shoots), fodder, fencing, ornamental, soil conservation, basketry.

PROPAGATION: Rhizomes, natural regeneration, seedlings (possible, but rather rare). Seed of *A. alpina* watered daily will germinate readily. Transfer seedlings to boxes when 2.5 cm high. Plant out 8–12 months later, above 2,500 m. Offsets from 1-year old culms can also be planted out and will develop quicker than seedlings.

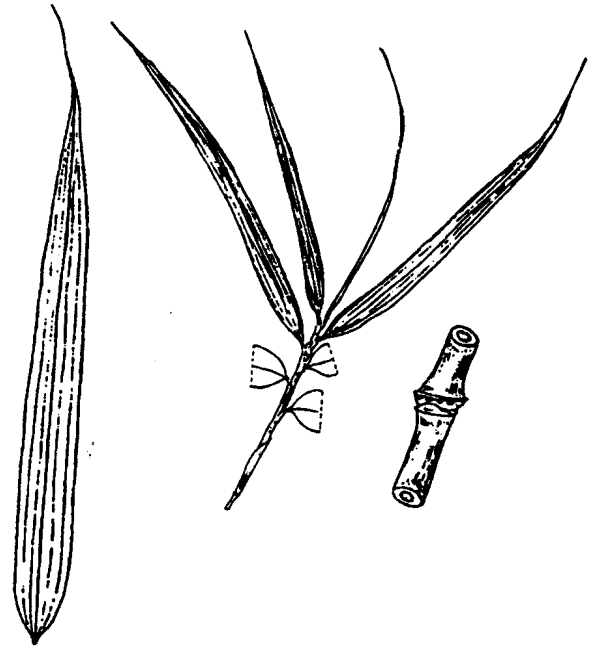
SEED: Flowers at long intervals after which it dies.
treatment: Not required.
storage: Sow as soon as collected.

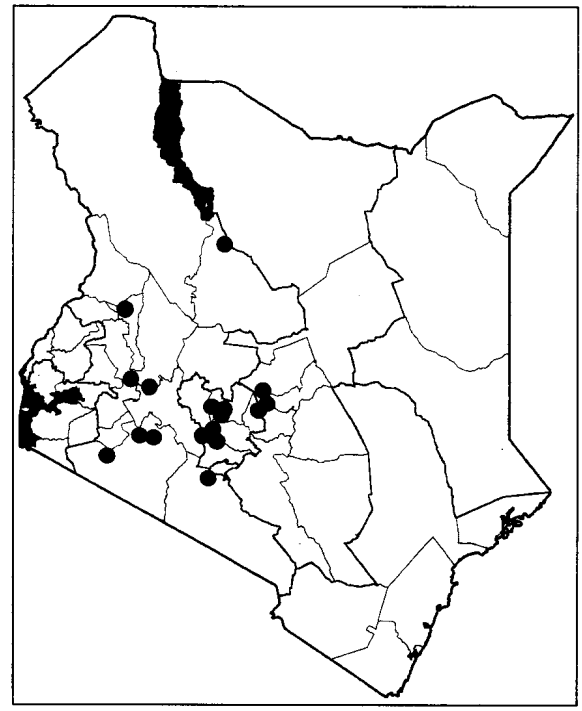
MANAGEMENT: Very fast growing in optimal conditions; needs to be controlled.

REMARKS: The Maasai make snuff containers from the stems. The life of a culm is about 10–15 years. The life cycle on the Aberdare Range is believed to be more than 40 years. Plants die down after flowers and seeds are formed. All bamboos belong to the grass family. Most species grow in the humid forests of South East Asia where they are of great importance to rural people. Of 1,250 species, 43 are found in Africa and most of these grow only in Madagascar.

The East African species are *Oxytenanthera abyssinica, Oreobambos buchwaldii,* and the mountain bamboo, *A. alpina*. Both the mountain bamboo and *O. buchwaldii* have been recorded in Kenya. The exotic *Bambusa vulgaris* (Golden bamboo) was introduced as an ornamental. Other exotic species are being grown too. *Bambusa vulgaris* is a common ornamental in towns and is seen in large clumps. The tall stems (culms) reach 15 m and are yellow streaked with green. Bamboos are susceptible to termites and borers *(A. alpina,* in particular).

FURTHER READING: Bekele-Tesemma et al., 1993; Katende et al., 1995, 1999; Mbuya et al., 1994; Palgrave and Palgrave, 2002; Sommerlatte and Sommerlatte, 1990.





Averrhoa bilimbi

Oxalidaceae

South East Asia

COMMON NAMES: **Digo:** M'birimbi; **Giriama:** Mbirimbi; **English:** Bilimbi, Cucumber tree; **Sanya:** Mbirimbi; **Swahili:** Mbirimbi.

DESCRIPTION: A **small tree** with few, **upright branches**, 6–9 m high. LEAVES: Compound, usually with **7–19 pairs of 5–12 cm ovate leaflets and a single terminal leaflet.** FLOWERS: **Emerging in leaf axils or on branches and trunk** (cauliflorous), with 10–22 mm red-purple free petals. FRUIT: A **yellowish green berry, slightly lobed** and up to 10 cm long and 5 cm wide, translucent when ripe. The soft juicy flesh is edible but acid; contains a few flattened seeds.

ECOLOGY: Probably a native of the Malaya Peninsula but now cultivated all over the wetter tropics. Prefers seasonal humid climates with a drier season but not actual drought and acidic soils. Flooding and salinity are not tolerated. In Kenya, it is planted at the coast where it tolerates rocky soils derived from coral. Grows also around Lake Victoria in Uganda. Agroclimatic Zones I–III.

USES: Edible fruit (pickles, curry, chutney, preserves in syrup), flavouring.

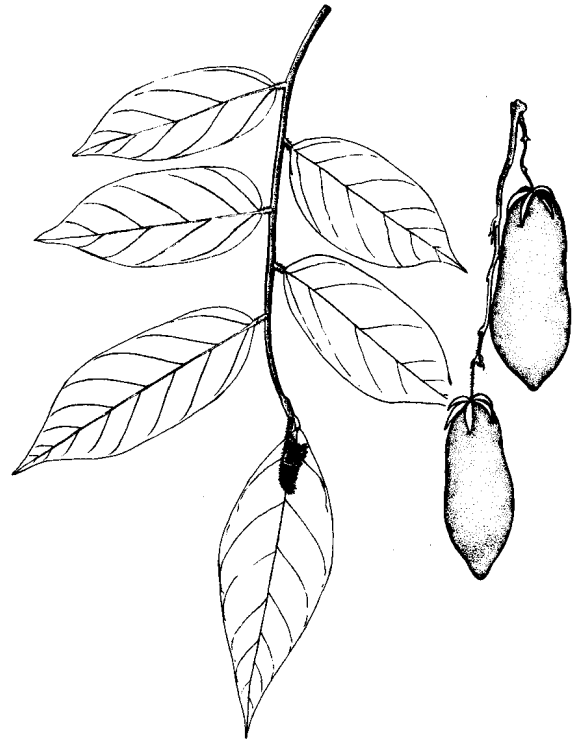
PROPAGATION: Seedlings. Air layering (marcotting). Grafting.

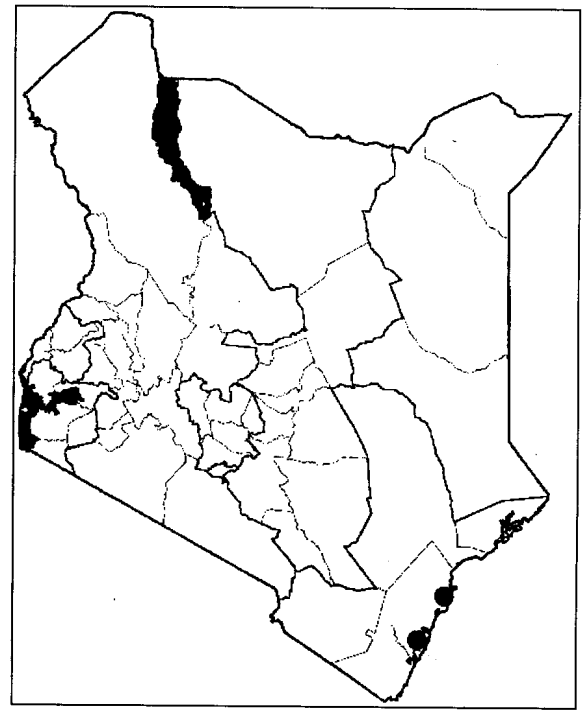
SEED: Extracted by crushing the fruit and hand picking the seed.
treatment: Not necessary.
storage: Sow as quickly as possible.

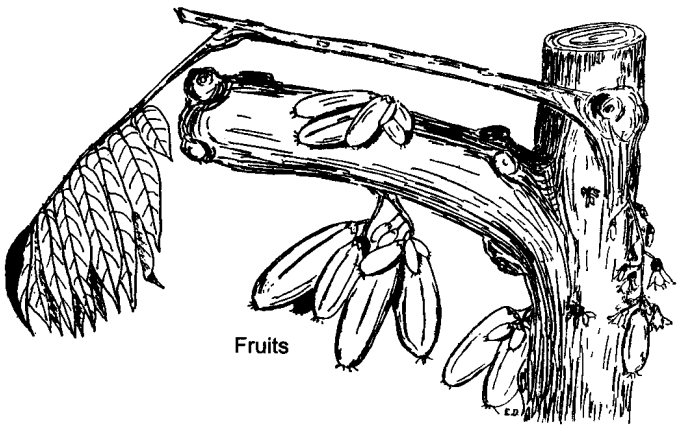
MANAGEMENT: Fast growing. Thinning of excess fruit in the early stages. Plant trees 4–6 m apart.

REMARKS: Fruit is too acidic to be eaten raw but it may be pickled in the same manner as cucumber, which it resembles in appearance; may also be preserved in syrup or used as a relish with meat or fish. Fruit is also used for jams and jellies. A good appetizer and good for flavouring other food. *A. carambola* (**English**: Carambola, Star fruit), the only other member in the genus, is a similar tree, to 6 m, also cultivated at the Kenya coast. The fruit has similar uses. Distinguished from *A. bilimbi* by having smaller leaves, fewer leaflets and whitish or pink flowers. The carambola fruit is oval or elliptic in outline, ripening through translucent yellow (when flavour is acid) to a golden orange colour (when sweet and delicious), about 10 cm long and 3-, 4- or 5-ribbed longitudinally, so that a cross-section is star-shaped. The pulp is astringent when green but pleasantly acid or even sweet when ripe. Both species of *Averrhoa* are widely cultivated in the tropics, but carambola extends to frost-free subtropical areas too. They are long-lived trees, bearing flowers and fruits through much of the year. Budding of carambola has been successful, but budwood should be beyond the tender stage although not so old that it is brittle.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm (*A. carambola*); Jensen, 1999; Lötschert and Beese, 1983; Verheij and Coronel, 1993.







Fruits

Avicennia marina

Verbenaceae

Indigenous

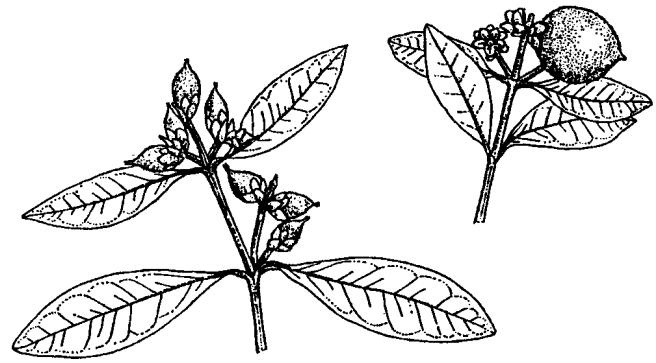
COMMON NAMES: **Bajun:** Mutu; **Digo:** Mudzwi; **English:** Mangrove; **Giriama:** Mtswi, Mudzu; **Swahili:** Mchu, Mtsu.

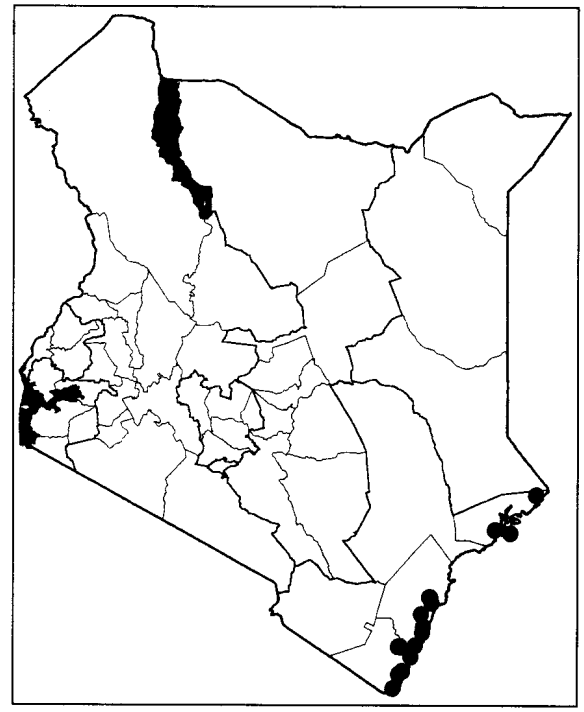
DESCRIPTION: An evergreen spreading mangrove shrub or tree, usually 3–5 m, with thick branches, dense foliage, **rounded crown and dense, pencil-like breathing roots.** It arises from the extensive horizontal underground root system. A forest of breathing roots **grows upwards emerging like fingers from the mud, 20–50 cm high.** BARK: **Smooth and powdery, yellow-green.** A resin exudes when cut. Young branches angular with short white hairs. LEAVES: Opposite, **long–oval, 4–11 cm, thick and stiff,** the tip usually pointed, narrowed to a **short stalk, grey-white below, but olive-green above.** FLOWERS: Very small and **fragrant, cream-yellow-orange** (turning black), rather fleshy, in **dense rounded heads** on branched stalks to 3 cm, square in section; borne towards branch tips. They have a **pungent scent** and are visited by ants. FRUIT: A **grey oval capsule**, flat and pointed, somewhat hairy, 1.2 cm across, splitting into 2 parts to release seeds. **The seeds germinate on the tree, producing a taproot,** before the fruit falls.

ECOLOGY: A mangrove tree found along muddy shores of the Red Sea and on suitable shores in East Africa, south through Mozambique reaching the northern parts of the coast of South Africa, where it forms a part of the mangrove complex; often dominant, found on the landward side of coral rag, mud and sand in the area between low and high tide. Also a pioneer in swamps. Silt and mud accumulate around its air roots, so changing conditions for later plant arrivals. Flowers in October and November.

USES: Firewood, charcoal, poles, posts, ribs for dhows, beehives, medicine (leaves and roots), fodder (leaves for camels), fish feed and breeding habitat, coastal erosion control.

PROPAGATION: Root suckers, seedlings. Planting is usually not needed because natural regeneration is so successful.





Avicennia marina (cont)

SEED: Seed germinates on the tree.
treatment: No treatment.
storage: No storage.

MANAGEMENT: Mangroves are rarely cultivated but their silviculture has been attempted in some areas of the world and is an established practice in some Asian countries. Most species seem to grow rapidly if conditions are conducive.

REMARKS: Leaves falling into the sea serve as fish feed. The wood is fairly dense and durable, suitable for poles and boat building. The bitter aromatic resin from the bark has medicinal uses in other parts of Africa. Mangrove charcoal is exceptional. It burns steadily, giving off intense heat without sparks. It has a very high calorific value and leaves little ash. The tree is being overexploited on Kenya's north coast for firewood and other uses.

Mangroves are shrubs or trees adapted to growing in the zone between the high- and low-tide areas of ocean coastlines, particularly in the more protected areas such as creeks. Each species occupies a specific niche within the moisture and salt gradient from the sea. Occasionally, mangroves form thick forests. True mangroves have special adaptations such as stilt roots (as in *Ceriops* and *Rhizophora*) or finger- or knee-shaped breathing roots (pneumatophores) arising from the mud or sand. Some have viviparous seeds (i.e. seeds that germinate while still attached to the mother plant).

Mangroves cover some 45 million hectares of shallow water and muddy tidal flats throughout the tropics and subtropics. These flats are sensitive ecosystems and therefore generally of great ecological importance. Mangroves need to be flushed with fresh water at least one season every year. Mangrove forests are unusual in that only a few species are found in each. They are normally free of undergrowth except around their margins, where other salt-tolerant plants abound. Overuse of mangrove forests is an issue of concern in most parts of the world where they occur.

FURTHER READING: Beentje, 1994; Bein et al., 1996; National Academy of Sciences, 1980, 1983; Noad and Birnie, 1989; Palgrave and Palgrave, 2002.

Azadirachta indica

Meliaceae

North-east India, Burma

COMMON NAMES: **Digo:** Muarubaini; Mwarobaini, Mkilifi; **English:** Neem; **Giriama:** Mkilifi; **Luhya:** Mwarubaini; **Sanya:** Mklifi; **Somali:** Get kharerow; **Swahili:** Mkilifi, Mwarubaini.

DESCRIPTION: A fast-growing, medium-sized tree that may reach 20 m with a **dense, leafy**, usually **rounded canopy,** evergreen except in the driest areas. BARK: Pale grey-brown, grooved. LEAVES: Glossy green, crowded at the ends of branches; compound (divided once), to 40 cm long, each leaflet curved and long-pointed, **the edge roughly saw-toothed, leaf blades unequal,** a smaller leaflet at the leaf tip. FLOWERS: Small, fragrant, cream-white, hanging in long graceful sprays. FRUIT: **Oval yellow berries** when ripe, 2 cm long, thin skinned with oily pulp around 1–2 seeds.

ECOLOGY: A tree well known in its native land and now naturalized in the Old World tropics, where it is also widely planted. Extensively grown in tropical Africa, especially in arid and semi-arid regions. It is very drought resistant and does well on poor soils. Roots grow deep and wide; does not stand waterlogging. Long grown at the Kenya coast and widely naturalized there, now a common tree in homesteads, town alleys and avenues in the northern and eastern lowlands, 0–1,500 m. Introduced to Mandera in the late 1970s and now an important tree in that area. Agroclimatic Zones I–VI.

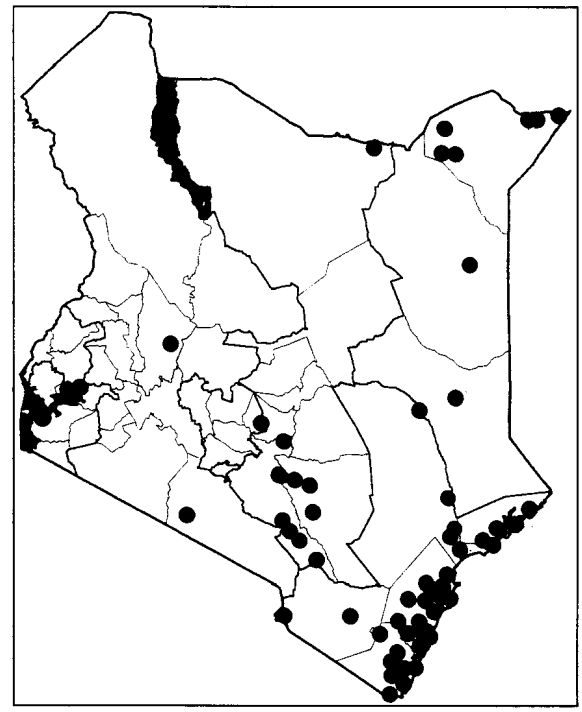
USES: Firewood, charcoal, timber, furniture, poles, utensils (pestles and mortars), medicine (leaves, bark, roots, fruit), fodder (goats eat leaves, oil-seed cake), bee forage, shade, ornamental, soil improvement, windbreak, veterinary medicine, oil (seed), a powerful insect antifeedant (azadirachtin from seeds and leaves), soap manufacturing.

PROPAGATION: Seedlings, wildings, direct sowing at site, cuttings.

SEED: 4,000–6,000 seeds per kg. Germination rates 70–80%. Fresh seeds have best germination. Direct sowing at site or use of cuttings or truncheons (large cuttings) are cheaper and better options than raising seedlings.
treatment: Not necessary.
storage: Avoid storage for good results. Seeds can be stored for a week or two if kept cool but germination rate is reduced and they need dressing with fungicide. Complete drying kills the seed.

MANAGEMENT: Fast growing after the first year, lopping, pollarding, pruning. Thin out seedlings if too dense. Has turned into a weed in some areas.

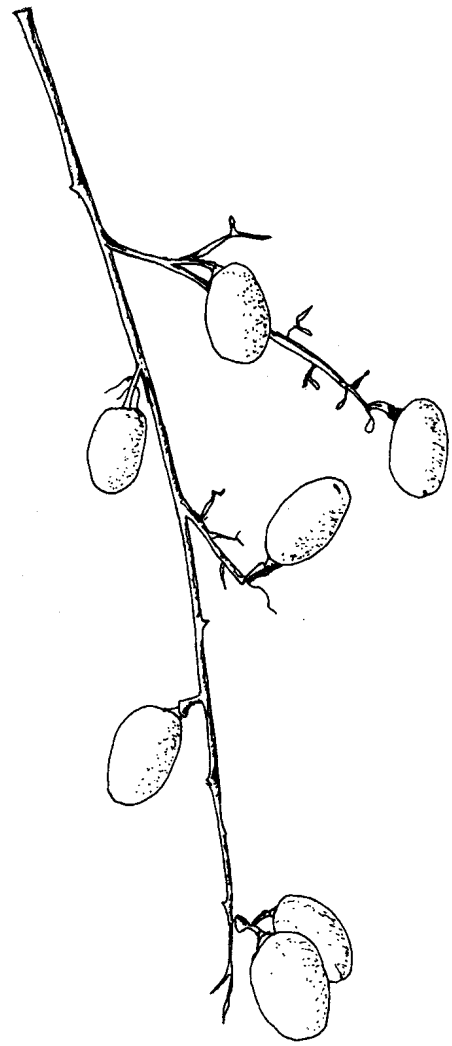
REMARKS: The fruit is appreciated by birds, monkeys and baboons. Germination is enhanced by passage through their gut. The wood is tough and fairly resistant to decay

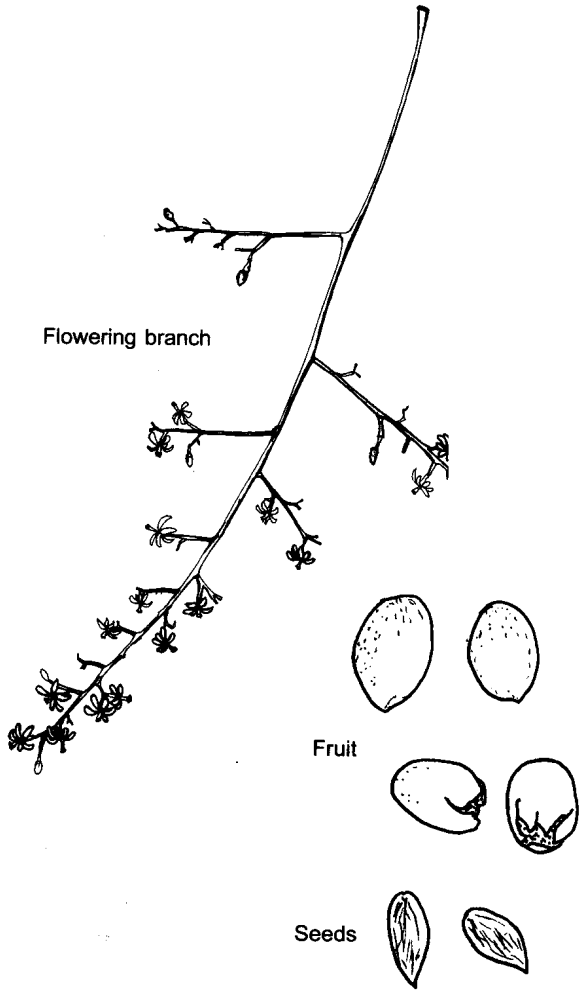


Azadirachta indica (cont)

and termites. In the face of diminishing availability of traditional wood-carving trees, particularly *Dalbergia melanoxylon* and *Brachylaena huillensis*, neem is being promoted as an alternative. Among the world's most valuable trees. Highly valued at the Kenyan coast and in the rest of Kenya for its medicinal uses. Reputed for the wide range of diseases it can treat and hence 'mwarubaini', the Swahili name for it, suggesting it can cure 40 diseases. A 24-hour infusion of green leaves diluted with water 1:4 results in a liquid that is very effective for control of insects. A plant of choice in dry lowland afforestation. Provides excellent shade. Frequently confused with *Melia azedarach,* whose leaves are similar but twice divided (bipinnate).

FURTHER READING : http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Albrecht, 1993; Bein et al., 1996; Bekele-Tesemma et al., 1993; Dharani, 2002; Fichtl and Adi, 1994; ITDG and IIRR, 1996; Jensen, 1999; Katende et al., 1995; Mbuya et al., 1994; National Academy of Sciences, 1980; National Research Council, 1992; Noad and Birnie, 1989; von Maydell, 1990.





Balanites aegyptiaca — Balanitaceae

Indigenous

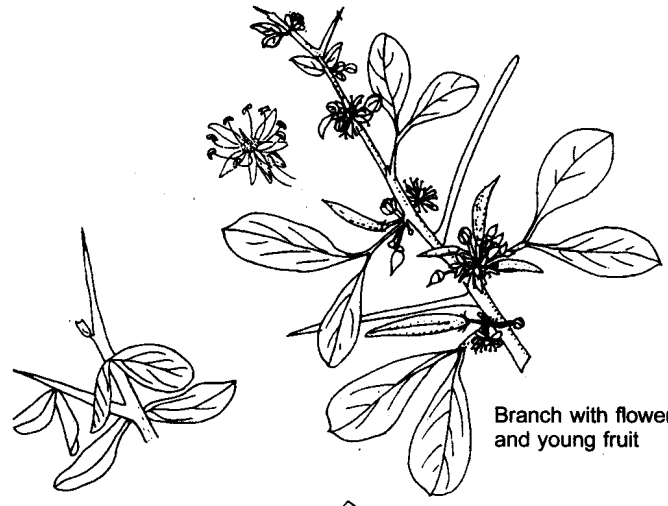
COMMON NAMES: **Boran:** Baddan; **Digo:** Mwambangoma; **English:** Desert date; **Gabra:** Baddana; **Giriama:** Mkonga, Konga (fruit); **Ilchamus:** Lowa, Lowei; **Kamba:** Mulului, Ndului (fruit); **Keiyo:** Ng'osonaik, Ng'oswet, Ng'osyet (fruit); **Kipsigis:** Ng'oswet; **Luo:** Othoo; **Maasai:** Ilokwa (fruit), Olng'oswa, Olokwai; **Malakote:** Mubadana; **Marakwet:** Ngoswa; Tuyunwa; **Mbeere:** Mububua; **Orma:** Baddan; **Pokot:** Tuyunwo, Tuyun (plural); **Sabaot:** Chuuandet; **Samburu:** Lowai; **Somali:** Kullan, Kulung (Mandera); **Swahili:** Mjunju, Muchunju; **Taita:** Kiwowa; **Taveta:** Lungoswa; **Teso:** Echomai; **Tharaka:** Muboobua; **Tugen:** Ng'oswo (plant), Ngosyek (fruit), Ngoswa; **Turkana:** Eroronyit.

DESCRIPTION: An evergreen tree to about 10 m, crown rounded with arching branches. BARK: Dark, cracked. THORNS: To 8 cm, soft at first, then woody. LEAVES: Distinctive **pairs of grey-green leaflets,** ovate. FLOWERS: Fragrant, **yellow-green** clusters. FRUIT: Oblong **to 5 cm, both ends round, yellow when ripe,** a hard pointed seed within surrounded by yellow-brown, bittersweet flesh; seed a stone that splits with time.

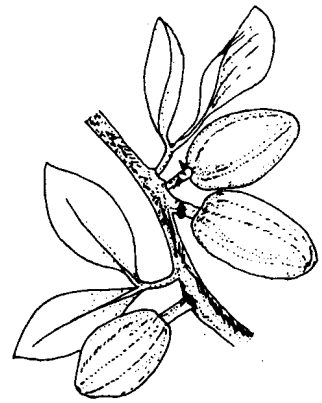
ECOLOGY: An important tree found in Asia and all over Africa from arid and semi-arid regions to subhumid savanna. Found in many parts of Kenya, e.g. in the dry parts of the Lake Basin, Rift Valley and semi-arid parts of Eastern Province. Rare in the coastal zone. Found at 250–2,000 m in bushland and wooded grassland. A common tree in open grassland with black-cotton soil. Prefers valley soils but will grow in sandy, clay, black-cotton, alluvial and stony soils. Rainfall 200–800 mm. Agroclimatic Zones IV–VI. Fresh new leaves in July–August (West Pokot); fruits in March–April (Machakos, Kitui, Kajiado).

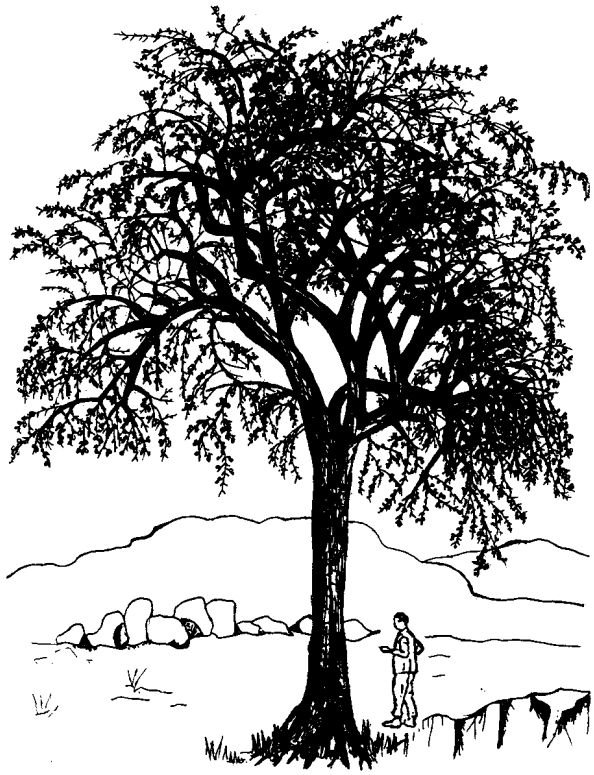
USES: Firewood, charcoal, poles, timber, tool handles, utensils, furniture, edible fruits, vegetable (leaves and young shoots), vegetable oil, edible gum, medicine (roots), fodder (leaves, fruit), bee forage, shade (ceremonial meeting places), mulch, windbreak, resin, gum, live fence; emulsion of fruit kills snails and fish.

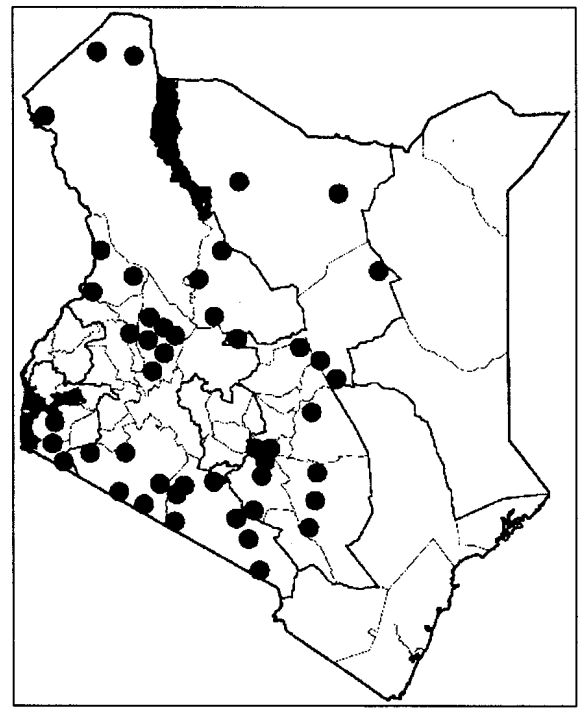
PROPAGATION: Seedlings, direct sowing at site. Produces root suckers if roots are exposed.



Branch with flowers and young fruit







Balanites aegyptiaca (cont)

SEED: Seed large, 4 cm long, 2 cm wide; on average about 1,000 seeds per kg. Seed should be sown vertically with stem end down and completely covered with soil for best results. Germinates in 1–4 weeks.
treatment: Soak seed for 24 hours in cold water, then change water and soak for another 24 hours; alternatively collect seeds that have passed though goats. Can easily be collected where livestock are kept overnight. Germination: 50–70%.
storage: Seed, removed from fruit, can be stored for up to one year. Susceptible to insect attack. Best results from fresh seed.

MANAGEMENT: Slow growing; pruning, lopping, coppicing.

REMARKS: Very important species for dry areas as it produces fruit even in very dry years. Young leaves and tender shoots are used as a vegetable (Pokot, Turkana, Tugen, Marakwet, Keiyo, Ilchamus). Seeds (with shell) or cotyledons (shell removed) are boiled for 2–3 hours and the bean-like cotyledons eaten (Pokot, Tugen, Marakwet). Gum is edible (Maasai). Elsewhere the seeds are a source of oil. Wood hard, durable, termite resistant, worked easily and made into yokes, wooden spoons, pestles, mortars, handles, stools, combs. Resin from stems used to stick feathers onto arrow shafts (Pokot, Turkana) and spearheads onto shafts (Pokot, Maasai, Turkana, Kipsigis), and repair cracks in tool handles, arrows, etc. (Turkana, Pokot). Bark used as fish poison. Elsewhere fruits are used as poison to kill some stages of the bilharzia fluke in water. Even a few are effective. Wood used to make boards for teaching the Koran.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Albrecht, 1993; Beentje, 1994; Bein et al., 1996; Bekele-Tesemma et al., 1993; Dharani, 2002; Fichtl and Adi, 1994; Katende et al., 1995, 1999; Kokwaro, 1993; Maundu et al., 1999; Mbuya et al., 1994; National Academy of Sciences, 1983; Noad and Birnie, 1989; Palgrave and Palgrave, 2002; Ruffo et al., 2002; Storrs, 1979; von Maydell, 1990.

Balanites glabra

Balanitaceae

Indigenous

COMMON NAMES: **Kamba:** Kilului; **Maasai:** Osaragi, Olng'oswa; **Turkana:** Elamach.

DESCRIPTION: A **very spiny, evergreen, much-branched dense bush**, shrub or small tree 2–4 m (occasionally up to 10 m). **Branches green, drooping, tangled and often leafless.** BARK: The bark is smooth and green, later dark, deeply cracked and corky. THORNS: **Thick, long, to 10 cm or more.** LEAVES: Usually without a conspicuous stalk and usually with 2 almost round **fleshy looking leaflets.** FLOWERS: Greenish yellow. FRUIT: An ellipsoid drupe to 2.5 cm long, orange with **light green longitudinal lines**, turning pink.

ECOLOGY: Distributed in East Africa, Ethiopia and Somalia. Common in Maasailand both in Kenya and in Tanzania. Very common in Kajiado and Kaputei Plains at 1,400–1,800 m on black soil. The commonest *Balanites* species around Athi River. Agroclimatic Zones IV–VI. Flowers in June–July (Kajiado, Nairobi).

USES: Carvings, edible fruit, fodder (goats eat leaves), shade, live fence, dead fence (thorny branches), soil conservation.

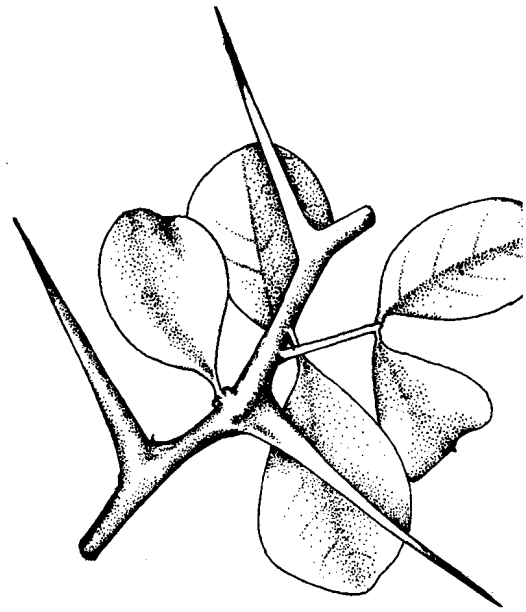
PROPAGATION: Seedlings, direct sowing at site.

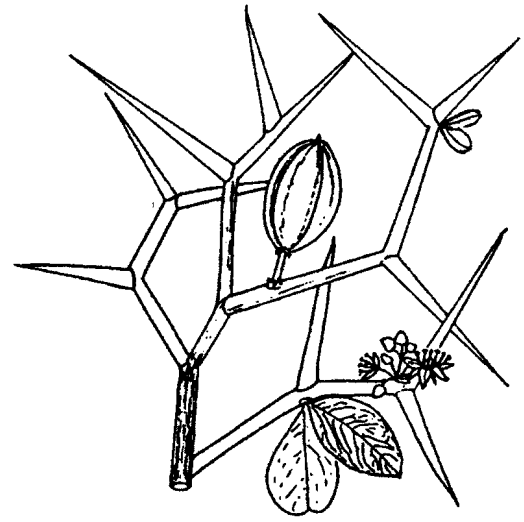
SEED: Remove fruit pulp and clean seed before sowing.
treatment: Not necessary.
storage: Sow immediately for good germination. Germination rate up to 80%.

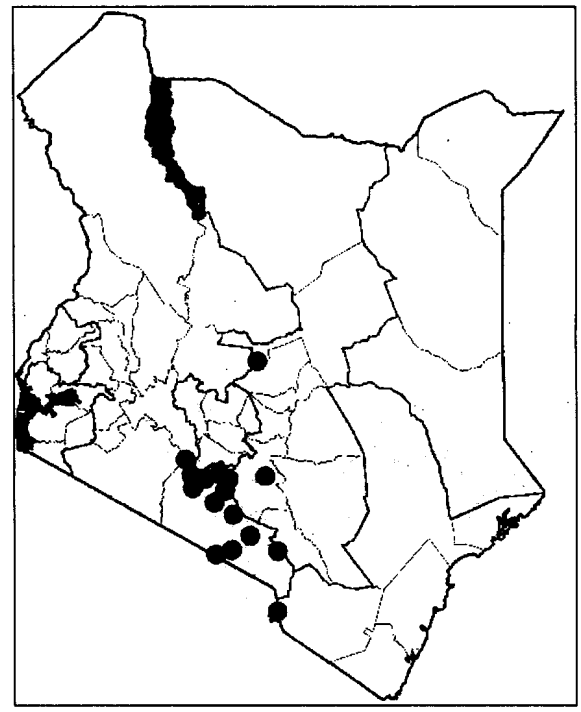
MANAGEMENT: Slow growing.

REMARKS: Can make an excellent live fence but rather slow growing. Ripe fruit pulp is sweet, juicy and eaten (Maasai) but is said to be mildly poisonous, causing a feverish feeling, stomach-ache and even diarrhoea (Maasai).

FURTHER READING: Beentje, 1994; Blundell, 1987; Maundu et al., 1999; Noad and Birnie, 1989.







Balanites rotundifolia (*B. orbicularis*)

Balanitaceae

Indigenous

COMMON NAMES: **Boran:** Baddan; **Daasanach:** Kuute, Kuusam (plural); **Gabra:** Baddana; **Malakote:** Mubadana; **Marakwet:** Lomion; **Orma:** Baddan; **Pokot:** Lomion, Loma (fruit); **Rendille:** Kulum; **Samburu:** Sarai; **Somali:** Kullan; **Swahili:** Mbamba ngoma; **Tugen:** Tirikikwa; **Turkana:** Ebei; **Wardei:** Kullan.

DESCRIPTION: A spiny **multi-stemmed shrub** or tree 2–5 m. THORNS: Unusually dark green. Stout, **to 3 cm** and **straight.** BARK: Grey, later rough and furrowed. LEAVES: Small, in pairs with **no stalks, round to heart-shaped, grey-green,** hairy. FLOWERS: Small green-yellow along the thorns. FRUIT: Oval, **hairy to 2 cm** (fruit and seed more rounded and smaller than those of *B. aegyptiaca).*

ECOLOGY: A common *Balanites* of the arid areas of eastern and north-eastern Africa. Found in Kenya, e.g. along the Turkwel River, in the Kerio Delta, Mutha Hill and in other parts of the country in dry *Acacia–Commiphora* bushland, often in rocky areas. Often seen as the only tree on sand dunes in northern Kenya, 50–1,350 m. Rainfall: 150–400 mm. Agroclimatic Zones VI–VII. Fruits in February and August–October (southern Turkana).

USES: Firewood, charcoal, poles, tool handles, carvings, utensils (head rests, wooden spoons, combs), edible fruit, edible seed, medicine, fodder (leaves and young shoots), bee forage, shade, soil conservation, live fence, dead fence (branches used for livestock enclosures), veterinary medicine.

PROPAGATION: Seedlings, direct sowing at site. Produces root suckers if roots are exposed.

SEED:

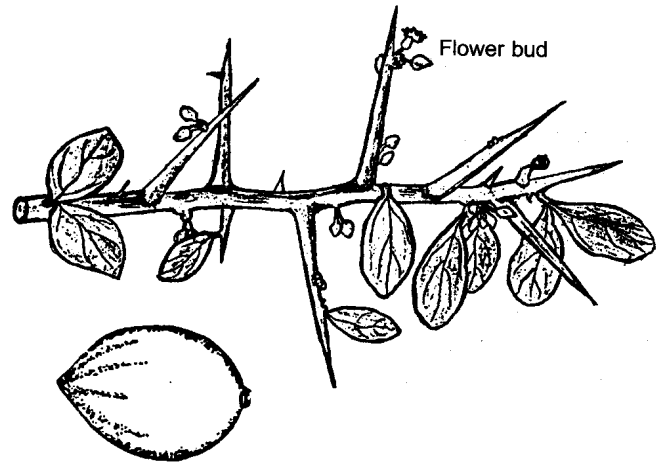
treatment: Not necessary.

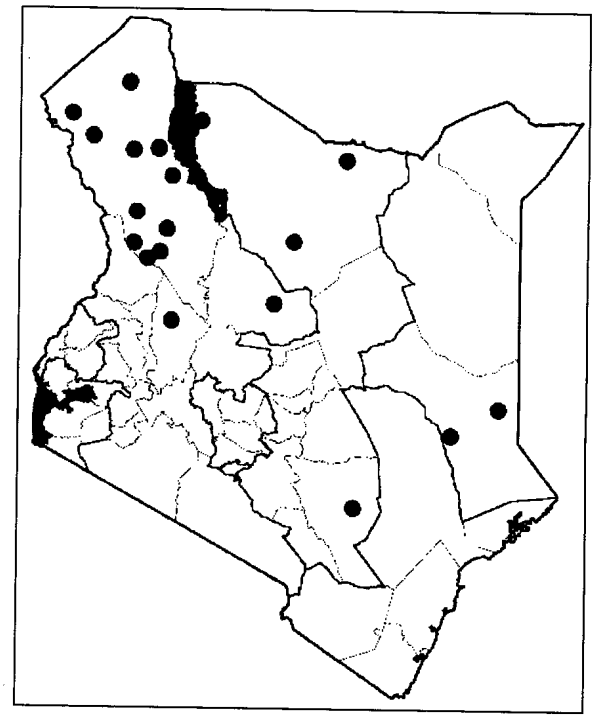
storage: Seed, removed from fruit, can be stored for up to a year but are susceptible to insect attack. Best to use fresh seed.

MANAGEMENT: Slow growing; pruning.

REMARKS: A very drought-resistant tree, even more so than the desert date (*B. aegyptiaca*). The pulp of the ripe orange fruit is eaten fresh (Gabra, Boran, Somali, Turkana, Pokot, Daasanach). The seed are boiled for 3–4 hours (Turkana, Marakwet, Tugen, Pokot, Daasanach) and eaten, normally with milk. The fruit pulp is made into a local brew (Turkana). Wood burned for flavour and to disinfect milk containers (Somali) and also used for making the board used in Koranic writing. Another important species is *B. pedicellaris* (**Marakwet**: Lomion, Lom (plural); **Pokomo**: Mhadana; **Pokot**: Lomion; **Rendille**: Ilbule; **Samburu**: Sarai; **Taita**: Kiwowa; **Turkana**: Elamach; **Wardei**: Kullan) a spiny, often multi-stemmed much-branched shrub or, rarely, a small tree usually 2–4 m high, with a rather narrow crown. Larger spines usually with many smaller ones. Fruits more or less round, 2–3 cm in diameter, green, turning yellow when ripe. Widespread in Kenya, e.g. along Turkwel River and on Observation Hill (Amboseli). Usually along dry watercourses, 300–1,300 m. Rainfall: 200 (riverine)–500 mm. Cooked seeds are an important source of food in northern Kenya, particularly in Turkana. Fresh fruits are bitter and may be toxic. Fruits in February (southern Turkana, Baringo) or September–October (Turkana, Baringo).

FURTHER READING: Beentje, 1994; ITDG and IIRR, 1996; Katende et al., 1999; Maundu et al., 1999; Palgrave and Palgrave, 2002 (*B. pedicellaris*); Ruffo et al., 2002; van Wyk, 1998 (*B. pedicellaris*).





Balanites wilsoniana Balanitaceae

Indigenous

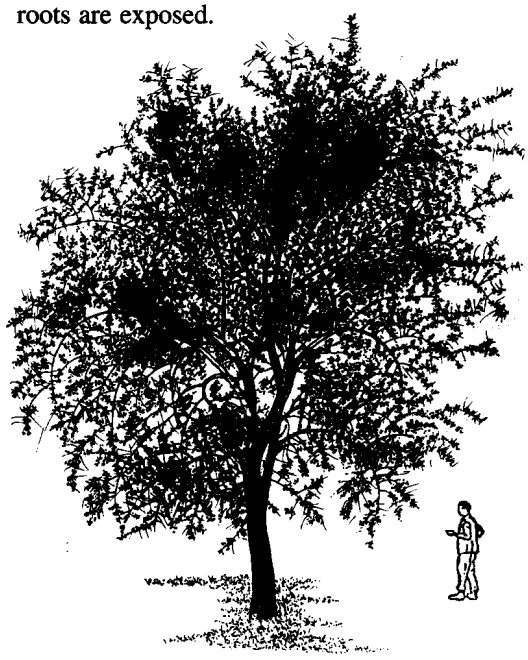
COMMON NAMES: **Boni:** Kuling; **Digo:** Mkonga; **Giriama:** Mdimu mwitu, Mkonga; **Kamba:** Kivuw'a (Kitui); **Sanya:** Badan; **Swahili:** Mkonga, Mguguni.

DESCRIPTION: A large semi-deciduous forest tree, the trunk generally 6–12 m high (to 30 m in rainforests), girth to 3 m, crooked or fairly straight with **large ascending branches to a spreading crown**, often densely interlocked. The young trunk may have ring-like markings. The tree has conspicuous **long buttresses, continuing upwards as deep twisted fluting**, sometimes with compound thorns in the hollows. BARK: Yellow to grey-green or light brown, generally smooth but rough with age; some flaking. Branchlets with forked spines, very hard and sharp, arising above leaf axils and reaching 15 cm in length, **always absent from the flowering branches**. LEAVES: **2 leaflets on a common stalk** to 2.5 cm, each leaflet stalked to 1 cm, **wide oval, to 8.5 cm x 5 cm**, tip more or less long pointed. New leaf growth bright green. FLOWERS: **Yellow-green in stalked clusters**, above a leaf axil, growing from side shoots on older branches. Buds round with 5 sepals, the 5 green petals, 7 mm long, surround a conspicuous central disc of 8–10 stamens. FRUIT: **A drupe**, green, **ripening yellow, 6–10 cm long**, with 5 shallow ribs and an unpleasant smell; the **fibrous coat surrounds the hard inner stone**. The seed kernel is edible and contains oil.

ECOLOGY: Widespread in West Africa from Senegal to Cameroon, eastern Africa and south to Zambia and Botswana. In Kenya, it is found only in the coastal area and in Kibwezi Forest in Makueni District. A typical feature of the coastal evergreen forest and thickets, 0–1,200 m. Agroclimatic Zones II–IV.

USES: Firewood, charcoal, timber (construction), furniture (stools), poles, tool handles, utensils (spoons, mortars), walking sticks, edible fruit, edible oil from seeds, fodder (fruit and leaves), bee forage.

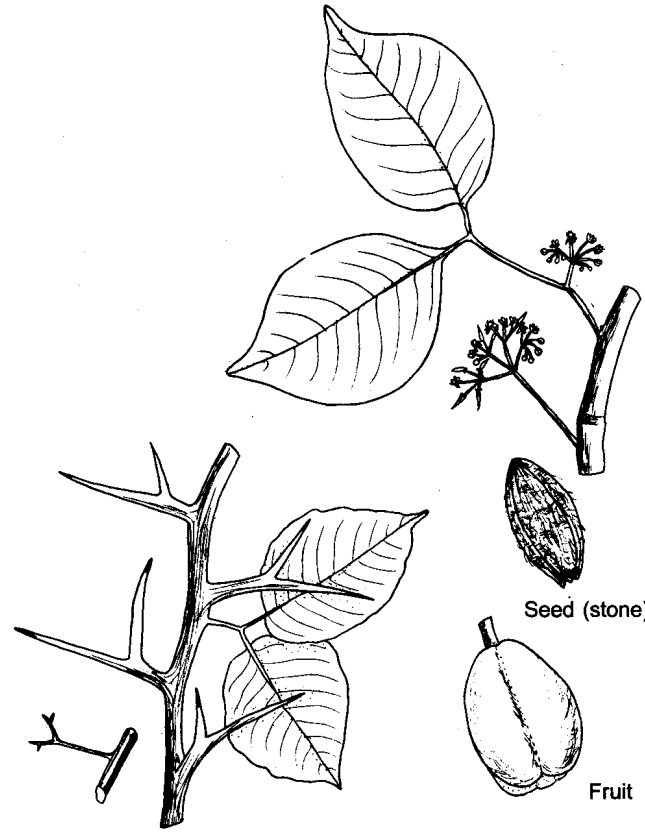
PROPAGATION: Direct sowing at site. Produces root suckers if roots are exposed.

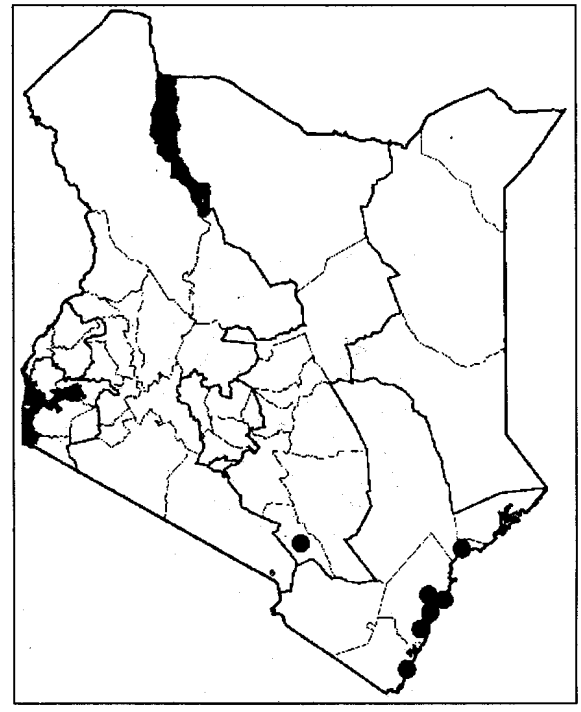


SEED: 50 seeds per kg.
treatment: The flesh is removed before the seeds are sown. No other pretreatment.
storage: Seed can be stored for long periods.

REMARKS: The plant is often infested with caterpillars (*maungu*), which are collected for food by the Giriama. Threatened due to its intensive use for several purposes. Elephants like the fruit and disperse seeds.

FURTHER READING: Beentje, 1994; Katende et al., 1999; Maundu et al., 1999; Noad and Birnie, 1989; Ruffo et al., 2002.





Bauhinia variegata

Fabaceae (Caesalpiniaceae)

India, Tropical Asia, China

COMMON NAMES: **English:** Bauhinia, Camel's foot, Orchid tree, Variegated bauhinia.

DESCRIPTION: A small semi-deciduous tree, usually to 6 m but sometimes much taller. BARK: Grey and smooth, furrowed with age. LEAVES: Alternate **dull, blue-green, the 2 lobes** 10–15 cm across ('camel's foot' shape), veins radiating from the leaf base. FLOWERS: Pink and white, in short sprays, each flower with **5 petals, marked with rose or yellow-green, one petal different shape and colour** (orchid-like), 5 arched stamens. FRUIT: Flat brown pods to 20 cm long, **twisting open** to release round flat seeds 1 cm across.

ECOLOGY: A common, attractive, flowering tree occurring throughout the tropics. In Kenya, grown up to 2,200 m. A common plant along streets and avenues in towns. Agroclimatic Zones II–IV.

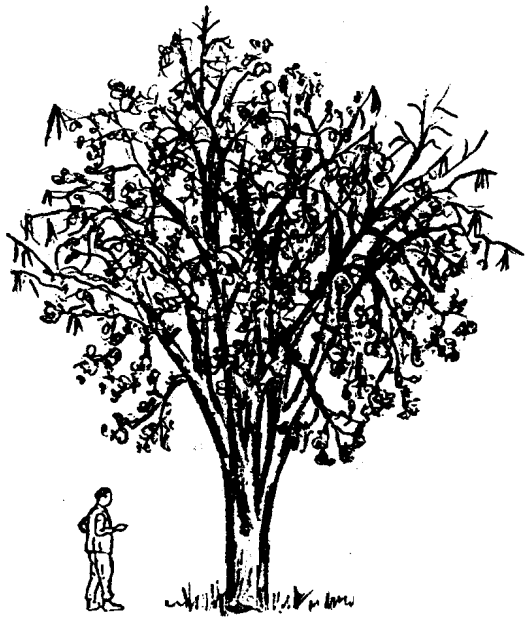
USES: Firewood, timber, tool handles, farm implements, vegetable (flowers), fodder (young leaves), shade, ornamental, soil conservation, resin, gum, tannin.

PROPAGATION: Seedlings, direct sowing at site. Seedling growth is severely set back if roots are pruned or disturbed when planting, so direct sowing at site is the better alternative.

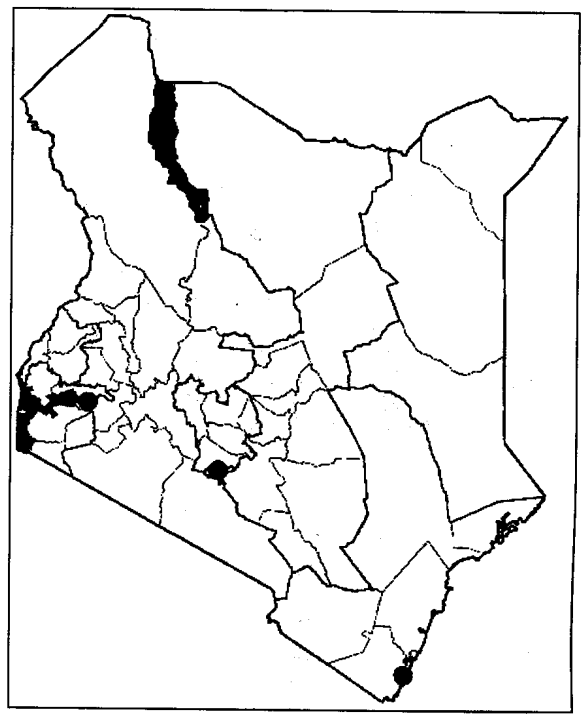
SEED: Germination rate 50–80% and fast, after about a week from fresh seed; 2,800–3,500 seeds per kg.
treatment: Not necessary, but germination may be enhanced if seed are soaked in cold water for 48 hours.
storage: Can be stored for some time, but best results from fresh seed.

MANAGEMENT: Coppicing, lopping, pollarding

REMARKS: *B. purpurea* is a medium-sized, spreading tree. Some grow in Kenya. Purple-pink flowers with overlapping strap-shaped petals, only 3 fertile stamens and winged or ridged buds. A useful tree in India: vegetable (buds, young leaves), fodder (leaves, pods), tools (heavy, hard wood). The many uses of these *Bauhinia* spp. in India have not yet been well explored in Kenya.



FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Dharani, 2002; Katende et al., 1995; Lötschert and Beese, 1983; Mbuya et al., 1994; National Academy of Sciences, 1979; Noad and Birnie, 1989.



Berchemia discolor

Rhamnaceae

Indigenous

COMMON NAMES: **Boran:** Jajab; **English:** Bird cherry; **Giriama:** Mkulu; Mkulu gongo; **Kamba:** Kisaaya (Makueni), Kisanawa (Kitui), Nzaaya (fruit), Nzanawa (fruit); **Malakote:** Jajabho, Mujajabho (fruit); **Mbeere:** Muthwana; **Orma:** Jajab; **Pokot:** Muchukwo, Muchuk (plural); **Rendille:** Santau; **Samburu:** Santaiti; **Sanya:** Kolathi; **Somali:** Deen, Dheenden ro'o, Kor'guba; **Swahili:** Mkulu, Mnago; **Taita:** Mzwana; **Tharaka:** Muthwana; **Tugen:** Muchukwa; **Turkana:** Emeyan.

DESCRIPTION: A semi-deciduous shrub or tall tree to 18 m, with erect spreading branches making a heavy rounded crown. BARK: Grey-black, cracking and scaly, corky spots on young greenish branches. LEAVES: **Shiny dark green, sticky when young, oval** to 11 cm, **lateral nerves making a clear pattern.** Yellowish green below. FLOWERS: Small yellow-green, stalked, in loose clusters attracting bees. FRUIT: Oval, tapering towards the tip, 1–2 cm long, green, turning **yellow to reddish brown when ripe**; 1–2 flat seeds in sweet, edible flesh.

ECOLOGY: Widespread from Sudan to South Africa in semi-arid bushland, wooded grassland as well as riverine vegetation, 0–1,600 m. Tends to be riparian in the more arid areas. Found mainly in Rift Valley, Eastern and Coast Provinces of Kenya. Common on riverine, alluvial soils, in rocky areas and in light soils. Agroclimatic Zones V–VII. Fruits in February–March (Meru, Tharaka, Mwingi, Kitui).

USES: Firewood, charcoal, timber (construction), furniture, poles, tool handles, utensils (pestles), edible fruit, drink (juice made from fruit), seasoning (ash from burnt wood used for seasoning vegetables), medicine, fodder (leaves), bee forage, ornamental, shade, windbreak, resin, black dye (powdered heartwood and roots).

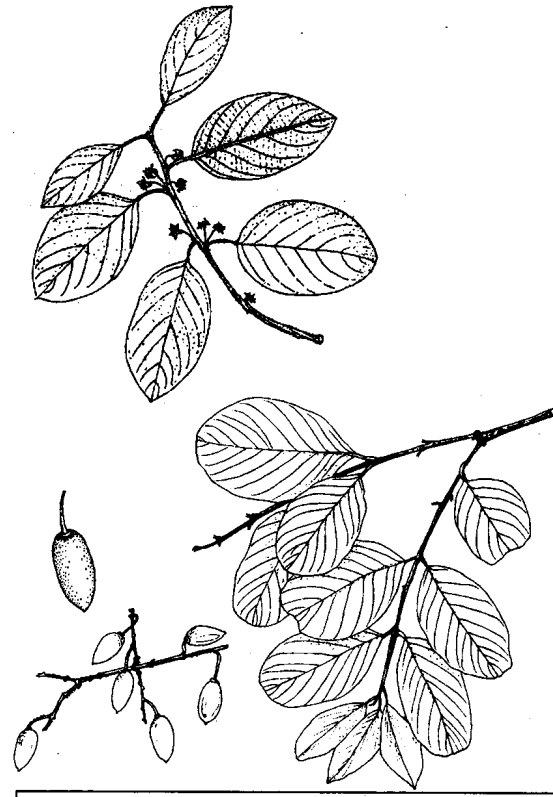
PROPAGATION: Seedlings, direct sowing at site, produces root suckers from injured or exposed roots.

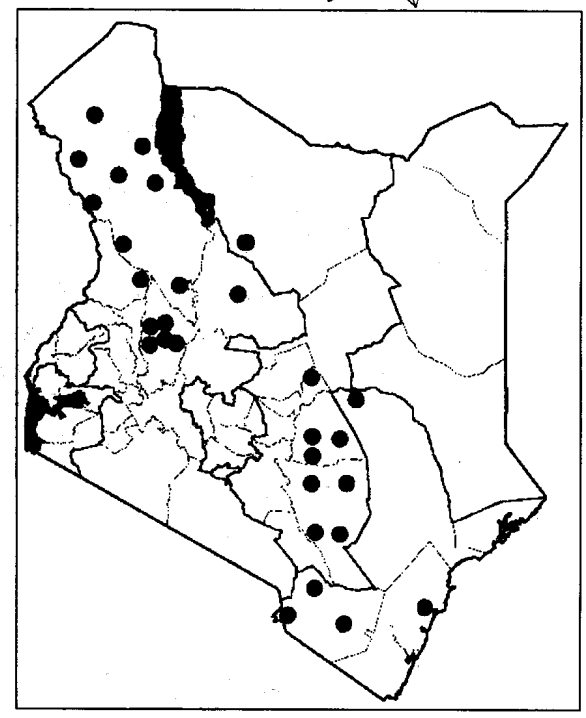
SEED: 2,300–3,500 seeds per kg. Germination usually good, 80–100%. Germinate readily.
treatment: Not necessary, but soaking in cold water for 12 hours may enhance germination.
storage: Seed can be stored for long periods.

MANAGEMENT: Coppicing. Fairly fast growing when young.

REMARKS: Ripe (and occasionally unripe) fruit eaten and occasionally sold in local towns. The sapwood is light and yellow, the heartwood yellow-brown and resinous. One of the hardest woods in eastern and Central Africa, used as poles, in construction, for containers, furniture and frames for doors and windows. Stems are good fuelwood and charcoal is excellent. Dried fruit used by Tharaka girls as beads. Tree used for hanging beehives (Kitui, Tharaka, Mbeere). Leaves provide fodder for camels and goats.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Albrecht, 1993; Beentje, 1994; Bekele-Tesemma et al., 1993; Kokwaro, 1993; Maundu et al., 1999; Mbuya et al., 1994; Palgrave and Palgrave, 2002; Ruffo et al., 2002; Storrs, 1979.





Bersama abyssinica

Melianthaceae

Indigenous

COMMON NAMES: **Kikuyu:** Murumia andu, Muthandi; **Kipsigis:** Cheptoroguet, Ororuewet, Toroguet; **Kisii:** Omubamba; **Luhya:** Shirikamabinga, Shiviambinga mekundi; **Luhya (Bukusu):** Kumusikiria; **Maasai:** Olobayie tiang'ata; **Marakwet:** Kipset, Kapsagas; **Meru:** Muthandathande; **Nandi:** Kibuimetiet; **Ogiek:** Kipteleliet, Kipuimetuet; **Sabaot:** Morgenet, Sigirwo; **Tugen:** Kipumetiet.

DESCRIPTION: A handsome, well-foliaged tree, 7–15 m high. Characteristics are very variable and 2 subspecies have been distinguished. BARK: Light brown, smooth at first becoming rough with old age. LEAVES: Compound with **5–10 pairs of opposite leaflets plus a terminal one on a stalk with or without wings** (subsp. *abyssinica* has wingless or only slightly winged leaf stalks, whereas subsp. *paullinioides* has winged leaf stalks; both subspecies occur in Kenya). Leaflets to 10 cm. FLOWERS: Grow from **thick upright spikes to 35 cm**, like candles, hairy, opening to green-cream flowers, buds slightly pink, up to 2 cm across. FRUIT: **Thick woody capsules, rounded, about 2 cm across**, golden hairs at first, open into 3–5 sections, each with a **bright orange seed, 1 cm, half covered by a waxy yellow aril**.

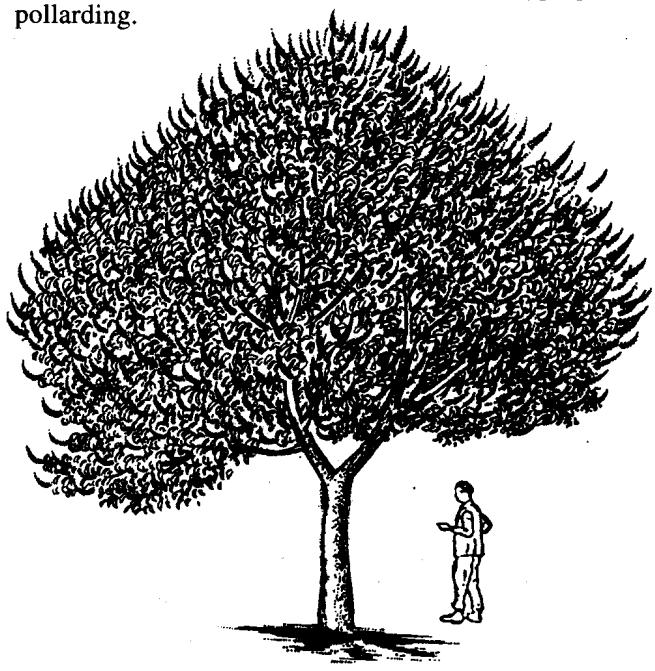
ECOLOGY: A small tree common from eastern to southern Africa, occurring along banks in wooded river valleys, at the edges of evergreen forest and also in open woodlands, mainly in central and western Kenya, 1,150–2,400 m. Agroclimatic Zones II–III.

USES: Firewood, charcoal, timber, furniture (stools), carvings, utensils (water pots), beehives, medicine, bee forage, shade, ornamental, mulch, dye (bark).

PROPAGATION: Seedlings, root suckers, wildings.

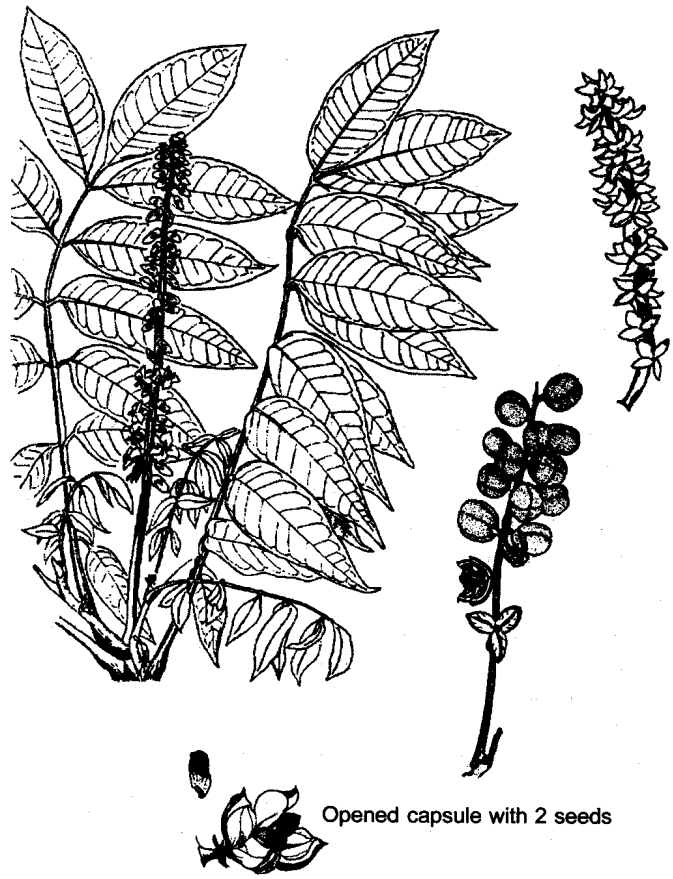
SEED: About 1,100–1,300 seeds per kg. Germination may reach 70% but is sporadic; 5–10 weeks.
treatment: The seed coat is thin but the aril has to be removed. Sensitive to freezing.
storage: Can be stored for a couple of months.

MANAGEMENT: A fast-growing tree; coppicing, lopping, pollarding.

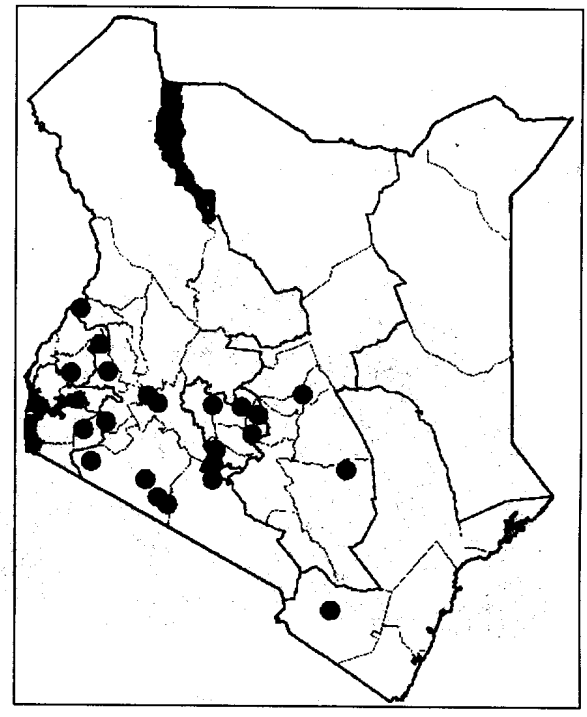


REMARKS: Common in highlands and can be planted in farmlands with different crops, in which case the crown should be managed to reduce shading. The wood is light and not durable. **Caution**: Poisonous to domestic animals.

FURTHER READING: Backes and Ahenda, 1998; Beentje, 1994; Bein et al., 1996; Bekele-Tesemma et al., 1993; Dharani, 2002; Fichtl and Adi, 1994; Katende et al., 1995; Kokwaro, 1993; Mbuya et al., 1994; Palgrave and Palgrave, 2002; Sommerlatte and Sommerlatte, 1990.



Opened capsule with 2 seeds



Blighia unijugata

Sapindaceae

Indigenous

STANDARD/TRADE NAME: Mwikuni.

COMMON NAMES: **Digo:** Mpwakapwaka, Nchivuri; **Kikuyu:** Muikoni; **Luhya:** Shiarambatsa; **Luo:** Bilo, Ochol, Ochond achak; **Meru:** Muthiama; **Pokomo:** Mubonyeni, Mubo; **Swahili:** Mwakamwatu.

DESCRIPTION: An understorey or canopy tree, 7–12 m, but to 25 m in forest. It has a **dense, shady, rounded crown** (like mango). BARK: Thin, **grey to dark green**, rather smooth but with **horizontal ridges** and little rounded bumps. LEAVES: Compound, only 1–3 pairs leaflets on a short stalk, dramatic **pink-red at first, later shiny dark green**, dull below. Each leaflet about 12 cm and quite wide, **smaller leaflets at the base**, the edge wavy and tip long and pointed. FLOWERS: Small, fragrant and white on a drooping head 7–8 cm. Male trees and female trees. FRUIT: **Bright yellow-orange-red capsules** decorate the tree, each soft, hairy, **rather triangular to 4 cm** long with 3 winged lobes. The fruits become woody and split into 3 sections, each **twisting back to set free 1-cm shiny brown-black seeds. Each has a small yellow cup-like aril.**

ECOLOGY: A tree extending from Uganda and Kenya to South Africa. It is found in warm moist evergreen forests; becomes riverine in dry areas. Often a colonizer in secondary vegetation, 0–1,900 m. Agroclimatic Zones I–III.

USES: Firewood, charcoal, timber, furniture, poles, flooring, boat building (canoes), medicine (roots), shade (for coffee), soap.

PROPAGATION: Seedlings (sow seeds in pots) and wildings.

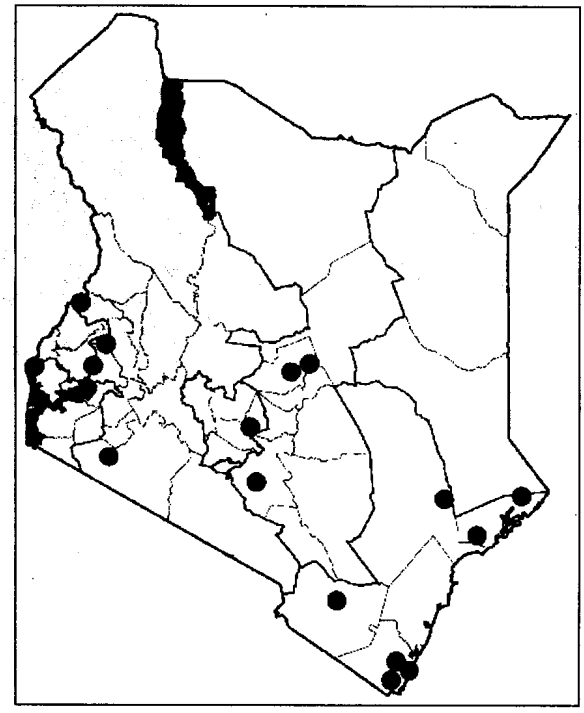
SEED: Seeds are contained in a 3-sided capsule and germinate easily. Thin stem cuttings may also root in sand. **treatment**: Not necessary.

MANAGEMENT: Coppicing, pollarding.

REMARKS: Leaves and fruit have been reported to be poisonous—not even eaten by baboons. The red heartwood has been used for building and furniture. Common as a shade tree and suitable for commercial plantations.

FURTHER READING: Beentje, 1994; Bekele-Tesemma et al., 1993; Katende et al., 1995; Kokwaro, 1993; Noad and Birnie, 1989.

Seed with aril



Bombax rhodognaphalon

Bombacaceae

Indigenous

STANDARD/TRADE NAME: East African bombax.

COMMON NAMES: English: Wild kapok, East African cotton tree; **Giriama:** Mware; **Somali:** Get suuf; **Swahili:** Mkaranga mti, Msufi mwitu; **Sanya:** Bamba.

DESCRIPTION: A tall tree to 36 m with a straight bole and medium crown. BARK: **Yellow-green, smooth.** LEAVES: **Compound** with **3–7 leaflets like fingers of a hand**, each to 4 cm long. FLOWERS: 5 petals, pale yellow, red or white, numerous anthers with red stamens; **calyx bell-shaped**. FRUIT: Oval brown **woody capsule about 6 x 3 cm**, which **splits open** to set free many seeds in dark red-brown **fluffy kapok**.

ECOLOGY: Distributed in West Africa, East Africa and Central Africa south to Angola. In Kenya, it occurs only in the coastal areas in evergreen forests, forest margins and forest remnants or in coastal bushland, 0–350 m. Prefers clay soil but also grows in soils derived from coral. Agroclimatic Zones II–IV. Seeds throughout the year.

USES: Timber (soft), carving, boat building (canoes), drums, edible seed, medicine (bark and leaves), shade, ornamental, avenue tree, river-bank stabilization, fibre (bark), dye (bark), boundary marking, stuffing for pillows and mattresses, hollows made in the trunk for storing dry food and honey.

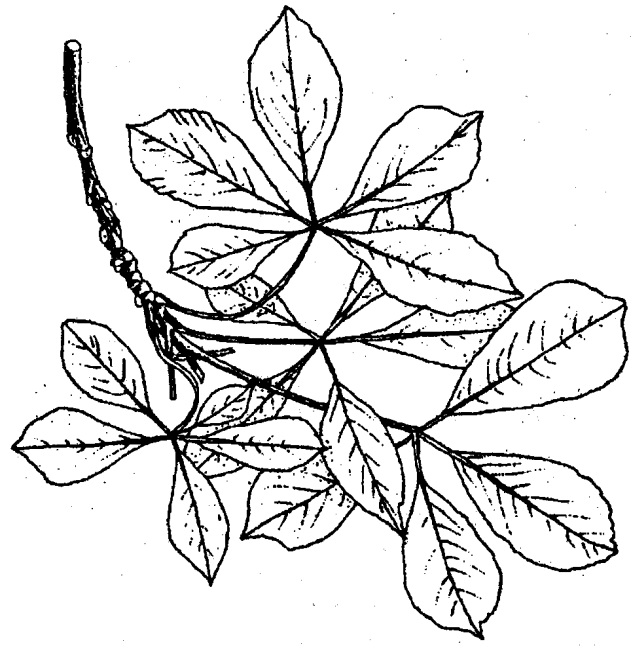
PROPAGATION: Seedlings, wildings; easily propagated by seed.

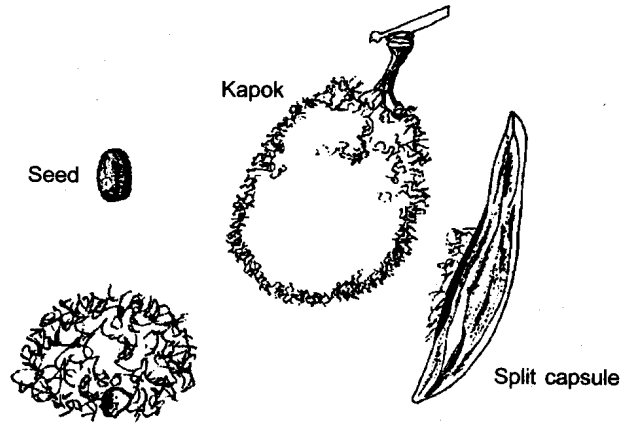
SEED: 15,000–20,000 seeds per kg.
treatment: Not necessary.
storage: Seeds susceptible to insect attack. Remains viable for some months if insects can be kept away.

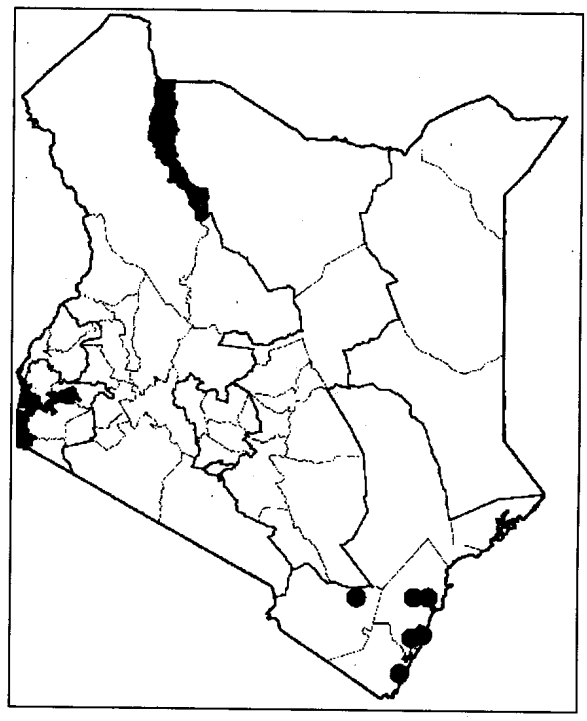
MANAGEMENT: Fast growing.

REMARKS: A good food tree in coastal areas. A red-brown dye is obtained from the bark. The seeds can be roasted and eaten like groundnuts. The roasted seeds can also be pounded and the powder used for cooking with vegetables or meat.

FURTHER READING: Beentje, 1994; Mbuya et al., 1994; Noad and Birnie, 1989; Palgrave and Palgrave, 2002; Ruffo et al., 2002.







Borassus aethiopum

Arecaceae (Palmae)

Indigenous

COMMON NAMES: **Boni:** Ong; **Digo:** Mvumo, Dzova, Ngolokolo (fruit); **Duruma:** Mvumo; **English:** African fan palm, Borassus palm, Palmyra palm; **Giriama:** Mugumo; **Malakote:** Murifate; **Orma:** Marafa; **Pokomo:** Mutapa; **Sanya:** Marafa; **Somali:** Mardafa (Tana River); **Swahili:** Mchapa, Mtapa, Mvumo; **Teso:** Edukut.

DESCRIPTION: Tall unbranched palms, to 25 m, sometimes even higher. TRUNK: Smooth to rough, grey, **thickened above the middle**. Leaf scars prominent immediately below crown, less prominent further down. LEAVES: **Large, fan-shaped**, to 4 m long by 3 m across, deeply divided into leaflets. **Edge of leaf stalk with curved teeth**. FLOWERS: Male and female on different trees, males producing branched spikes to 2 m carrying the pollen. FRUIT: In large bunches, **big, up to 15 cm long by 12 cm wide, round or slightly egg shaped, orange to orange-brown, cupped in the enlarged calyx, smooth,** containing up to 3 seeds surrounded by a fibrous edible pulp.

ECOLOGY: A palm tree widespread throughout the less dry areas of tropical Africa. It needs a high water table and is normally found along watercourses, often singly. In Kenya, commonly found at the coast, lower Tana and in the Shimba Hills. Open grassland with a high water table, along watercourses, flood plains or on coastal coral sands, e.g. at Madunguni (Kilifi), Gede Ruins and Tana River Primate Reserve. Also in western Kenya and around Mandera, 0–1,400 m. Agroclimatic Zones III–IV.

USES: Poles, timber, tool handles, edible fruit, flavouring other food, palm wine, vegetable (very young seedlings), ornamental, avenue tree, fibre, thatch, mats, baskets, dye, oil.

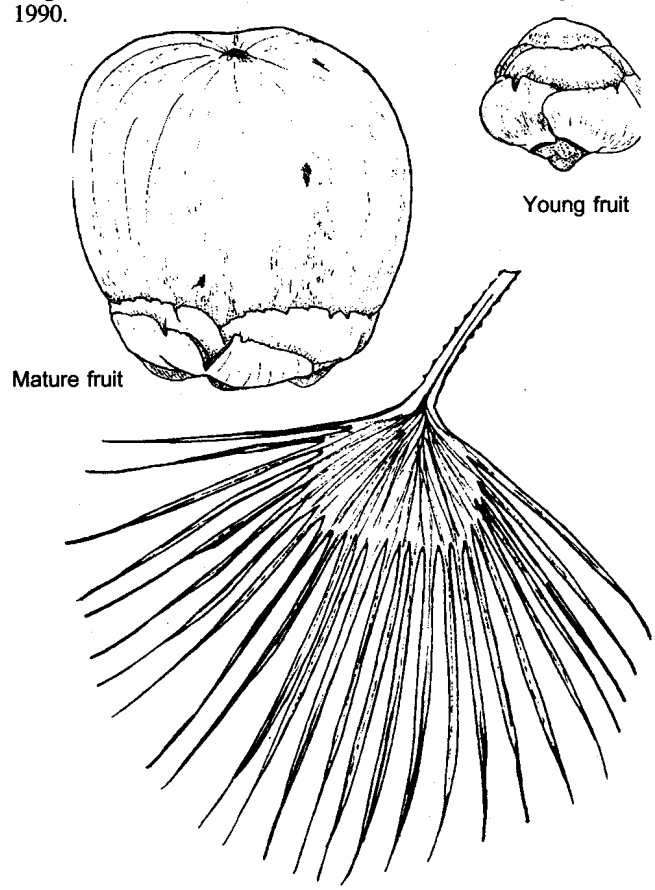
PROPAGATION: Direct sowing at site; seedlings.

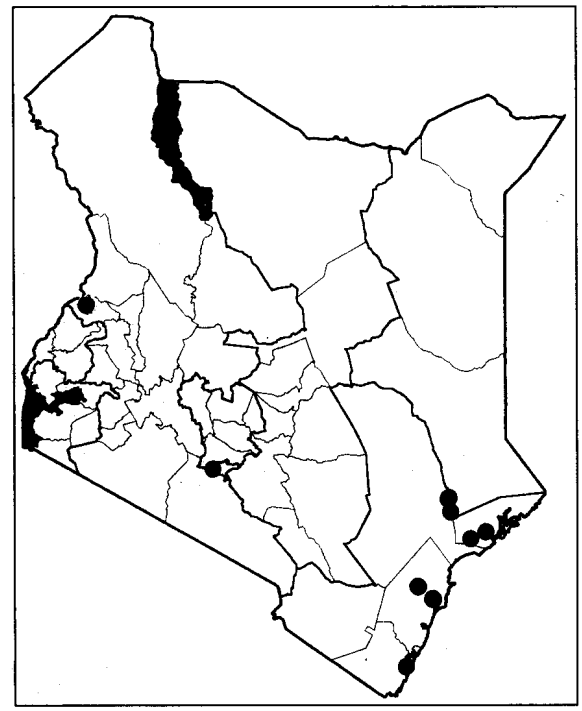
SEED: 2–3 seeds per kg. Best to use fresh seed. If they are to be dried, this should be under shade to avoid excessive heat from the sun on one side of the seed. The seed can be sown without removing the pulp surrounding it. Best to germinate seed in a big pot. As soon as the 'root' starts showing, plant carefully at site. The 'root' will carry the embryo down into the ground, perhaps to the water table, then the first leaf will grow up to the soil surface. Keeping the germinated seed in the pot for later transplantation does not work well. Germination usually takes about a month.
treatment: Not necessary.
storage: Seed dried in shade remain viable for about 2–3 months.

MANAGEMENT: Slow growing. Takes about 40 years to reach maturity for flowering, and the rotation period can be as much as 140 years.

REMARKS: Exploitation of the tree for its sap (palm wine) has made the tree rare. Elephants eat the fruits and thus contribute to the distribution of the tree. A useful palm whose full potential has yet to be realized in Kenya. The wood is hard and heavy and resists termites and fungi. Leaves vibrate loudly in the wind.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Beentje, 1994; Bekele-Tesemma et al., 1993; Dharani, 2002; Katende et al., 1995, 1999; Maundu et al., 1999; Mbuya et al., 1994; Noad and Birnie, 1989; Palgrave and Palgrave, 2002; Ruffo et al., 2002; Storrs, 1979; von Maydell, 1990.





Boscia coriacea

Capparidaceae

Indigenous

COMMON NAMES: **Boran:** Galgacha hareh; **Daasanach:** Dhuorich; **Gabra:** K'alk'acha; **Ilchamus:** Sericho, Serichoi (plural); **Maasai:** Enkapalases; **Malakote:** Kalaqacha; **Mbeere:** Gitangira, Kikiare, Mukiare, Mutangira, Muthiu; **Orma:** Kalkach; **Pokomo:** Mukukube; **Pokot:** Sorichon, Sorich (plural); **Rendille:** Lyoror, Yoror; **Samburu:** Serichoi; **Somali:** Dagayar, Dakkiyar, Qalanqal; **Swahili:** Mnafisi; **Taita:** Chariso; **Tharaka:** Muthiuthiu; **Tugen:** Sirkwa; **Turkana:** Eedung', Eerdung, Erdung; **Wardei:** Qalanqal.

DESCRIPTION: A twiggy evergreen, usually multi-stemmed shrub or small tree, usually 2–6 m. LEAVES: Grey-green, hard and **leathery, long** to 6 cm, the **tip sharply pointed** and the **edge pale and thick, midrib clear below.** FLOWERS: Dense, fragrant heads, each flower with a mass of yellow-green stamens spreading out from 4 small green sepals. FRUIT: Rounded with a fleshy coat, about 1–2 cm across, **hairy when young,** light green, becoming brown when ripe. The sweet flesh is liked by birds and baboons. **Seeds enclosed in a tough white skin.**

ECOLOGY: An evergreen shrub common in all the drier parts of eastern Africa. Found in deciduous bushland and semi-desert scrub. Common in most arid coastal lowlands of northern and eastern Kenya, mainly in *Acacia–Commiphora* bushland, often in rocky areas, loose red clay or sandy soils with 300–500 mm of annual rainfall, 100–1,500 m. Also tolerates saline soils. Agroclimatic Zone VI. Fruits in February in southern Turkana, March and October around Mtito Andei.

USES: Firewood, furniture, material for temporary structures (branches, stems), utensils (wooden spoons), arrowheads, edible fruit (pulp sucked by humans, eaten by birds, seed must be boiled before eating), medicine (bark, roots), fodder (leaves), bee forage, shade, toothbrushes, cleaning (disinfecting) milk gourds (calabashes), veterinary medicine.

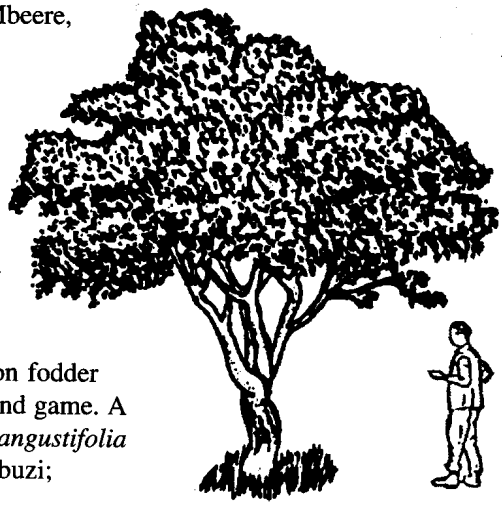
PROPAGATION: Seedlings, direct sowing at site.

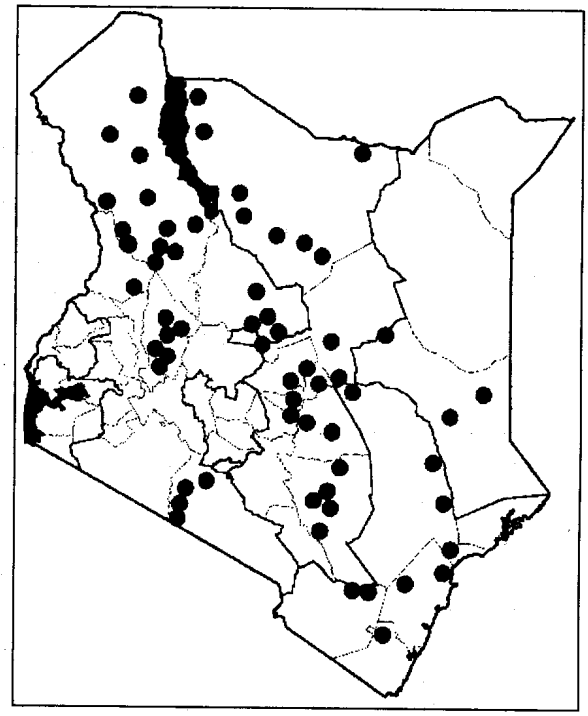
SEED: 2,000–3,000 seeds per kg.
treatment: Wash off the surrounding pulp.
storage: Cannot be stored for long (recalcitrant). Use fresh seed.

MANAGEMENT: Slow growing; pruning, lopping.

REMARKS: The sweet flesh of ripe fruit is sucked (Taita, Kamba, Tharaka, Mbeere, Daasanach). Stem wood made into blunt arrowheads used for shooting birds (Daasanach). *Boscia* spp. are important shade trees, especially for pastoral communities. They are also important dry-season fodder for both livestock and game. A related species, *B. angustifolia* (**Giriama**: Mlalambuzi; **Maasai**: Oloireroi; **Sanya**: Muki go jama; **Somali**: Chieh; **Tugen**: Lito;) is common in dry areas. A small evergreen tree, usually 5–7 m with a rounded crown and silvery grey bark and a thick trunk, which is often leaning. The leaves are small and narrow (usually less than 1.5 cm wide and 8 cm long) and grow in bunches along the old woody twigs or in a spaced fashion in young shoots. Widespread all over Kenya in dry bushland and wooded grassland, especially along dry river courses, 0–2,200 m. Agroclimatic Zones IV–VI. Stem wood used for tool handles and the bark has a good fibre used for strings. An excellent shade tree. *B. salicifolia* (**Duruma**: Mtsonga mbanga; **Luo**: Akado, Akado marachar; **Somali**: Lamblesha, Lamloch) is found in low-altitude grassland, 0–1,350 m. A deciduous tree, usually to 8 m, with grooved bark, looking remarkably like a eucalyptus tree, the branches pendulous and leaves long and narrow to 12 cm. This species has edible fruit too.

FURTHER READING: Beentje, 1994; Blundell, 1987; ITDG and IIRR, 1996; Kokwaro, 1993; Maundu et al., 1999; Noad and Birnie, 1989; von Maydell, 1990 (*B. angustifolia*).





Boswellia microphylla

Burseraceae

Indigenous

COMMON NAMES: **Boran:** Bebek, Dabasso, Dakkar, Mokh lidi, Muqli; **Pokot:** Songolulwo; **Rendille:** Halale; **Somali:** Bebeh, Mogole, Mugle.

DESCRIPTION: A deciduous shrub or small tree to 5 m with slender rigid branches. BARK: Dark grey, rough and peeling off in patches. LEAVES: Compound, few, towards the end of twigs; **leaflets usually 5–9, hairless or nearly so.** FLOWERS: Small, whitish. FRUIT: Reddish capsules with 3 nutlets.

ECOLOGY: Found in eastern Ethiopia, Somalia and arid zones of north-eastern Kenya in *Acacia–Commiphora* bushland. Found near rock outcrops, on rocky ridges and along runnels. Prefers red sandy soils and limestone. In Kenya this species is known only from Marsabit, Mandera and Wajir Districts. Found at War Gedud and east of Wajir along the road to Wajir Bor and in Marsabit 20 km south of Moyale, 250–400 m. Agroclimatic Zones VI–VII. It produces white flowers just at the onset of the rainy season.

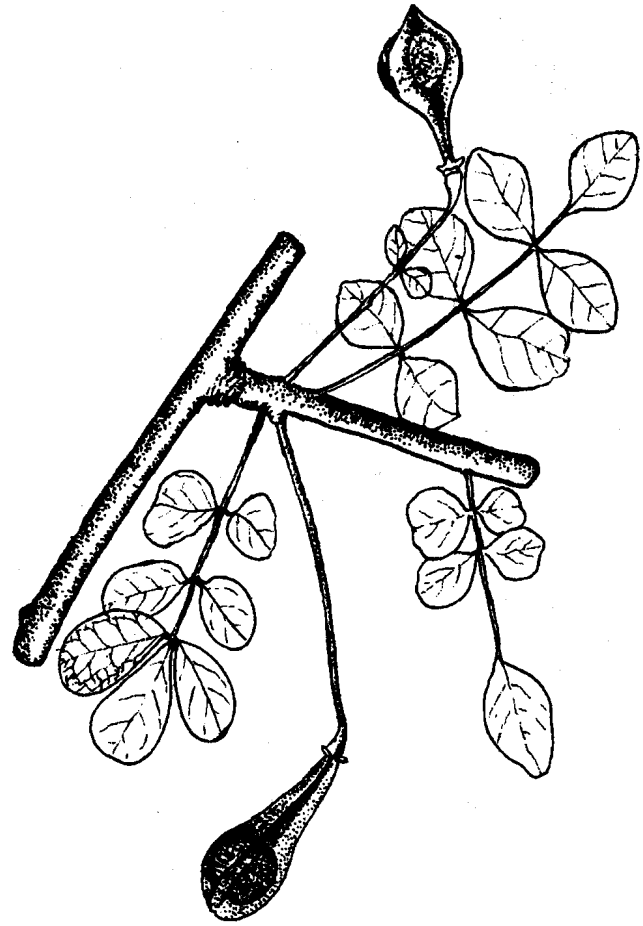
USES: Firewood, drink (bark and twigs boiled with milk), resin (incense), tannin.

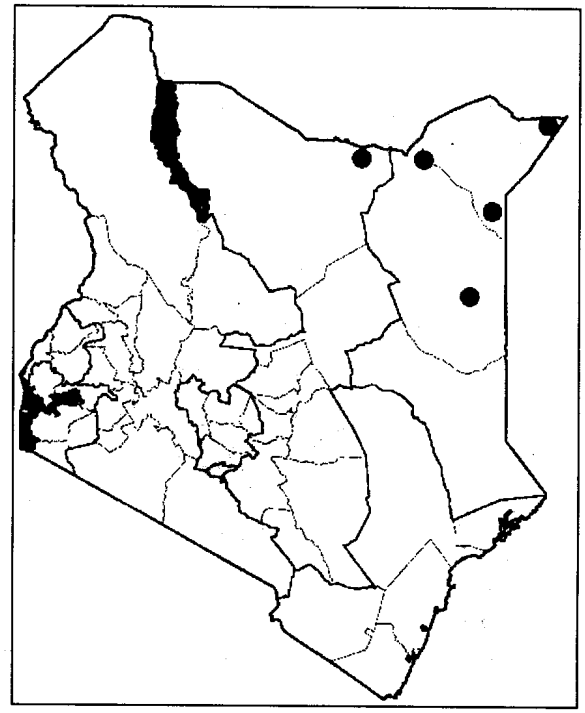
PROPAGATION: Seedlings, wildings, large cuttings.

MANAGEMENT: Coppicing, pollarding.

REMARKS: Its bark provides very good-quality tannin. The resin is sold in north-eastern Kenya. It is chewed or burnt in houses for its aromatic smell (incense).

FURTHER READING: Beentje, 1994; Maundu et al., 1999.





Boswellia neglecta (B. hildebrandtii)

Burseraceae

Indigenous

COMMON NAMES: Boran: Dakkar, Dakkar gurate, Hancha dakkara (resin), Hancha lubadin (incense); **Daasanach:** Dong'od nee dhieroka, Hancha dakkara (gum); **English:** Frankincense; **Gabra:** Dakkara; **Kamba:** Kinondo; **Orma:** Dakar; **Rendille:** Halale, Hanja (resin); **Samburu:** Lecholoo, Lkinoo; **Somali:** Magafur, Mathafur, Murfur aad, Mirafur (Tana River); **Swahili:** Ubani; **Taita:** Mtungu; **Turkana:** Ekinyaate.

DESCRIPTION: A much-branched shrub or, less often, a tree to 5 m high, often with **horizontal branches from near the base**. BARK: Dark grey, rough and **peeling off** in patches, **secreting a fragrant resin**. LEAVES: Compound, borne **in tufts on small side shoots**, to 11 cm long, leaflets 8–20 pairs. FLOWERS: Small, white or greenish white, in loose heads to 4 cm long. FRUIT: Red **triangular capsules**.

ECOLOGY: Found in northern and eastern Uganda, northern Tanzania, eastern Ethiopia, Somalia, and in most drier parts of Kenya, e.g. in southern Turkana, Mutha (Kitui), northern Baringo, Meru and Tsavo National Parks, Kora National Reserve and between Voi and Buchuma along the Voi–Mombasa road, in *Acacia–Commiphora* bushland chiefly in rocky, gravelly, shallow and well-drained soils, 200–1,350 m. Rainfall: 250–600 mm. May be locally dominant. Agroclimatic Zones VI–VII.

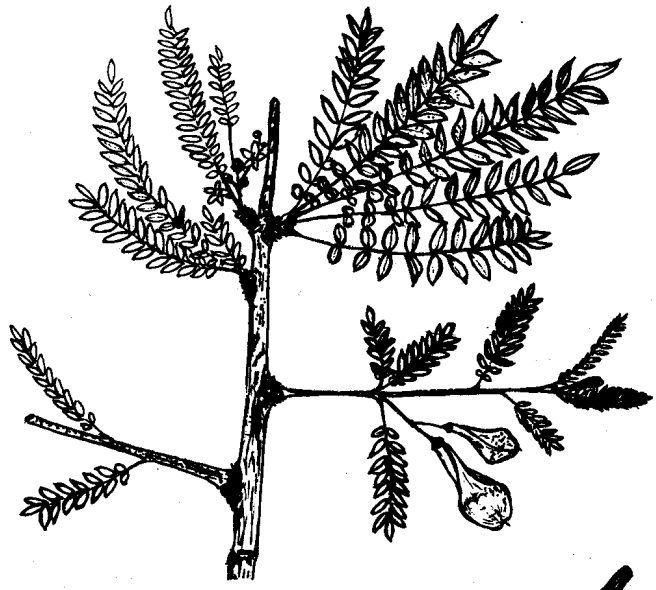
USES: Firewood, furniture (stools), carvings, drink (tea made from bark), chewing gum, medicine (bark), fodder (leaves browsed by goats and camels), resin (as wood preservative and incense), tannin, dye (bark), toothbrushes, insect repellent.

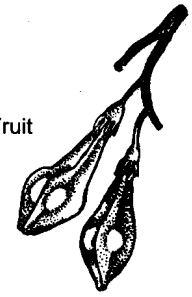
PROPAGATION: Large cuttings or seedlings.

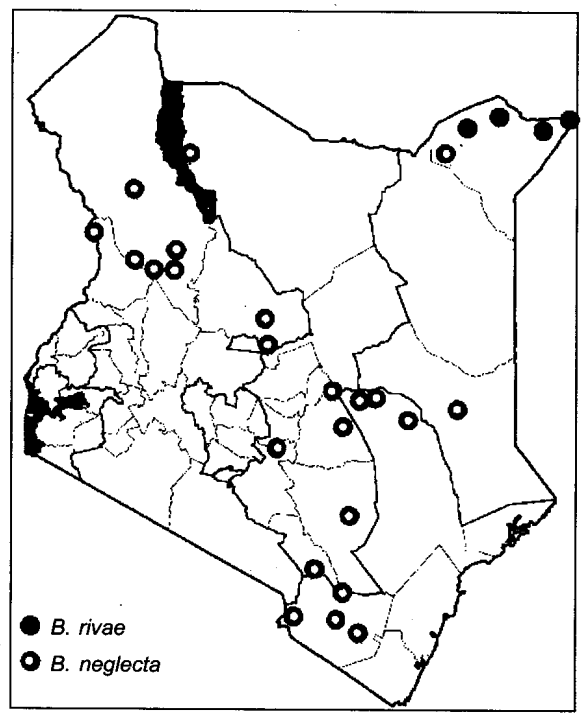
MANAGEMENT: Coppicing. Natural regeneration of this species is often minimal.

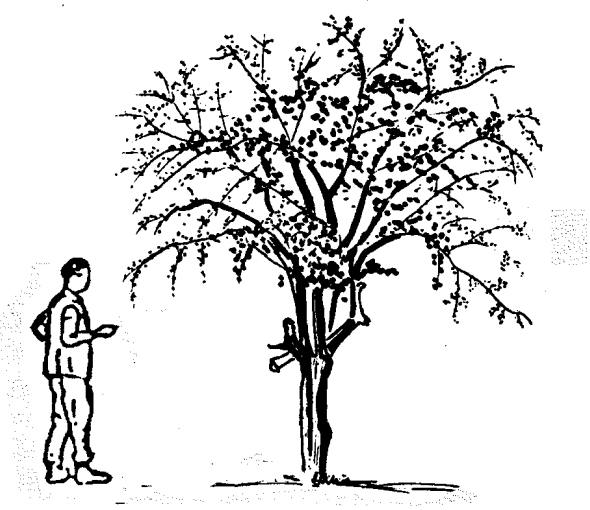
REMARKS: Bark used for making tea (Pokot, Turkana). Bark decoction added to milk and given to children as tonic (Somali, Pokot). Dried ground bark put on wounds (Somali). Plant used in tanning (Rendille). Resin burned for its aroma (as frankincense; Somali), during prayers (*hancha-lubadin*, Boran, Rendille, Somali) and to repel mosquitoes (Somali). Resin sold as frankincense—the most common source of frankincense in Kenya. True frankincense is resin of a more superior quality yielded by *B. carteri* and *B. frereana*, both occurring in northern Somalia. Three other species of *Boswellia* occur in Kenya: *B. papyrifera* found in Turkana District at the Sudan–Uganda border, *B. rivae* found in Mandera and *B. microphylla*. Resin from several species is exploited commercially.

FURTHER READING: Beentje, 1994; Maundu et al., 1999.









Brachylaena huillensis (*B. hutchinsii*) Asteraceae (Compositae)

Indigenous

STANDARD/TRADE NAME: Muhuhu, Muhugu.

COMMON NAMES: **Boni:** Avud, Abozi; **Digo:** Muhuhu; **Giriama:** Muhuhu; **Kamba:** Muu, Muuku, Muvumba; **Kikuyu:** Muhugu; **Nandi:** Diamagaldad; **Sanya:** Watho, Mshenzi; **Swahili:** Mkarambati, Muhuhu; **Taita:** Kipungupungu.

DESCRIPTION: An evergreen tree, usually 8–15 m, with steeply ascending branches forming a narrow crown, foliage grey-green. BARK: Grey-brown, peeling vertically, fibrous. LEAVES: Distinctive spear-shaped, to 10 cm, larger in young plants, sharply tipped, in upright bunches, shoots with cream hairs, mature leaves **white hairy below but shiny above**, edge usually without sharp teeth in older plants; young plants often have larger leaves with few to many sharp teeth at the edges. FLOWERS: **Male and female on different trees**, small and white in furry clusters. FRUIT: **Tiny hairy seeds,** falling to look like white fluff on the ground.

ECOLOGY: Found in southern and eastern Africa. In Kenya, both in coastal forests such as Arabuko-Sokoke and Jilore Forests and in dry highland forests, particularly in central Kenya, Nyeri, Nairobi National Park, Ngong and Karura Forests, 0–1,800 m. Often prominent above the forest canopy. Prefers medium to high rainfall. Agroclimatic Zones II and III. Flowers twice a year: March–May and October–January in central Kenya and November –April at the coast. Seed development is very rapid after flowering.

USES: Firewood, charcoal, timber, flooring, poles, posts, carvings, ornamental, essential oil (distilled from wood).

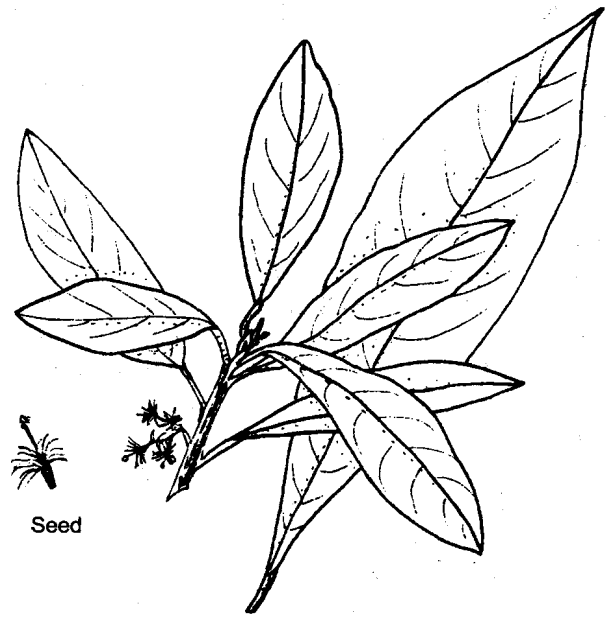
PROPAGATION: Seedlings, wildings.

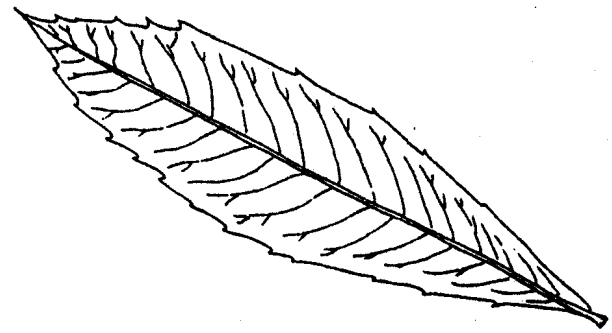
SEED: Seeds are difficult to collect because they are small; 330,000–500,000 seeds per kg. Germination is poor, 2–10%. **treatment**: Not necessary, but mix seed with moist sand before sowing; otherwise they are easily blown away by the wind. **storage**: Seed does not store well.

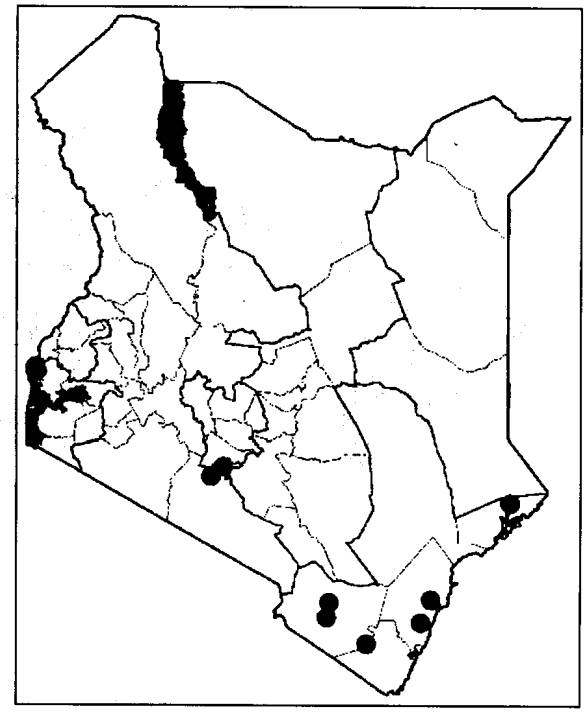
MANAGEMENT: Growth rate is medium. Does well when growing with other trees but very poorly in the open.

REMARKS: Wood light but strong, durable and termite resistant. Value 2nd only to *Dalbergia melanoxylon* in the wood-carving industry. Carves easily and polishes well with a good finish. A valuable tree much liked by wood carvers but now mainly confined to protected areas where poaching is a menace. Mature trees are becoming very scarce in most forests.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Albrecht, 1993; Beentje, 1994; Dharani, 2002; Mbuya et al., 1994; Noad and Birnie, 1989; Palgrave and Palgrave, 2002.







Brachystegia spiciformis

Fabaceae (Caesalpiniaceae)

Indigenous

STANDARD/TRADE NAME: Mrihi.

COMMON NAMES: **Digo**: Mrihi; **English**: Brachystegia; **Giriama**: Mrihi, Mjombo; **Sanya**: Soso; **Swahili**: Mrihi, Myombo.

DESCRIPTION: A deciduous tree, 8–25 m. Old trees have a rather flat crown, the main trunk producing **large branches** growing up and out, often twisting. BARK: Smooth grey, later rough and flaking. LEAVES: Dark green, shiny and pendulous when mature, **pink to scarlet when young.** Few pairs of leaflets, usually 3–5. **Leaflets unequal-sided, increasing in size towards the end of the leaf.** Tip round or notched. FLOWERS: Sweet scented in short dense spikes to 6 cm, often hanging down, greenish. FRUIT: **Flat,** yellowish to dark brown **pods, usually to 9 cm long, occasionally to 14 cm,** splitting open explosively to scatter seeds.

ECOLOGY: One of the 20 or so species of *Brachystegia* that comprise the deciduous miombo woodland of eastern and southern Africa (Democratic Republic of Congo, Angola, Tanzania, Mozambique, Malawi, Zambia, Zimbabwe). Its northern limit is in Kenya, where it is limited to the coastal area and seen as a dominant tree in deciduous woodlands and dry forests of Kwale, Kilifi and Malindi, e.g. Arabuko-Sokoke, Shimba Hills and Jilore Forest. Tolerates a wide range of soils, but common on coastal sandy soils, especially in areas with deep red sand, 0–350 m. Agroclimatic Zones III–IV.

USES: Firewood, charcoal, timber, door frames, canoes, furniture, poles, medicine, fodder, shade, nitrogen-fixing, tannin.

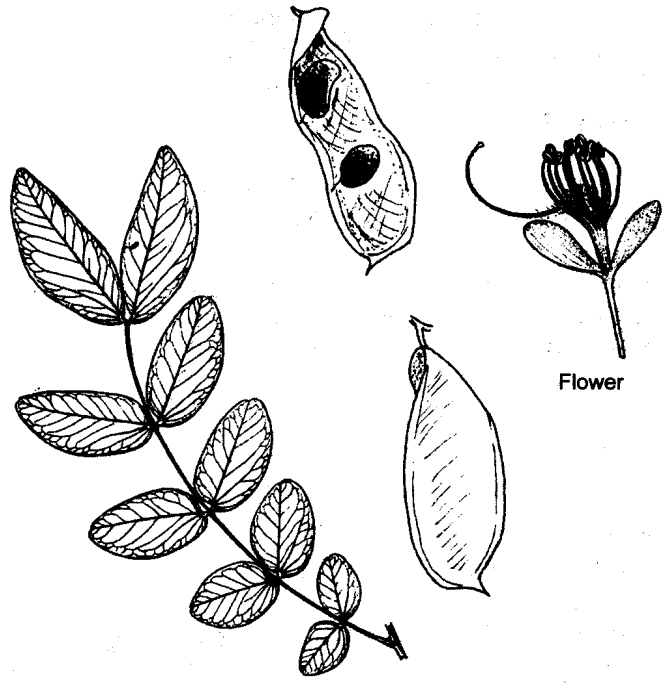
PROPAGATION: Seedlings, direct sowing at site.

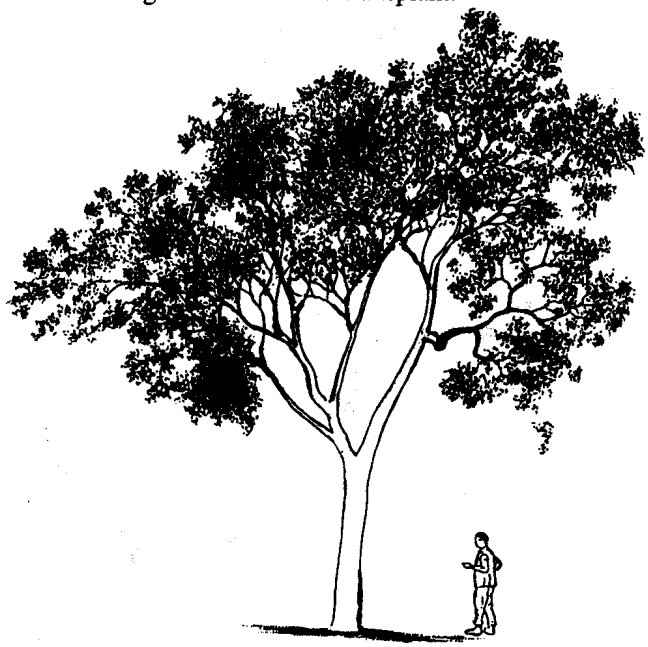
SEED: After collection, pods are dried in the sun until they split and release the seeds; 2,500–3,000 seeds per kg. Under ideal conditions germination may reach 80% in 21–30 days with good seed. Seeds are best sown at site since seedlings are difficult to transplant. **treatment**: Not necessary, but germination is improved if the seed coat is nicked.
storage: Seed can be stored for long periods.

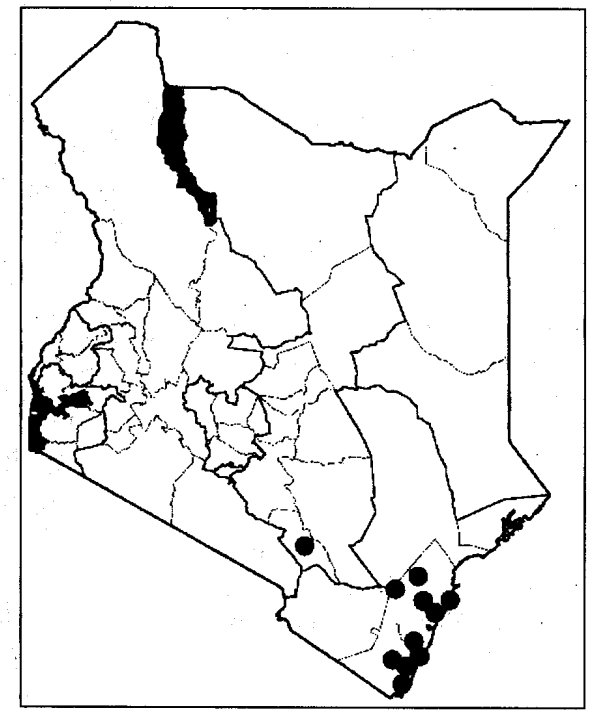
MANAGEMENT: Slow growing at first; pruning. May need inoculation with soil from below mature trees to grow well. Keeping seedlings in pots for too long results in retarded growth. Timing is crucial so that seedlings are of the right size at the planting season.

REMARKS: Wood with interlocked grain, difficult to season. All *Brachystegia* spp. have very attractive pink-red young leaves.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Albrecht, 1993; Beentje, 1994; Mbuya et al., 1994; Palgrave and Palgrave, 2002; Storrs, 1979.







Bridelia micrantha

Euphorbiaceae

Indigenous

COMMON NAMES: **Digo:** Mdudu; **Kikuyu:** Mukoigo; **Kisii:** Omotarakaranga; **Luhya:** Shikanganya; **Luhya (Bukusu):** Kumulondang'ombe, Kumukhulang'wa; **Luo:** Athuno, Odughu kulo; **Maasai:** Oleragia; **Meru:** Mukwegwe; **Nandi:** Chemegulde, Ngorouet; **Pokomo:** Mdudu, Mpuju; **Samburu:** Lapironit; **Swahili:** Mkarakara, Mkarati, Mtutu; **Teso:** Eruaka.

DESCRIPTION: A medium-sized, often thorny, leafy evergreen tree with **dense spreading crown,** to 13 m. Young stems have a **zigzag form, dotted with paler breathing pores.** BARK: Grey-brown, flaking with age. LEAVES: Appear compound but actually alternate along branches, dark shiny green above, to 12 cm long, **veins parallel, extending along margin.** Leaf stalks slightly hairy. FLOWERS: Small and yellowish green, **bunched in leaf axils** along branch, male and female flowers separate but on the same tree. FRUIT: Soft, **purple-black, oval, up to 8 mm,** sweet and edible when ripe, **one-celled**.

ECOLOGY: A tree of humid and subhumid areas in eastern and southern Africa. Widespread in Kenya and particularly common in the western and central parts of the country. Found in riverine forests, forest edges and occasionally in open woodland, 0–2,200 m. Agroclimatic Zones II–III. Flowers mainly in December and produces seed in March in western Kenya.

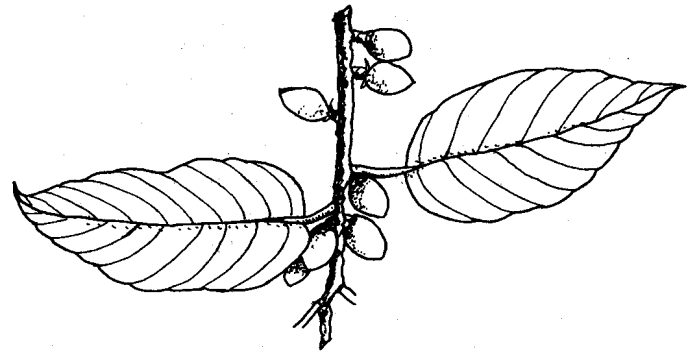
USES: Firewood, charcoal, timber, poles, tool handles, utensils (spoons), construction material for granaries (branches), edible fruit, medicine (bark, roots, leaf sap), fodder (leaves for goats), bee forage, shade, mulch, river-bank stabilization, red dye (bark).

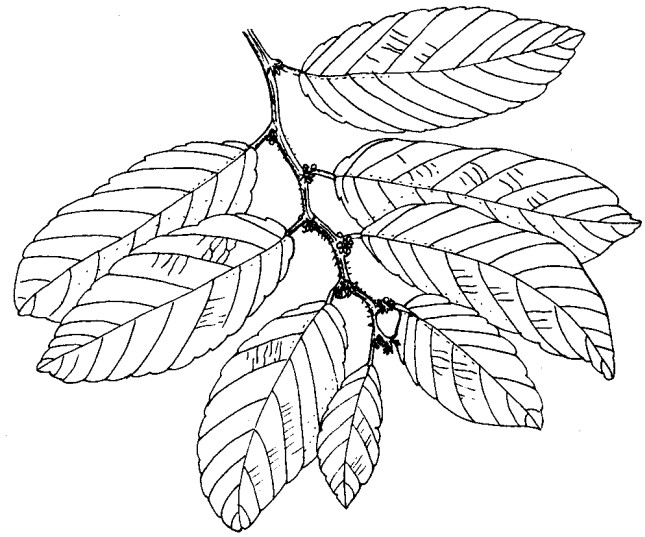
PROPAGATION: Seedlings.

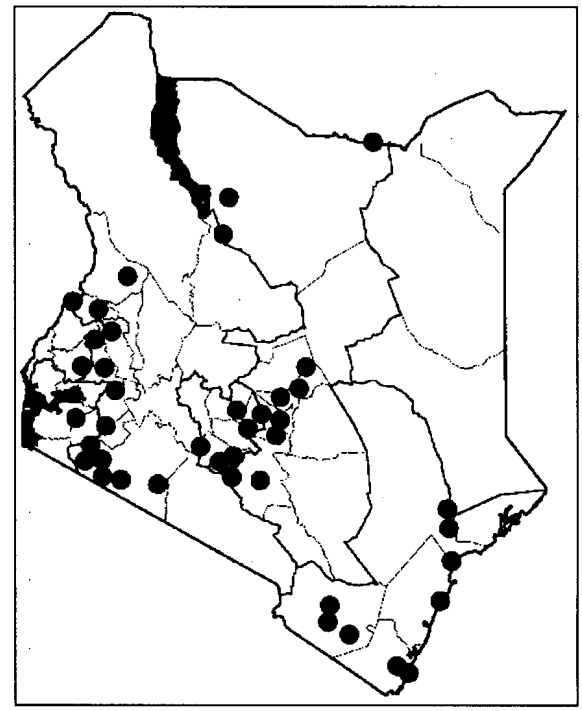
SEED: Prolific seeder.
treatment: Remove fruit pulp and then sow immediately. About 19,000 seeds per kg. Germination is very good and uniform, 90–100% after 20–25 days.
storage: Short viability period (oily seed). Do not store at all.

MANAGEMENT: Fast growing in good sites; pollarding, coppicing.

REMARKS: Becoming scarce due to over-exploitation. It is said to attract caterpillars and birds and consequently is not planted near homesteads. Wood resistant to termite attack. Commonly intercropped and managed by small-scale farmers.







Bridelia micrantha (cont)

Bridelia scleuroneura (**Kipsigis:** Kapturesut; **Luhya (Bukusu):** Kumunyekerwe) is mainly found in central and western Kenya, in woodlands. *B. cathartica* (**Boni:** Abubeu; **Digo:** Mkalakala; **Giriama:** Mkalakala; **Swahili:** Mnembenembe, Makarakara, Mkarati) is a coastal tree or shrub. Leaves and roots are medicinal; wood is used for firewood and building poles; shade. *Bridelia taitensis* (**Boran:** Karro; **Kamba:** Mwaanzia; **Mbeere:** Muce; **Samburu:** Lapironit; **Tharaka:** Muyee) is a shrub or small tree found mainly in the Taita region and Eastern Province, where it is endemic. Leaves usually widest towards the tip. Fruit has 2 cells and turns purplish black when ripe. The species has medicinal uses. Among the Tharaka, the dead were buried under this shrub. All these *Bridelia* species have edible fruits that have a sweetish sour taste.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Backes and Ahenda, 1998; Beentje, 1994; Bekele-Tesemma et al., 1993; Katende et al., 1995; Kokwaro, 1993; Mbuya et al., 1994; Noad and Birnie, 1989; Palgrave and Palgrave, 2002; Ruffo et al., 2002; Storrs, 1979.

Bruguiera gymnorrhiza

Rhizophoraceae

Indigenous

STANDARD/TRADE NAME: Muia.

COMMON NAMES: **Digo:** Mchofi; **Giriama:** Mkoko; **Swahili:** Msindi, Muia.

DESCRIPTION: An evergreen mangrove, 5–9 m, with **stilt roots and knee-like breathing roots emerging from the mud.** BARK: Grey or red-brown. LEAVES: **Opposite, widest in the middle, tip pointed**, to 15 cm x 6 cm, without hairs. FLOWERS: Borne on the leaf axils, white or red, **solitary**, petals about 15 mm long and forked into 2 with 3 hairs at the end. FRUIT: Bell-shaped with a leathery **berry, about 2 cm long,** and a **persistent calyx** divided into at least 8 parts. The seeds germinate when still attached to the tree (viviperous), starts to grow and then drops down into the mud where its growth continues.

ECOLOGY: A mangrove tree of the Indian and Pacific Ocean coasts. On Kenya's coast usually found on the inner edge or less exposed areas, in creeks and also on intertidal beaches.

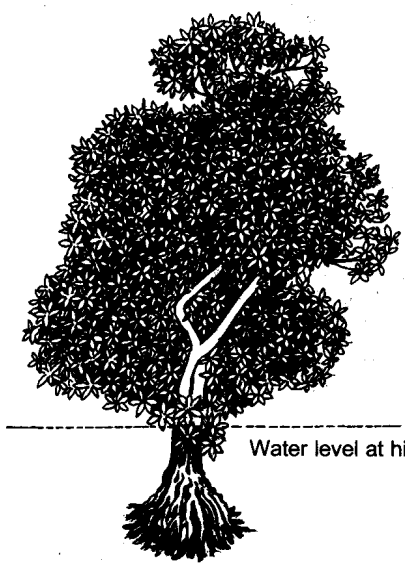
USES: Firewood, charcoal, timber, poles, furniture, bee forage, fish feed and breeding habitat, coastal erosion control, tannin (bark), dye (black, from bark).

PROPAGATION: Planting is not usually needed because natural regeneration is so successful. Germinated seed have pointed ends; when they fall off the tree they stick in the mud and grow.

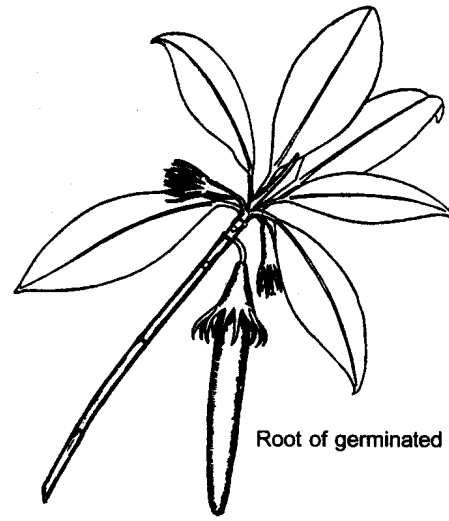
MANAGEMENT: Mangrove silviculture has been attempted in some areas of the world and is an established practice in some Asian countries. Most species seem to grow rapidly if conditions are conducive.

REMARKS: Mangrove charcoal is exceptional. It burns steadily, giving off intense heat without sparking. It has a very high calorific value and leaves little ash. Honey from mangrove trees is very good, thick, dark and tastes salty. The wood chips are used for pulp. Unlike *Rhizophora*, *Bruguiera* has knee-like breathing roots. The genus has about 6 species.

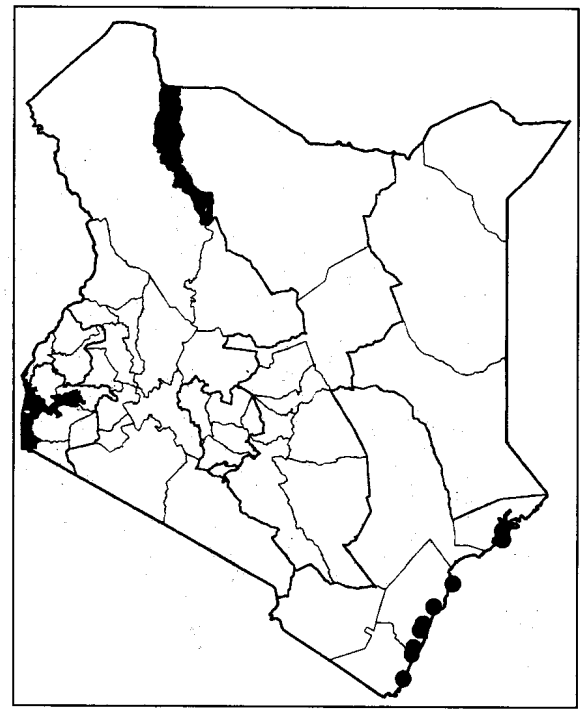
FURTHER READING: Beentje, 1994; ; Dharani, 2002; National Academy of Sciences, 1980; Palgrave and Palgrave, 2002.



Flowering branch



Root of germinated seed



Buddleja polystachya

Loganiaceae

Indigenous

COMMON NAMES: **Kikuyu:** Muthimbari, Ruti; **Maasai:** Olbiran; **Marakwet:** Chorua, Gelelwa, Musereti; **Nandi:** Chorenet, Chorua; **Ogiek:** Pinet; **Samburu:** Ngurangura.

DESCRIPTION: A much-branched shrub or small tree with a short bole. Tree usually 4–5 m, occasionally to 12 m. BARK: Red-brown or grey, deeply grooved. LEAVES: Opposite, long and narrow to 15 cm, tip pointed, **margin toothed**, light grey-green above, **underside and stems with dense white-brown hairs**, stalk about 1 cm. FLOWERS: **Bright orange on a long spike to 20 cm**, flowers tubular, in small groups with sharp and rather unpleasant smell. FRUIT: Small **dry capsules**, open at the tip, seeds winged.

ECOLOGY: A plant distributed from Uganda and Tanzania north into Somalia, Ethiopia, Eritrea, Yemen and Saudi Arabia. It grows in upland grassland, margins and clearings of upland rainforest and often in secondary scrub. It is found in central and western Kenya in montane forests and bushland, 1,000–3,000 m. Agroclimatic Zones II–IV.

USES: Firewood, charcoal, timber (house construction), medicine (leaves, bark), fodder (leaves), bee forage, soap (leaves), live fence, ornamental.

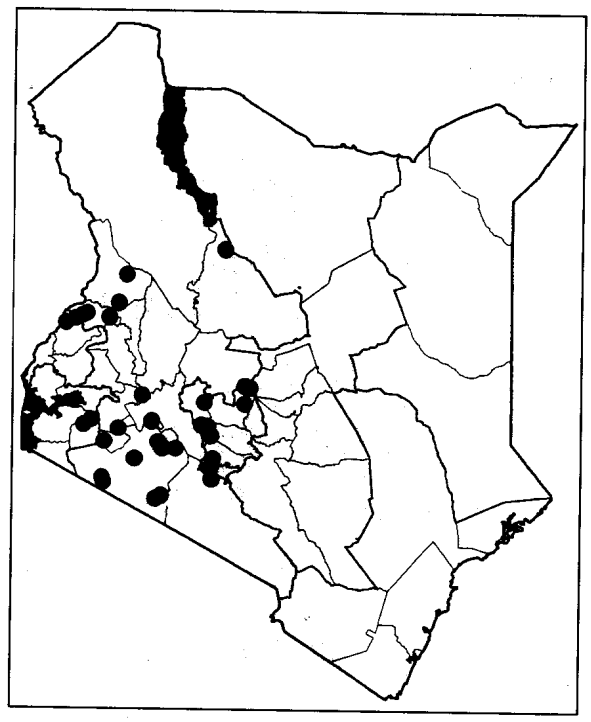
PROPAGATION: Seedlings, wildings and cuttings.

SEED: Seeds germinate well and seedlings are easily raised. **treatment**: None.

MANAGEMENT: Lopping, coppicing and pollarding.

REMARKS: The dry wood can be used to start fires by rubbing sticks (friction). An attractive ornamental which flowers almost all the year round. Bees collect both pollen and nectar from it. *B. pulchella* (**Taita**: Mngombe) is found in forest margins in Taita Hills. It is a straggling shrub with oval leaves that, unlike *B. polystachya*, are without teeth at the edges.

FURTHER READING: Beentje, 1994; Bein et al., 1996; Bekele-Tesemma et al., 1993; Fichtl and Adi, 1994; Kokwaro, 1993; Noad and Birnie, 1989.



Cadaba farinosa Capparidaceae

Indigenous

COMMON NAMES: **Bondei:** Keunya; **Boran:** Dekoku; **Gabra:** Deekuku; **Kipsigis:** Porowet ap teta; **Luo:** Akado marateng'; **Maasai:** Olamalogi; Enkenya sirkon; **Malakote:** Kalaqacha; **Orma:** Kalkalch hare, Kate gurati; **Pokomo:** Mcharara; **Pokot:** Arerenyon; **Rendille:** Geikuku; **Samburu:** Larasoro; **Somali:** Dumei, Galgnal, Tukh; **Swahili:** Kibilazi mwitu, Mvunja vumo; **Taita:** Msimakwari; **Tugen:** Birirwet; **Turkana:** Eireng', Ereng'; **Wardei:** Nagar.

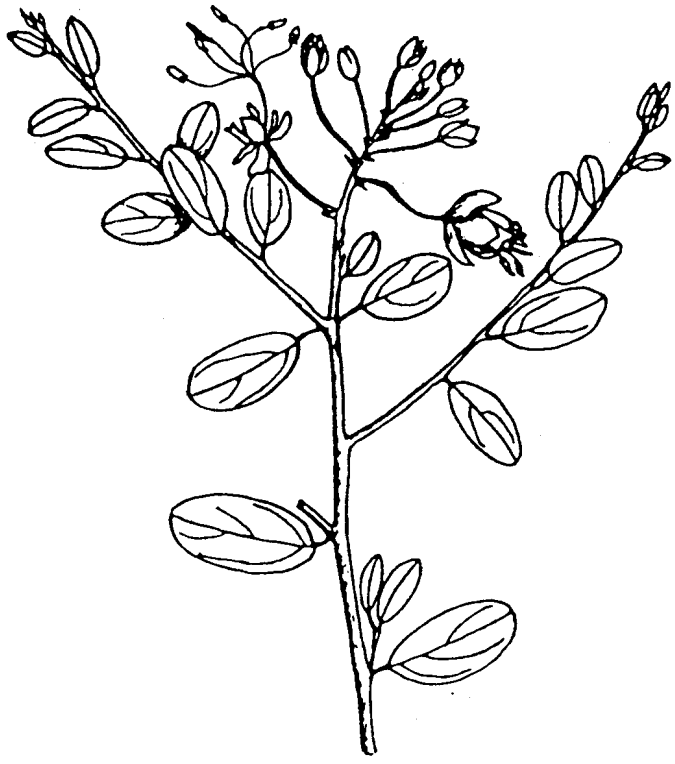
DESCRIPTION: An evergreen twiggy shrub or, rarely, a small tree to 5 m, sometimes climbing. BARK: Pale or dark, strongly grooved, branches often stiff and sharp, young twigs 'floury' with little white scales or hairs. LEAVES: Simple, small, **2–5 cm, oblong, grey-green** along hairy twigs. FLOWERS: **Green-yellow**. Few in a cluster, **ovary stalked**, 4–5 stamens each 2 cm long. FRUIT: On a stalk to 6 cm, noticeable when ripe as the cylindrical pod up to 4 cm long breaks to show **orange-red pulp around black seeds**.

ECOLOGY: A shrub of arid and semi-arid areas in much of eastern and West Africa and India, also in the Democratic Republic of Congo and Angola. It prefers heavy soil but can grow in sand and has been used to stabilize sandy river banks. Often found on termite mounds with other shrubs or at the foot of other trees such as *Balanites* species, 0–1,900 m. Agroclimatic Zones IV–VI.

USES: Firewood, edible young shoots, flavouring (dried leaves), medicine (leaves, roots, ash), fodder (leaves, flowers, fruit), toothbrushes, veterinary medicine.

PROPAGATION: Seedlings.

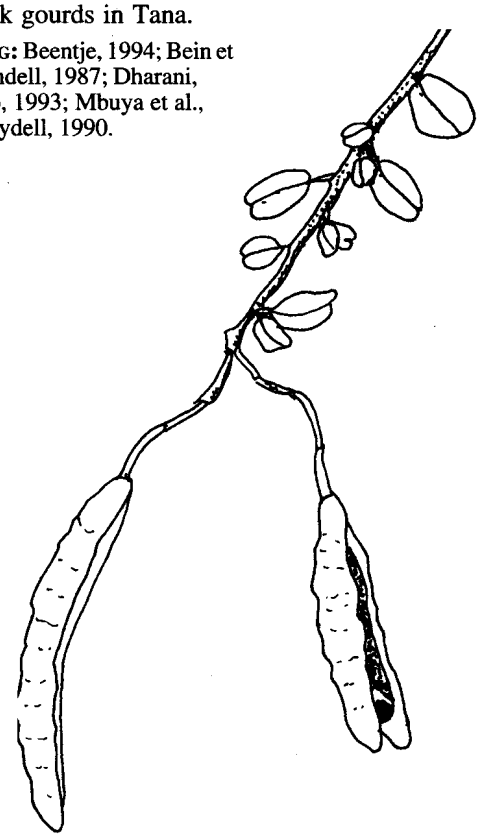
SEED: About 8,000 seeds per kg.
treatment: Not necessary.
storage: Seeds should not be stored.

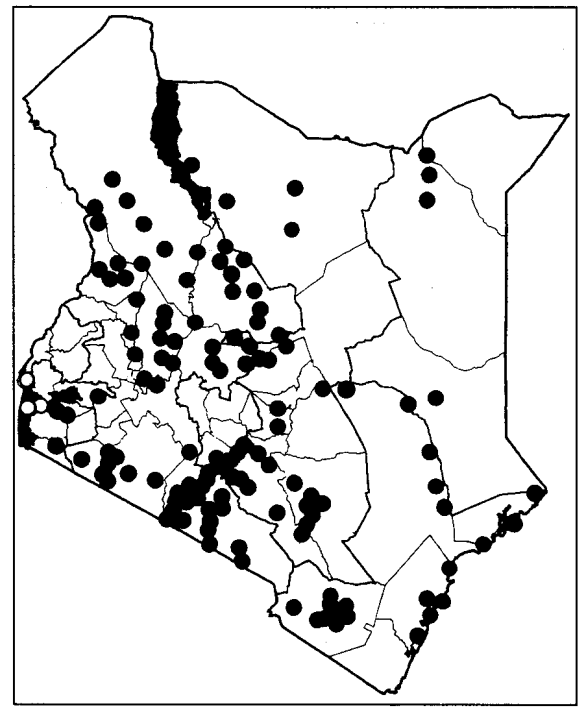


MANAGEMENT: Coppicing.

REMARKS: Good fodder in the dry season. Very common in dry areas. Many medicinal uses and roots and leaves are also used to treat anthrax in cattle. *C. glandulosa* (**Somali**: Dughdughow) is another species widely distributed in the Sahel and across to the Arabian Peninsula. Tolerates excessively saline conditions and the foliage is much liked by camels due to its salt content. The wood is used as firewood. Yet another species, *C. ruspolii* (**Wardei**: Ilgabata) is used for smoking milk gourds in Tana.

FURTHER READING: Beentje, 1994; Bein et al., 1996; Blundell, 1987; Dharani, 2002Kokwaro, 1993; Mbuya et al., 1994; von Maydell, 1990.





Caesalpinia decapetala

Fabaceae (Caesalpiniaceae)

Tropical Asia

COMMON NAMES: English: Mysore thorn, Mauritius thorn; **Kamba:** Kitandamboo; **Kikuyu:** Mubage; **Kipsigis:** Chepkomon; **Kisii:** Ekenagwa; **Luhya:** Luavari, Olunani; **Luhya (Bukusu):** Lunani; **Luo:** Matata, Okwato; **Maasai:** Oiti orok.

DESCRIPTION: A prickly shrub or **climber,** occasionally reaching 10 m. LEAVES: Feathery, compound, to 50 cm long with **hooked prickles below the leaf stalk.** FLOWERS: Showy **pale yellow, in spikes** to 30 cm long, 2 cm across with orange stamens hanging down. FRUIT: Clusters of brown, pointed **pods, held erect** on woody stalks, scattering seeds as they open.

ECOLOGY: Widely naturalized in Africa in high- and medium-rainfall areas, 650–2,100 m. In Kenya, widespread but more common in highland parts of Rift Valley, Central, Western and Nyanza Provinces. Common in red and sandy soils. Agroclimatic Zones I–III.

USES: Bee forage, ornamental, mulch, nitrogen-fixing, live fence.

PROPAGATION: Direct sowing at site.

SEED: Germination rate 60%.

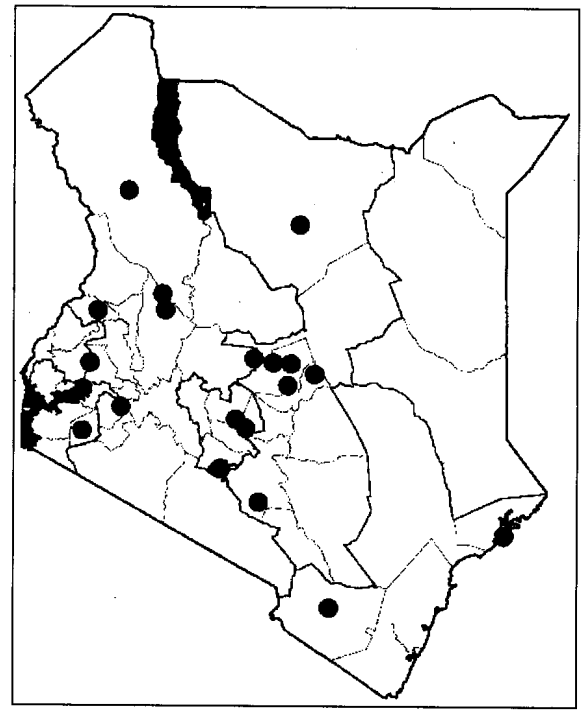
treatment: Soak seed in cold water for 24–48 hours.

storage: Seed can be stored for long periods. Add ash to reduce insect damage.

MANAGEMENT: Fairly fast growing. Trim as a live fence.

REMARKS: Widely used for live fencing but may develop into a serious weed if not checked, especially in pastureland. It is already a very troublesome weed in parts of Kenya and north of the Vaal River in South Africa. Burning in the dry season is an effective control measure. Roots said to be poisonous.

FURTHER READING: Blundell, 1987; Bein et al., 1996; Bekele-Tesemma et al., 1993; Dharani, 2002; Fichtl and Adi, 1994; Katende et al., 1995; Mbuya et al., 1994; Noad and Birnie, 1989; Palgrave and Palgrave, 2002.



Caesalpinia volkensii

Fabaceae (Caesalpiniaceae)

Indigenous

COMMON NAMES: **Digo:** Mburuga; **Kamba:** Muvuu; **Kikuyu:** Mubuthi, Mucuthi; **Luo:** Ajua; **Maasai:** Olnkulankulei; **Meru:** Mujuthi; **Pokomo:** Msadoka; **Sanya:** Omukbare.

DESCRIPTION: A scrambling shrub or **liana** usually to 7 m, sometimes more. STEMS: Armed with scattered **sharp curved prickles**. LEAVES: With prickles, to 8 cm long, twice-divided, pinnae in 3–6 pairs; leaflets in 3–6 pairs, oval, narrowing abruptly towards the tip. FLOWERS: Yellow, in terminal spikes. FRUIT: **Flat pods almost circular or longer than wide, covered with stiff bristles**, usually to 13 x 6.5 cm with a sharp beak.

ECOLOGY: Distributed only in eastern Africa. Found in evergreen or riverine forest, especially at forest edges. In Kenya, found from the coast to western Kenya, 0–2,100 m. Particularly common in Kitui highlands, Kiambu, Murang'a, Lower Tana and Kwale. Agroclimatic Zones I–III.

USES: Medicine (leaves), live fence, ceremonial (seed), 'bao' game (seed), fodder.

PROPAGATION: Seedlings.

SEED: About 4,000 seeds per kg.

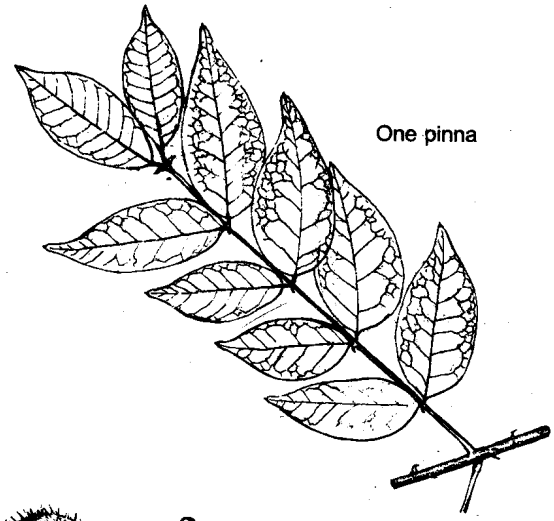
treatment: Nick the seed or immerse in hot water, allow to cool and soak overnight.

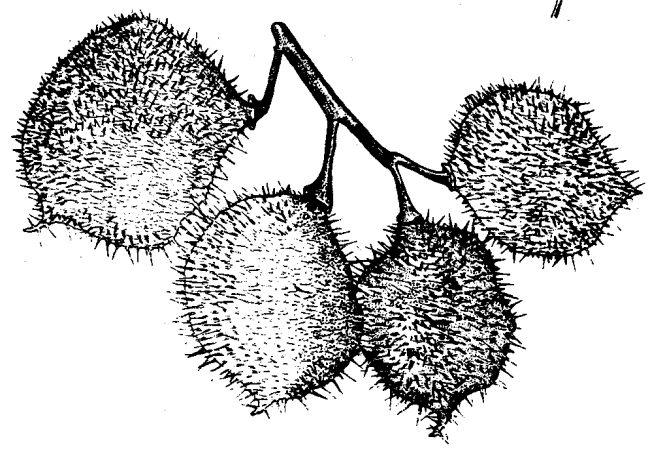
storage: Seed can be stored for long periods.

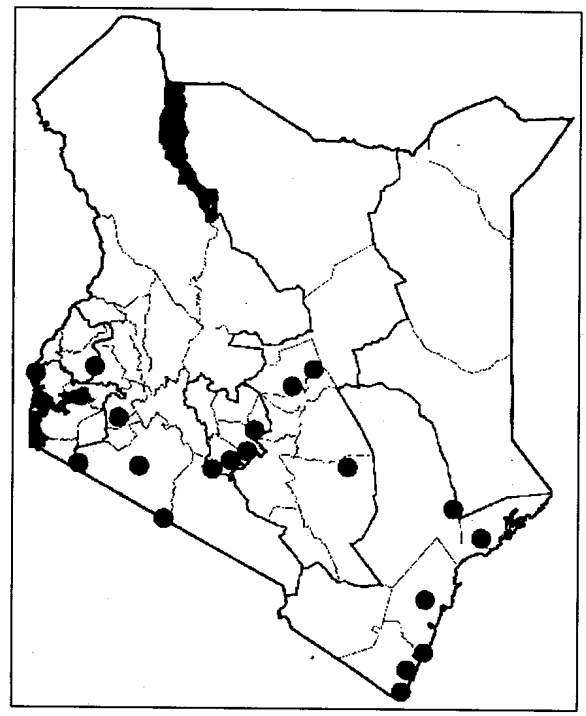
MANAGEMENT: Trim live fence to reduce size or guide branches to attain the desired shape. Can get very bushy and has to be controlled.

REMARKS: Seed used to play the game 'bao' by people at the coast and in the Lake Victoria basin. Some Kamba men and women use the seeds to tell fortunes. *C. trothae* (**Boran**: Gorgor; **Orma**: Hamares; **Somali**: Gora, Furgurgur) is a shrub to 4 m high or a liana. Stems with scattered prickles to 9 mm. Flowers pinkish purple to mauve, one petal with yellow centre. Fruit reddish brown and beaked to 5 x 2 cm. Widely distributed in the eastern and coastal lowland parts of Kenya. Camel fodder. Fruits reputedly poisonous. Another species, *C. bonduc* (**Giriama**: M'buruga; **Orma**: Sadek; **Swahili**: Mkomwe) is only found along the seashore and in nearby sand dunes. Fruit is densely prickly and up to 8 x 4.5 cm.

FURTHER READING: Beentje, 1994; Kokwaro, 1993.







Cajanus cajan

Fabaceae (Papilionaceae)

South East Asia

COMMON NAMES: **Digo:** Mbalazi; **Chonyi:** Mbalazi (fruit), Mubalazi; **Embu:** Muchugu, Njugu (seeds); **English:** Pigeonpea, Catjang, Red gram, Congo pea; **Giriama:** Mbalazi; **Kamba:** Musuu, Nzuu (fruit); **Kambe:** Mbalazi (fruit), Mubalazi; **Kikuyu:** Njugu; **Kisii:** Mbaazi; **Luo:** Mbas; **Marakwet:** Njugu; **Meru:** Nangu, Nchugu; **Sanya:** Mbalazi; **Swahili:** Mbaazi; **Taita:** Chugu; **Teso:** Epana; **Tharaka:** Njugu.

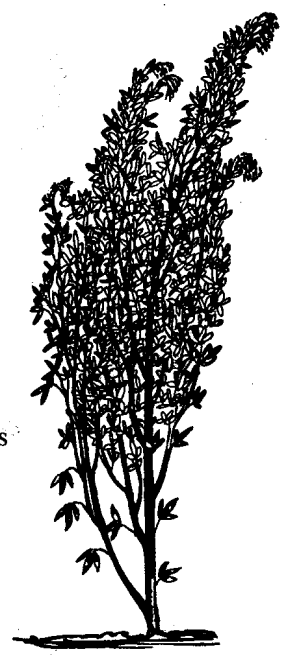
DESCRIPTION: A slender annual or perennial **shrub, usually 2–3 m tall**, occasionally to 5 m, becoming woody with age. **Branches ascending, drooping with age as they are weighed down by flowers and fruits.** BARK: Green or dark red with pale **longitudinal lines**. LEAVES: Each with 3 leaflets covered with glands. Upper surface soft, dark green; paler and **hairy white below,** 2–8 cm long. Veins prominent beneath. FLOWERS: In terminal or axillary groups, **yellow to dark red,** the large petal with reddish brown lines. FRUIT: Pods to 10 cm long, straight or slightly curved with **hairy surface with glands**, green, often streaked red, dark brown or purplish black. Seeds up to 9 (**commonly 5–6**) per pod, green, turning cream or light brown on drying.

ECOLOGY: A hardy, widely adaptable crop growing on a variety of soils if not saline or waterlogged. Drought resistant. Cultivated in tropical Africa and America and a great deal in India. Important in many parts of Kenya, especially in Murang'a, Kirinyaga, Embu, Meru, Machakos, Kitui and Makueni Districts. Also in the Kerio Valley, West Pokot, southern Turkana and in Nyanza Province, 0–1,800 m. Does best in semi-arid to subhumid areas. Occasionally found as an escapee on waste ground. Not soil demanding and can grow in moderately acid as well as infertile soils, but red clay soils and clayey sandy soils are best. A useful, high-yielding crop for the dry areas. In many areas increased attack by insect pests at flowering time has reduced yields significantly in recent years. Rainfall: 600–1,000 mm. Agroclimatic Zones III–V. Flowers in May–June and fruits in July–August in Eastern Province.

USES: Firewood, edible seeds, edible young pods (eaten like French beans), fodder (leaves and pods), green manure, bee forage, nitrogen-fixing, soil conservation and improvement.

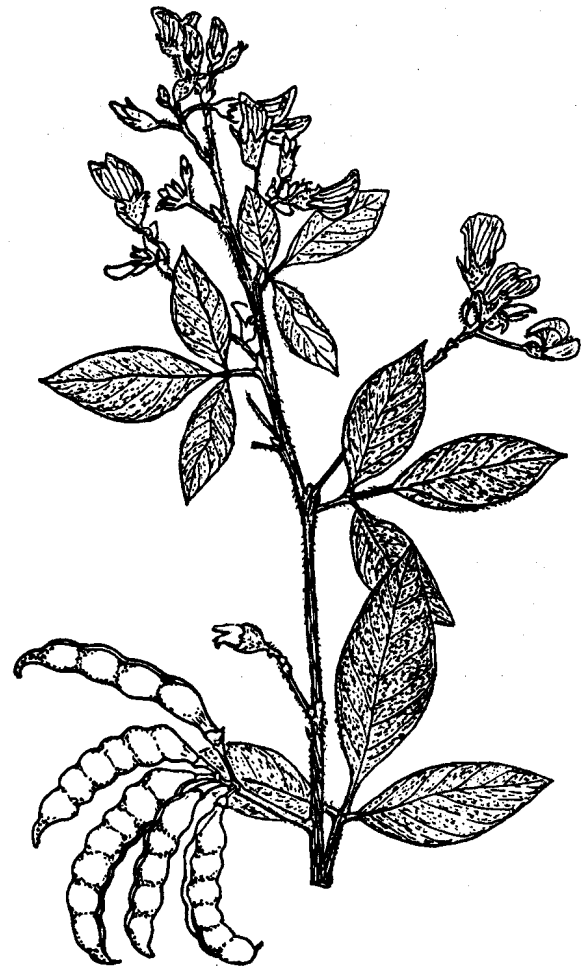
PROPAGATION: Direct sowing at site.

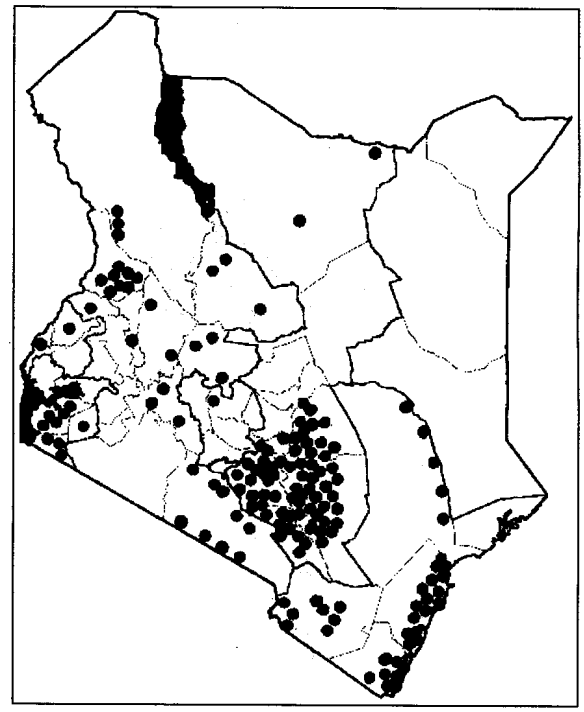
SEED: The pods are picked when the seed has reached maturity and is just beginning to lose its bright green colour. Seed highly susceptible to insect attack, may already be damaged in the pods. Up to 15,000 seeds per kg. Germinates 2–3 weeks after sowing.



treatment: Germinates readily. No pretreatment is needed.

storage: Seed can be stored for long periods, but very susceptible to insect attack (weevils). Add ash.





Cajanus cajan (cont)

MANAGEMENT: Fast growing; regular weeding. May be grown as a pure stand or with other crops. In the low hot regions of Eastern Province it is normally planted during the short October–November rains and harvested in July–August the following year. In Nyanza and at the coast normally planted sparsely in cropland or at the edges of cultivated areas. Occasionally used as a boundary marker.

REMARKS: Perennial 'tree types' are available. After harvesting the stalks are cut and used as firewood (rather poor quality, burns fast but an important fuel during the wet and planting seasons). A good plant for crop rotation or intercropping and an important fodder plant during the dry season after crop harvest. The dry leaves and pods remain after harvest and are important food for donkeys, cattle and goats. Sold in various forms: fresh pods, green peas without pods and dry peas. It may be intercropped with deeply rooted crops. Crops with shallow roots, such as maize, beans, millets, sorghum and quick-maturing types of cowpeas are adversely affected. The origin of this important crop is believed to be Asis. Cultivated in India for thousands of years for its seeds (*dhal*) the name *Cajanus* is derived from the local Malay name, *kacang*, which is pronounced 'cut-jung'.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Bein et al., 1996; Bekele-Tesemma et al., 1993; Jensen, 1999; Katende et al., 1995; Maundu et al., 1999; Mbuya et al., 1994; National Academy of Sciences, 1980.

Calliandra calothyrsus

Fabaceae (Mimosaceae)

Central America

COMMON NAME: **English:** Calliandra.

DESCRIPTION: A large multi-stemmed shrub, 4–6 m. LEAVES: **Compound, similar to those of *Acacia*** spp., shed in a long dry season. FLOWERS: **Showy red 'brushes'** of numerous long shiny stamens, very many on the stalk. FRUIT: A pod which breaks open, each half curling back.

ECOLOGY: Brought to Kenya in 1980. It has done well on a variety of soils, including slightly acidic ones, 1,500–2,000 m. It does not tolerate waterlogging or alkaline conditions. Agroclimatic Zones I–IV.

USES: Firewood, poles, fodder (leaves, twigs), bee forage, shade, ornamental, nitrogen-fixing, soil conservation and improvement, windbreaks.

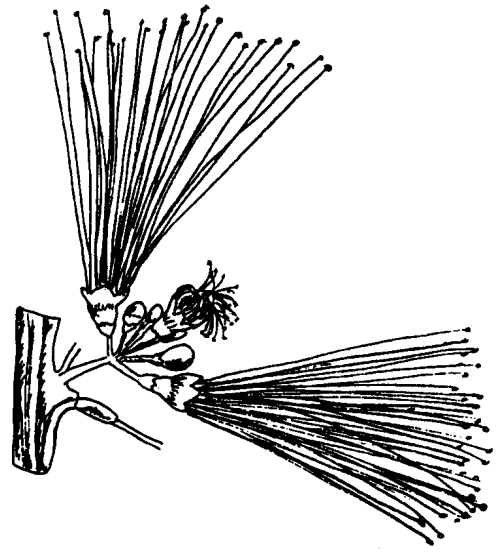
PROPAGATION: Seedlings. Direct sowing could work well if sufficient quantities of seed were available, but seed is normally in short supply.

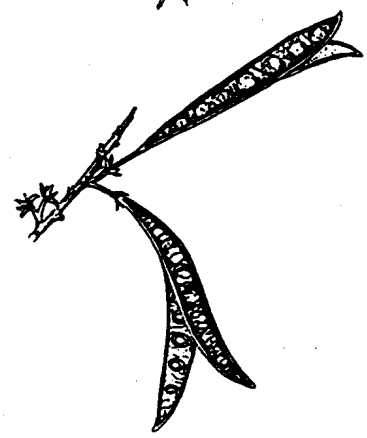
SEED: Collection has to be timely—just when the pods mature but before they split open. Once they split the seed disperses. About 19,000 seeds per kg. Germination is good and completed after about 25 days.
treatment: Immerse seed in hot water, allow to cool and soak for 24 hours.
storage: Seed can be stored for long periods (1–2 years).

MANAGEMENT: Very fast growing on good sites; lopping, coppices well.

REMARKS: Although the shrub coppices well, stand vigour declines with time. Beetles attack flowers, reducing seed production. High tannin content reduces palatability as a fodder. Wood is often attacked by ants. *Calliandra* is a large tropical genus of up to 200 small tree and shrubby species well represented in tropical America, Madagascar and India. *C. gilbertii* is found in North Eastern Province (e.g. near El Wak) of Kenya in *Acacia–Commiphora–Delonix* bushland. It is a much-branched shrub to 2.5 m with creamy white flowers.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Albrecht, 1993; Fichtl and Adi, 1994; Jensen, 1999; Katende et al., 1995; Mbuya et al., 1994; National Academy of Sciences, 1979, 1980; Noad and Birnie, 1989.





Callistemon citrinus

Myrtaceae

Australia, New Zealand

COMMON NAMES: **English:** Scarlet bottlebrush, Lemon bottlebrush.

DESCRIPTION: A small evergreen tree, to 6 m, with drooping foliage. BARK: Grey, smooth, furrowed with age. LEAVES: **Narrow, tough, grey-green to 8 cm,** lemon-scented when crushed, young leaves pink-green. FLOWERS: Vivid crimson bottlebrush-like **cylindrical spikes, due to a mass of long red stamens,** nectar attracting birds and bees. Leafy shoots continue to grow beyond the flower 'brush'. FRUIT: **Small woody capsules,** persisting for many months, often becoming embedded in the thickening branch.

ECOLOGY: A remarkably hardy tree, tolerant of a wide range of temperatures, altitudes and soils; even thrives on poorly drained black-cotton soils. Agroclimatic Zones I–IV. Flowers during the rainy season or continuously on humid ground. Bottlebrush seeds continually.

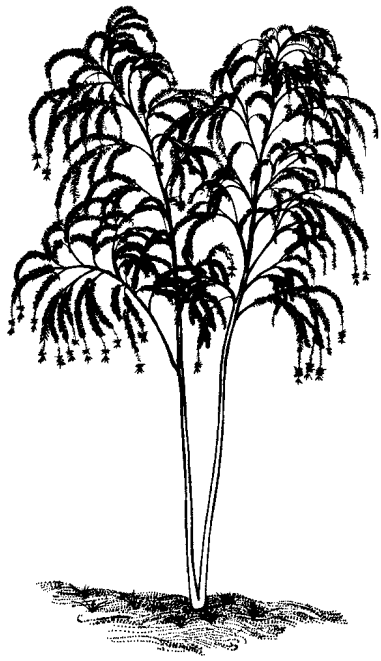
USES: Firewood, charcoal, medicine (bark), bee forage, ornamental, windbreak.

PROPAGATION: Seedlings. Selected clones can be propagated by cuttings from the tips of branches.

SEED: Seeds are tiny. Seed germination is uniform within 2 weeks. Street nurseries in Nairobi germinate *Callistemon* in the following way: Harvest seeds from dry fruits as they split open. Water the seedbed and put the desired quantity of the flour-like seeds in water. Pour this mix on the humid soil. Seeds are lodged on the soil surface as the water soaks in the soil. Cover with a polythene sheet to reduce evaporation and to retain heat. Germination starts after about 6 days. Young plants are easily killed by cold, hence preferably sown in hot months (not June–August).

treatment: Not necessary.

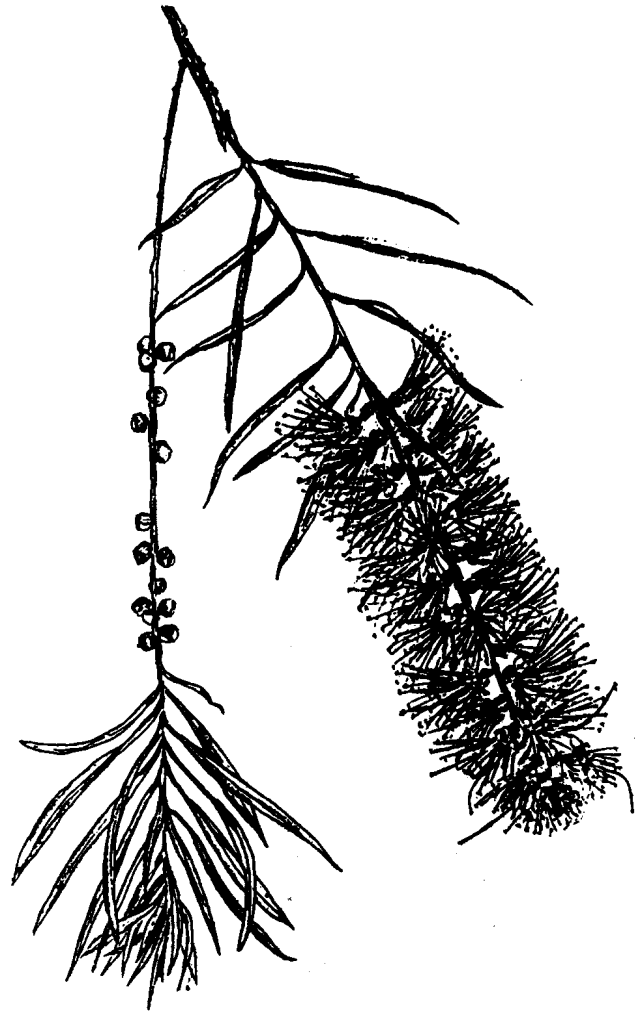
storage: Seed can be stored for long periods.



MANAGEMENT: Fast growing on good sites but almost stagnates at 4–5 m. Prune branches drooping too low. A light pruning after flowering may prevent seed capsules forming and promote more flowering and bushiness.

REMARKS: *C. citrinus* is a very variable species with many cultivars and flower colours—pink, white, mauve and red. Wood is tough. The botanical epithet (citrinus) refers to a faint lemon scent emitted by crushed leaves. *Callistemon* is an Australian genus with 30 or so species generally grown as ornamentals in urban centres, around homesteads, along streets and in parks. Flowers are nectar rich and attract birds and bees. Many species in this genus are closely related so hybridization is common. Other species include *C. linearis* (narrow-leaved bottlebrush), *C. salignus* (willow bottlebrush) and *C. viminalis* (weeping bottlebrush).

FURTHER READING: ; Dharani, 2002; Fichtl and Adi, 1994; Katende et al., 1995; Mbuya et al., 1994; Noad and Birnie, 1989.



Calodendrum capense

Rutaceae

Indigenous

COMMON NAMES: **English:** Cape chestnut; **Kamba:** Yangu; **Kikuyu:** Muraracii, Muroroa; **Kipsigis:** Kipkaria, Sasuriet; **Maasai:** Ol-larashi, Enkarashi; **Meru:** Mujai, Mujura, Mutimueru; **Nandi:** Kipkarkuriat; **Pokot:** Ocharasliit; **Samburu:** Larachi; **Taita:** Mogorusi; **Taveta:** Murei.

DESCRIPTION: A semi-deciduous tree to 15 m with a spreading crown, almost bare for several months. BARK: Grey, smooth, **young branchlets soft hairy.** LEAVES: Opposite, simple, to 14 cm, often bunched together, edges wavy, midrib and veins very clear underneath, main veins parallel. FLOWERS: Large and showy, **pink-white in erect heads,** abundant but erratic, at the ends of branches, crimson gland dots, purple-brown anthers on long stamens. FRUIT: **Knobbly to softly spiny,** becoming hard. Capsules ('chestnuts') hang on the tree then split into a star-like shape to set free large **black angular nut-like but bitter seeds.**

ECOLOGY: A tree widespread in Africa, from Uganda to southern Africa, where it can be found in coastal forests. In Kenya, typical of evergreen highland forests and riverine forest, 1,200–2,200 m. Found in a wide range of soil types, including black cotton. Agroclimatic Zone III. Flowering may be continuous but with peaks in December–January in Nairobi.

USES: Firewood, charcoal, timber, furniture (stools), poles, tool handles, cattle troughs, bee forage, shade, ornamental, mulch, windbreak.

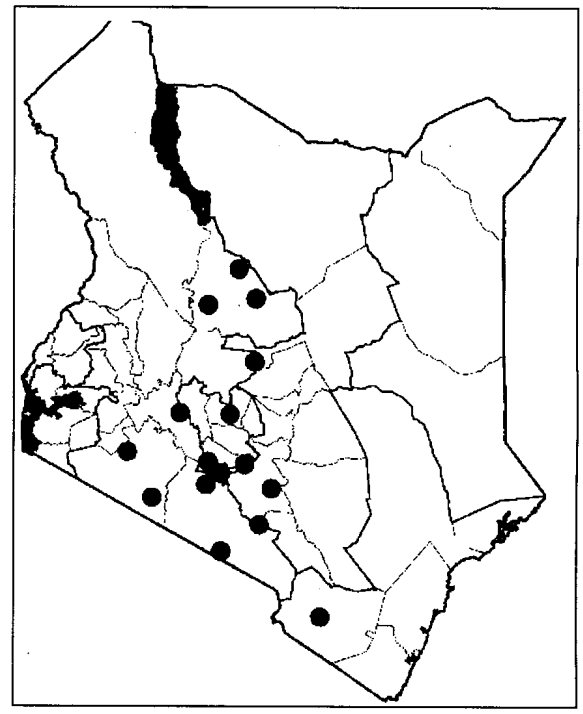
PROPAGATION: Seedling, wildings.

SEED: Seeds are large and easy to collect. Germination is good with fresh seed. About 600–1,000 seeds per kg. Germination in 10–40 days with a germination rate up to 90%, but often lower.
treatment: Not necessary. Float on water to separate viable seeds that will sink.
storage: Seed can be stored for long periods but are susceptible to insect attack.

MANAGEMENT: Slow growing in most conditions. Trees grown from seedlings will need about 10 years to flower. Hardy once established. Prune young trees to shape. Coppices when young. May also be grafted.

REMARKS: A graceful tree, especially when in full bloom. Planted in avenues, parks and in homesteads. Wood tough, bends well and used in house construction. Monkeys and squirrels eat young capsules with seed while on the tree.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Beentje, 1994; Noad and Birnie, 1989; van Wyk, 1998; Blundell, 1987; Mbuya et al., 1994; Katende et al., 1995; Dharani, 2002.



Capparis tomentosa

Capparidaceae

Indigenous

COMMON NAMES: **Boran:** Gorrah gel; **Digo:** Kikombetsui; **Giriama:** Mtsodzsagunga, Mugwada paka; **Kamba:** Mutandamboo, Kiuuka; **Luhya:** Shikumbumbu; **Luo:** Ongono; **Malakote:** Goranyilo, Gora za jovu, Namwaliko; **Maasai:** Olaturdiai; **Meru:** Mukarakara; **Pokomo:** Muchovi, Mbutula; **Pokot:** Tipoyuo; **Sanya:** Gorra adhi; **Somali:** Gombor lik; **Swahili:** Mbada paka; **Taita:** Wangombei; **Turkana:** Ekorokorait.

DESCRIPTION: A thorny **shrub** to 3 m or a **climber** reaching 10 m. THORNS: **Small, curved back**, in pairs beside leaves. LEAVES: Long and oval, up to 9 x 4 cm, **grey-green, thick and leathery**, on a short stalk, may be hairy below, slightly pink. FLOWERS: To 5 cm across with very many white stamens, 4 small white petals, 4 sepals; ovary on a stalk. Flowers usually in groups. FRUIT: Hang down on **long stalks to 5 cm, rounded** 1–5 cm across, **shiny orange-red with pink flesh**, drying black, **persisting** on the bush.

ECOLOGY: Widespread in tropical Africa from Senegal through the Sahel to Eritrea and East Africa to South Africa and the Mascarene Islands. Occurs in semi-arid and humid lowland, highland woodlands, forest edges and scrub, riverine woodland or bushland, secondary bushland, coral-rag forest, 0–2,100 m. Widespread in Kenya. Agroclimatic Zones III–VI. Seeds in August at the coast.

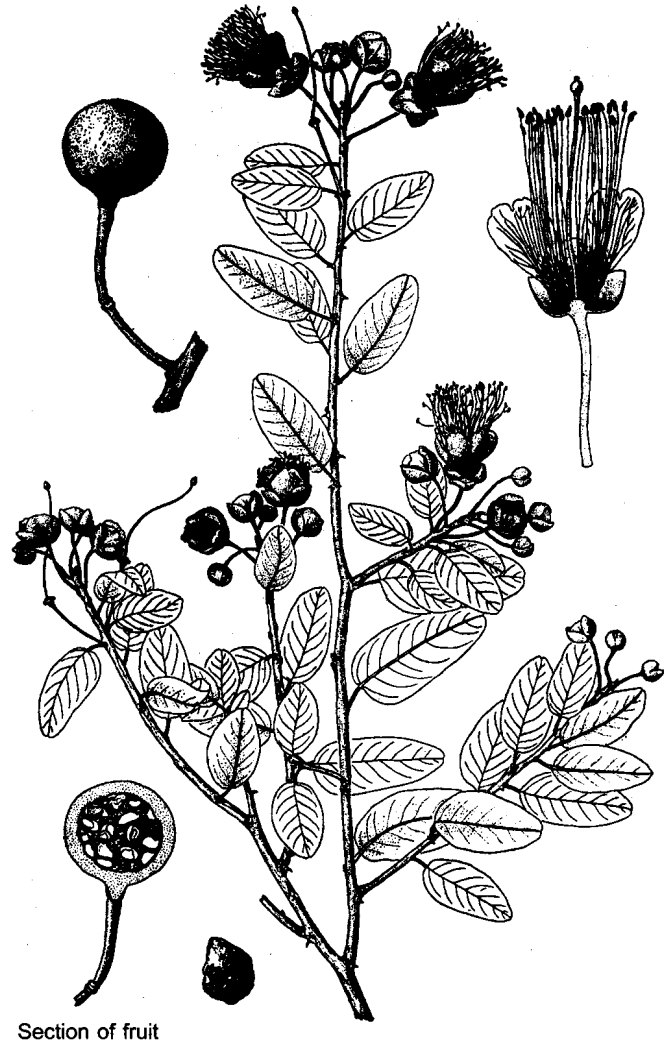
USES: Firewood, medicine (roots, leaves, bark), live fence, dead fence (cut branches).

PROPAGATION: Seedlings, wildings, cuttings.

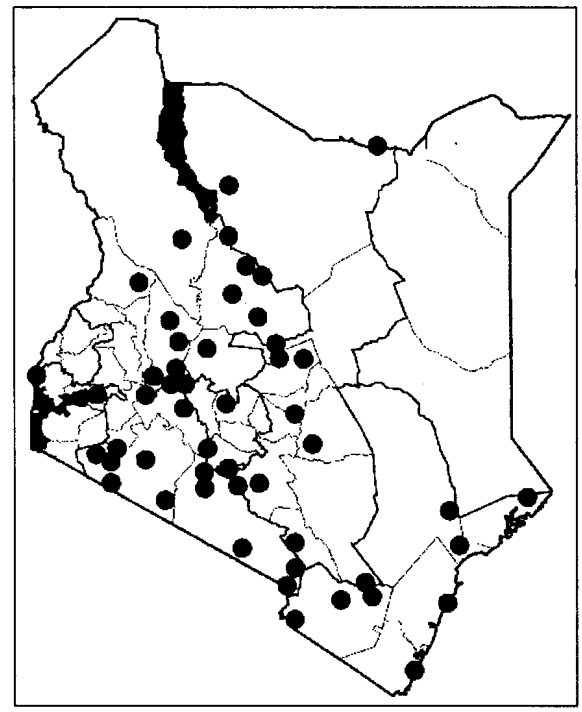
MANAGEMENT: Lopping.

REMARKS: A poisonous shrub that causes poisoning in livestock in the dry season. Roots are said to be very poisonous. Fruits especially poisonous to camels. *C. fascicularis* (**Boran**: Gura gala; **Kipsigis**: Kiptabeliet; **Luhya (Bukusu)**: Lunani; **Luo**: Ong'ono; **Maasai**: Olaturdei; **Orma**: Gora; **Samburu**: Lereday, Laturidei; **Somali**: Gora; **Tugen**: Ekaburu, Kakabuiwo) is also fairly common in Kenya from 0 to 2,200 m. Leaves tend to be narrow, up to 10 x 3.5 cm. Fruit green to red and up to 2 cm across. The species is used for medicine among the Maasai and produces fruits that are much liked by elephants and monkeys. *C. sepiaria* (**Boni**: Nothake; **Embu**: Mutandambogo; **Giriama**: Mugwada paka; **Malakote**: Rhemanguzi; **Kamba**: Itandamboo; **Meru**: Mutandambogo; **Orma**: Gora; **Samburu**: Lakirdinga; **Somali**: Gora, Gedh chala; **Swahili**: Mpapura chui) is also widely distributed, especially in the drier lowland zones (0–1,450 m) and at the coast. It has smaller hairy or hairless leaves (up to 4 cm), flowers and fruits (7–12 mm). Fruits turn red on ripening. Roots are said to be poisonous.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Beentje, 1994; Bein et al., 1996; Bekele-Tesemma et al., 1993; ITDG and IIRR, 1996; Kokwaro, 1993; Palgrave and Palgrave, 2002; von Maydell, 1990.



Section of fruit showing seeds



Carissa spinarum (*C. edulis*)

Apocynaceae

Indigenous

COMMON NAMES: **Boni:** Mulimuli; **Boran:** Dagams; **Chonyi:** Mtandamboo; **Digo:** Mtambuu; **Duruma:** Mulowe; **Embu:** Mukawa, Nkawa (fruit); **Gabra:** Dagams, Dagamsa; **Giriama:** Mtandamboo; **Kamba:** Kikawa, Mukawa (Machakos, Makueni), Mutote (Kitui), Ngaawa (fruit), Ndote (fruit), Nzunu (fruit, Kitui), Matote (fruit); **Kambe:** Mtandamboo; **Kikuyu:** Mukawa; **Kipsigis:** Legetetyet, Legetiet; **Kisii:** Omonyangateti; **Kuria:** Omunyoke; **Luhya:** Shikata; **Luhya (Bukusu):** Kumurwa (plant), Burwa (fruit), Sirwa; **Luhya (Tachoni):** Oburwa; **Luo:** Ochuoga; **Maasai:** Olamuriaki, Ilamuriak (plural); **Malakote:** Mokalakala, Kaka mchangani; **Marakwet:** Leketeet (plural), Leketetwa, Leketetwo; **Mbeere:** Mukawa; **Meru:** Kamuria, Nkawa mwimbi (fruit); **Nandi:** Legetetwa, Legetetuet; **Pokomo:** Mlalanche; **Pokot:** Lokotetwo; **Rendille:** Godhoom boor; **Samburu:** Lamuriei, Lamuriai, Lmuria; **Sanya:** Gurura; **Somali:** Adishabel; **Swahili:** Mtandamboo; **Taita:** Kirimba, Ndandangoma; **Teso:** Emuriei; **Tugen:** Legetetik (fruit), Legatetwo (plant); **Turkana:** Ekamuria.

DESCRIPTION: A spiny evergreen shrub or liana usually to 5 m, occasionally more. BARK: Grey, smooth with **straight woody spines to 5 cm,** often in pairs, rarely branching. Milky latex as in all the family. LEAVES: **Opposite, leathery, dark green, shiny to 5 cm, tip pointed,** base rounded, stalk very short. FLOWERS: Fragrant, in **pink-white terminal clusters**, each flower to 2 cm, lobes overlap to the right. FRUIT: **Rounded berries about 1 cm**, purple-black when ripe, sweet and edible, 2–4 seeds.

ECOLOGY: Widespread in Africa from Senegal to Somalia and south to Botswana and Mozambique. Also in Asia from Yemen to India. Common in most areas of Kenya in forest edges, bushland and thickets, especially on rocky hillsides. Common in rocky areas, on clay soils, especially black-cotton soils at valley bottoms and near seasonally flooded areas, 0–2,500 m. Rare in the coastal belt. Rainfall: 500–1,800 mm. Agroclimatic Zones II–V. Flowers in all seasons with peaks in the rainy seasons or soon after. Around Nairobi in full flower in May. Fruits in April–July and November–December in Bungoma.

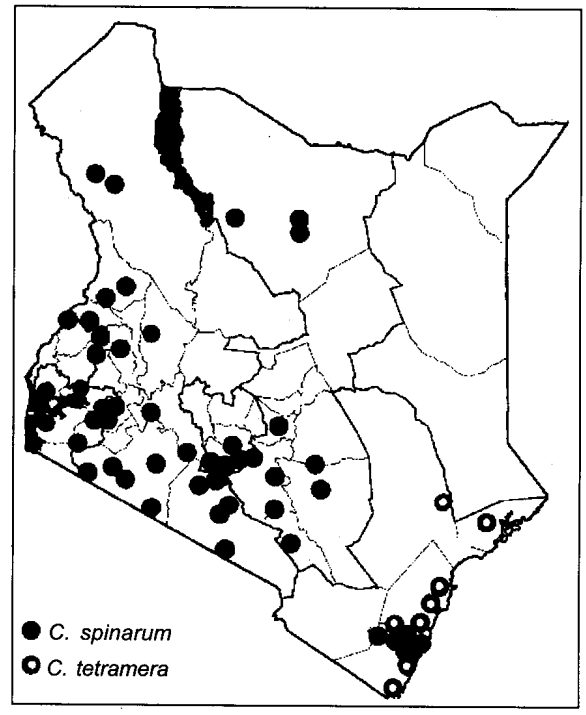
USES: Edible fruit (ripe and unripe), edible flowers, flavouring (soup, stews), medicine (roots, branches), fodder (good for goats), bee forage, ornamental, dye (ripe fruit), live fence, veterinary medicine.

PROPAGATION: Seedlings (sow in pots), wildings, direct sowing at site. Seeds germinate easily. Wildings often grow under parent bushes.

SEED: Fresh seed germinate well; 28,000–30,000 seeds per kg.
treatment: Not necessary.
storage: Seed loses viability fairly quickly. Use fresh seed for best results.

MANAGEMENT: Fairly slow growing. Trim the fence.

REMARKS: An important fruit and medicinal plant in Kenya. It can be grown from seed to develop into an attractive and impenetrable hedge. Both the unripe and ripe fruits are eaten whole. Much liked by both children and adults. Flowers eaten (Luhya/Bukusu). The plant is among the most important sources of traditional medicine. Silk-moth cocoons occasionally found on the plant. Fruits occasionally sold in markets. Two other closely related species have edible fruit and may also be used for live fences. *C. bispinosa* shares many features with *C. spinarum* from which it can be distinguished by the petal arrangements. The corolla lobes overlap to the left in *C. bispinosa* but to the right in *C. spinarum*. *C. bispinosa* is only occasional in coastal Kenya, and it is only the subsp. *bispinosa* that is found in the country. *C. tetramera* is also restricted to the coast, has smaller fruits,



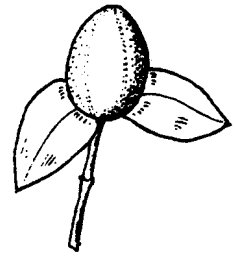
Carissa spinarum (cont)

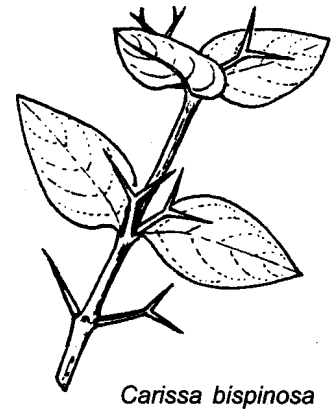
forked spines, faintly toothed leaf margin and tends to creep more. All 3 species share the same local names.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Backes and Ahenda, 1998; Beentje, 1994; Bein et al., 1996; Bekele-Tesemma et al., 1993; Blundell, 1987; Dharani, 2002; Fichtl and Adi, 1994; ITDG and IIRR, 1996; Katende et al., 1995, 1999; Kokwaro, 1993; Maundu et al., 1999; Mbuya et al., 1994; Noad and Birnie, 1989; Palgrave and Palgrave, 2002; Ruffo et al., 2002.

Carissa tetramera

Fruit of *Carissa* sp.





Carissa bispinosa

Casaeria battiscombei

Flacourtiaceae

Indigenous

COMMON NAMES: **Kikuyu:** Muirongi; **Luhya:** Namasinzi; **Marakwet:** Liss; **Meru:** Munogo; **Nandi:** Cheptokoriet, Chepchabeyet; **Ogiek:** Chepcharaiyet; **Pokot:** Sigikwa; **Samburu:** Iltumbach; **Sabaot:** Seruwa, Seruondet.

DESCRIPTION: A slender tall, **forest tree to 30 m** with straight bole, slightly buttressed at the base. The branches are arranged in layers, horizontal or drooping. BARK: Black, smooth or rough. LEAVES: Dark green, shiny above, occasionally toothed, oblong, **base asymmetric**, rounded or slightly heart-shaped, up to 22 cm x 7 cm wide, arranged in 2 alternate rows. FLOWERS: Yellow-green, in **clusters in leaf axils**, very small. Petals absent. FRUIT: A **capsule with a sharp tip**, up to 2 cm long, yellow to orange.

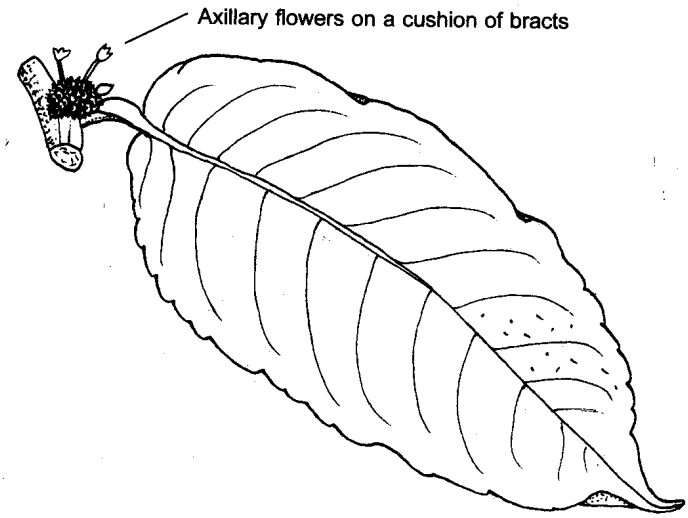
ECOLOGY: Upland moist forests, 1,350–2,400 m. Agroclimatic Zones I–II.

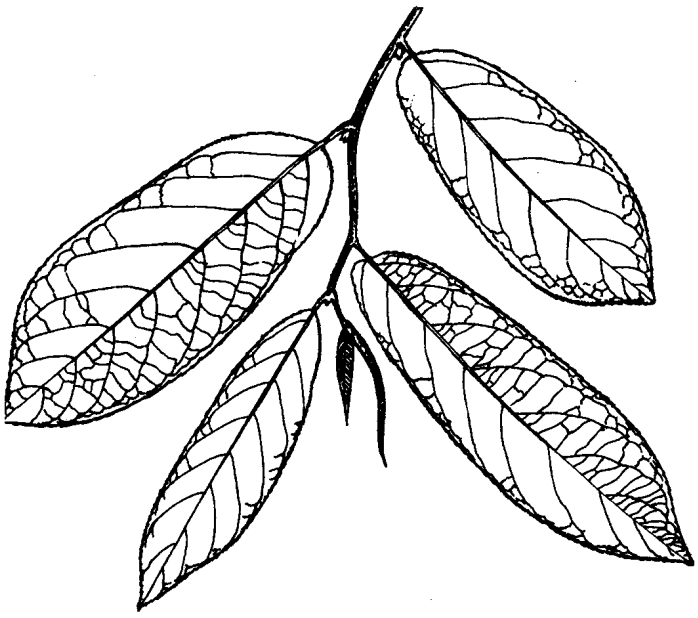
USES: Timber.

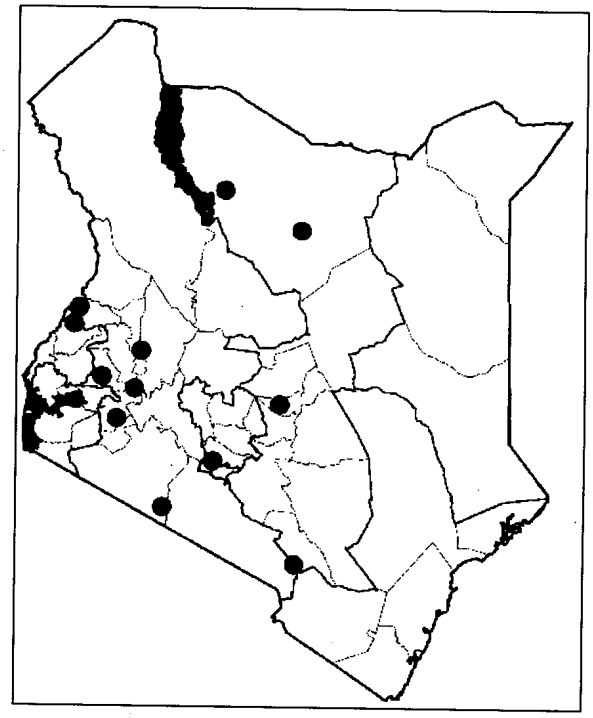
SEED: Seedlings.

REMARKS: *C. gladiiformis* is a smaller tree but resembles the main species in many respects. It is found in moist forests of Kakamega and the south coast. The species is also a source of timber.

FURTHER READING: Beentje, 1994; Palgrave and Palgrave, 2002.







Casimiroa edulis Rutaceae

Central America

COMMON NAMES: **English:** White sapote, Mexican apple.

DESCRIPTION: A medium-sized evergreen tree up to 12 m, much branched with a short trunk and leafy hanging branches. BARK: Smooth, pale brown. LEAVES: Alternate and **compound with 3–5 lobes, each long oval and shortly stalked** to the centre, surface shiny green. FLOWERS: Small, **green-white-yellow in loose heads beside leaves**, 5 petals. FRUIT: Green and rounded at first **ripening green-yellow, with soft skin and sweet white pulp around 2–5 large dark seeds, 8–10 cm across**, like an apple.

ECOLOGY: A fruit tree originally from the highlands of Mexico and Central America now widely grown in the tropics. In Kenya, it is grown in the warm areas, especially Coast, Central and Eastern Provinces at 0–2,400 m. Agroclimatic Zones II–IV.

USES: Firewood, edible fruit, bee forage, windbreak.

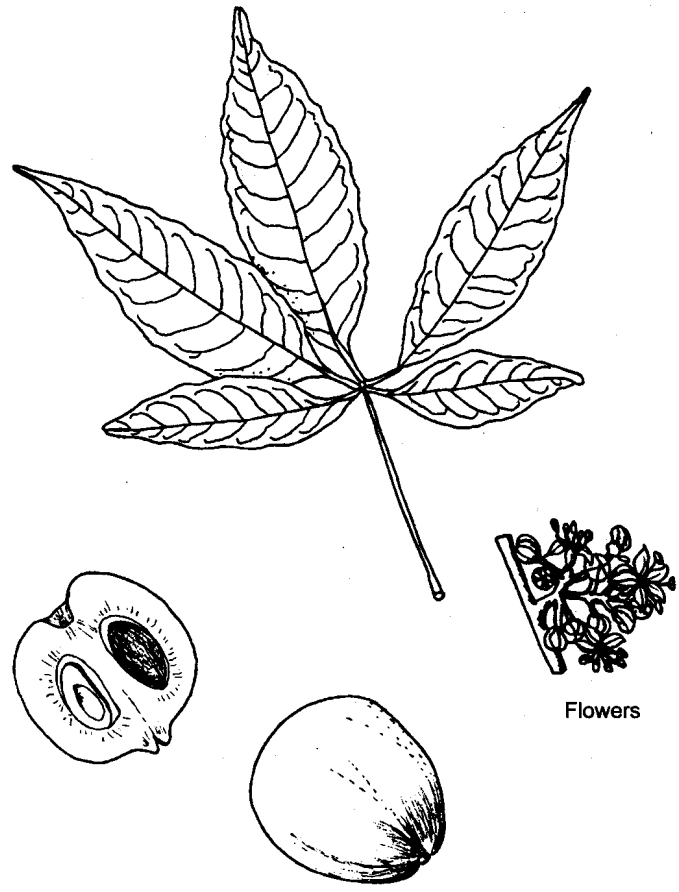
PROPAGATION: Seedlings.

SEED: Air-dry seed after extraction from the fruit and sow, preferably immediately, but not more than 2 months later since viability declines rapidly. Seedlings can be budded or grafted for good variety.
treatment: No other treatment required.
storage: Avoid storage and definitely do not store more than 2 months.

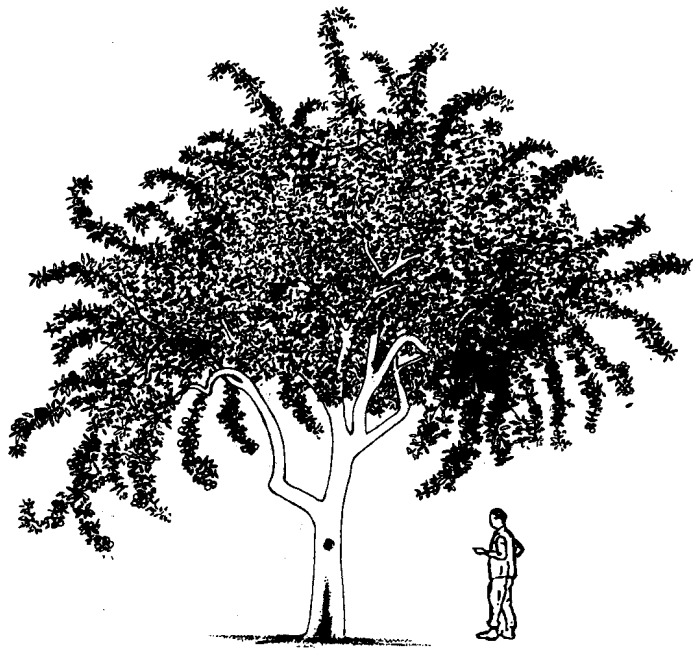
MANAGEMENT: Slow to establish but grows fast once established. Light pruning may be required for the most vigorous types during the first 2 years.

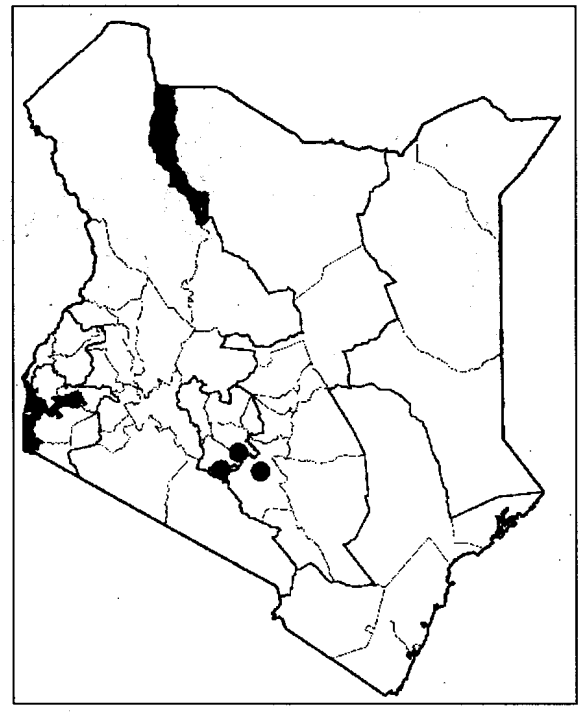
REMARKS: Bees are needed to increase fruit setting by pollination. In the drier areas it has been recorded as fruiting after 8–9 years. In favourable conditions a mature tree produces much fruit each year. Grafted trees should fruit in 2 or 3 years and there are many varieties. The tree has a vigorous root system so plant well away from buildings. Crops may also be adversely affected, especially when soil moisture is limited. Casimiroas are highly nutritious, being rich in vitamins A and C as well as carbohydrate and protein. Sugar content is as high as 27%.

FURTHER READING: Bein et al., 1996; Dharani, 2002; Fichtl and Adi, 1994; Verheij and Coronel, 1993.



Flowers





Cassia abbreviata

Fabaceae (Caesalpiniaceae)

Indigenous

COMMON NAMES: **Boni:** Kang; **Boran:** Rabiya; **Digo:** Muhumba mkulu; **English:** Long-pod cassia; **Giriama:** Muhumba mkulu; **Kamba:** Kyathandathe, Mualandathe, Muathandathe, Mwathandathe; **Pokomo:** Msoka, Mbaraka mtoni; **Somali:** Domaderi; **Swahili:** Mbaraka; **Taita:** Msoko, Mkangu.

DESCRIPTION: A small deciduous tree or shrub with a light, open, flat or rounded crown, growing up to 10 m high. **Easily recognized when the long pods are hanging on the tree.** BARK: Reddish when young, becoming grey, brown or blackish with cracks when old. LEAVES: Compound with up to 12 pairs of hairy or slightly hairy leaflets, each leaflet oblong to 6 cm, tip rounded. FLOWERS: **Yellow, in heads to 9 cm,** usually **appear when tree is leafless.** FRUIT: **Brown-black pods, 30–90 cm,** thick cylindrical section containing many seeds in a dark green and sticky pulp. When dry, the pods split open and the seeds can be shaken out.

ECOLOGY: Widespread from Somalia to Mozambique and Namibia in semi-arid areas. Frequently found in *Acacia–Commiphora* bushland, less often in woodland or wooded grassland, 0–1,000 m. Agroclimatic Zones V–VII.

USES: Firewood, timber, poles (construction), furniture, medicine (bark, roots), ornamental, tannin, grave marking (Giriama).

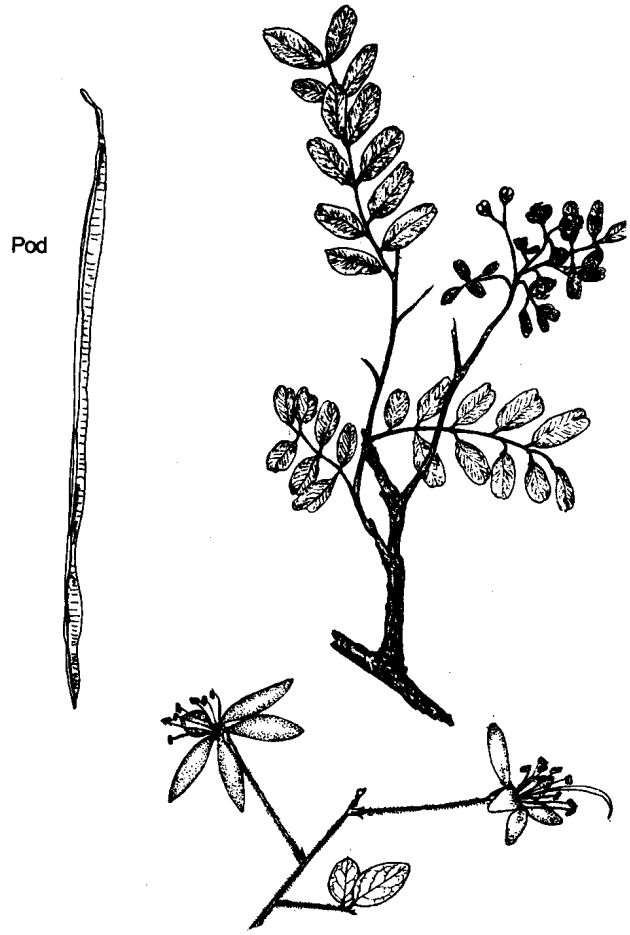
PROPAGATION: Seedlings, wildings, root suckers.

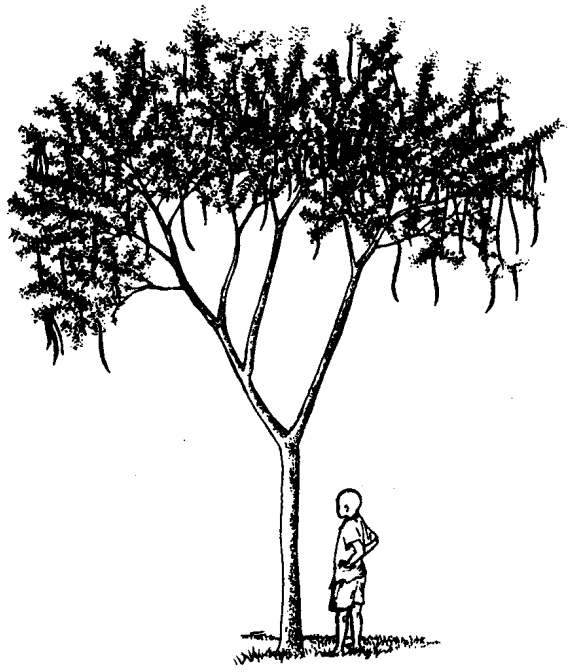
SEED: About 15,000 seeds per kg. Germination is good and fast for fresh seed.
treatment: Soak stored seed in cold water for 12 hours.
storage: Seed can be stored for long periods.

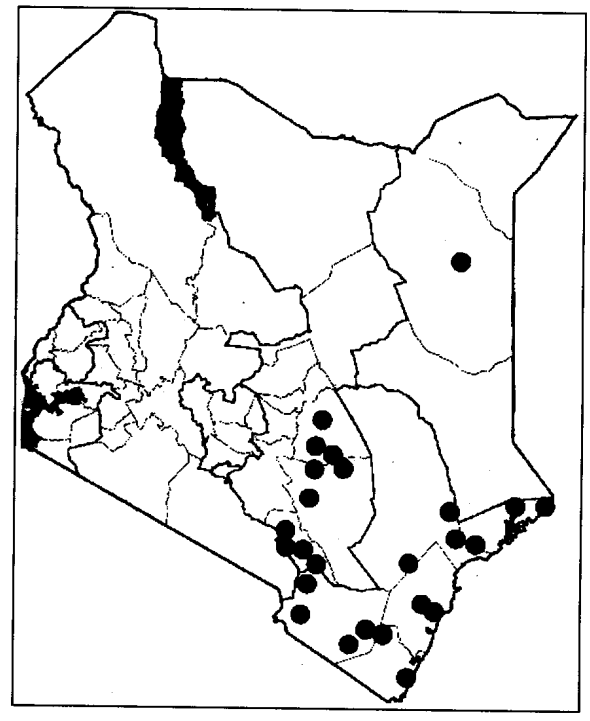
MANAGEMENT: Pruning.

REMARKS: Several subspecies have been distinguished. *C. abbreviata* subsp. *beareana* grows only at relatively more humid sites at the coast (e.g. Gede), while subsp. *kaessneri* grows in drier parts of the coastal area (e.g. Tsavo) and in other dry areas. *C. afrofistula* (**Boni:** Kionge; **Digo:** Muhumba; **Giriama:** Muhumba; **Sanya:** Wasamara; **Swahili:** Mbaraka mtoto) is a small coastal tree found in bushland and at forest edges. Leaves, bark and roots are medicinal. Wood is used for building poles, carving and for firewood.

FURTHER READING: Beentje, 1994; Blundell, 1987; Dharani, 2002; Kokwaro, 1993; Mbuya et al., 1994; Palgrave and Palgrave, 2002; Storrs, 1979; van Wyk, 1998.







Cassipourea malosana

Rhizophoraceae

Indigenous

STANDARD/TRADE NAME: Pillar wood.

COMMON NAMES: **Embu:** Muthaguta; **Kikuyu:** Muthaithi; **Kipsigis:** Muangaita; **Kisii:** Omonyakerede; **Maasai:** Olarioi, Olanget; **Marakwet:** Tendewa; **Meru:** Muthaguta; **Nandi:** Martit; **Ogiek:** Mangweta; **Samburu:** Muchanja, Lobbobo; **Tugen:** Maiti; **Turkana:** Ekatha.

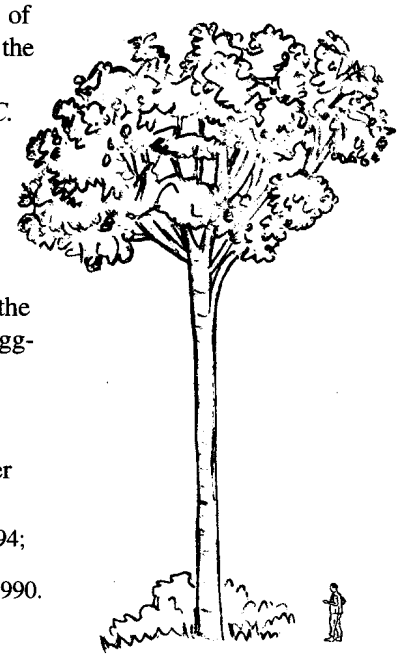
DESCRIPTION: A tall evergreen tree to 25 m with a very straight **cylindrical pillar-like trunk**. BARK: Usually smooth, greyish, with horizontal lines of breathing pores. LEAVES: Opposite, broadly oval, to 8 cm long, mostly more than 4 cm, **edge often slightly toothed**, net veins prominent. FLOWERS: Small, from leaf axils, yellowish green with many stamens. Calyx persistent. FRUIT: **Small, fleshy, egg-shaped capsules** to 8 mm long that open, becoming black when dry. Hairy at first, becoming hairless later. Seeds with aril.

ECOLOGY: Common in drier forests (podo/cedar/olive) or as understorey in moister forest and also in forest remnants, 750–2,550 m. Found particularly on Mt Kenya and the Aberdares as well as in drier upland forest around Nairobi and in Loita Forest. Common along streams. Agroclimatic Zones II–III.

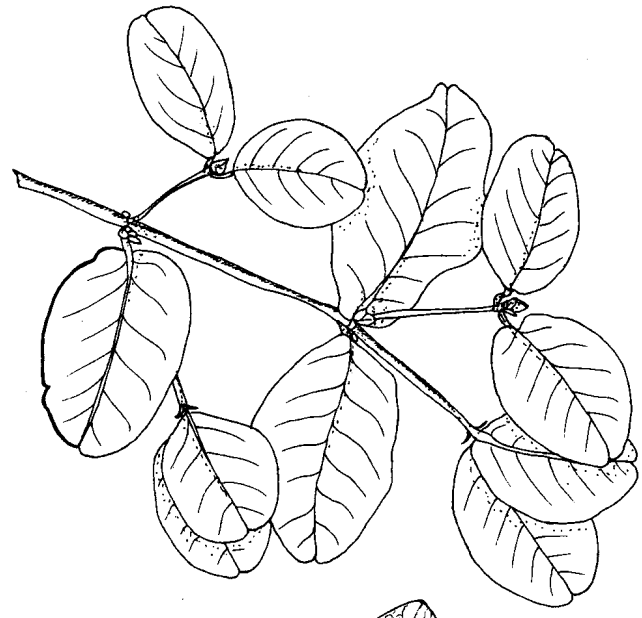
USES: Timber (construction), firewood, beehives, beverage ('tea' from boiled roots), medicine (boiled roots), bee forage.

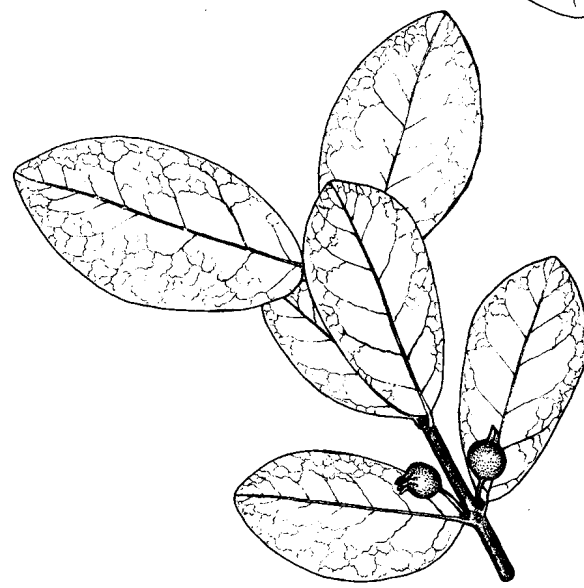
PROPAGATION: Seedlings, wildings.

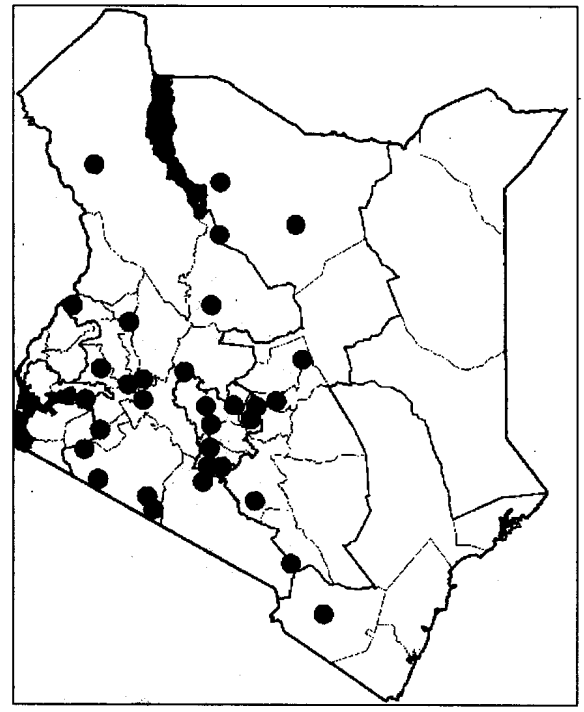
REMARKS: The wood is very hard, used commercially, but frequently attacked by borers. Holes in the trunk are frequently homes for bees. A smaller species is *C. euryoides* (**Bajun:** Mbazanzi; **Boni:** Mkulangi; **Giriama:** Masuzi; **Swahili:** Mwanzangu, Mugome) hardly exceeding 10 m, usually with entire leaf margins. It is used for poles. Wood is hard and resistant to borers. Other species include *C. celastroides* (**Kamba:** Muthongoli, Mwiyumbi), a usually shrubby plant of evergreen bushland, especially on hillsides. *C. gummiflua* is a tall tree with smooth pale grey bark. It is found in moist evergreen forests, especially *Ocotea*-dominated forests of south Mt Kenya and also the Aberdares. The wood is hard and used as timber. *C. ruwensorensis* (**Luhya**: Mukoloho; **Nandi**: Marteet) is a small tree more common in Nandi and Kakamega Forests. Leaves toothed towards the tip and a densely hairy egg-shaped fruit. It has fine-textured wood. The taxonomy of this genus in Kenya needs some further work.



FURTHER READING: Beentje, 1994; Noad and Birnie, 1989; Sommerlatte Sommerlatte, 1990.







Casuarina cunninghamiana

Casuarinaceae

Eastern Australia

COMMON NAMES: **English:** River oak, River she-oak.

DESCRIPTION: An evergreen tree to 30 m, pyramidal in shape when young, the base wide when mature and a shady crown. BARK: Grey-black, much cracked with age. Thin **branchlets** have taken over leaf function in this family—leaves are minute scales at each joint. The grey-green branchlets are **9–20 cm long, on upturned branches.** FLOWERS: Inconspicuous. Male flowers are seen as yellow pollen-bearing tips to branchlets and female flowers are tiny heads with hairy red stigmas on woody branches. FRUIT: In dense clusters, **prickly brown** and cone-like, **1 cm long.** They ripen and shed hundreds of winged seed, pale in colour and smaller than *C. equisetifolia.*

ECOLOGY: Introduced to Kenya and many other tropical areas from Australia, where it is found along freshwater streams and rivers. Common in Nairobi where it is grown as an ornamental. It prefers well-drained soils. It can grow from warm subhumid to warm semi-arid climates, 0–2,200 m. Agroclimatic Zones I–IV. In Nairobi in full flower in May.

USES: Firewood, charcoal, timber, poles, posts, fodder, shade, ornamental, mulch, nitrogen-fixing, river-bank stabilization, soil conservation, windbreak.

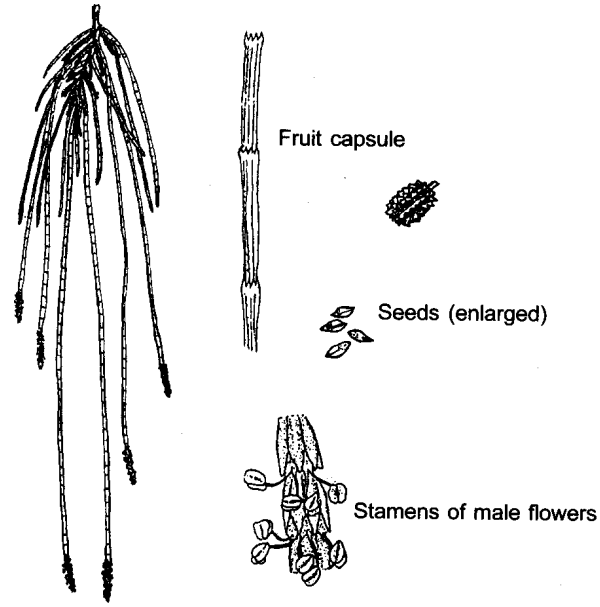
PROPAGATION: Seedlings. Nursery soil where *Casuarina* are to be raised may need inoculation by addition of soil from beneath mature trees.

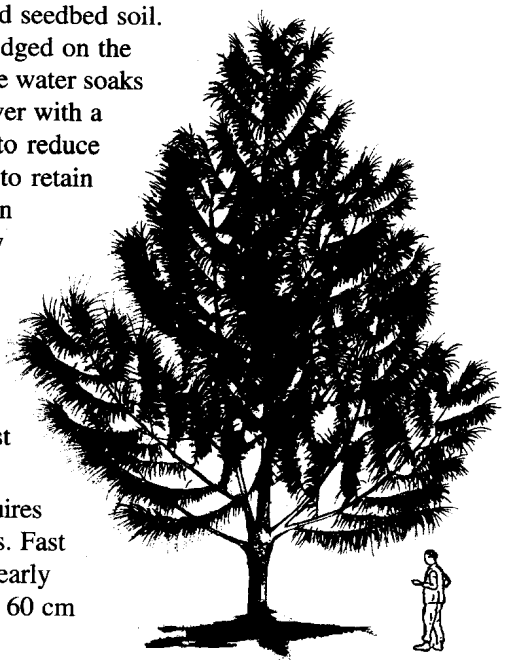
SEED: On average 1,800,000 seeds per kg. Collect cones at maturity, just before they open to release seed. Then dry cones on a cement floor or plastic sheet so seeds are released. Move around for cones to release seed, then remove cones and collect seed. Good germination rate, 55–70%. Sow seed in seedbeds and prick out soon after germination. Street nurseries in Nairobi germinate these trees in the following way. Water the seedbed and put the desired quantity of the small seeds in water. Pour this mix on the humid seedbed soil. Seeds become lodged on the soil surface as the water soaks into the soil. Cover with a polythene sheet to reduce evaporation and to retain heat. Germination occurs after a few days.
treatment: Not necessary.
storage: Seed can be stored for long periods; best in darkness.

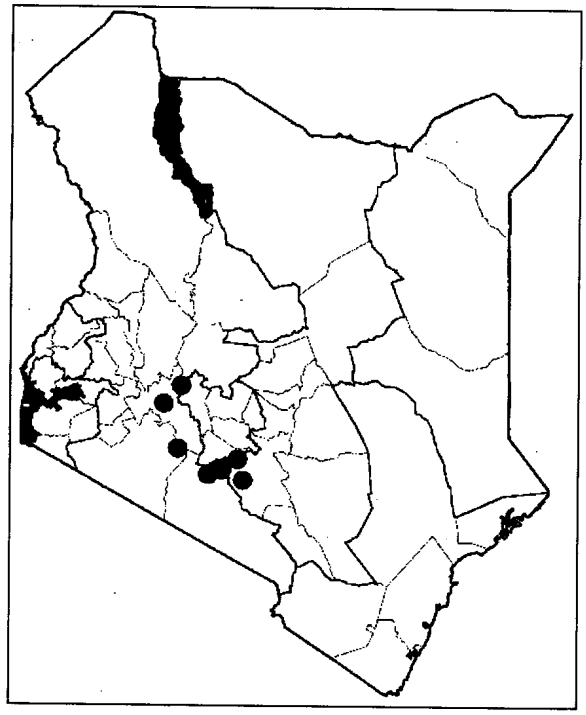
MANAGEMENT: Requires well-drained soils. Fast growing even at early stage. May attain 60 cm within first 4 months. Faster growing than *C. equisetifolia* at higher elevation; coppices when young.

REMARKS: This is the largest of all casuarinas. It has spreading roots good for holding the soil together, hence valued in soil-erosion control. Casuarinas are graceful multipurpose trees adaptable to strong winds and relatively dry conditions. Few plants grow underneath them, however, and therefore some farmers maintain that they poison the soil and are not good for cropland in spite of their nitrogen-fixing ability. In Australia, leaves are used as fodder when nothing else is available ('beefwood'). The wood is very hard and is difficult to work. Termites may damage seedlings as well as young trees.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Bein et al., 1996; Bekele-Tesemma et al., 1993; Dharani, 2002; Mbuya et al., 1994; Noad and Birnie, 1989; Pinyopusarerk and House, 1993; Turnbull, 1986.







Casuarina equisetifolia

Casuarinaceae

South East Asia, north and north-east Australia

COMMON NAMES: **English:** Whistling pine, Beach she-oak, Horsetail tree; **Swahili:** Mvinje.

DESCRIPTION: A tree to 20 m with a relatively short trunk and long weeping, silvery branchlets. BARK: Grey-black, cracked with age, peeling off in strips. LEAVES: Minute scales just visible on the green branchlets; **branchlets to 30 cm hang down in crowded tufts.** FLOWERS: Pollen-bearing tips on some branchlets, female flowers in tiny heads with red stigmas. FRUIT: Woody and prickly, brown, like 'cones', in clusters, **to 2.5 cm long,** releasing hundreds of tiny winged seeds.

ECOLOGY: Occurs naturally on tropical seashores around most coastal areas of the Pacific and Indian Oceans, making it the *Casuarina* with the widest natural distribution. In Kenya, it is the most conspicuous tree along sandy and coral beaches and nearby hinterland, 0–1,400 m. It is sometimes seen stunted by wind. The extensive root system enables the trees to grow in poor soils. It tolerates salty winds and poor, salty and sandy soils of the beaches. Agroclimatic Zones I–IV, but limited to the coast. Seeds at the coast mainly in July–August and February–March.

USES: Firewood (burns very well), charcoal, furniture, poles (for house construction), posts, boat building (dhow masts), tool handles, fodder, shade, ornamental, mulch, nitrogen-fixing, soil conservation, reclamation of degraded areas, sand-dune stabilization, windbreak, tannin, dye.

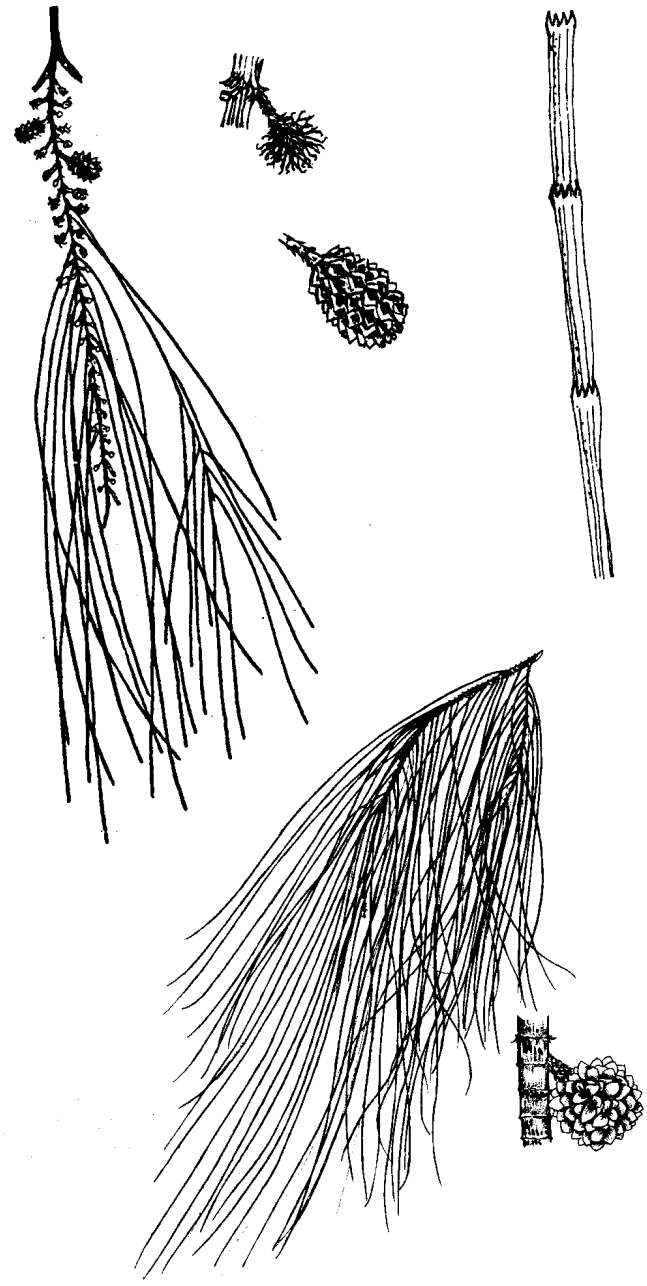
PROPAGATION: Seedlings, wildings. Produces root suckers if roots are exposed. Nursery soil where *Casuarina* are to be raised may need inoculation by addition of soil from beneath mature trees.

SEED: Collect cones at maturity, just before they open to release seed. Then dry cones on a cement floor or plastic sheet so seeds are released. Move around for cones to release seed, then remove cones and collect seed. The species seeds prolifically; 600,000–900,000 seeds per kg. Fair germination rate, 50–70%. Sow in seedbed and prick out soon after germination.
treatment: Not necessary.
storage: Seed can be stored for at least a year.

MANAGEMENT: Fast growing. Prune to get a clear bole. Coppices when young, but less vigorously than *C. cunninghamiana*.

REMARKS: The species has been established on the East African coast for a long time. It is normally a pioneer tree at the seashore. Sometimes also grown as a hedge, but not very effective as a live fence. It is reputed to be one of the best fuelwood species in the world. Until recently it was used a great deal for construction in the hotel industry until the more durable mangrove trees became more popular. The species is said to exhaust soil moisture and lower the water table, and is tolerant of salt water. The tree suppresses undergrowth. Dry needles on the ground may become a fire hazard. Termites may damage seedlings as well as young trees. The species is invasive in parts of the tropics (Réunion, South Africa, Bahamas, Hawaii and Florida).

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Albrecht, 1993; Beentje, 1994; Bekele-Tesemma et al., 1993; Dharani, 2002; Jensen, 1999; Katende et al., 1995; Lötschert and Beese, 1983; Mbuya et al., 1994; National Academy of Sciences, 1980; Noad and Birnie, 1989; Palgrave and Palgrave, 2002; Pinyopusarerk and House, 1993; von Maydell, 1990.



Ceiba pentandra

Bombacaceae

Tropical America and Africa

COMMON NAMES: **Digo:** Msufi; **English:** Kapok tree, Silk-cotton tree; **Swahili:** Msufi.

DESCRIPTION: A tall deciduous tree up to 30 m or more with conspicuous **horizontally layered branches,** the trunk covered with sharp conical spines when young, **heavily buttressed with age.** BARK: Young branches green, old bark grey, smooth. LEAVES: Compound, **5–15 leaflets** radiating from a long stalk, to 20 cm, each leaflet long and narrow, 8–16 cm. FLOWERS: Small, to 3 cm across, pink-white, in clusters, 5 petals, silky hairy outside; pollinated by bats when the flowers open in the evening. FRUIT: Large **woody capsules to 30 cm,** conspicuous on the bare tree; contain rounded **black seeds with long silky white fibres ('kapok').**

ECOLOGY: A distinctive tree, widely found in the tropics. In Kenya, planted at the coast. Agroclimatic Zones I–III. Trees flower in August, fruit emerges in September and seed ripens in December.

USES: Firewood, timber, edible fruit (when young), medicine (bark), fodder (leaves and shoots), bee forage, shade, ornamental, soil conservation, fibre from fruit (life jackets, stuffing mattresses), oil (seed).

PROPAGATION: Seedlings, cuttings.

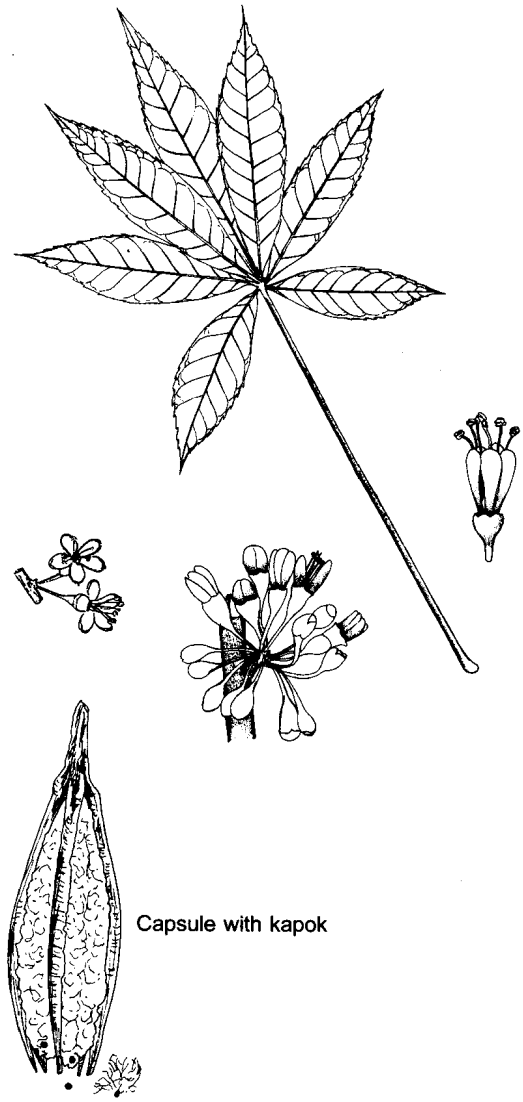
SEED: Fruit are collected, dried in the sun and seeds are separated from the floss by shaking the open fruit in a bag; 10,000–45,000 seeds per kg. Germination rate is 50–85%. Seeds are wind dispersed.

treatment: Soak seed in cold water for 24 hours.

storage: Seeds are oily but can be stored for up to a year in normal conditions.

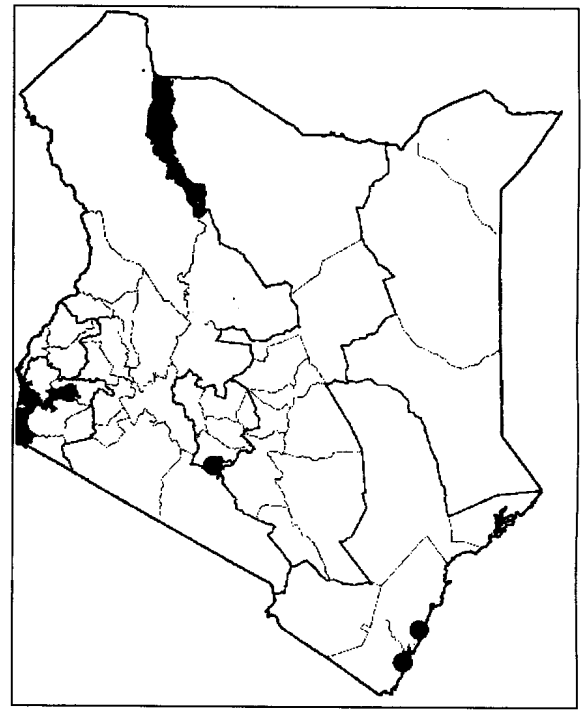
MANAGEMENT: Coppicing, lopping and pollarding.

REMARKS: Kapok fibre burns easily but is water repellent and lighter than cotton. This tree grows naturally in both America and Central Africa. In the wetter parts of Africa it may reach a height of 60 m. The trunk is made into canoes. In its native areas, the tree is normally pollinated by small mammals.



Capsule with kapok

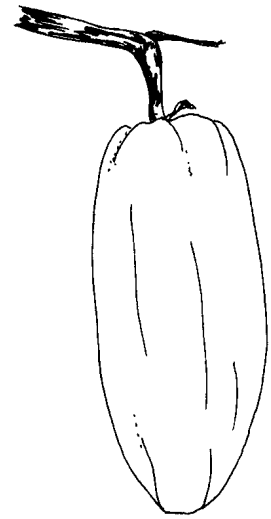
FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Bein et al., 1996; Bekele-Tesemma et al., 1993; Dharani, 2002; Fichtl and Adi, 1994; Jensen, 1999; Katende et al., 1995; Lötschert and Beese, 1983; Mbuya et al., 1994; Noad and Birnie, 1989; Palgrave, 2002.



Ceiba speciosa (Chorisia speciosa)

Bombacaceae

Brazil



COMMON NAMES: **English:** Bombax, Chorisia.

DESCRIPTION: A huge deciduous tree with a swollen trunk and spiny bark, growing to 25 m, with a rounded crown and often flowering when leafless. BARK: Grey and smooth. **Spiny bosses present on younger branches**, becoming fewer with age. LEAVES: **Digitately compound**, 5–7 leaflets radiating from a 15-cm-long stalk, edge of leaflets toothed. FLOWERS: **Large, with 5 mauve-pink petals** with yellowish white edges and a central column of joined stamens. FRUIT: A woody oval capsule about 15 cm long, smooth brown, splitting open on the tree. Seeds many, embedded in masses of white kapok.

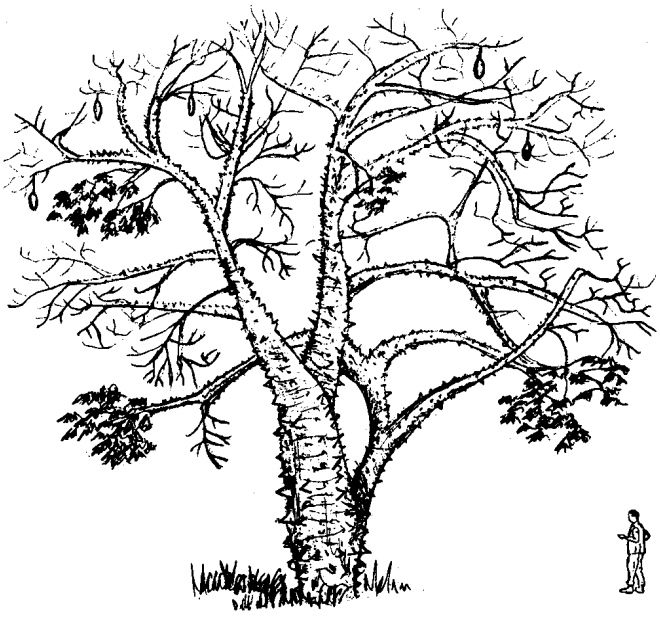
ECOLOGY: Grown in many tropical areas outside its origin. In Kenya, widely planted from the coast to 2,000 m. Common in Nairobi. Thrives in red soil but will grow also in black-cotton soil provided there is good drainage. Plant away from buildings since the root system is extensive and the litter fall is rich. Agroclimatic Zones I–III. Flowers in March in Nairobi.

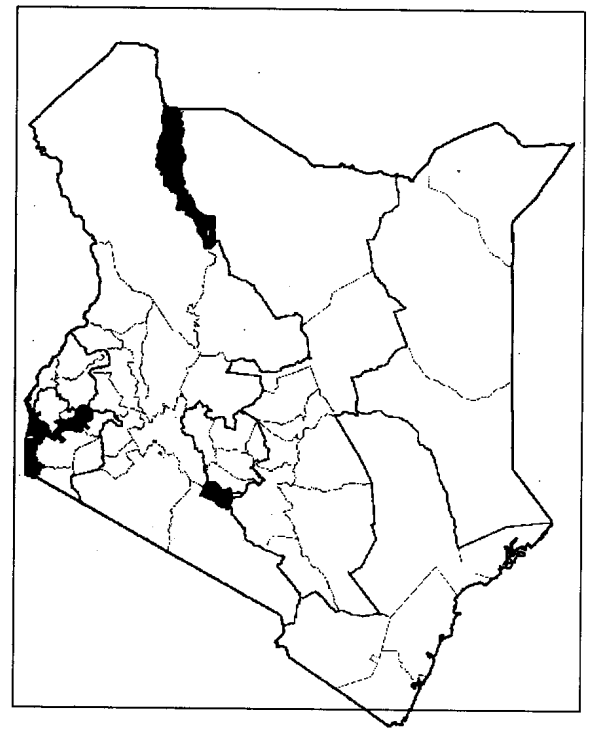
USES: Ornamental, shade, fibre (kapok).

PROPAGATION: Seedlings.

MANAGEMENT: Fast growing.

FURTHER READING: Dharani, 2002; Lötschert and Beese, 1983; Noad and Birnie, 1989.





Celtis africana

Ulmaceae

Indigenous

COMMON NAMES: **English:** Akasinga, Camdeboo stinkwood; **Kikuyu:** Murundu; **Kipsigis:** Chepkeleliet, Nyasiat; **Luhya:** Mwenya, Mweyu; **Maasai:** Olmositet; **Meru:** Murundu; **Nandi:** Chepkeleriet; **Ogiek:** Mase; **Sabaot:** Mastet, Mastitet, Mosididiet; **Tugen:** Musisetiet, Tandimu, Tandimwo.

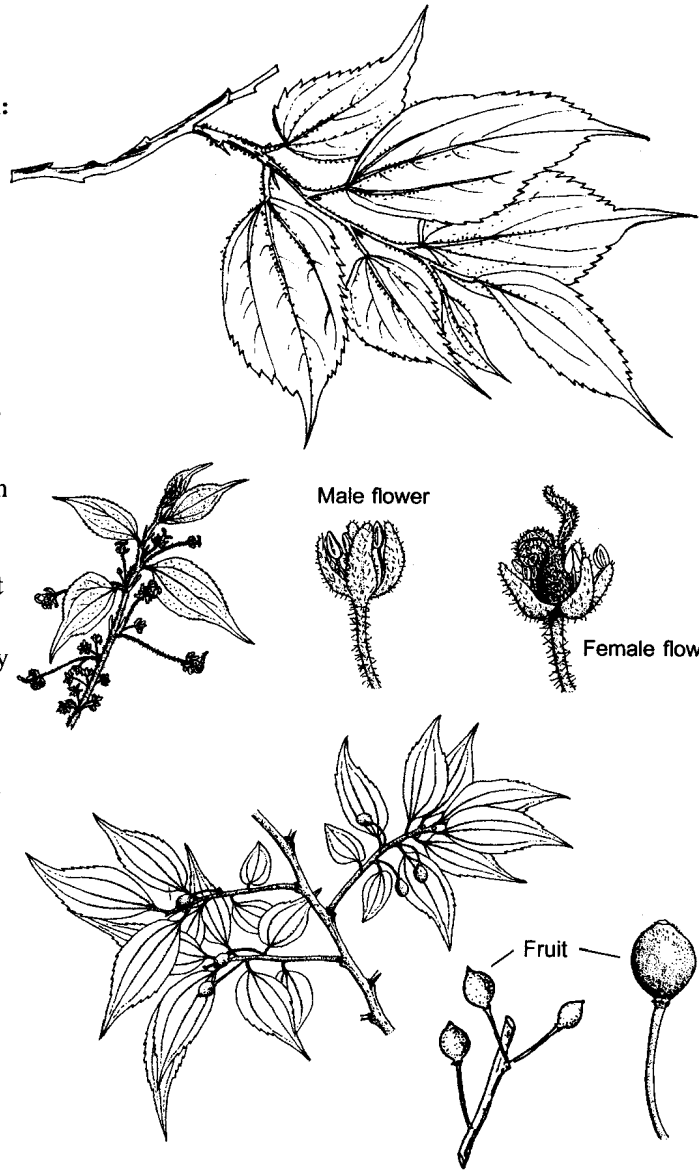
DESCRIPTION: A deciduous forest tree about 12 m, but reaching 35 m, with a spreading crown. BARK: **Smooth, pale grey** often marked with **horizontal rings**. Young shoots have rust-coloured hairs. LEAVES: Clearly **3-veined from the base** of the oval leaves (as in all *Celtis* species), outer 2 veins reaching well into the half of the leaf towards the tip (distal end), **rough and dull green above**, hairs on veins below, **edge toothed over distal 2/3** base a little unequal, tip drawn out and pointed. FLOWERS: Sepals but no petals, very small, greenish, on thin stalks, in clusters beside leaves; female flowers above male flowers on the stalk. FRUIT: Yellow or **orange,** round and **hairy**, less than 1 cm, on **stalks about 2 cm long**, hard seeds inside.

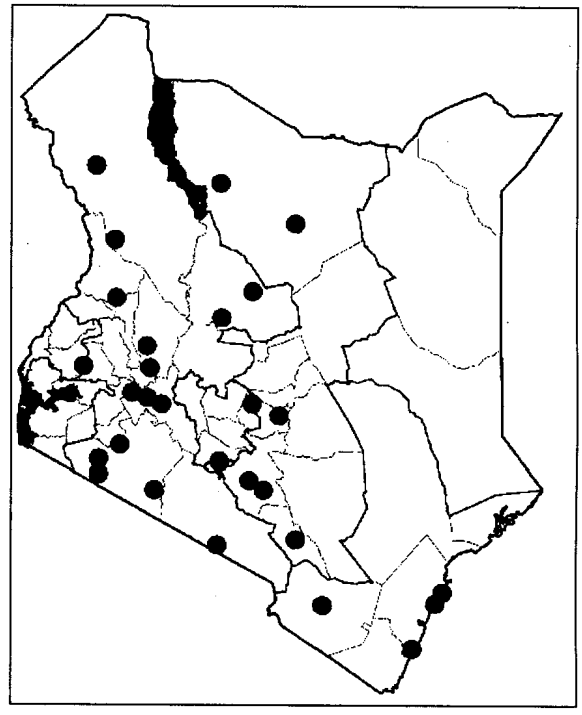
ECOLOGY: A tree with a very wide range of habitats from dry rocky outcrops to moist evergreen as well as riverine forest. Mainly occurs in high-rainfall areas between 1,150 and 2,400 m; locally common in Rift Valley and central Kenya. Riverine in dry areas. Agroclimatic Zones I–VI. Flowers in April–May and fruits in July–August in Rift Valley and Western Province; flowers in October–December in Central Kenya.

USES: Firewood, charcoal, timber (local construction), tool handles, farm implements, fodder (leaves), shade.

PROPAGATION: Seedlings and wildings.

SEED: Fruits must be collected from the tree before they release the seed. The right time is when the fruits turn from yellow to brownish. They are then dried in the sun and the seed extracted through shaking when the drupes open. Germination within 60 days. 17,000 seeds per kg. **treatment**: Not necessary, but soaking in cold water for 24 hours may hasten germination.





Celtis africana (cont)

storage: Seed can be stored for some time if kept in airtight containers.

MANAGEMENT: Side pruning.

REMARKS: The timber rots and splits easily, but it is very strong and with proper seasoning useful for tool handles and building. Leaves are browsed by animals, including cattle, and the leaves and fruits are important in the diet of colobus monkeys. Does not compete with crops since it has a light shade. It is a tree very suitable for parks and avenues. A few other *Celtis* species occur in Kenya. *C. mildbraedii* (**Luhya:** Shunza; **Meru:** Muruanje) is found in areas with moist evergreen forest. Others are *C. philippensis* (**Digo:** Mutambuu), which is coastal, and *C. gomphophylla* (**Kikuyu:** Musaa; **Luhya:** Musa; **Luo:** Nyawend agwata; **Meru:** Mutoo), which is more widespread, occurring in moist forests.

FURTHER READING: Albrecht, 1993; Beentje, 1994; Bein et al., 1996; Bekele-Tesemma et al., 1993; Dharani, 2002; Katende et al., 1995; Kokwaro, 1993; Noad and Birnie, 1989; Palgrave and Palgrave, 2002; Sommerlatte and Sommerlatte, 1990.

Clausena anisata

Rutaceae

Indigenous

COMMON NAMES: **Boran:** Siska; **Digo:** Mnyapala, Chinyapala; **Giriama:** Kathimi kapala; **Kamba:** Kithiw'a, Muthungwa; **Kikuyu:** Mutathi; **Luhya (Bukusu):** Kumunyabubi; **Luhya:** Shingulutsi, Shisimbari; **Luo:** Siunya; **Maasai:** Olmatasia; **Marakwet:** Munyinyia, Cheboinoiywa; **Meru:** Mukithia; **Sanya:** Arawithargi.

DESCRIPTION: A deciduous shrub or small tree with very **strongly aromatic leaves** which are dotted with glands. Usually 3–4 m in height, but occasionally reaching 10 m under ideal conditions. BARK: Smooth, grey-green, changing to brownish with age and becoming mottled. LEAVES: Compound, up to 30 cm long; leaflets 11–37, arranged alternately along the main leaf stalks, oval, to 2.5 cm long, edges sometimes scalloped, **gland dots clearly visible,** particularly when viewed against the light. **Young leaflets and shoots purplish red**. FLOWERS: Small, white or cream to almost yellowish, fragrant, in axillary sprays about 10 cm long. FRUIT: Small, rounded or in 2 sections, about 1 cm across, shiny red-purple, turning **purple-black** when ripe.

ECOLOGY: Distributed in West, Central, East and southern Africa, also in tropical Asia. Common in semi-arid or dry localities, savanna bush and at forest edges throughout East Africa. In Kenya, found in moist or dry forest margins, secondary bushland, riverine; in Western Kenya sometimes found in wooded grassland, 0–2,200 m. Agroclimatic Zone III. Flowers in March–June, September–November and seeds in July–September, December–January in Bungoma.

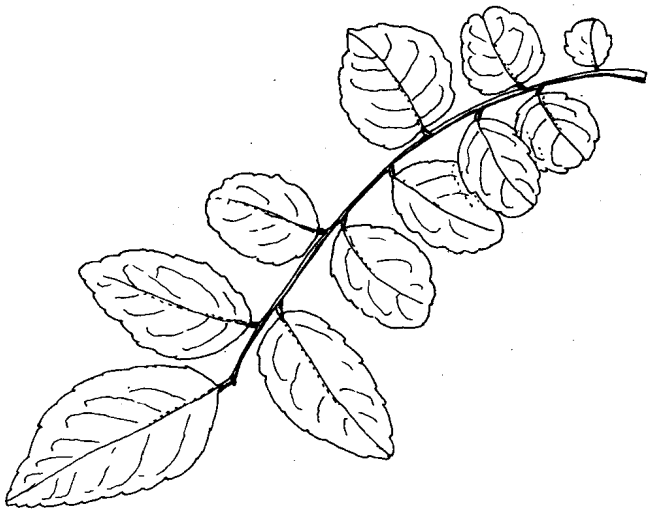
USES: Firewood, charcoal, posts, drink (leaves used as tea leaves), medicine (leaves and roots), bee forage, river-bank stabilization, toothbrushes, leaves are aromatic (used as mattresses by Maasai moran).

PROPAGATION: Seedlings, direct sowing at site, cuttings.

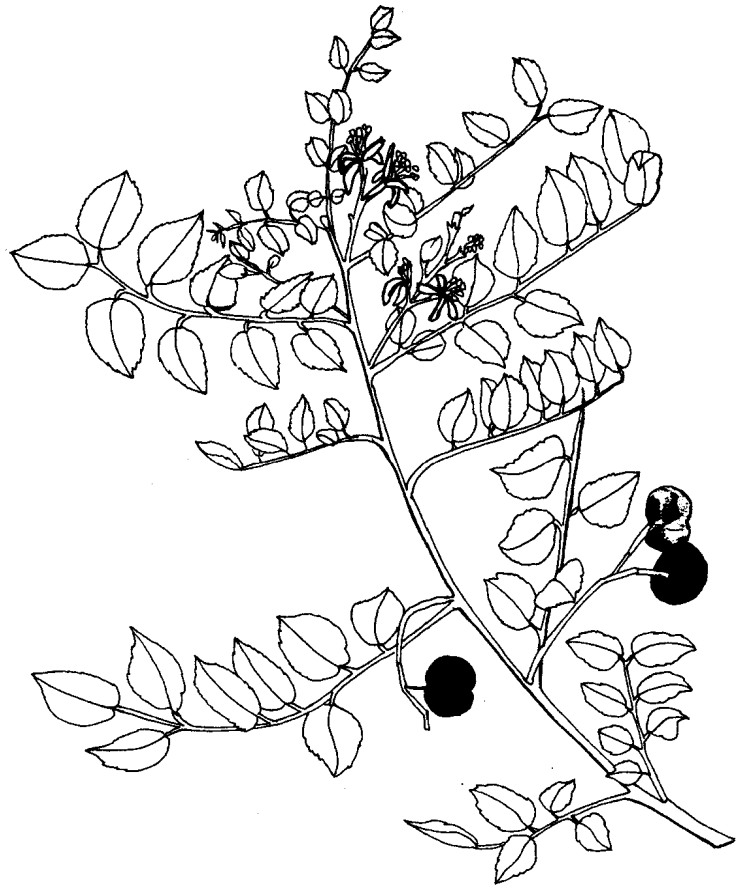
SEED: A prolific seeder.

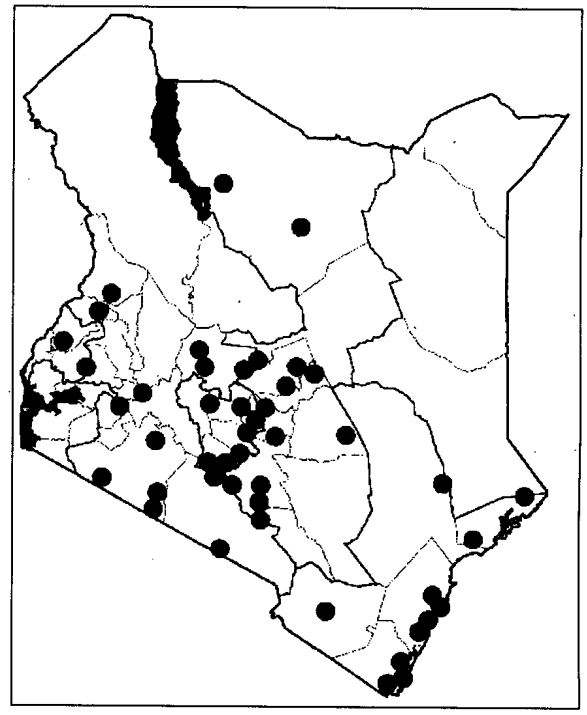
MANAGEMENT: Fair to fast growing. Coppicing.

REMARKS: The wood is hard, strong and elastic. Honeybees forage frequently for the abundant nectar and pollen from the flowers.



FURTHER READING: Backes and Ahenda, 1998; Beentje, 1994; Blundell, 1987; Fichtl and Adi, 1994; Kokwaro, 1993; Noad and Birnie, 1989; Palgrave and Palgrave, 2002; Sommerlatte and Sommerlatte, 1990.





Clerodendrum myricoides (*Rotheca myricoides*) Verbenaceae

Indigenous

STANDARD/TRADE NAME: Butterfly bush.

COMMON NAMES: **Boran:** Mara sisa; **Kamba:** Kiteangwai, Muvweia; **Kikuyu:** Munjugu; **Kipsigis:** Chesamisiet, Obetiot; **Luhya (Bukusu):** Kumusilangokho; **Luhya:** Shisilangokho; **Luo:** Kurgweno, Okwergweno, Okwero, Okworo, Oseke, Sangla; **Maasai:** Olmakutukut; **Marakwet:** Chebobet, Chesagon; **Samburu:** Makutukuti; **Tugen:** Gobetie.

DESCRIPTION: A small shrub up to 3.5 m, **much branched from the base** and often with some branches scrambling through other plants. The **leaves and stem have a distinctive smell when crushed**. LEAVES: Opposite or in whorls, simple, ovate, margin toothed or, rarely, entire, up to 12 cm long but usually smaller, without hairs and almost stalkless. FLOWERS: Blue or purple, sweetly scented, conspicuous, irregular, **2 petals shaped like butterfly wings**. FRUIT: Small rounded **berry, black when ripe**.

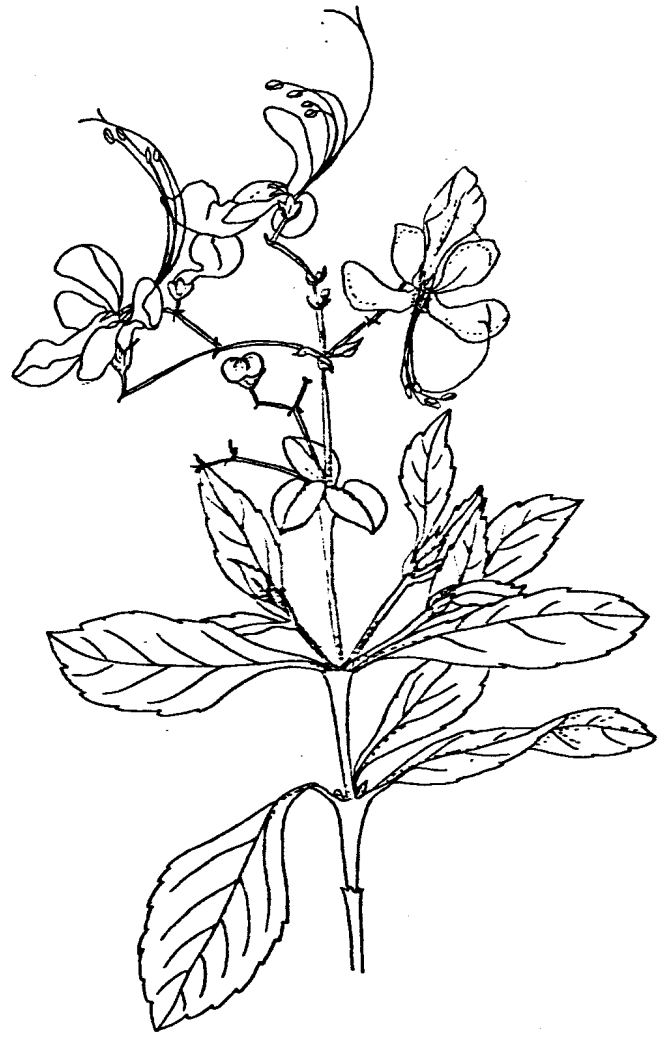
ECOLOGY: Found from Sudan and Ethiopia south to Zimbabwe. A common shrub in forest edges, bushland, mountain scrub, wooded grassland and in secondary vegetation, 1,500–2,400 m. Common in rocky places. Agroclimatic Zone III. Flowers may occur any time of the year.

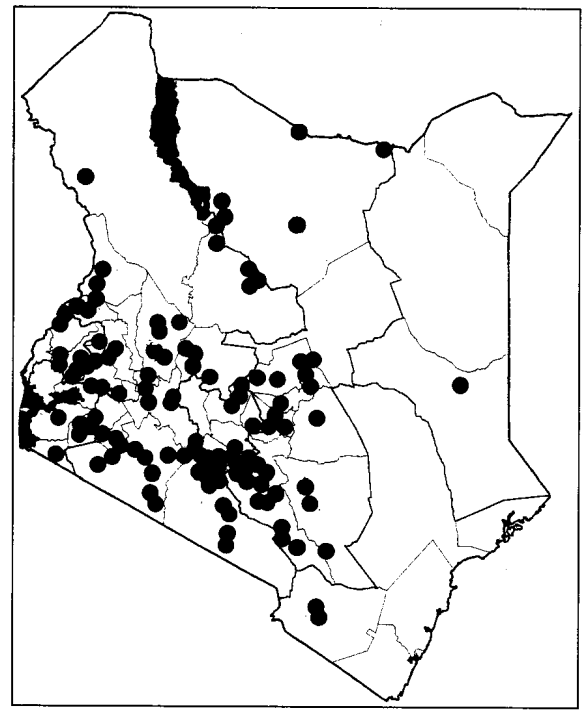
USES: Arrows, medicine (leaves, stem, roots), bee forage, ornamental, ceremonial.

PROPAGATION: Propagation is easy. Cuttings and seedlings can be used, as well as root cuttings or root suckers produced from exposed or injured roots.

REMARKS: There are close to two dozen *Clerodendrum* species in Kenya. *C. myricoides* is the commonest. Other common species are *C. johnstonii* (**Kamba:** Muteangwai; **Kikuyu:** Muringo; **Luhya;** Lusala; **Marakwet:** Jersegao; **Meru:** Kiankware), which can be a shrub or liana that climbs with the remains of leaf petioles. Flowers are white and the usually galled fruits orange to black. It is common at forest edges. *C. eriophyllum* (**Kamba:** Muumbwa; **Somali:** Giyapp, Gurb) is a very aromatic bush or shrub, often many in one place, found in the region between Meru and Kitui in the north and Kajiado and Taita-Taveta in the south. Flowers are in dense white clusters. Commonly used for medicine. *C. rotundifolium* (**Kipsigis:** Kochutoi, **Maasai:** Osingarwa; **Luo:** Sangla minwa) is more common in the western region. *Clerodendrum* species attract honeybees that collect pollen and nectar from the flowers. Sunbirds like to visit flowers of *C. myricoides*.

FURTHER READING: Backes and Ahenda, 1998; Beentje, 1994; Blundell, 1987; Fichtl and Adi, 1994; Kokwaro, 1993; Noad and Birnie, 1989; Palgrave and Palgrave, 2002.





Cocos nucifera

Arecaceae (Palmae)

Naturalized

COMMON NAMES: **Digo:** Mnazi; **English:** Coconut palm; **Giriama:** Mnazi; **Luo:** Naas; **Kamba:** Munathi; **Swahili:** Mnazi.

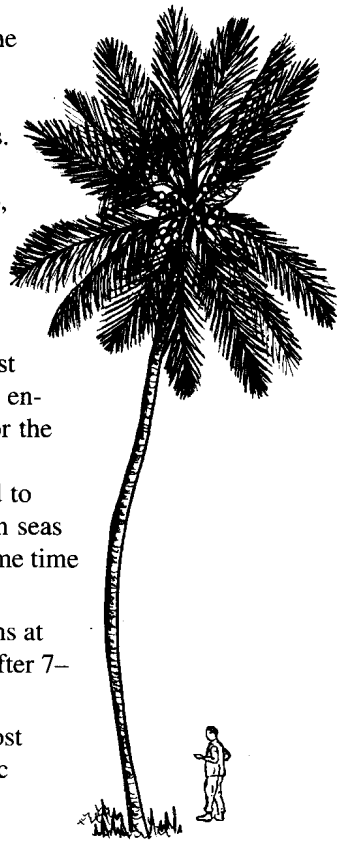
DESCRIPTION: A palm with a slender trunk up to 20 m, often curved, the trunk swollen at the base where typical 'stem roots' can be seen. BARK: Grey-brown, smooth with regular leaf-scar rings. LEAVES: **20–30 leaves top the single trunk**, pinnate, each taking a month to grow 2.5–5 m long, with many long, narrow, sharp-pointed leaflets arising from a stiff midrib. FLOWERS: Arise from a branched stalk beside leaves, orange-yellow, very many, scented male flowers at the tip and fewer female flowers at the base, 12–20 together. FRUIT: **Large and oval, about 30 cm long, a green outer covering turning yellow, 3 layers within and liquid coconut 'milk' in the centre**, becoming sweet as the fruit (a drupe) matures. The seed embryo lies on the inside layer with a massive food store of thick white albumen—the kernel or 'coconut flesh'.

ECOLOGY: It grows naturally at sea level in light sandy soils. The only species of *Cocos*, its origins are thought to be in the Pacific. Now grown throughout the tropics in hot humid coastal areas. In Kenya it is commonly grown along the coast. Planted in a few inland areas mainly as an ornamental (Lake Turkana, Lake Victoria, Kitui). Agroclimatic Zones I–IV, but naturalized only in very humid areas.

USES: Firewood, charcoal, timber, poles, utensils, fruit, food, drink (palm wine), edible oil (copra), shade, ornamental, fibre, thatching (leaves), handicraft (leaves).

PROPAGATION: Seedlings raised in trenches for 4 months before planting out.

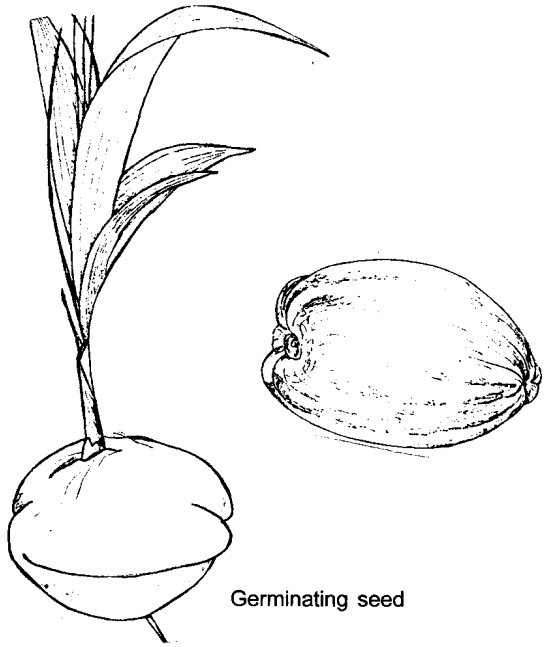
SEED: The outer skin encloses the outside layer, a thick, fibrous husk. The inner 'nut' has a hard shell with 3 circular eyes. **treatment**: Bury the whole fruit in the ground, tip end up, with about ¼ of the fruit above the surface of the soil. It will sprout through the largest 'eye' after heavy watering. Transplant when first leaf is about 15 cm. The thick endosperm provides nutrients for the embryo for some time. **storage**: The nuts are adapted to being dispersed by floating on seas or oceans, so will store for some time if kept whole without drying.



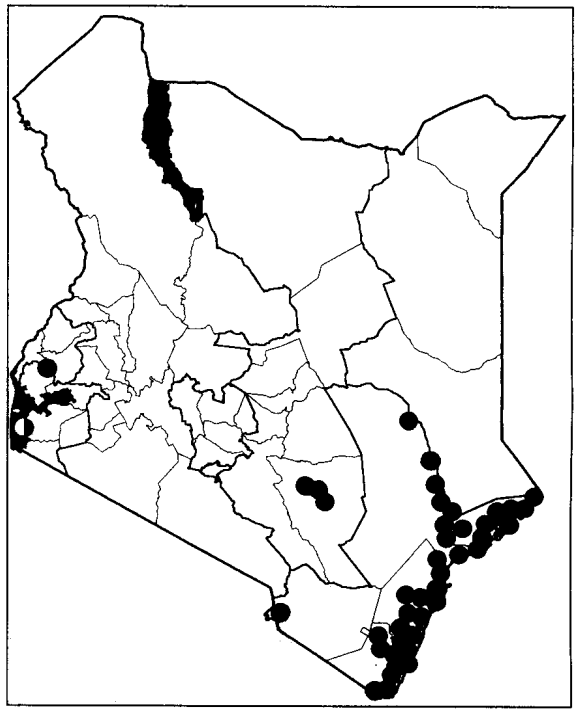
MANAGEMENT: In good conditions at sea level it bears a first crop after 7–8 years.

REMARKS: One of the world's most useful trees, of great economic importance due to its many important uses. Planting should be encouraged around Lake Victoria and in the western Rift Valley as a back-yard tree or with other crops. The outer husks, the 'coir' of commerce, can be used for ropes, etc. The dried kernel is 'copra' from which coconut oil and dried coconut are made. When flowering the shoot can be tapped to make palm wine, which is also used as yeast for bread making.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Beentje, 1994; Dharani, 2002; Jensen, 1999; Katende et al., 1995; Lötschert and Beese, 1983; Maundu et al., 1999; Noad and Birnie, 1989.



Germinating seed



Combretum aculeatum Combretaceae

Indigenous

COMMON NAMES: **Bajun:** Mlalozi; **Boran:** Chachalleh, Gabbe; **Gabra:** Chanchali, Hikho; **Orma:** Darsa; **Rendille:** Chachalleh; **Samburu:** Rikoyo; **Somali:** Eddi shabel, Eddi shibeel (Mandera); **Tharaka:** Muthigoora, Mucigi; **Turkana:** Ekabekebeke.

DESCRIPTION: A deciduous **scrambling shrub with weak branches** to 4 m (occasionally to 8 m). BARK: Grey or reddish brown. LEAVES: Usually pale green, **small, 4–7 cm**, wider at the rounded tip, which may be notched, **hairy both sides, only 4–6 pairs of veins**, very clear below. On older twigs the **leaf stalk becomes a hooked spine**, to 2 cm long. FLOWERS: Yellow-white, fragrant. FRUIT: Small, **green–yellow–brown** with **5 papery wings**, almost round, to 2 cm, tip notched, on a thin stalk to 1 cm.

ECOLOGY: The northernmost of the tropical African *Combretum,* found from the Atlantic to the Red Sea and in East Africa. Common in *Acacia–Commiphora* bushland along watercourses. A shrub of the semi-arid areas of Kenya, often in loamy clay soil, in woodland or bushed grassland, widespread, 0–1,350 m. Agroclimatic Zones V–VI. Mature fruit in Machakos District in May–June.

USES: Firewood, fodder (leaves, seeds), edible seeds, medicine (leaves and roots), bee forage, fibre (twig fibres used in basketry), dead fence, local brooms, fish poison.

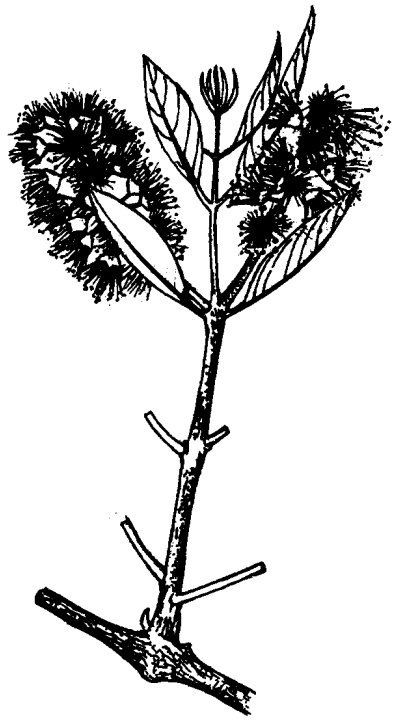
PROPAGATION: Seedlings, wildings. Produces root suckers.

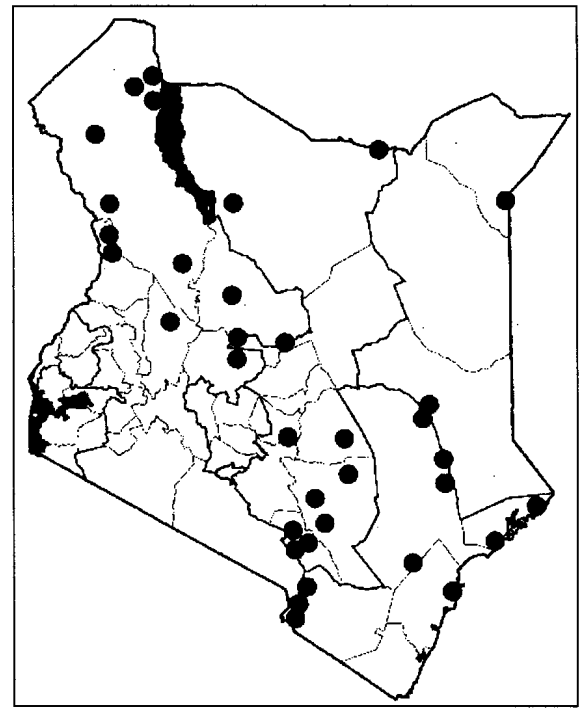
SEED: Winged fruit with one seed inside. About 17,000 seeds per kg.
treatment: Open fruit to get the seed before sowing or soak in cold water for 24 hours.
storage: Fruits can be stored for some weeks but once the seed is extracted it should be sown immediately.

MANAGEMENT: Coppicing.

REMARKS: A preferred browse of wild and domestic animals. Leaves and seeds are good fodder for cows and can increase milk production. In the Sahel, and also in Tharaka, seeds have been reported to be edible.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Beentje, 1994; Bein et al., 1996; Bekele-Tesemma et al., 1993; Blundell, 1987; von Maydell, 1990.





Combretum collinum

Combretaceae

Indigenous

COMMON NAMES: **Embu:** Murithi, Mururuka; **Kamba:** Itithi, Mutithi; **Luhya:** Sheraha; **Luhya (Bukusu):** Kumulaha, Kumukalukha; **Luo:** Adugo, Kech rachar, Odugno, Odugu, Ohoro; **Nandi:** Asenuet; **Sabaot:** Asenuet; **Turkana:** Ekimeng'.

DESCRIPTION: A shrub or small- to medium-sized tree to 10 m, the crown flat or rounded, often dominant in an area. BARK: Smooth, grey and with powdery surface when young, later grey-brown, rough, scaly or fissured. LEAVES: Vary greatly, often in whorls of 3–4, usually **tough and leathery, darker and shiny above**, oval or long oval, usually 10–17 cm but may be up to 22 cm long, the tip blunt, the base rounded or narrowed to a leaf stalk 1–4 cm. The underside may be hairy or not but with **few or many silvery scales**, between clearly paired veins (6–20 pairs). FLOWERS: **Cream-white-yellow, sweet scented and very small, in spikes 6–10 cm long**, usually shorter than leaves, the tree conspicuous in flower. FRUIT: **4-winged, generally elliptic**, 2.5–5 cm long x 2–4 cm wide, rust red when young, turning golden-brown–grey–purple. The many scales, often red, catch the light so the **surface shines** like metal.

ECOLOGY: A tree widespread in tropical and subtropical Africa from West Africa into Sudan and Ethiopia, throughout eastern Africa and south to southern Africa. It is a most variable tree and many subspecies have been separated on details of leaf arrangement, fruit size, hairiness and scales. Agroclimatic Zones II–V. Flowers in March–April and seeds in September–November in Bungoma.

USES: Firewood, charcoal, posts, medicine (leaves, roots to treat diarrhoea and vomiting), bee forage, dead fences (branches), firebreak, shade.

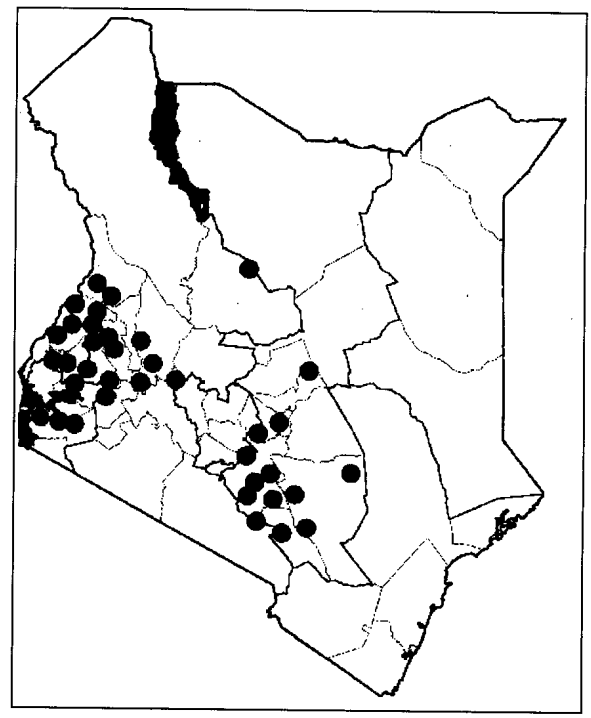
PROPAGATION: Wildings and seedlings (sow seed in pots).

SEED: Collect winged fruit.
treatment: Open fruit to get seed; if difficult, soak in cold water and then open.
storage: The whole fruit can be stored for some weeks, but it is best is to open the fruit and sow immediately after extracting the seeds as they will not store thereafter. Sow fresh seeds.

MANAGEMENT: Slow growing; coppicing, lopping, pollarding.

REMARKS: Makes very good charcoal. Flowers produce good nectar for honey. The hard, durable wood burns well, but the living tree survives grass fires. The tree is occasionally attacked by caterpillars with irritating hairs.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Backes and Ahenda, 1998; Beentje, 1994; Bekele-Tesemma et al., 1993; Katende et al., 1995; Kokwaro, 1993; Palgrave and Palgrave, 2002; Sommerlatte and Sommerlatte, 1990; Storrs, 1979.



Combretum molle

Combretaceae

Indigenous

COMMON NAMES: **Boran:** Rokess; **Duruma:** Mugoto; **Gabra:** Rukeesa; **Kamba:** Muama; **Kikuyu:** Mukura, Murema; **Kipsigis:** Kemeliet; **Kisii:** Kumukira; **Luhya:** Mukhungula, Sheraha; **Luhya (Bukusu):** Kumukimila; **Luo:** Adugo, Keyo; **Maasai:** Olmaroroi, Emaroroi; **Meru:** Murama; **Pokot:** Komel, Cheporosto, Chepurosho; **Sabaot:** Kernbel; **Samburu:** Rokess; **Taita:** Mwama; **Tharaka:** Murama; **Tugen:** Kemelet; **Turkana:** Ekamiro, Eguyen.

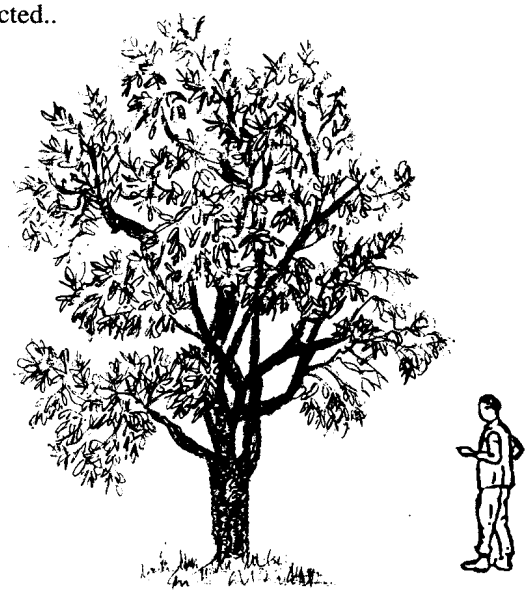
DESCRIPTION: A small deciduous tree, usually 5–7 m, the trunk often crooked and branching near the base. BARK: **Distinctive, older trunks dark brown-black, deeply grooved in squares like crocodile skin.** Branchlets peeling in fibrous strips. LEAVES: **Large, soft and hairy** both sides, about 17 cm long, **rounded at the base,** tip pointed. FLOWERS: Greenish **yellow spikes to 9 cm,** sweet scented, attracting insects, produced before or with new leaves. FRUIT: Dry, **4-winged, yellow-green at first, drying bright golden-brown**, looking like flowers; about 2 cm long, one seed within centre and wings wider than the seed.

ECOLOGY: A tree widespread in the wooded grassland and bushland of eastern and southern Africa; also in Yemen. It has a number of varieties. The tree tolerates forest or grass fires well. Often in groups on stony hills, 150–2,300 m. Agroclimatic Zones II–V. Flowers in March–April and seeds in September–November in Bungoma.

USES: Firewood (hard and yellow), charcoal, timber (construction), poles, posts, tool handles, medicine (roots for treating hookworm, snake bite, stomach pains, fever, dysentery and leprosy), bee forage, mulch, green manure, veterinary medicine.

PROPAGATION: Seedlings. Sow seeds in pots. Produces root suckers.

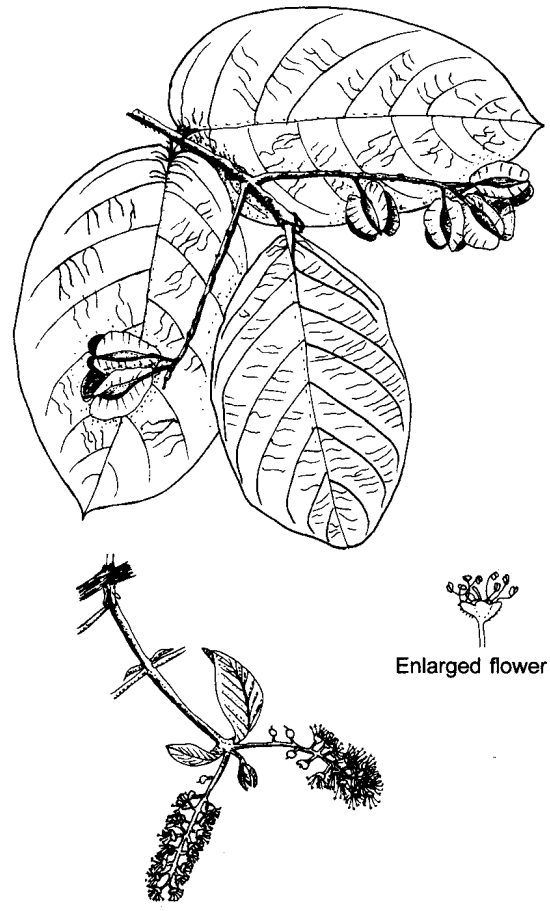
SEED: Germinate easily; 10,000–15,000 seeds per kg.
treatment: Open fruit to get seed. If difficult, soak in cold water and de-wing fruit.
storage: The whole fruit can be stored for some weeks, but best is to open fruit and sow immediately after extracting the seed. Seed will not store after being extracted..



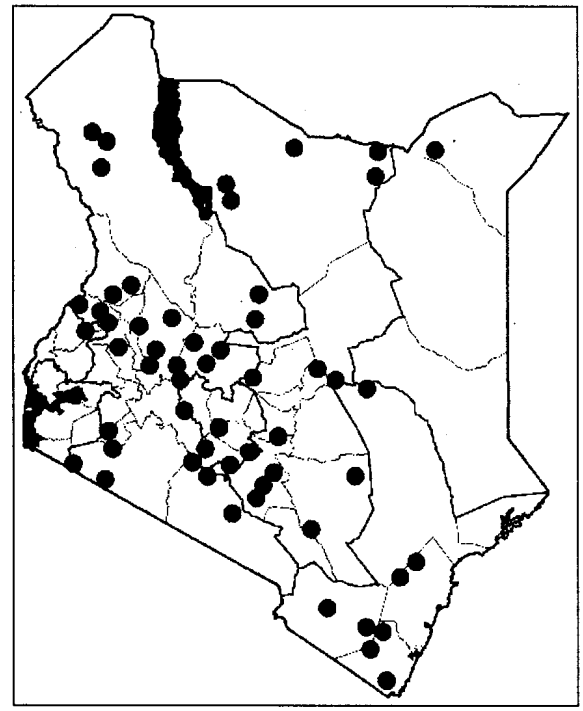
MANAGEMENT: Slow growing; lopping, coppicing, pruning.

REMARKS: Termite resistant. Wood burns slowly giving intense heat. Leaves are traditional toilet paper.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Backes and Ahenda, 1998; Beentje, 1994; Bein et al., 1996; Bekele-Tesemma et al., 1993; Fichtl and Adi, 1994; ITDG and IIRR, 1996; Katende et al., 1995; Kokwaro, 1993; Mbuya et al., 1994; Noad and Birnie, 1989; Palgrave and Palgrave, 2002; Sommerlatte and Sommerlatte, 1990.



Enlarged flower



Combretum schumannii

Combretaceae

Indigenous

COMMON NAMES: **Boni:** Mugurure; **Digo:** Mgongolo; **Giriama:** Mugurure; **Samburu:** Mumnyani, Muranyani; **Sanya:** Murgulule; **Swahili:** Mgongolo, Mpera mwitu, Mgurure.

DESCRIPTION: The largest *Combretum* in Kenya, this is a tall tree, to 20 m, leaves dense, drooping, crown narrow. Trunk often fluted at the base. BARK: **Smooth, pale brown, with large patchy** scales. LEAVES: Shiny pale green, thin and wavy, opposite, on thin stalks, clear **midrib below, tip pointed.** FLOWERS: **Pale yellow and fragrant, in small, almost round heads.** FRUIT: **Very many hanging on the tree**, yellow-green, then pale brown, **4 wings, about 4 cm long**, sticky when young.

ECOLOGY: Found also in Tanzania and south to Malawi and Mozambique. In Kenya, it is an important tree in the coastal areas, distributed from coastal dry or wet forest (Gede, Jadini) to dry forest and wooded or bushed grassland further inland (Kitui, Makueni), 0–1,200 m. Riverine in dry areas. Agroclimatic Zones III–V. Seed collected at the coast in November.

USES: Firewood, charcoal, timber (construction, black heartwood), furniture, posts, tool handles, carvings, medicine (root for treating stomach-ache), bee forage, mulch.

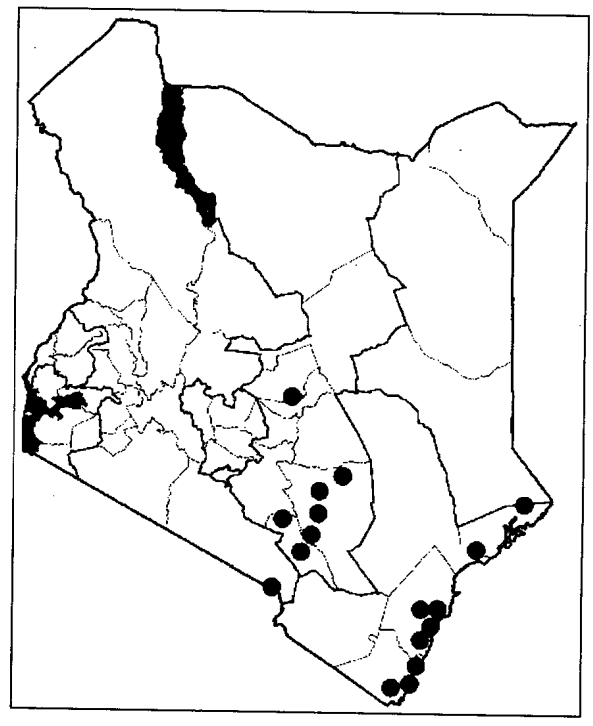
PROPAGATION: Seedlings. Sow seeds in pots. Produces root suckers.

SEED: Open fruit to get seed.
treatment: Not necessary.
storage: Best to use fresh seed. The fruit can be stored for some weeks, but sow immediately after extracting the seed.

MANAGEMENT: Slow growing, lopping, coppicing.

REMARKS: The very durable black heartwood is termite resistant and used a great deal at the coast for carving. This use has reduced the number of large trees significantly.

FURTHER READING: Beentje, 1994; Mbuya et al., 1994; Noad and Birnie, 1989.



Commiphora africana

Burseraceae

Indigenous

COMMON NAMES: **Boran:** Ammess; **Digo:** Chibambara; **Gabra:** Hammeessa; **Giriama:** Musishwi; **Kamba:** Kitungu, Ndungu (fruit); **Luo:** Arupien, Arupiny; **Maasai:** Osilalei; **Marakwet:** Chotwa; **Pokot:** Katagh, Mindarotwo, Mundorotwo; **Samburu:** Lcheningiro; **Somali:** Hammes sagara; **Swahili:** Mbambara, Mkororo, Mponda, Mturituri; **Taita:** Mwagari, Mwagori; **Turkana:** Ekadeli.

DESCRIPTION: A spiny deciduous shrub or tree to 10 m. **Without leaves for many months, branchlets thorn-tipped.** BARK: **Grey-green, peeling to show green below,** when cut a **sap** which **hardens to a yellowish resin** is produced. LEAVES: Soft, hairy and bright green, compound with **3 leaflets,** edge wavy, fragrant when crushed, **central leaflet much longer** than the other 2. FLOWERS: Small, **red, in tight clusters,** often on thorns, on the bare tree. FRUIT: **Pink-red,** soft, **about 1 cm, pointed,** stony seed inside.

ECOLOGY: Widely distributed in the drier parts of Africa from Senegal east to Somalia and south to South Africa. Mainly in the low, drier parts of Kenya where it is common in *Acacia–Commiphora* bushland. Soils varied, but mainly red clay, sandy clay and on rocky ground. Rainfall: 400–1,000 mm. Agroclimatic Zones IV–VII.

USES: Firewood, carving, furniture (stools, headrests), utensils (wooden spoons, milk containers), water troughs, edible fruit, edible juicy young root, edible resin (chewed), drink (tea from bark), medicine (roots, bark, resin, fruits, twigs), fodder (young shoots for camels and goats), ornamental, resin (gum for arrows), live fence, toothbrushes, insecticide, beads.

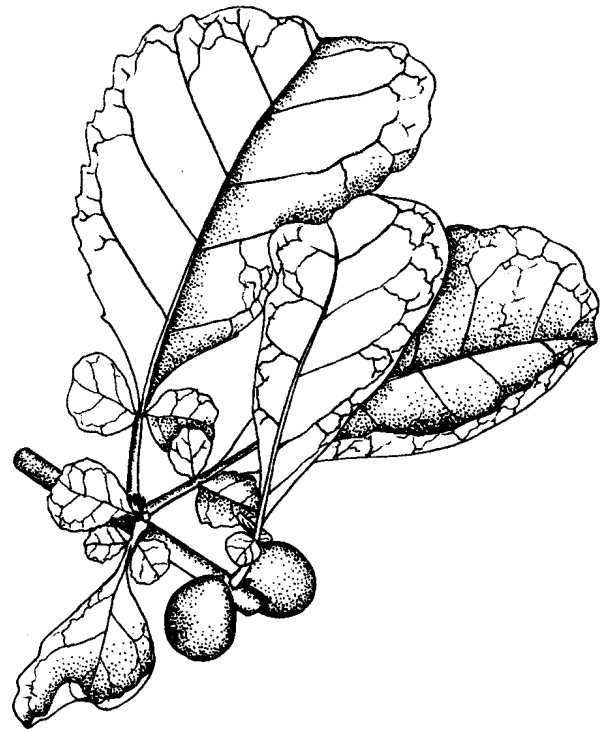
PROPAGATION: Large cuttings.

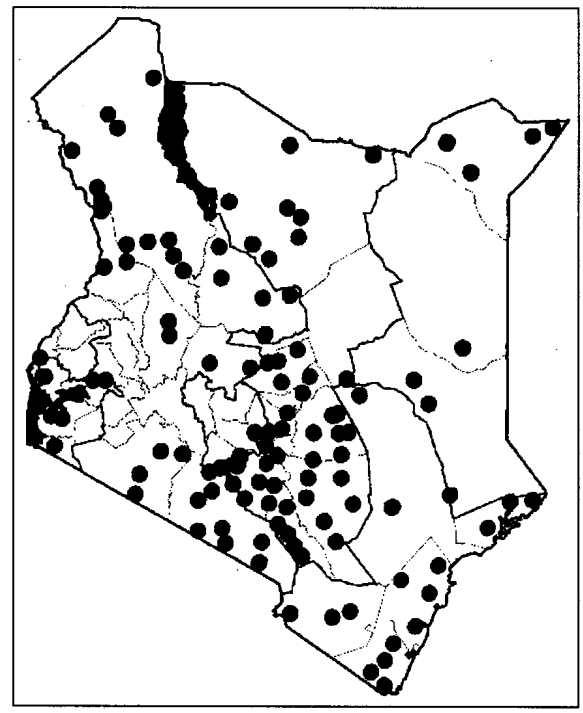
SEED: Propagated only by cuttings.

MANAGEMENT: Slow growing; lopping.

REMARKS: Leaves contain bitter tannin and so they are not browsed by cattle, but important fodder for camels and goats. It comes into leaf just before the rains. Good for live fences and as beehive posts. The roots of young plants are chewed for their sweet taste and to quench thirst (Kamba, Maasai, Pokot). Resin eaten (Maasai, Pokot, Turkana). The bark is used to make a red tea (Pokot, Turkana). Stems used as toothbrushes (Rendille, Kamba).

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Beentje, 1994; Bein et al., 1996; Bekele-Tesemma et al., 1993; Dharani, 2002; Katende et al., 1995; Kokwaro, 1993; Maundu et al., 1999; Mbuya et al., 1994; Noad and Birnie, 1989; Palgrave and Palgrave, 2002; Ruffo et al., 2002; von Maydell, 1990.





Commiphora eminii subsp. *zimmermannii* (*C. zimmermannii*) Burseraceae

Indigenous

COMMON NAMES: **Kamba:** Kiliva; **Kikuyu:** Mukungugu, Mutongoga; **Maasai:** Olripande; **Meru:** Mutungugu, Mutunguu; **Swahili:** Mnyakwaa.

DESCRIPTION: A shady tree 5–18 m, bole fluted. BARK: **Smooth and grey.** LEAVES: Leathery, light green, **compound. Leaflets usually 5–7, pointed, edge finely toothed, veins prominent below,** 6–9 cm long, the terminal leaflet is about the same size as the other ones. FLOWERS: Small, green-yellow. FRUIT: Flattened, **round on a 1-cm long stalk.**

ECOLOGY: The species is found only in eastern Africa and north-eastern Zambia. In Kenya, distributed from the coastal hill forests to Central Province, but now rare. Found in dry evergreen forests and bushland, but also planted in farmland, 0–1,750 m; rainfall 600–1,000 mm. Agroclimatic Zones II–IV.

USES: Firewood, timber, furniture, utensils (bowls), medicine (roots, leaves, bark), fodder (emergency), shade, soil conservation (gully control), live fence, boundary marking, yam support.

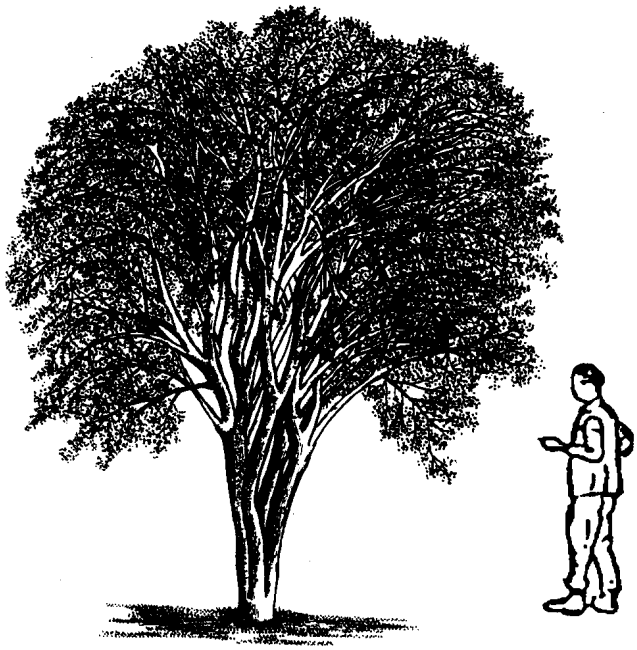
PROPAGATION: Large cuttings.

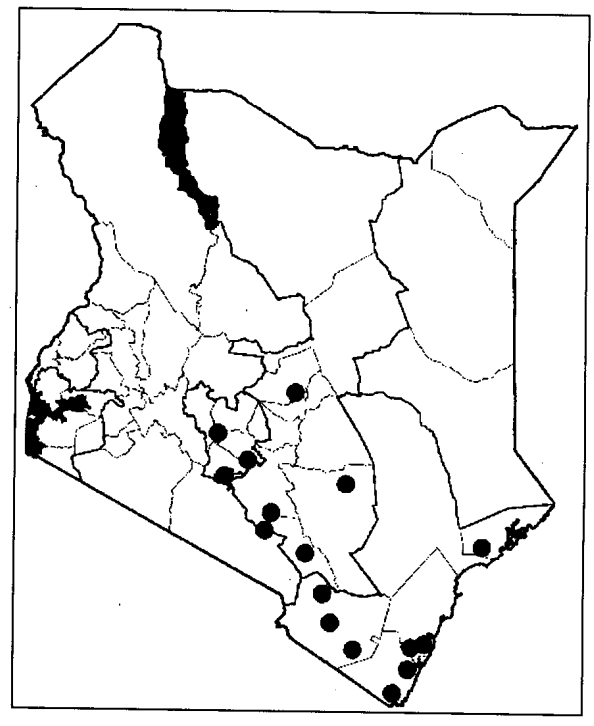
SEED: Propagated only by cuttings.

MANAGEMENT: Fairly fast growing, pollarding.

REMARKS: The tree has no adverse effect on food crops due to its small root system and canopy. Traditionally used by the Kikuyu as a quick-growing hedge and as support for yams. It grows fast at the coast. The wood is easy to work. Becoming rare in the wild but planted around homesteads and in farmland. Subsp. *trifoliolata* usually has larger leaves with leaflets in 3s and rarely in 5s. It is found on a few hills in the Voi area.

FURTHER READING: Beentje, 1994; Kokwaro, 1993; Maundu et al., 1999; Mbuya et al., 1994; Noad and Birnie, 1989.





Commiphora myrrha (C. coriacea)

Burseraceae

Indigenous

STANDARD/TRADE NAME: Myrrh.

COMMON NAMES: **Boran:** Khumbi, Kumbi; **English:** Gum myrrh tree; **Somali:** Malmal.

DESCRIPTION: A spiny shrub or small tree to 5 m high, with a distinct short **stout irregular angled trunk**. BARK: Silvery, yellowish or bluish, peeling in papery flakes to reveal the green underbark, **exuding a scented translucent yellowish gum**. LEAVES: **Grey-green, very variable**, leaflets very small (6 mm) or large (4 cm). Leaves compound, but lateral leaflets occasionally absent, edge almost entire, toothed or with 3 lobes. FLOWERS: Greenish yellow, **2–4 together**. FRUIT: **Oval to 1.2 cm long, flat**.

ECOLOGY: Found in Kenya, eastern Ethiopia, Somalia and the Arabian Peninsula. In Kenya, restricted to the north-eastern part (mainly in Mandera and Wajir Districts). Found in gentle to rolling landscapes with *Acacia–Commiphora* open bushland on shallow, gravelly or sandy soils, usually over limestone, 220–800 m. Tolerates salinity. Rainfall: 230–300 mm. Agroclimatic Zones VI–VII.

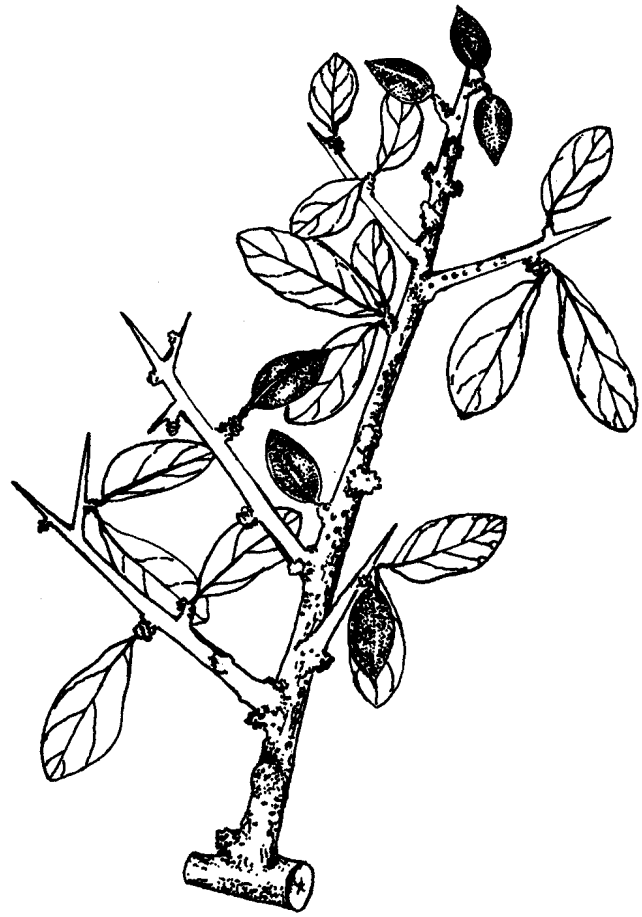
USES: Firewood, utensils (containers, headrests), edible seed, medicine (resin), fodder, shade, resin, live fence, perfume (resin), ink (resin), veterinary medicine.

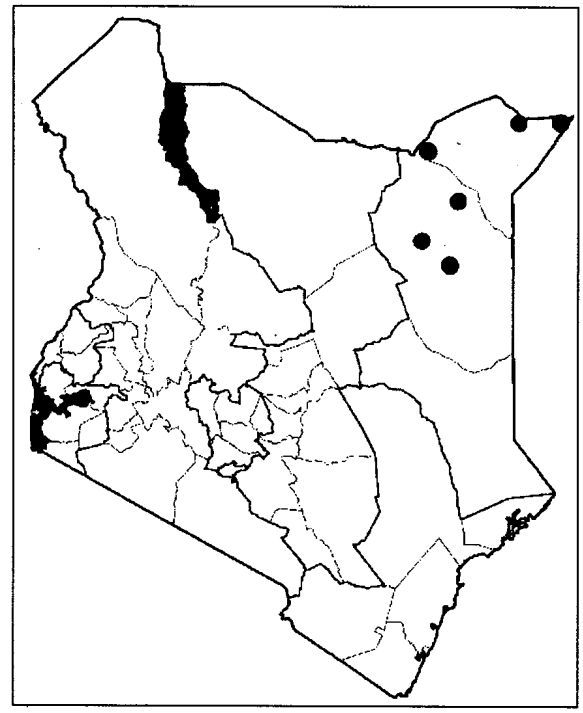
PROPAGATION: Propagated vegetatively by stem cuttings.

MANAGEMENT: Pollarding.

REMARKS: The main source of the commercially valuable resin myrrh. The resin is also used to treat snakebite, as an eye ointment, and as a local ink ingredient. Whenever ink is required water is simply added to the resin to make it ready for use. The ink is not easy to erase and can last a long time. The seed is edible. This is one of the most valued plants in rural areas in Mandera and generally in northern Kenya. Important income is generated from sale of myrrh in addition to all the important local uses. Myrrh is greatly valued as traditional medicine in Muslim and Hindu cultures as well as in the Far East.

FURTHER READING: Beentje, 1994; ITDG and IIRR, 1996.





Commiphora rostrata

Burseraceae

Indigenous

COMMON NAMES: **Boran:** Dainjo, Dirraa; **Malakote:** Choneh; **Mbeere:** Munyei; **Orma:** Udesi; **Pokot:** Lokimet; **Rendille:** Galdayan (Korr); **Samburu:** Lmaim, Ltilimani; **Somali:** Dainjo, Danusagar, Danu, Janau (Wajir), Jano (Isiolo), Jenau, Hanguli (Eldas); **Tharaka:** Mutunkuuri; **Turkana:** Eurumosing, Lekora, Lokimeta.

DESCRIPTION: A deciduous strong-smelling shrub or small tree to 4 m. **Lateral shoots ending in strong spines.** BARK: **Smooth, maroon or dark purple** to almost black. Stems exuding a copious, clear, **aromatic sap.** LEAVES: Short-stalked and elliptic. FLOWERS: Male and female separate. Male flowers with red petals, up to 20 on a common stalk. **Female flowers single or 2 together**, very slender. FRUIT: **Red, pointed, with wiry stalks.** The plant is usually leafless at the time of flowering.

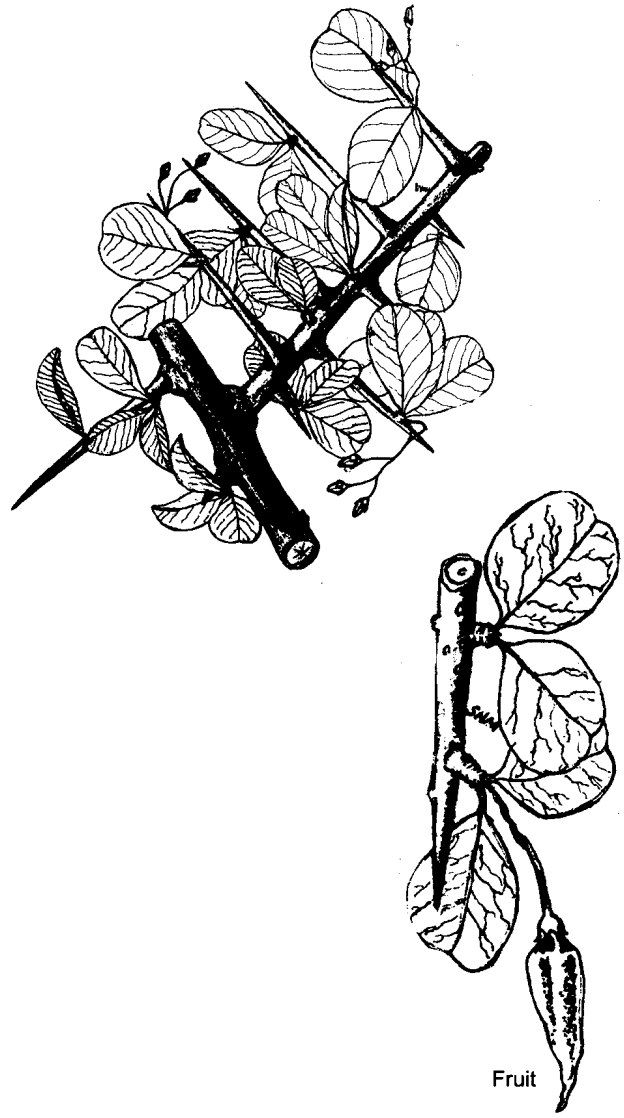
ECOLOGY: Grows in south-eastern Ethiopia, Somalia and northern and eastern Kenya in dry open *Acacia–Commiphora–Boswellia* bushland, 80–1,050 m, mostly on sandy, gravelly soils or on rocky areas. Rainfall: 200–400 mm. Agroclimatic Zones V–VI.

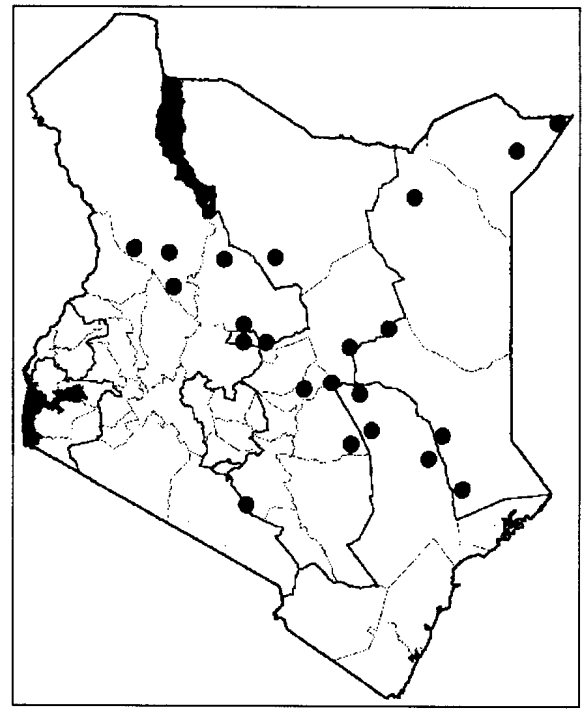
USES: Arrow shafts, edible leaves, seasoning, drink (tea from bark), refreshment (chewed twigs), medicine (bark, young twigs), fodder (leaves), live fence, glue, cleaning out gourds, toothbrushes.

PROPAGATION: Propagated vegetatively by stem cuttings.

REMARKS: Leaves eaten raw (Somali, Marakwet); salty or tasting of oxalic acid. Leaves used as a relish or cooked to add flavour to food (Mbeere). Bark or branches used in the preparation of tea (Turkana, Daasanach). Stem pith chewed to quench thirst (Somali). Sap used to glue feathers on to arrow shafts (Pokot). The bark is pounded, put into a new gourd with water and left for 3 days, then washed out leaving a nice smell in the gourd (Pokot). Two varieties are known: var. *rostrata*, an erect shrub, is the more common and widespread variety. It flowers in April–May (Tana), November–December (southern Turkana, Tana, Isiolo). Var. *reflexa*, with a low creeping and spreading habit, is found in Dandu in north-eastern Kenya, south-east Ethiopia and in Somalia. Scarce.

FURTHER READING: Beentje, 1994; Kokwaro, 1993; Maundu et al., 1999.





Conocarpus lancifolius Combretaceae

Somalia

COMMON NAMES: **Somali:** Damaas.

DESCRIPTION: An evergreen shady tree, to 20 m, with upward spreading branches, short bole and **dense, fresh green foliage.** BARK: Grey-brown, fissured. LEAVES: Smooth and shiny, to 10 cm, narrowing towards the base, in dense spirals. FLOWERS: Yellow-green, in **round heads** on branched stalks, slightly fragrant. FRUIT: In **dry, round, greenish heads, cone-like,** containing tiny, scale-like hard seeds.

ECOLOGY: A tall tree found naturally only in Somalia. Often dominant in dry river valleys (wadis) and along the Indian Ocean coast. It is now cultivated, as it is one of the fastest growing trees in dry areas, 0–1,000 m. It tolerates sandy, saline and coral soils. It grows well in Malindi and Lamu. Agroclimatic Zones V–VI.

USES: Firewood, charcoal, timber, poles, posts, carvings, boat building, fodder (leaves and shoots), bee forage, shade, ornamental, mulch, soil conservation, river-bank stabilization, windbreak.

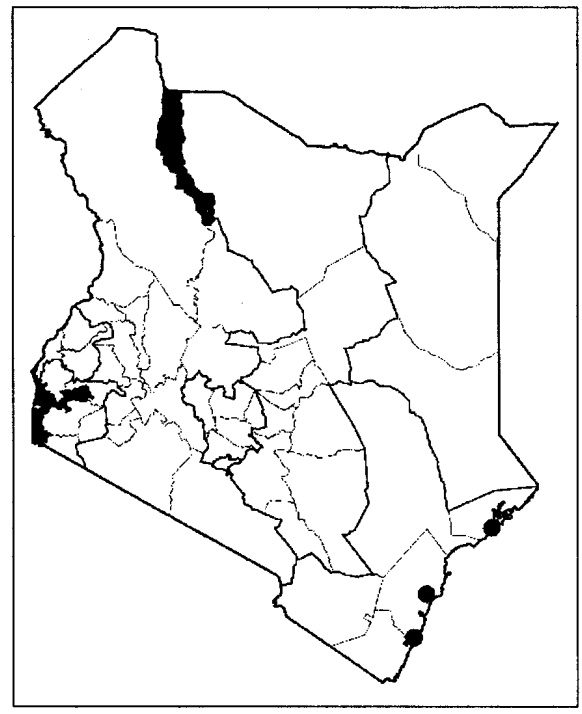
PROPAGATION: Seedlings.

SEED: Seeds are very small and difficult to extract; 400,000–1,700,000 seeds per kg.
treatment: Seeds are difficult to germinate. They should be floated in a small sloping tray with soil at one end. The seeds will germinate and lodge in the soil. This method is used at Baobab Farm, Likoni, Mombasa.
storage: Seeds do not store. Fresh seed should be used.

MANAGEMENT: Very fast growing; can be coppiced and pollarded.

REMARKS: The tree is planted in Sudan for reforestation, shelter and green belts. It is a promising agroforestry tree for dry lowland sites. The wood is light coloured and medium heavy.

FURTHER READING: Bein et al., 1996; Mbuya et al., 1994; National Academy of Sciences, 1983; Noad and Birnie, 1989.



Cordeauxia edulis

Fabaceae (Caesalpiniaceae)

Ethiopia, Somalia

COMMON NAMES: **English:** Yeheb nut; **Somali:** Ehb, Qud, Quda.

DESCRIPTION: A much-branched undershrub, rarely reaching 3–4 m. Red glands on stem and leaves. Very long roots tap deep water. LEAVES: Compound, leathery, with **1–6 pairs of leaflets**, each to 3 cm long, **oval,** the underside covered with **red glands**. FLOWERS: Small, yellow. FRUIT: Pods, 4–6 cm long **with a thin beak**. Containing 1–4 oval seeds ('nuts'), each 2–4 cm long.

ECOLOGY: An evergreen shrub native of the Ogaden region of Ethiopia south to the Indian Ocean coast of Somalia. It was introduced at Voi and Galana in 1957 and has been cultivated in Tanzania. Drought resistant. Long roots allow the plant to tap deep soil moisture and it remains green year-round. In its native habitat the yeheb nut is found in open bush savanna, 300–1,000 m; rainfall below 400 mm. Prefers sandy and deep loam coastal soils. Agroclimatic Zones V–VI.

USES: Firewood, edible seed, fodder (leaves), bee forage, mulch, nitrogen-fixing, soil conservation, tannin, dye (red dye from leaves used for fabrics), live fence, detergent.

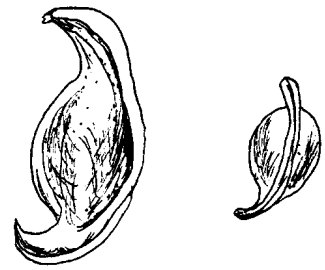
PROPAGATION: Direct sowing at site, cuttings; self-seeding when established. Early development of a deep taproot makes seedling production in nurseries less feasible.

SEED: Before an age of 3 years a young plant may bear a few pods, but once 3–4 years old it will yield prolifically under good conditions; 300 seeds per kg. Good germination; over 80% when fresh.
treatment: Not necessary.
storage: Seeds are very susceptible to insect attack and lose viability quickly. Avoid long storage.

MANAGEMENT: Slow growing during the initial stages while establishing its massive root system; young seedlings develop a strong taproot before shoots. Coppicing.

REMARKS: Used to be a common shrub in Somalia, used as food (nuts) by nomads; now rare due to over-exploitation during famine. Seedlings are grown at Kibwezi and Voi. Seed is edible when raw, boiled or roasted and is appreciated a great deal by pastoralists. An important dry-season fodder plant and a source of fuelwood.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Bekele-Tesemma et al., 1993; Maundu et al., 1999; Mbuya et al., 1994; National Academy of Sciences, 1979.



Cordia africana (C. abyssinica)

Boraginaceae

Indigenous

COMMON NAMES: **Boran:** Waddessa, Wandesi; **Embu:** Muringa; **Kamba:** Muvutu; **Kikuyu:** Muringa; **Kisii:** Omokobokobo; **Luhya (Bukusu):** Kumukikhili, Kumukomari; **Luhya:** Mukomari, Mukamari; **Meru:** Muringa; **Nandi:** Samutet; **Sabaot:** Mugunguret; **Samburu:** Chibulukwa, Lboringo; **Swahili:** Mkobokobo; **Taita:** Mringaringa; **Taveta:** Muringaringa; **Tugen:** Samut.

DESCRIPTION: A much-branched deciduous tree with rounded crown and often-crooked trunk, 4–15 m. BARK: Pale brown, finely grooved, rough with age. LEAVES: Large, **oval, to 16 cm, base rounded,** veins prominent below, young shoots, leaf stalks, underside of leaves **covered with soft brown hairs,** the upper surface may be slightly sandpapery. FLOWERS: Showy, **funnel shaped, 2.5 cm across, thin white petals,** sweetly scented and attractive to bees; the calyx cup hairy brown and **strongly ribbed.** FRUIT: **Yellow-orange, 1 cm in hairy calyx cups.** Sticky edible pulp, each fruit with a single stone containing 4–6 seeds.

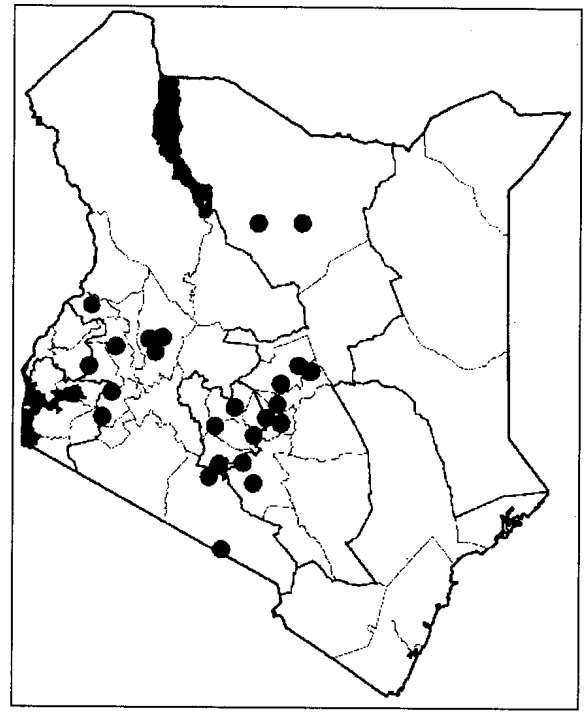
ECOLOGY: From Guinea in West Africa east to Ethiopia to South Africa; also in the Arabian peninsula. A large deciduous forest tree of moist warm areas, woodland and bush. It is widespread in Kenya, where it is common in pasture land between 1,200 and 2,000 m, mainly in Central Province, around Nairobi, in Meru, Marsabit, Kakamega, Kisii Districts and in parts of Rift Valley Province. Tends to be riverine in drier areas. Agroclimatic Zones II–III. Flowering periods very varied. Usually flowering in May–August and seeds in September–November.

USES: Firewood, timber, furniture, beehives, utensils (mortars), edible fruit, medicine (bark, roots), fodder (dry season), bee forage, shade, ornamental, mulch, soil conservation, fibres, glue, boundary marking.

PROPAGATION: Seedlings, wildings.

SEED: Germination rate 50–80% in 40–60 days, slow and uneven germination. The fruits should be de-pulped immediately after collection by rubbing over a wire mesh under flowing water. Sand can be added to facilitate the process. Pulp and stones can then be separated by floating in water; 2,500–4,500 stones per kg, each stone containing several seeds (multi-germ).
treatment: Not necessary.
storage: De-pulped fruit can be stored for some time.

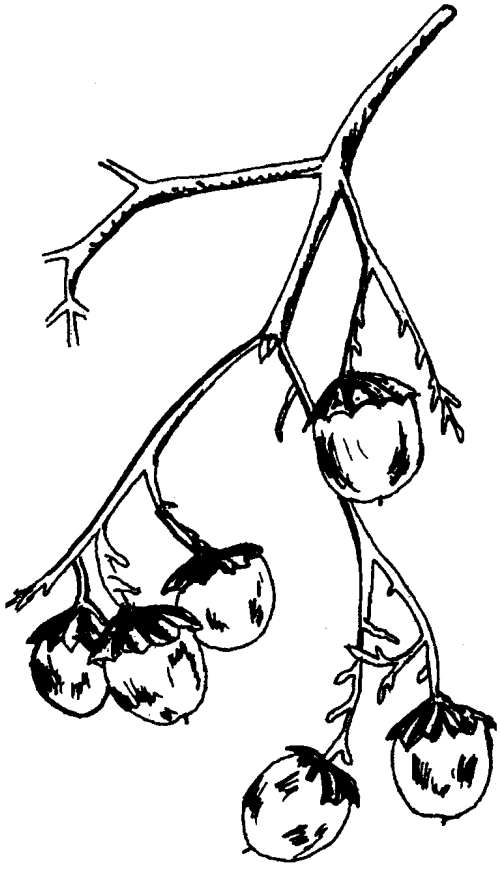
MANAGEMENT: Moderate to slow growing; pollarding, lopping, coppicing. Several seedlings may germinate from each stone. Can be pricked out. Young trees grow best under some shade. Tend to branch a lot if grown in full light.



Cordia africana (cont)

REMARKS: The heartwood is hard and takes a good polish, so the timber is prized for furniture, but it can be twisted and difficult to saw. Often found in cropland where it is managed to reduce shade. Provides very good mulch.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Albrecht, 1993; Backes and Ahenda, 1998; Beentje, 1994; Bein et al., 1996; Bekele-Tesemma et al., 1993; Blundell, 1987; Dharani, 2002; Fichtl and Adi, 1994; Katende et al., 1995; Kokwaro, 1993; Mbuya et al., 1994; Noad and Birnie, 1989; Palgrave and Palgrave, 2002.



Cordia monoica (C. ovalis)

Boraginaceae

Indigenous

COMMON NAMES: **Boran:** Qotte; **English:** Sandpaper tree; **Ilchamus:** Lmuleel, Lsek, Lseki, Muleelin; **Kamba:** Kithei, Muthei, Nthei (fruit); **Kikuyu:** Mukuo, Mukuu, Muthigi; **Kipsigis:** Nogirwet; **Luhya** (Bukusu)**:** Kumukhendie; **Luo:** Oseno; **Maasai:** Eseki, Isek (plural), Ilseki (plural), Olseki, Oseki; **Meru:** Ikuo, Mukuo; **Orma:** Araba; **Pokot:** Toporewo; **Samburu:** Lamantume, Seeki; **Somali:** Marer gob, Marer girgir (Tana River); **Swahili:** Msasa; **Tharaka:** Muthugagu, Mutugangu; **Turkana:** Elkaisekiseki, Entuntun; **Wardei:** Dheeka.

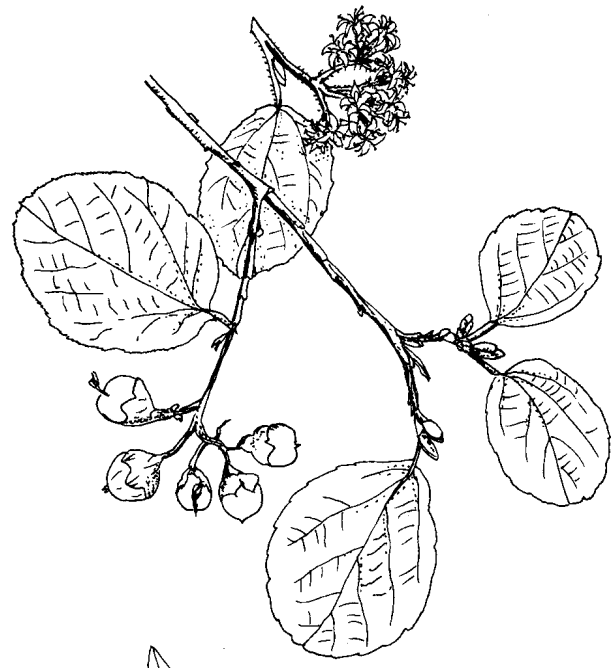
DESCRIPTION: A multi-stemmed shrub or tree to 6 m, occasionally reaching 12 m. BARK: **Blue-grey, thin and fibrous, peeling in strips**—resembling eucalyptus. LEAVES: Broadly oval to almost round, 5–8 cm, margin slightly toothed, **upper surface like sandpaper to touch** but softly hairy below with prominent veins; a stalk to 2 cm. **Branchlets, leaf and flower stalks densely covered with rusty hairs.** FLOWERS: Pale yellow, sharply fragrant, in dense terminal clusters, each flower tubular, about 1 cm across, calyx hairy and persistent. FRUIT: Oval, pointed, yellow-orange and soft when ripe, about 2 cm long, held in a **hairy cup-like calyx that loosely covers 1/3 of the fruit**; the single stone lies in jelly-like edible pulp.

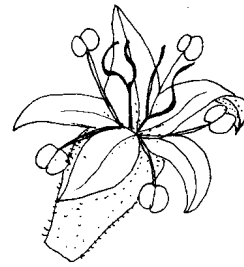
ECOLOGY: This *Cordia* species grows from Ethiopia and Sudan south to South Africa. Also occurs in India and Sri Lanka. It is widely distributed in Kenya and found in many habitats from wet or riverine forest to woodland and bush with *Acacia–Euphorbia* or grassland. Often found in semi-evergreen or deciduous bushland or bushed grassland, on rocks or along rivers. Agroclimatic Zones II–IV. Flowers in March–April and October and seeds in July–August and December in Bungoma.

USES: Firewood, charcoal, timber (construction), poles, beehives (bark), tool handles, carvings, utensils (clubs, hooked sticks for hanging traditional beehives, pestles), walking sticks, bows, arrow shafts, edible fruit, medicine (leaves, roots, stem bark), fodder (leaves for camels and goats), bee forage, shade, fibre (bark), fence droppers, ceremonial, veterinary medicine, 'sandpaper' (leaves).

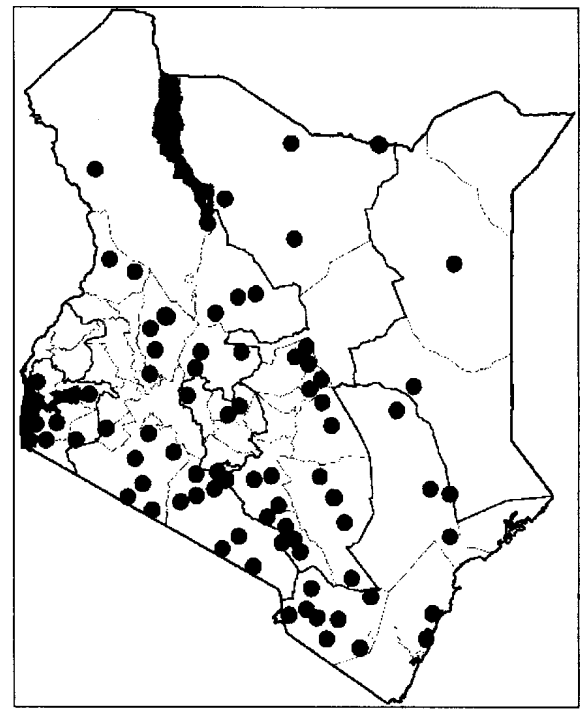
PROPAGATION: Seedlings, wildings.

SEED: The fruits should be de-pulped immediately after collection by rubbing over a wire mesh under running water. Sand can be added to facilitate the process. Pulp and stones can then be separated by floating in water. About 3,500 stones per kg; each fruit contains a few seeds (multi-germ).





Enlarged flower



Cordia monoica (cont)

treatment: None, or soak in cold water for 6 hours.
storage: De-pulped fruit can be stored for some time.

MANAGEMENT: Slow growing; coppicing, lopping, pollarding. Several seedlings may germinate from each stone. Can be pricked out.

REMARKS: Survives well in dry areas. A leaf extract can be used to remove a retained placenta (used for both humans and livestock). The pulp of the fruit is edible. The fruit coat is usually removed, the pulp with the seed is sucked and the seeds discarded. The tree is associated with traditional beliefs in many communities in Kenya.

FURTHER READING: Backes and Ahenda, 1998; Beentje, 1994; Bein et al., 1996; Katende et al., 1995; Kokwaro, 1993; Maundu et al., 1999; Mbuya et al., 1994; Ruffo et al., 2002.

Cordia sinensis (*C. gharaf, C. rothii*)

Boraginaceae

Indigenous

COMMON NAMES: **Boran:** Harores, Mader, Mader boor, Mader qoowe; **Chonyi:** Mkayukayu; **Gabra:** Madeer; **Giriama:** Mderia, Mkayukayu; **Ilchamus:** Salapani, Lgweita; **Kamba:** Kithea, Muthei munini, Kithia; **Kipsigis:** Nokirwet; **Maasai:** Oldorko; **Malakote:** Mutalya chana (Riverine, Tana River), Mutaale; **Marakwet:** Adomoyon; **Orma:** Mader; **Pokomo:** Muhale, Mhali; **Pokot:** Adomeyon, Adome (fruit); **Rendille:** Gaer, Koh, Madeer, Gayer; **Samburu:** Ilgoita, Ikweite, Dorgo, Lmanturre, Lgueita, Lgweita orok, Silapani; **Sanya:** Hoorocha; **Somali:** Mareer, Marer; **Swahili:** Mkamasi, Mnya mate; **Tugen:** Adumewa, Edoma (leaves), Adomewa; **Turkana:** Edome; **Wardei:** Marer.

DESCRIPTION: A tangled deciduous shrub or small multi-branched tree, 3–12 m, often with drooping branches. BARK: Young bark smooth grey-white, later yellow-brown to black, roughly grooved. LEAVES: **Grey-green, narrowly oblong** to 9 cm long, feel rough to touch, with hairs both sides, tip rounded or notched, on a **stalk about 1 cm.** Leaves more or less opposite. FLOWERS: Tubular and small, fragrant, in cream terminal clusters, on branched hairy stalks. FRUIT: Egg-shaped, to 2 cm, clearly tipped, held in a calyx cup, **orange-red like egg yolk** with very **sticky edible pulp**. The calyx has a toothed edge and covers 1/3 of the fruit.

ECOLOGY: Grows from West Africa east to the Middle East, India and Sri Lanka and south to South Africa. Widespread in the drier parts of Kenya but absent in Western and Nyanza Provinces. Found in dry sites, usually with *Salvadora persica* in open bushland, usually 0–1,400 m. Mainly alluvial, sandy, red loam and rocky soils. Agroclimatic Zones III (coast)–VII. Flowers in April–May (Turkana); fruits in March (Kilifi), May–June (Kajiado, Kitui), August–September (Garissa, Samburu, Turkana, Kajiado).

USES: Firewood, timber (construction), furniture (traditional stools), poles, tool handles (for hoes), utensils (spoons, stirrers, fish traps), walking sticks, arrows, edible fruit, drink, edible gum, medicine (roots, bark), fodder (leaves), bee forage, fibre, fruit used as glue, ceremonial, veterinary medicine, fire making, smoking containers.

PROPAGATION: Seedlings, wildings.

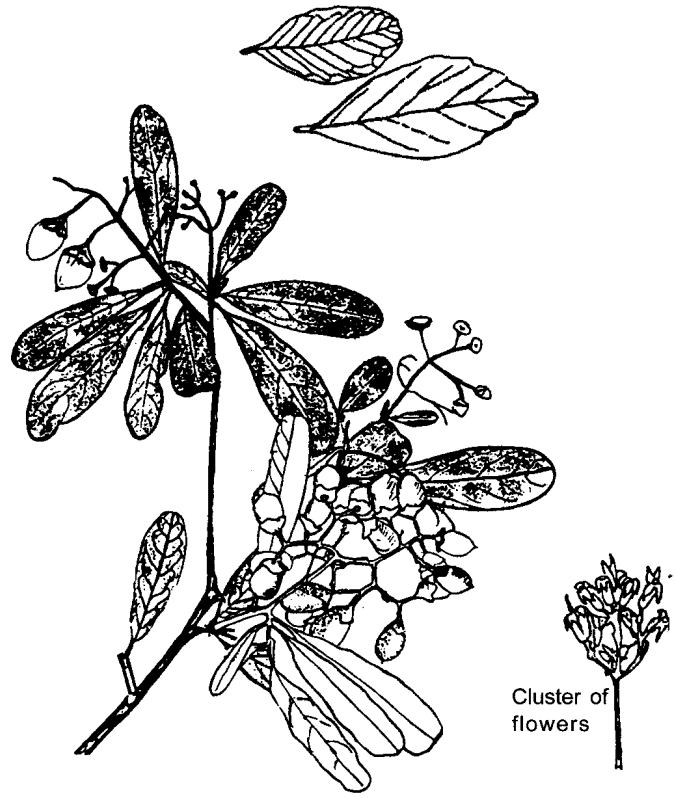
SEED: 14,000–18,000 seeds per kg. The fruits should be de-pulped immediately after collection by rubbing over a wire mesh under running water. Adding sand may facilitate the process. Pulp and stones can then be separated by floating in water. Each fruit contains up to 4 tiny seeds (multi-germ). Germination up to 60% after 30 days.

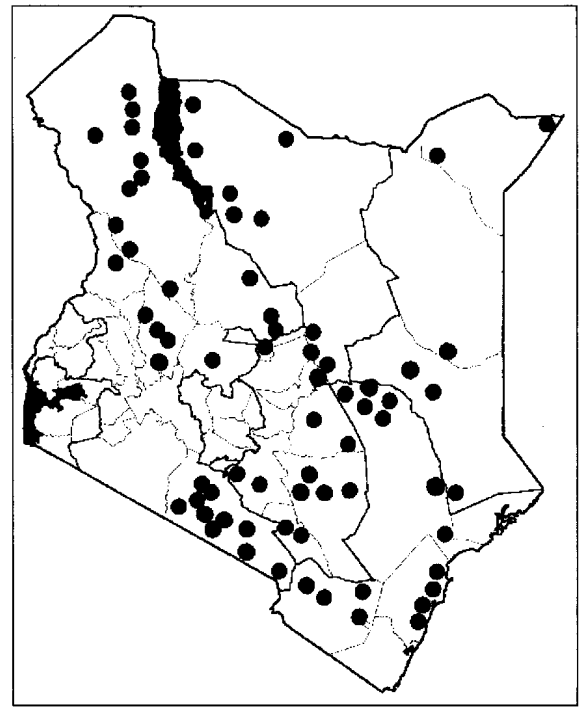
treatment: Not necessary for fresh seed. For stored seed pour warm water (40°C) on the seeds and soak until the water is cool.

storage: De-pulped fruit can be stored for a few months.

MANAGEMENT: Fairly fast growing, lopping, pollarding, coppicing. Several seedlings may germinate from each stone. Can be pricked out.

REMARKS: A very useful tree in dry areas. Flexible branches are dry, light and do not snap; used for supports on camel pack-saddles. Ripe fruits eaten raw. The sweet mucilaginous pulp may be eaten, while the fruit cover and seeds are discarded. Alternatively, fruits are gathered, pounded to a sticky mass, sun-dried and stored in a wooden container (*eburr*: Turkana). The fruit pulp is sometimes used for brewing a local beer. Fresh juice may also be drunk (Turkana). A clear gum produced by the tree is





Cordia sinensis (cont)

edible. Stems are widely used as poles in hut construction (Turkana, Pokot, Boran, Somali, Gabra). The Turkana use this plant to erect bird-scaring platforms in their sorghum fields. In many cases these may root, hence becoming a nearby source of food. Fodder for goats, camels, sheep and cattle. Fruits sold in Lodwar (Turkana). Poles for construction sold (Pokot, Turkana). *C. sinensis* is a very variable species. In northern Kenya and at the coast it tends to have longer, smooth leaves. In the Tharaka, Kitui, Mbeere, Machakos and Kajiado areas, the leaves tend to be more coarse, shorter and with an irregular margin.

FURTHER READING: Albrecht, 1993; Beentje, 1994; ITDG and IIRR, 1996; Katende et al., 1995, 1999; Kokwaro, 1993; Maundu et al., 1999; Mbuya et al., 1994; Palgrave and Palgrave, 2002; Ruffo et al., 2002.

Cordyla africana

Fabaceae (Papilionaceae)

Indigenous

STANDARD/TRADE NAME: Cordyla.

COMMON NAMES: **Digo:** Mnyungwinyungwi; **Swahili:** Mgwata, Mroma, Mvoo, Mtigonzi, Mumbwa, **Taita:** Mroma.

DESCRIPTION: A large spreading deciduous tree 9–25 m tall with rounded crown. BARK: Greyish brown and rough, thick and grooved. LEAVES: Alternate, compound, with 11–28 pairs of leaflets plus a terminal leaflet, each one oblong to 2.5 cm, dark green with a short **hairy stalk**. Held up to the light unusual **clear dots and streaks can be seen**. FLOWERS: **Semi-spherical heads of yellow-orange stamens** up to 2.5 cm long on branched stalks. They appear in axillary sprays or at axils, with the new leaves in July–October. No petals but sepals, ovary stalked. FRUIT: Unusual pods, **yellow** when ripe, **oblong to spherical**, thin walled, **about 6 cm long**. The 3 flat seeds are contained in fleshy pulp and appear in November–December. The sticky pulp smells like beans.

ECOLOGY: From Senegal and Gambia east to eastern Africa and south to South Africa. Found at low altitudes in hot areas, especially in riverine fringes or forests, and also in swamp forests. In Kenya, found at the coast, e.g. Arabuko-Sokoke Forest. Agroclimatic Zones III–IV.

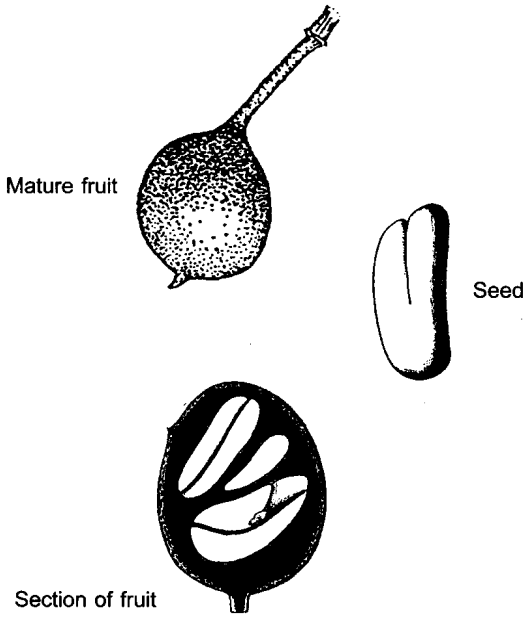
USES: Timber (construction), poles, furniture (stools), tool handles, carvings, utensils (drums, mortars), edible fruit, shade.

PROPAGATION: Seedlings. Produces suckers.

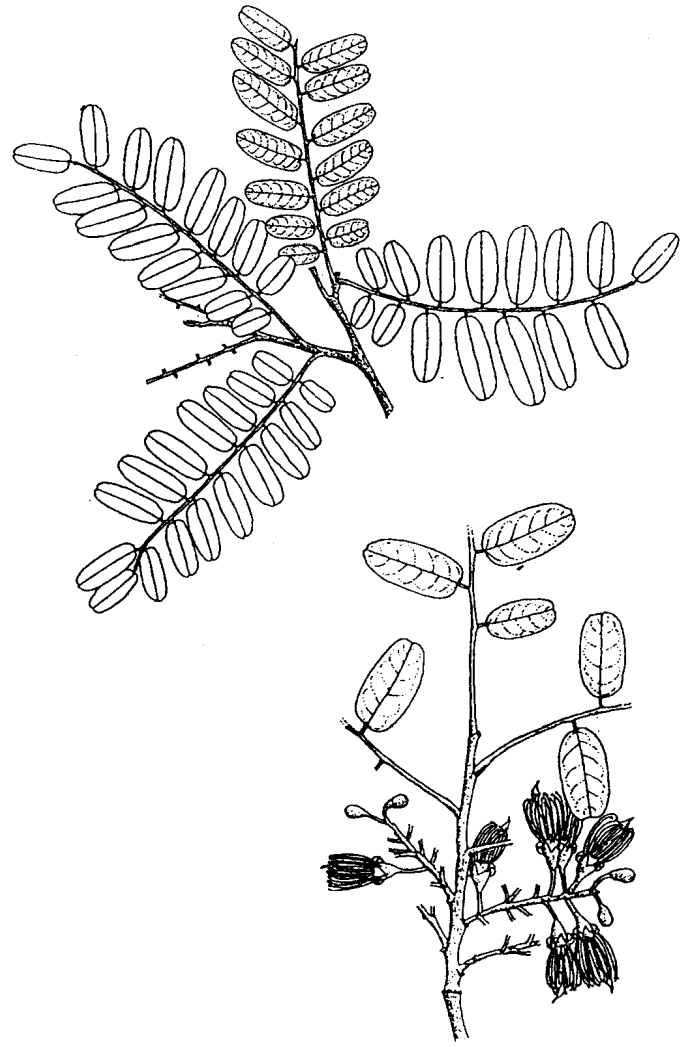
SEED: Fresh seeds germinate easily.
treatment: Not necessary.
storage: Viability is short. Use fresh seed.

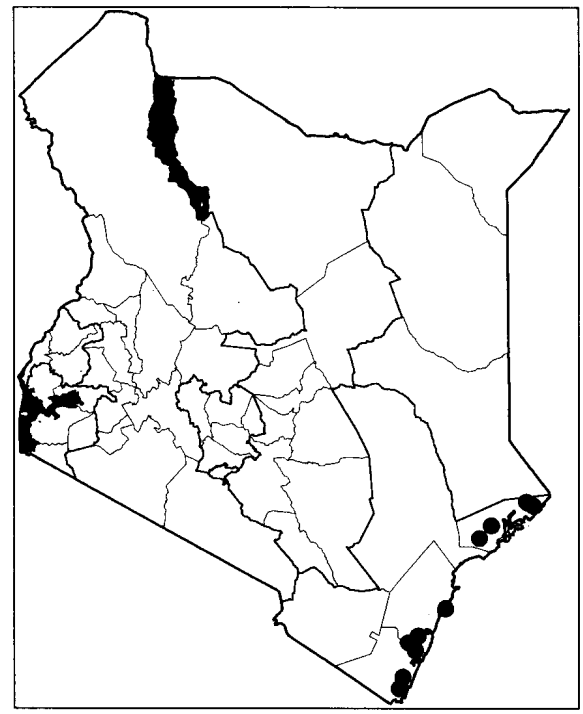
MANAGEMENT: Pollarding, lopping, coppicing. Growth and yield is usually reduced when the tree is planted outside its area of natural distribution.

REMARKS: The fruit is very tasty and is eaten both raw and cooked. It has a very high vitamin C content. The heartwood has a rich brown colour and the timber is hard but susceptible to borers.



FURTHER READING: Beentje, 1994; Mbuya et al., 1994; Palgrave and Palgrave, 2002; Ruffo et al., 2002; van Wyk, 1998.





Cornus volkensii (Afrocrania volkensii)

Cornaceae

Indigenous

COMMON NAMES: English: Afrocrania; **Kikuyu:** Mucemeki, Mukorombothi; **Marakwet:** Sayit; **Meru:** Mugonyone; **Nandi:** Tarakiet; **Ogiek:** Chumnalilet; **Pokot:** Sayit; **Sabaot:** Totokio.

DESCRIPTION: A medium to tall forest tree, 5–20 m, **usually with a straight bole** and spreading crown. BARK: Rough and grey with large white elongated lenticels. LEAVES: Opposite, **pale green**, widest at the middle and **narrowing towards the tip**, 5–15 cm long, **4–5 pairs of very prominent side veins**. FLOWERS: Small, greenish yellow, in terminal dense flowering heads. FRUIT: Fleshy, red, later turning black, oval to about 1 cm long.

ECOLOGY: Found in the East African highlands and in the Democratic Republic of Congo south to Mozambique and Zimbabwe. Found in highland parts of Kenya, where it may be locally common in wet uplands forests in association with *Ocotea*, extending to the bamboo zone. Typically a high-altitude species between 2,100 and 3,200 m. Found for example in Taita Hills, Aberdares, Mt Kenya, Mau, Elgon and Nandi Hills. Agroclimatic Zones I–II.

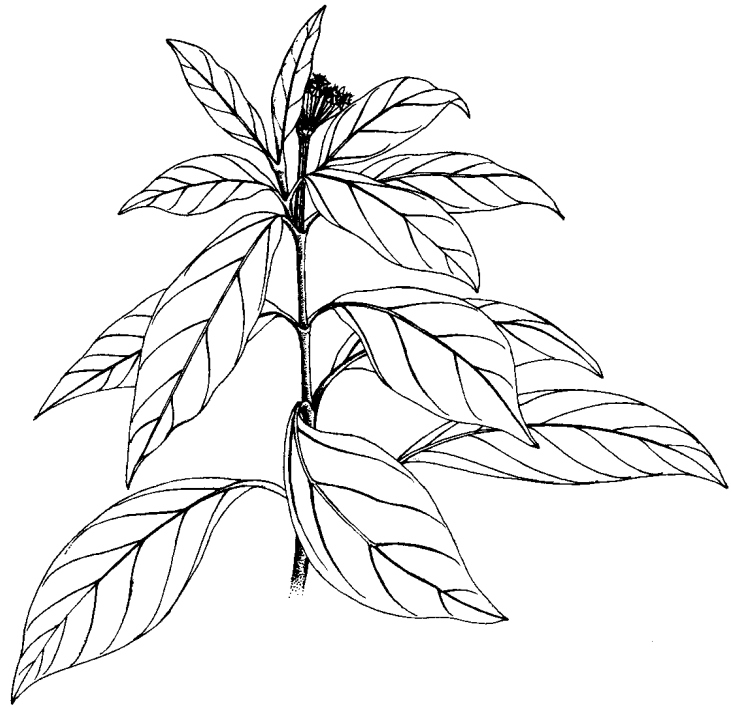
USES: Firewood, timber, furniture.

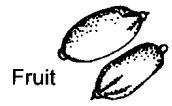
PROPAGATION: Seedlings. Some species of *Cornus* also grow from cuttings or can be propagated by layering.

MANAGEMENT: Many species in this genus can do well in exposed areas as well as in light shade. They can be cut back successfully. Many prefer rich, fertile and well-drained soils.

REMARKS: Mainly a timber tree. The timber is light yellow or whitish. The former genus *Afrocrania* has now been included in *Cornus* (dogwoods), which consists of 60 or so trees, shrubs and herbaceous perennials of mainly temperate regions of the northern hemisphere. These have characteristic simple leaves with prominent inward-curving veins and red, blue or white fruits.

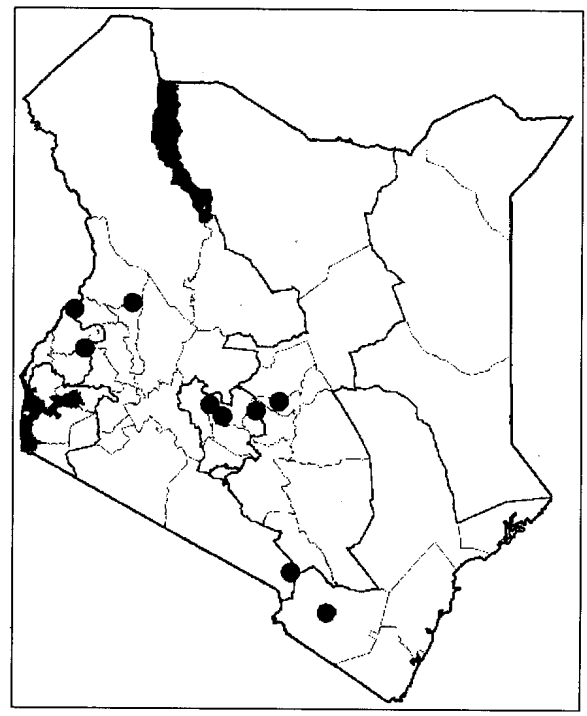
FURTHER READING: Beentje, 1994; Palgrave and Palgrave, 2002; Sommerlatte and Sommerlatte, 1990.





Fruit

Enlarged flower



Craibia brownii

Fabaceae (Papilionaceae)

Indigenous

COMMON NAMES: **Kamba:** Muthi, Mutisi; **Kikuyu:** Mukubu; **Luhya:** Muhandi; **Nandi:** Neunet; **Tharaka:** Mugunkuma; **Tugen:** Cheptewo.

DESCRIPTION: A **much-branched evergreen tree** to 20 m or more, with a round dense crown. BARK: Grey, smooth but **flaking in old trees**. LEAVES: **Compound with 3–8 alternate, elliptic leaflets**, 5–10-cm long, very smooth and **shiny above**. FLOWERS: White tinged with pale pink, **in terminal clusters**. FRUIT: **Dark brown thick flat pods**, about 6 cm long, splitting on the tree to release **brownish to black seeds.**

ECOLOGY: Found in north-eastern Democratic Republic of Congo, Uganda, Tanzania, and in Kenya where it is common in the western highlands. Occurs in forest and forest margins at altitudes between 1,150 and 2,100 m. Also in riverine forests, dry *Croton–Brachylaena* forest or moist forest. Agroclimatic Zones II–III.

USES: Timber, arrows, trays, baskets (made from flexible branches), edible seed, medicine (roots).

PROPAGATION: Seedlings.

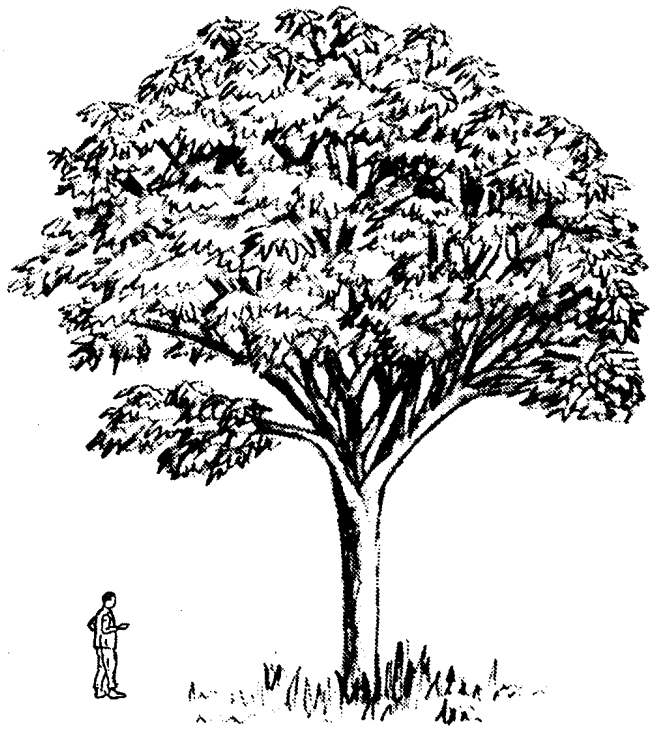
MANAGEMENT: Extremely slow growing.

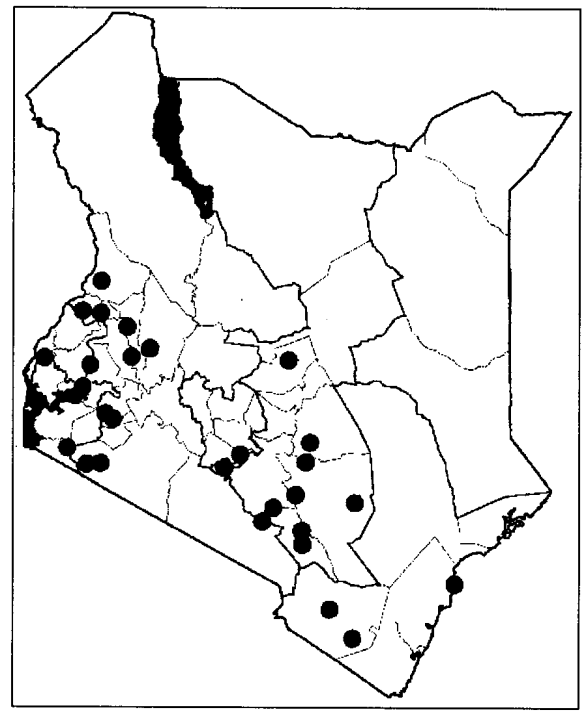
REMARKS: Seed edible after a long period of cooking. Wood close grained, white, hard. Ash from this species mixed with ash from other species is used to attract bees to an unoccupied hive (Tharaka).

A related species, *C. brevicaudata* (**Giriama/Digo**: Mfunda; **Swahili**: Mfunda mweupe), is found at lower altitudes (only below 1,150 m), especially in the coastal belt where *C. brownii* does not occur. Leaves have 3–5 leaflets. It is common in rocky places. It is a source of timber.

FURTHER READING: Beentje, 1994; Noad and Birnie, 1989; Sommerlatte and Sommerlatte, 1990.

Enlarged flower





Crateva adansonii

Capparidaceae

Indigenous

COMMON NAMES: **Sabaot:** Chiesamiss; **Tugen:** Nagarida, Koleonik; **Turkana:** Eiyoroit.

DESCRIPTION: A deciduous tree 3–10 m high, occasionally to 16 m, usually with a thick bole. Developing a round crown when old. BARK: Light red-brown with marked pores; coming off in scales. LEAVES: Tufted at the end of branches, compound with **3 leaflets**, to 10 cm long, on stalks to 8 cm long. Upper side of leaflets smooth, the 2 lateral leaflets asymmetric. FLOWERS: **White or yellowish white**, at or near the end of branches, held such that stalks are shorter towards the top, frequently 15–20, the common stalk 3–4 cm, calyx 4-lobed, 4 petals all on one side of the flower, white or creamy yellow, sometimes with lilac tips, 1.5–2 cm. Numerous long pale violet stamens, much longer than the petals. FRUIT: **Round, to about 5 cm across**, yellow or light brown when ripe, hanging on a 6-cm long woody stalk. Outer layer yellow, thin, hard, fissured; 10–20 small seeds, dark brown, kidney-shaped, embedded in a white, mealy, very sweet fruit pulp.

ECOLOGY: Widespread all over the Sahel from Senegal to Ethiopia and Eritrea and East Africa, extending to Democratic Republic of Congo, south into Zambia. Also extending eastwards into Asia to India and Burma. Needs much soil moisture and in dry areas therefore occurs only along river banks and in seasonally flooded depressions. Often in deep sandy to loamy soils and on termite mounds. In Kenya, in riverine forest or riverine woodland in Turkana, Samburu and south to Nandi, 550–1,500 m. Agroclimatic Zones III–V.

USES: Firewood, charcoal, farm implements, utensils, edible fruits, edible seeds, edible leaves, medicine (bark, leaves, roots), fodder (leaves), bee forage, ornamental, dye, gum.

PROPAGATION: Seedlings, cuttings.

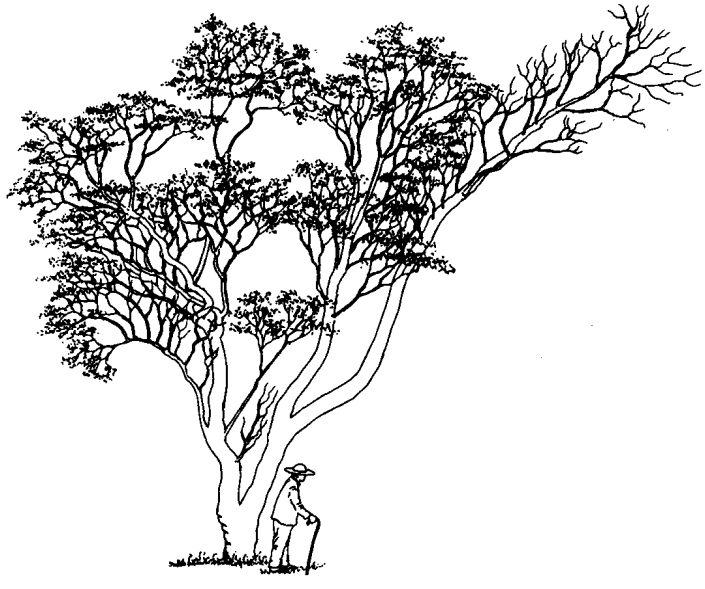
SEED: Hand pick from the fruit and clean; 7,000–7,500 seeds per kg.

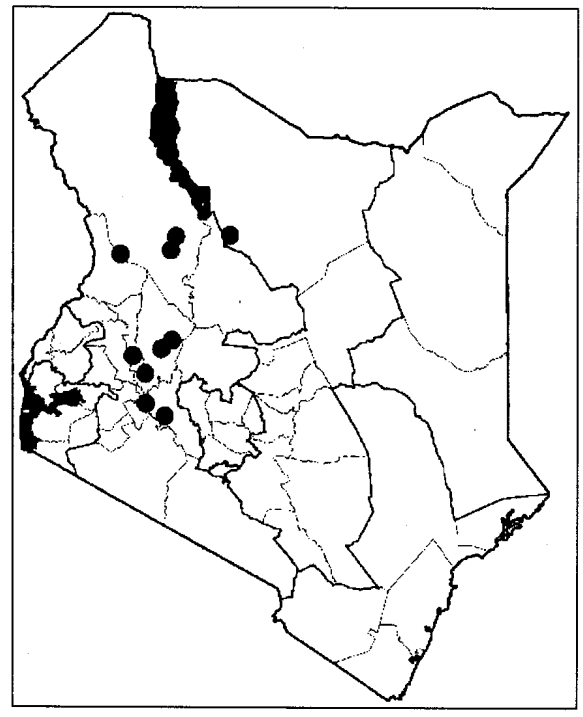
treatment: Not necessary.
storage: Avoid storage. Sow fresh seed.

MANAGEMENT: Lopping for fodder.

REMARKS: Wood used for implements by the Turkana. It is soft, yellow-white and strong smelling when cut, the smell being noticeable even if just a twig is broken. The leaves have high fodder value. A yellow dye is obtained from the branches and leaves. Honeybees forage for both pollen and nectar. Leaves reportedly used as a vegetable in West Africa.

FURTHER READING: Beentje, 1994; Blundell, 1987; Fichtl and Adi, 1994; Kokwaro, 1993; von Maydell, 1990.





Crotalaria agatiflora

Fabaceae (Papilionaceae)

Indigenous

COMMON NAMES: **Digo:** Mfunda; **English:** Lion's claw; **Giriama:** Mfunda; **Kamba:** Iviinzi, Musili; **Kikuyu:** Mwethia; **Kipsigis:** Kipkururiet; **Luo:** Arech; **Maasai:** Olotwalan; **Swahili:** Mfunda mweupe.

DESCRIPTION: A much-branched shrub, usually 1.5–4 m high. Stems may be hairy, depending on the variety. LEAVES: Divided into **3 leaflets** to 9 cm x 3 cm, normally much smaller. Hairy beneath or hairless. Very variable. FLOWERS: Large, pale yellow, many in each head. FRUIT: Smooth pods, up to **10 cm x 2 cm**.

ECOLOGY: Mainly in the highland part of Kenya in bushed grassland, at roadsides, wasteland and in cultivated land. Also in forest margins and clearings at high altitudes, 1,400–3,300 m. Agroclimatic Zones I–III.

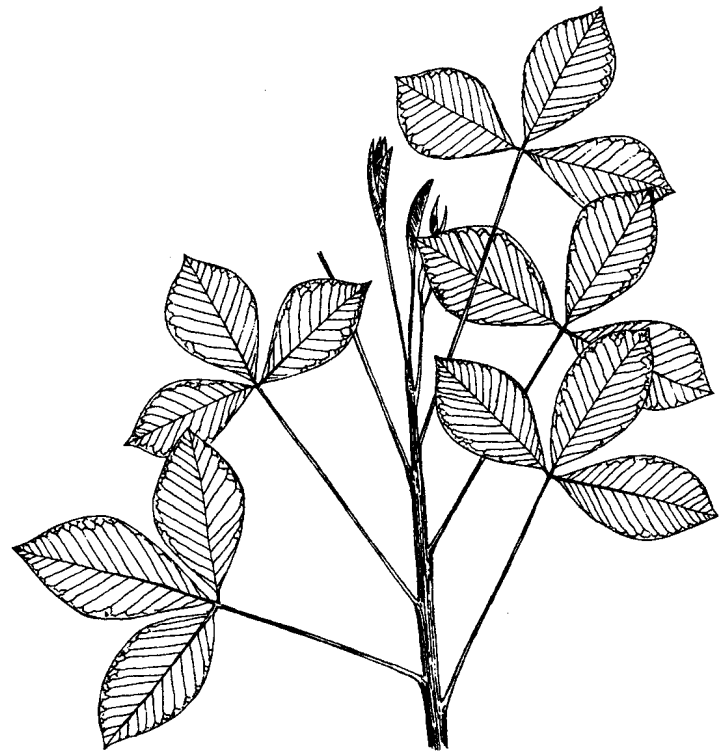
USES: Fibre, mulch, nitrogen-fixing.

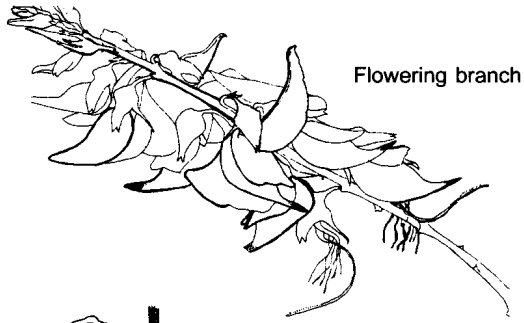
PROPAGATION: Grows easily from seeds.

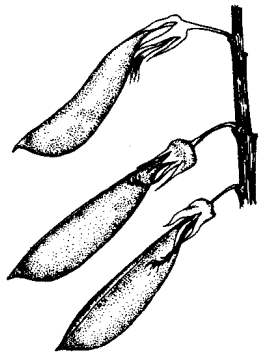
REMARKS: Several subspecies are recognized. A number of other *Crotalaria* species may grow to the size of small shrubs.

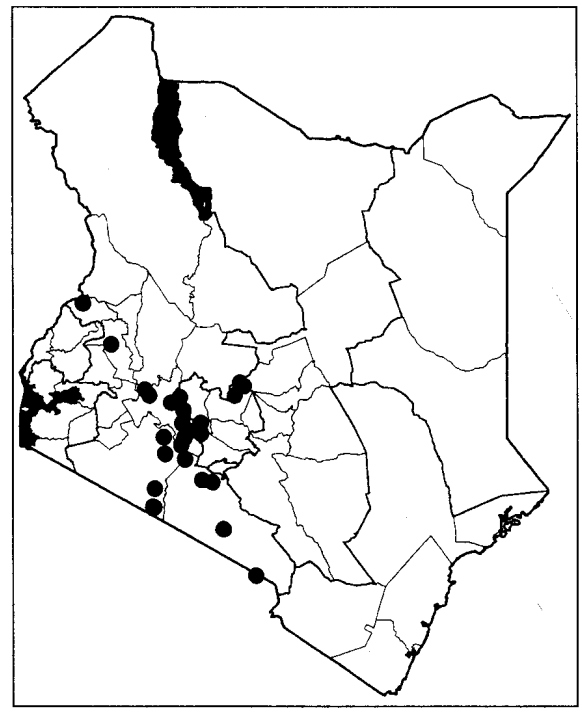
The more important ones include the following. *C. axillaris* (**Digo**: Mkelekele; **Embu**: Machunguchungu; **Kikuyu**: Muchangire; **Meru**: Mchunguchungu; **Swahili**: Mchekecheke; **Taita**: Luafumbo), with leaves that are somewhat hairy on the undersides, is widely distributed in Kenya, 0–2,300 m. *C. goodiiformis* (**Kamba**: Muthilia, Mukai; **Kikuyu**: Muchingiri) has yellow-to-orange flowers with a purple patch and thinly hairy fruit; 0–2,250 m. *C. ochroleuca* (**Luhya**: Mitoo; **Luo**: Mito) is a species that is cultivated as a green-manure and leafy vegetable crop in western Kenya.

FURTHER READING: Beentje, 1994; Dharani, 2002.









Croton macrostachyus

Euphorbiaceae

Indigenous

COMMON NAMES: **Kamba:** Kitundu, Mutundu; **Kikuyu:** Mutundu, Mutundu wa njora; **Kipsigis:** Tebesuet; **Kisii:** Omosocho; **Luhya (Bukusu):** Kumuchwichwi, Kumukunusia, Kumutoboso, Kumutotoa; **Luhya:** Musutsu, Omuswitswi; **Luo:** Ngong'ngong' (Migori); **Maasai:** Olkeparke; **Marakwet:** Taboswa; **Meru:** Mutuntu; **Nandi:** Tebesuet; **Pokot:** Toboswa; **Taita:** Mfirifiri; **Taveta:** Mfirifiri; **Tugen:** Tebesuet.

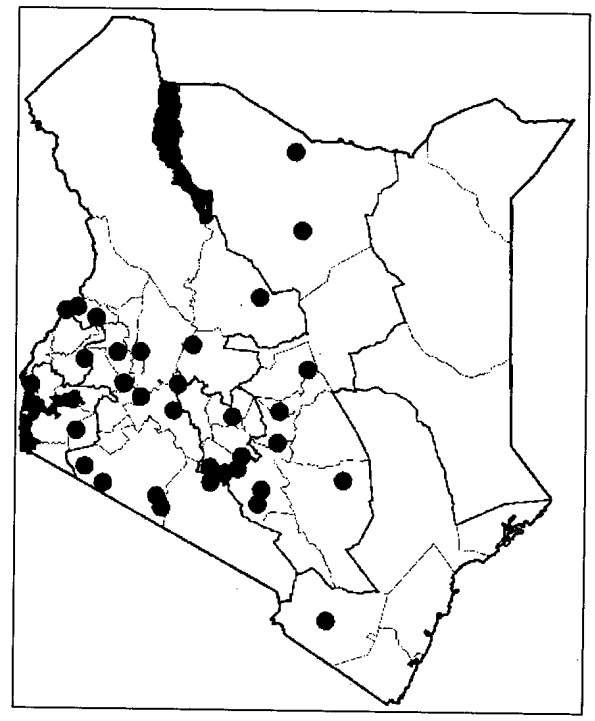
DESCRIPTION: A deciduous tree, the crown rounded and open with large spreading branches, reaching 2–5 m. BARK: Pale grey, fairly smooth. LEAVES: Large, **soft and heart-shaped, to 15 cm long, on long stems,** crowded at the end of branchlets, veins prominent **with 2 stalked glands** just visible at the leaf base, paler below due to soft hairs. FLOWERS: Creamy yellow, **sweetly scented in erect spikes to 25 cm,** all over the tree. Flowers appear only briefly, the flower spike turning down as fruits mature. FRUIT: **Pea-sized capsules on drooping spikes, to 30 cm,** mature capsules split open with a sharp noise to release shiny grey seeds with a rather soft cream aril.

ECOLOGY: Found more or less throughout tropical Africa from Guinea eastwards to Ethiopia and south to Angola, Zambia, Malawi and Mozambique. Common in secondary forests and at forest edges, along rivers and around lakes. In Kenya, it is widespread in the farming landscape in wetter areas, 600–2,000 m. Agroclimatic Zones I–III. Flowering period extended in most areas but peak in March–June (western) and May–July in central Kenya. Fruit development takes 4–5 months.

USES: Firewood, charcoal, timber, poles, tool handles, medicine (sap, leaves, roots and bark), fodder, bee forage, mulch, soil conservation, ceremonial, veterinary medicine.

PROPAGATION: Seedlings, wildings.

SEED: 16,000–27,000 seeds per kg. Seeds often damaged by insects while on the tree. Before collecting, check that insides of seeds are cream to white coloured. Collect the fruit and sun-dry to release seeds.



Croton macrostachyus (cont)

treatment: Not necessary. Germination rate 40–60% in 30–60 days from healthy seeds.
storage: Seed are oily and can be stored only for some weeks.

MANAGEMENT: Fairly fast growing on good sites, slow on drier sites; lopping, pollarding, coppicing.

REMARKS: Seed and resin are poisonous. The Maasai use stems for making sword sheaths. When cut for fuelwood it has a rather unpleasant spicy odour and is thus not always popular for that purpose. A good tree for intercropping.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Albrecht, 1993; Backes and Ahenda, 1998; Beentje, 1994; Bein et al., 1996; Bekele-Tesemma et al., 1993; Dharani, 2002; Fichtl and Adi, 1994; ITDG and IIRR, 1996; Katende et al., 1995; Kokwaro, 1993; Mbuya et al., 1994; Noad and Birnie, 1989; Sommerlatte and Sommerlatte, 1990.

Croton megalocarpus

Euphorbiaceae

Indigenous

COMMON NAMES: **Boran:** Nyapo; **Duruma:** Nyaeppo; **Embu:** Mukinduri; **Gabra:** Nyaap'po; **Giriama:** Muyama; **Kamba:** Muthulu, Nthulu (fruit); **Kikuyu:** Mukinduri; **Luhya:** Musine; **Maasai:** Olmerguet; **Meru:** Mukinduri; **Nandi:** Masineitet; **Samburu:** Marakuet; **Taita:** Mkigara; **Tugen:** Ortuet.

DESCRIPTION: A spreading deciduous tree to 35 m with **distinctive layering of branches,** the crown rather flat and giving light shade. BARK: Dark grey, rough, cracking. LEAVES: Variable, long oval and pointed to 12 cm, but often much smaller, stalked. **The dull green upper surface contrasts with the pale, silvery underside.** FLOWERS: Monoecious or dioecious, very short lived but conspicuous, the buds opening after heavy rains into pale yellow hanging spikes to 25 cm, with only a few female flowers at the base. FRUIT: Very many **grey woody capsules,** about 2.5 cm long with **3 flattened seeds** inside, grey-brown when mature with a small bump (the caruncle).

ECOLOGY: Found in the Democratic Republic of Congo, Rwanda, Burundi, Uganda, Kenya, Tanzania, Malawi, Zambia and Mozambique. In Kenya, it is widespread, from the south to the western and northern parts of the country. Particularly common in dry forests at the coast, around Nairobi and on mountains in northern Kenya where it may be the dominant upperstorey tree. Also cultivated a great deal in most areas. Agroclimatic Zones III–IV. Very common in Zone III. Flowers end of April–early May. Produces seed in October–December in central and northern Kenya, January–February in western Kenya.

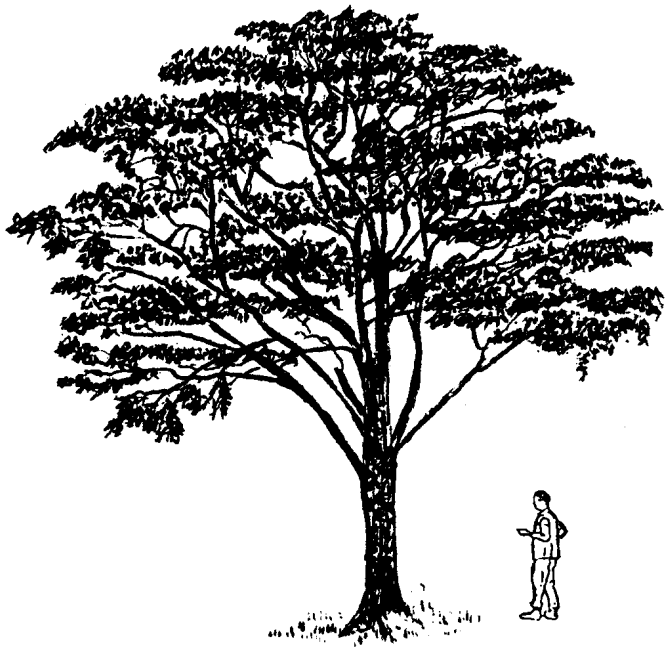
USES: Firewood (smoke may irritate eyes), timber, charcoal, poles, medicine (bark), bee forage, shade, ornamental, mulch, live fence, boundary marking (especially popular among the Kikuyu), veterinary medicine.

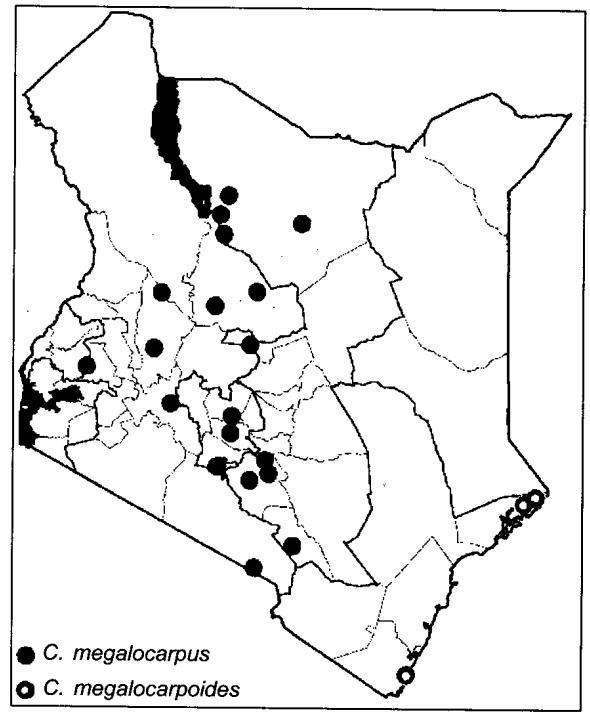
PROPAGATION: Direct sowing at site (recommended), seedlings (sow seed in directly in pots), wildings.

SEED: The tree seeds prolifically. Crack the fruit shell and sow. About 1,000–1,700 seeds per kg. Germination rate up to 90% within 30 days. Germination may start within 1 or 2 weeks.

treatment: Not necessary.

storage: Seed are oily and can be stored only for some weeks.





Croton megalocarpus (cont)

MANAGEMENT: Fast growing in high-potential areas, slow elsewhere; lopping, pollarding and coppicing.

REMARKS: Seed has high oil (30%) and protein content (50%). The oil extract can be a strong purgative. The tree is not recommended for intercropping due to competition and shade. Cultural beliefs prevent this tree being planted close to houses. Smoke from the firewood may irritate eyes and the heartwood has a very bad smell. The sap also has a spicy odour.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Albrecht, 1993; Beentje, 1994; Blundell, 1987; Dharani, 2002; ITDG and IIRR, 1996; Katende et al., 1995; Kokwaro, 1993; Mbuya et al., 1994; Noad and Birnie, 1989.

Seeds

Enlarged male flower

Cupressus lusitanica

Cupressaceae

Mexico, Guatemala

COMMON NAMES: **English:** Mexican cypress; **Kikuyu:** Mutarakwa, Muthithinda; **Kisii:** Omobakora; **Luhya:** Mudarakwa; **Luo:** Obudo.

DESCRIPTION: An evergreen tree to 35 m with a straight trunk, **generally conical** but irregular in shape, the branches hang down with branchlets in all directions. BARK: **Red-brown with vertical grooves,** grey with age. LEAVES: Dull blue-green, **the tiny leaves in 4 ranks, with pointed tips.** CONES: Male like fat tips to branchlets, producing clouds of yellow pollen dust; female cones ripen in 2 years, **rounded, 1.5 cm across,** brown, the cone scales with central, pointed projections. About 75 winged seeds are released from beneath the cone scales.

ECOLOGY: The Mexican cypress originates from the moist mountain forests of Mexico and Central America. It grows best above 1,500 m altitude with good soil and fair rainfall. In 1992, this fast-growing cypress represented over 40% of the plantation areas in Kenya, where it was introduced before 1910. Since 1990, severely attacked by the cypress aphid; branches turn yellow, later dry out. Aphids are difficult to control and thus planting cannot be recommended until a solution (biological control) becomes available. Agroclimatic Zones II–III. Flowers in most areas from June–October and seeds in November–May.

USES: Firewood, timber (construction wood, pulpwood), furniture, poles, posts, shade, ornamental, windbreak, live fence, toothbrushes, brooms.

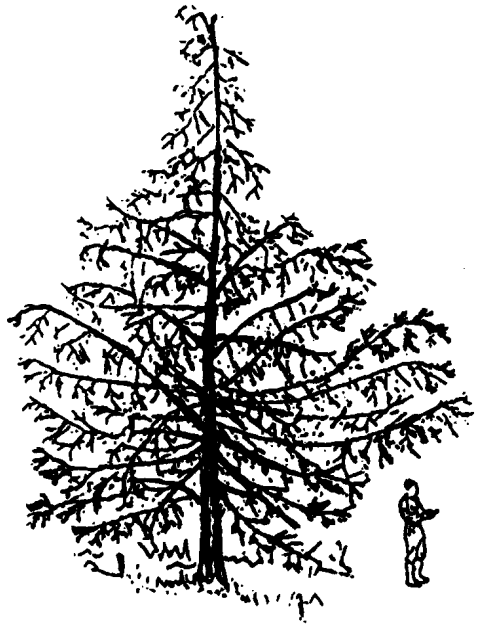
PROPAGATION: Seedlings.

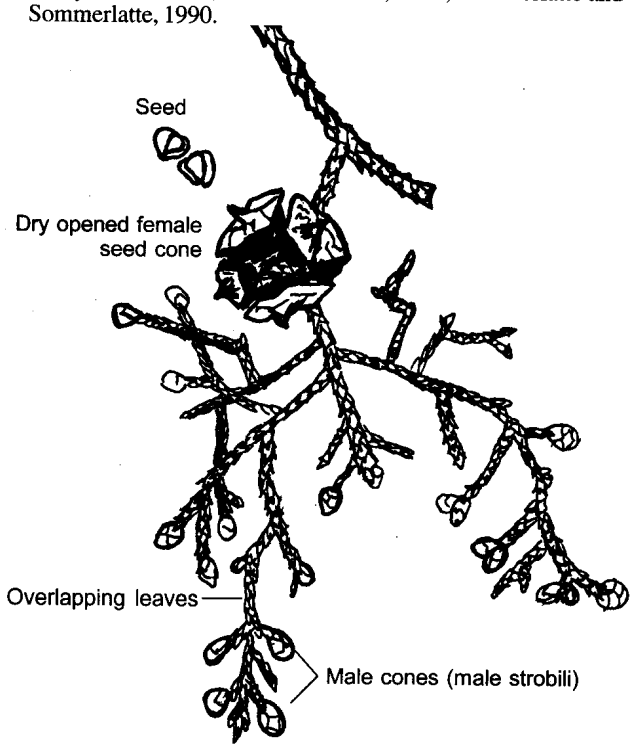
SEED: Average 215,000 seeds per kg; germination rate 30–45% in 10–20 days. The right time for collection is when the cones start to turn brown. After collection the cones are dried in the sun until they open. The seeds can then be separated from the cones by shaking on a sieve. Sow in a seedbed and prick out.
treatment: Not necessary.
storage: Seed can be stored for some months but viability is gradually reduced.

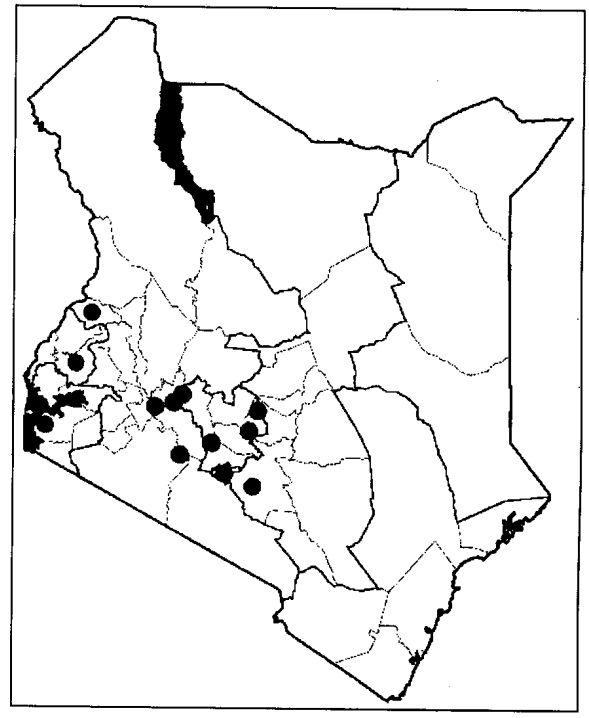
MANAGEMENT: Fast growing on good sites, moderate on poorer sites. Prune and thin trees in woodlots if objective is good-quality timber. Does not coppice.

REMARKS: Can produce poles after 10 years, general-purpose timber after 20 years. Not good for intercropping. The aphid problem calls for restricted planting. Introduced and became an invasive species in parts of Malawi.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Albrecht, 1993; Bein et al., 1996; Bekele-Tesemma et al., 1993; Dharani, 2002; Katende et al., 1995; Mbuya et al., 1994; Noad and Birnie, 1989; Sommerlatte and Sommerlatte, 1990.







Cussonia holstii

Araliaceae

Indigenous

COMMON NAMES: **Boran:** Abratu; **Kamba:** Malendi; **Kikuyu:** Morogorogo; **Kipsigis:** Lulukwet; **Maasai:** Oloiurrur, Oltumaroi; **Meru:** Morogorogo, Mwenjera; **Samburu:** Olbolorio; **Somali:** Wadad; **Taita:** Mwaya; **Tugen:** Soya.

DESCRIPTION: A medium-sized tree to 15 m with a large rounded and **usually open crown**. BARK: Dark brown, rough, **thick and corky**. LEAVES: **Arm-like with 5 leaflets** or 5-lobed in young plants, **crowded at the ends of branches** in large, rounded clusters. Leaflets usually 5, **on stalks up to 6 cm long**, radiating from the ends of the main leaf stalks that are about 30 cm long. Leaflets ovate, up to 10 cm long, edge toothed, base unequal-sided, tip sharply pointed. FLOWERS: Greenish yellow, **on spikes up to 25 cm long**, spikes 5–15 together, erect from the tips of branchlets. FRUIT: Small, whitish or yellow, crowded along the spikes.

ECOLOGY: Found from the Democratic Republic of Congo to Rwanda, Tanzania, Uganda, Kenya, Ethiopia and Somalia. Widely distributed in highland forests or forest margins, 1,500–2,500 m. Also found in evergreen bushland on rocky soils and at forest edges of dry forests. Common in areas such as Nanyuki, Moyale and Kibwezi. A few remnant trees grown in the Limuru and Kikuyu outskirts of Nairobi. Agroclimatic Zones III–IV.

USES: Timber (doors), beehives, tool handles, utensils (mortars, sheath for knives, troughs), medicine (bark), fodder (leaves for goats), bee forage, shade.

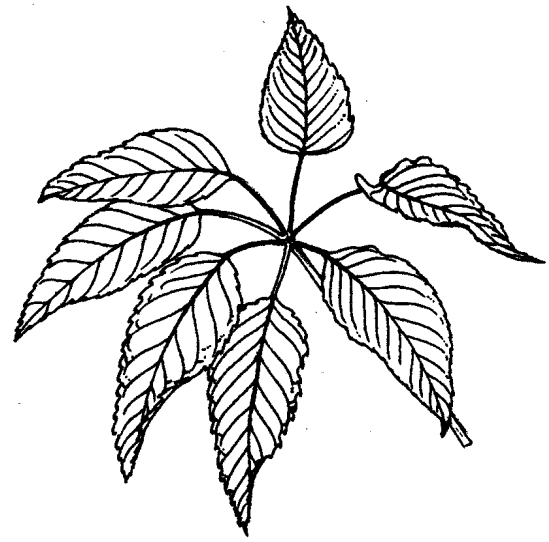
PROPAGATION: Some *Cussonia* species have been reported to grow from cuttings, other from seed. Little is known about this particular species.

SEED:

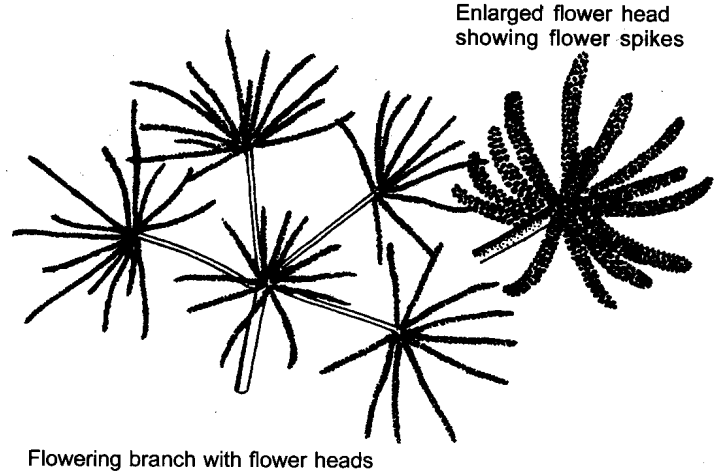
storage: Try fresh seed or cuttings, avoid storage.

REMARKS: Hollow trunks used to make beehives. Though soft the wood is used for doors by the Kipsigis. A bark decoction is used by the Maasai and Meru to expel the placenta in childbirth.

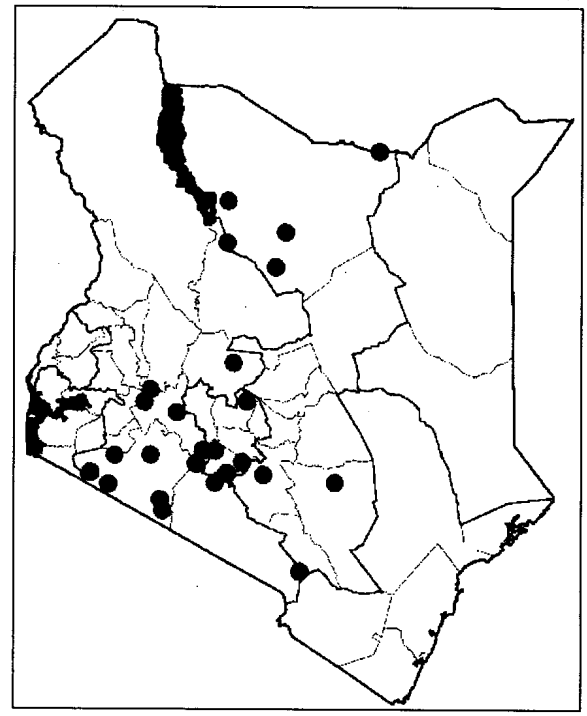
C. zimmermannii (**Boni**: Atame; **Digo**: Mnyala; **Giriama**: Mnyala; **Sanya**: Hakthame; **Swahili**: Mbomba maji, Mpapayi mwitu) is a related species found at forest margins or in evergreen bushland at the coast where *C. holstii* does not occur. It is used for making coffins,



Enlarged flower head showing flower spikes



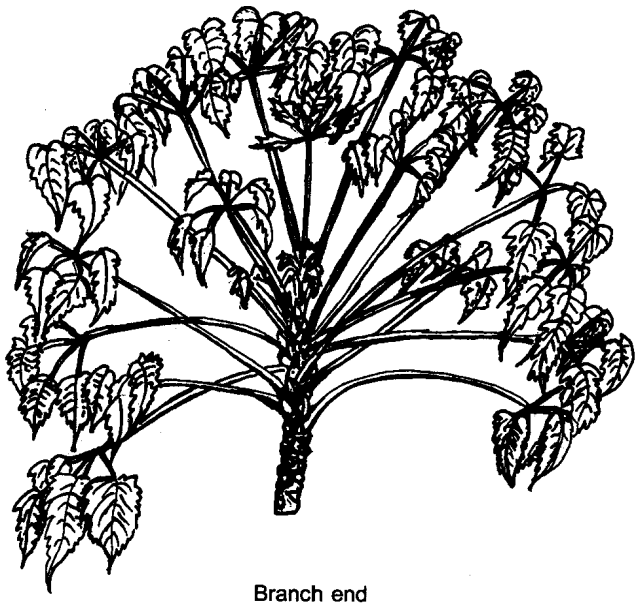
Flowering branch with flower heads



Cussonia holstii (cont)

drums and boats; leaves and roots as medicine; wood used as firewood (poor quality) and for carving; leaves for veterinary medicine. *C. arborea* (**Kamba:** Malendi; **Luhya:** Kitandawabasia; **Luhya (Bukusu):** Kumwifubulu;) and *C. spicata* (**Kikuyu:** Mwenyiere; **Kipsigis:** Sokwet, **Maasai:** Olurur, **Marakwet:** Jeleikta, **Meru:** Muengera, **Pokot:** Cheluptet, Alakanta, **Samburu:** Borillo, **Taita:** Kidadongo, Kidongadi, **Tugen:** Soya) are other important species with fairly wide distribution in Kenya. All the species have white soft wood.

FURTHER READING: Beentje, 1994; Dharani, 2002 (*C. spicata*); Fichtl and Adi, 1994; Kokwaro, 1993; Noad and Birnie, 1989.



Branch end

Cynometra webberi

Caesalpiniaceae (Fabaceae)

Indigenous

COMMON NAMES: **Giriama:** Mudodoma, Mfunda; **Sanya:** Sakucha; **Swahili:** Mfunda.

DESCRIPTION: An evergreen shrub or tree to 12 m, **occasionally buttressed**. BARK: **Smooth**, light grey. LEAVES: Compound with up to 8 **opposite and slightly asymmetric leaflets**. Leaflets small, to 3 cm x 1.8 cm wide, **tip usually rounded**. FLOWERS: **Small, white, in clusters**, each with 4 sepals and 5 petals. FRUIT: **A woody, flat pod** to 6 cm x 3.3 cm, **with a small beak**.

ECOLOGY: Found only in Kenya and Tanzania in coastal *Brachystegia* woodland and riverine forest. Found in both white and red sandy soil, 0–300 m. Agroclimatic Zones II–III. Flowers in September at the coast.

USES: Firewood, charcoal, timber, poles, beehives, utensils (drums, pestles), bee forage, shade.

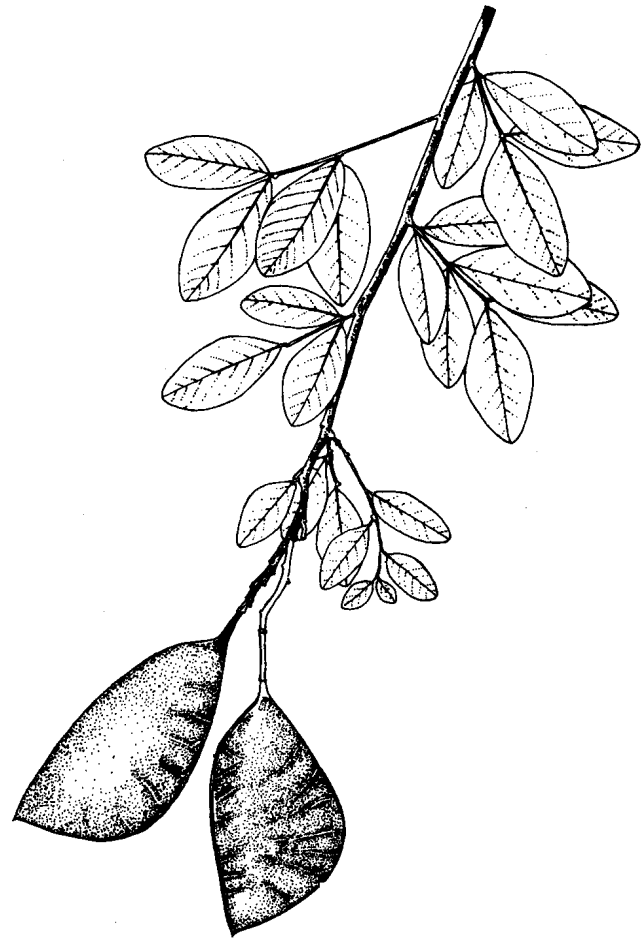
PROPAGATION: Seedlings, wildings.

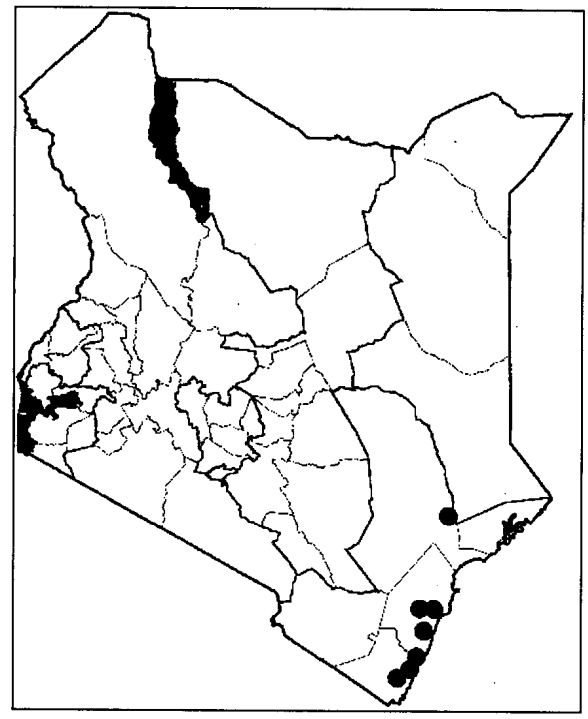
SEED: Seeds profusely and seed germinate easily.

MANAGEMENT: Prune lower branches as necessary.

REMARKS: The wood is hard and dense. Monkeys eat the young fruit. Hollow parts of the trunk store water for birds. A preferred tree for owls, squirrels and snakes. *C. lukei* (**Malakote:** Mupakata; **Pokomo:** Mpakata) is found in riverine forest in Tana River. It is used for furniture and canoes. According to Beentje (1994) its status is vulnerable. *C. suaheliensis* (**Swahili:** Mfunda) is a good timber species in coastal bushland and forest. This species and *C. webberi* are occasionally the dominant species in parts of the dry evergreen coastal forests such as Arabuko-Sokoke.

FURTHER READING: Beentje, 1994.





Cyphomandra betacea

Solanaceae

Peru, South America

COMMON NAMES: **English:** Tree tomato.

DESCRIPTION: A large evergreen shrub to 3 m with **characteristic umbrella-like branching.** BARK: Young stems are shiny, old stems with rounded leaf scars. LEAVES: Alternate, large, rather **heart-shaped, 40 x 30 cm, softly hairy,** drooping in heat, on a long stalk. FLOWERS: In fragrant hanging groups from older stems. **Each flower 5-lobed, white-pink** with a darker stripe. FRUIT: In clusters, **egg-shaped to 7 cm long,** abundant, on long stems, **shiny orange-red to purple.**

ECOLOGY: A woody shrub from Peru. A long time ago introduced to many tropical areas where it is sometimes naturalized. In Kenya, 1,000–1,800 m. It does best on deep soils, bearing fruit in about 2 years and remaining productive for several years. Does not tolerate waterlogging. Requires good rainfall, 1,200–2,100 mm. Agroclimatic Zones I–III.

USES: Edible fruit (vegetable, jam), bee forage.

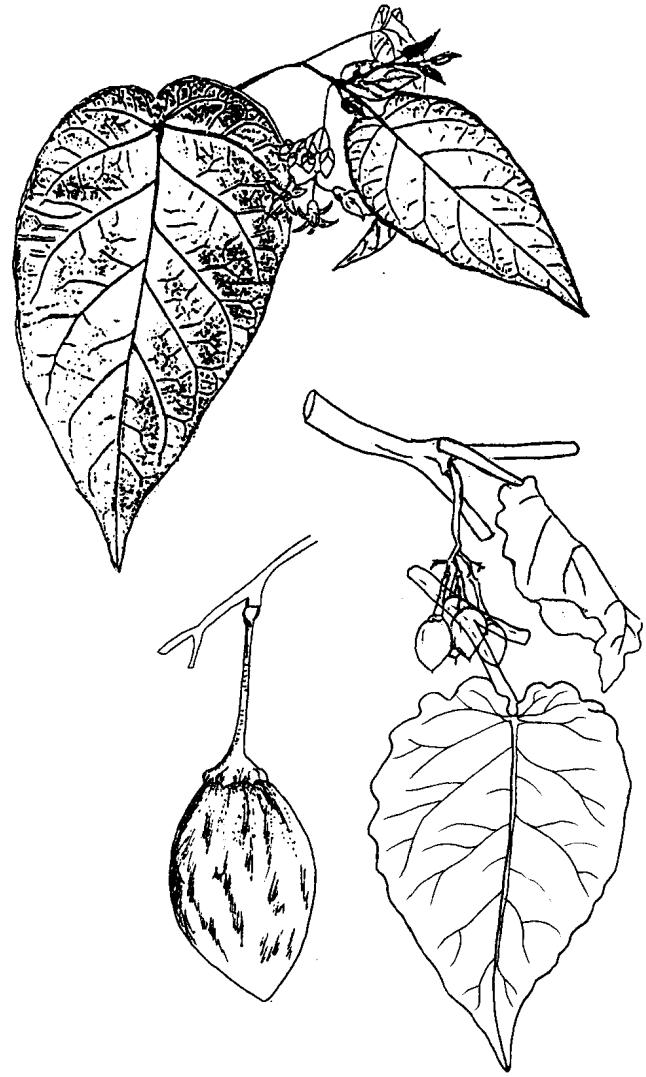
PROPAGATION: Seedlings, cuttings, wildings. Use of cuttings from mother plants with good fruit ensures that a good type is propagated. Cuttings of 1–2-year-old wood, 10–30 mm thick and 45–100 cm long can be defoliated and planted directly in the field. Cuttings may give low-branched, bushy trees on which flowers may need to be removed to promote growth in the first year.

SEED: 90,000–180,000 seeds per kg. Separate seed from fruit pulp, clean and dry in the shade.
treatment: Not required, although freezing may improve germination.
storage: Stores well.

MANAGEMENT: Fast growing. Pruning. Shallow root system, so deep cultivation should be avoided near the tree. Mulch is beneficial.

REMARKS: The fruit is slower to ripen at higher altitudes. The acid fruit can be eaten raw or cooked, the quality depending on the variety grown. Large-scale commercial production and organized marketing occurs in New Zealand, but international trade in the fruit and preserves remains small. No named cultivars exist. Red fruits are often chosen for fresh fruit markets because they look attractive, but they have a stronger, more acid flavour than yellow ones. Yellow fruit can be canned, but the juice of the red fruit is too abrasive.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Fichtl and Adi, 1994; Katende et al., 1995, 1999; Mbuya et al., 1994; Palgrave and Palgrave, 2002; Verheij and Coronel, 1993.



Dalbergia melanoxylon

Fabaceae (Papilionaceae)

Indigenous

STANDARD/TRADE NAME: African blackwood, Mpingo.

COMMON NAMES: **Boni:** Samachi; **Digo:** Mpingo; **Duruma:** Maringo; **English:** African blackwood, African ebony; **Giriama:** Muhingo; **Kamba:** Muvingo; **Meru:** Mwengo; **Swahili:** Mpingo; **Taita:** Myingo.

DESCRIPTION: A much-branched, **spiny, often multi-stemmed shrub or well-branched tree to 7 m.** Trunk diameter seldom exceeding 30 cm, often twisted. **Grey-white** often spine-tipped branchlets bear the leaves, which cluster at the nodes. BARK: Light grey and smooth when young, rougher and flaking with age. LEAVES: Compound, on stalks to 20 cm, **leaflets 9–13,** each usually **1–2 cm but up to 6 cm at the coast, tip rounded or notched.** FLOWERS: Small, white, sweet scented in branched sprays to 12 cm long, appearing with young leaves. Corolla to 6 mm long. FRUIT: Bunches of grey papery pods, **thin and flat to 7 cm, pointed both ends,** 1–2 seeds inside.

ECOLOGY: A small tree of semi-arid Africa and India. Widely spread from northern Ethiopia, south to Angola and the northern part of South Africa and west to Senegal. The tree prefers areas with a high water table. In Kenya, common in Meru National Park and in Kitui District. Also occurs in Kilifi, Machakos and Taita Taveta Districts, in Tsavo East National Park and around Makueni. Often found in deciduous woodland or bushland, wooded grassland, in rocky sites or on black-cotton soils, 0–1,350 m. Agroclimatic Zones II–VI. Produces seed at the coast in September–December.

USES: Firewood, charcoal, timber (construction), furniture, poles, carving, walking sticks, musical instruments, medicine (bark, roots, leaves), fodder, bee forage, mulch, nitrogen-fixing.

PROPAGATION: Seedlings, wildings, cuttings. Produces root suckers.

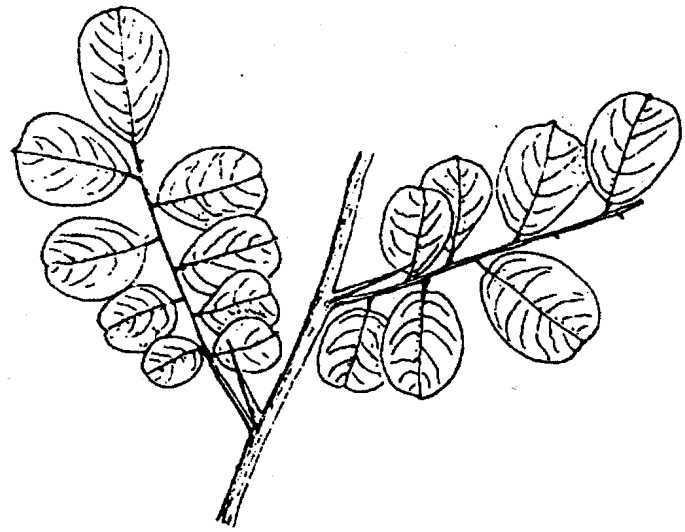
SEED: Pods left on the tree are soon attacked by insects, so collection of ripe grey pods should be done quickly. With pods, 6,000–16,000 seeds per kg; about 42,000 per kg clean seed extracted from pods. Good germination rates: 50–60% in 8–20 days. Water sparingly so seed does not rot.

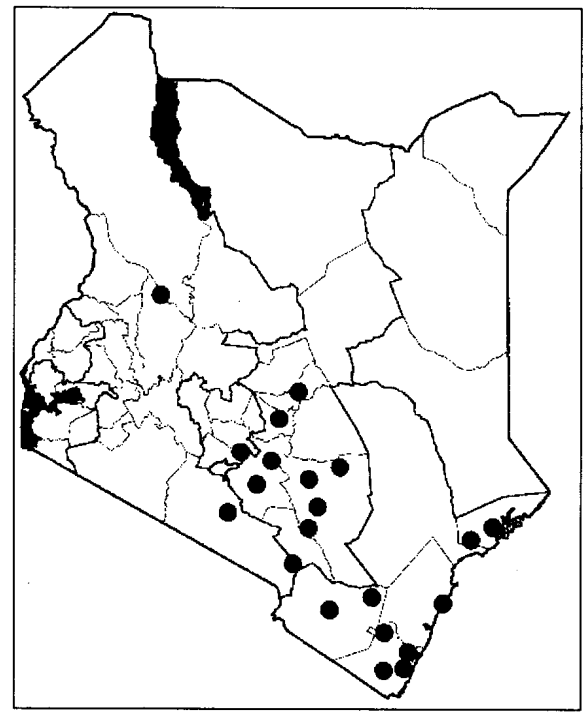
treatment: Break pods into short pieces, each with one seed, soak in cold water for 6 hours and then sow. Complete extraction of seed from the pod is difficult, but if done, there is no need for soaking.

storage: Seed can be stored for long periods if kept free from insects.

MANAGEMENT: Slow growing. Side-prune to get a clear bole. Coppices.

REMARKS: This tree provides one of the most valuable timbers known. It has hard, durable, termite-resistant, purple-black heartwood enclosed in a thin pale yellow



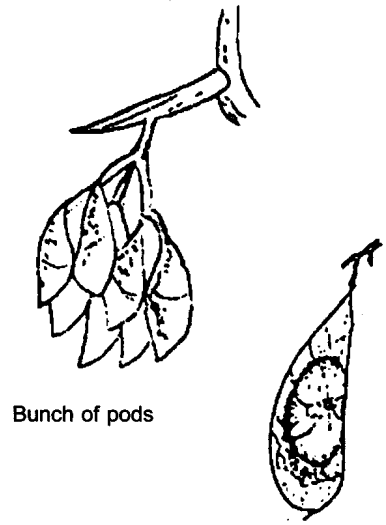


Dalbergia melanoxylon (cont)

outer layer of sapwood. The wood is dense and polishes well. It is most coveted by wood carvers who combine these two layers to produce high-quality carvings of various patterns. This is the wood that mainly supported the carving industry in Kenya from the early 1920s. By the 1980s, however, most of the larger trees in harvesting areas had been exterminated, leaving the industry to be supported by other species. The heartwood is used for musical instruments, combs, etc. Farmers should be encouraged to grow and manage these trees on their farms.

There are at least 8 *Dalbergia* species in Kenya (and about 100 worldwide). Many of them are shrubs, occasionally growing to tree size, while a few are lianas. The most widespread of these is *D. lactea* (**Kamba:** Mumbumbwa; **Kikuyu:** Mwaritha; **Maasai:** Oldisigon; **Meru:** Murumbega; **Nandi:** Bembet; **Pokomo:** Muchoyoko; **Taita:** Kinyondo), a shrub or liana which is usually found in the more humid parts of Kenya from the Taita Hills through central parts to western Kenya. The bark is used as a source of string.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Albrecht, 1993; Beentje, 1994; Bein et al., 1996; Bekele-Tesemma et al. 1993; Dharani, 2002; Katende et al., 1995; Kokwaro, 1993; Mbuya et al., 1994; National Academy of Sciences, 1979; Noad and Birnie, 1989; Palgrave and Palgrave, 2002; Storrs, 1979; von Maydell, 1990.



Bunch of pods

Single pod

Delonix elata

Fabaceae (Caesalpiniaceae)

Indigenous

COMMON NAMES: **Boran:** Sukella; **Gabra:** Sukella; **Ilchamus:** Sukele; **Kamba:** Muange; **Maasai:** Olderkesi, Oltangoringoroi; **Orma:** Sukele; **Pokot:** Ririon; **Rendille:** Bubunto; **Samburu:** Laichimi, Lawai; **Somali:** Labi, Lebbi, Lowee (Mandera); **Tharaka:** Mwarange; **Turkana:** Ekurichanait.

DESCRIPTION: A deciduous twiggy shrub or, more conspicuously, a tree to 15 m with a rounded spreading light crown and drooping branches. BARK: Quite conspicuous, **smooth and shiny, pale yellow to grey-white,** sometimes flaking. LEAVES: Twice-divided, to 15 cm with 2–12 pairs of pinnae, each with 10–25 opposite pairs of leaflets, **long oblong about 1.7 cm, dull green** with tiny hairs both sides. FLOWERS: Large green buds open into showy white flowers **near tips of branchlets, only one of a group flowering at a time,** 4 white petals up to 3.8 cm long with **wavy cut-up edges** and one smaller yellow petal, all **fading to a yellow-orange** colour with time; **10 orange-to-red stamens to 10 cm hang out of the flower.** FRUIT: Red-brown pods, **flat and thin, pointed both ends, usually about 13–20 cm but may be up to 27 cm,** contain smooth olive-brown oblong seeds in horizontal pockets.

ECOLOGY: A tree of hot dry *Acacia–Commiphora* bushland from Egypt south to the Democratic Republic of Congo and Tanzania, east to the Arabian peninsula and India. In Kenya often associated with loam, sandy loam and rocky soils. It is also found on lava in the hot drylands, 100–1,200 m. Usually along luggas, and common, for example, in Mwingi, Magadi, Tsavo West and most of northern Kenya. Agroclimatic Zones V–VII. Flowers mainly during the rainy season, e.g. in December–January in Mwingi and Tsavo.

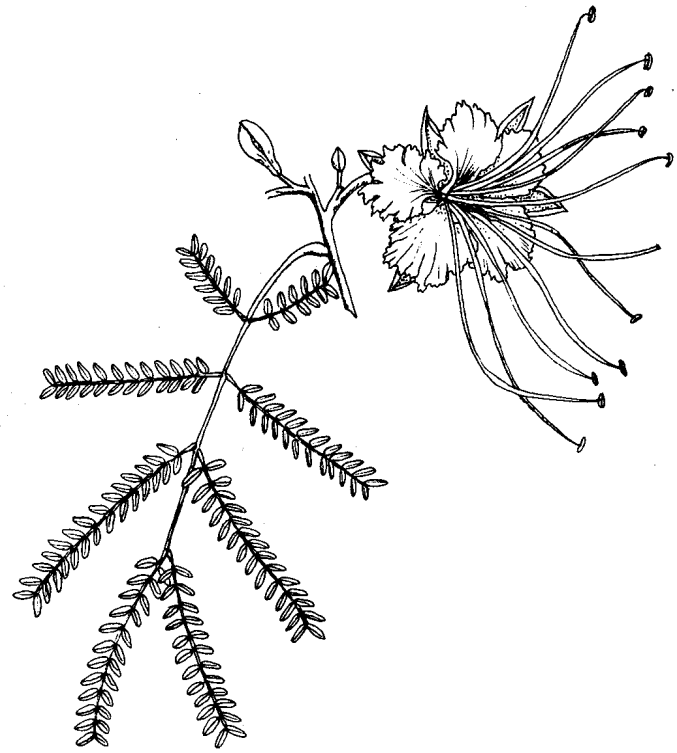
USES: Timber, furniture, posts, beehives, tool handles, toothbrushes, utensils (wooden spoons, cups, grain mortars, beer containers, milk pots, camel bells, salt and water troughs for livestock), food (edible seed boiled as famine food), medicine (roots, bark, leaves and twigs, pods, gum to treat wounds), fodder, bee forage, shade, ornamental, tannin (fruit), beads (seeds).

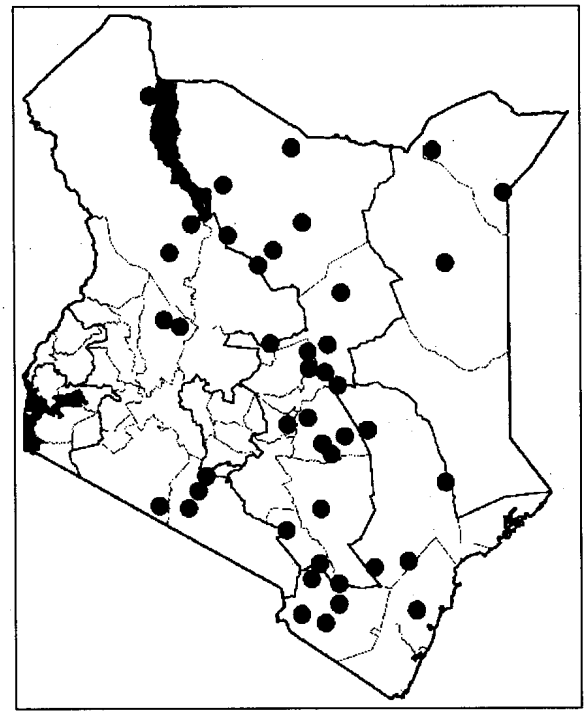
PROPAGATION: Seedlings, direct sowing at site, wildings.

SEED: About 6,000 seeds per kg.

treatment: Immerse in hot water, allow to cool and soak for 24 hours, or nick the seed at the distal (cotyledon) end with a knife or nail clipper. Germination rate up to 60% within 4–15 days.

storage: Mature and properly dried seed can be stored in airtight containers at room temperature for at least a year, but it is difficult to keep them free of insects.



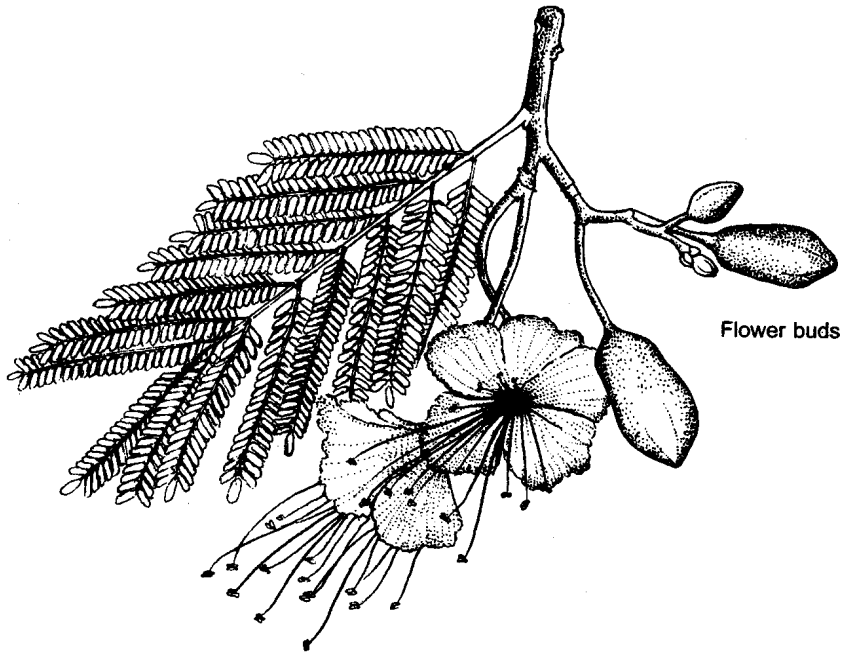


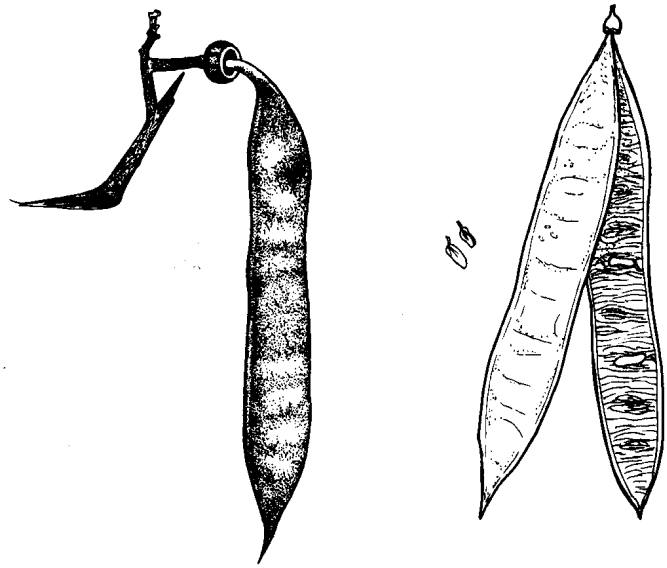
Delonix elata (cont)

MANAGEMENT: Fast growing; coppicing, pollarding, lopping.

REMARKS: One of the largest and most useful trees in arid lands. The large yellow or white flowers make the tree most attractive in the flowering season. The Samburu carve camel bells from the wood, and in Wajir it is used to burn limestone rocks to make whitewash. Holes in the trunks hold water that people use in the dry season. The other indigenous member of this genus is *D. baccal* (**Boran:** Balanga; **Somali:** Bakal), which replaces *D. elata* in deeper river gorges of northern Kenya, particularly in Mandera District. It is a tree to 18 m high with an umbrella-shaped crown. Leaflets are more numerous than in *D. elata*.

FURTHER READING: Albrecht, 1993; Beentje, 1994; Bein et al., 1996; Blundell, 1987; Dharani, 2002; Kokwaro, 1993; Maundu et al., 1999; Noad and Birnie, 1989; Ruffo et al., 2002.





Delonix regia

Fabaceae (Caesalpiniaceae)

Madagascar

COMMON NAMES: **English:** Flamboyant, Flame tree; **Swahili:** Mjohoro, Msikukuu.

DESCRIPTION: A medium-sized deciduous to semi-deciduous tree with a **spreading umbrella-like crown,** reaching a maximum of 15 m but usually much less. BARK: Grey, smooth. LEAVES: Light green and feathery, twice-divided (bipinnate) to 45 cm long, with about **12–16 opposite pairs of primary divisions, terminal single leaflet or division lacking**, each division with about 5–26 pairs of leaflets (fewer towards the base), each **leaflet about 1 cm long, tip rounded or notched, base flattened but asymmetrical**. FLOWERS: **Brilliant scarlet to orange clusters,** sometimes yellow, each flower up to 10 cm across with 5 petals, 1 cream, heavily spotted, often appearing before the leaves and remaining for some time. FRUIT: Conspicuous **long, flat and heavy woody pods,** to 75 cm long, remaining many months on the tree. When dry they break open to release oblong seeds about 1 cm long.

ECOLOGY: Now very rare in the wild of its native Madagascar, this deciduous tree is grown throughout the lowland tropics. Prefers sandy soil. Widely planted in Kenya, especially in towns as an ornamental, shade and avenue tree, 0–1,600 m. Agroclimatic Zones II–IV. In flower June–July and also December–January at the coast, hence the name *Msikukuu* (Christmas tree) there.

USES: Firewood, bee forage, shade, ornamental, avenue tree, beads (seeds).

PROPAGATION: Seedlings (sow seeds in pots), direct sowing at site.

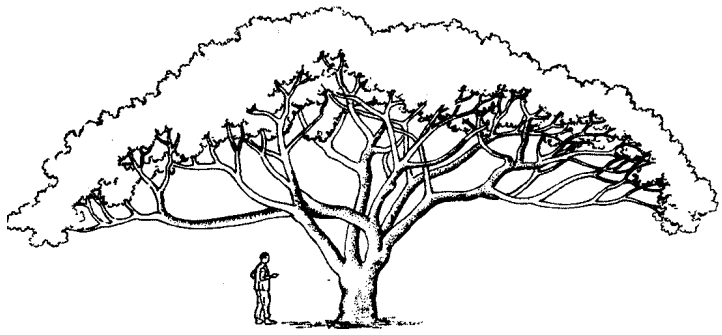
SEED: The species seeds prolifically: 2,000–3,000 seeds per kg. Germination rate 70–80%. Easy to propagate from seed.

treatment: Immerse seed in boiling water and allow to cool or nick the seed coat.

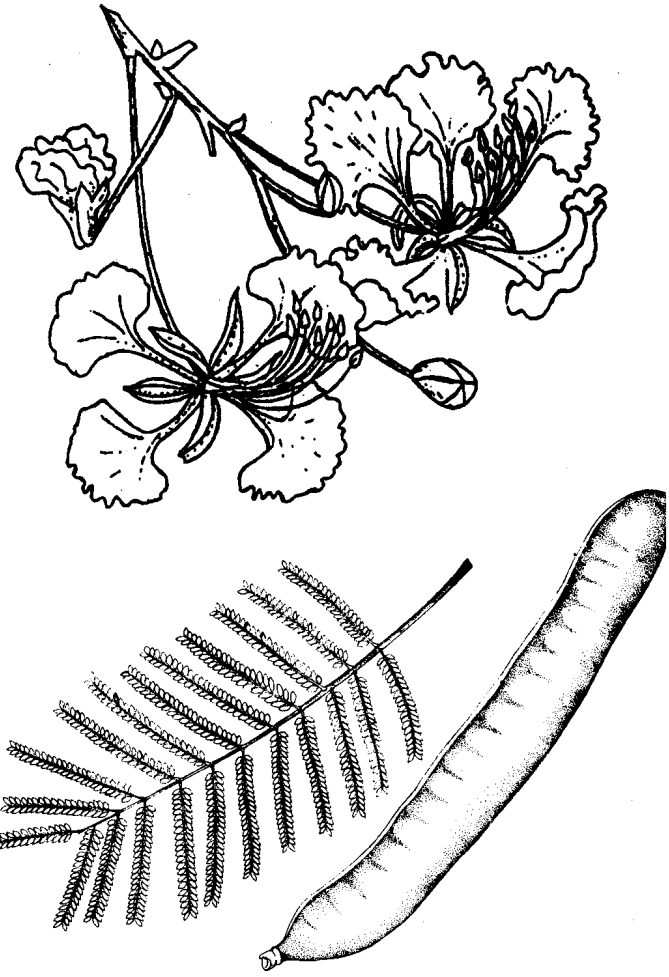
storage: Seed can be stored for long periods. Not usually attacked by insects.

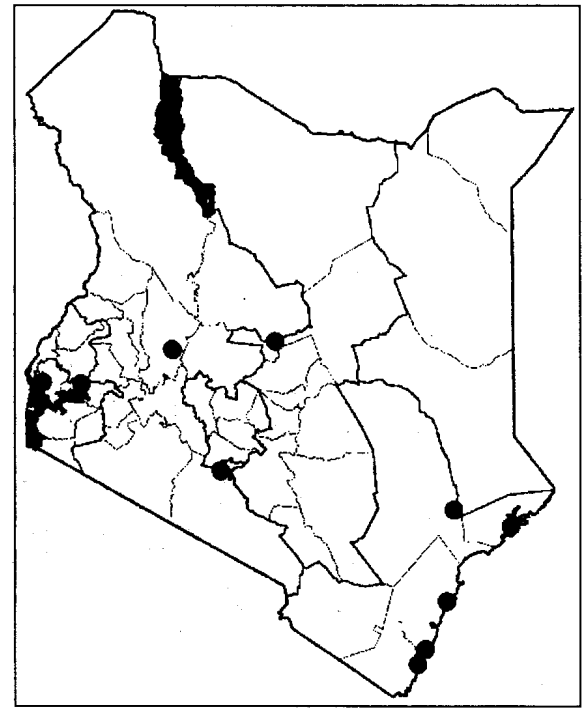
MANAGEMENT: Fast growing; pollarding. May grow well but takes a long time to flower in cooler climates (>1,500 m), and when it finally does, flowering is poor.

REMARKS: This species has a shallow root system. The dense canopy makes it unsuitable for intercropping, and it produces much ground litter. A very common ornamental, but at the coast attacked by small caterpillars which drop off causing a nuisance to people sitting under it.



FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Bein et al., 1996; Bekele-Tesemma et al., 1993; Blundell, 1987; Dharani, 2002; Jensen, 1999; Katende et al., 1995; Lötschert and Beese, 1983; Mbuya et al., 1994; National Academy of Sciences, 1979; Noad and Birnie, 1989; Storrs, 1979.





Dialium orientale

Fabaceae (Caesalpiniaceae)

Indigenous

Standard/Trade name: Mpepeta.

COMMON NAMES: Boni: Sheshubla, Shishobli; **Chonyi:** Mtsumbwi, Mutsumbwi; **Giriama:** Mtsumbwi, Mutsumbwi; **Kambe:** Mtsumbwi, Mutsumbwi; **Sanya:** Shoshobli, Shusholwe; **Somali:** Frim; **Swahili:** Mpepeta.

DESCRIPTION: A spreading, often multi-stemmed, shrub or small tree usually to about 5 m, rarely to 15 m. Branches drooping, occasionally touching the ground. BARK: Smooth, pale grey–white–pink. LEAVES: Compound, odd pinnate with **7–9 small leaflets,** oval, **base wide to rounded,** 1.5–5 cm long, **midrib hairy,** tips rounded to obtuse, not drawn out, on **a stalk to 5 cm long** (much smaller than in *D. holtzii*). FLOWERS: **Small, green–cream–yellow in large dense heads** to 30 cm x 20 cm. FRUIT: Red-brown more or less round pods to 1.8 cm long with a thin dry brittle shell enclosing a dry red-brown pulp. Seeds 1 or 2, grey-brown, smooth, shiny, enclosed in a thin soft membrane.

ECOLOGY: Endemic along the East African coast from southern Somalia to north-eastern Tanzania. In Kenya, only in the coastal area (Kilifi, Tana River and Lamu), in dry coastal forest, in *Brachystegia, Afzelia, Manilkara* woodland, and in coastal riverine vegetation, 0–100 m. Sandy or alluvial soils. Agroclimatic Zones I–III. Fruits in March–April.

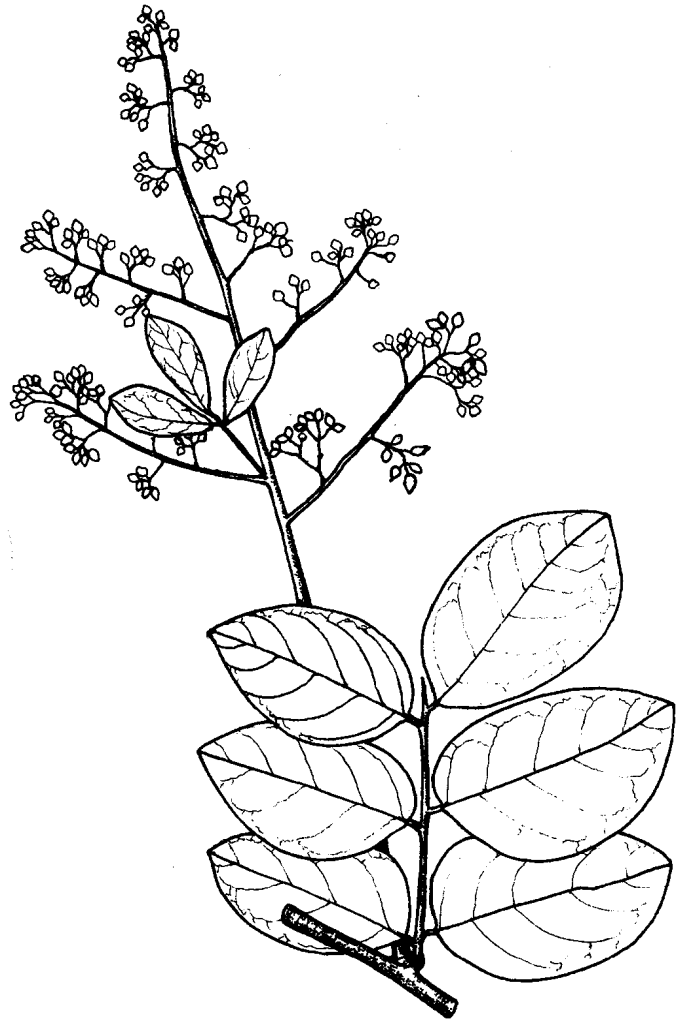
USES: Firewood, charcoal, poles, tool handles, utensils (grain mortars), boat building (dhow ribs), edible fruit pulp, drink (juice from the fruit), flavouring (fruit pulp).

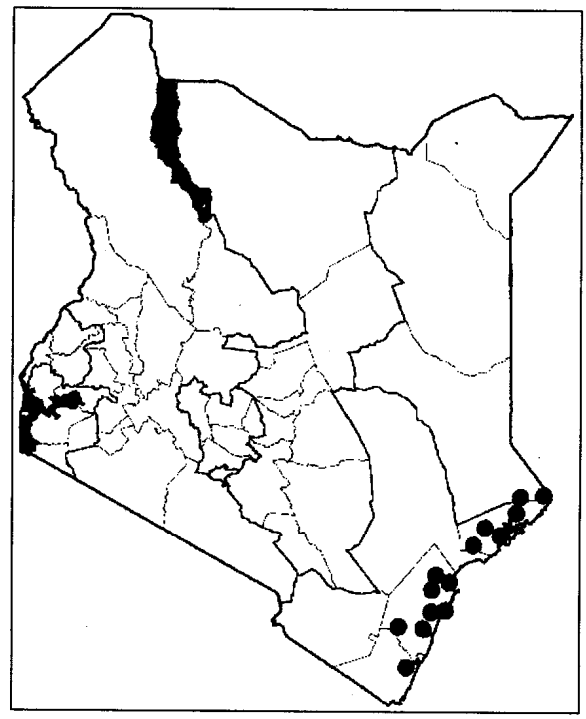
PROPAGATION: Seedlings, direct sowing at site.

SEED: About 800 seeds per kg.
treatment: Immerse in hot water, allow to cool and soak for 24 hours.

MANAGEMENT: Slow growing.

REMARKS: Fruit eaten raw. The brittle outer shell is easily detached by cracking it open. The sweet–acid pulp is sucked (the membrane covering the seed is eaten too) and the seed discarded. Good as a snack. The fruit pulp is used for flavouring porridge and local beer, and may also be made into a juice. Fruit sold in Malindi town. May be locally common in the Coast Province. Fruit and seeds may keep for several years. A related but less common species, *D. holtzii* (**Giriama:** Mtsumbwi; **Swahili:** Mpepeta, Mpekechu), is also found at the coast. It is a multi-stemmed shrub or tree to 20 m. Crown with a

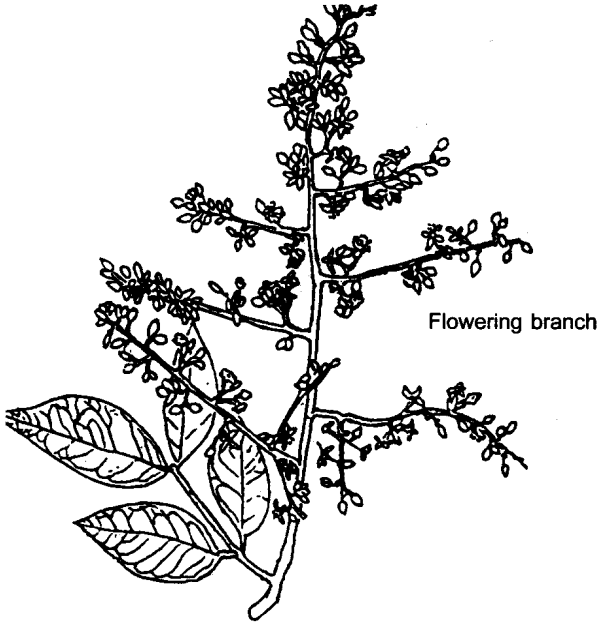




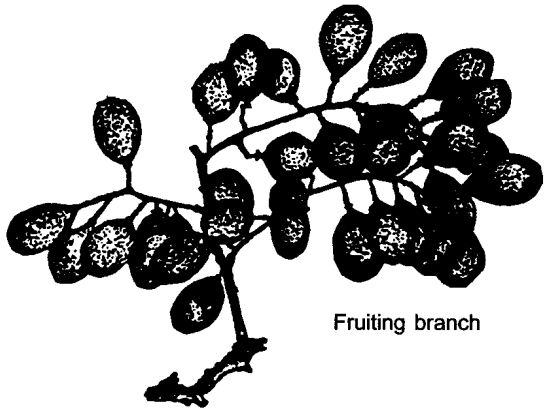
Dialium orientale (cont)

medium spread, trunk occasionally slightly buttressed. Fruit resemble those of *D. orientale*. It grows along the East African coast from Kenya through Tanzania to Mozambique. In Kenya only in the coastal region, especially towards the Tanzanian border, in moist lowland forest, 0–100 m in coastal sandy limestone soils. Agroclimatic Zones I–III. Like its relative, the dry pulp is edible and has a sweet–acid taste. The wood is used in construction and as fuelwood.

FURTHER READING: Beentje, 1994; Maundu et al., 1999; Ruffo et al., 2002.



Flowering branch



Fruiting branch

Dicrostachys cinerea

Fabaceae (Mimosaceae)

Indigenous

COMMON NAMES: **Boni:** Msativu, Msingoni; **Boran:** Jirime; **Giriama:** Muchinjiri; **Kamba:** Muvilisya; **Kikuyu:** Rutie; **Kipsigis:** Katet; **Luo:** Okiri; **Maasai:** Olmerumuri; **Pokot:** Tiyin, Tiin; **Samburu:** Legili; **Sanya:** Mkingili; **Somali:** Ditar; **Taita:** Dunguu; **Tugen:** Tinet; **Turkana:** Etirak.

DESCRIPTION: A shrub or a small tree to 8 m high with a light crown and flexible branches with lateral leafy twigs that terminate in a spine. BARK: Grey-white, rough. LEAVES: Compound, twice-divided, with few to numerous pairs of pinnae and **glands along the stalk** where leaflets attach. Leaflets numerous, narrow or oblong, up to 4 x 11 mm. FLOWERS: Borne on a long spike arising from leaf axils. **Spike 2-coloured, yellow towards the apex** (fertile part) and **mauve, pink or white towards the base** (sterile part), hanging, so that the yellow part is lowest. Stalk up to 9 cm, usually much shorter. FRUIT: Black, up to 10 cm long but much twisted into spirals. Pods rot on the ground to release about 4 seeds.

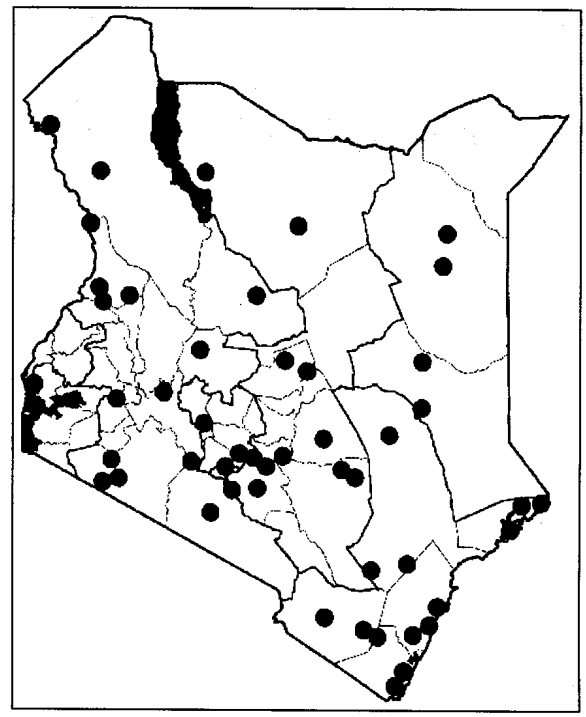
ECOLOGY: A species widely distributed in tropical Africa with numerous subspecies. In Kenya it is found in most dry parts of the country, occasionally extending to the wet but warm regions. It is found in bushland, wooded grassland and in thickets, the latter sometimes formed of this shrub. Agroclimatic Zones II–VI. In flower in November–December in Nyanza.

USES: Firewood, spearshafts, tool handles, fodder (goats, camels), bee forage, live fence, dry fence, ornamental, nitrogen-fixing, soil conservation.

PROPAGATION: Seedlings, wildings, direct sowing at site, root suckers.

SEED: The tree seeds prolifically when in open land. Germination is very good and fast after pretreatment. **treatment:** Immerse in hot water, allow to cool and soak for 24 hours. **storage:** Can be stored for several years at room temperature if kept dry and free from insects. Add ash to reduce insect damage.

MANAGEMENT: Prune all lower branches, and preferably all spiny tips to avoid accidents if trees grow near the home. Slow growing; coppicing, lopping, pollarding.



Dicrostachys cinerea (cont)

REMARKS: This species probably has the most beautiful flower in the family and therefore great potential as an ornamental. However, the spines are poisonous if they pierce the skin and should be avoided. The bush is a great bother to farmers due to its spiny nature, but the pods are appreciated as nutritious fodder for livestock in dry areas. *D. cinerea* is a very variable species with numerous subspecies and varieties. At least 5 subspecies are currently recognized: subsp. *africana* with 7–19 pairs of pinnae in the larger leaves is the most common of all, being found in most dry parts of the country in bushland and thickets, 0–1,700 m; subsp. *forbesii* with 4–8 pairs of pinnae is coastal in distribution being found in evergreen coastal bushland; subsp. *keniensis* with 8–12 pinnae in the larger leaves is common in the north coast; subsp. *wajirensis* with 2–3 or sometimes 4 pairs of pinnae is endemic to northern Kenya in *Acacia–Delonix* bushland; subsp. *nyassana* with 6–11 pairs of pinnae in the larger leaves is found in central Kenya and north-westwards to Turkana District.

FURTHER READING: Beentje, 1994; Bein et al., 1996; Bekele-Tesemma et al., 1993; Katende et al., 1995; Mbuya et al., 1994; Noad and Birnie, 1989; Palgrave and Palgrave, 2002.

Diospyros abyssinica

Ebenaceae

Indigenous

COMMON NAMES: **Boran:** Roho; **English:** Abyssinian diospyros; **Gabra:** Lookko; **Giriama:** Mlala; **Ilchamus:** Moty mowgi; **Kamba:** Mukololo; **Kikuyu:** Muiruthi; **Kipsigis:** Cheptuiyet; **Luhya:** Lusui; **Luo:** Ochol; **Maasai:** Olchartuyan, Olchartuyan orok, Oljatuyan; **Meru:** Mutharagwe, Mutimwiro; **Nandi:** Cheptuiyet, Kenduiwet; **Sabaot:** Cheptua; **Samburu:** Ichanai orok; **Swahili:** Mdaa mwitu; **Taveta:** Msesevu.

DESCRIPTION: A tall evergreen tree with a straight, slender trunk about 20 m, but reaching 40 m in forests. It has a **small mushroom-shaped crown.** BARK: Dark grey-brown, turning black, thick and fibrous, scaling off in thin strips or cracking into small rectangles. LEAVES: Shiny dark green, long oval to 16 cm, narrowing to the tip, the **edge wavy, midrib clear below.** The short stalk is grooved. **Dry black leaves** can be seen below a tree. FLOWERS: Small, white and fragrant, in clusters beside the leaves. FRUIT: Held in a **cup-shaped calyx,** round or slightly elongate, to 1.5 cm long, **tip pointed** due to a persistent style, **red-yellow then black** when ripe. Sometimes in dense clusters.

ECOLOGY: A widespread African forest tree found in West Africa as well as eastern Africa, generally in rainforest, lower montane forests, especially on drier sites and upper slopes, often on shallow soils underlain by murram. In Kenya it occurs in coastal forests 0–300 m, and also inland around Nairobi and most of western Kenya in dry highland and riverine forests, up to 2,200 m. Sometimes the dominant forest species, e.g. in the areas around the Mara River. Agroclimatic Zones II–III.

USES: Firewood, charcoal, timber (local construction), furniture, poles (low quality), tool handles, walking sticks, farm implements, shade.

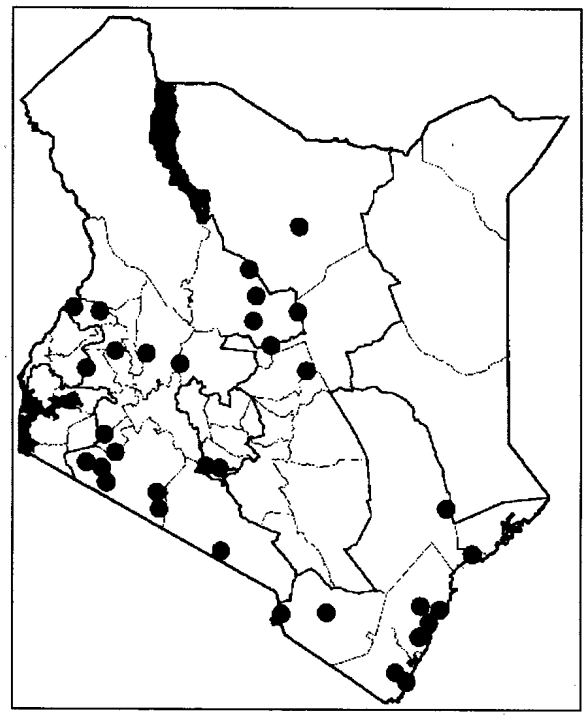
PROPAGATION: Seedlings, wildings.

SEED: About 2,500–3,000 seeds per kg.
treatment: Not necessary.
storage: Seed can be stored for long periods. Add ash to reduce insect damage.

MANAGEMENT: Generally slow growing in natural habitats; pruning, pollarding, coppicing.

REMARKS: The wood is pale, hard and tough, difficult to plane and not durable. The heartwood is darker. Though a mixed-forest species, it grows fast when planted in new areas and in farmland, thus quickly yielding good firewood and low-quality building poles. At least 14 other *Diospyros* species are known in Kenya. They are mainly dioecious (male and female flowering parts on separate individual plants) shrubs or, more often, trees. They are known for their tough wood. The majority are coastal dryland species.

FURTHER READING: Beentje, 1994; Bein et al., 1996; Bekele-Tesemma et al., 1993; Dharani, 2002; Katende et al., 1995; Noad and Birnie, 1989; Palgrave and Palgrave, 2002.



Diospyros mespiliformis

Ebenaceae

Indigenous

Standard/Trade name: African ebony.

COMMON NAMES: **Digo:** Mbara, Mkulu; **Duruma:** Mpweke; **English:** African ebony, Jackal berry; **Giriama:** Mkulwe, Mkuluye; **Kamba:** Mukoo; **Kambe:** Mkulwe, **Malakote:** Mokowlo; **Mbeere:** Mukoro; **Meru:** Muroko; **Orma:** Kolati gurati; **Pokomo:** Mkuru, Mkuro; **Somali:** Korati (Tana River), Kolati; **Swahili:** Msindi, Mgombe, Mkadi, Mpweke, Mgiriti; **Taveta:** Mugongolo; **Teso:** Ekum; **Turkana:** Egum, Egumoit.

DESCRIPTION: A medium-sized to large tree, to 25 m. There may be a tall clear bole from a buttressed base to the dense rounded crown. Young parts have silvery hairs. BARK: **Grey-black, rough and squared, grooved.** LEAVES: **Shiny dark green,** alternate, to 14 x 3 cm, **the midrib raised below, edge wavy, tip rounded.** FLOWERS: Fragrant, male clustered, female solitary, cream-white petals, 1 cm. FRUIT: **Rounded, to 2.5 cm, in a calyx cup, the 5 segments curling back,** fruit yellow, later purple; pulp soft and sweet with 4–6 brown hairy seeds.

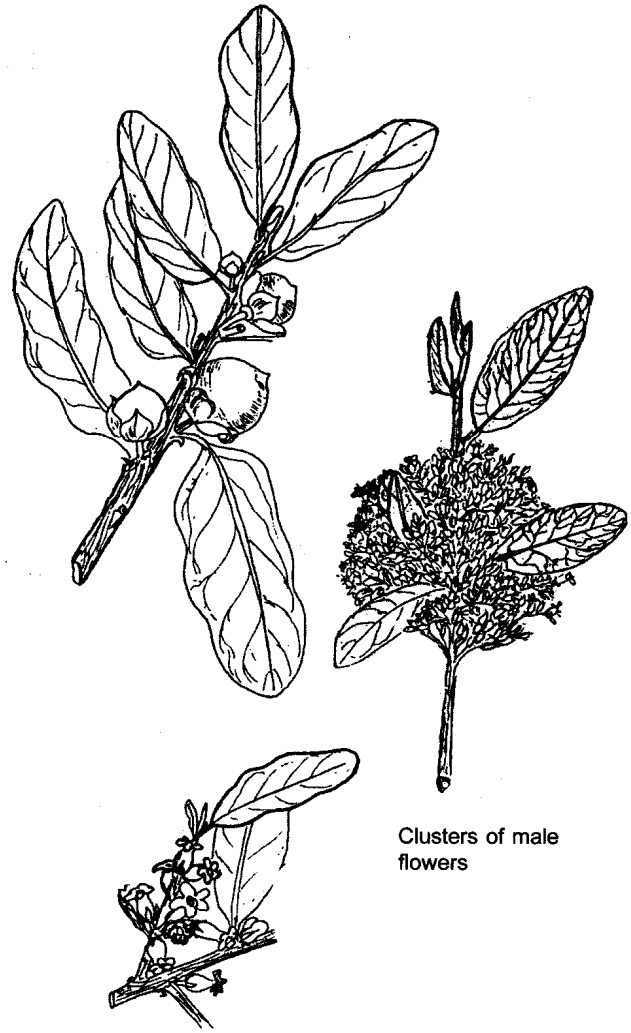
ECOLOGY: An evergreen tree of medium to low altitudes found in West, eastern and southern Africa in woodland, savanna and along river banks. In Kenya, the species is more common around Kibwezi in Makueni District and also in Meru, Kwale and Taita Taveta Districts. Found near watercourses in dry bushland, on termite mounds, on lava flows in semi-evergreen thickets and on rocky hillsides, especially in gullies, 0–1,500 m. Agroclimatic Zones IV–VI. Seeds in December–February at the coast.

USES: Firewood, charcoal, timber (construction), furniture, carvings, walking sticks, edible fruit, food (porridge made from fruit), drink (made from fermented fruit), medicine (bark, roots, fruit), bee forage, shade, ornamental.

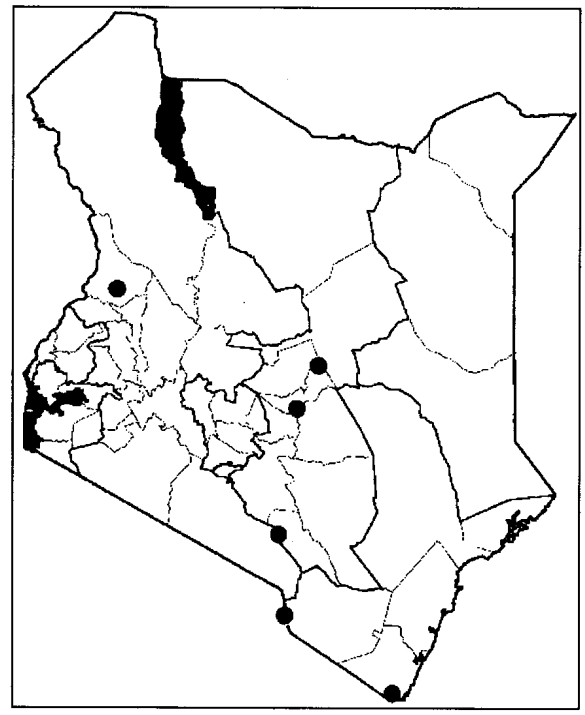
PROPAGATION: Seedlings.

SEED: Because of competition by birds, seeds should be collected immediately after fruit starts to turn yellow, and therefore from the crown. Depulp and clean under running water. Dry in the sun if seed is to be stored. About 2,700–3,200 seeds per kg. Germination is good but fairly slow—within 50 days under ideal conditions. **treatment:** None.
storage: It can be stored for long periods in airtight containers.

MANAGEMENT: Slow growing, but faster along rivers.



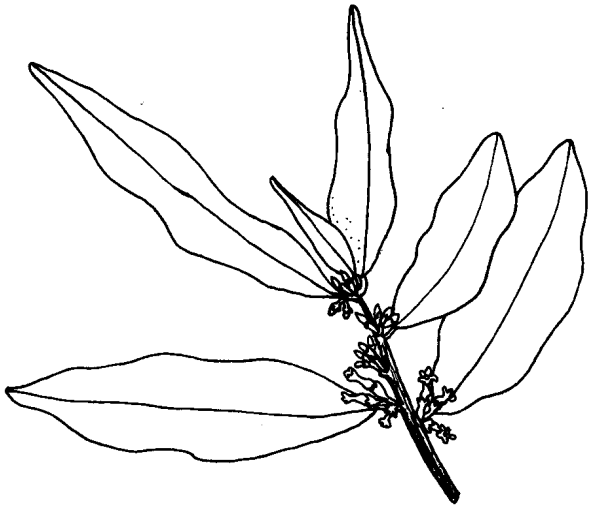
Clusters of male flowers

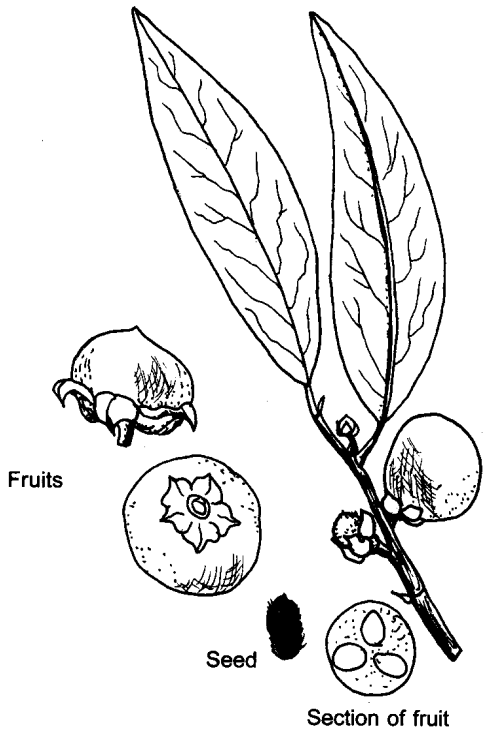


Diospyros mespiliformis (cont)

REMARKS: *Diospyros* spp. produce the valuable black heartwood 'ebony', an excellent source of timber. The wood is hard, heavy, with fine grain, very durable even in damp conditions, and fungus and termite resistant. Sapwood cream-white, heartwood yellowish pink, darkening on drying and with age. The fruit can be eaten fresh or dried or in the form of a fermented drink. Ripe fruit sweet, eaten raw (Digo, Turkana, Taita, Embu, Mbeere, Kamba). Seeds may be eaten or discarded. Fruits are collected in bulk and made into a kind of porridge that is eaten in times of famine (Mbeere). Shedding of old leaves seen to signal the coming of the rainy season (Mbeere). A good tree for hanging beehives (Mbeere).

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Albrecht, 1993; Beentje, 1994; Bein et al., 1996; Bekele-Tesemma et al., 1993; Fichtl and Adi, 1994; Katende et al., 1995, 1999; Kokwaro, 1993; Maundu et al., 1999; Mbuya et al., 1994; Noad and Birnie, 1989; Palgrave and Palgrave, 2002; Ruffo et al., 2002; van Wyk, 1993; von Maydell, 1990.





Diospyros scabra

Ebenaceae

Indigenous

COMMON NAMES: **Boran:** Locho, Locko; **Pokot:** Tuwot; **Rendille:** Yaga aqurra; **Samburu:** Lgotoi; **Tugen:** Tuwot; **Turkana:** Elim.

DESCRIPTION: A densely branched shrub or tree to 7 m, the young parts hairy. BARK: Distinctive rough and black, breaking into squares. LEAVES: Hard and rough, small, **oval or widest in the middle, dark green, 2–3 cm long, tip and base rounded**, midrib clear below, **alternate along stems**. FLOWERS: Insignificant. FRUIT: Oval, glossy green, **about 1 cm, becoming black**, tip pointed, with a small **3-part calyx** below.

ECOLOGY: Found in eastern Africa, north-eastern Uganda, south Sudan, south Ethiopia and the north-western quarter of Kenya, mainly growing close to rivers and streams or on stony hillsides in dry country. Common along luggas in Turkana, Baringo and Samburu Districts to about 900 m. Agroclimatic Zones V–VI.

USES: Firewood, timber (construction), furniture (stools), farm implements, edible fruit, medicine, fodder (fruit, leaves, seeds), bee forage, shade, dye, veterinary medicine.

PROPAGATION: Seedlings.

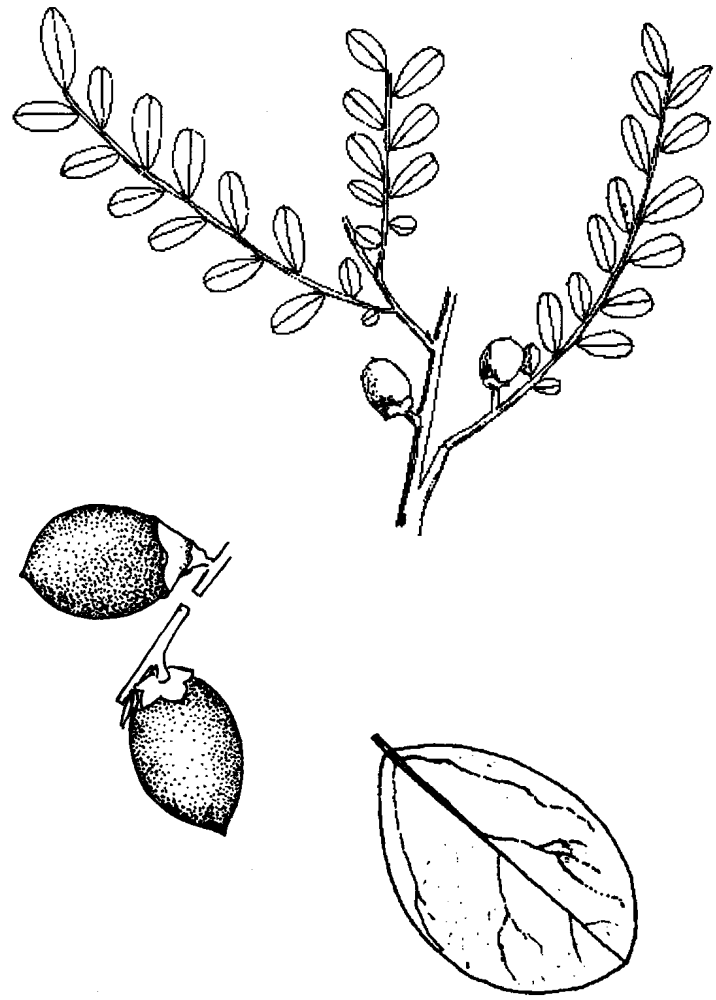
SEED: 4,000–5,000 seeds per kg.
storage: Use fresh seed.

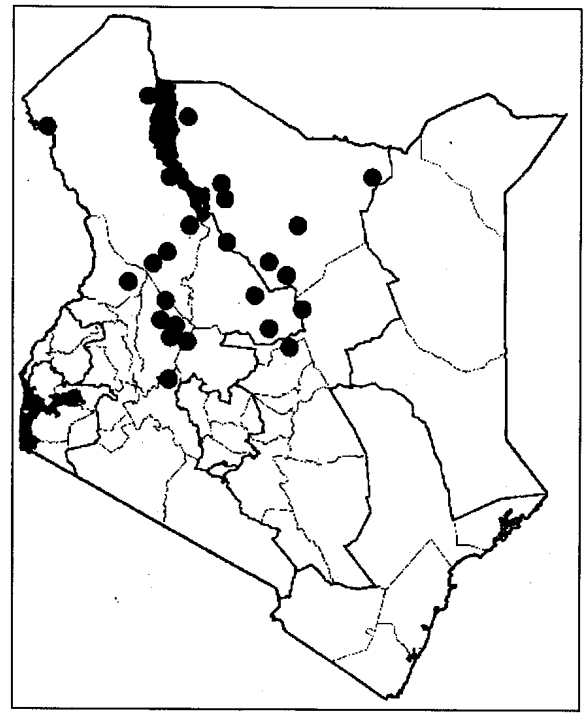
MANAGEMENT: Slow growing.

REMARKS: Fruits are edible but are rarely eaten (Daasanach). Wood very hard. Made into sticks used for planting sorghum (Daasanach).

Many other *Diospyros* species have edible fruit and useful timber. Good examples are the following. *D. consolatae* (**Giriama:** Mbat'the; **Mbeere:** Mutoroma; **Sanya:** Kararacha; **Swahili:** Mwaa, Mlala sungura) is a shrub or tree hardly exceeding 6 m. Old bark dark and scaly. Leaves hairless and up to 10 cm long. Fruit up to 1.7 cm with an enlarged calyx. The species is found from Mbeere and Makueni Districts to the coast. *D. squarrosa* (**Chonyi:** Mpweke; **Giriama:** Mupweki; **Sanya:** Mpweke; **Swahili:** Mpweke) is a shrub or tree to 10 m with a slender trunk and flaking black bark. Young parts hairy (pink). Common at the coast where it is a popular tree. Leaves large, to 10 cm, shiny above. Fruit 1–2 cm, eaten by monkeys and birds. It is used for yokes (water carrying), walking sticks, pestles, poles and timber for rough building. The tree is found in hollows and valleys and at forest edges, Lamu to Shimoni. Try direct sowing at site with this species since it grows slowly from seedlings. *D. cornii* (**Digo:** Mkulu; **Giriama:** Mkulu; **Kamba:** Mukongo; **Pokomo:** Olate; **Somali:** Kolati; **Swahili:** Mkulu) is an evergreen tree to 10 m or more with a greyish black bark. Leaves rusty hairy below. Fruit up to 2.2 cm. It is found in coastal bushlands and grasslands and may be very common in parts of north coast such as Boni Forest. It is used for poles, etc. *D. wajirensis* is a small tree found around Wajir, as the name suggests. It has edible fruit and the wood is used in construction.

FURTHER READING: Beentje, 1994; ITDG and IIRR, 1996; Maundu et al., 1999.





Dobera glabra

Salvadoraceae

Indigenous

COMMON NAMES: Boni: Hurub; **Boran:** Garse; **Chonyi:** Mkuha; **Daasanach:** Kadite, Kada (plural); **Giriama:** Mkuha, Mkulukulu, Mukulu; **Kamba:** Kikaitha, Kisiu; **Kambe:** Mkuha; **Malakote:** Mokopa; **Marakwet:** Koros (plural), Korosion; **Orma:** Gashir; **Pokomo:** Mukupha; **Pokot:** Keresion, Korosion; **Samburu:** Serri; **Sanya:** Garse; **Somali:** Garas, Garso; **Swahili:** Msega, Mswaki, Mkupa; **Tharaka:** Mungaritha; **Turkana:** Edapal; **Wardei:** Garas weyna.

DESCRIPTION: An evergreen tree, usually 4–7 m high with rounded or spreading low crown. BARK: Dark grey, almost black, **patchy, smooth or nearly so with reticulation giving it a false rough appearance**. LEAVES: Opposite, simple, entire, dark green or grey-green, **ovate to almost round, with a fleshy appearance**, tip usually notched, veins hardly seen. FLOWERS: Greenish white, fragrant, in branched heads. FRUIT: Green, wrinkled, turning yellow-orange when ripe, **egg-shaped, to 2 cm, with 1–2 flat seeds in soft edible pulp**.

ECOLOGY: Distributed in north-east Africa south to Uganda and Kenya and also in India. In Kenya, common at the coast, Kitui, along the lower Tana River valley, and northern areas. Occurs in dry bushland, often near watercourses and places with high groundwater in rocky or sandy soils, less often on clay soils; 20–1,100 m. Tolerates salinity but not waterlogging. Also on rocky hillsides. It is very common around lugga flood plains. Agroclimatic Zones IV (coast)–VII. Fruits in April–May around Tana River.

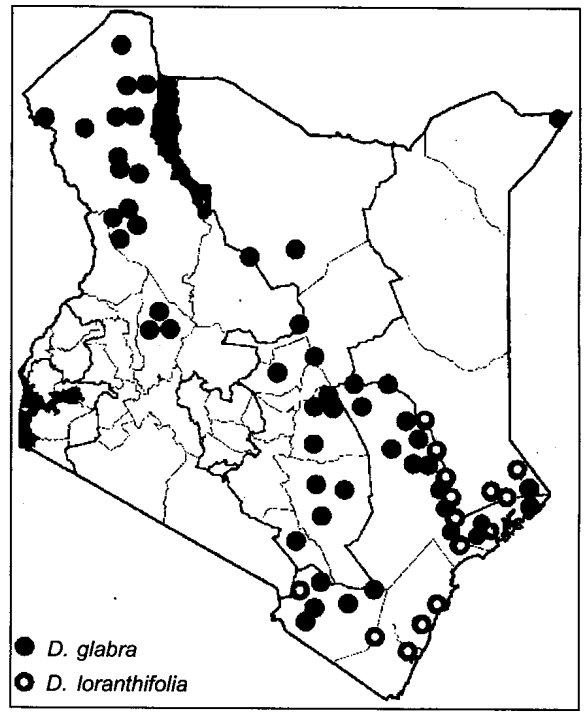
USES: Firewood, timber (small dimension for house construction), utensils (containers, mortars, water troughs), edible fruit, seed and gum, medicine, fodder (leaves for camels and goats), toothbrushes, veterinary medicine, shade, ceremonial.

PROPAGATION: Direct sowing at site, wildings, seedlings (sow in pots).

SEED: About 1,300–1,400 seeds per kg. Germination 60–80% within 40–60 days with fresh and carefully extracted seed .

treatment: Not necessary.

storage: Seed does not store well (recalcitrant). Use fresh seed.

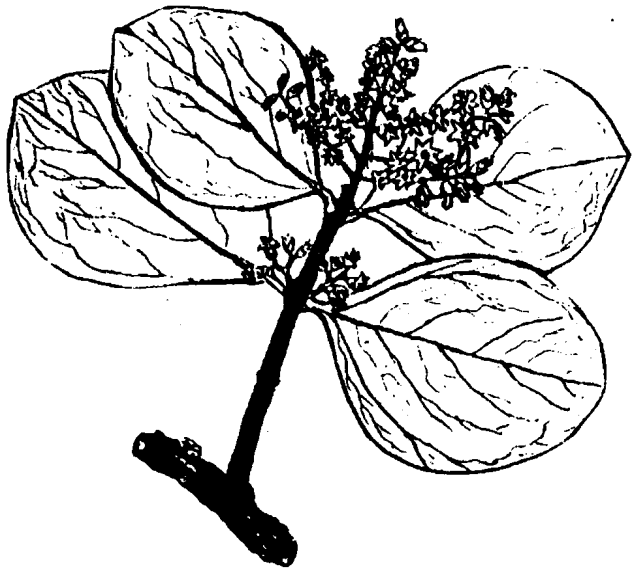


Dobera glabra (cont)

MANAGEMENT: Slow growing but very hardy once established; lopping, coppicing.

REMARKS: The fruit and seeds are a very important food during hunger periods in dry areas of northern Kenya and southern parts of Sudan and Ethiopia. Fruit pulp eaten raw. Seeds (cotyledons) eaten after being cooked for 3–4 hours during which water is replaced 4–6 times (Pokot, Turkana, Tugen, Marakwet, Daasanach). Gum from the tree is eaten in Mandera (Somali). Ash used to treat camel mange. Wood used to make mortars (Giriama, Pokomo, Somali), watering troughs (*taker*: Pokot), containers (Mandera). It is, however, soft. A ceremonial tree and meeting place (Pokot, Baringo). *D. loranthifolia* is a very similar species distributed in south-eastern Kenya (**Chonyi:** Mkuha; **Giriama:** Mkuha; **Kamba:** Kisiu; **Orma:** Dende; **Pokomo:** Mkupha; **Swahili:** Msega, Mswaki; **Wardei:** Garas winlah). *D. loranthifolia* is a medium-sized tree with a rather spreading crown, which is usually lighter than in *D. glabra*. Leaves grey-green (lighter than in *D. glabra*) and leathery. The bark is grey (lighter than in *D. glabra*), corky, longitudinally fissured, flaking off in small patches but generally smooth. Fruits are oval, pinkish yellow to yellow-green on ripening and generally larger and sweeter than in *D. glabra*. The other uses are more or less the same. *D. loranthifolia* is found in southern Somalia through Kenya and Tanzania to Mozambique; 0–800 m.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Albrecht, 1993; Beentje, 1994; Bein et al., 1996; Bekele-Tesemma et al. 1993; ITDG and IIRR, 1996; Maundu et al., 1999.



D. loranthifolia

Dodonaea viscosa (D. angustifolia)

Sapindaceae

Indigenous

COMMON NAMES: **Boran:** Hidesa; **English:** Dodonaea, Sand olive; **Kamba:** Kithongoi, Muthongoi; **Kikuyu:** Murema muthua; **Luhya:** Muendu; **Luo:** Oking'; **Maasai:** Olgeturai, Oltuyesi; **Pokot:** Tobolokwo; **Sabaot:** Tombolokwa; **Swahili:** Mkaa pwani; **Taita:** Msidu; **Tugen:** Tabilikuet.

DESCRIPTION: A thin-stemmed leafy shrub or tree, usually 2–8 m, with a light crown. BARK: Grey, grooved, peeling. Branchlets red and sticky. LEAVES: Thin, **narrow, stiffly erect to 10 cm, tapering** to a stalk, **young leaves light green, shiny and sticky.** FLOWERS: Male and female separate, insignificant. FRUIT: Distinctive capsules, 2 cm with 2 to **3 papery wings,** sometimes **inflated, greenish to red,** looking like blossoms, turning light brown, small seeds inside.

ECOLOGY: The natural range of this tree is very wide—Australia, India, tropical and subtropical Africa. It does well in a wide range of climates and soils. A pioneer species in disturbed areas. Widespread in Kenya in a variety of habitats from riverine forest to rocky soils, on hillsides and arid marginal areas, often in disturbed ground, where it may form a pure stand. Tolerant to salt (as seen on sand beaches); 0–2,800 m. Agroclimatic Zones II–IV.

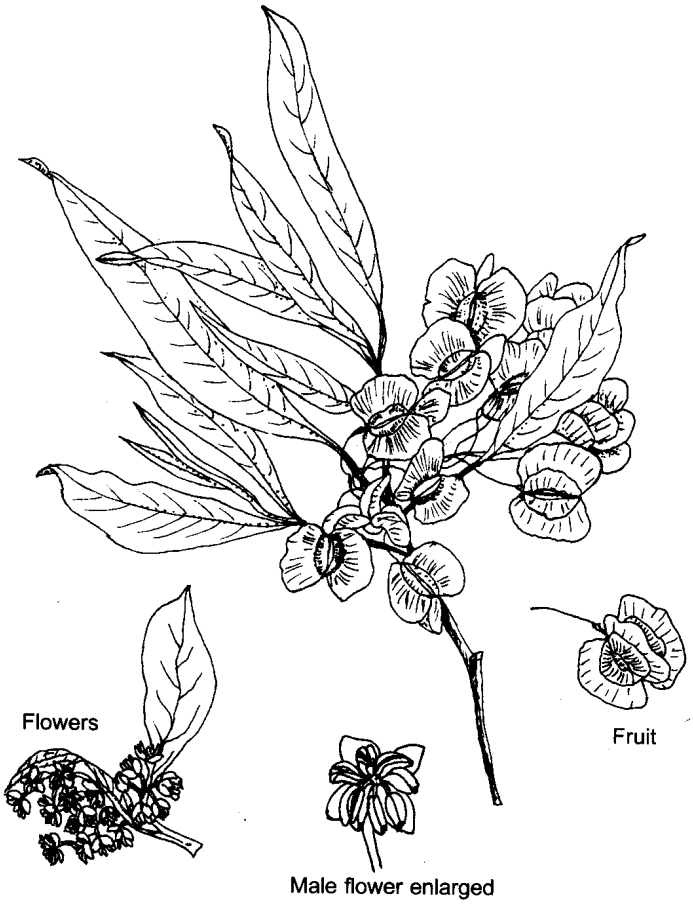
USES: Firewood, poles, tool handles, medicine (leaves and roots), bee forage, ornamental, land reclamation (marshes, poor or sandy soils), dune fixation, live fence, toothbrushes.

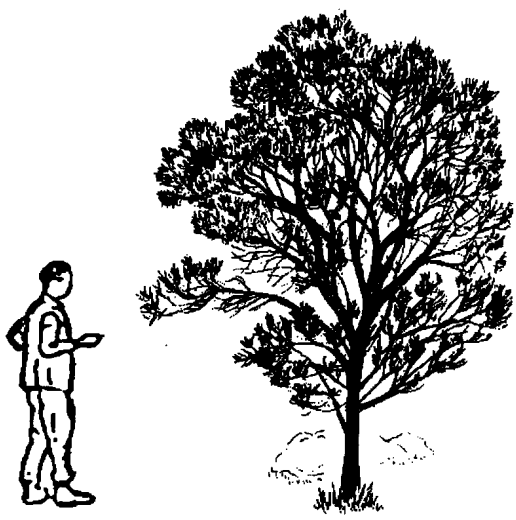
PROPAGATION: Seedlings, wildings, direct sowing at site.

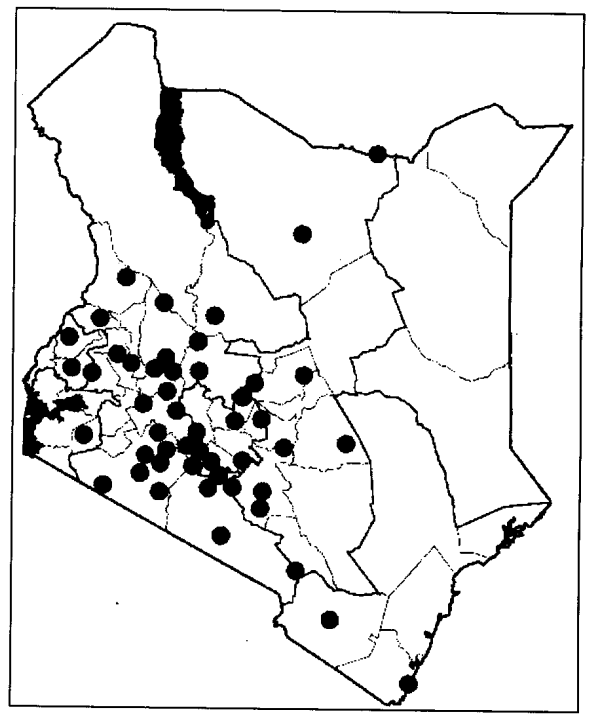
SEED: Germination rate 30–70% after 15 days; 90,000–100,000 seeds per kg.
treatment: Not necessary.
storage: Seed can be stored for long periods.

MANAGEMENT: Fast growing. Little or no management required once established.

REMARKS: The species is rarely browsed, which makes it easy to establish. The wood is hard, termite resistant and heavy, but the stem rarely grows over 20 cm in diameter. A good hedge for dry areas, regenerating rapidly after burning. Two varieties are found in Kenya—the more common and inland form, var. *angustifolia,* and the coastal variety, var. *viscosa*, which grows in sand, especially near the sea. The latter variety is a thick bush about 3–4 m. The fruit capsule usually has only 2 wings. It has generally larger leaves and fruit. It is occasionally left in homesteads as an ornamental. The genus *Dodonaea*, with several dozen species, is mainly Australian, thus casting doubt on the assertion that the species is indigenous to the eastern Africa region.

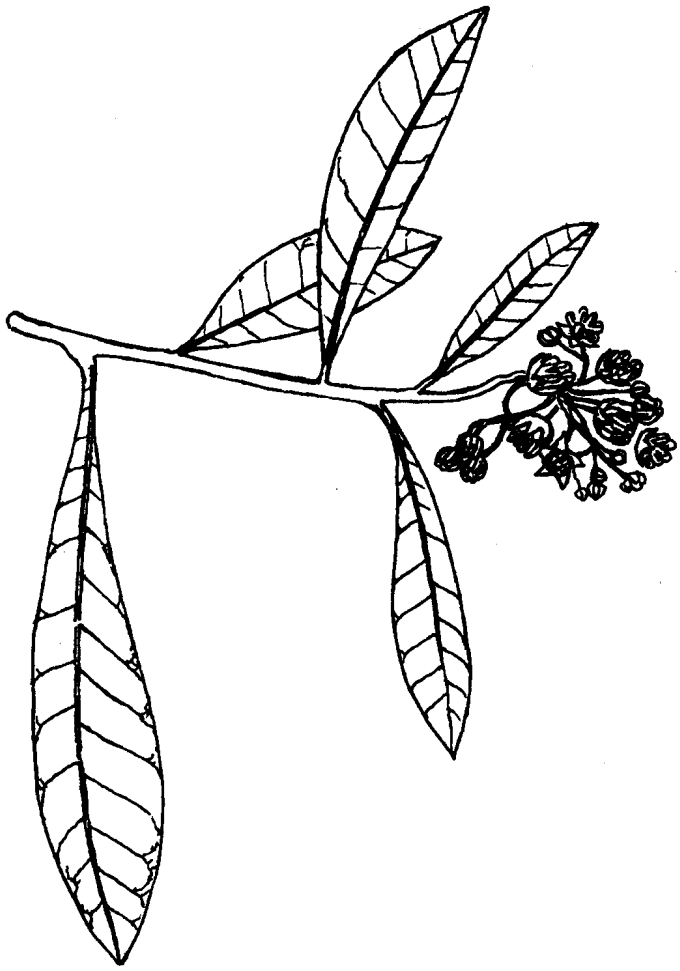






Dodonaea viscosa (cont)

FURTHER READING: Beentje, 1994; Bein et al., 1996; Bekele-Tesemma et al., 1993; Blundell, 1987; Dharani, 2002; Fichtl and Adi, 1994; Katende et al., 1995; Kokwaro, 1993; Mbuya et al., 1994; Noad and Birnie, 1989; Palgrave and Palgrave, 2002; Turnbull, 1986; .



Dombeya rotundifolia

Sterculiaceae

Indigenous

COMMON NAMES: **English:** Dombeya; **Kamba:** Mutoo, Muvau; **Kikuyu:** Mutoo; **Luhya (Bukusu):** Kumukusa; **Maasai:** Olmotoo, Ilmotoo (plural), Olawuo; **Pokot:** Mugerswa; **Sabaot:** Borowa; **Taita:** Ndowa; **Tugen:** Porowet; **Turkana:** Ebolis.

DESCRIPTION: A deciduous shrub or tree to 8 m, but usually smaller and often flowering when leafless. The crown is light and usually rounded, and the young twigs are reddish and covered with star-shaped hairs that are soon shed. BARK: Dark grey to brown, corky and rough. LEAVES: Broadly **oval to almost circular, 6–18 cm across**, base heart-shaped, tip rounded or occasionally sharp, sandpapery above, often very hairy below, edge unevenly toothed. The leaves dry **very crisp and hard.** FLOWERS: **White-pink in many-flowered heads** arising from the sides of branches. Buds are woolly. FRUIT: Small, round hairy capsules, pale brown or cream, surrounded by the now brown and dry petals. Contain up to 3 small dark brown seeds.

ECOLOGY: A small tree occurring over a wide range of altitudes, usually in wooded or open grassland from Ethiopia south to Namibia, Botswana and the northern part of South Africa. Widely distributed in Kenya, e.g. in Machakos, Kericho, Narok, Kajiado Districts and in the areas around Lake Victoria, in wooded grassland, *Acacia–Themeda* dry grassland, *Combretum–Ozoroa* open woodland and bushed grassland, often in rocky areas; 900–2,200 m. Agroclimatic Zones II–IV.

USES: Firewood, timber, poles, tool handles, bows (strong but flexible branches), medicine (roots), fodder (leaves), bee forage, shade, ornamental, mulch, soil conservation and improvement, fibre (young bark).

PROPAGATION: Seedlings, wildings.

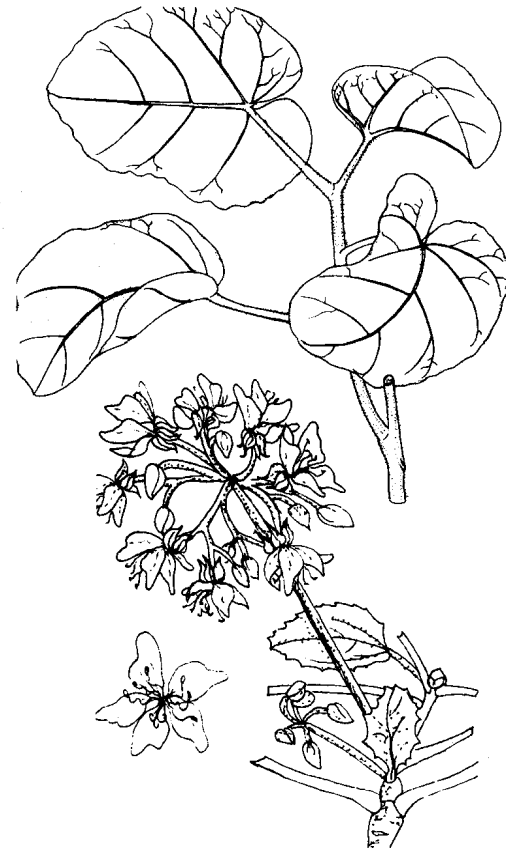
SEED: 35,000–40,000 seeds per kg. Germination is good and completed after 3 weeks.
treatment: Not necessary.
storage: Can retain viability only for a short period (3 months) at room temperature.

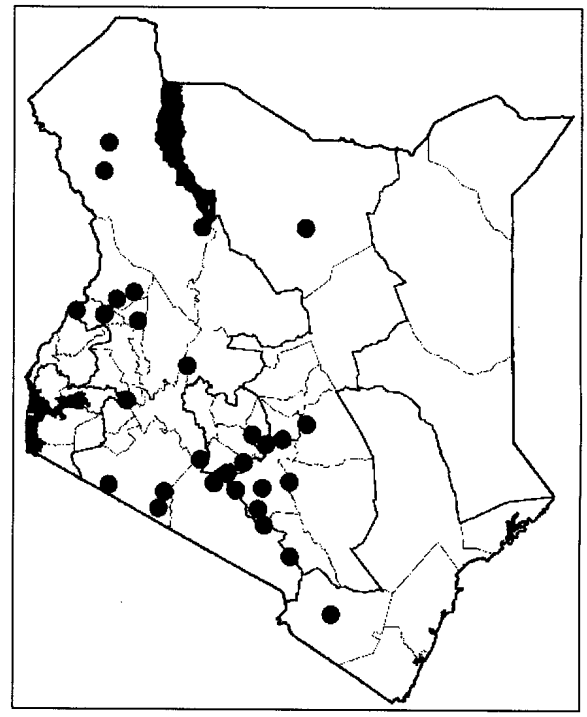
MANAGEMENT: Fast growing; lopping, pollarding.

REMARKS: The wood makes good fuel, is strong and tough but often twisted. The heartwood is blue-grey, heavy and very durable, but because of its small size its use has largely been limited to bows, tool handles, wagon wheels, planting sticks, etc. The sweet-scented blossom attracts bees and the nectar produces a light amber-coloured honey. An attractive tree for dry areas when in flower.

The related *D. kirkii* (**Boran:** Sililach; **Kamba:** Mutoo, Muvau; **Kikuyu:** Mukeu, Mutheringende; **Kipsigis:** Selebwet; **Luo:** Odhidho; **Maasai:** Olawu) is a shrub or tree to 7 m, common along rivers, forest edges and on rocky areas; 600–2,200m. It is more common in the central and southern part of the country as well as Samburu District. Leaves are heart-shaped, to 9 cm long, somewhat sandpapery above with a serrated edge; flowers creamy white. Fruit hairy. The strong but flexible woody branches of this species are also used by the Kamba and Maasai to make bows. *D. taylorii* (**Boni:** Milanje, Merfured; **Digo:** Mbwale; **Swahili:** Mbwale; **Taita:** Kidabita) is also a small tree or shrub similar in many respects to *D. kirkii* but strictly coastal. It is found in forest edges, wooded grassland and bushland. The species has similar uses as the others. *Dombeya* is a genus with over 200 species occurring in Africa and the nearby Indian Ocean islands.

FURTHER READING: Backes and Ahenda, 1998; Beentje, 1994; Blundell, 1987; Dharani, 2002; Kokwaro, 1993; Mbuya et al., 1994; Noad and Birnie, 1989; Palgrave and Palgrave, 2002; Storrs, 1979; van Wyk, 1993.





Dombeya torrida (D. goetzenii)

Sterculiaceae

Indigenous

COMMON NAMES: **Keiyo:** Boloet; **Kikuyu:** Mukeu; **Luhya (Bukusu):** Kumukusa; **Marakwet:** Borowa; **Maasai:** Olsubukiai orok, Olsuburiiai; **Meru:** Monde, Mukeu; **Nandi:** Sibukuet, Silipchet; **Ogiek:** Silibuet; **Tugen:** Boroa, Borowa; **Turkana:** Apongat.

DESCRIPTION: A deciduous shrub or **much-branched tree, 12–15 m, with a shady umbrella crown** and a trunk diameter of about 50 cm. BARK: **Grey and smooth,** only lightly grooved with age; clear breathing pores (lenticels); inner bark thick, orange-brown, very fibrous. LEAVES: Large, hairy and **heart-shaped,** the **leaf bases overlapping,** to 30 cm long, **tip pointed,** edge sharply toothed, **vein network very clear below** with 5 or more veins radiating from the centre. **Young stems and leaf stalks often red.** FLOWERS: Often abundant, **pale pink or white with red centres,** full of nectar, in showy clusters on **branched hairy stalks to 30 cm,** 5 petals one-sided, red-purple in centre; many stamens with orange anthers; **5 pink stigmas.** FRUIT: Petals turn yellow-brown and surround the fruit capsule, **oval, densely hairy,** with about 10 brown seeds inside.

ECOLOGY: An understorey timber tree of wetter highland forests of eastern Africa and Ethiopia. Associated with *Hagenia*, *Cassipourea* and *Cornus* on highland mountains. It can also form a part of mixed montane *Podocarpus* forests. In Kenya, the tree is mainly found in the Aberdares, Cherangani Hills, Elgeyo-Marakwet escarpment, on Mt Kenya, Mt Elgon and in the Mau forest; 1,850–2,700 m, more common above 2,200 m. Also riverine. Agroclimatic Zones I–III.

USES: Firewood, charcoal, timber, poles, tool handles, bows, medicine (bark and roots), bee forage, shade, mulch, soil improvement (nursery-soil collection), fibre (from bark for ropes).

PROPAGATION: Seedlings, wildings.

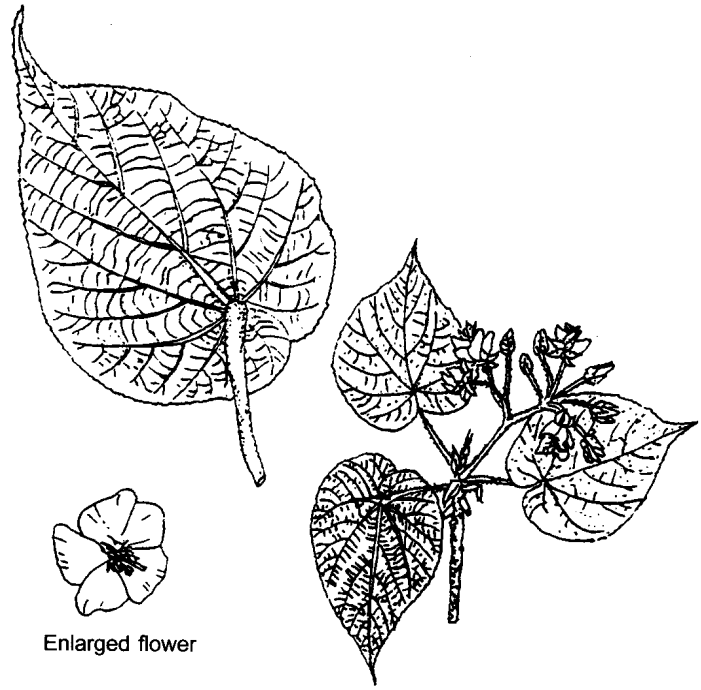
SEED: About 235,000 seeds per kg. Under good conditions the seed will germinate in 15–20 days. After drying the capsules in the sun for 2–3 days, the seed can be separated from the dried capsules by rubbing or by threshing the capsules lightly in a bag. The latter method is recommended because the fine hairs of the fruit may cause eye irritation.

treatment: Not necessary.

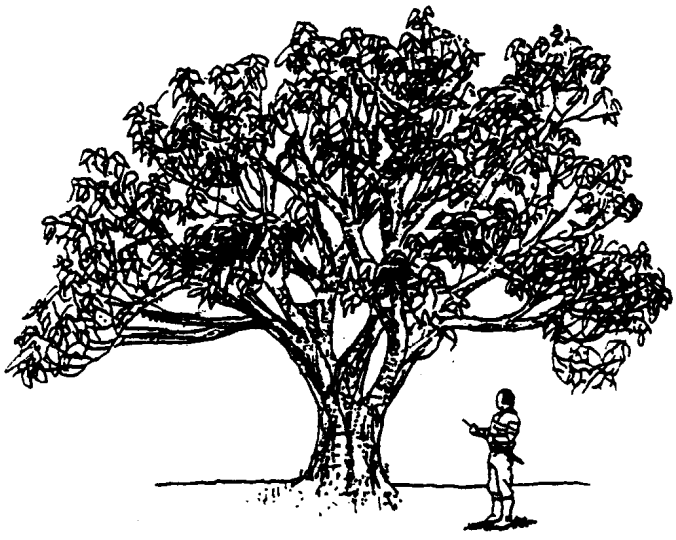
storage: Seed can be stored in airtight containers.

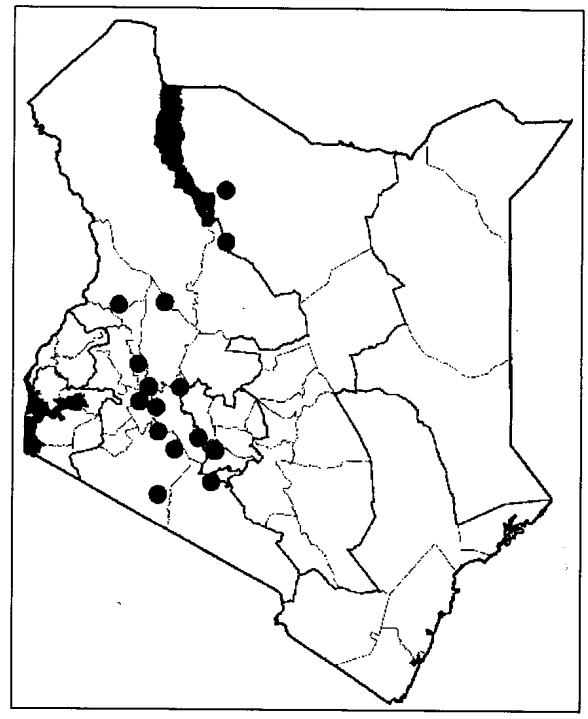
MANAGEMENT: Fairly fast growing; pruning.

REMARKS: Of the 6 or so *Dombeya* species occurring in Kenya, this is the largest. It is an important timber tree. The wood is soft but tough, easy to saw and to plane. Nailing does not cause splitting. It is, however, not durable in the ground. Even though top-quality forest soil can be obtained below these trees, food crops do not grow well nearby since the tree has both a heavy shading effect and heavy litter fall that make it difficult for other plants to grow.



Enlarged flower





Dombeya torrida (cont)

Another common highland species is *D. burgessiae* (**Kamba:** Muvau; **Kikuyu:** Mukeu; **Kipsigis:** Silibwet; **Kuria:** Omongusu; **Luhya:** Mukusa; **Luo:** Owich; **Maasai:** Osupukiai orok; **Meru:** Monde, Mukeu; **Nandi:** Kilipchet; **Samburu:** Ilporowai; **Turkana:** Epongoi, Apongat). It is an undershrub, to 5 m tall, very widespread in upland forest edges. Leaves are heart-shaped, occasionally 3-lobed, hairy above and below. It is found in most of upland Kenya in open forests, riverine vegetation and in bushland, especially in rocky places. The roots have medicinal uses and the flowers, which hang on long stalks, also attract bees. The bark of stems provides good strong fibre.

FURTHER READING: Albrecht, 1993; Beentje, 1994; Bein et al., 1996; Bekele-Tesemma et al., 1993; Blundell, 1987; Dharani, 2002; Fichtl and Adi, 1994; Katende et al., 1995; Kokwaro, 1993; Sommerlatte and Sommerlatte, 1990.

Dovyalis abyssinica

Flacourtiaceae

Indigenous

COMMON NAMES: **Boran:** Kurrawa; **Chonyi:** Dungatundu (fruit), Mdungatundu; **Giriama:** Mdungatundu, Dungatundu; **Kamba:** Mukambua, Ngambua (fruit); **Kikuyu:** Mukambura, Ngambura (fruit); **Kipsigis:** Mukiat, Mwokiot; **Kisii:** Omokorogoinwa, Omokorogunya; **Luo:** Akudho, Songola; **Maasai:** Olmorogi, Ilmorok (plural); **Marakwet:** Bapchebili, Bapchebilil, Mendililwo; **Mbeere:** Muraga; **Meru:** Muro; **Nandi:** Nakuk, Nokok; **Pokot:** Karaturwa, Mintirilwo; **Sabaot:** Mundililwet; **Samburu:** Imoroo, Limoro; **Sanya:** Mkidonyathi; **Somali:** Koshum; **Taita:** Mbuche.

DESCRIPTION: A spiny evergreen shrub or tree to 5 m, crown rounded. BARK: Grey, spines to 1.5 cm long. Branchlets with **very clear dotted breathing pores** (lenticels). LEAVES: Shiny, dark green, **oval, to 5 cm, tip blunt, edge unevenly rounded,** stalks and veins reddish. FLOWERS: No petals but 5 yellow–green–white sepals, female flowers single, but male in clusters with 40–60 stamens. FRUIT: A **round berry about 2 cm across,** surrounded by the calyx, green and hairy at first then smooth **orange-yellow pulp,** with edible sweet-sour flesh around the few hairy seeds.

ECOLOGY: This shrubby tree is found from Ethiopia, Somalia and Socotra south to Malawi in upland rainforest, dry evergreen forest, on river banks and sometimes in more open woodland. In Kenya on Mt Kulal, Nyambene Hills, Taita Hills, the central highlands, Loita Hills, highlands in Rift Valley Province, at forest edges, 0–2,700 m. Common on red soils. Sometimes found as a remnant tree or shrub in coffee plantations. Agroclimatic Zones II–III.

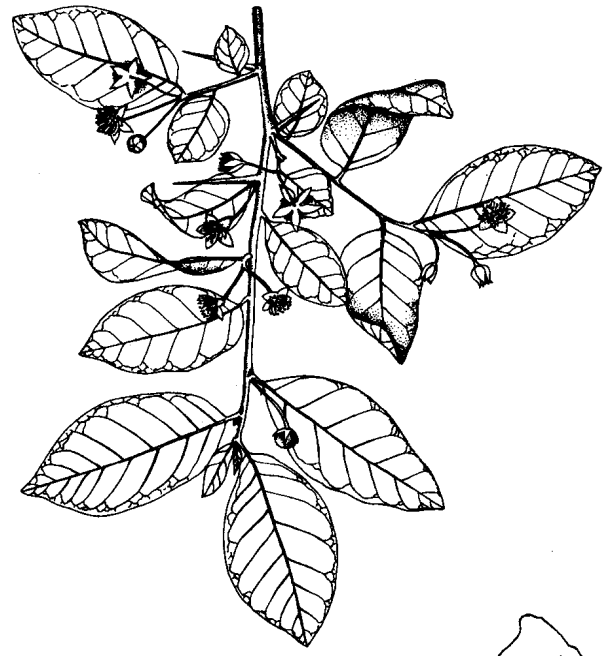
USES: Edible fruit (eaten raw), soup (roots and stem), jam, flavouring (added to porridge), medicine (roots), fodder (leaves eaten by goats and sheep), bee forage, live fence, spines used for piercing ears.

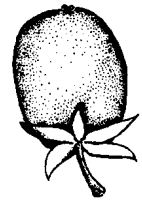
PROPAGATION: Seedlings (sow in seedbed and prick out).
treatment: After collection the fruit are soaked in water for 2–3 days. The water is then drained off and the fruit squeezed by hand to separate the seeds from the pulp. After washing with water the seeds can be dried and stored, but not for long.
storage: Use fresh seeds for best germination.

MANAGEMENT: Lopping, coppicing.

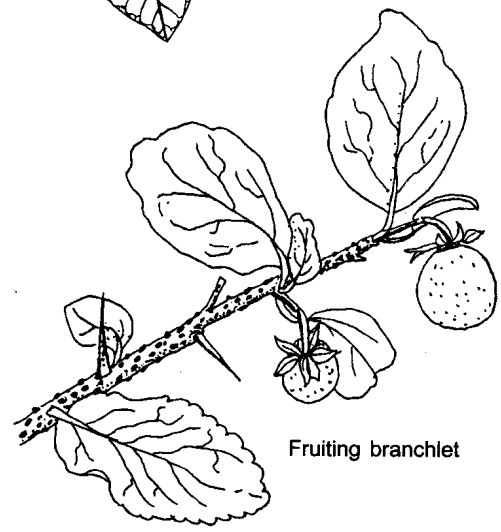
REMARKS: The fruit is edible but very acid; excellent for jelly. It is about the same size as that of *D. caffra.* Grown as a fruit bush. Roots are widely used as medicine. At least 4 indigenous species of *Dovyalis* are found in Kenya. Most have edible fruit and have great potential as hedge plants.

FURTHER READING: Beentje, 1994; Bein et al., 1996; Bekele-Tesemma et al., 1993; Dharani, 2002; Katende et al., 1995; Kokwaro, 1993; Maundu et al., 1999; Noad and Birnie, 1989; Ruffo et al., 2002.

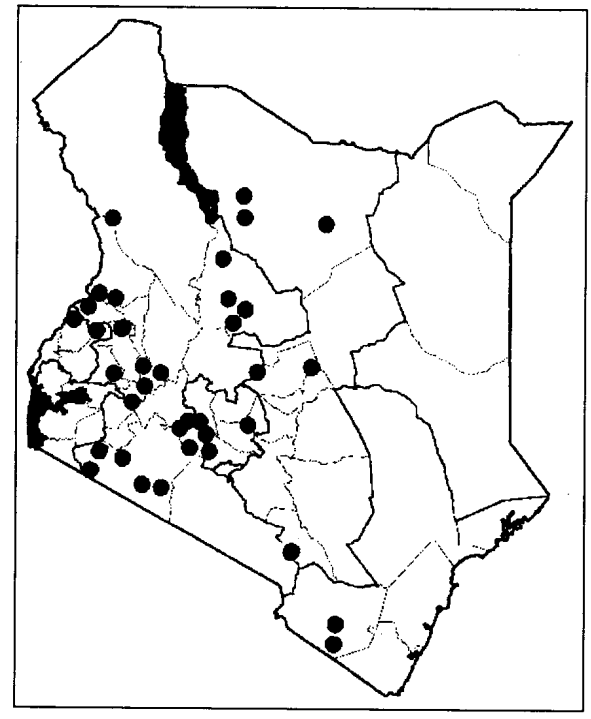




Fruit



Fruiting branchlet



Dovyalis caffra

Flacourtiaceae

Southern Africa

COMMON NAMES: English: Kei apple; **Kamba:** Kikambua, Ngambua (fruit); **Kikuyu:** Kaiyaba.

DESCRIPTION: A thorny evergreen shrub, usually 3–5 m. BARK: With **strong spines to 6 cm.** LEAVES: Thin, **shiny dark green to 5 cm, tip rounded or notched.** FLOWERS: Male and female flowers on different plants, male flowers **cream-yellow in dense clusters, many stamens.** FRUIT: **Round, orange-yellow,** to 4 cm, soft sweet flesh, up to 20 seeds within.

ECOLOGY: A spiny shrub found in open bush and *Acacia* woodlands in southern Africa from Zimbabwe to South Africa. It prefers deep well-drained soils, tolerates loamy clay and is drought resistant once established. Widely planted in tropical and subtropical areas as a protective hedge because of its dense growth when trimmed and strong spines; 1,200–2,000 m; rainfall 600–1,000 mm. Agroclimatic Zones II–IV. Flowers in December–January, fruits in April and May (Nairobi), and December–February in western Kenya.

USES: Fruit, jam, bee forage, ornamental, live fence.

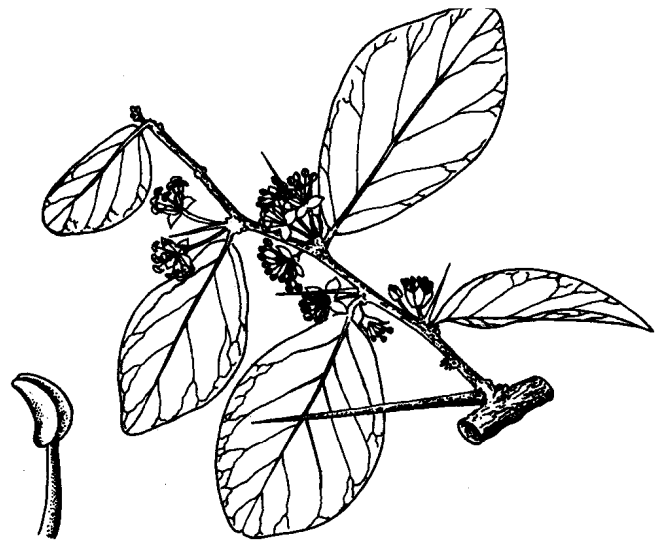
PROPAGATION: Seedlings (sow in seedbed and prick out), direct sowing at site.

SEED: 27,000–47,000 seeds per kg; 50 kg of fruit yield 1 kg of seed. After collection the fruit are soaked in water for 2–3 days. The water is then drained off and the fruit squeezed by hand to separate the seeds from the pulp. After washing with water, the seeds can be dried and stored for a short period at room temperature. Germination is 60–90% within 18–20 days, or even faster under good conditions. Fruit are best collected from the ground since the plant is thorny.
treatment: Not necessary.
storage: Sow fresh seed for best germination results.

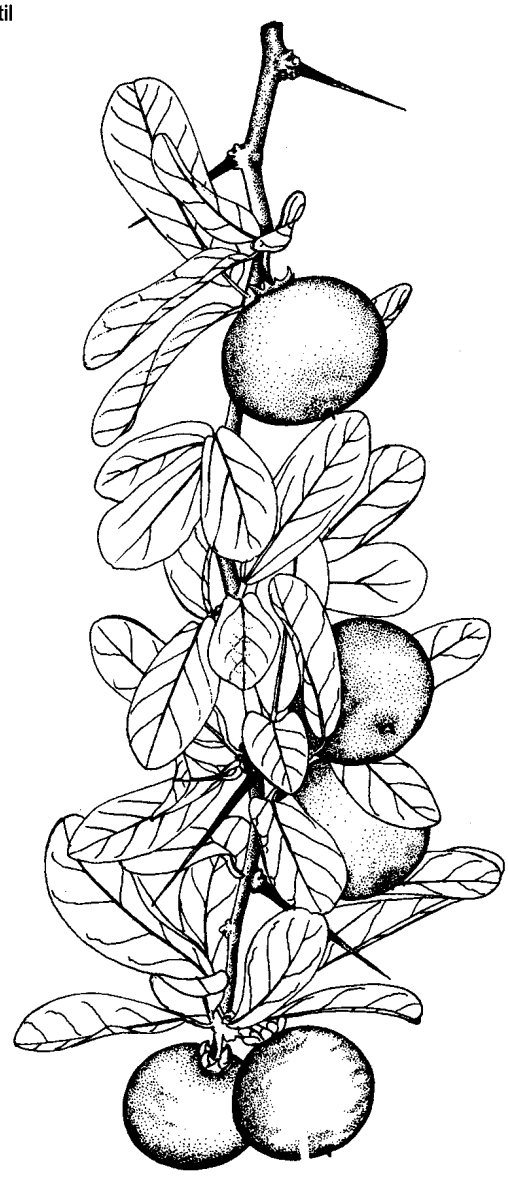
MANAGEMENT: Fairly fast growing once established, initially slow. Trim regularly to maintain a good live fence. Coppices very well.

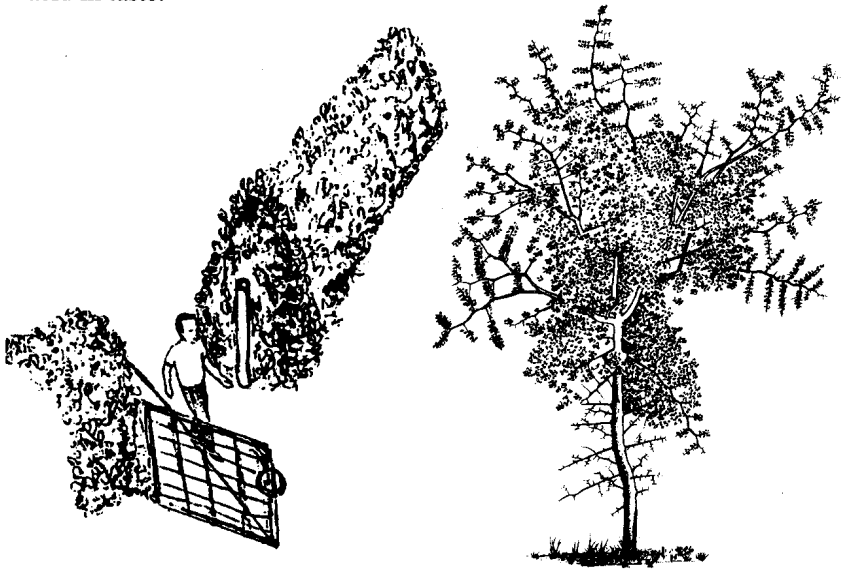
REMARKS: A popular species for live fencing. Many *Dovyalis* species have edible fruit but they are often very acid in taste.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Albrecht, 1993; Dharani, 2002; Fichtl and Adi, 1994; Katende et al., 1995; Maundu et al., 1999; Mbuya et al., 1994; Noad and Birnie, 1989; Palgrave and Palgrave, 2002; Verheij and Coronel, 1991.



Anther and pistil





Dovyalis macrocalyx

Flacourtiaceae

Indigenous

COMMON NAMES: **Giriama:** Munyhee, Munyee; **Luhya (Bukusu):** Kumusongolamunwa, Busongolomunwa (fruit); **Luo:** Akudho, Nyamtotia; **Maasai:** Enkoshopini, Olaimurunyai; **Nandi:** Kaptowinet; **Pokot:** Chuchwenion, Chuchween (plural); **Sanya:** Mkidonyathi.

DESCRIPTION: A forest shrub or small tree, 3–8 m, much branched, the slender young branches arching over. BARK: Smooth grey. Branches grey-brown, often dotted with breathing pores (lenticels), **bearing straight spines, single, usually needle-like, 1–6 cm,** beside leaves, sometimes absent. LEAVES: Simple, oval, 4–9 cm, pale green, thin, tip pointed, base broadly rounded to a short stalk (only 3 mm). FLOWERS: Yellow-green, no petals. **Male flowers hairy, in clusters, 1–4, beside leaves, with about 20 central stamens. Female flowers shortly stalked, solitary,** beside leaves, 6–10 thin lobes of the **calyx sticky, densely covered with hairs.** FRUIT: Distinguished from other *Dovyalis* when in fruit by the **enlarged hairy calyx lobes above the plum-like fruit. Fruits orange-red, fleshy, to 2 cm long,** hanging on a stalk to 8 mm.

ECOLOGY: A forest undershrub widespread in Africa from central Africa and Sudan south to southern Africa and common in eastern Africa. In Kenya, found from the coast to western Kenya. Common around Nairobi, along the Maasai River, in Uasin Gishu, Bungoma, West Pokot and Kisumu in forests, forest edges or riverine, 0–2,600 m. Found mainly in well-drained deep red soils. Agroclimatic Zones II–III. Flowers in January–March and fruit in March–June in Bungoma. Fruit ripen in November–December in Nairobi.

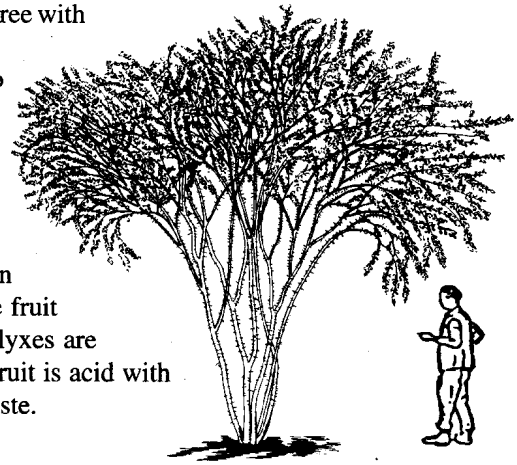
USES: Edible fruit, medicine (bark, root), ornamental, live fence, a salty substance is prepared from the leaves.

PROPAGATION: Seedlings (sow seed in pots), wildings.

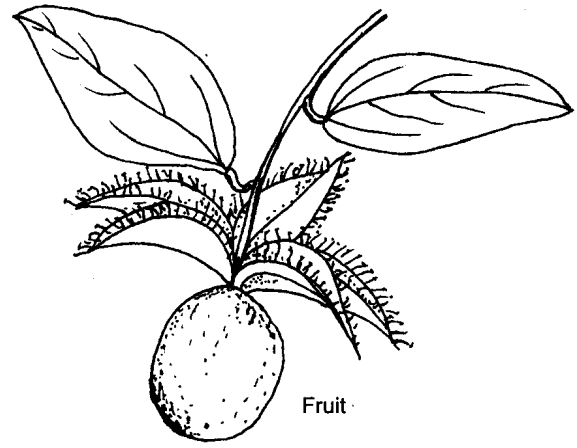
SEED: After collection, the fruit are soaked in water for 2–3 days. The water is then drained off and the fruit squeezed by hand to separate the seeds from the pulp. After washing with water the seeds can be dried and stored, but not for long. This species may not produce fruit every year.
treatment: Not necessary.
storage: Use fresh seed for best germination.

MANAGEMENT: Trim if grown as a fence; fairly fast growing.

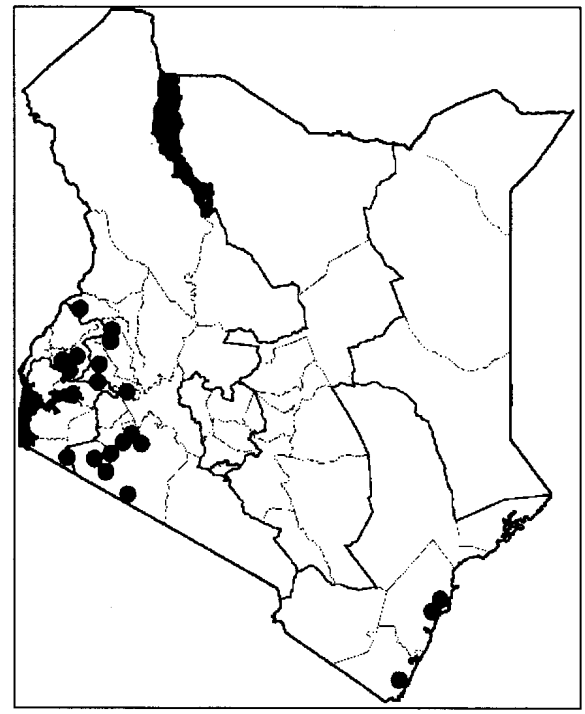
REMARKS: A fruit tree with considerable potential that so far has received little attention. It could be planted round homesteads for its fruit and as an ornamental. The fruit and enlarged calyxes are attractive. The fruit is acid with a slight sweet taste.



FURTHER READING: Backes and Ahenda, 1998; Beentje, 1994; Dharani, 2002; Katende et al., 1995, 1999; Maundu et al., 1999; Noad and Birnie, 1989; Palgrave and Palgrave, 2002; Ruffo et al., 2002.



Fruit



Dracaena steudneri

Dracaenaceae

Indigenous

COMMON NAMES: **English:** Steudner's dragon tree; **Kikuyu:** Muthare; **Luo:** Ofito, Wire; **Meru:** Kithare; **Sabaot:** Mololosti; **Somali:** Sasaante; **Swahili:** Msanaka; **Taita:** Issai; **Tugen:** Roke.

DESCRIPTION: An evergreen tree, usually 15 m but up to 18 m. The trunk often branches from the base with large branches rising steeply. Near the ground the base may be swollen. BARK: Smooth, grey–red–brown, with horizontal leaf scars. LEAVES: Dark shiny green crowding the tips of branches **like palms,** the leaves **over 1 m long and 12 cm wide,** strongly fibrous, with **no clear veins** but the centre thickened, the edge wavy. FLOWERS: **Pale white-yellow-green,** 6 narrow petals joined in a tube about 1 cm long, petal lobes as long as the tube. Flowers in tight clusters all over a **big flowering head about 1 m high produced at the end of branch.** FRUIT: Rounded green berries, becoming red then black and juicy, about 1 cm across; eaten by birds. The angular branchlets remain for some time and turn orange.

ECOLOGY: A tree distributed from eastern to southern Africa in moist or drier forest. In Kenya, it grows mainly in moist highland forests, 1,250–2,100 m, often in gaps, along river banks or in gallery forest. Common in the Lake Victoria forest belt. Agroclimatic Zones II–III. Mature fruit in December (Nairobi).

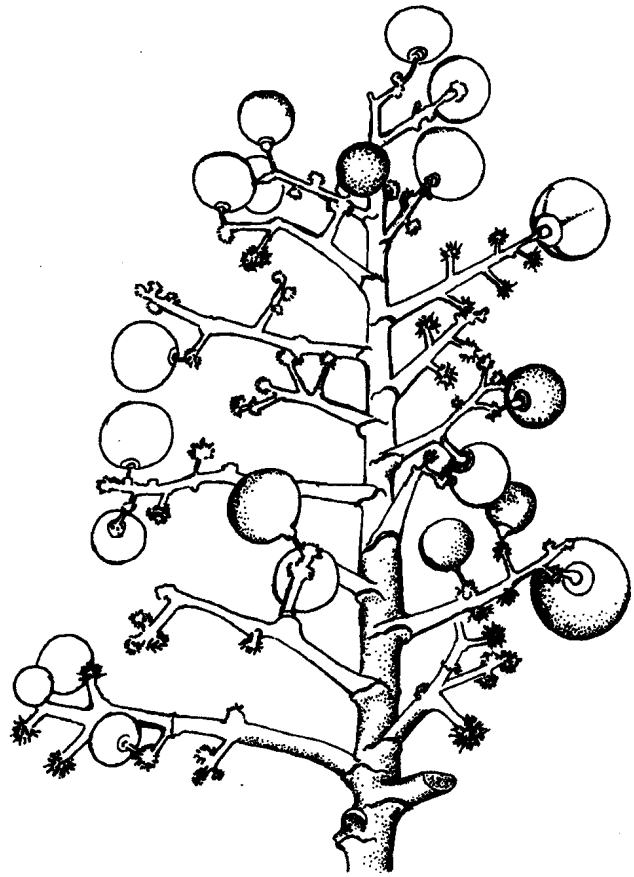
USES: Poles, medicine (bark), bee forage, shade, ornamental, ceremonial.

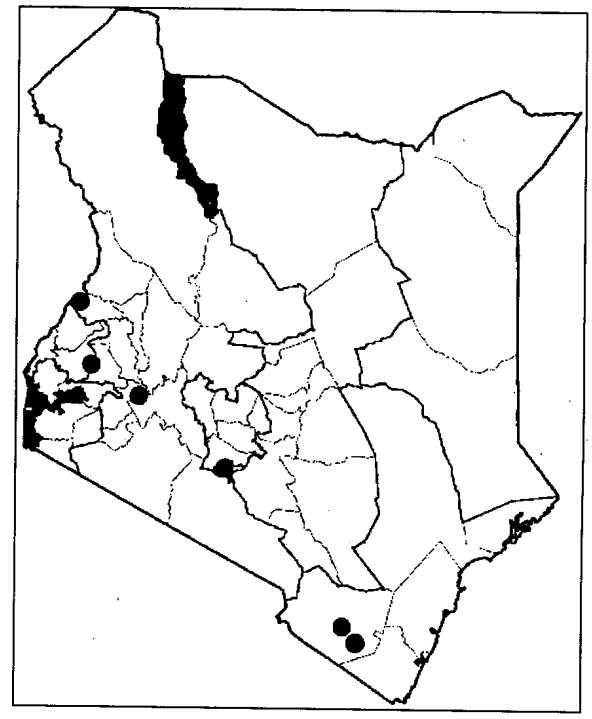
PROPAGATION: Cuttings, seedlings, wildings. Cuttings root easily.

SEED: Spread out on a dry cement floor to dry the whole fruit.
treatment: Not necessary.
storage: Better to use cuttings than to store seed.

MANAGEMENT: Fast growing. Little or no management required once established.

REMARKS: Where forests are encroached upon, this tree will always be left, and in many instances is the only sign that the area was once forest. There could be as many as 8 species of *Dracaena* in Kenya. A closely related species, *D. afromontana* (**Kikuyu:** Muthari; **Kipsigis:** Labatiet; **Maasai:** Olebenyan; **Nandi:** Lebekuek), is found in moist highland forests up to the bamboo zone. It is a palm-like tree to 7 m distinguished from *D. steudneri* by

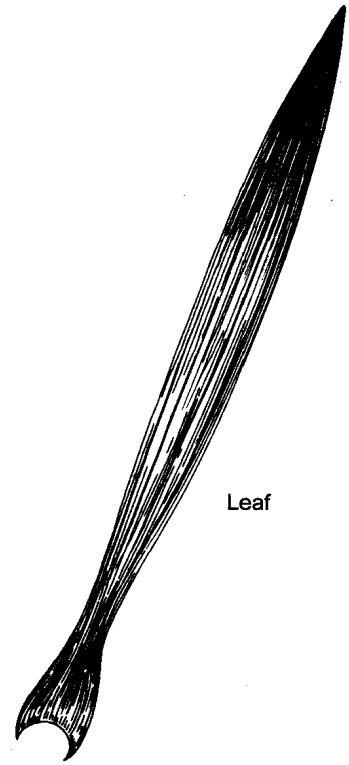




Dracaena steudneri (cont)

its thin leaves (less than 2.2 cm wide). Another large palm-like dragon tree is *D. ellenbeckiana* (**Boran:** Butte, Butie; **Gabra:** Butte; **Kipsigis:** Motiet; **Maasai:** Olegidong; **Pokot:** Moronguton; **Samburu:** Nkokidong; **Turkana:** Emith). This species is found in the central and northern part of Rift Valley Province and neighbouring areas on rocky hillsides; 1,000–2,000 m. The hollowed-out stems are used by the Turkana and Pokot for arrow quivers. Another important species is *D. fragrans*, often found as an unbranched shrub or small tree. It bears a large flowering head up to a 1 m long containing white flowers. Fruits are orange, round, to 1.8 cm across. This species is found in western Kenya, particularly in Kakamega Forest. It is also planted as a hedge and has great cultural significance. *D. laxissima* is common throughout the country in riverine forest. It has weak stems and is often seen supported by other plants. A few other species are found only at the coast. Dracaenas are important ceremonial plants. Many of the smaller types are planted as a hedge, while others are used to mark burial sites. They are good ornamental plants, and others are excellent soil-stabilization agents. The taxonomy of the genus in Kenya is still unsatisfactory.

FURTHER READING: Beentje, 1994; Bekele-Tesemma et al., 1993; Dharani, 2002; Fichtl and Adi, 1994; Katende et al., 1995; Kokwaro, 1993; Noad and Birnie, 1989; Palgrave and Palgrave, 2002; Sommerlatte and Sommerlatte, 1990.



Leaf

Ehretia cymosa

Boraginaceae

Indigenous

COMMON NAMES: **Kikuyu:** Mukui, Murembu; **Kipsigis:** Mutereriet; **Luhya:** Shekutu, Shikuti; **Maasai:** Endalatiekutuk, Endalai ekutuk, Endalati ekotok; **Marakwet:** Kabonbonet, Morori; **Meru:** Mukui, Murembu; **Nandi:** Boranet, Shamut; **Ogiek:** Mundereriet; **Samburu:** Lachachur; **Taita:** Mndana; **Tugen:** Buruburuti, Makongiet.

DESCRIPTION: A deciduous shrub or tree usually 2–9 m (to 20 m), often branching from the base, the trunk crooked with weak drooping branches. LEAVES: Oval but wide or narrow to 20 cm x 12 cm, the **tip pointed, base rounded,** on a stalk 1–3 cm. The leaf is rarely flat and bubbles up between the veins. **Veins are raised below and have hairs.** Leaves are often attacked by insects. FLOWERS: In loose large heads no more than 15 cm across, on **hairy stalks,** often covering the tree. The small flowers are white–yellow–pink, quite fragrant. The **divided style and brown-black anthers hang out** of the bell-like flowers. FRUIT: In large heads. Round, orange-red and berry-like, later turn black. Each is **pointed** and breaks into **4 parts,** each containing a hard, comma-shaped seed.

ECOLOGY: An African tree distributed from West to eastern Africa and south to southern Africa, some in bushland, others in riverine forest. In Kenya, it is widely distributed in evergreen forest and forest patches, 1,200–1,850 m. Agroclimatic Zones II–III.

USES: Firewood, charcoal, poles, tool handles, medicine (roots, leaves, leaf juice), bee forage, ornamental.

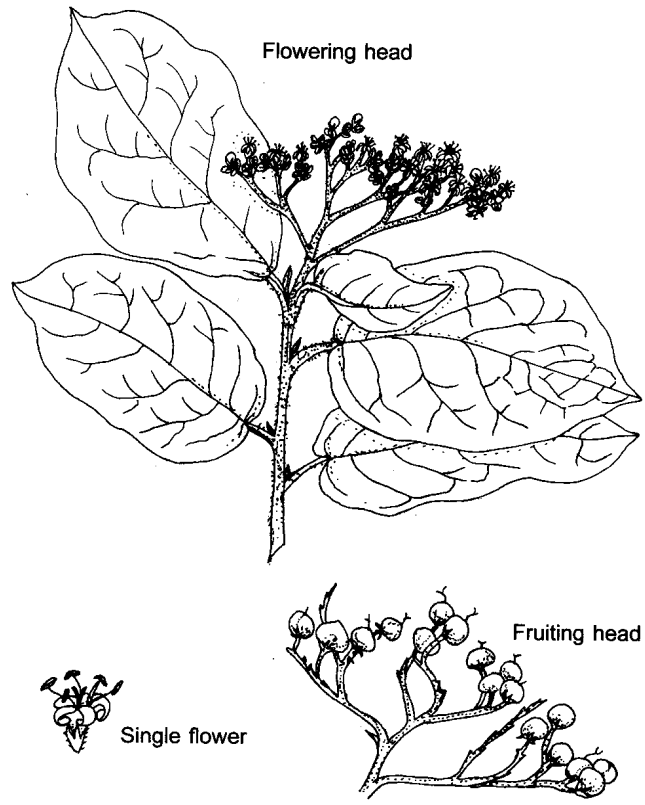
PROPAGATION: Seedlings, direct sowing at site.

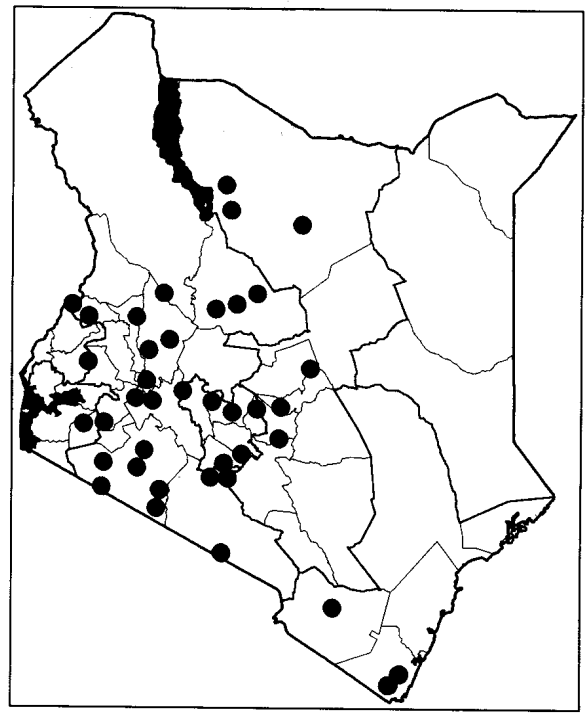
SEED: About 20,000–30,000 seeds per kg. Cut the fruiting head when 80% of the fruits are mature to extract the seed.
treatment: Not necessary.
storage: Seed can be stored for some time.

MANAGEMENT: Fast growing; pruning, pollarding, lopping and coppicing.

REMARKS: Planted mainly as an ornamental in Kenya. In South Africa it has been used to make good furniture. At least 3 other species in this genus occur wild in Kenya. *E. amoena* is a south coast species whose leaves are sand-papery above. *E. bakeri* (**Bajun:** Mnanyadia; **Boni:** Keruki; **Digo:** Moza nyama; **Duruma:** Muyamavi; **Giriama:** Mukironda; **Taita:** Mdana) is the most common after *E. cymosa* but it is found at the coast and adjoining areas. It is a shrub or small tree seldom exceeding 4 m. Leaves are large, up to 15 cm or more, and it occurs in bushland, grassland and on coral and at forest edges.

FURTHER READING: Beentje, 1994; Bein et al., 1996; Bekele-Tesemma et al., 1993; Blundell, 1987; Dharani, 2002; Fichtl and Adi, 1994; Katende et al., 1995; Kokwaro, 1993; Noad and Birnie, 1989; Palgrave and Palgrave, 2002.





Ekebergia capensis Meliaceae

Indigenous

Standard/Trade name: Ekebergia, Teldet.

COMMON NAMES: Bajun: Mpotowandovu mkuu; **Boni:** Mrongoleh; **English:** Ekebergia; **Kamba:** Mukongu; **Kikuyu:** Mununga; **Kipsigis:** Araruet; **Kisii:** Omonyamavi; **Luhya (Bukusu):** Kumusilisisi; **Luo:** Tido; **Maasai:** Osongoroi, Ormokoriongo, Olobaiye tiongata, Olsubukiai; **Marakwet:** Kerbut; **Meru:** Muchogomo; **Nandi:** Teldet; **Ogiek:** Ororuet, Oroyuet, Otorouet, Rararuet; **Sabaot:** Bumet, Kipumetet; **Swahili:** Mpotowa ndovu mkuu; **Taita:** Manuki masi; **Tugen:** Arariet, Ternwa; **Turkana:** Eng'amwo.

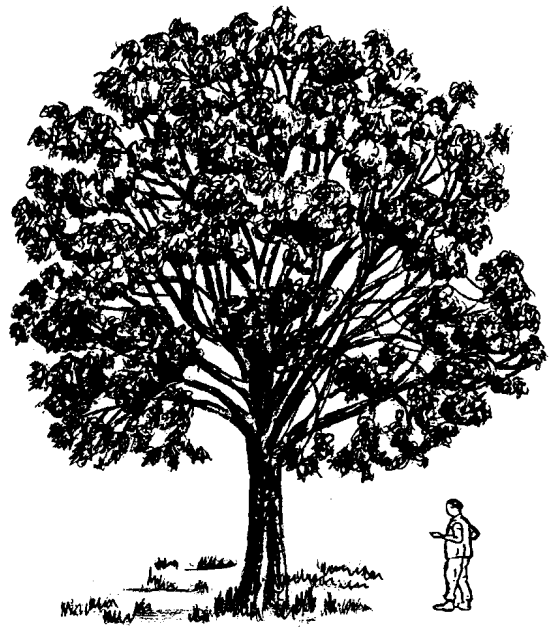
DESCRIPTION: A semi-deciduous tree, 8–30 m, with a large spreading crown. Old trees may have buttresses and large branches. BARK: Grey-brown and rough with age, cracking into pieces about 5 cm square; the slash is **red with white streaks,** branchlets dotted with whitish pores. LEAVES: Compound, mostly crowded **at the ends of branches,** on stalks to 30 cm long, leaflets **3–6 pairs** plus one, shiny green but some hairs below, up to 15 cm long, tip pointed, **leaflet blades unequal-sided**. FLOWERS: In loose sprays, up to 8 cm, each flower small, white and sweetly scented, male flowers on different plants (dioecious). FRUIT: **Rounded,** 1–2 cm long, thin-skinned and orange, on long stalks, drying and splitting to set free 2–4 seeds.

ECOLOGY: A medium-sized to large African tree, very variable, with wide distribution from Senegal to Ethiopia and south to South Africa; first described in Cape Province, thus the name 'capensis'. Widely distributed in Kenya in a variety of habitats from lowland scrub to highland forest. Often used as a shady meeting place in open grassland, 0–1,500 m. Agroclimatic Zones II–III. Flowers in April–June and fruits in September–November in Bungoma.

USES: Firewood, charcoal, timber (construction), furniture, poles, tool handles, medicine (root), bee forage, shade, ornamental, windbreak.

PROPAGATION: Seedlings, wildings.

SEED: 2,900–8,600 seeds per kg. Fresh seeds germinate best.



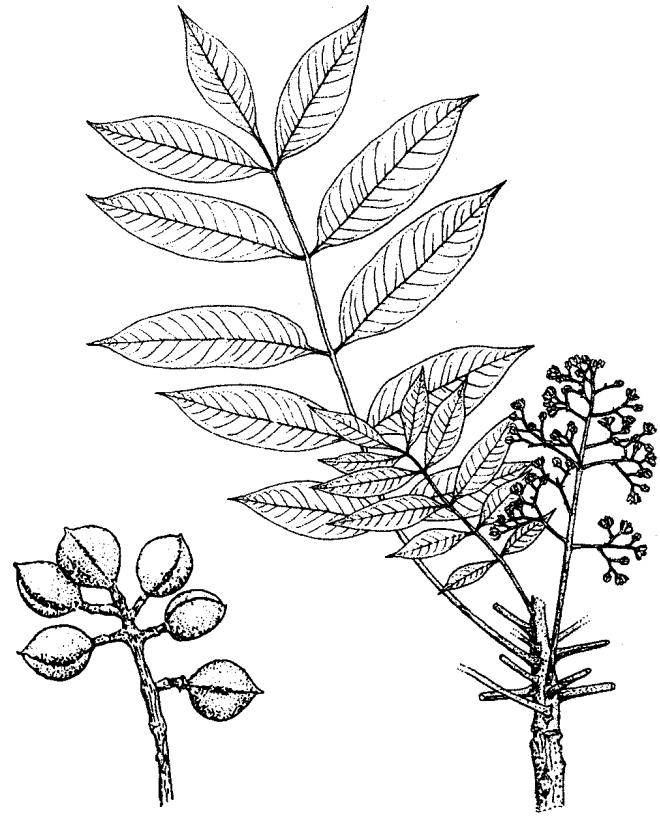
treatment: Fruit pulp should be removed and seeds cleaned in water before sowing.

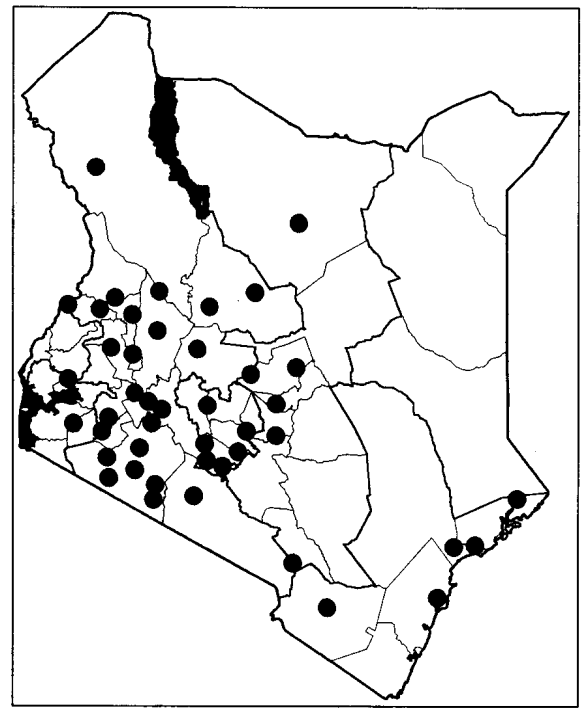
storage: Seed does not store long. Use fresh seed.

MANAGEMENT: Fairly fast growing.

REMARKS: Wildings used more commonly for propagation.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Backes and Ahenda, 1998; Beentje, 1994; Bekele-Tesemma et al., 1993; Fichtl and Adi, 1994; Katende et al., 1995; Kokwaro, 1993; Mbuya et al., 1994; Noad and Birnie, 1989; Palgrave and Palgrave, 2002; Sommerlatte and Sommerlatte, 1990; Storrs, 1979; van Wyk, 1993.





Elaeodendron buchananii

Celastraceae

Indigenous

COMMON NAMES: **Kamba:** Mulundu; **Kikuyu:** Mutanga; **Kipsigis:** Sawanet, Saonet; **Kisii:** Enkanda; **Luhya (Bukusu):** Kumunyofwe, Kumukulanyuni; **Maasai:** Osoket, Osoget; **Meru:** Munati; **Orma:** Kalkach; **Pokomo:** Madanchui; **Sabaot:** Sunwa.

DESCRIPTION: A tree to 20 m high with a **strong, stout irregular trunk**, dense, evergreen foliage and a rounded or irregular crown. BARK: Dark grey, smooth while young but fissured with age. LEAVES: **Dark green**, leathery, up to 14 cm long, without hairs, widest in the middle or towards the tip. **Margin with incurved teeth**. FLOWERS: Either male or female, very small, cream to yellowish, fragrant, arranged along a branching stalk arising from the leaf axils. FRUIT: Yellow, woody and sharply pointed, about 1–2 cm.

ECOLOGY: A tree of tropical Africa found in riverine woodland, wooded grassland, dry evergreen forest, forest remnants as well as in cultivated land. Common in rocky riverine vegetation around Nairobi. Agroclimatic Zones III–IV.

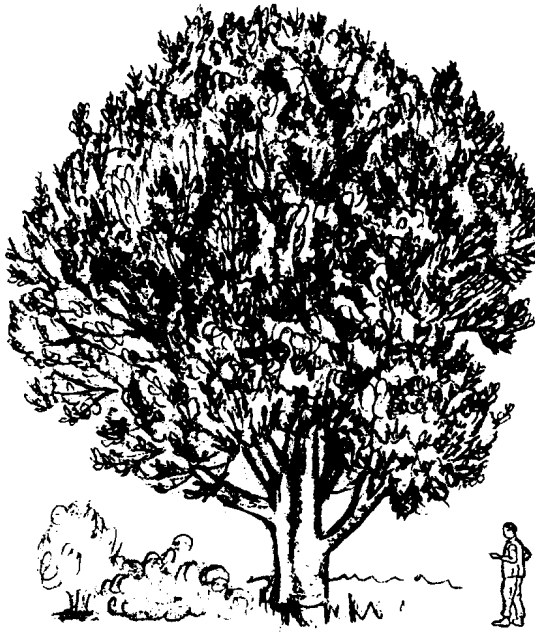
USES: Firewood, charcoal, timber, medicine (roots and bark), shade, mulch, soil conservation, ash from burned leaves used to prepare local salt, veterinary medicine.

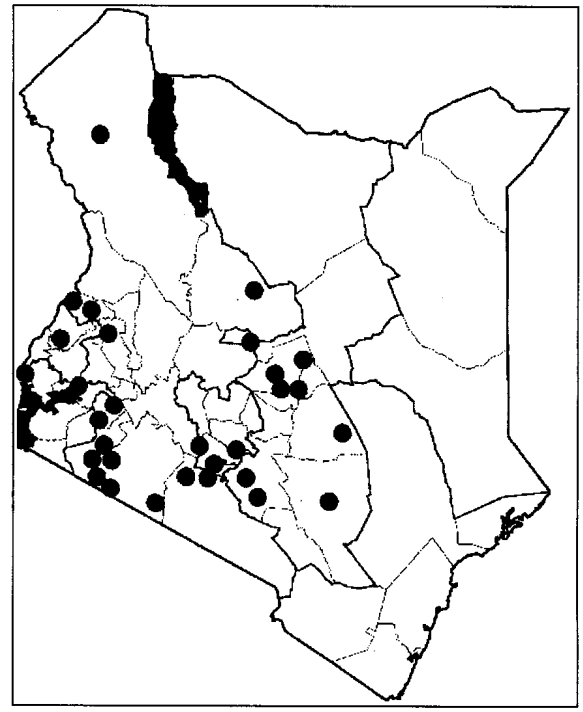
PROPAGATION: By seed.

MANAGEMENT: Pollarding, lopping, pruning to reduce shade. Fairly slow growing.

REMARKS: The wood is hard and fairly durable. Many trees of this species are mutilated because of frequent cutting and collection of the bark. The leaves and fruit are poisonous to livestock and humans; therefore livestock should not be kept near this plant in the dry season due to the attraction of its evergreen foliage. Young plants are almost always covered with cobwebs with caterpillars. The tree grows well with crops but may need pruning to reduce shade. Three other species of *Elaeodendron* occur in Kenya, all distributed in the coastal and adjoining zones. One of them, *E. schweinfurthianum* (**Bajun:** Mkwamba kerengende; **Swahili:** Mperemende), is a shrub or tree to 10 m and is fairly common at the coast in bushland on sandy soil and on coral near the sea. The leaf margin of this species may or may not be toothed, and the leaf tip usually ends in a spine. Flowers are yellow-green, male and female together; the fruit is white, usually less than 1 cm and is reputedly edible.

FURTHER READING: Backes and Ahenda, 1998; Beentje, 1994; ITDG and IIRR, 1996; Kokwaro, 1993; Noad and Birnie, 1989.





Embelia schimperi

Myrsinaceae

Indigenous

COMMON NAMES: **Kikuyu:** Matindia ariithi; **Kipsigis:** Kibugonit, Chackweet; **Maasai:** Olsani onyukie.

DESCRIPTION: Usually a tree to 5 m, but often a shrubby climber. BARK: Smooth red-brown. **Twigs without hairs** but with raised pale dots, the breathing pores (lenticels). LEAVES: Shiny and dark green above, more pale beneath, sometimes red, oval, wide or narrow to **8 cm x 4 cm, tip rounded,** narrowing to the base, a red midrib and stalk to 2 cm. The midrib and **15 or more side veins** are raised below. FLOWERS: Green–white–cream and tiny, on a hairy stalk from the leaf axil. FRUIT: Very many on stalks, each rounded, 6 mm across, red when ripe, tipped by the old style, one seed inside.

ECOLOGY: Widespread in West Africa from Nigeria and Cameroon, east to Sudan and south to Angola, Zambia, Zimbabwe and Malawi. In Kenya found around Nairobi westwards as an understorey tree in humid highland evergreen forest; 1,000–2,600 m, rainfall 1,000–1,900 mm. Thrives in a variety of soils provided there is moisture. Agroclimatic Zones II–III.

USES: Firewood, edible leaves (chewed), medicine (dried, pounded leaves, roots and dry seeds, anthelmintic), fodder (leaves).

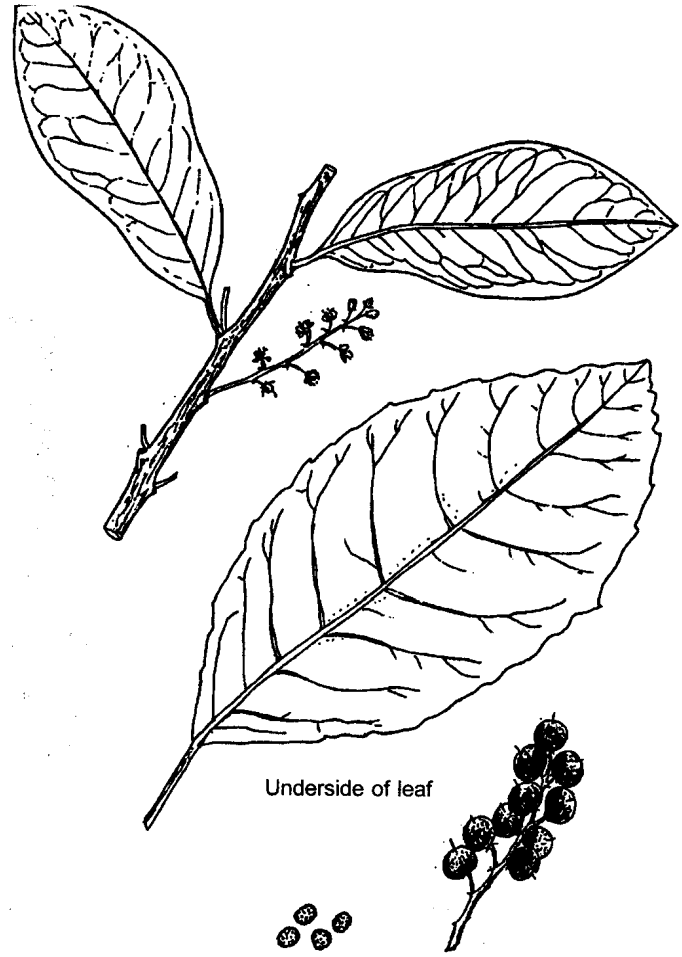
PROPAGATION: Seedlings, wildings.

SEED: About 15,000–20,000 seeds per kg.
treatment: Not necessary.
storage: Seed can be stored for some time.

MANAGEMENT: The tree should be grown with trees that are light demanding and straight growing to give it the shady environment that it requires.

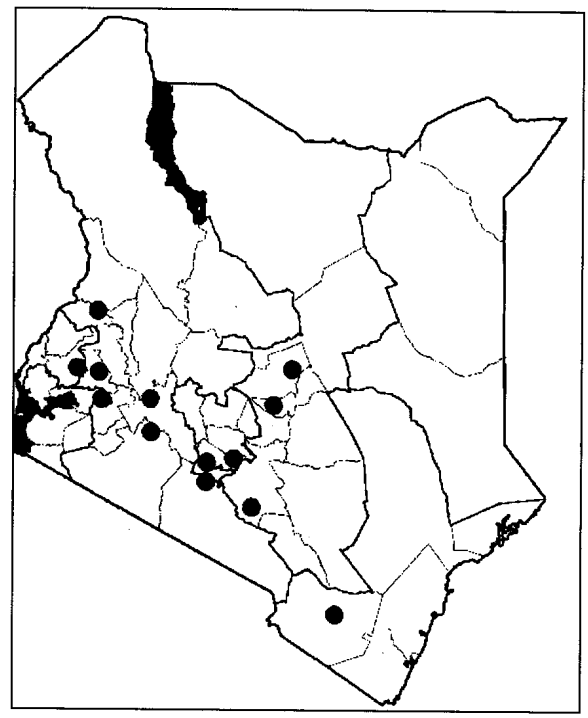
REMARKS: The leaves are used by the Marakwet as a stimulant. They have a salty taste and are also eaten by cattle herders of other communities.

FURTHER READING: Beentje, 1994; Bekele-Tesemma et al., 1993; Katende et al., 1999; Kokwaro, 1993; Ruffo et al., 2002.



Underside of leaf

Enlarged flower showing stamens joined to petals



Encephalartos hildebrandtii Zamiaceae

Indigenous

COMMON NAMES: **Boni:** Tiella; **Digo:** Mtsapu; **English:** Hildebrandt's encephalartos; **Giriama:** Kitsapu; **Sanya:** Dhabel; Balacha, Muka; **Swahili:** Mkwanga, Mgwende, Msapo.

DESCRIPTION: An evergreen palm-like tree with a **stout unbranched trunk covered with leaf scars, reaching up to 6 m;** more often a shrub with a rosette of many leaves. LEAVES: **Arching, pinnate, dark green, shiny, to 3 m,** white woolly when very young; the stalk bearing **about 80 pairs of stiff, tough and leathery leaflets, 15–35 cm long, the sharp tip with 2–3 spiny teeth,** and 1–9 on each margin, faint parallel nerves below, leaflets narrower towards the base. CONES: Male and female plants bear different cones at the stem apex within the circle of leaves. **Male cones, dull red, cylindrical, 20–50 cm high x 5–9 cm across,** on a stalk about 15 cm, producing pollen (after rain). **Female cones up to 3, dull green-yellow, cylindrical 28–60 cm, to 25 cm across,** wider than male cones, also stalked. **Cones ripen brown** after pollination by insects, and seeds develop in pairs below the scales, **orange-red, smooth and angular with a fleshy outer layer, the inner nut to 3 cm long.**

ECOLOGY: This plant belongs to a primitive group of cone-bearing plants, with separate male and female plants. Over 20 rare endemics are found in South Africa and a few in eastern Africa. *E. hildebrandtii,* one of 5 Kenyan species, grows only at the coast, e.g. in Shimba Hills and other coastal forest and bushland areas; 0–500 m. Agroclimatic Zones II–III.

USES: Edible centre of stem, ornamental, thatch, ceremonial (cones).

PROPAGATION: Suckers can easily be used for propagation. It is more difficult to propagate the plant from seeds. A male plant must be nearby to enable pollination of the female cone. Seed may develop even without pollination, but will be infertile. Seedlings can be raised in pots.

SEED: Ripe seed should be collected from mature female cones, flesh removed, seeds washed, dried and sown.

treatment: Soaking in water for 24 hours may hasten germination.

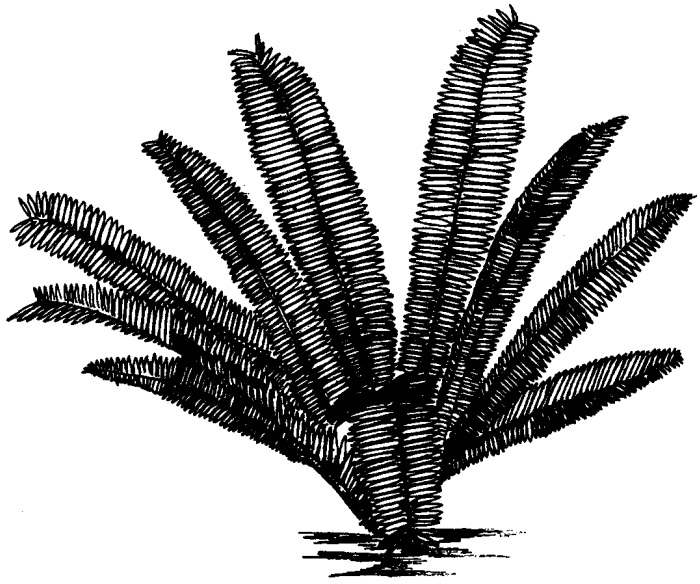
storage: If needed, store seeds in sealed containers in a cool place. Susceptible to insect damage; therefore add ash.

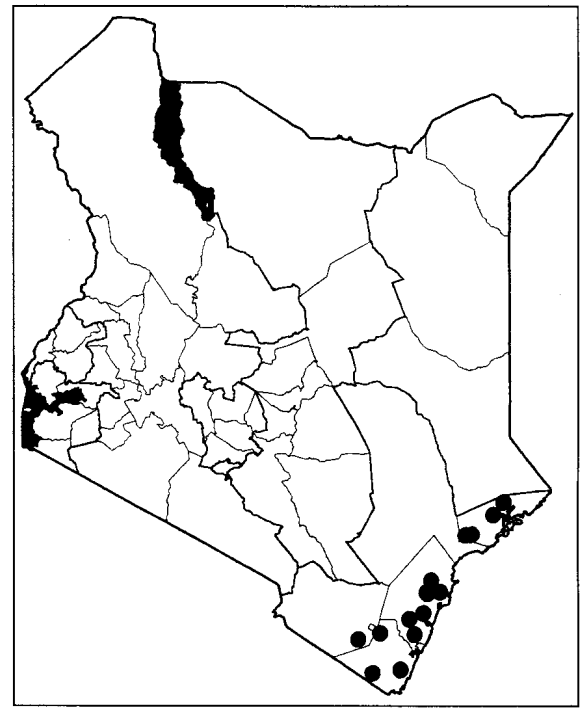
MANAGEMENT: Slow growing.

REMARKS: Cycads are among the oldest plants still living, sometimes called living fossils. Before they are overgrown, they make beautiful ornamentals and therefore are victims of unscrupulous collectors. Collection of these rare plants from the wild should, however, never be done, but seedlings can be raised.

The hard seed can be boiled and ground into flour in times of famine, but is now reputed to cause liver cancer if eaten in large amounts. The starchy centre of the stem is edible. The lower portion of the stem is peeled and chopped or sliced, left to ferment, then dried in the sun and pounded into flour that can be used to make *uji* or *ugali.*

Of the 5 species of *Encephalartos* found wild in Kenya, this species is the most common and most widely distributed. The rest are restricted to one or a few hills in other parts of the country. *E. bubalinus* is found on rocky bushland in the Loita highlands. The median leaflets are relatively narrower (1–2 cm wide) than in others. *E. kisambo* (**Taita:** Kisambo) is restricted to a few hilly areas in Coast Province. *E. powysorum* is restricted to a single locality in Eastern Province. *E. tengulaneus* (**Samburu:** Lpision) is found in dry mountain valleys in a few places in Rift Valley Province. As all these plants are potential ornamentals and have a limited range, they stand to be among the most threatened plants in Kenya.

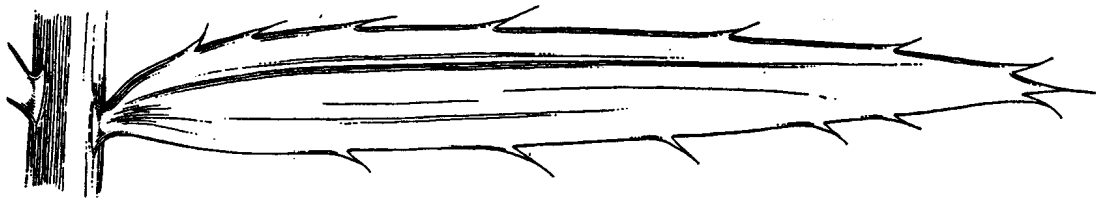




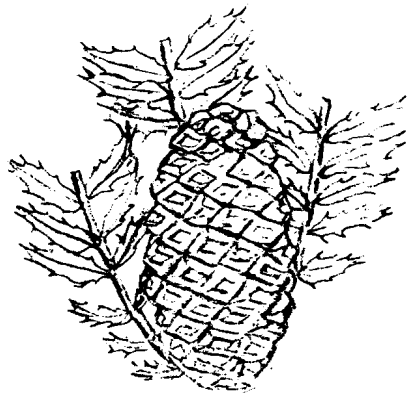
Encephalartos hildebrandtii (cont)

There is worldwide control on removing cycads from their natural habitat with strict legislation enforced in many countries to safeguard their long-term well-being.

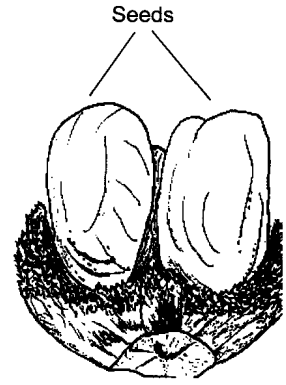
FURTHER READING: Beentje, 1994; Blundell, 1987; Dharani, 2002; Katende et al., 1995; Noad and Birnie, 1989; Ruffo et al., 2002.

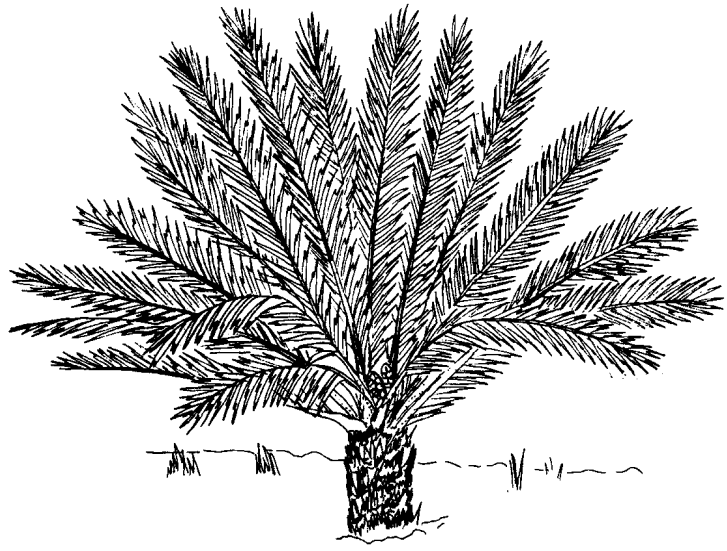


One leaflet



Female cone





Young tree

Ensete ventricosum (*E. edule*)

Musaceae

Indigenous

COMMON NAMES: **English:** Wild banana; **Kamba:** Ikulutui; **Kikuyu:** Ihindu; **Kipsigis:** Sasuriet; **Kisii:** Getembe; **Maasai:** Olmusalala; **Marakwet:** Sosurwa; **Meru:** Gikobo, Mukoko; **Nandi:** Sasuriet; **Taita:** Isengeru.

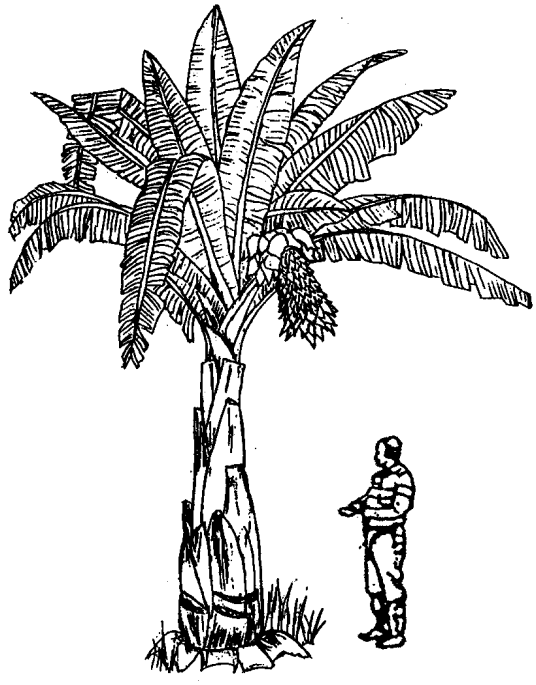
DESCRIPTION: **A leafy herb 6–12 m, swollen below,** the 'false stem' (pseudostem) is formed by the leaf bases. LEAVES: **Large leaves** grow in spirals, each one to **6 m long and 1 m wide, bright green** with a **thick pink-red midrib** and a short red stalk. The leaf blades tear with age. FLOWERS: In **large hanging heads 2–3 m long,** the white flowers with 1 petal protected by **large dark red bracts,** 5 stamens produce sticky pollen. FRUIT: Although the small yellow clusters look like normal bananas they are not edible. Each leathery fruit, about 9 cm long, contains many hard seeds, brown-black, to 2 cm long with only a thin layer of pulp. **The whole plant dies back after fruiting.**

ECOLOGY: Like the common banana, this fleshy tree is a giant herb. It also grows in Cameroon, Central Africa and Sudan south to South Africa. In Kenya it is widespread in highland areas such as Loita, Saiwa Swamp, Kericho Highlands, Kasigau Hill and Kilungu Hills. It grows in wet upland valleys and ravines and along streams in the forests of lower mountain slopes; 1,000–2,400 m. Agroclimatic Zones II–III.

USES: Medicine (pseudostem), fodder (pseudostem), shade, ornamental, thatch (leaves), fibre (midrib of leaf), dye (pseudostem), decoration (seeds for beads), wrapping material (leaves).

PROPAGATION: Wildings and seedlings; produces suckers that can be used for propagation.

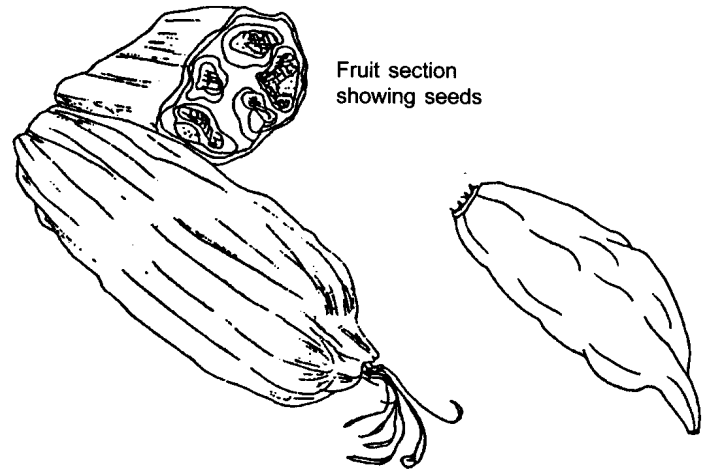
SEED: Seeds are contained in the finger-like fruit and on ripening they are set free. Usually high germination rate. Sow seed in pots.
treatment: No treatment.
storage: If needed, store seed in sealed containers in a cool place.

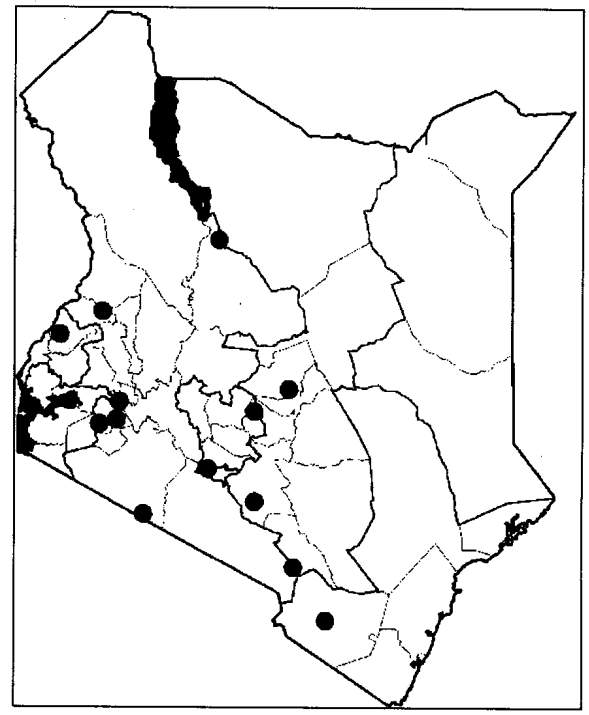


MANAGEMENT: Fast growing.

REMARKS: *Ensete* differs from *Musa*, the true banana, in the terminal head of flowers, its large seeds and by dying after fruiting. The leaf blades make a good durable thatch and the midrib a strong fibre for rope or sacking. Pollination is commonly brought about by bats transferring the sticky pollen. Plant as single trees in the compound. The seeds are used as decorative strings. This plant is commonly seen as an ornamental in urban areas. It has been cultivated in south-western Ethiopia for thousands of years to produce a starchy product from the pseudostem, corms and stem of flowering branches. The product, which is obtained after fermentation in a pit, is made into a kind of pancake, bread and porridge.

FURTHER READING: Beentje, 1994; Bekele-Tesemma et al., 1993; Dharani, 2002; Katende et al., 1995; Kokwaro, 1993; Noad and Birnie, 1989; Palgrave and Palgrave, 2002; Ruffo et al., 2002; Sommerlatte and Sommerlatte, 1990.





Entada abyssinica

Fabaceae (Mimosaceae)

Indigenous

COMMON NAMES: **Luhya:** Musembe; **Luhya (Bukusu):** Kumusembe; **Luo:** Osembe; **Nandi:** Katutet, Mashembut, Mushembut; **Sabaot:** Mushembut, Musiembu.

DESCRIPTION: A small deciduous tree 3–10 m, with a **dense leafy spreading crown and large conspicuous pods** often remaining on the tree for a long time. BARK: Grey-brown, rough or smooth. LEAVES: Compound, feathery and acacia-like with 4–22 pairs of pinnae and **very many leaflets,** each narrow and up to 1 cm long, tip rounded. FLOWERS: Small, **cream–white–yellow, in fluffy spikes** up to 14 cm long, sweet scented. FRUIT: Woody pods both long and wide to 39 x 10 cm, almost straight. The central sections, each containing one seed, break away from the woody rim leaving **a pod skeleton on the tree.** About **10 papery winged seeds.**

ECOLOGY: A small tree of woodland and wooded grassland, widespread in Africa from Sierra Leone to Eritrea and south to Angola. Common in the Rift Valley and Western Provinces on grassy hillsides. A common tree in cropland in western Kenya; 400–2,300 m. Agroclimatic Zones II. Flowers in March–May and seeds in November–February in Bungoma.

USES: Firewood, medicine (roots, bark, leaves), bee forage, shade, ornamental, mulch, nitrogen-fixing, soil improvement, ceremonial.

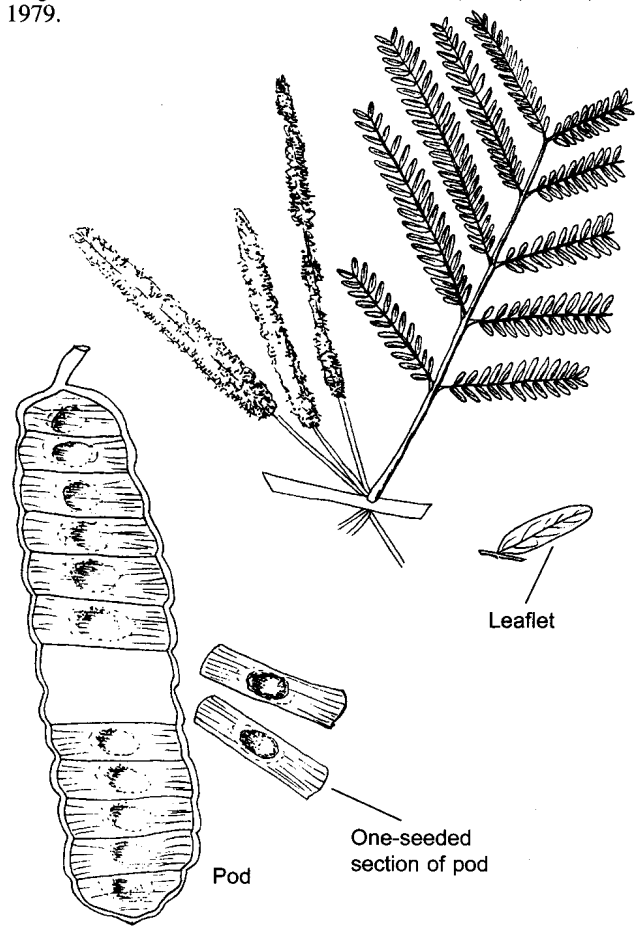
PROPAGATION: Seedlings.

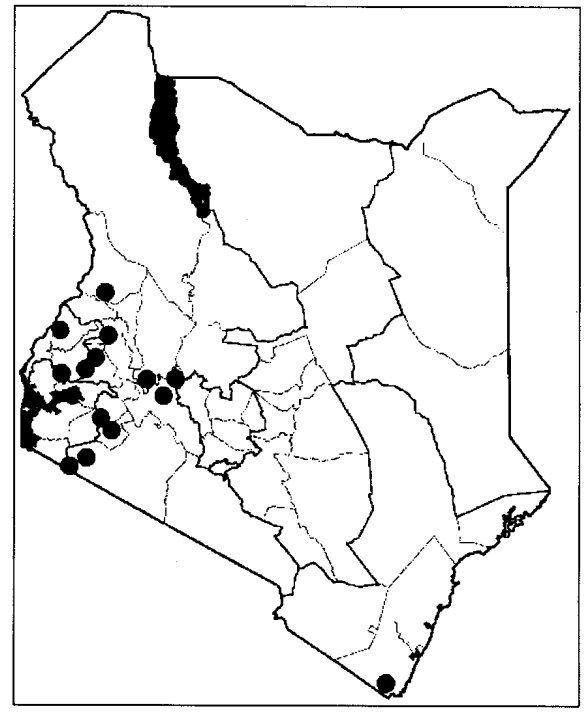
SEED: 3,600–4,200 seeds per kg. Germination 60–100%.
treatment: Not necessary.
storage: Can be stored, but best to use fresh seed.

MANAGEMENT: Fast growing on good sites; pollarding, coppicing.

REMARKS: The tree has a pale brown occasionally pink-tinged heartwood and is moderately light and easy to work but is rarely used. This is the only tree *Entada* in Kenya; the other 3 are all climbers that are commonly seen covering trees. The most widespread of them is *E. leptostachya* (**Boran:** Hundad; **Kamba:** Mwaitha; **Samburu:** Ldalampo; **Somali:** Kobagor; **Swahili:** Mgambari), commonly found in the drier parts of the country, often climbing on acacias. It is widely used as a medicinal plant and the stems as a source of fibre. *E. rheedii* is restricted to evergreen forests at the coast. The giant pods can be up to 1.5 m long. At the coast its seeds are often seen drifting in sea water. Seeds are often collected as ornamentals.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Backes and Ahenda, 1998; Beentje, 1994; Bein et al., 1996; Bekele-Tesemma et al., 1993; Katende et al., 1995; Kokwaro, 1993; Mbuya et al., 1994; Palgrave and Palgrave, 2002; Sommerlatte and Sommerlatte, 1990; Storrs, 1979.





Eriobotrya japonica Rosaceae

China, Japan

COMMON NAMES: **English:** Loquat; **Kamba:** Kitunda; **Kikuyu:** Minoria, Murungati haru, Muburuti; **Kisii:** Ekeragwati; **Luhya:** Lqogat; **Luo:** Musabibu.

DESCRIPTION: A dense evergreen shrub or **small tree to 7 m, branching close to the ground.** BARK: Grey and rough, young stems hairy. LEAVES: Stalkless, **dark green, shiny above, woolly hairs below,** about 35 cm long, the tip pointed and the edge prickly, toothed, young leaves paler, foliage in **upward-pointing tufts.** FLOWERS: **Cream-white, scented,** in pyramidal heads at the end of branches, each flower 2 cm across, flower **buds covered with golden-brown hairs.** FRUIT: In loose clusters, **yellow, egg-shaped,** usually 2–7 cm long, acid-sweet flesh around a few large brown-black seeds.

ECOLOGY: A small evergreen tree very widely planted in its native China, Japan and northern India, and also in the Mediterranean. Now doing well in the Kenya highlands, 1,500–2,400 m. It is a common tree in Nairobi and Central and Western Provinces. Drought resistant once established, but prefers moderate to heavy rainfall. Agroclimatic Zones II–III.

USES: Firewood, charcoal, poles, carvings, food (edible fruit, jam, jelly, syrup), bee forage, shade, ornamental, mulch, windbreak.

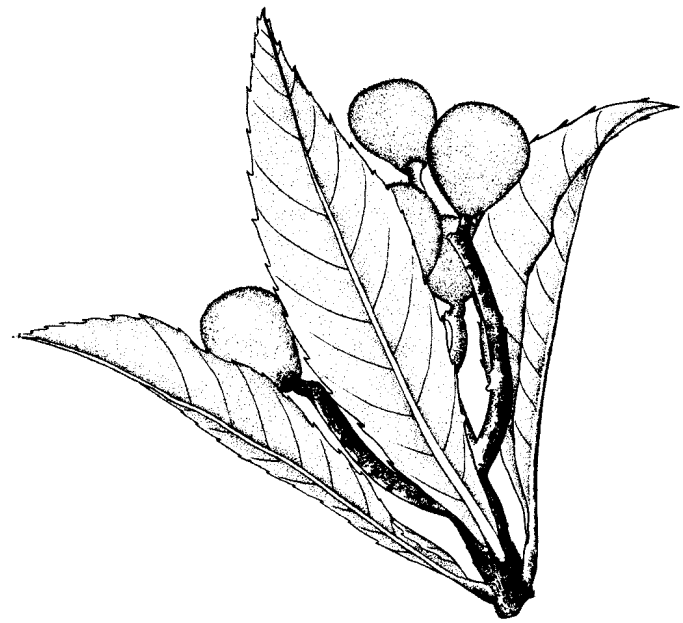
PROPAGATION: Direct sowing at site, seedlings (sow seed in pots), wildings. Root development is quite fast, so good to sow directly at site. Sow 2–3 cm deep. Grafted trees are available; they make stronger growth, remain smaller but mature and produce fruit faster. Such improved varieties can be multiplied by air layering as well as T-budding and grafting. Healthy loquat seedlings can be used as root-stock.

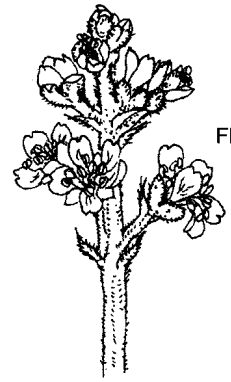
SEED: 400–600 seeds per kg. The seeds should not be dried (recalcitrant). Fresh seeds germinate well and fast.
treatment: Not necessary.
storage: Seed does not store well. Use fresh seed.

MANAGEMENT: Fairly fast growing, pruning.

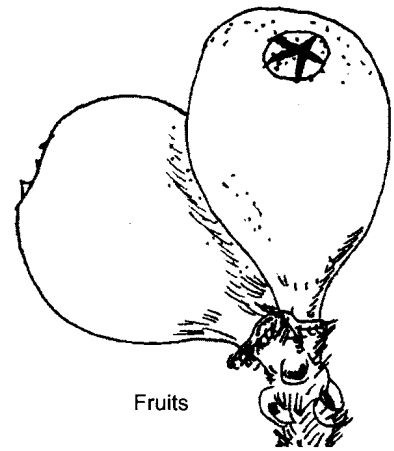
REMARKS: The fruit is juicy with a sweet–acid taste. Seeds should be discarded as they are reportedly poisonous.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Bein et al., 1996; Bekele-Tesemma et al., 1993; Dharani, 2002; Fichtl and Adi, 1994; Katende et al., 1995; Mbuya et al., 1994; Noad and Birnie, 1989; Verheij and Coronel, 1991.





Flowering branch



Fruits

Erythrina abyssinica

Fabaceae (Papilionaceae)

Indigenous

COMMON NAMES: **Duruma:** Mgalla; **English:**, Abyssinian coral tree, Red-hot-poker tree; **Kamba:** Muvuti; **Kikuyu:** Muhuti; **Kipsigis:** Kogoruet; **Kisii:** Omotembe; **Luhya:** Murembe, Omotembe, Omurembe; **Luhya (Bukusu):** Kumurembe, Kumurukuru; **Luo:** Murembe, Mrembe, Orembe; **Maasai:** Olepangi, Oloponi, Enkoponi; **Meru:** Muuti; **Nandi:** Kakaruet, Kagaruet; **Pokot:** Karkar (plural), Korkorwo; **Sabaot:** Kaborte; **Samburu:** Garacha; **Swahili:** Mbambangoma, Mwambangoma; **Taita:** Mulungu.

DESCRIPTION: A deciduous tree with a short trunk, thick spreading branches and a rounded crown, 6–12 m. BARK: Deeply grooved, brown, thick and corky, with or without woody spines. LEAVES: Compound with 3 leaflets, **largest leaflet rounded to 15 cm;** branchlets and underside of leaves covered with **grey-brown hairs, veins and stalks sometimes prickly.** FLOWERS: **Orange-red heads,** often appearing on the bare tree. Both narrow calyx lobes and petals are coloured, each flower to 5 cm long. FRUIT: Woody pods, 4–16 cm long, hairy, strongly narrowed between seeds, opening to set free 1–10 **shiny red seeds** with a grey-black patch.

ECOLOGY: A small thorny tree found all over Africa in warm temperate and tropical areas, as well as in Central America, Australia, southern Asia and Hawaii. Found in many parts of Kenya in open woodland or grassland, but not in very dry or high-altitude areas. Distributed in the coastal hills, 300–450 m and in inland areas, 900–2,250 m. Agroclimatic Zones II–V. Flowers in January–March and seeds in June–July in Trans Nzoia and Uasin Gishu Districts and in Western and Nyanza Provinces.

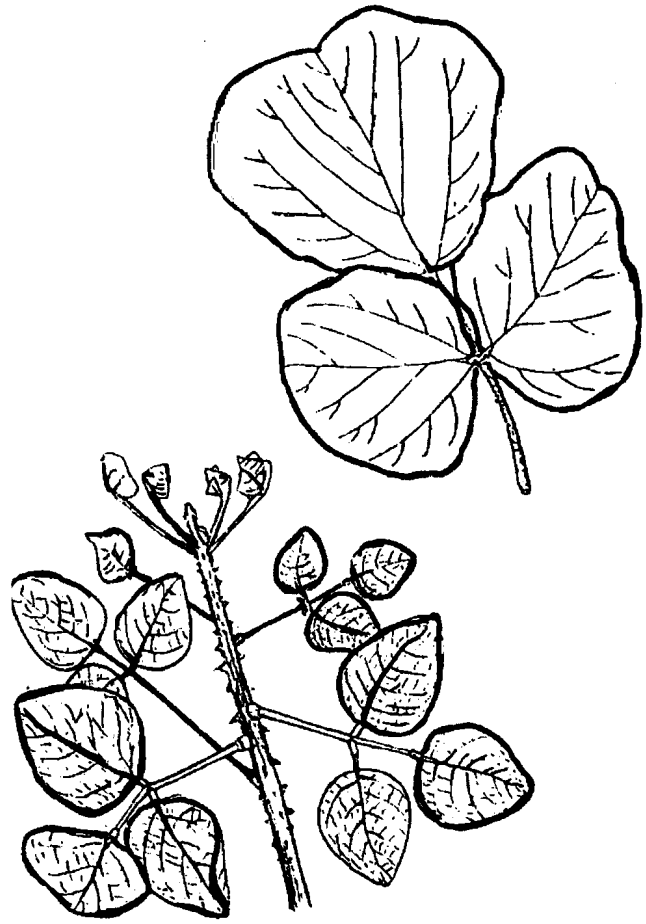
USES: Firewood, timber (doors), furniture (stools), beehives, carving, utensils (mortars, drums), medicine (bark and roots), bee forage, ornamental, mulch, nitrogen-fixing, soil conservation, veterinary medicine, ceremonial, necklaces and curios (from seeds).

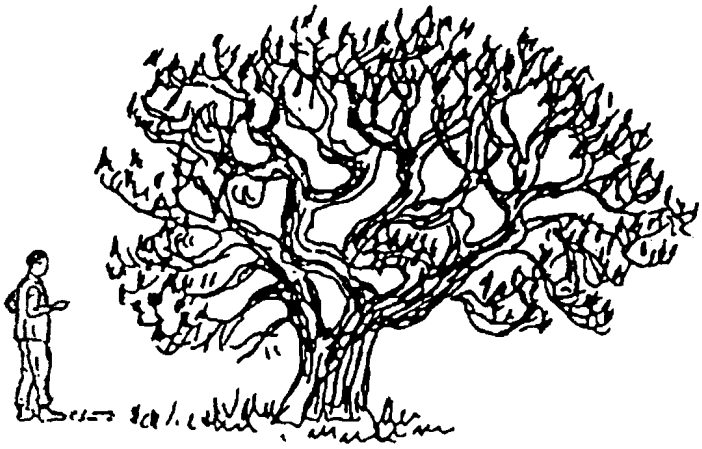
PROPAGATION: Seedlings. May also grow from cuttings, but raising seedlings is easy.

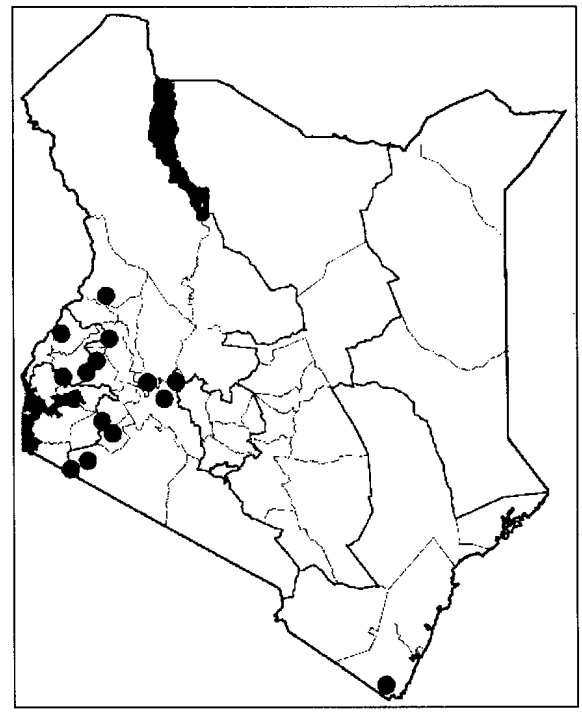
SEED: Low germination rate (10–30%), but it is easy to collect seed; 6,500–6,800 seeds per kg.
treatment: Not necessary, but nicking may improve germination.
storage: Seed can be stored for long periods.

MANAGEMENT: Slow growing; pollarding.

REMARKS: In the Luo community the tree is associated with evil spirits and therefore not planted in homesteads or left in farmland. The seeds are said to be poisonous. It tolerates fire and is fairly termite resistant. The genus *Erythrina* is easily distinguished by the 3 leaflets, spiny stems and leaves and bright red or orange flowers, which



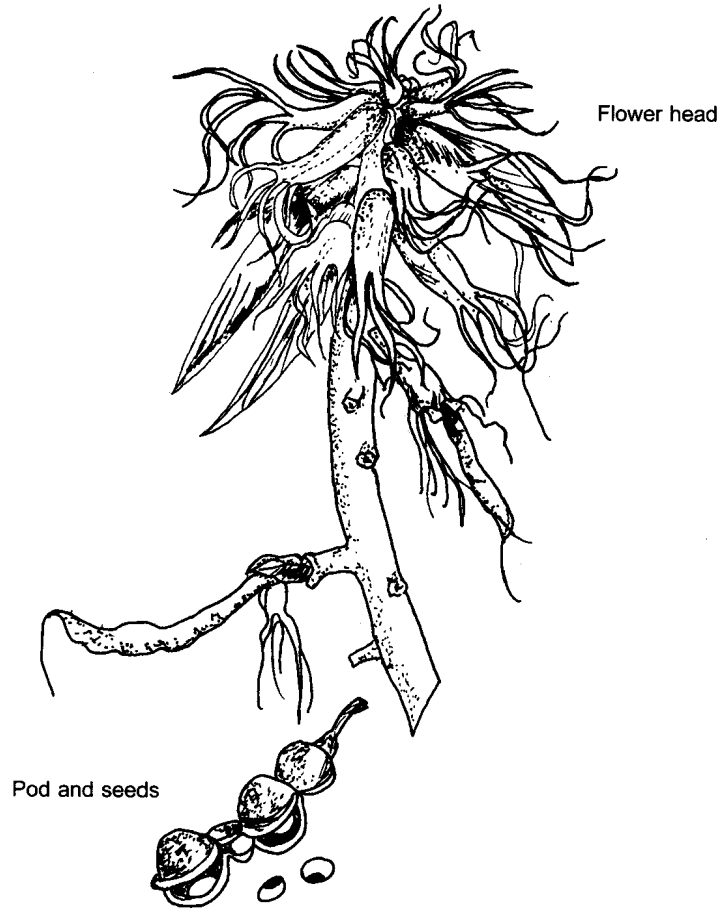




Erythrina abyssinica (cont)

are mainly bird pollinated. A number are Asian and African, but the majority are found in the Americas. Of the 5 species of *Erythrina* occurring in the wild in Kenya, *E. abyssinica* is the most widely distributed and well covered in the literature. At the other extreme, *E. excelsa* (**Luo:** Yuma, Yuoma, Roko) is known only from Kisii and Migori Districts. *E. sacleuxii* (**Bajun:** Mbembakoshi, Buruu; **Boni:** Vugu; **Duruma:** Mgala; **Giriama:** Mulungu; **Swahili:** Mbambangoma, Mdundungoma) is restricted to the coastal zone. Like the other members of the genus it can be a large deciduous tree to 20 m high. The bark is smooth but ridged and covered with corky bosses with a spine at the tip. Branches are spiny. Leaflets are large, to 20 cm long, and almost as long as wide, softly hairy when young but hairless at maturity. Flowers are red, in dense heads, and the fruit is much constricted between the seeds. Found at the coast, but often grown as an ornamental. The trunk is used for making drums.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Backes and Ahenda, 1998; Beentje, 1994; Bein et al., 1996; Bekele-Tesemma et al., 1993; Blundell, 1987; Dharani, 2002; Fichtl and Adi, 1994; ITDG and IIRR, 1996; Katende et al., 1995; Kokwaro, 1993; Mbuya et al., 1994; Noad and Birnie, 1989; Palgrave and Palgrave, 2002; Sommerlatte and Sommerlatte, 1990; Storrs, 1979.



Erythrina burtii

Fabaceae (Papilionaceae)

Indigenous

COMMON NAMES: **Kamba:** Muusi, Kikunguu; **Maasai:** Engaroji.

DESCRIPTION: A deciduous tree 5–15 m tall with a flat crown. **Trunk and branches stout**. BARK: Thick, deeply fissured, with large **raised bosses, each with a spine at the tip; branches spiny**. LEAVES: Compound, with 3 leaflets, often on short shoots; leaflets round, or slightly long but widest in the middle or towards the tip, which may be rounded or indented, often **less than 5 cm across, smooth**. FLOWERS: Red, in dense erect **heads up to 9 cm long**, often appearing when the plant is leafless. FRUIT: Straight or curved pods, 6–9 cm long, somewhat papery, **not constricted**; seeds orange or red.

ECOLOGY: Found in Tanzania and Kenya; occurring in wooded or bushed grassland, often in *Acacia–Commiphora* bushland in southern, eastern and northern Kenya, 950–1,750 m. Common near Kajiado town and around Lukenya and Katumani in Machakos District. Usually found in well-drained, often rocky ground. Agroclimatic Zones IV–V.

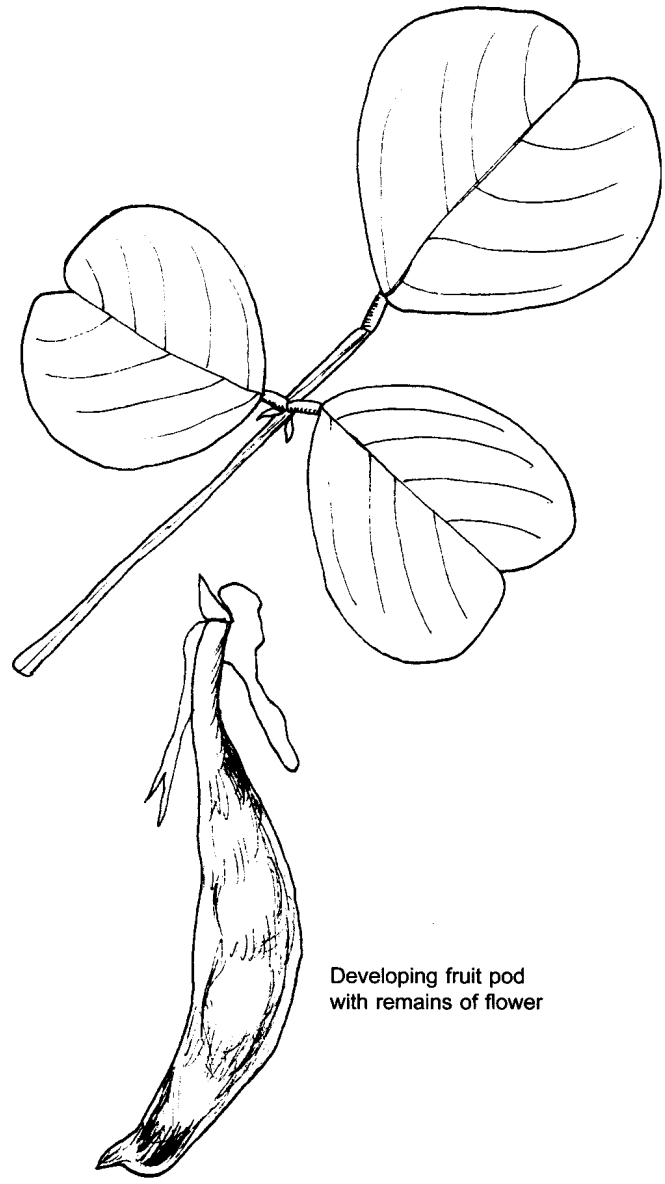
USES: Furniture (stools), utensils (camel bells), shade, nitrogen-fixing.

PROPAGATION: Seedlings.

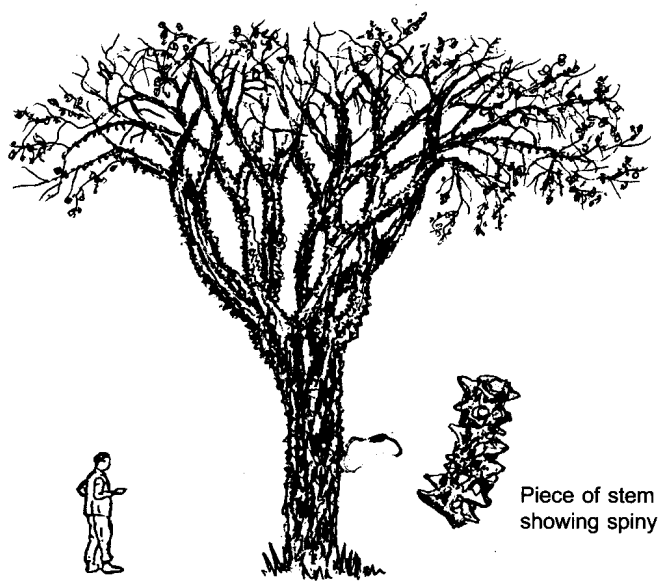
MANAGEMENT: Pollarding, coppicing.

REMARKS: This is a common plant in the drier areas, where it may be the most conspicuous tree due to its large size and umbrella shape.

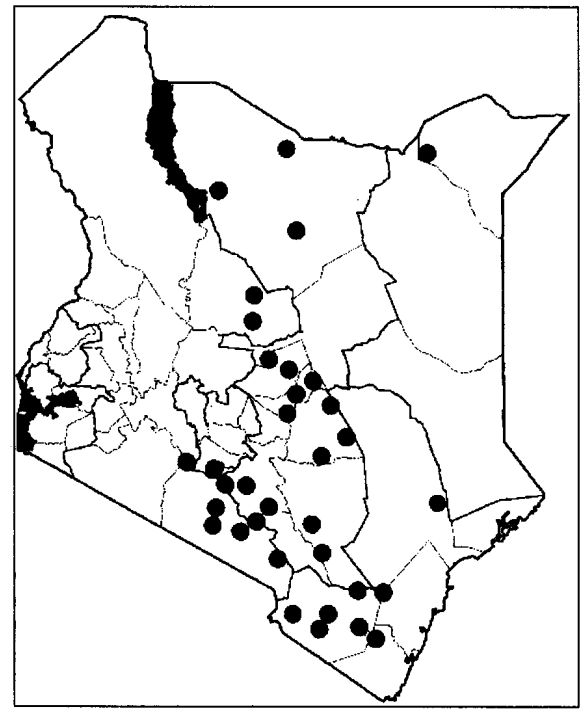
FURTHER READING: Beentje, 1994; Blundell, 1987; Dharani, 2002.



Developing fruit pod with remains of flower



Piece of stem showing spiny bark



Erythrina melanacantha

Fabaceae (Papilionaceae)

Indigenous

COMMON NAMES: Boran: Walena, Walensu; **Embu:** Mukunguu; **Gabra:** Waleena; **Ilchamus:** Nyala za sibha; **Kikuyu:** Mukunguu; **Meru:** Mukunguu; **Orma:** Woles; **Pokomo:** Kitweo; **Samburu:** Mnorotshi; **Somali:** Bura; **Wardei:** Bura.

DESCRIPTION: A much-branched deciduous tree to 12 m high. BARK: Thick with large **spine-tipped bosses**. Branches armed with black prickles. LEAVES: Compound with 3 leaflets, the terminal leaflet the largest. Leaflets **up to 9 x 12 cm**, rounded or widest at the middle or beyond the middle towards the tip, which may be rounded or slightly notched. **Undersides of the leaves covered with soft hairs**. FLOWERS: Bright red, in erect heads about 25 cm long, appearing when the tree is almost leafless. FRUIT: A **curved pod** without constrictions, **up to 30 cm** long, slightly winged on the lower side, with a few bean-like seeds.

ECOLOGY: This species is found mainly in the semi-arid lands of northern and eastern Kenya; often in *Acacia–Commiphora* bushland or *Acacia– Combretum* bush or woodland and often near luggas; 300–1,300 m. It is planted in farmland along rivers. Common over 600 m in northern Kenya and often in loamy sediment soils. Agroclimatic Zones V–VI.

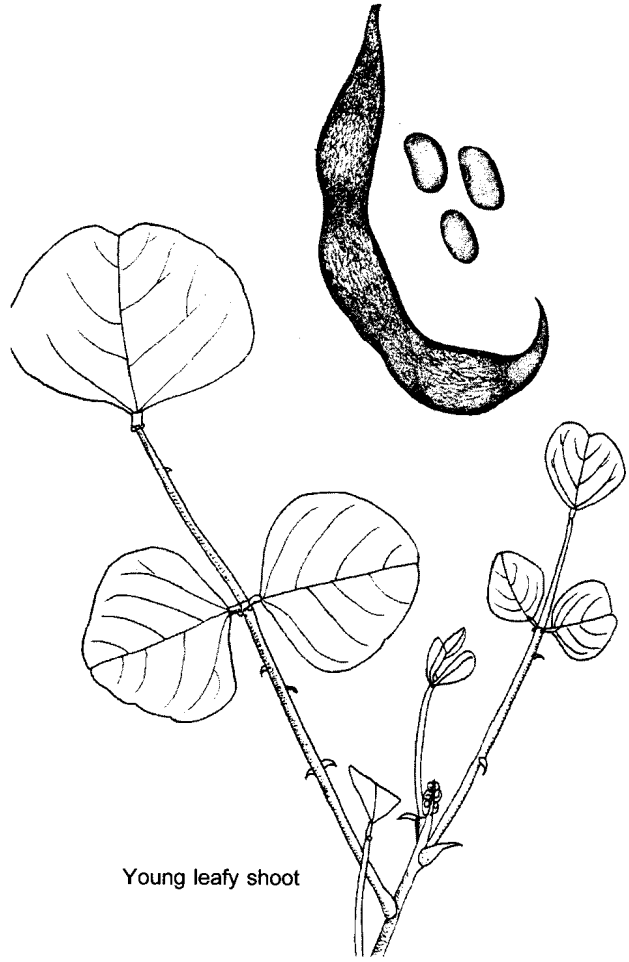
USES: Furniture (stools), utensils (containers, headrests, etc.), fodder, shade, ornamental, nitrogen-fixing.

PROPAGATION: Seedlings.

MANAGEMENT: Pollarding.

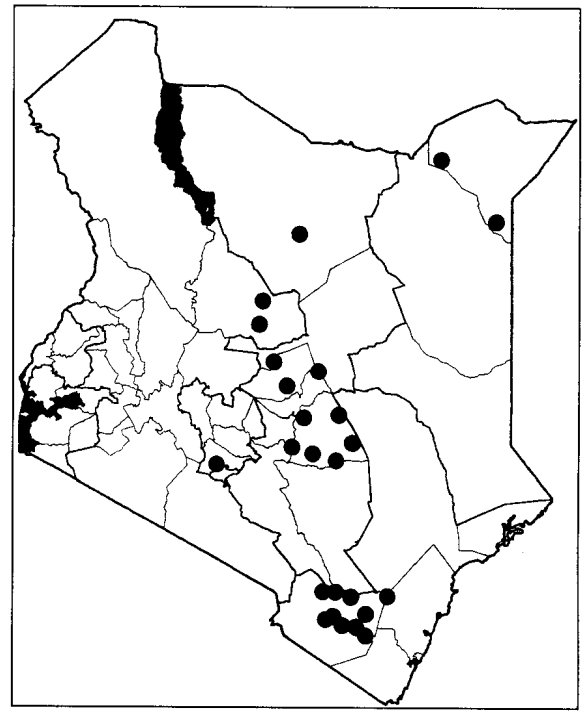
REMARKS: *Erythrina melanacantha* is restricted to drier areas and can easily be recognized by its large size and often flat top. It is highly valued for its soft and multipurpose wood, which is carved into utensils and stools. It is one of the most valuable plants in Mandera District. The wood is used for making milk and water containers, local chairs and all utensils that the nomads require. The Pokot make headrests of this wood. Holes in the tree retain water for many years, which is used in very dry seasons by pastoralists. It often grows at a lower altitude and in drier climates than *E. burtii*. Bura town is said to have been named after the Somali name for this tree.

FURTHER READING: Beentje, 1994.



Young leafy shoot

Bark with spine-tipped bosses



Eucalyptus camaldulensis (E. rostrata)

Myrtaceae

Eastern Australia

COMMON NAMES: **English:** River red gum; **Kamba:** Musanduku; **Kikuyu:** Mubau, Munyua mai; **Luo:** Bao, Bap kaladali, Bawo.

DESCRIPTION: A tall evergreen tree to 30 m, **deeply branched** but also with a long straight bole. BARK: White to brown, **thin and peeling in long strips;** when cut it exudes **red gum.** LEAVES: Grey-blue, long and drooping, to 30 cm. FLOWERS: White clusters, short **conical bud caps.** FRUIT: Very small rounded capsules on thin stalks, each less than 1 cm, 4 valves.

ECOLOGY: Widely distributed in its native Australia and one of the first *Eucalyptus* spp. used elsewhere, both in the Mediterranean and the tropics. Planted in Africa since around 1900, it does well in semi-arid regions and tolerates a long dry season as well as some salinity. Also planted in coastal plantations and in deep silt or clay soil, 0–1,600 m. Agroclimatic Zones II–IV.

USES: Firewood, charcoal, timber (construction, pulpwood), poles, posts, bee forage, shade, ornamental, windbreak, swamp reclamation, tannin, dye, essential oil.

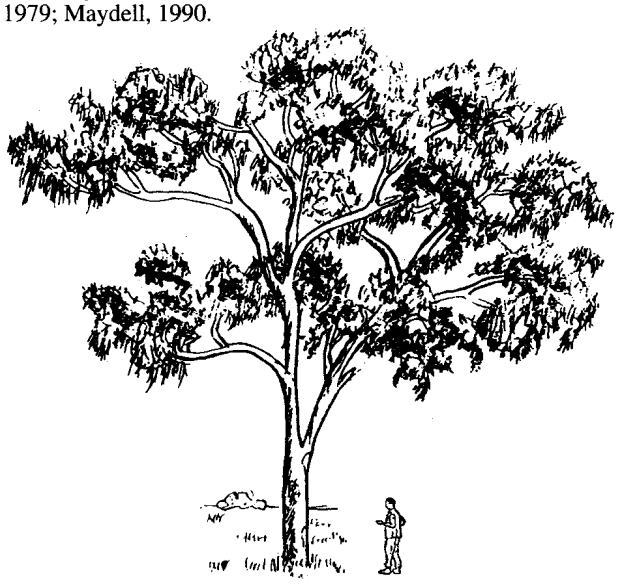
PROPAGATION: Seedlings, direct sowing at site.

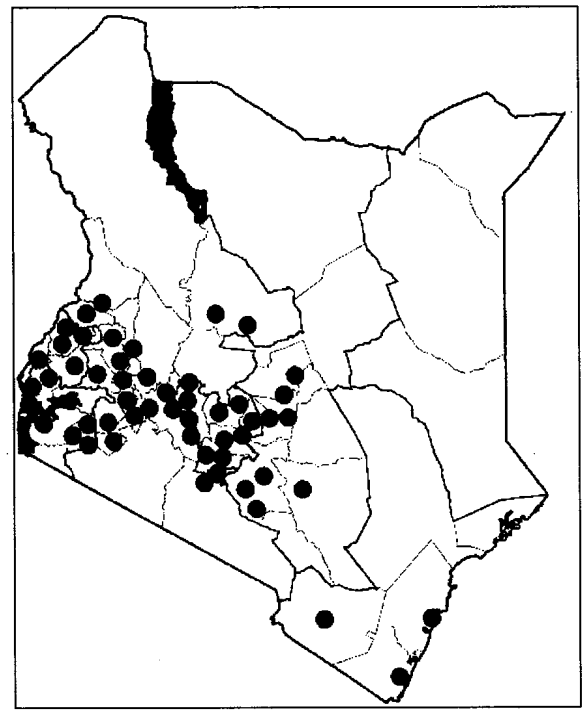
SEED: About 2,200,000 seeds per kg. Germination: 15–40%, from 3 days and completed after 13 days in good conditions.
treatment: Not necessary.
storage: Seed can be stored for long periods.

MANAGEMENT: Fast growing. Most trees coppice, although not all; pollarding.

REMARKS: The red heartwood of *E. camaldulensis* is hard, durable and relatively termite resistant. Young trees require protection from termites. The species was first introduced to Kenya primarily for supply of firewood for the railways. Do not plant near crops. Among the eucalypts common in Kenya, this is the one best suited for dry areas.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Albrecht, 1993; Bein et al., 1996; Bekele-Tesemma et al., 1993; Fichtl and Adi, 1994; Jensen, 1999; Katende et al., 1995; Mbuya et al., 1994; National Academy of Sciences, 1980; Noad and Birnie, 1989; von Storrs, 1979; Maydell, 1990.





Eucalyptus globulus

Myrtaceae

South-east Australia

COMMON NAMES: English: Tasmanian blue gum; **Kikuyu:** Mubau, Munyua mai, Muringamu; **Luo:** Bao, Bap kaladali, Bawo.

DESCRIPTION: A tall tree to 55 m, but usually much smaller; rather narrow, the crown rounded and open, the main stems straight. BARK: **Blue-grey, smooth** peeling in long strips, rough at the base. LEAVES: **Young leaves,** opposite, oval, **blue-grey, without stalks** and mature leaves deep blue-green, **very long and thin to 30 cm, slightly curved,** stalked, smelling of camphor if crushed, tip sharp. FLOWERS: Buds **grey-green, wrinkled, 2.5 cm,** usually one, rarely 2 or 3 white flowers to 4 cm across. FRUIT: Woody, half spheres, rough, **3 cm across,** no stalks.

ECOLOGY: Grows in the cooler and wetter parts of south-east Australia and Tasmania. It is the preferred gum tree in plantations around Elburgon and Njoro. A eucalypt for high-altitude areas, even tolerating frost. Agroclimatic Zones I–IV.

USES: Firewood, charcoal, timber (heavy and light construction, pulpwood), poles, posts, veneer, medicine, bee forage, windbreak, essential oil.

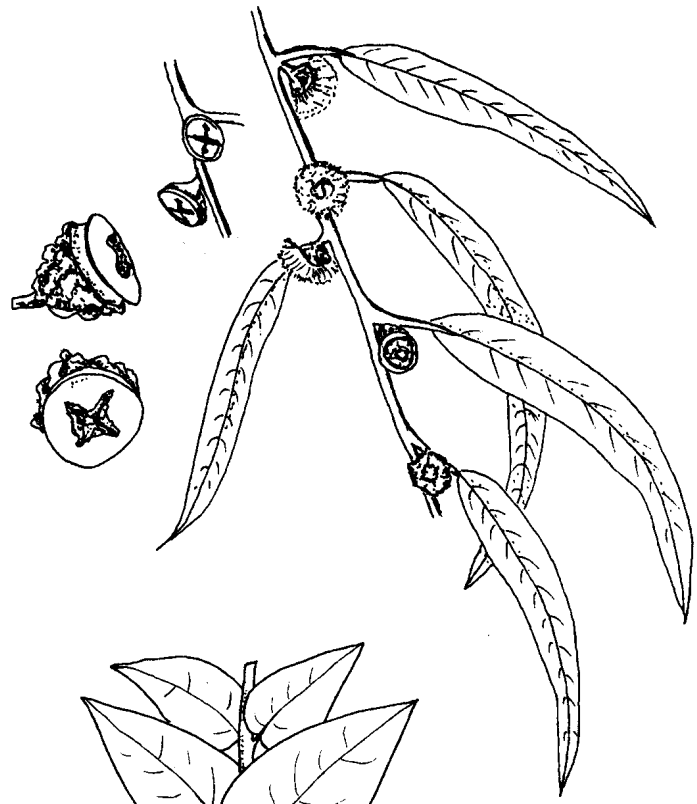
PROPAGATION: Seedlings, direct sowing at site.

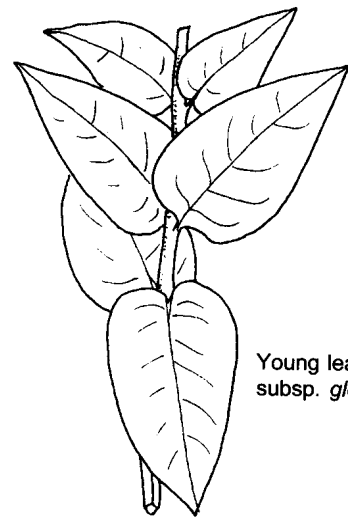
SEED: On average about 62,000 seeds per kg. Germination 35–80% within 4–15 days.
treatment: Not necessary.
storage: Seed can be stored for long periods.

MANAGEMENT: Fast growing, coppices very well.

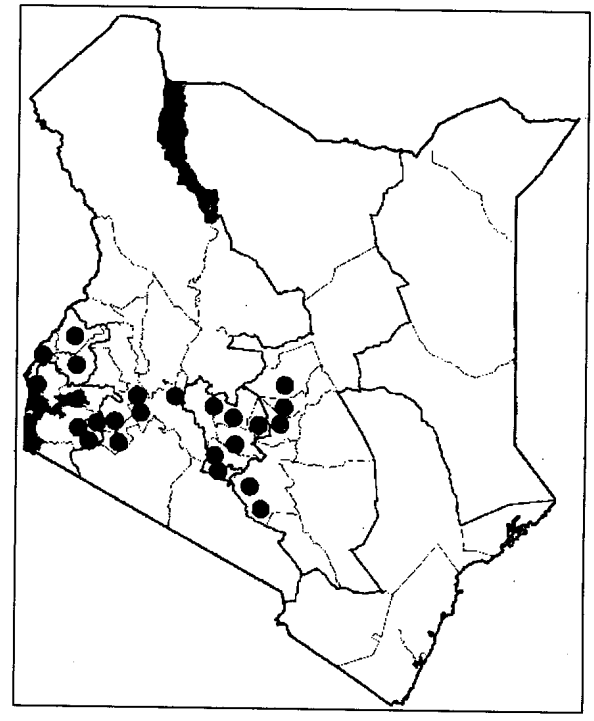
REMARKS: The young blue-grey leaves of this species produce a pale yellow oil that has been used in pharmaceutical products, perfumery and soap making. The light yellowish brown heartwood is hard, heavy, strong and moderately durable. In some places it is liable to attack by beetles. Do not plant near crops or buildings because of its strong and vigorous root system. There are several subspecies.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Albrecht, 1993; Bein et al., 1996; Bekele-Tesemma et al., 1993; Dharani, 2002; Fichtl and Adi, 1994; Katende et al., 1995; Lötschert and Beese, 1983; Mbuya et al., 1994; National Academy of Sciences, 1980; Noad and Birnie, 1989.





Young leaves of subsp. *globulus*



Eucalyptus saligna

Myrtaceae

Coastal eastern Australia

COMMON NAMES: **English:** Sydney blue gum; **Kamba:** Musilikina; **Kikuyu:** Mubau, Munyua mai, Muringamu; **Kisii:** Omoringarnu; **Luo:** Bao, Bap kaladali, Bawo; **Swahili:** Mtimbao.

DESCRIPTION: A tall tree, usually 40–50 m, but may reach 60–70 m, the crown irregular to rounded, the trunk straight and up to 1.5 m across, this width continued up to 2/3 of the tree's height. BARK: Appearing white from a distance; near the base of old trunks grey–brown, **rough with thick ridges,** peeling in strips from about 4 m up the trunk to reveal **smooth, blue-white**-green surface. LEAVES: Long and thin to a **pointed tip, curved to 20 cm**, to 3 cm across, dull green, paler below, the flat stalks 1–2 cm, yellow-pink. FLOWERS: Small and white, 3–4 buds in a group (smaller than *E. grandis*). FRUIT: Capsules dark brown, in groups of 4–8, each only 5–6 mm, tapering suddenly at the base to a clear stalk 5–6 mm (smaller and more delicate than in *E. grandis*). **Capsule teeth usually 3–4, same colour as cup, tips sharp-pointed, straight or spreading.**

ECOLOGY: *E. saligna* is widely planted in the tropics from Brazil to Hawaii, eastern and South Africa as well as in Asia, and even on New Zealand. In Kenya, it is the dominant gum grown in the highlands, 1,200–2,400 m. It will grow in all but arid areas or those infested by termites. Agroclimatic Zones I–III.

USES: Firewood, charcoal, timber (construction, pulpwood), furniture, poles, posts, veneer, medicine, bee forage, shade, windbreak, veterinary medicine.

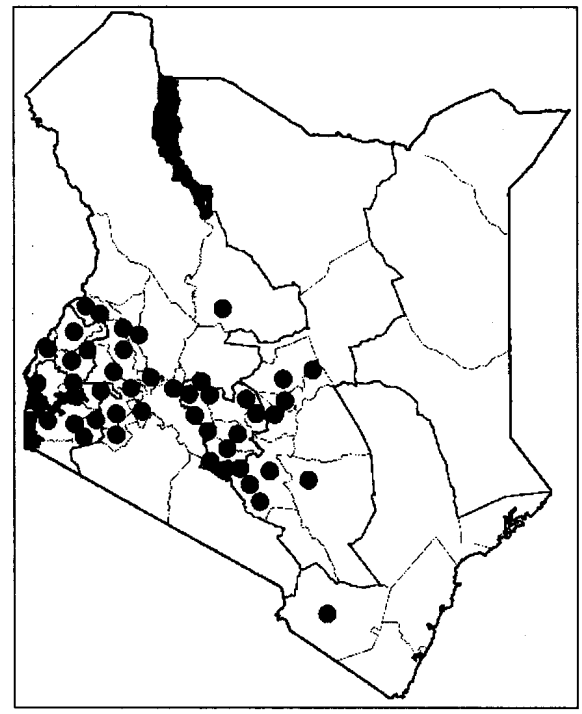
PROPAGATION: Seedlings, direct sowing at site.

SEED: The tree is a prolific seeder. On average 3,000,000 seeds per kg. Germination rate 30–70%.
treatment: Not necessary.
storage: Seed can be stored for long periods.

MANAGEMENT: Very fast growing on good sites; coppices very well.

REMARKS: The species should not be planted near crops as yields are adversely affected. A good tree for woodlots. *E. saligna* is often confused with *E. grandis*. The 2 species are closely related taxonomically and are superficially similar in appearance. However, the fruit valves of *E. saligna* protrude and curve outwards. Tea factories have preferred *E. grandis* because the timber can be cut in 10 years and the wood splits easily into firewood. The pink to red heartwood of *E. saligna* is moderately durable and easy to work.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Albrecht, 1993; Bekele-Tesemma et al., 1993; Dharani, 2002; Mbuya et al., 1994; National Academy of Sciences, 1979; Noad and Birnie, 1989.



Euclea divinorum

Ebenaceae

Indigenous

COMMON NAMES: English: Diamond-leaved euclea; **Kamba:** Mukinyai, Mukuthi (Mwala-Machakos), Nginyai (fruit); **Kikuyu:** Mukinyai, Mukinyei; **Kipsigis:** Usuet; **Luhya:** Muswa; **Luhya (Bukusu):** Kumuchanjaasi; **Luo:** Achondradoho, Akado, Ochol, Ochond radoho; **Maasai:** Olkinyei, Ilkinyei (plural), Osojo (Narok), Isojon (plural); **Mbeere:** Mukiinyi, Mukinyi; **Meru:** Mukiinyei, Mukirinyei; **Nandi:** Usuet; **Pokomo:** Munyiza; **Pokot:** Cheptuyis (plural), Cheptuya; **Sabaot:** Shiendet, Uswa, Wuswet, Cheptuishak; **Samburu:** Shinghe, Ilchinge, Lchinge; **Taita:** Mmbuku; **Teso:** Emus; **Tharaka:** Mukonde; **Tugen:** Uswet.

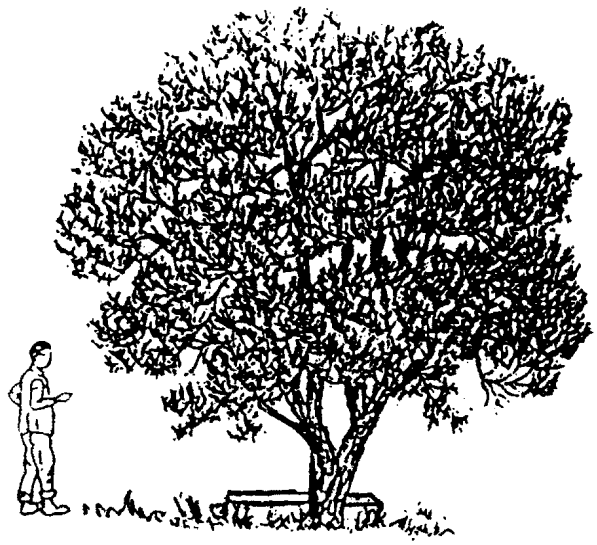
DESCRIPTION: An evergreen shrub, bush or small tree, usually 3–5 m, with dense foliage. BARK: Ash grey, darker, cracking and flaking with age. LEAVES: Mostly **opposite, but appear spiral**, dull green, stiff, long and narrowly oval to 8 cm, tip blunt, edge wavy, brownish **powdery scales below**. FLOWERS: Very **small, cream, sweet-scented**, in small sprays which persist on the tree. Male and female on separate trees. FRUIT: Small, round, **to 8 mm, green ripening purple-black** with thin edible flesh around the seeds.

ECOLOGY: A tree occurring from Sudan to southern Africa. Widely distributed throughout Kenya in subhumid and semi-arid bushland, woodland and disturbed dry upland forests, 0–2,500 m. Most common between 1,400 and 2,200 m. In lowlands, mainly found near watercourses and areas with groundwater, especially on black soil. Quickly becoming the dominant species after bush clearing, as on the Laikipia plateau and Loita highlands. Agroclimatic Zones II–V. Fruits in August in West Pokot.

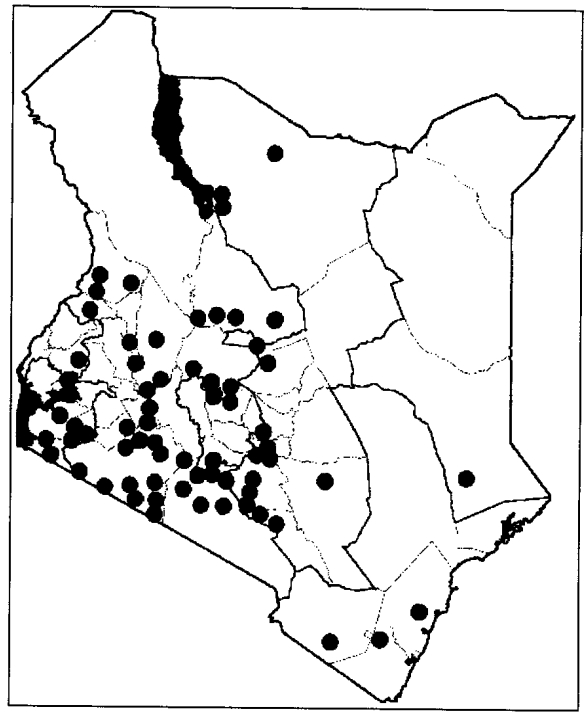
USES: Firewood, timber (construction), tool handles, walking sticks, edible fruit, soup (bark added as an appetizer), medicine (roots, bark and leaves), fodder, bee forage, shade, dye (roots and bark), ceremonial, toothbrushes, veterinary medicine.

PROPAGATION: Seedlings. Produces root suckers.

REMARKS: Root suckers grow up some distance from the tree. The wood is hard and close grained. *E. divinorum* is one of the most important medicinal plants. Ripe fruits have edible pulp. Bark is added to soup together with *Rhamnus prinoides* as an appetizer (Kipsigis, Maasai). The wood is hard but the timber usually small; used for building houses and grain stores. Branches used as toothbrushes (hence the Kikuyu and Mbeere names). The tree is used for ceremonies among the Pokot (regarded as a tree of peace) and the Tugen use the burning wood for smoking milk gourds. A closely related species is *E. racemosa* subsp. *schimperi* (syn. *E. schimperi*). This too has edible fruit and similar other uses. A black dye can be obtained from the roots. It is also common throughout the country. Another species, *E. natalensis*, has a mainly coastal distribution.



FURTHER READING: Backes and Ahenda, 1998; Beentje, 1994; Bekele-Tesemma et al., 1993 (*E. schimperi*); Dharani, 2002; ITDG and IIRR, 1996; Kokwaro, 1993; Maundu et al., 1999; Mbuya et al., 1994; Noad and Birnie, 1989; Palgrave and Palgrave, 2002.



Euphorbia candelabrum Euphorbiaceae

Indigenous

COMMON NAMES: **Boni:** Baraidi; **Boran:** Adama; **Digo:** Ganga; **Gabra:** Adama; **Giriama:** Kithongothongo; **Kamba:** Kyaa, Kithu; **Kikuyu:** Kithuri; **Luhya (Bukusu):** Kumutua; **Luo:** Bondo; **Maasai:** Olpopong'i; **Pokot:** Kresua; **Sanya:** Rorogithi.

DESCRIPTION: A tree up to 15 m, the trunk thick, to 3 m, where the lower branches have fallen away. Erect branches have **3–5 spiny ribs** or wings, and branches go on dividing to make a large round crown. The green-grey stems have many **narrow 'waists'** and have taken over the leaf function to make food. LEAVES: Mature plants have no true leaves, just scales. Seedlings have leaves. FLOWERS: Small, **green-yellow and fleshy in groups of 4–6** next to the paired spines. FRUIT: Green–red pea-sized capsules, seeds spotted with dirty white.

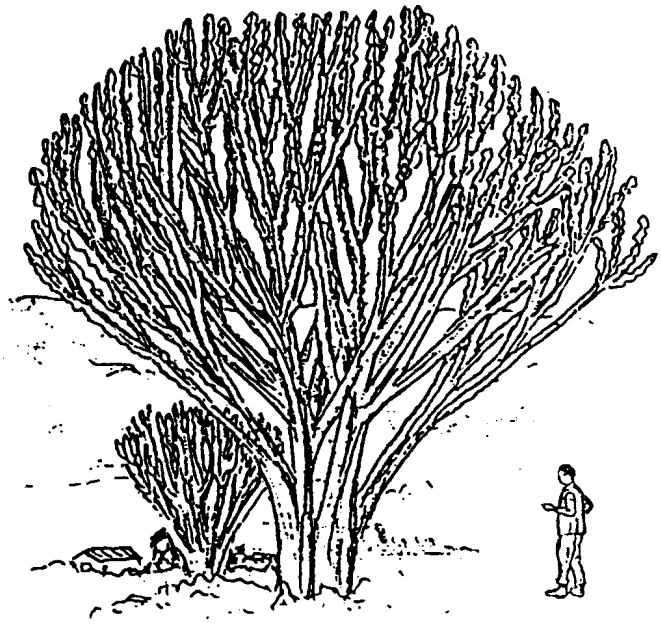
ECOLOGY: A characteristic tree in much of dryland Africa from Sudan, Ethiopia and Somalia south to Malawi and Zambia. In Kenya, it grows in both dry deciduous and evergreen woodlands, often on termite mounds, rocky hillsides and in thickets, 1,100–2,200 m. Tolerates sandy soil, clay soil and coral soil. Agroclimatic Zones IV–V. Flowers in November in western Kenya and Nyanza.

USES: Firewood, timber (roofing, doors), beehives, utensils (mortar), furniture, carvings, musical instruments, bee forage, glue (sap—but see 'remarks', below), live fence, shade, ceremonial, medicine, veterinary medicine, dry branches used to provide light (they burn for a long time).

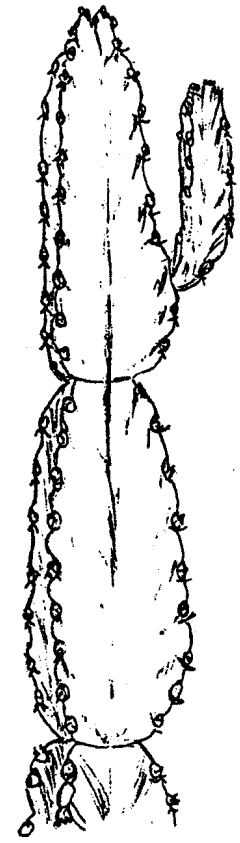
PROPAGATION: Easy to propagate by cuttings. Wildings often germinate where fruit drops.

SEED: Seeds are contained in a capsule with 3 chambers. The capsule splits open noisily and scatters the seeds, which germinate readily under mature trees or in thickets.
treatment: Not necessary.
storage: No need to store.

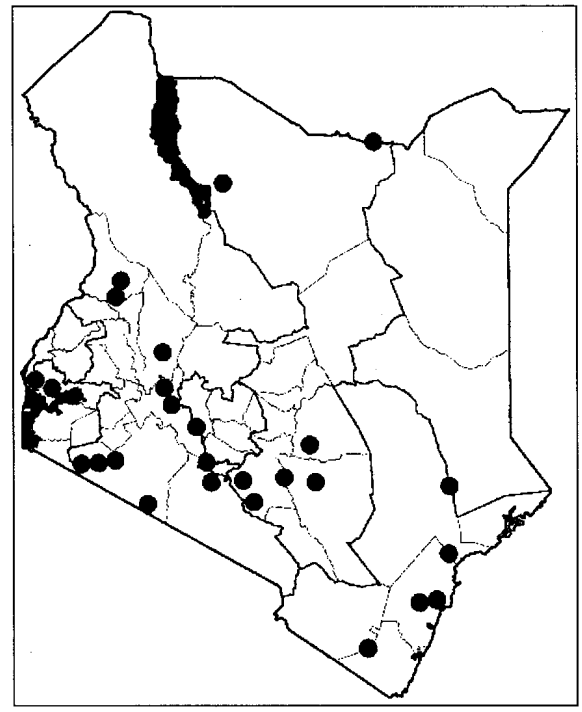
MANAGEMENT: Fast growing. When grown as a hedge, the plant is best when still small. Trees should not be left to become overgrown.



REMARKS: All parts of the plant produce copious milky latex which is poisonous. The milk is harmful to the eyes and may even cause blindness. Elephants eat the tree but they fell it first and leave it for a month or 2 before they eat it. When dry, the light durable wood has many local uses, including firewood and roofing. It is recommended for live fences and is easily grown from cuttings in semi-arid areas. The honey produced when bees forage on this tree is said to be irritating and burning to the mouth. However, the tree is an important source of nectar in dry areas and of shade in some areas. Species of the related genus *Synadenium* are also grown as a hedge. The latex is poisonous and often used to control warts. Some Maasai communities use *S. grantii* to mark burial sites.



FURTHER READING: Backes and Ahenda, 1998; Beentje, 1994; Bekele-Tesemma et al., 1993; Dharani, 2002; Fichtl and Adi, 1994; ITDG and IIRR, 1996; Katende et al., 1995; Kokwaro, 1993; Noad and Birnie, 1989.



Euphorbia tirucalli

Euphorbiaceae

Uncertain: India or Africa

COMMON NAMES: **Boran:** Amo; **Digo:** Utudi; **English:** Finger euphorbia; **Kamba:** Ndau; **Kikuyu:** Kariaria; **Luhya:** Shikhoni; **Luo:** Ojuog pap, Ojuok; **Maasai:** Oloile; **Marakwet:** Asubgwa; **Somali:** Dana; **Swahili:** Mtupa mwitu, Utupa.

DESCRIPTION: A succulent green shrub or tree to 8 m with a dense crown. Branches **smooth, green, cylindrical** in dense ascending masses on young plants but often scattered and drooping in old trees. Trunk to 30 cm in diameter, but usually much smaller. BARK: Green, covered with white bloom with age. Tips of young stems greenish brown. LEAVES: Inconspicuously small, present on young stems, soon dropping. Small, fleshy, green to greenish brown, elongate to about 1 cm. FLOWERS: Yellow-cream, small, in dense clusters. FRUIT: **3-part capsules, green, tinged purple** on the side receiving sunlight; almost spherical, less than 1 cm across.

ECOLOGY: Naturalized throughout tropical Africa and commonly planted in both tropics and subtropics of Africa and Asia (India and the Far East). In Kenya, it is frequently grown as a live fence around fields, cattle bomas and homesteads in dry as well as humid areas. More important in the drier hot areas where it grows to tree size. Agroclimatic Zones II–VI.

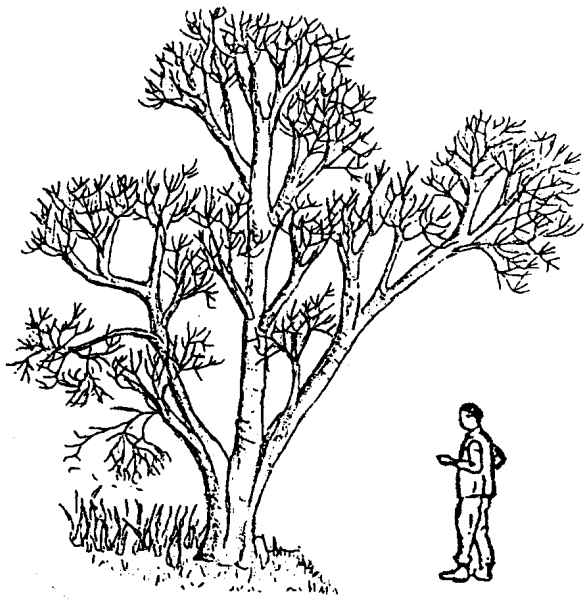
USES: Firewood, medicine (young branches, but see 'remarks', below), fodder (for camels), bee forage, shade, live fence, ceremonial (grave marking), boundary marking, glue, latex (fish poison, insecticide).

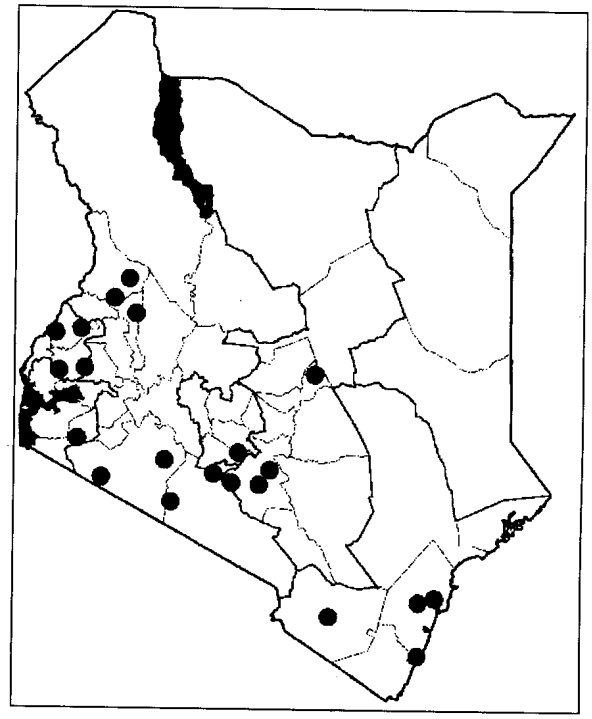
PROPAGATION: Usually by cuttings, but may also grow from seeds.

MANAGEMENT: Plant approximately 1-m-long cuttings close together. Growth is slow at first but fast once established. Trim and top-prune to make a hedge. May become a weed if not well managed. Needs to be cut and replanted after some years. Coppicing, pruning.

REMARKS: This plant is widely used as a hedge, especially around homesteads and in schools. It is good fodder for camels. Said to improve the health of weak camels and even to fatten them. The latex is poisonous to humans and extremely irritating to the eyes, and therefore great care should be taken while pruning the plant. Human milk is said to be the best remedy if latex gets into the eyes. The tree may be used as firewood when there are few other options, but when burned the smoke irritates the eyes. Medicine from the plant must be used with extreme care due to its high toxicity. Tree snakes often inhabit these bushes. The plant suppresses undergrowth, including crops, and therefore should not be planted in cropland. Its shallow and extensive roots quickly deplete moisture in the topsoil. An excellent shade tree in dry, hot areas.

FURTHER READING: Beentje, 1994; Bein et al., 1996; Bekele-Tesemma et al., 1993; Dharani, 2002; Fichtl and Adi, 1994; Katende et al., 1995; Kokwaro, 1993; Mbuya et al., 1994; Noad and Birnie, 1989; Palgrave and Palgrave, 2002.





Fagaropsis angolensis

Rutaceae

Indigenous

COMMON NAMES: **Kikuyu:** Mukaragati; **Luhya:** Shingulotso; **Marakwet:** Kwiril; **Meru:** Mukuria mbungu, Murumu; **Nandi:** Noiywet.

DESCRIPTION: A medium-sized or large deciduous tree with spreading crown, occasionally to 20 m, much lower on poor sites; sometimes with buttresses. BARK: **Light grey-brown**, slightly corky, branchlets purple-brown, hairy, dotted with pale lenticels. When freshly **cut, bright orange with a white slash.** LEAVES: Compound, opposite, on a stalk to 30 cm, without hairs, with **2–4 pairs of shiny ovate leaflets and one terminal leaflet**, 4–9 cm long, tip pointed, aromatic when crushed. Lateral leaves unequal-sided. FLOWERS: **Small, inconspicuous, green-yellow**, produced in heads or on branched flowering stalks up to 12 cm long **on the bare tree**. Sepals white, hairy outside. Male and female flowers separate on the same tree. FRUIT: Rounded to 1 cm across, roughly dotted with glands, pale green, becoming soft, shiny purple when ripe.

ECOLOGY: Found from Ethiopia and the Democratic Republic of Congo south to Angola and Malawi. In Kenya, found in the Taita Hills, Central Province and western Kenya. Common in dry evergreen forest, rocky bushland and at the edges of rainforest; 1,150–2,100 m. Agroclimatic Zones I–II.

USES: Firewood, timber, furniture, flooring.

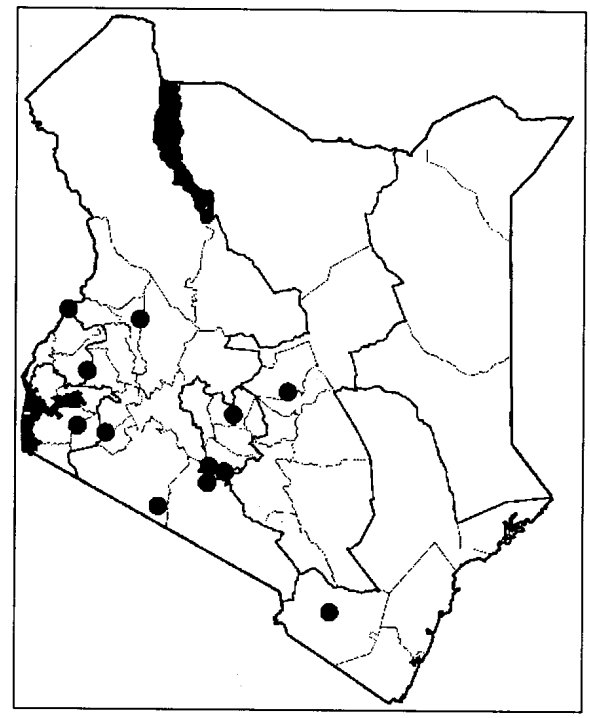
PROPAGATION: Seedlings. Produces root suckers.

SEED: About 4,000–4,500 seeds per kg. The germination is very good and fast.
treatment: Not necessary.
storage: Use fresh seed for best result.

MANAGEMENT: Fairly fast growing, coppicing.

REMARKS: The timber is fine, grey, moderately hard but not durable in the ground. It is easy to saw, finishes well and can make beautiful furniture and panelling. A related and possibly the same species is *F. hildebrandtii*, distinguished by its leaflets, which are softly hairy beneath. It is mainly found in Nairobi and surrounding districts.

FURTHER READING: Beentje, 1994; Bekele-Tesemma et al., 1993; Mbuya et al., 1994; Noad and Birnie, 1989; Palgrave and Palgrave, 2002.



Faidherbia albida (Acacia albida)

Fabaceae (Mimosaceae)

Indigenous

COMMON NAMES: **Digo:** Mujehe; **English:** Apple-ring acacia; **Maasai:** Olasiti, Olsati, Olerai; **Nandi:** Seretuet; **Pokot:** Sangale, Sangak; **Sabaot:** Dalyet, Duyet, Duget; **Samburu:** Larai, Leroi; **Taita:** Iti, Mukababu; **Taveta:** Mkababu; **Teso:** Edurkoit; **Turkana:** Edurukoit, Edurkoit, Ekurichenait.

DESCRIPTION: A deciduous tree to 30 m with high rounded spreading crown. Seedlings have twice-pinnate leaves (no juvenile type), an aid to identification. BARK: Grey to brown on the stem, branches **shiny greyish** white, rough, young twigs pale grey, **zigzag** form. THORNS: White, in pairs, **straight** or slightly curved, **to 2 cm, often pointing downwards.** LEAVES: Bipinnate, 3–8 pairs of pinnae each with 6–23 (usually 9–16) pairs of **grey-green** leaflets, up to 1 cm, **rounded and overlapping.** FLOWERS: **In slender spikes to 14 cm, cream-white,** attracting bees, fragrant, appearing before new leaves. FRUIT: Distinctive **twisted pods,** smooth, **bright orange,** to 25 cm long and quite thick, edge thickened, containing 10–20 seeds, ripening at the end of the dry season. Seeds are set free when the pods rot on the ground.

ECOLOGY: Distributed from the Middle East through eastern Africa and south to South Africa and Namibia. Also west through the Sahel to Gambia and Senegal. Widespread in semi-arid areas on a wide range of soil types and in different climates. In Kenya, prefers semi-arid flood plains with deep alluvial and sandy soils. Riverine in arid areas, 500–2,000 m; rainfall 200 (riverine)–900 mm. Common in Rift Valley, e.g. along the Turkwel River and around Loitokitok; also in Taveta. Agroclimatic Zones IV–VII (riverine).

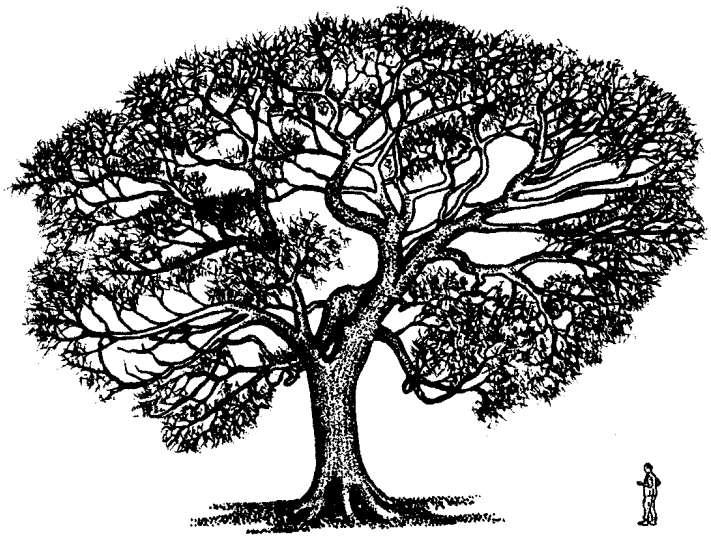
USES: Firewood, charcoal, timber (construction), posts, utensils, edible pods (eaten cooked or raw in times of famine by the Pokot and Turkana), flavouring (pods), medicine (bark), fodder (pods and leaves), mulch, shade, nitrogen-fixing, soil conservation and improvement, windbreaks, fibre (bark for strings), dye.

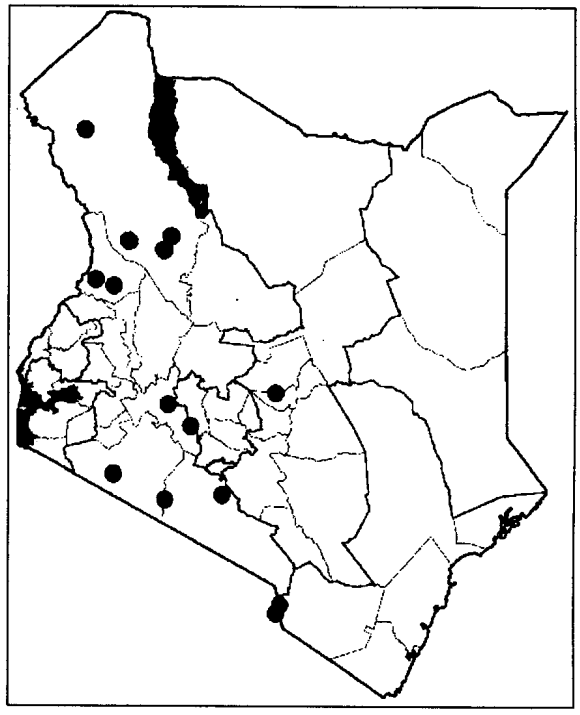
PROPAGATION: Seedlings, direct sowing at site.

SEED: 7,500–13,000 seeds per kg. Germination 60–90% in 5–20 days.

treatment: Pour boiling water over seed, allow to cool and soak for 24 hours. Alternatively, nick the seed at the distal (cotyledon) end.

storage: Seeds can be stored for long periods but are very susceptible to insect attack, so in practice avoid storage.





Faidherbia albida (cont)

MANAGEMENT: Slow initial growth. Later fairly fast growing on good sites. Lopping, pollarding. Often left in sorghum fields by the Turkana.

REMARKS: The species is commonly used in agroforestry in West Africa where it is grown widely spaced and intercropped with sorghum and millet. Deep rooted. The wood is not durable in the ground. The naming of this species has been moved between *Acacia albida* and *Faidherbia albida,* and the taxonomy is still not clear. Future name changes may occur.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Beentje, 1994; Bein et al., 1996; Bekele-Tesemma et al., 1993; Katende et al., 1995; Kokwaro, 1993; Mbuya et al., 1994; National Academy of Sciences, 1979; Noad and Birnie, 1989; Storrs, 1979; van Wyk, 1993.

Faurea saligna

Proteaceae

Indigenous

COMMON NAMES: **English:** Beechwood; **Kamba:** Kikaati, Mukaati, Munyangati, Kikethuki; **Keiyo:** Sirik; **Kikuyu:** Mutorothua; **Maasai:** Olgeriantus, Olorten; **Marakwet:** Maiyokwa, Sirite; **Nandi:** Mosomboriet, Muargua; **Pokot:** Markwa; **Sabaot:** Bongwet, Maakwet, Maiyokwo; **Samburu:** Olbugui; **Tugen:** Musomboriet, Musumboriet.

DESCRIPTION: A deciduous shrub or large forest tree to 20 m with a dense crown. Bole often 7–10 m, straight or twisted. It **resembles a gum tree**. BARK: Almost black, rough with deep grooves. LEAVES: Leathery, **shiny and drooping,** often **long and narrowing towards the base and tip**, to 12 cm, **tip pointed**, edge wavy, often slightly curved, stalk short and red. FLOWERS: **Dense silky spikes** to 14 cm long, **cream-purple, honey scented and attracting bees,** calyx pink to red and hairy. FRUIT: Small nutlets, seeds with silky white hairs, the reddish styles persist, and appear as **woolly pink-white spikes.**

ECOLOGY: A tall tree found in low- to high-altitude forest and bushland areas from Nigeria and Sudan and south to southern Africa. Two forms occur in Kenya: a 'savanna' form occurring in wooded grassland (with *Combretum molle*), 1,050–1,800 m; and an 'afro-montane' form at forest margins and in secondary grassland derived from forest, 2,200–3,100 m. The latter is common around the forest edges of Mt Kenya and the Aberdares, at Mau, Timboroa and in the Cherangani Hills. Agroclimatic Zones III–IV.

USES: Firewood, charcoal, timber (construction), furniture, poles, posts, medicine (roots), bee forage, ornamental, mulch, windbreak, dye, ceremonial.

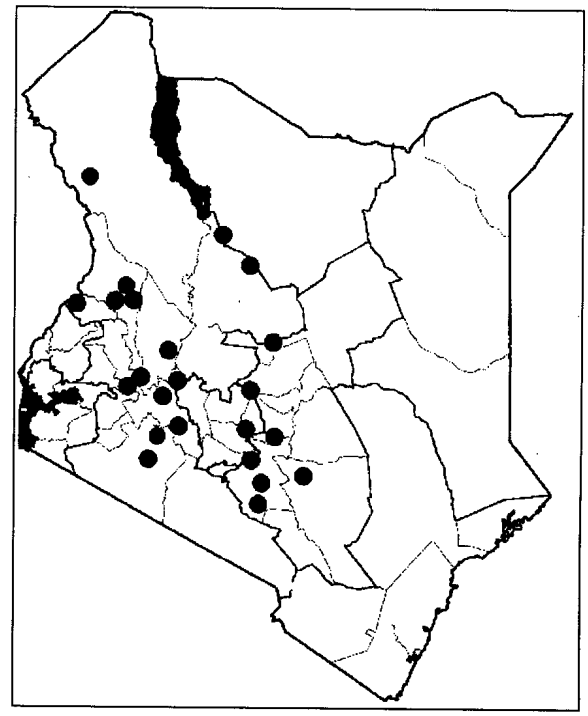
PROPAGATION: Seedlings, wildings.

SEED: 160,000–165,000 seeds per kg.
treatment: Not necessary.
storage: Perishable. Fresh seed should be sown for best results.

MANAGEMENT: Medium growth rate. Can be grown either as individual trees or as a stand.

REMARKS: The tree is often left in cropland. The wood is resistant to termites, hard, yellow-brown with an attractive grain, valued for furniture and panelling. Two species of the genus *Faurea* are recognized in Kenya: *F. saligna* and *F. rochetiana.* The occurrence of intermediaries, however, casts doubt on the validity of keeping them separate. *F. rochetiana*, whose leaves are densely hairy beneath, is more common in rocky grassland and bushland areas in Kisii and the Kakamega–Kitale region, often in association with *Protea.*

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Beentje, 1994; Katende et al., 1995; Kokwaro, 1993; Mbuya et al., 1994; Noad and Birnie, 1989; Palgrave and Palgrave, 2002; Storrs, 1979; van Wyk, 1993.



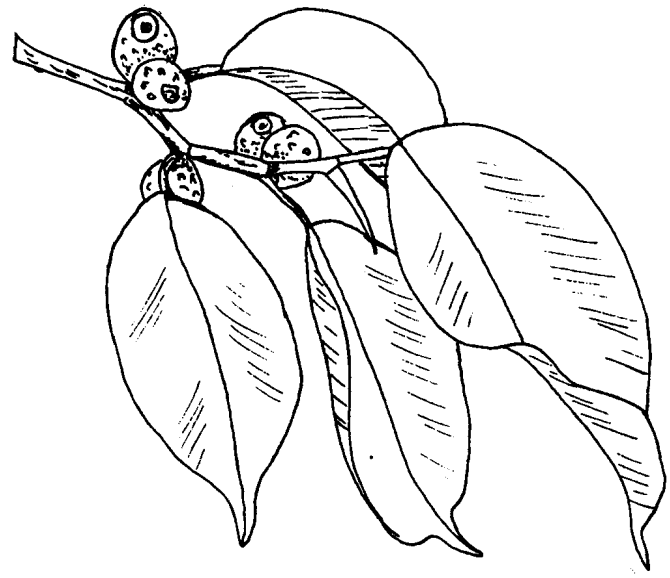
Ficus benjamina

Moraceae

India, Malaysia, Indonesia

COMMON NAMES: **English:** Java fig, Benjamin's fig.

DESCRIPTION: A dense evergreen tree 10–20 m with ascending branches but **drooping foliage on slender branchlets**. BARK: Grey–white–green. LEAVES: Small and thin, lime green when young, later **leathery, shiny dark green**, narrow oval, 8–10 cm long with **a pointed 'drip tip'**, base rounded. FIGS: Beside leaves, **very many**, often in pairs, each **about 1 cm across, turning from orange to dark red, attracting birds**.



ECOLOGY: A native of Asia distributed from India to northern Australia. Thrives best in a humid climate. Can be grown in pots as an indoor plant. Widely planted as an ornamental in Kenya, particularly as an avenue tree. It needs humid conditions to grow well. The roots may damage foundations and sewerage systems if planted too close to buildings. Agroclimatic Zones II–IV.

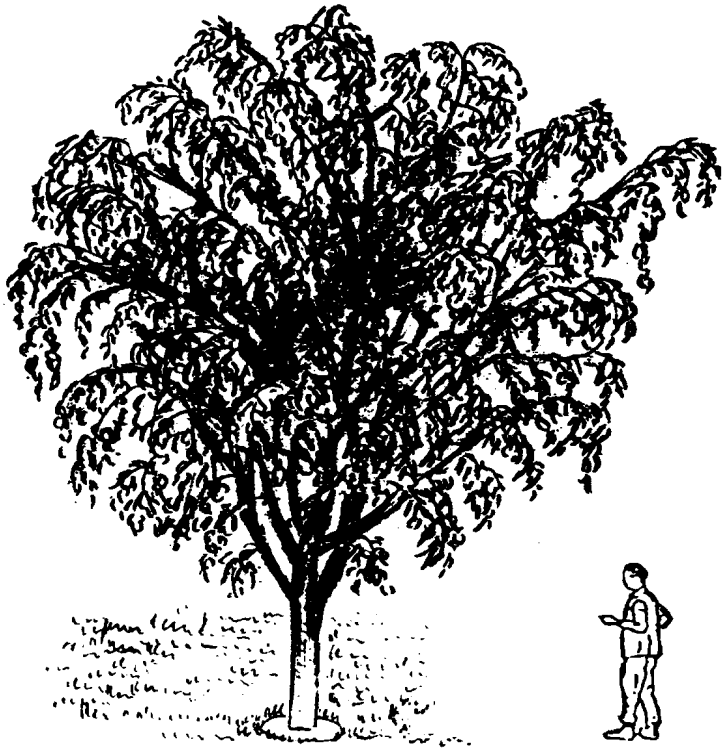
USES: Firewood, shade, ornamental, avenue tree.

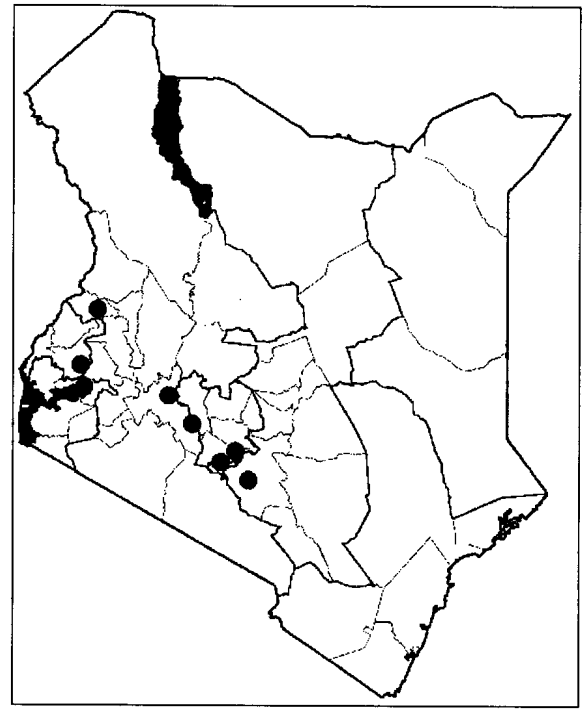
PROPAGATION: By air layering. Nairobi tree nurserymen occasionally grow the tree from short cuttings obtained from branch ends. This is done during cold seasons when the rate of evaporation is low. In hot seasons the cuttings tend to dry.

MANAGEMENT: Fast growing; pollarding. Avoid planting too near buildings or in cropland.

REMARKS: This tree responds well to pollarding. Best planted as individual trees rather than as a stand. Suppresses undergrowth, so should not be planted near crops. There are several attractive varieties. It is a common tree in Nairobi.

FURTHER READING: Dharani, 2002; Katende et al., 1995; Noad and Birnie, 1989.





Ficus sur (F. capensis)

Moraceae

Indigenous

COMMON NAMES: **Boran:** Oda, Woda, Od; **Chonyi:** Mukuyu; **Embu:** Mukuyu, Nguyu; **English:** Cape fig; **Ilchamus:** Lnaboli; **Kamba:** Mukuyu; **Kikuyu:** Mukuyu, Nguyu (fruit); **Kipsigis:** Mogoiwet; **Luo:** Ng'owo, Ng'owo matundo, Bongu; **Maasai:** Orng'aboli; **Meru:** Mukuyu, Mukuu, Nguyu (fruit); **Samburu:** Lng'aboli; **Somali:** Bardah, Berde; **Swahili:** Mkuyu, Mkuju.

DESCRIPTION: A large deciduous tree to 20 m high with the trunk up to 150 cm in diameter, occasionally buttressed. BARK: Smooth, grey to grey-white, darker grey-brown with age. LEAVES: Large, **broadly oval,** to 13 x 20 cm, usually smooth, but may be sandpapery; base rounded or slightly heart-shaped, **edge often with widely spaced teeth,** sometimes wavy, veins clear below, stalk grooved and flexible to 8 cm. FIGS: In **heavy clusters on leafless branches to 70 cm long arising from trunk or older wood;** figs round, 2–4 cm across, on stalks to 1.5 cm long, orange-red, often hairy, soft, having many seeds and often insects too.

ECOLOGY: A widespread African fig tree occurring in eastern Africa and extending north to Yemen and south to Angola and South Africa. In Kenya, it is widespread from the coast to the western and northern regions. It is mainly riparian being common on flood-prone sites and in groundwater forests. Occasionally found away from such habitats, 0–2,100 m. Agroclimatic Zones II–IV. Figs in April–June in Bungoma.

USES: Firewood, timber (doors), furniture (stools), beehives, carving, utensils (mortars, boxes, containers), boat building (canoes), edible fruit (figs), medicine (roots, bark), fodder, bee forage (fruit juice), shade, ceremonial, glue (latex used for making bird lime).

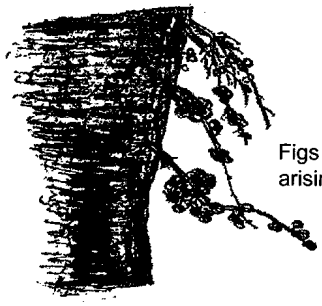
PROPAGATION: Cuttings, wildings and seedlings.

SEED: Tiny seeds are contained in figs. Slice the fig, dry it in the sun and shake out the seeds.
treatment: Not necessary.
storage: Should be sown soon after extraction.

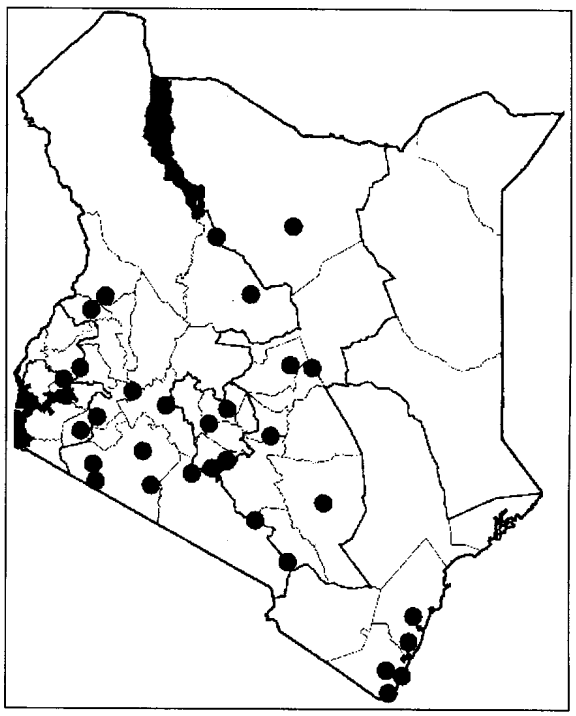
MANAGEMENT: Lopping, pollarding.

REMARKS: The tree is considered moisture trapping, and other moisture-demanding plants are often found regenerating in its shade. It does not compete with agricultural crops. Fruit edible but watery and tasteless. This species is closely related to the sycamore fig (*Ficus sycomorus*) and the local names of both are often similar. It is also widely used as a ceremonial tree.

FURTHER READING: Backes and Ahenda, 1998; Beentje, 1994; Bekele-Tesemma et al., 1993; Dharani, 2002; Fichtl and Adi, 1994; Katende et al., 1995, 1999; Kokwaro, 1993; Maundu et al., 1999; Noad and Birnie, 1989; Ruffo et al., 2002; Sommerlatte and Sommerlatte, 1990;Storrs, 1979; von Maydell, 1990.



Figs on branches arising from trunk



Ficus sycomorus Moraceae

Indigenous

COMMON NAMES: **Boran:** Oda, Woda; **Chonyi:** Mukuyu; **Embu:** Mukuyu, Nguyu; **English:** Sycamore fig; **Ilchamus:** Lnaboli; **Kamba:** Makuyu (fruit), Mukuyu; **Kikuyu:** Mukuyu, Nguyu (fruit); **Kipsigis:** Mogoiwet; **Kisii:** Omoku; **Luhya (Bukusu):** Kumukhuyu, Kamakhuyu (fruit); **Luhya (Tachoni):** Omukhuyu, Amakhuyu (fruit); **Luo:** Olam, Odok (Ugenya), Ng'owa, Ng'owu, Powo; **Maasai:** Olng'aboli; **Malakote:** Mokoyo; **Marakwet:** Mokungua, Mokongwo, Makany (plural); **Mbeere:** Mukuyu; **Meru:** Mukuyu, Mukuu, Nguyu (fruit); **Nandi:** Sebetuet, Sebetwet; **Orma:** Odha; **Pokot:** Mangang (plural), Mokongwo; **Rendille:** Bubunto, Ilmo (fruit); **Samburu:** Lngaboli; **Sanya:** Odha; **Somali:** Bardah (Tana River), Berde; **Swahili:** Mukuyu, Mkuyu; **Taita:** Mku; **Teso:** Eborborei, Eduro; **Tugen:** Lokoiwo, Lokoek (fruit); **Turkana:** Echoke.

DESCRIPTION: A large semi-deciduous spreading tree to 25 m, sometimes with stem buttresses and the **base commonly spreading over the ground.** Abundant latex when cut. BARK: Distinctive **yellow to cream-brown, smooth,** older stems have rectangular scales that fall leaving pale brown patches. LEAVES: Oval to **almost circular,** to 15 cm, upper surface rough to touch, margin wavy, roughly toothed, **base heart-shaped, a hairy stalk to 3 cm.** FIGS: In leaf axils in pairs or in dense clusters on main branches and trunk, **each rounded, 1.5–5 cm across, usually about 3 cm when fresh, wider at the tip, densely hairy and yellow-red when ripe.**

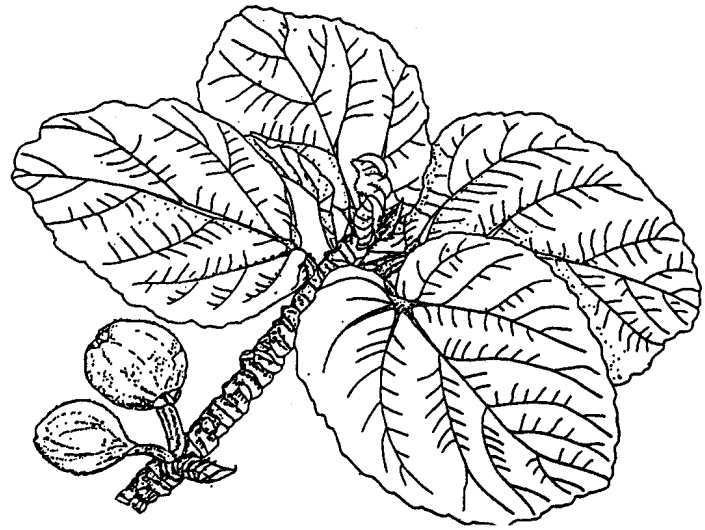
ECOLOGY: Occurs from the Middle East west to Cape Verde Islands and south to South Africa, Namibia and the Comoro Islands. Widely distributed all over Kenya in riverine vegetation, on flood plains and places with high groundwater. Found away from riverine vegetation in humid and subhumid zones. Grows in alluvial, sandy or rocky soils, 0–2,000 m. Rainfall 250 mm (riverine) to 1,200 mm, or even more. Agroclimatic Zones II–VII. Fruits in January–March in Tana River, Marsabit and southern Turkana and in April (occasionally December–February) in Machakos, Makueni, Narok and Taita.

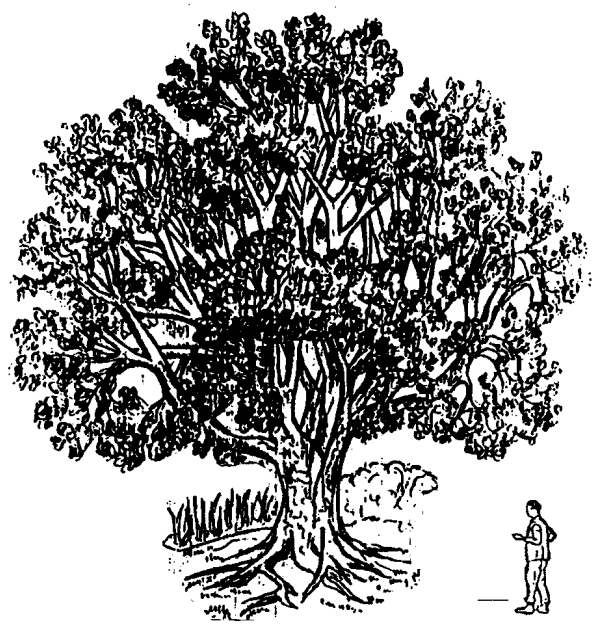
USES: Firewood, timber (door frames, house construction), furniture (stools), beehives, carvings, utensils (pestles and mortars, musical instruments, water troughs, bowls), boat building (canoes), food (edible fruit and inner bark), medicine (milky latex), fodder (leaves, fruit), shade, ornamental, mulch, soil conservation and improvement, sand and river-bank stabilization, fibre (chewed inner bark), glue (latex used for arrows), veterinary medicine, ceremonial.

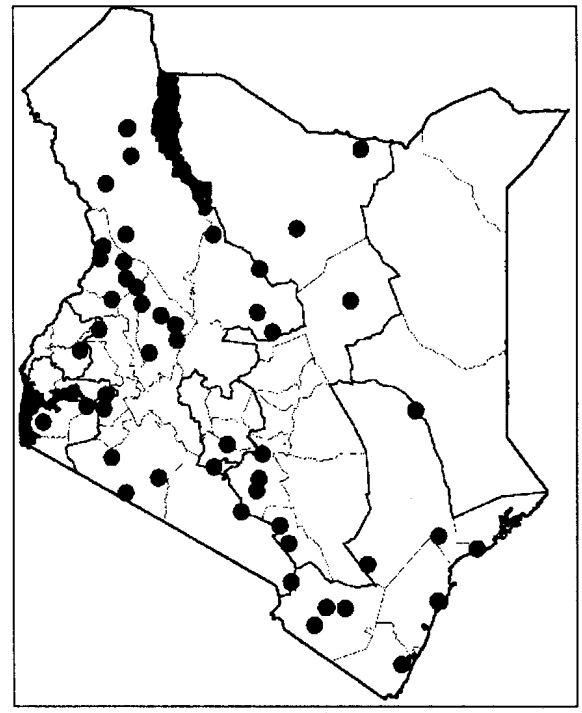
PROPAGATION: Cuttings.

MANAGEMENT: Fairly fast growing; pruning, lopping. Managed to reduce shade when intercropped. In western Kenya, bananas are often grown underneath it.

REMARKS: Figs fleshy, sweet and eaten raw or cooked. They can be dried and have a good flavour and high food value. Also eaten by livestock, birds and game. A sacred tree among many communities (Boran, Kamba, Kikuyu, Mbeere, Tharaka, Meru, Luo). Wood is light, pale and





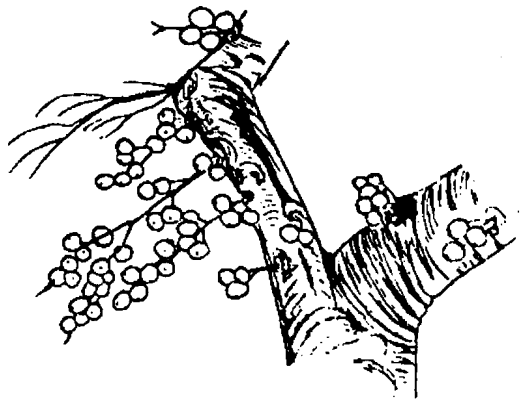


Ficus sycomorus (cont)

easy to work. Another fig, *F. bussei* (**Digo/Giriama:** Mugandi), is found at the coast with *F. sycomorus*. It has grey fluted bark, usually many aerial roots and small green figs with white bumps. The Giriama leave it standing and use the bark fibres for string. A related fig is *F. vallis-choudae* (**Luo:** Ng'owo; **Maasai:** Mutoyo; **Pokot:** Nokow'o), a huge tree to 25 m high with a low crown, large (to 20 cm) heart-shaped to almost circular leaves with a wavy margin, and large finely hairy solitary figs to 5 cm in diameter. This tree is usually riverine. The figs are edible, while the wood is used in building and furniture.

There are over 30 indigenous species of figs in Kenya. Most have edible figs; they are good shade trees and the wood may be used as firewood.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Backes and Ahenda, 1998; Beentje, 1994; Bekele-Tesemma et al., 1993; Bein et al., 1996; Dharani, 2002; ITDG and IIRR, 1996; Katende et al., 1995, 1999; Kokwaro, 1993; Noad and Birnie, 1989; Maundu et al., 1999; Mbuya et al., 1994; Palgrave and Palgrave, 2002; Ruffo et al., 2002; Storrs, 1979; van Wyk, 1993.



Ficus thonningii (F. dekdekana)

Moraceae

Indigenous

COMMON NAMES: **English:** Strangler fig; **Kamba:** Kiumo, Maumo (fruit); **Kikuyu:** Mugumo; **Kipsigis:** Simotuet; **Kisii:** Omogumu; **Luhya:** Lutoto; **Luhya (Bukusu):** Kumutoto kumusecha; **Luo:** Pocho; **Maasai:** Oreteti, Olreteti; **Marakwet:** Simotuet, Simotwo, Simat; **Mbeere:** Mugumo; **Meru:** Mugumo; **Nandi:** Simotuet; **Pokot:** Simotwo; **Sabaot:** Simotuet; **Samburu:** Reteti, Labuli; **Somali:** Kalejeje; **Swahili:** Mlandege; **Taita:** Mvumo, Mvumu.

DESCRIPTION: A large evergreen tree to 20 m or more, with a low, dense, rounded crown, often epiphytic initially (growing on other larger trees, the association often leading to the death of the host species by strangling). BARK: Thin, **grey and smooth. Aerial roots often present**. White latex produced when the plant is injured. LEAVES: **Very variable, oval to 12 cm**, often smaller, **tip mostly rounded**, base rounded or tapering, shiny green, young leaves pale and hairy below. FIGS: **In clusters from the leaf axils at the ends of branches**, prominent on the bare tree, **round to 1.5 cm**, smooth or bumpy, **yellow or purple-red when ripe. Two small leafy bracts remain at the base of the fig.**

ECOLOGY: Widespread from Ethiopia west to Cape Verde Islands and south to South Africa and Angola. Widely distributed in Kenya in upland forests, dry forest remnants, open or wooded grassland and along rivers. The commonest strangler fig in Kenya, often starting as an epiphyte on another tree. Often left in cropland. Grows on a variety of soils, but more common near streams in dry areas, 300–2,300 m. Agroclimatic Zones II–V.

USES: Firewood, medicine, fodder, food (edible fruit), medicine (bark), shade, ornamental, mulch, green manure, fibre (basket making), glue (latex used as glue for arrows), dye, live fence, ceremonial.

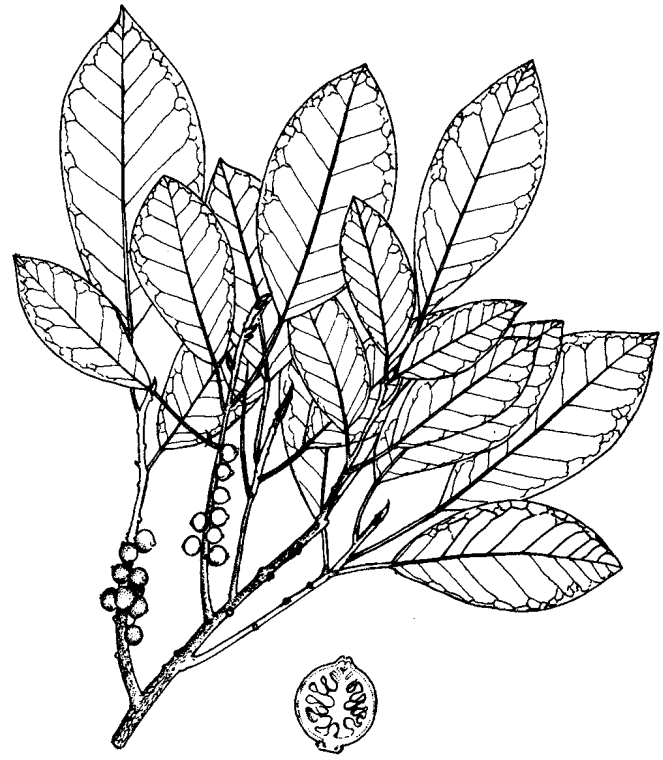
PROPAGATION: Cuttings, wildings. Large cuttings normally used.

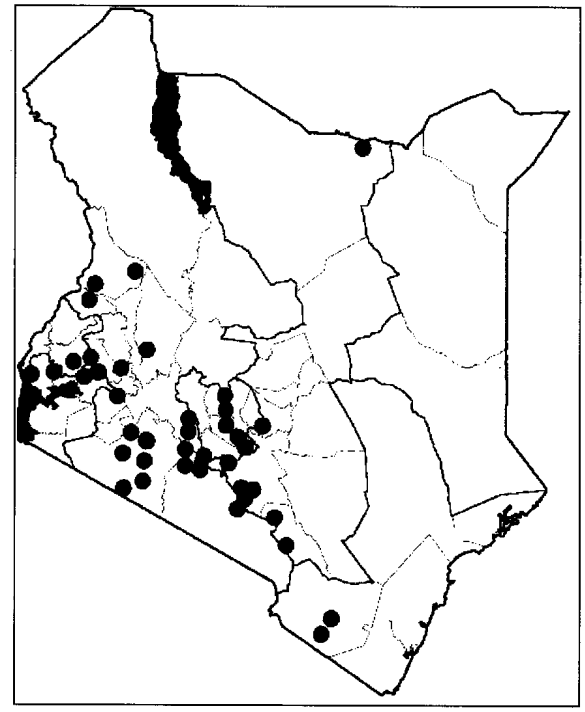
SEED: About 90,000 seeds per kg.
treatment: Not necessary.
storage: Seeds should not be stored.

MANAGEMENT: Fast growing from cuttings, making it a better option than raising seedlings; pollarding.

REMARKS: A traditional place for offering sacrifices (Kamba, Kikuyu, Mbeere, Meru, Pokot, Maasai) and hence a sacred tree. Fruit eaten by small mammals and birds, thus dispersing the seed. Protect from browsing when young. Not planted near buildings as the roots may crack foundations.

Another fig, *F. natalensis* (**English:** Barkcloth fig; **Luhya (Bukusu):** Kumuruba; **Pokomo:** Mvuma), is very similar and often confused with *F. thonningii* but is less common in Kenya; mainly found in western Kenya and at the coast. Figs are small, 0.6–1 cm in diameter, smooth

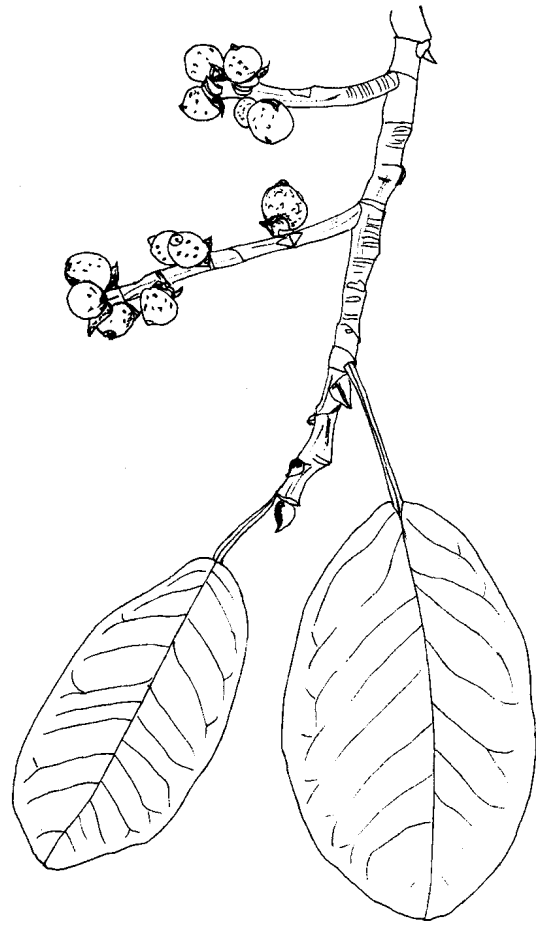




Ficus thonningii (cont)

or slightly hairy and with or without a visible stalk. The figs have persistent bracts at the base of the fruit, but these fall early in *F. natalensis*. The leaves are usually smaller than in the other species and tend to be widest above the middle and taper to the base. The tip is more rounded. This is also a ceremonial tree in many communities. *Ficus glumosa* (**Boran:** Kiltaa; **Kamba:** Kionywe; **Kipsigis:** Chilgotwet; **Maasai:** Olngaboli; **Somali:** Berde) is a tree to 15 m high, with a spreading crown, smooth grey bark and usually hairy leaves with a heart-shaped base. The figs are orange to red, small, up to 1.2 cm, usually hairy and without a visible stalk. Found from West Africa east to Yemen and south to South Africa. *F. ingens* (**Kamba:** Kionywe; **Kipsigis:** Chemul mogoyuet; **Maasai:** Onogoret; **Sabaot:** Cheptapasya; **Teso:** Ereere) is a tree to 20 m high with a dense crown, sometimes establishing and growing on other trees (epiphytic). The figs are pink to purple, small, up to 1.2 cm, usually hairy and without a visible stalk. Found from Senegal west to Ethiopia and Yemen and south to Angola, Botswana and South Africa. Distributed in the drier parts from the coast to the western part of Kenya at 150–2,600 m, usually on lava and rocky places as well as riverine gorges. Leaves are used for medicine. The wood is used to make doors and stools by the Kipsigis and firesticks by the Maasai.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Backes and Ahenda, 1998; Beentje, 1994; Bein et al., 1996; Dharani, 2002; Kokwaro, 1993; Maundu et al., 1999; Mbuya et al., 1994; Noad and Birnie, 1989; Palgrave and Palgrave, 2002; Sommerlatte and Sommerlatte, 1990; von Maydell, 1990.



F. natalensis

Filicium decipiens

Sapindaceae

Indigenous

COMMON NAMES: **English:** Thika fern leaf, Fern tree; **Kikuyu:** Kamiti.

DESCRIPTION: A graceful evergreen to semi-deciduous tree 6–10 m tall with a rounded, often dense crown. BARK: Grey, smooth, becoming dark brown, rough and cracking with age. LEAVES: Compound, to 30 cm long, **the middle stalk (rachis) with wing-like protrusions**, the wing to 1 cm wide; leaflets about 3–10 pairs, **each leaflet narrowly elliptic**, to 14 x 2 cm, **tip rounded and notched, glossy dark green above**, with scattered resin dots, lighter in young leaves. FLOWERS: Very small, white, in **branched heads** about 15 cm long, **arising from the sides of branches**. FRUIT: Elongated, to 11 mm long, purple-black when ripe, fleshy.

ECOLOGY: Distributed in southern India and from Ethiopia south to South Africa, including Madagascar and the Comoros. In Kenya found in riverine forests or swampy sites in forest in Central Province and northern Rift Valley. Also occurring in moist montane forest and in hilltop forests of the coastal belt, e.g. Taita Hills; 1,050–1,700 m. Planted widely in Nairobi and surrounding towns as an ornamental. Agroclimatic Zones II–III. Seeds available in December–January around Nairobi.

USES: Firewood, shade, ornamental, wood for making small implements.

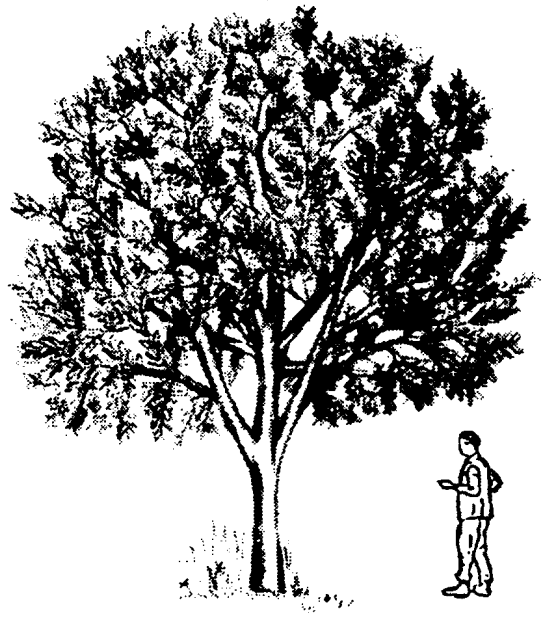
PROPAGATION: Seedlings, wildings. In Nairobi, tree nursery workers take the ripe black fruit, and clean off the fruit pulp. The clean seed should not be dried. These are sown in fertile soil in a large polythene pot, watered and covered with grass. Germination takes 2–3 weeks. Seedlings should be planted at sites with fertile soil.

SEED:

treatment: Not necessary.

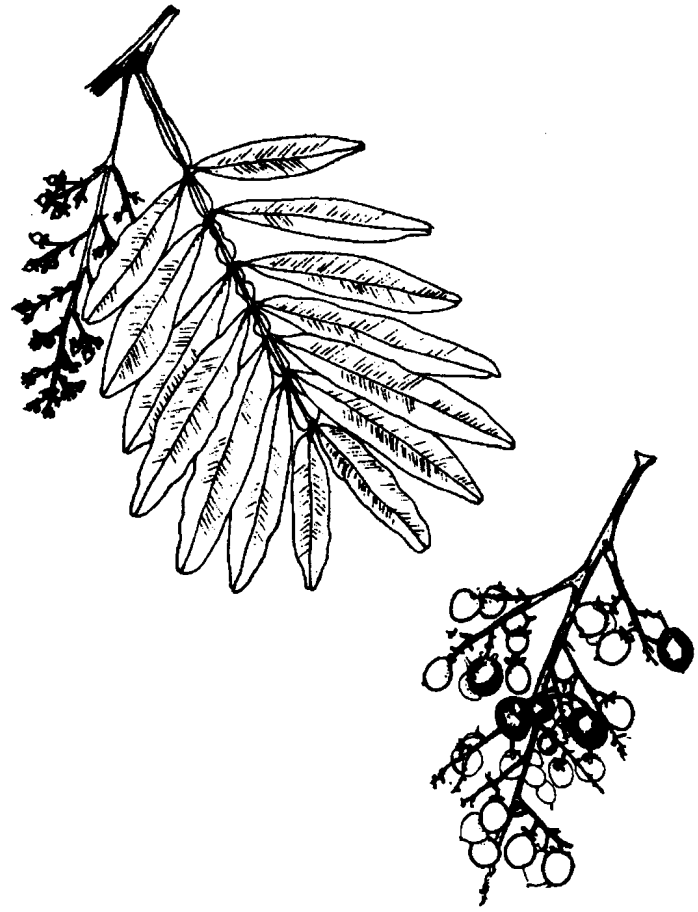
storage: Stores for only a very short period.

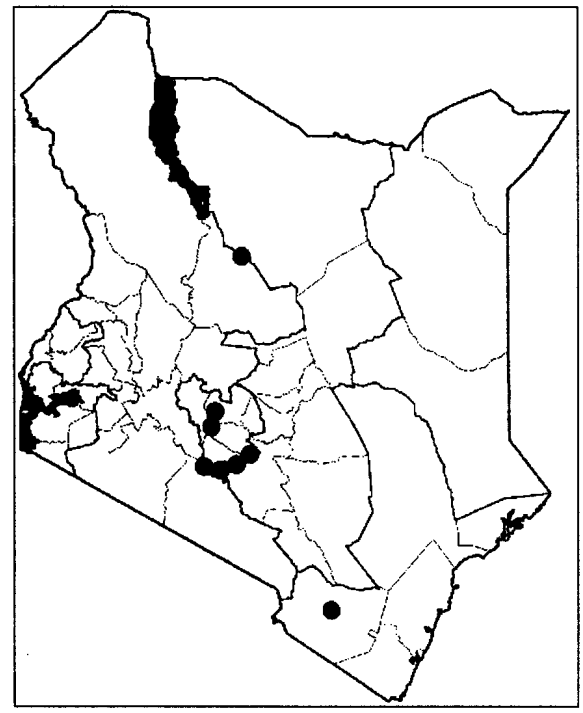
MANAGEMENT: Growth is slow during early stages but faster later. Prune lower branches to give the tree a good shape.



REMARKS: This tree has gained great popularity as an ornamental plant in recent years. Its beauty is derived from its dense glossy compound leaves with a remotely palm-like appearance, hence the misnomer 'Thika palm'. *Filicium* is a small genus of no more than 3 species.

FURTHER READING: Beentje, 1994; Dharani, 2002; Noad and Birnie, 1989; Palgrave and Palgrave, 2002.





Flacourtia indica

Flacourtiaceae

Indigenous

COMMON NAMES: **Chonyi:** Mdungatundu; **Digo:** Mnyondoiya; **Duruma:** Madungatundu, Madungatunga; **English:** Common flacourtia, Governor's plum, Indian plum; **Giriama:** Mdungatundu, Mdevere, Mugereaka; **Kamba:** Kiathani, Kikathani; **Kambe:** Mudungatundu; **Keiyo:** Tungururwet, Tungururak (fruit); **Kikuyu:** Mutuhacu, Muroro; **Kipsigis:** Tunguroloet; **Luhya (Bukusu):** Kumunyungululwe; **Maasai:** Ol-loiroroi, Oldongurgurwo, Oltangururua; **Marakwet:** Tungururwa; **Mbeere:** Mudundi, Muraga, Tingoswo, Tingas (plural); **Meru:** Muraga, Muroo, Muuga ruturu; **Nandi:** Tungururiet, Lichet; **Pokot:** Tingoswo, Tingas (plural); **Sabaot:** Tungururu; **Samburu:** Loloroi; **Sanya:** Mogodonya; **Swahili:** Mkingili, Mchongoma, Mkingiri, Mgovigovi; **Tugen:** Tingoswo, Tungururwo, Talatany (fruit); **Turkana:** Echoge.

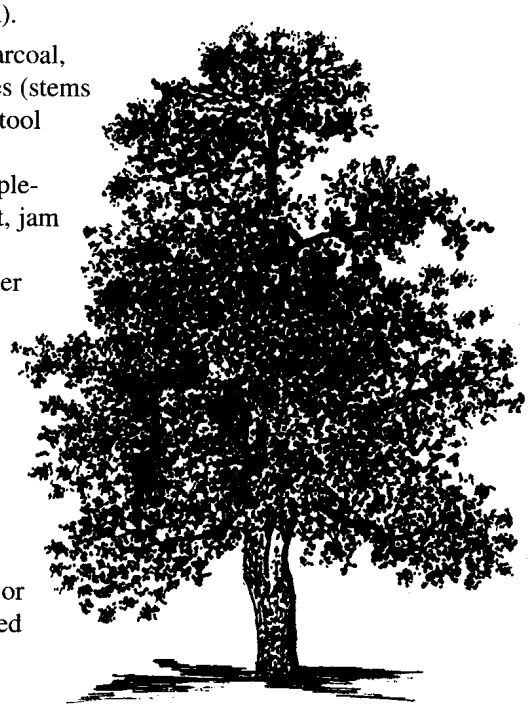
DESCRIPTION: A deciduous **spiny shrub** or small tree, usually 3–5 m, occasionally to 10 m; spines on the trunk usually straight, sometimes branched, up to 12 cm long but quite variable. BARK: **Rough, pale yellow-grey,** branches may have a yellow powder at first. LEAVES: Very variable in size, **oval,** to 12 cm, **edge toothed,** 4–7 pairs, veins clear on both surfaces, stalk to 2 cm. FLOWERS: Small, cream, fragrant; male flowers with very **many yellow stamens,** female flowers with a divided spreading style. FRUIT: **Red–purple–black, round** and juicy but acid, **to 2.5 cm across,** persisting on the tree. They contain up to 10 small seeds, hard and flat.

ECOLOGY: Widespread in tropical and subtropical Africa, Madagascar, Seychelles, Malaysia as well as other parts of Asia. Cultivated for its fruit. It can be grown in a variety of climates and soils, but prefers sandy soil, a high water table and full sun. Widespread in Kenya, from the coast to the highlands, but never very common. Found wild in bushland on rocky hillsides, woodland, riparian forest, mainly on red clay, humid sandy and rocky soils, 0–2,400 m. Agroclimatic Zones III–V. Fruits in February–March (Embu and Machakos), in April (Nairobi), in July–August (West Pokot, Malindi, Kilifi and Kwale), in October (Elgeyo) and in December (Nandi, Bungoma).

USES: Firewood, charcoal, small timber, poles (stems used for houses), tool handles, utensils (spoons), farm implements, edible fruit, jam (fruit), medicine (bark, roots), fodder (leaves for goats), bee forage, live fence, dead fence (branches).

PROPAGATION: Seedlings, wildings.

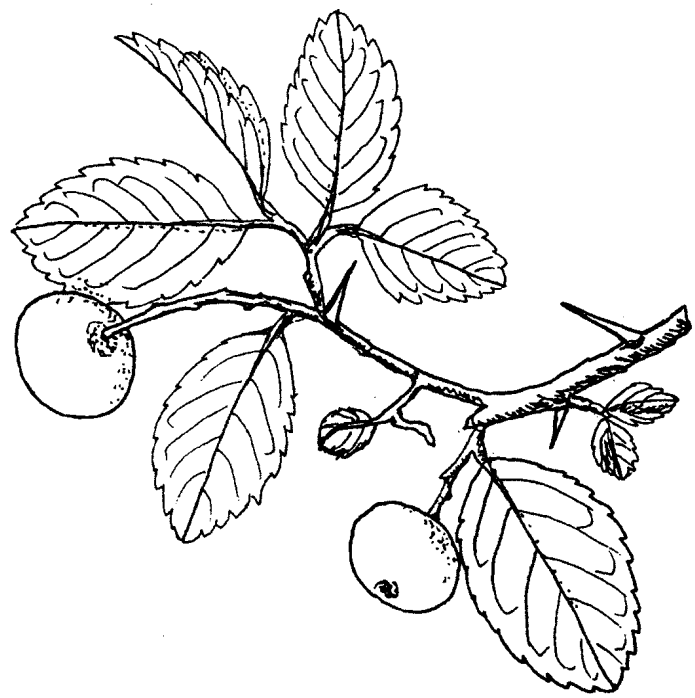
SEED: **treatment:** Crack or pierce the hard seed coat for improved germination.

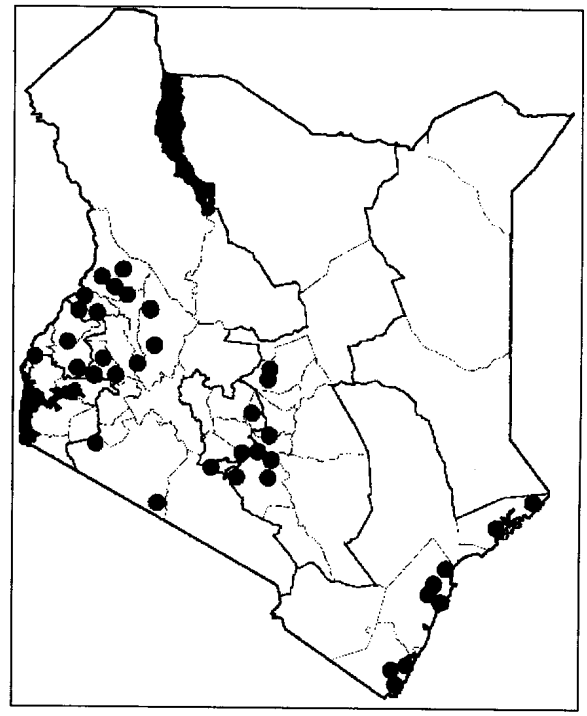


MANAGEMENT: Coppicing, pruning, pollarding. Trim if planted as a fence.

REMARKS: Ripe fruit soft, sweet and edible. It is sold in markets in West Pokot. Sometimes cultivated for its edible fruit. Can make a good live fence. Fruit can be dried in the sun, stored and then soaked in water before being eaten. A good fruit tree in agroforestry systems. *Flacourtia* is a relatively small tropical genus with about a dozen species distributed from Africa eastwards to south Asia and the Pacific Ocean islands.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Backes and Ahenda, 1998; Beentje, 1994; Bekele-Tesemma et al., 1993; Katende et al., 1995, 1999; Kokwaro, 1993; Maundu et al., 1999; Mbuya et al., 1994; Palgrave and Palgrave, 2002; Ruffo et al., 2002; Verheij and Coronel, 1991.





Flueggea virosa (Securinega virosa)

Euphorbiaceae

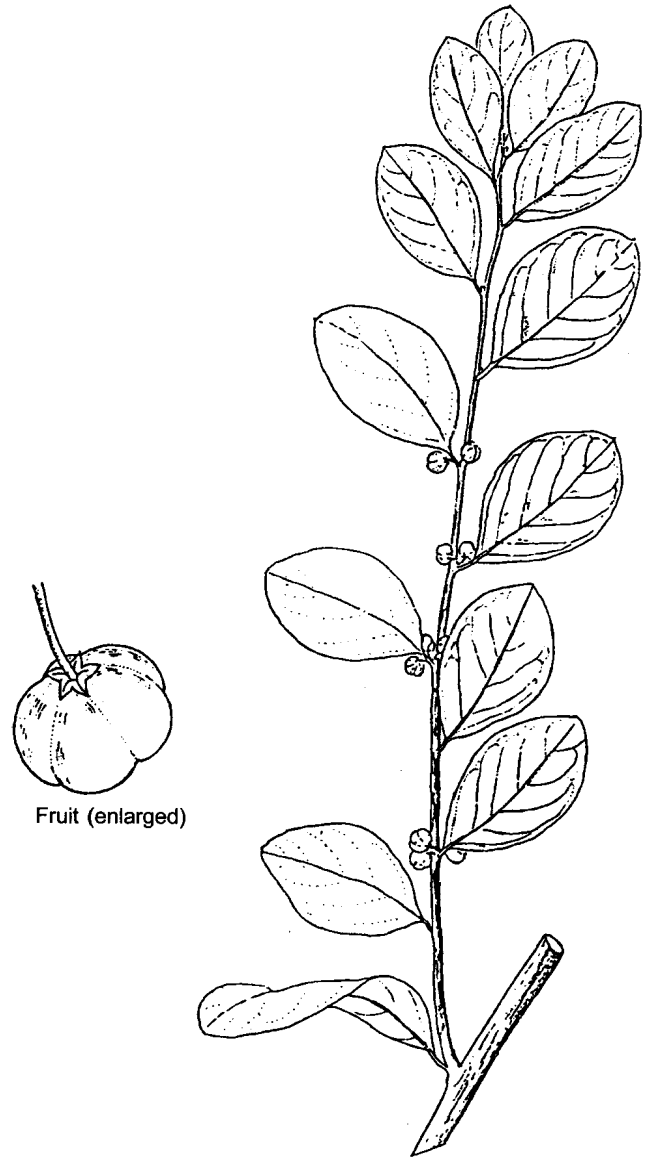
Indigenous

COMMON NAMES: **Boran:** Awagino; **Chonyi:** Mukwamba, Kwamba (fruit); **Digo:** Mkwamba; **Giriama:** Mkwamba, Kwamba (fruit); **Ilchamus:** Longoosoiron; **Kamba:** Mukululu (Mwingi); **Kambe:** Mukwamba, Kwamba (fruit); **Kisii:** Esarara; **Luo:** Kaera, Kagena, Kagna, Odok, Rayudh; **Malakote:** Mokororo; **Mbeere:** Mukururu; **Orma:** Kororo; **Pokomo:** Mkwamba; **Pokot:** Chepochepkai, Kptarpotich; **Samburu:** Ikirebuk; **Sanya:** Mkibonyea; **Swahili:** Mkwamba, Mteja; **Teso:** Elachas; **Tharaka:** Mukururu; **Turkana:** Ekalis, Elakis.

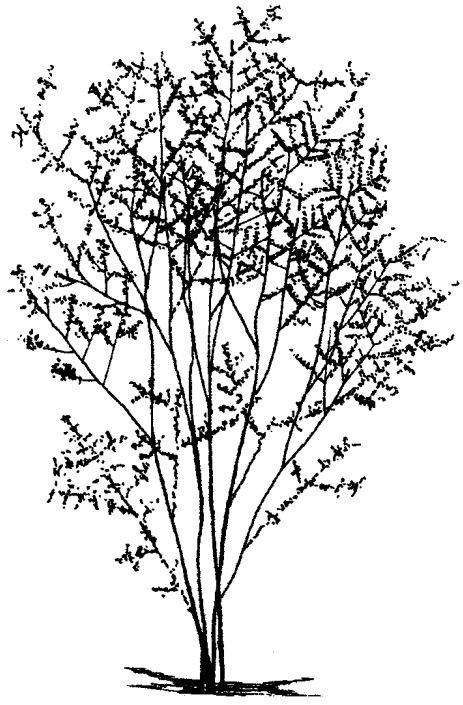
DESCRIPTION: A deciduous much-branched shrub, usually 1–3 m, occasionally a tree to 7 m. BARK: Red-brown, smooth, later rough. **Branchlets and leaf stalks purple-red.** LEAVES: Simple and alternate, very variable, to 6 cm, **wider at the tip,** which may be notched, **grey below.** FLOWERS: Male and female plants. Flowers **small, green-yellow, sweet-scented, in leaf axils,** male flowers in clusters but only 1–5 female flowers. FRUIT: **Small white berries,** only 5 mm across but edible and sweet. Pale **green berries ripen white, 4–5 mm across,** edible and sweet with **5 soft segments** containing tiny seeds, pale brown and shiny.

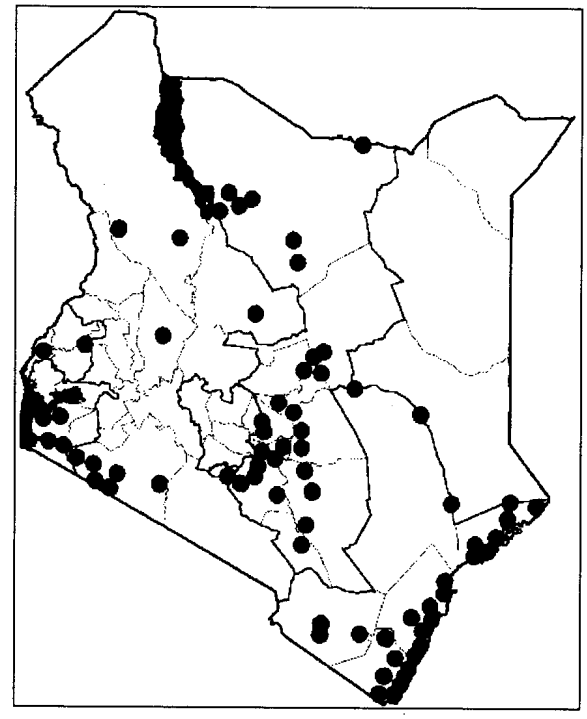
ECOLOGY: A widely distributed species in Africa from Senegal to Somalia and south to Namibia, and in the southern Arabian peninsular, Madagascar, Pakistan and east to Japan and Timor. In Kenya, found mostly in open *Acacia–Combretum* woodlands or bushed grassland. Soils variable, but common on sandy and clay-sandy soils, 120–2,000 m. Agroclimatic Zones II–V. Flowers during the rainy season. In fruit in June–July in Tharaka, Machakos and Kitui. In fruit at the coast and adjoining areas in December–January.

USES: Firewood, charcoal, construction (twigs used for houses and granaries), utensils (wooden needles for sewing, storage pots), edible fruit, medicine (roots, bark, fruit, leaves), fodder (fruit for chicken, leaves for goats), tannin (bark), ceremonial, fish traps (branchlets).



Fruit (enlarged)





Flueggea virosa (cont)

PROPAGATION: Seedlings, wildings, cuttings.

SEED: Germinate better after passing through the gut of animals such as baboons.
treatment: Not necessary.

MANAGEMENT: A fast-growing shrub.

REMARKS: Ripe white fruit eaten whole, mainly by children; soft and sweet with a slightly bitter taste. Ash used for cleaning out milk gourds (Maasai, Narok). *Flueggea virosa* is also used in *kitigo kia mburi*, a charm for good health in goats, dusted on the animals as they pass the entrance to the boma (Tharaka).

FURTHER READING: Beentje, 1994; Bein et al., 1996; Bekele-Tesemma et al., 1993; Kokwaro, 1993; Maundu et al., 1999; Palgrave and Palgrave, 2002; Ruffo et al., 2002; Verheij and Coronel, 1991.

Fraxinus pennsylvanica

Oleaceae

North America

COMMON NAMES: **English:** Mexican ash; **Kikuyu:** Munyukwa.

DESCRIPTION: A spreading, shapely, deciduous tree to 15 m. BARK: Grey, becoming darker and cracking with age. LEAVES: Compound, opposite, to 30 cm, **crowded** at the ends of branches, leaflets **spear-shaped, often unequal-sided, edge irregularly toothed, up to 18 cm. Dark brown leaf buds** conspicuous before they open and new lime-green leaves appear. FLOWERS: Without petals, **male stamens purple-brown**, female separate, very small, both in terminal sprays. FRUIT: Single **winged seeds**, up to 5 cm, on thin stalks, hanging a long time **in clusters on the tree**.

ECOLOGY: Ash trees are usually native to temperate zones but a few extend to the tropics. Fairly widely planted in the Kenya highlands 1,500–2,800 m, e.g. in Nairobi and Eldoret. Agroclimatic Zones II–III.

USES: Firewood, timber, posts, medicine, fodder (leaves), bee forage, shade, ornamental, windbreak, firebreak.

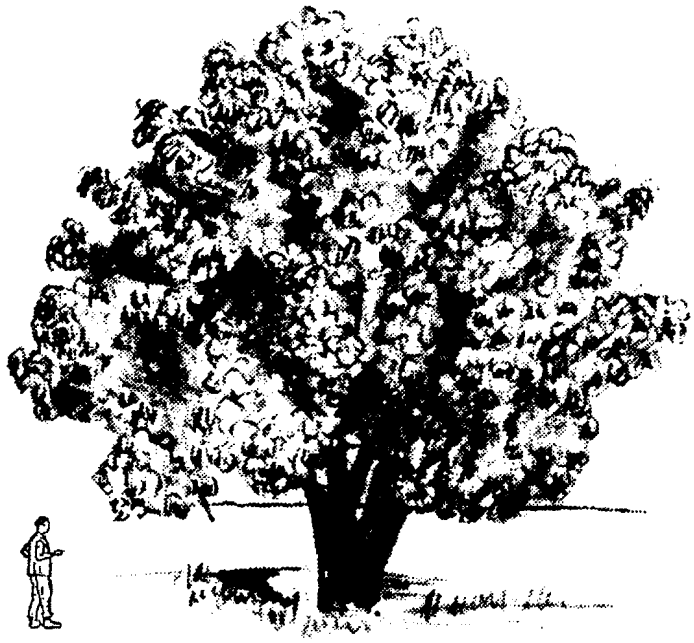
PROPAGATION: Seedlings.

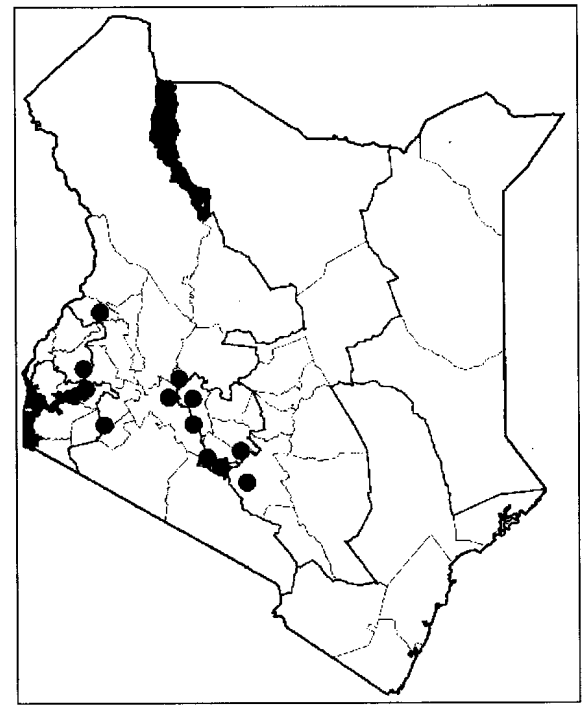
SEED: 26,000–28,000 seeds per kg.
treatment: Remove the wing of the seed before sowing.

MANAGEMENT: Pollarding.

REMARKS: The tree has potential for wider use at higher altitudes as a shade and fodder tree and for general timber. It is used as a firebreak in Elburgon Forest. *Fraxinus* is mainly a northern temperate genus with several dozen species, particularly common in North America.

FURTHER READING: Dharani, 2002; Mbuya et al., 1994; Noad and Birnie, 1989.





Garcinia livingstonei

Guttiferae

Indigenous

COMMON NAMES: **Boni:** Mangales, Unglise; **Digo:** Kisambwe, Mfunga tanzu; **Giriama:** Mufodzohi; **Kamba:** Mukanga kanywa, Mukanga, Kikaanga kanywa, Ngaanga kanywa (fruit); **Luhya:** Eshimwani; **Maasai:** Olkifulwa, Enongeperen; **Marakwet:** Nerkwo; **Pokomo:** Muchochozi; **Pokot:** Merwo; **Samburu:** Lkasiyoi, Lyoret; **Sanya:** Magadhoguyo, Dhembela; **Somali:** Daresa (Garissa), Shan faroth; **Swahili:** Mpekechu, Mpeketo, Mtotozi; **Taita:** Mnganga, Munyanga; **Teso:** Atenum, Ekwalakwala; **Tharaka:** Muthuthuura; **Wardei:** Shan forodla.

DESCRIPTION: A distinctive evergreen tree or shrub, 2–10 m, with a short bole. **Large erect branches** support a heavy conical crown. In big trees branches arch over in a characteristic way. Branching is often in 3s—useful as stirring sticks. BARK: Dark grey-black, ridged; exudes drops of yellow to red latex when damaged. LEAVES: Stiff and leathery, **in pairs or 3s,** 4–14 cm, edge usually wavy, **the veins irregular and raised on the shiny upper surface.** FLOWERS: Cream-green, in small clusters, a sweetish smell, small green buds sticky with resin. FRUIT: **Yellow-orange, oval, 2.5 cm** diameter, very many, edible, acid-sweet, up to 5 seeds.

ECOLOGY: Found from Cameroon east to Somalia and south to South Africa. Widely distributed in Kenya, especially along the major rivers. A riverine, forest and thicket species, but also found on rocky outcrops, 0–1,900 m. Left scattered in cropland in the Tana flood plains. On the coast also in forests away from water. Agroclimatic Zones II–V. Fruit and seeds in December at the coast, and in February–March in Embu and in West Pokot.

USES: Firewood, poles, tool handles, utensils (3-branched twigs for stirrers, wooden spoons), edible fruit, medicine (roots), fodder, shade, ornamental, soil conservation, dye (bark, sap).

PROPAGATION: Seedlings (sow seeds in pots), direct sowing at site.

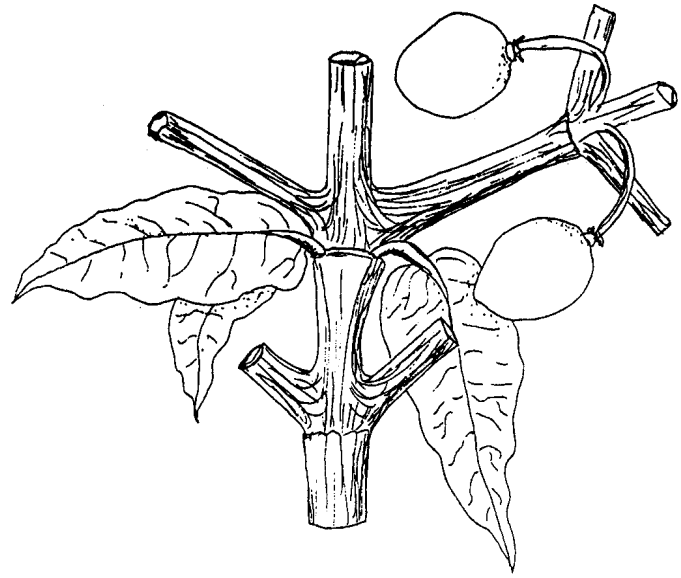
SEED: Ripe fruit are collected and put in a cool place for the pulp to rot and fall away. Then dry and separate the seed from the pulp residue; 2,000–2,500 seeds per kg.
treatment: Not necessary, but nicking the seed coat or soaking in cold water overnight may hasten germination.
storage: Best to use fresh seeds. If they are to be stored, it is best to keep them spread out in a dry cool place.

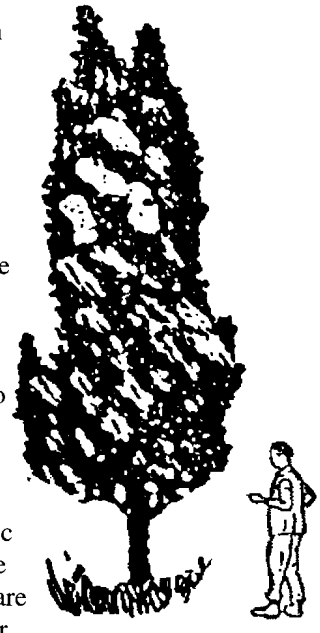
MANAGEMENT: Fairly fast growing. The young seedling develops a strong root before shoots, a feature that makes it worth trying to sow the tree directly at the site where it is to grow.

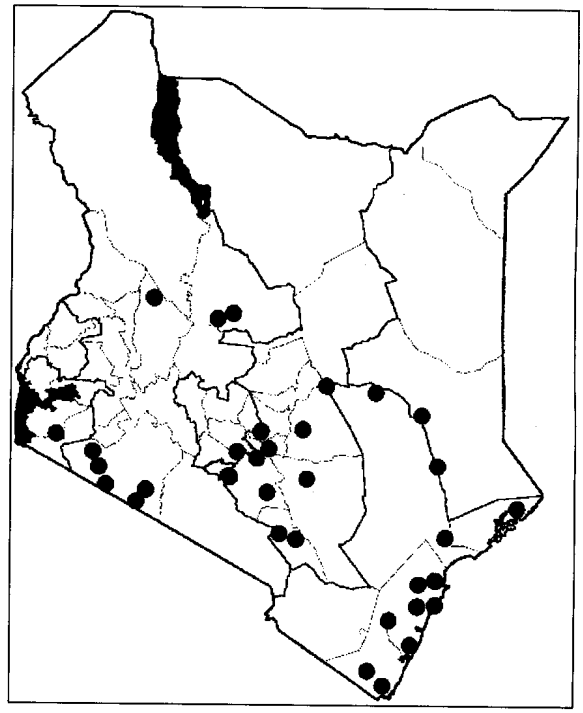
REMARKS: One of the most delicious wild fruits in the country. Leaf extracts have shown some antibiotic properties. Game readily browse the leaves. Twigs used to stir porridge are called *lufudzo* along the Tana River. The yellow oily sap has been used to decorate arrows (Tharaka).

Two other species of *Garcinia* are found in Kenya. *G. buchananii* (**Luhya (Bukusu):** Kumukhomeli) is found at the coast and in western parts in moist forest and bushland. It usually has opposite leaves. The fruit is edible. *G. volkensii* (**Kamba:** Mulaliondo, Muketa; **Tharaka:** Muthuthuura) is found from central Kenya to the coast in evergreen forest. Flower petals and sepals are in 5s, but in 4s in *G. buchananii. Garcinia* is a medium-sized tropical genus particularly common in Africa and Asia. Many of its members have edible fruit with great potential for commercialization, e.g. the Malaysian *G. mangostana* (mangosteen), which is considered one of the most delicious of fruits.

FURTHER READING: Beentje, 1994; Katende et al., 1995 (*G. buchananii*); Kokwaro, 1993;Maundu et al., 1999; Mbuya et al., 1994; Palgrave and Palgrave, 2002; Ruffo et al., 2002; Storrs, 1979; van Wyk, 1993.







Gardenia volkensii

Rubiaceae

Indigenous

COMMON NAMES: **Digo:** Mchimwemwe; **Giriama:** Mkimwemwe; **Kamba:** Mukumuti; **Luhya:** Shiuna; **Maasai:** Oltakurukuriet, Oltgurguriet; **Swahili:** Mkimwemwe.

DESCRIPTION: A small **twiggy tree** rarely reaching 8 m, with a **relatively dense crown** and a **short** thick and often fluted **trunk**. The twigs are borne in whorls of 3 and are very hard and stiff. BARK: **Pale grey, smooth on young branches. In older parts,** flaking in small, fairly thick sections, resulting in a **mottled appearance**. LEAVES: **Spoon-shaped,** widest and truncated at the tip and borne in whorls of 3, usually less than 5 cm long. FLOWERS: Large, borne singly. Corolla large, showy **white, turning yellow after a few days,** then brown before dropping, **tube up to 10 cm long** or more. FRUIT: Large, round or oval, grey with prominent longitudinal ribs, remaining on the tree for a long time and falling unopened.

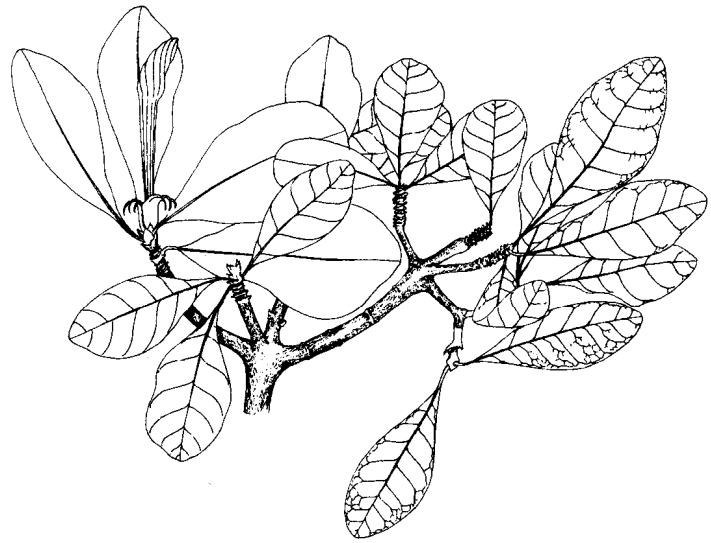
ECOLOGY: A common tree in most of tropical Africa from Ethiopia south to northern Namibia, northern Botswana, Zimbabwe, northern KwaZulu-Natal and Swaziland. It occurs on a wide variety of soils, ranging from sand to clay, as well as in rocky areas. In Kenya it is found from the coast to the Lake Victoria basin and also in northern Kenya in open woodland and bushland, often many concentrated in one area. The tree prefers well-drained soils and does not withstand waterlogging. Agroclimatic Zones III–IV. In flower November–December in Nyanza and Western Kenya; fruit and flowers in June in Malindi at the coast.

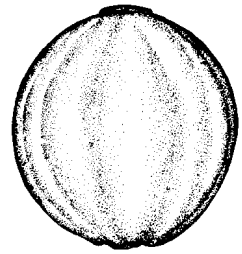
USES: Medicinal, utensils (cooking stirrers, sticks), shade, ornamental, ceremonial.

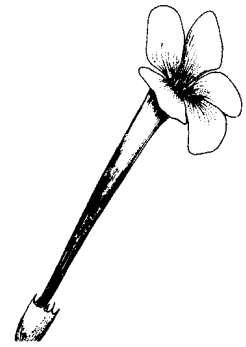
PROPAGATION: Seedlings.

SEED: Seed can remain dormant for a long time.

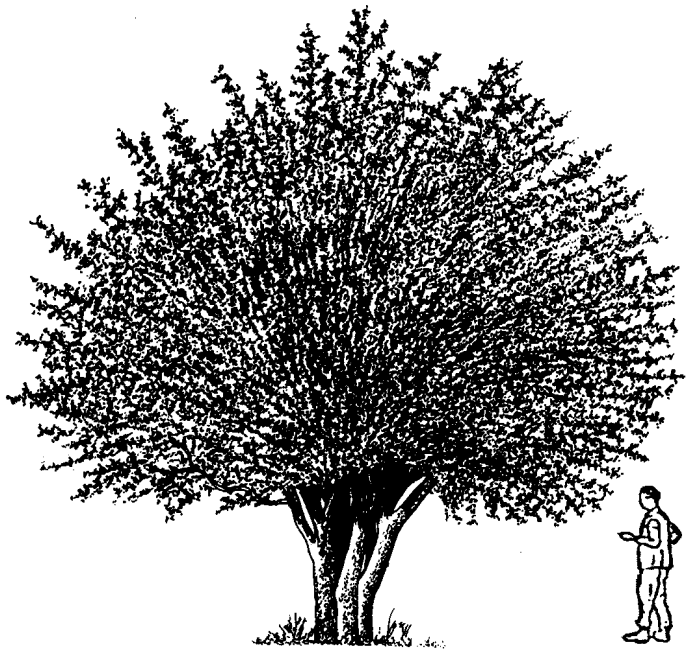
REMARKS: The showy large flowers of *Gardenia* species make them excellent ornamental plants. The wood of most species is yellowish, very hard, heavy and fine-grained, but the small size limits its use. Branches of *G. volkensii* are used by Maasai women to close the entrances to animal enclosures. The plant is also used for fencing round cattle enclosures. The hard fruit shell (pericarp) is used as a calabash by children. A related and

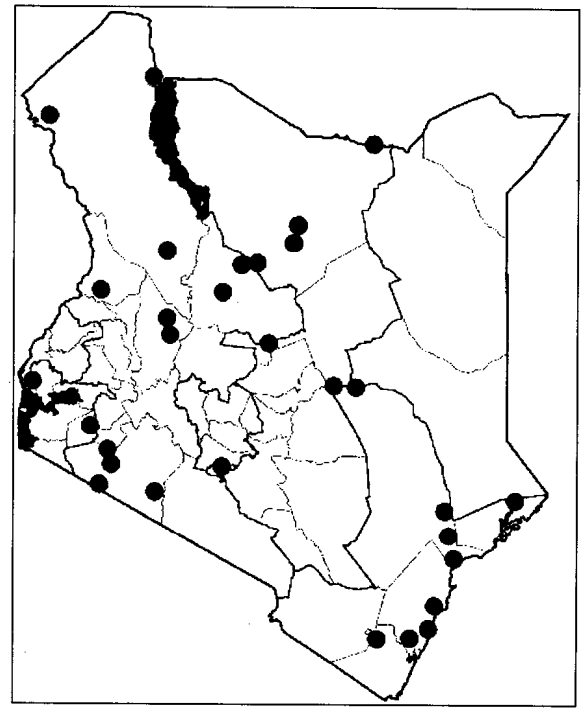






Fruit





Gardenia volkensii (cont)

common species is *G. ternifolia* (**Boni:** Kurkoi; **Kamba:** Mukumuti; **Luhya (Bukusu):** Siuna; **Luo:** Rayudhi, Onduongi; **Maasai:** Oltakurukuriet; **Sabaot:** Dabulwa; **Swahili:** Kimwemwe), a slow-growing shrub or tree to 10 m. Leaves are up to 18 cm long, smooth or rough. Flowers white, turning yellow. The fruit is yellow to red, widest in the middle, smooth and up to 7.5 cm long. Normally left in cropland in Bungoma. Its wood is very termite resistant, very hard and very durable. It is used for tool handles, bows and walking sticks, and burning sticks can be used as candles. The bark is commonly used in medicine. The plant is difficult to uproot. Found from the coast to western Kenya, 0–2,100 m. There are 3 other species of *Gardenia* in Kenya. *G. fiorii* (**Somali:** Karro) is more common in dry bushland in north-eastern parts. Leaves are less than 1.5 cm wide, wrinkled and hairy. The other 2 species, *G. posoquerioides* (**Digo:** Chimwemwe) and *G. transvenulosa*, are coastal forest species with a restricted distribution. All are used for medicine.

FURTHER READING: Backes and Ahenda, 1998 (*G. ternifolia*); Beentje, 1994; Blundell, 1987; Palgrave and Palgrave, 2002; van Wyk, 1993.

Gliricidia sepium

Fabaceae (Papilionaceae)

Central America, Mexico

COMMON NAMES: **English:** Mother of cocoa, Mexican lilac, Quick stick.

DESCRIPTION: A leafy shrub-like tree growing up to 8 m, the trunk short and twisted, to 30 cm thick. BARK: Grey–light brown, smooth, cracked with age. LEAVES: Fern-like, with many pointed leaflets on a leaf stalk to 25 cm, hanging down. FLOWERS: Pretty, **mauve-pink,** centre yellow, **grow on the woody stems.** FRUIT: Pods, thin and flat to 15 cm long, yellow-grey then black when dry; 3–8 seeds set free when pod breaks open.

ECOLOGY: A tree or shrub, widespread in the tropics due to its many uses and speed of growth. It grows in a variety of soils, both acidic and those low in fertility, mainly in humid lowlands, 0–1,600 m. In Kenya, it also does well in drier areas like Kitui and Isiolo. Agroclimatic Zones III–VI.

USES: Firewood, charcoal, poles, posts, tool handles, farm implements, fodder (leaves, shoots, pods, seeds for ruminants), bee forage, shade, ornamental, mulch, nitrogen-fixing, soil conservation, windbreak, live fence, stakes.

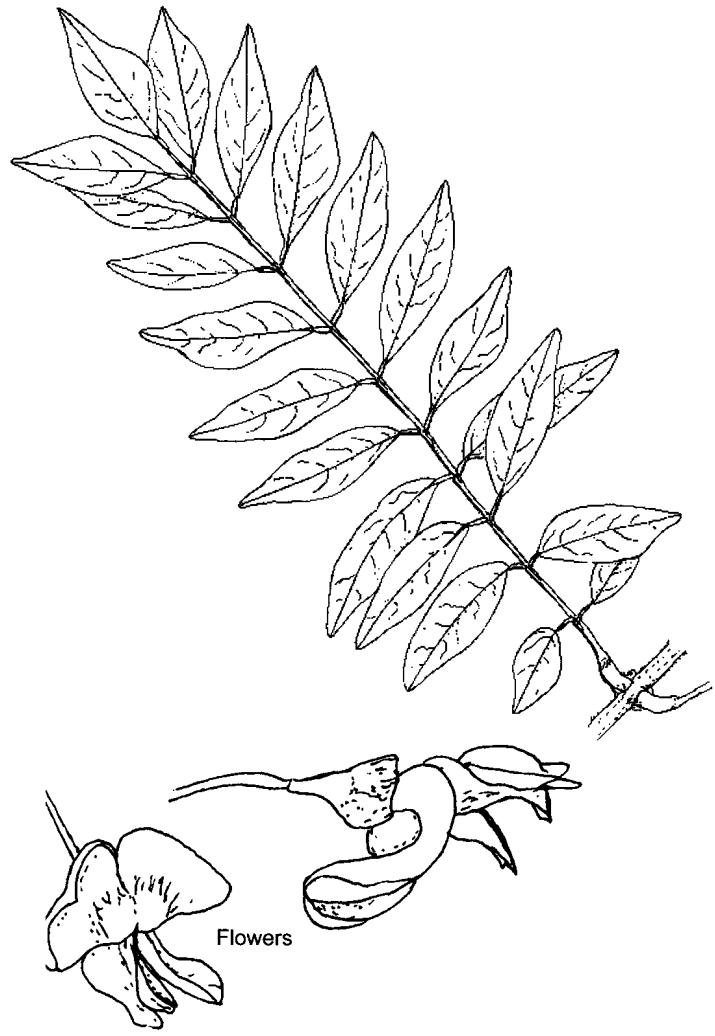
PROPAGATION: Seedlings, cuttings, direct sowing at site. Cuttings are the best choice for live fences.

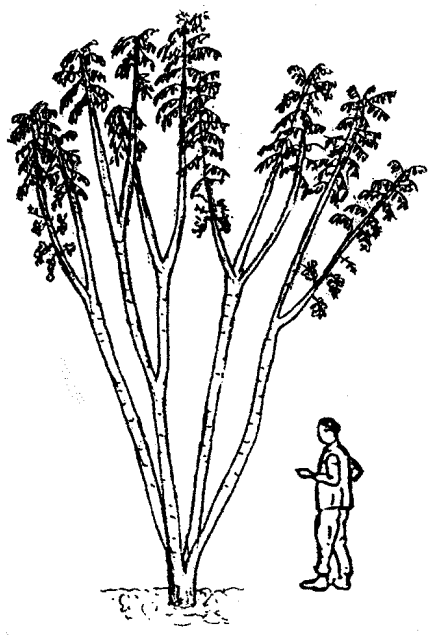
SEED: 6,000–13,000 seeds per kg; germination rate 90% when fresh.
treatment: Immerse seed in hot water, allow to cool and soak for 12 hours.
storage: Seed does not store for long. It is best to use fresh seed.

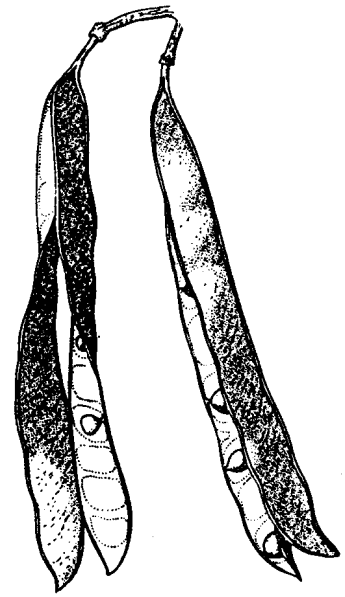
MANAGEMENT: Fast growing, coppicing, pollarding, lopping.

REMARKS: The Latin name means 'rat-killer' as a poison can be made from the leaves which is toxic to rats as well as other non-ruminants like pigs, donkeys and horses. Bark, roots and seeds may also contain poison. A very useful quick fence can be grown from crossed stakes which soon sprout. Wood is resistant to termites. Used in Sri Lanka as coffee shade. Low palatability to livestock.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Jensen, 1999; Katende et al., 1995; Mbuya et al., 1994; National Academy of Sciences, 1979, 1980.







Gmelina arborea

Verbenaceae

South Asia

COMMON NAMES: English: Gmelina, Melina.

DESCRIPTION: A deciduous tree that may reach 18 m, but is usually smaller; the crown fairly open. BARK: **Pale cream** when young, **grey–yellow–brown** with age, corky and rough. LEAVES: Large, **heart-shaped, to 20 cm, tip pointed,** shiny above, pale and hairy below, on a **stalk to 12 cm.** FLOWERS: In clusters to 30 cm long, organge-yellow, each flower bell shaped. Abundant nectar attracts bees. FRUIT: **Orange-yellow, egg shaped to 2.5 cm,** containing a stone with 1–4 seeds inside. The fruity smell attracts bats.

ECOLOGY: Found in moist forests of south Asia to China. Now a useful tree planted worldwide, 0–1,200 m, but relatively new to Kenya. In Kenya it is basically a coastal tree, although it may grow in other lowland areas. It does best in fertile, well-drained loams. Agroclimatic Zones II–III.

USES: Firewood, charcoal, timber, furniture, tool handles, poles, veneer, plywood, fodder (leaves, fruit), bee forage, shade, ornamental, windbreak.

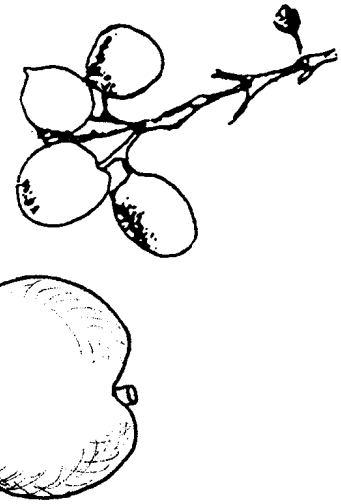
PROPAGATION: Seedlings, direct sowing at site, cuttings.

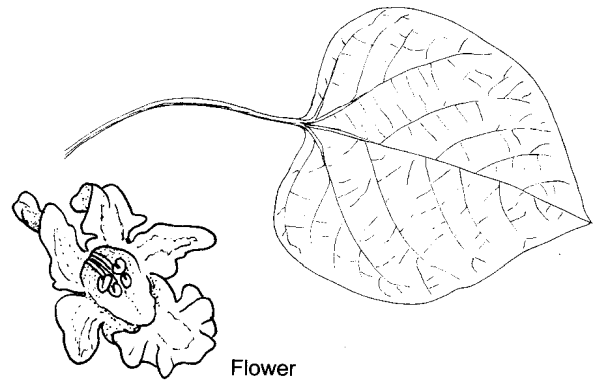
SEED: About 1,400 seeds per kg. Germination rate 40–80% in 20–50 days under good conditions.
treatment: Soak seed in cold water for 24–48 hours.
storage: Seed can be stored for a year without loss of viability.

MANAGEMENT: Fast growing, pruning, lopping, coppicing. Coppices well when young but less well when stumps are old. Protect young trees from livestock. Young trees do not compete well with weeds. Established trees compete with crops and suppress undergrowth and thus should not be grown near cultivated land.

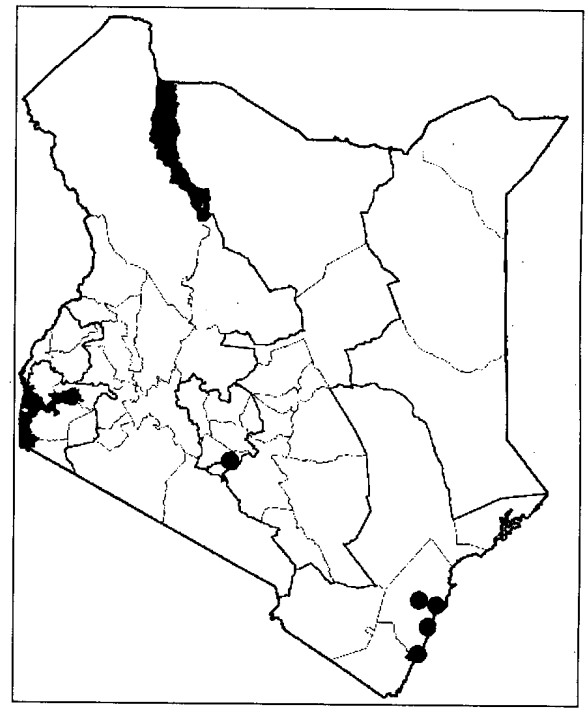
REMARKS: The greyish white soft wood is light and strong. The leaves are palatable to livestock and the fruits are also eaten.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Albrecht, 1993; Bekele-Tesemma et al., 1993; Jensen, 1999; Katende et al., 1995; National Academy of Mbuya et al., 1994; National Academy of Sciences, 1979; Storrs, 1979.





Flower



Grevillea robusta

Proteaceae

Eastern Australia

COMMON NAMES: **English:** Silky oak; **Kamba:** Mukima; **Kikuyu:** Mubariti, Mukima; **Kisii:** Omokabiria; **Luhya:** Eshichuma, Wakhuisi; **Nandi:** Kapkawet.

DESCRIPTION: A semi-deciduous tree to 20 m or more with a straight trunk, angular branches and an oval leafy crown. BARK: Dark grey, rough, vertically grooved. LEAVES: Compound, **fern-like, very divided,** leathery, pale green above, **silver-grey below.** FLOWERS: Very many, in **one-sided golden-orange spikes,** much nectar, which attracts bees and sunbirds. FRUIT: Dark brown capsule, about 1 cm, with a slender beak, splitting to set free 2 winged seeds.

ECOLOGY: A very successful Australian tree planted and widely used in Africa, 0–3,000 m. It was introduced to Kenya as coffee shade but has been found to have a variety of uses. It grows well on neutral to acidic loam or light sandy soils but is not tolerant to waterlogging or heavy clays. Agroclimatic Zones II–V.

USES: Firewood, charcoal, timber, furniture, poles, veneer, fodder (leaves, low quality), bee forage, shade, ornamental, mulch, soil conservation, windbreak.

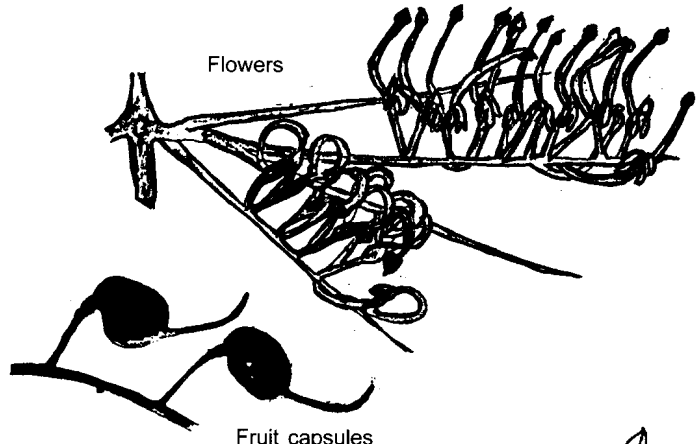
PROPAGATION: Wildings, seedlings.

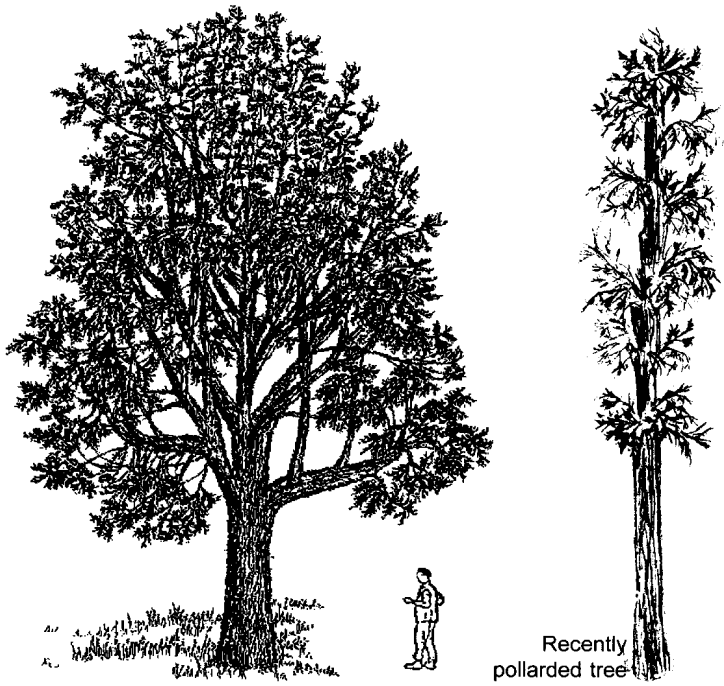
SEED: Germination rate 30–90% in 2–3 weeks; 70,000–113,000 seeds per kg, average in Kenya around 83,000. Collection of large amounts of seed is time consuming. Each capsule contains only 2 seeds that are dispersed by wind soon after the capsule splits open. Capsules can be collected just before they split and kept for drying, splitting and extraction of seeds. Collection of green capsules should be avoided as immature seeds germinate poorly. Seedlings may attain 75 cm within the first year.
treatment: Not necessary.
storage: Seed can be stored for up to 3 months, but the storage period can be extended if they are refrigerated. However, it is better to avoid storage altogether.

MANAGEMENT: Moderate to fast growing; pollarding, lopping, coppicing and pruning. Only young trees coppice well.

REMARKS: In some communities, there is a cultural belief that the species attracts lightning in homesteads. An important dry-season fodder in Meru District, the tree grows well with food crops if managed to reduce shade. The timber is hard and has an attractive grain. *Grevillea* is an extremely important tree in the Kenya highlands and has become an integral part of the farming system in many areas. Pollarded branches are meeting much of the firewood needs, stems are used for timber, and the leaf litter is used as bedding material in livestock zero-grazing units. A mixture of manure and *Grevillea* leaves make a very good addition to the soil.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Albrecht, 1993; Bein et al., 1996; Bekele-Tesemma et al., 1993; Blundell, 1987; Dharani, 2002; Fichtl and Adi, 1994; Jensen, 1999; Katende et al., 1995; Lötschert and Beese, 1983; Mbuya et al., 1994; National Academy of Sciences, 1980; Noad and Birnie, 1989; Storrs, 1979.





Grewia bicolor

Tiliaceae

Indigenous

COMMON NAMES: **Boran:** Harowessa, Hororessa; **Chonyi:** Mkone; **Daasanach:** Suriech; **Kamba:** Ngalawa, Ndawa, Mulawa, Kikalawa, Ngalwa (fruit), Ilawa; **Kambe:** Mkone; **Kipsigis:** Setetit, Sitetet, Sitetooik (plural); **Luhya:** Lulala; **Luhya (Bukusu):** Kumufuniu; **Luo:** Powo; **Maasai:** Ositeti, Sitet; **Marakwet:** Siti (plural); **Mbeere:** Muragwa, Murawa; **Orma:** Haroru; **Pokot:** Sitet; **Rendille:** Dabach, Arlilo (fruit); **Samburu:** Lagrat denai, Lkarraiyo, Seteti, Sitet; **Sanya:** Haroru; **Somali:** Depi, Tebi, Debhi (Tana River), Dowee; **Swahili:** Mfukufuku, Mikoche; **Taita:** Mmara, Ndomoko; **Tharaka:** Murawa, Muraagwa; **Tugen:** Sitewo; **Turkana:** Ekali, Epat.

DESCRIPTION: A low shrub or tree, 2–10 m in dry deciduous woodland. Produces suckers and branches from the base of the main trunk. BARK: Smooth when young, dotted with breathing pores, later dark, rough and scaly. LEAVES: Oval to oblong, pointed, **1–8 cm, the edge finely toothed, shiny green above but pale grey-white below,** drooping in heat. FLOWERS: **Golden yellow,** sweet smelling, **small petals bent back over larger sepals.** FRUIT: Usually consisting of a single lobe, rarely 2, each lobe rounded and **soft, about 5–7 mm across, hairy at first, orange then black as it dries,** edible, sweet but sharp on the tongue.

ECOLOGY: A common tree of the semi-arid tropics of Africa and India. Found in Kenya from coastal lowlands to the highlands, 0–1,800 m, but less common at the coast. Most common in lowlands in dry bushland and bushed grassland. Soils very varied but mainly red clay, sandy and rocky soils. Agroclimatic Zones III–VI. Flowers mainly in the rainy season; fruits about 3 months later.

USES: Firewood, poles (construction), posts, tool handles, carvings, utensils (stirrers, clubs), walking sticks, bows and arrows, edible fruit, medicine (roots), fodder (leaves and fruit), shade, fibre (bark for strings and ropes).

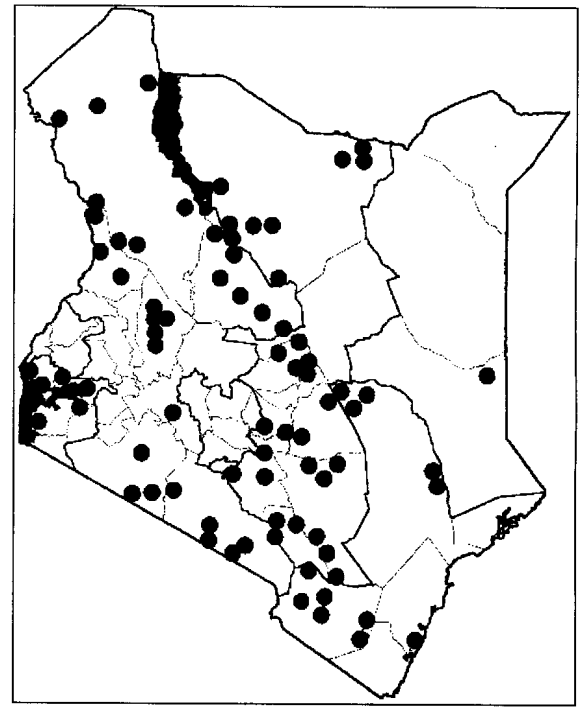
PROPAGATION: Seedlings, wildings, direct sowing at site. Root suckers are also produced. Grewias generally reproduce well naturally if protected from grazing and fire.

SEED: About 9,000–15,000 seeds per kg. Germination is good but sporadic, completed after 6 weeks.
treatment: Not necessary, but soaking in cold water for 12 hours may hasten germination.
storage: Seeds can be stored for a year at room temperature if kept dry.

MANAGEMENT: Slow growing; coppicing, pruning and thinning in pastures.

REMARKS: Most species of *Grewia* have edible fruit. *G. bicolor*, however, has hard seeds that are difficult to chew and the fruit is usually eaten by sucking off the thin sweet flesh on the outside and discarding the seeds. The seeds may cause constipation if ingested in large amounts. *Grewia* species are good sources of fibre. Their stems are often tough and durable, thus they find many uses in the household. Twigs from the tree are used by Kamba water diviners. The hard strong wood is used by the Maasai for clubs and spears.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Backes and Ahenda, 1998; Beentje, 1994; Bekele-Tesemma et al., 1993; Blundell, 1987; Dharani, 2002; Katende et al., 1995; Kokwaro, 1993; Maundu et al., 1999; Mbuya et al., 1994; Noad and Birnie, 1989; Palgrave and Palgrave, 2002; Ruffo et al., 2002; von Maydell, 1990.



Grewia plagiophylla Tiliaceae

Indigenous

COMMON NAMES: **Giriama:** Mkone; **Malakote:** Fahfa; **Orma:** Haroru hadda; **Pokomo:** Mkole; **Sanya:** Haroro korm, Haroro; **Somali:** Debhi; **Swahili:** Mkone; **Wardei:** Dhebi.

DESCRIPTION: A shrub or small tree to 7 m with a rather spreading crown. BARK: Grey, smooth on branches, fissured in old bark. LEAVES: Usually **widest from middle part towards the tip, asymmetrical, one side of leaf base extending down the leaf stalk much further than the other**; edge minutely toothed, to 6 x 13 cm long but usually much smaller; **shiny above, grey-green and densely hairy beneath**. FLOWERS: Yellow, in branched heads arising from sides of branches. FRUIT: Each **divided into 1–2** rounded **lobes** that resemble individual fruits, each lobe to 7 mm across, with or without a few hairs on the surface.

ECOLOGY: Occurs in Tanzania and Kenya. In Kenya, mainly found at the coast, in forest edges, bushland and wooded grassland. Common on farms and in homesteads, where it is left as a shade tree and for cultural purposes. Agroclimatic Zones III–V. Fruits in November–December at the coast.

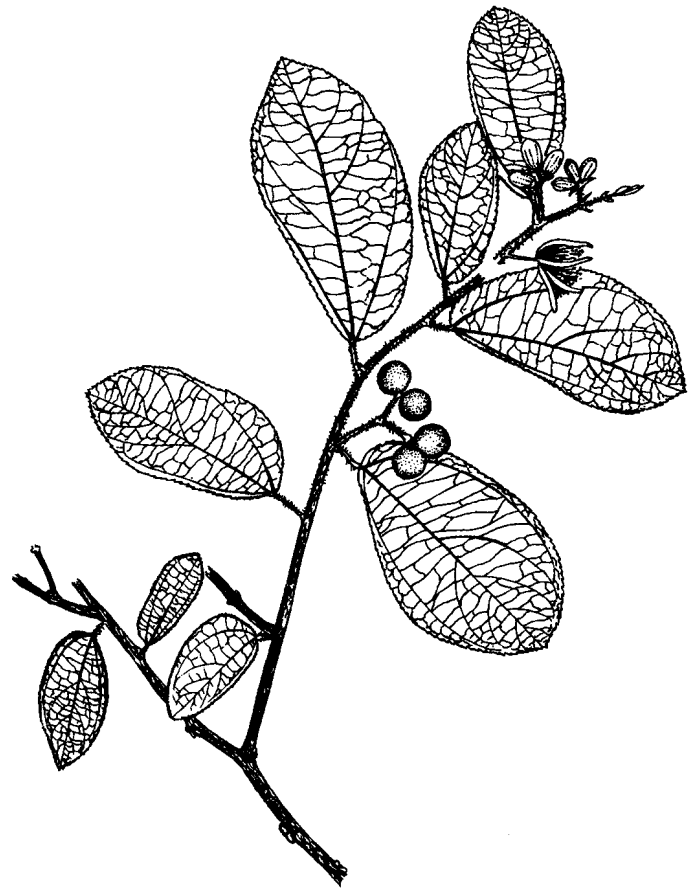
USES: Poles, posts (for house construction), tool handles, edible fruit, medicine (roots, leaves, fibre of inner bark), ceremonial, fibre (bark, used for roofing), shade, ornamental.

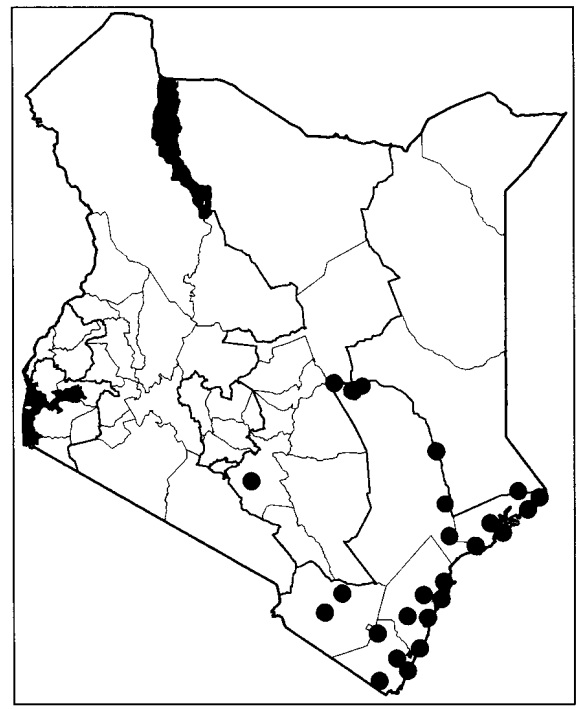
PROPAGATION: Grewias generally reproduce well naturally if protected from grazing and fire. Seedlings can be raised, wildings can be collected.

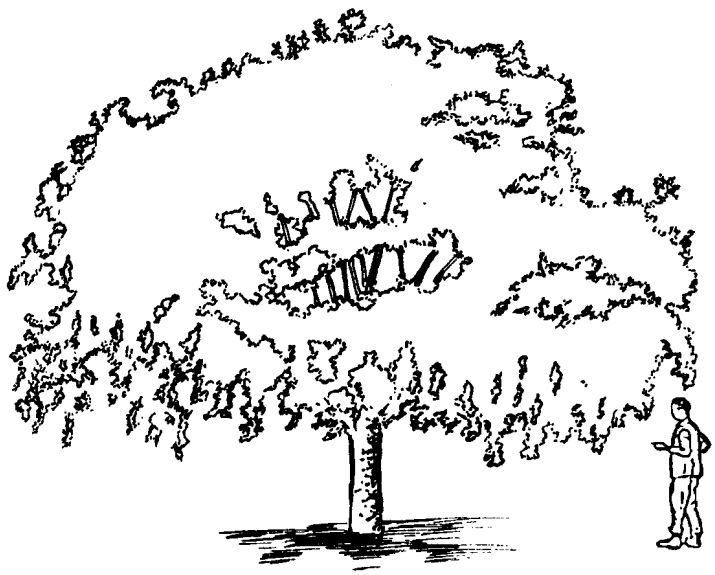
MANAGEMENT: Prune lower branches, support hanging branches.

REMARKS: The wood is very tough. It is the choice plant for bows, arrows, sticks and clubs (*rungu*). It is used in small construction, for poles and as a source of fibre. The stem is carved into flat human-like pieces that are erected in the homestead to represent departed ancestors (Giriama).

A closely related species is *G. mollis* (**Kamba:** Kikumi; **Luo:** Powo; **Maasai:** Ositeti; **Nandi:** Didiyot; **Pokot:** Epat; **Rendille:** Dabach; **Samburu:** Siteti; **Somali:** Debhi ad, Ged mured; **Turkana:** Epat), which, unlike *G. plagiophylla*, does not extend to the coast. The bark is thick, flaking to expose green underneath. Leaves up to 12 x 6 cm, widest in the middle, base rounded to slightly asymmetrical, underside with dense soft grey hairs. Flowers yellow. Fruit with 1 or 2 lobes, each up to 7 mm. This species is widely distributed, particularly in







Grewia plagiophylla (cont)

subhumid to semi-arid parts of Kenya in wooded grassland and woodland; 700–1,900 m. Agroclimatic Zones III–IV. *G. mollis* may grow to a small tree in semi-arid areas where it provides excellent shade. The wood is used for construction poles. It also has potential as an ornamental.

FURTHER READING: Beentje, 1994; Kokwaro, 1993.

Grewia tembensis

Tiliaceae

Indigenous

COMMON NAMES: **Boran:** Deeka dima, Deka, Ogumdi; **Daasanach:** Damich arab; **Digo:** Mkone; **Ilchamus:** Ikogom, Ikogomi; **Kamba:** Mutuva, Nduva (fruit); **Kipsigis:** Chesarebut; **Maasai:** Oirri, Oyiri, Iri (plural); **Mbeere:** Muruba; **Orma:** Deka dubra; **Pokot:** Toronwo; **Rendille:** Dook gudhan, Mulahanyo; **Samburu:** Irri; **Somali:** Demag, Dhamag, Dumag, Mured bonati (Tana River); **Taita:** Mmbogha; **Taveta:** Mwemba; **Turkana:** Emaleker, Emaleger.

DESCRIPTION: Small, usually **twiggy, multi-stemmed straggling shrub** to 4 m or occasionally more. **Stems long, narrow, whitish grey** to dark grey, smooth. BARK: Smooth, dotted with lenticels, later dark and rough. LEAVES: Widest from the middle towards the tip, thinly hairy, **slightly rough above, soft hairy below**, edge toothed, up to 2.5 x 4.5 cm. FLOWERS: Buds pinkish green. Flowers white to pink (sepals pinkish, petals white, stamens purplish pink). FRUIT: Each usually divided into **4 individual lobes,** each lobe roundish and 4–7 mm across, **hairy**, light green with some dark green patches on the surface, **ripening to orange** or bright red.

ECOLOGY: Distributed from Senegal east to Ethiopia and Djibouti and south to Botswana and Namibia. Widespread in Kenya, but uncommon in the western parts. Found in bushland, often riverine, 250–2,200 m. Surrounding bushes provide initial support for its long weak young stems. Soils varied, usually sandy or rocky, also red and black clay soils. Rainfall 500–800 mm. Agroclimatic Zones III–V. Flowers in the rainy season. and fruits 2–3 months later.

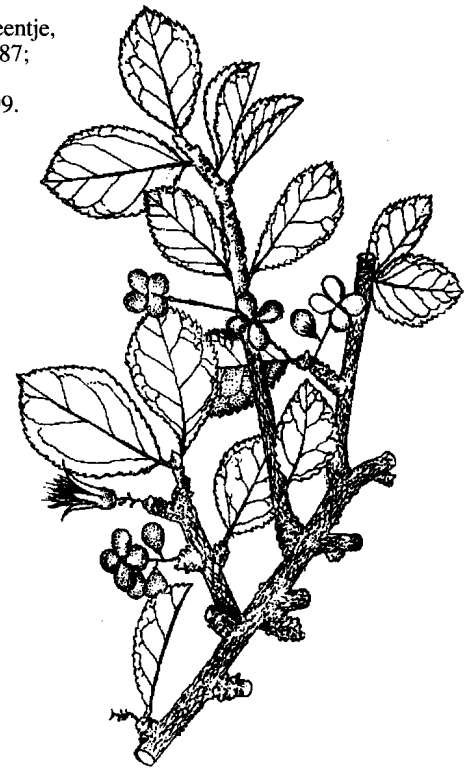
USES: Firewood, construction (stems used for weaving granaries and traditional houses, spits for roasting meat), utensils (pegs, forked and hooked sticks for hives, stirrers), walking sticks, bows and arrows, edible fruit, medicine (roots), fodder, live fence, pen for writing Koranic tablets.

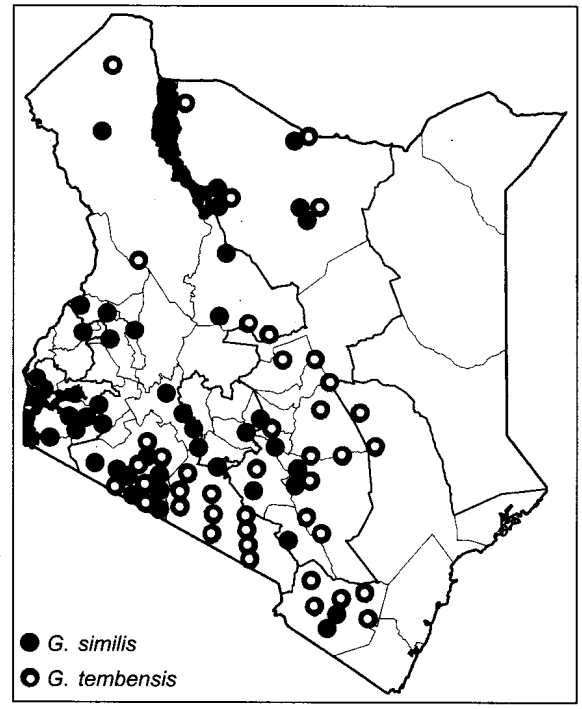
PROPAGATION: Seedlings, wildings, cuttings and root suckers. Grewias generally reproduce well naturally if protected from grazing and fire.

MANAGEMENT: Coppicing.

REMARKS: The bright orange-red fruit are sweet and much liked. Large quantities may be gathered and juice extracted (Kamba, Turkana). Fruit may be chewed and the juice swallowed. Seeds may be swallowed too but large amounts may cause constipation. *G. similis* (**Kamba:** Mutuva wa kiima (Mbiuni, Machakos); **Kikuyu:** Mutheregendi, Mutheregendu, Theregendu (fruit); **Maasai:** Oyirri) resembles this species but usually has larger leaves, flowers and fruit. Stems are dark grey to brown. Leaves usually widest towards the tip, short stalked and conspicuously veined below. Flower bud greenish brown opening to a striking purple-blue or purple-pink blossom. Fruit 4-lobed, green, ripening to orange. This is a bushland and forest-edge species normally found at medium altitude. It is common around Nairobi.

FURTHER READING: Beentje, 1994; Blundell, 1987; Kokwaro, 1993; Maundu et al., 1999.





Grewia tenax

Tiliaceae

Indigenous

COMMON NAMES: **Boran:** Deeka, Deeka imimo, Irgegud, Murie, Sarkam; **Daasanach:** Damich, Damis (plural); **Gabra:** D'eeka; **Giriama:** Mkone kilaa; **Ilchamus:** Ilkogomi; **Maasai:** Eirri narok, Oirri, Oyirri, Iri (plural); **Pokomo:** Mkote wa guba; **Pokot:** Toronwo, Taran (plural); **Rendille:** Domook (fruit), Domook derle, Mulahanyo; **Samburu:** Ikarayoi, Ikogomi, Ingongomi, Ipusan, Ipuusani, Irri, Loitipai; **Sanya:** Haroru korma; **Somali:** Amasha, Danfarur (Mandera), Deka, Demak, Kamasha, Mured (Garissa), Murie; **Tugen:** Taran, Turonwet; **Turkana:** Engomo; **Wardei:** Dekoa.

DESCRIPTION: Small much-branched, often multi-stemmed, straggling deciduous shrub to 4 m or more. Stems narrow, whitish grey with longitudinal streaks. Older stems dark grey. BARK: Dark grey, dotted with white breathing pores (lenticels) on young stems. LEAVES: In a variety of shapes, papery, usually **rounded and small, only 1.5–4 cm** on a slender stalk, the **edge round-toothed**, the surface hairy, smooth or slightly sandpapery. FLOWERS: **White and solitary, often opposite leaves**, shortly stalked, the **outer green-yellow sepals 9–20 mm, the inner white petals smaller**. FRUIT: Each divided into **1–4 rounded lobes** attached to each other, each lobe to 3–6 mm across, **smooth and red when ripe, edible.**

ECOLOGY: A shrub or small tree of very dry zones and on sandbanks from Morocco, the Sahel, the Arabian peninsular and further east to India, south to Namibia and South Africa. Widely distributed in most of Kenya except in Western and Nyanza Provinces. Found in dry acacia bushland, often along watercourses, e.g. in Daua Valley, Mandera District; 0–1,250 m. Soils varied, but usually rocky and red clay. Agroclimatic Zones V–VII.

USES: Firewood, tool handles, utensils (clubs), walking sticks, farm implements, bows and arrows, edible fruit, medicine (roots), fodder (leaves, shoots and fruit for goats and camels), bee forage, fibre (bark), gum, toothbrushes, veterinary medicine, local pens for writing Koranic tablets.

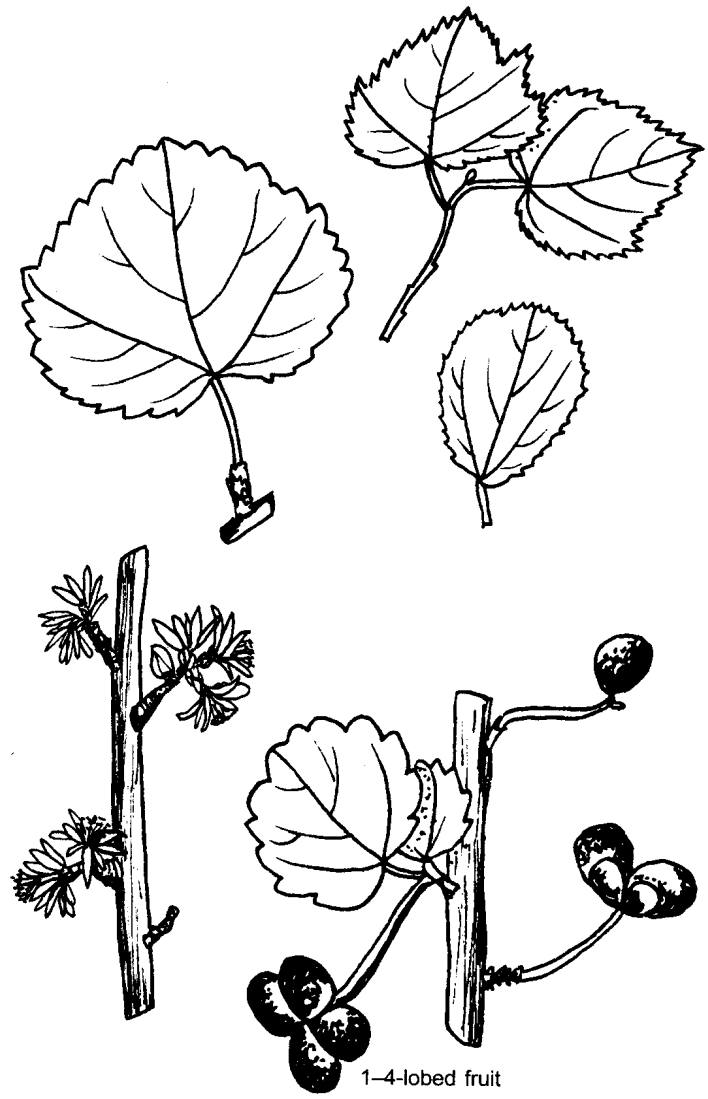
PROPAGATION: Seedlings, wildings, root suckers, direct sowing at site. Grewias generally reproduce well naturally if protected from grazing and fire.

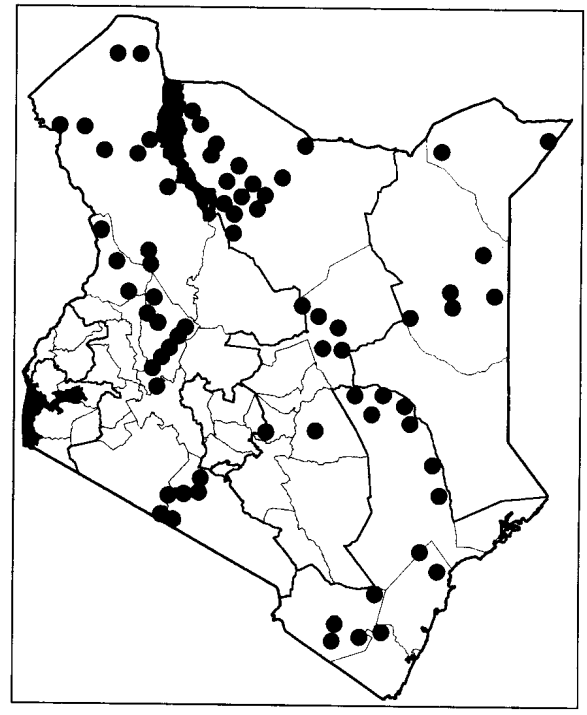
SEED: About 21,000 seeds per kg.
treatment: None, or soak in cold water for 12 hours.
storage: Can be stored for a year in an airtight container.

MANAGEMENT: Coppicing

REMARKS: This is the most useful *Grewia* in the arid parts of Kenya—as a fodder plant and food for people. Ripe and unripe fruit are eaten raw. They are sweet and may be eaten whole or chewed and only the sweet juice swallowed. If large amounts of seeds are ingested they may cause severe constipation. Fruit may be pounded, dried and stored and eaten later along with fat to avoid constipation (Turkana). Juice may also be made by extracting the pulp in water (Turkana). The shrub is widely used in traditional medicine. Sticks are made into bows and arrows (Pokot) and the thin ones are used as toothbrushes. Bark fibres have been used for binding in huts. The shoots and fruit are excellent camel and goat fodder.

FURTHER READING: Beentje, 1994; Bein et al., 1996; Blundell, 1987; Dharani, 2002; Kokwaro, 1993; Maundu et al., 1999; Palgrave and Palgrave, 2002; von Maydell, 1990.





Grewia villosa

Tiliaceae

Indigenous

COMMON NAMES: **Bajun:** Mukorobasha, Mukorobasho; **Boran:** Ogumdi, Morudo, Ogomdi, Muruudo, Moorodah; **Daasanach:** Barbar; **Gabra:** Ogomdi; **Ilchamus:** Lpupoi, Lpupo; **Kamba:** Muvu, Mbu (fruit); **Luo:** Ner powo; **Maasai:** Olpompoi, Olmankulai, Emankulai, Ilmangulai (plural); **Marakwet:** Mongurwa; **Mbeere:** Mubuu; **Pokot:** Mokoghio, Mokuwo, Makow (plural); **Rendille:** Obhoob; **Samburu:** Lpupoi, Lpopoi, Najipouwis; **Somali:** Kobbish; **Swahili:** Mukorobosho; **Taita:** Mshoshote, Mshashote, Shoshoti; **Tharaka:** Mubuu; **Tugen:** Mokuiwo; **Turkana:** Epoko, Epongae, Epokoo.

DESCRIPTION: A deciduous spreading shrub about 3 m with very distinctive leaves; young parts covered with **pale silky hairs,** branches purple-brown. LEAVES: **Almost round to 20 cm across,** on stalks to 4 cm, base heart-shaped or slightly so, margin toothed, paler below and more hairy, **5 veins clearly seen.** FLOWERS: Pink, turning yellow with age, in **small clusters without stalks, opposite leaves.** FRUIT: Usually without lobes, **soft and hairy** when ripe, yellow to red-brown, about 1 cm across.

ECOLOGY: A shrub of the arid areas of Africa and India. In Africa it is found from the Cape Verde Islands and Senegal in West Africa to Sudan, Eritrea and Kenya, further east to India and south to South Africa, often on river banks liable to flooding, or on stony ground in the shade of larger trees. Found in all drier areas of Kenya in *Acacia–Commiphora* bushland and thickets, 0–1,500 m. Also near Lake Victoria in dry bushland. Common on well-drained sites with shallow luggas. Red, sandy, rocky and occasionally black-cotton soil. Agroclimatic Zones IV–VII (riverine). Flowering during the rainy season; in fruit in Makueni and Tsavo in January.

USES: Firewood, construction (stems used as withies for the construction of small grain stores), poles, tool handles, walking sticks, bows and arrows, bird-trapping cages, spear shafts, edible fruit (raw, dried or cooked), medicine (roots and bark), fodder (leaves for camels, sheep, goats and cattle), shade, fibre (bark for strings), veterinary medicine.

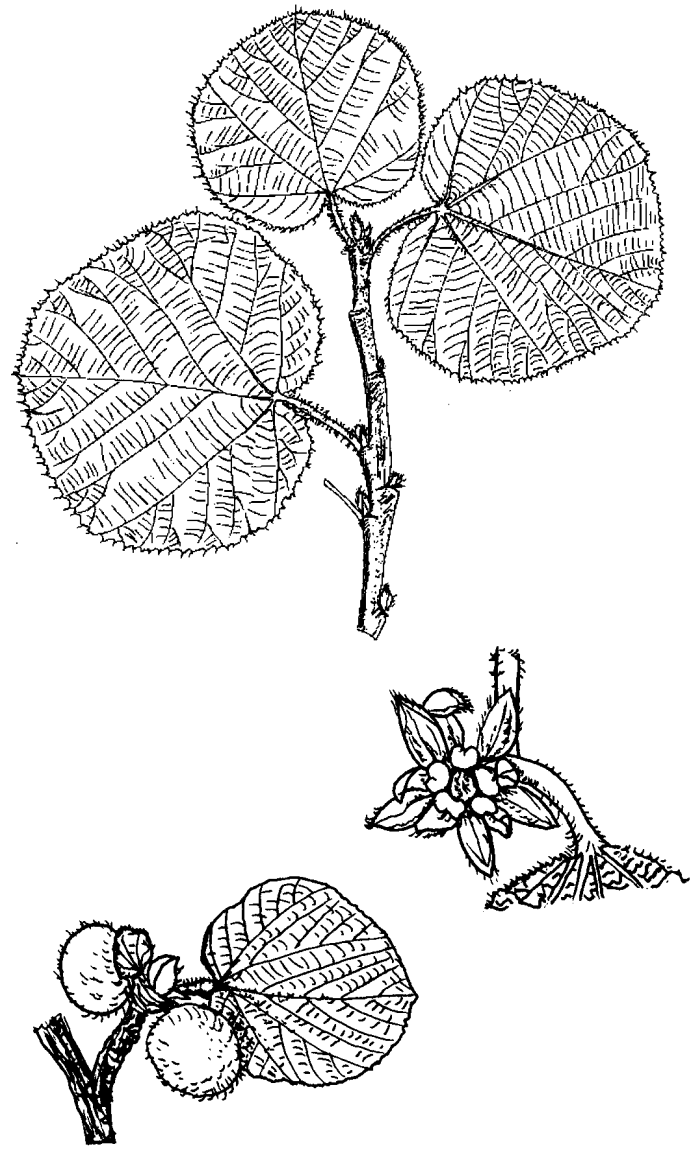
PROPAGATION: Seedlings, direct sowing at site. Grewias generally reproduce well naturally if protected from grazing and fire.

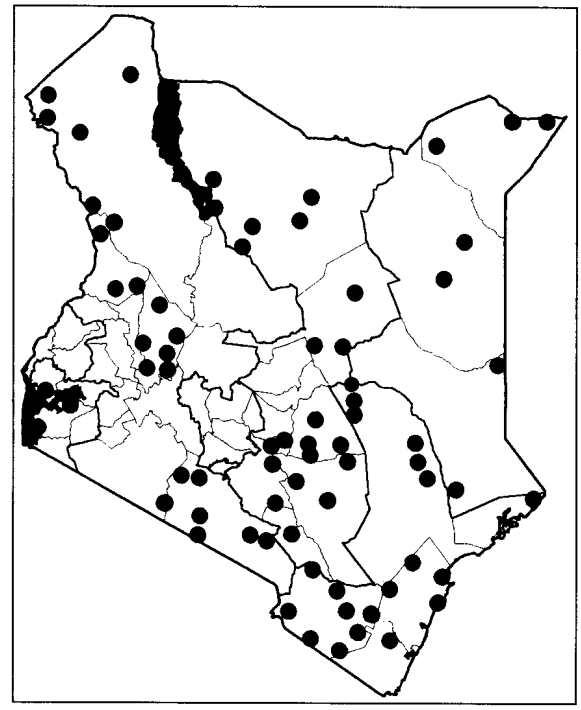
SEED: About 16,000–17,000 seeds per kg.
treatment: Soak in cold water for 12 hours. Germination is good and completed after 6 weeks.
storage: Can be stored for a year if kept cool in airtight containers.

MANAGEMENT: Slow growing. Thinning in pastures.

REMARKS: A much-liked sweet fruit.

FURTHER READING: Beentje, 1994; Bein et al., 1996; Bekele-Tesemma et al., 1993; Blundell, 1987; ITDG and IIRR, 1996; Katende et al., 1999; Kokwaro, 1993; Maundu et al., 1999; Mbuya et al., 1994; Palgrave and Palgrave, 2002; Ruffo et al., 2002; von Maydell, 1990.





Hagenia abyssinica

Rosaceae

Indigenous

COMMON NAMES: **Kikuyu:** Muhooru, Muthithiku, Mumondo; **Kipsigis:** Bondet; **Kisii:** Oinokunakuna, Omukunakuna; **Marakwet:** Seweruwa; **Meru:** Mujogajaga, Mujogajoga; **Nandi:** Mjororuet, Njororuet; **Sabaot:** Sokoruet.

DESCRIPTION: A tree to 25 m or more, with a short broad trunk and thick often crooked branches, the crown leafy and rounded to umbrella-shaped. BARK: Red-brown, thick, flaking irregularly, branchlets covered in silky brown hairs and ringed with leaf scars. LEAVES: Compound to 40 cm in **large terminal tufts**, 5–8 leaflets on each side, leaflets bright green above, covered with **silvery hairs below,** red and sticky when young, **leaf edge toothed and fringed with hairs, stalk winged, hairy.** FLOWERS: In large **attractive masses to 60 cm,** female **heads pink-red,** male heads more feathery, orange-white. The sexes are on different trees. FRUIT: Tiny.

ECOLOGY: A tree confined to Africa, from Ethiopia to Malawi. It is found in upland rainforest at even higher altitudes than bamboo. Occasionally the dominant tree of the woodland zone just above the mountain bamboo where it may also be co-dominant with *Hypericum*. May be the last tree before moorland on Mt Kenya; 2,400–3,600 m, occasionally found at lower altitudes in Kericho, Limuru, Kiambu. Often mixed with *Olea europaea* subsp. *africana* and *Juniperus procera* at lower altitudes. The tree has been successfully grown at altitudes as low as 1,800 m. Agroclimatic Zones I–II.

USES: Firewood, charcoal, timber, furniture, poles, flooring, carving, medicine (female flowers, bark and roots), bee forage, ornamental, mulch, soil conservation, firebreak, veterinary medicine.

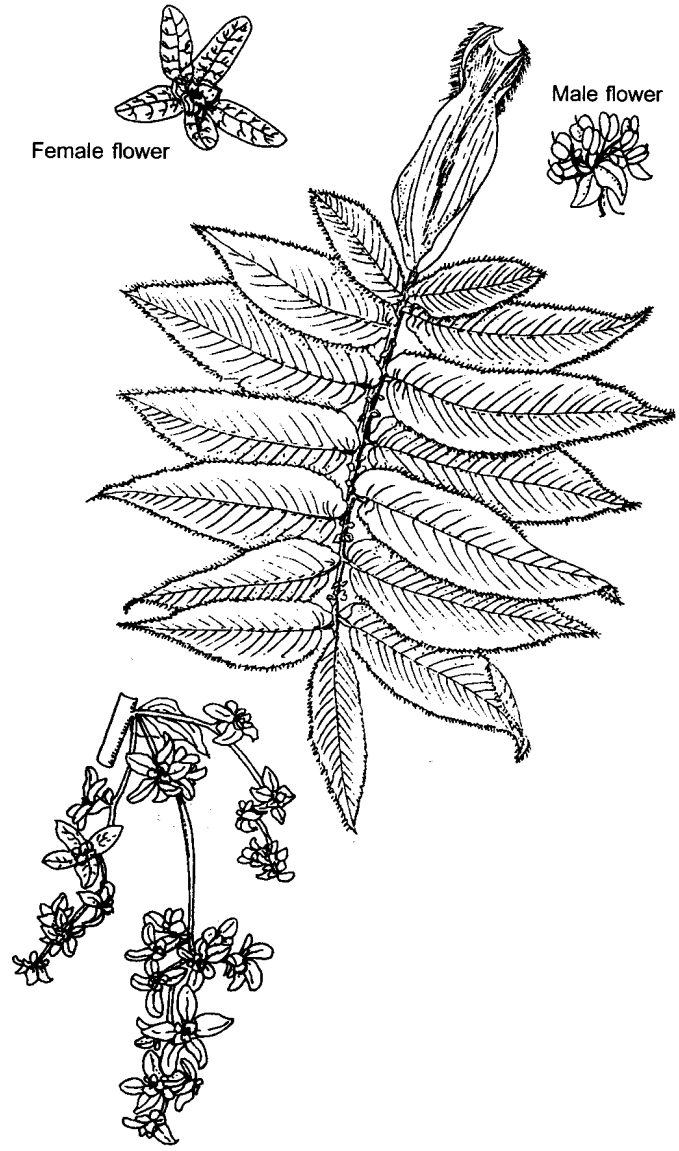
PROPAGATION: Seedlings, wildings. The fruit should be collected just after they have turned brown. Later than that the fruit will remain on the tree but are attacked by insects. After collection, dry in the sun but protected from wind. Germination is usually after about 2 weeks. Seedlings may be ready for replanting after 6–8 months.

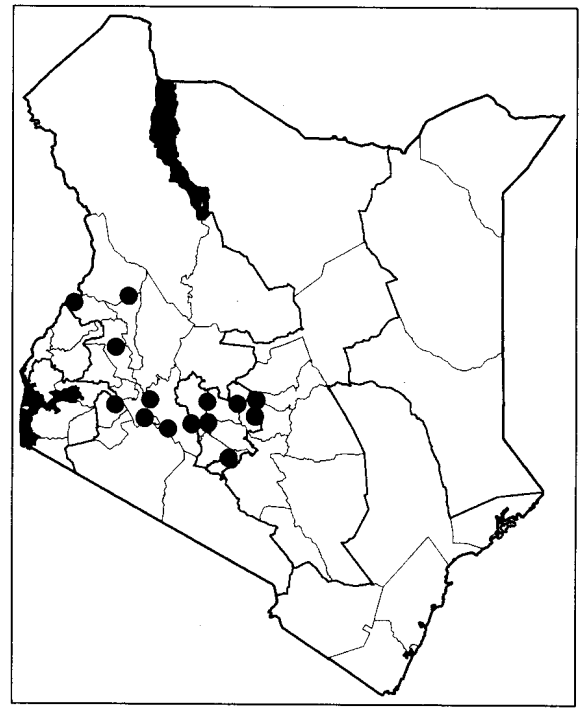
SEED: Average about 225,000 seeds per kg. Some seed catalogues give figures as high as 450,000.
treatment: Not necessary.
storage: Seed can be stored for 6–12 months.

MANAGEMENT: Pruning to get a good bole. Does not always coppice.

REMARKS: The wood is dark red, hard and useful for furniture, but attacked by borers, hence not a major target for poachers. It is often damaged by elephants. Better known locally for its important medicinal uses (dried female flowers are anthelmintic and purgative). Not competitive with crops if managed to prevent shading.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Albrecht, 1993; Beentje, 1994; Bekele-Tesemma et al., 1993; Blundell, 1987; Dharani, 2002; Fichtl and Adi, 1994; ITDG and IIRR, 1996; Katende et al., 1995; Kokwaro, 1993; Mbuya et al., 1994; Noad and Birnie, 1989; Sommerlatte and Sommerlatte, 1990.





Hakea salicifolia (H. saligna)

Proteaceae

South-east Australia

COMMON NAMES: **English:** Willow-leaved hakea.

DESCRIPTION: An evergreen bushy shrub or tree to 5 m high. LEAVES: Alternate, variable, fairly **stiff and leathery, long and narrow,** to 15 cm long by 1.5 cm wide, but usually much smaller, tip not sharp, base narrowed to a short stalk. **Young leaves are an attractive orange-yellow** to reddish brown, older ones dark green. FLOWERS: Insignificant, creamy white and tiny, in dense clusters on the sides of branches. FRUIT: Young fruit dark red or maroon. Mature fruit a woody capsule with beak, to 1.6 cm long, **yellow to red, glossy** with markings, laterally compressed on 2 sides, splitting when dry to set free **1 black seed**, very thin and winged. The seed is wind dispersed.

ECOLOGY: Commonly grown in highland tea-growing areas, 1,600–2,600 m. Needs well-drained soils. Can tolerate some shading but best in open areas. Well adapted to dry and poor soils due to its dense root system, which is efficient in nutrient and water absorption. Rainfall 800–1,500 mm. Agroclimatic Zones II–III.

USES: Shade, ornamental, soil conservation, windbreak, live fence, bee forage.

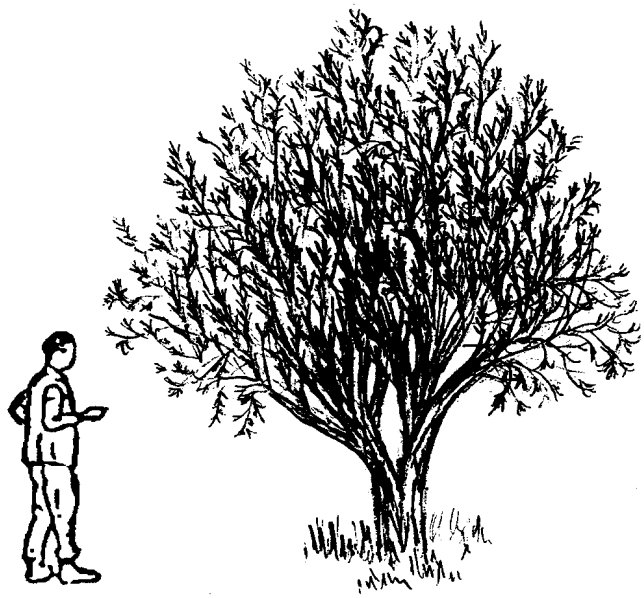
PROPAGATION: Seedlings.

SEED: 38,000–78,000 seeds per kg; germination rate 70–100%.
treatment: Not necessary.
storage: Seed can be stored for long periods.

MANAGEMENT: Seedlings susceptible to 'damping off', therefore too damp conditions should be avoided. Does best in well-drained soils. Fast growing; trimming if grown as a hedge.

REMARKS: This species makes a good hedge as it can withstand heavy pruning. It is often planted as a windbreak. *Hakea* is a genus with over a hundred members, all of Australian origin but with many naturalized elsewhere.

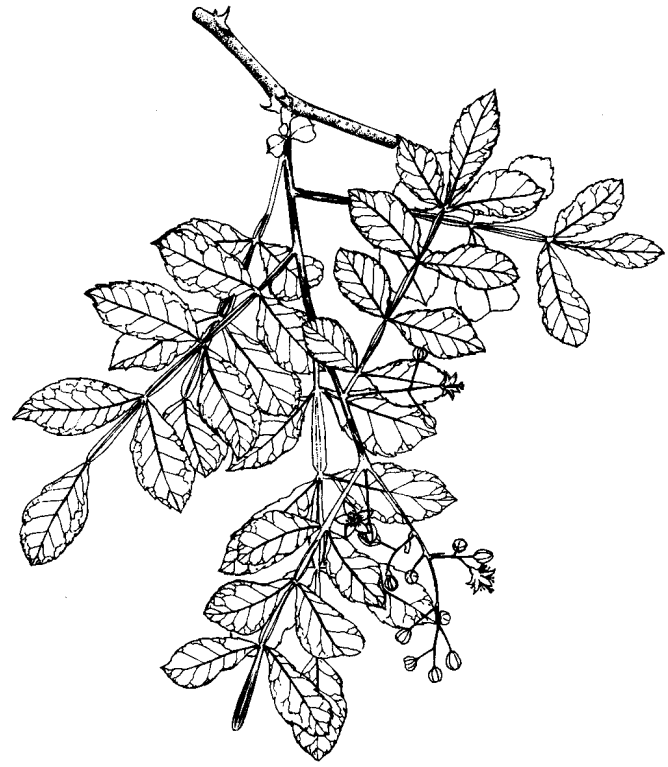
FURTHER READING: Mbuya et al., 1994; Noad and Birnie, 1989.



Harrisonia abyssinica

Rutaceae

Indigenous



COMMON NAMES: **Boni:** Sauini; **Boran:** Raga; **Digo:** Chidori; **Giriama:** Mkithunga; **Kamba:** Mukiliulu; **Luhya (Bukusu):** Sipondwe; **Luo:** Pedo; **Malakote:** Gora; **Marakwet:** Kapkerelwa; **Orma:** Gora; **Pokomo:** Cheewa; **Pokot:** Mukurkona; **Samburu:** Lasaramai, Muruguti; **Swahili:** Msamburini, Mkidori; **Wardei:** Cidishabeel.

DESCRIPTION: A spiny scrambling shrub, bush or small tree with a **spreading, evergreen crown and drooping branches**. Branches armed with recurved (rarely straight) spines often in pairs. BARK: Pale, with **spine-tipped corky bosses** to 2 cm long. LEAVES: Compound, often with 3–7 pairs of leaflets plus a terminal one; leaflets to 4 cm long x 2 cm wide, usually much smaller, **asymmetric, margin irregularly toothed, leaf stalks conspicuously winged**, small prickles at the base of the leaf stalk. FLOWER: Small, white to yellow, in loosely branched heads to 15 cm long. FRUIT: **Round or lobed**, up to 1 cm in diameter, **red or black when mature**, fleshy, eaten by birds.

ECOLOGY: Occurs from Cameroon east to Ethiopia and Somalia and south to Angola and Mozambique. Widely distributed in Kenya from the coast to western and northern Kenya. Found especially in hot humid areas such as at the coast, the Lake Victoria basin and Eastern Province in dry bushland and wooded grassland, secondary scrub and in riverine vegetation. May form impenetrable thickets in dry areas. Common in disturbed ground such as abandoned farmland and roadsides. Agroclimatic Zones II–V. Flowering in November–December in Siaya and Bondo.

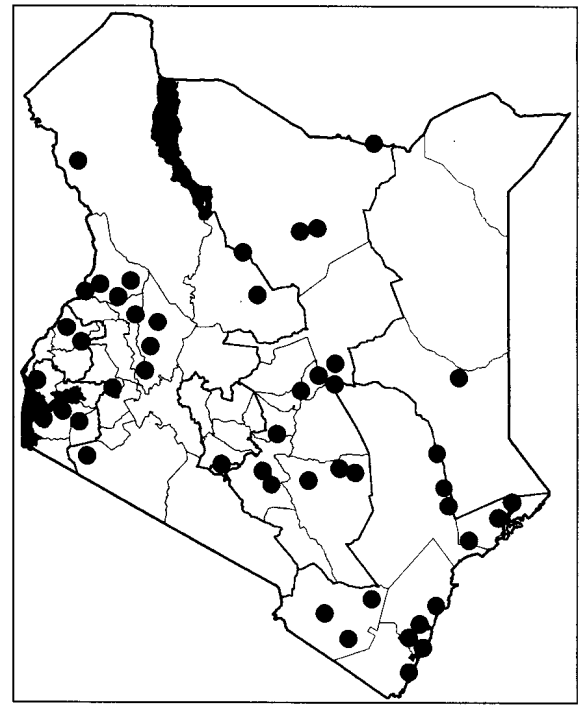
USES: Medicine (roots, bark), bee forage, ornamental, live fence, dry fencing (withies), veterinary medicine.

PROPAGATION: Seedlings, root suckers.

MANAGEMENT: Stake the plant when the main stem is still weak until the plant can stand on its own. Prune lower branches regularly. This plant coppices very easily and may even be a nuisance in cropland.

REMARKS: A fairly fast-growing shrub with potential as a shade, ornamental and live-fence plant. May, however, get out of control due to the bushy and thorny nature, hence needs close attention. This species was formerly placed in the family Simaroubaceae.

FURTHER READING: Backes and Ahenda, 1998; Beentje, 1994; ITDG and IIRR, 1996; Kokwaro, 1993; Palgrave and Palgrave, 2002.



Harungana madagascariensis

Guttiferae

Indigenous

COMMON NAMES: **Digo:** Mkonotsaka, Mbonobono; **Embu:** Munyanwe; **English:** Orange-milk tree; **Luhya (Bukusu):** Namalasile; **Luhya (Kisa):** Omwinyala amatsai; **Luo:** Aremo; **Meru:** Munyanwe; **Nandi:** Chepsebil; **Swahili:** Mbura.

DESCRIPTION: A pioneer shrub or tree, 3–18 m, usually much branched, but occasionally with a cylindrical trunk to 25 m. BARK: Red-brown, scaling, **sap blood-red when cut, also from branches and leaves. Branchlets, young leaves and leaf stalks all appear orange-brown** as they are covered with short rusty hairs. LEAVES: Opposite and simple, oval, 6–20 cm long, tip pointed, base rounded, glands visible against the light, **shiny dark green above, rusty brown below.** The youngest leaves at the tips of the branches remain tightly pressed together until quite large, the brown **lower surfaces quite characteristic.** Leaf stalk to 3 cm. FLOWERS: Very small with sweet almond scent, in dense **many-flowered terminal heads, 8–20 cm across, rather flat;** the 5 tiny white petals have black gland dots. FRUIT: Very small, 3–4 mm, hard, green-orange, then **deep red in heavy massed heads 25–30 cm across.**

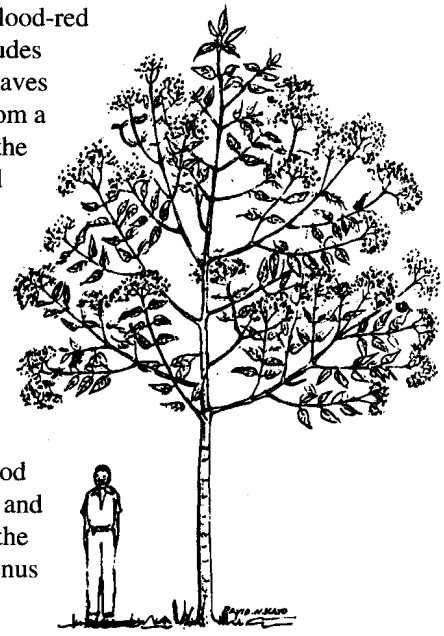
ECOLOGY: Widespread in tropical mainland Africa and in Madagascar and Mauritius. Common in many parts of eastern Africa in lowland and upland rainforest and at forest edges, disturbed areas, in thickets, in grasslands and around termite mounds, 0–1,800 m. Quite common in Western Province of Kenya. Rainfall 1,100–1,800 mm. Tolerates various soils. Agroclimatic Zones II. Flowers in May–August and seeds in August–November in Bungoma.

USES: Firewood, charcoal, timber, poles, tool handles, utensils (grain mortars, wooden spoons), edible fruit, medicine (bark, sap, leaves, roots), bee forage, dye (bark, sap), cosmetics (lipstick and toothpaste substitutes from chewed bark and roots).

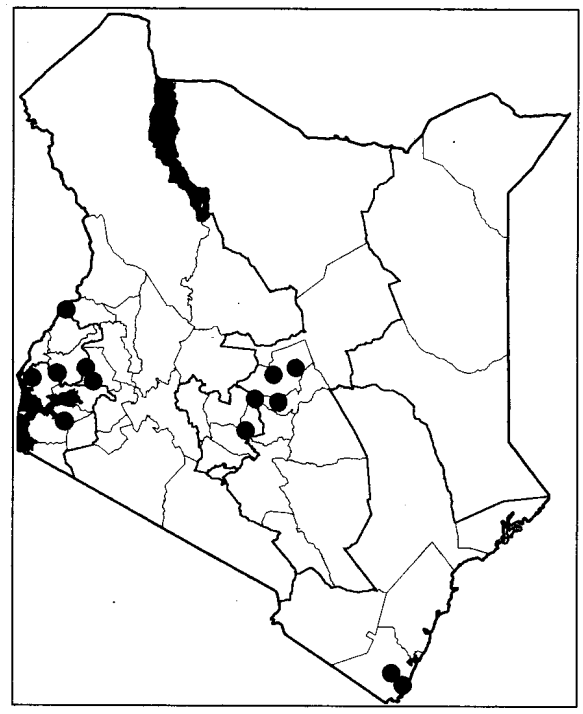
PROPAGATION: Seedlings.

MANAGEMENT: Pollarding.

REMARKS: The tree is easily identified by its orange or blood-red resin or sap, which exudes readily from broken leaves and twigs as well as from a slash in the bark, and the species is often tapped for dye. The Luhya name refers to a person who passes bloody urine. It grows well together with crops and is good for boundary demarcation and intercropping. The wood is light, easily worked and fairly durable. This is the only member of the genus *Harungana.*



FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Backes and Ahenda, 1998; Beentje, 1994; Katende et al., 1995, 1999; Kokwaro, 1993; Palgrave and Palgrave, 2002; Ruffo et al., 2002; Sommerlatte and Sommerlatte, 1990.



Hymenaea verrucosa (Trachylobium verrucosum) Fabaceae

Indigenous

Standard/Trade name: Mtandarusi.

COMMON NAMES: Digo: Msandarusi, Munyama; **English:** Gum copal tree; **Giriama:** Mdzongolo, Msange; **Sanya:** Sibile; **Swahili:** Mtandarusi, Msandarusi, Mnyanza.

DESCRIPTION: An evergreen tree, 6–25 m, with a clear bole. BARK: Smooth, **pale grey, patterned** in green, pink and cream. LEAVES: Characteristic **single pair of leaflets,** which when placed next to each form the general outline of a single leaf, each leaflet **unequal-sided** (asymmetric), base unequal, stalked, shiny above, dotted with glands, up to 6 cm wide by 12 cm long, usually much less. FLOWERS: Pink-white in loose sprays up to 35 cm long. FRUIT: **Unusual shiny green ovoid pods,** up to 5 x 3 cm, surface lumpy **with oily glands; when opened white inside, drying to gummy woody cone-like fruits**, seen **at the top of the tree most of the year.**

ECOLOGY: A tree of coastal forests distributed from the Kenya coast (Kwale and Kilifi Districts), south to Madagascar, Mauritius and the Seychelles, 0–300 m. Common around Bamba in Kilifi District. Also in lowland dry bushland. Agroclimatic Zones II–III. Flowers in September and seeds in December and January at the coast. Mature fruits also seen in July and August in Kilifi.

USES: Firewood, charcoal, timber, boat building (canoes), edible fruit, gum (high-quality varnish), glue, insecticide (burning gum reduces storage pests in maize granaries), burning gum can also be used as light at night.

PROPAGATION: Seedlings.

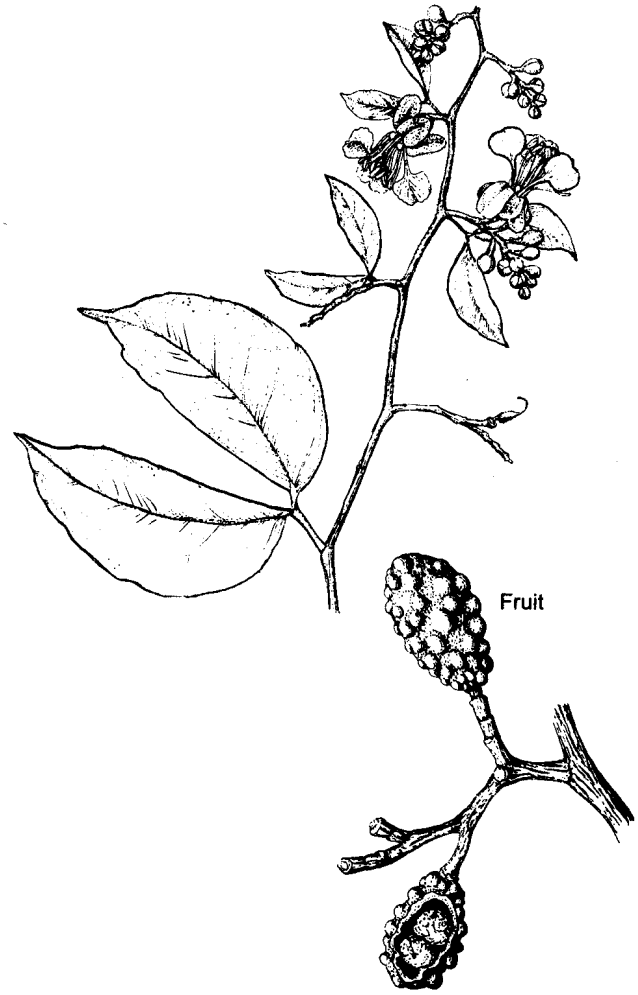
SEED:

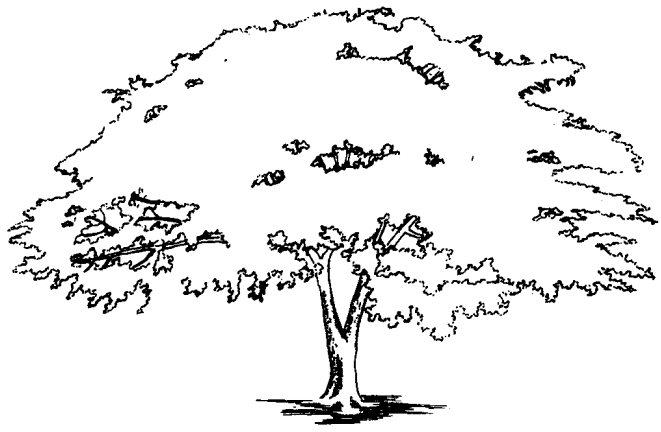
treatment: Scratch the hard outer cover or immerse in hot water, allow to cool and soak overnight.
storage: Seed can be stored for a long time.

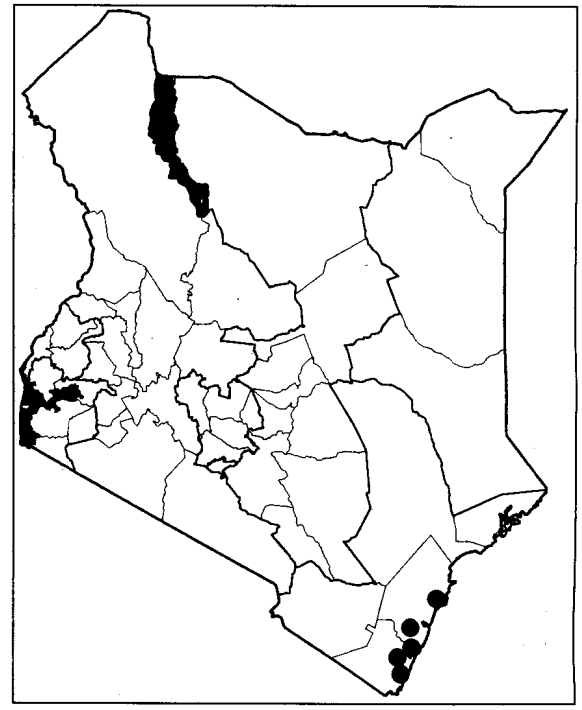
MANAGEMENT: Shade-tolerant when young, and shade is a must for the trunk to grow straight to yield good timber.

REMARKS: The tree has valuable, hard but workable timber. It is the source of Madagascar copal. The gum from bark and fruit is valued for high-quality varnish and the old gum dug up under old trees is even better. The gum continuously drops to the ground. This is a relatively small genus with members distributed in tropical Africa and America.

FURTHER READING: Beentje, 1994; Mbuya et al., 1994; Palgrave and Palgrave, 2002.







Hyphaene compressa

Arecaceae (Palmae)

Indigenous

COMMON NAMES: **Boni:** Medi, Qoone, Kone, Meeti; **Chonyi:** Mkoma; **Daasanach:** Kulidhe; **Digo:** Mkoma, Mkoma lume; **English:** Doum palm; **Gabra:** Meetti; **Giriama:** Mkoma, Mlala; **Ilchamus:** Lparruai, Lparrua; **Kamba:** Mukoma, Ilala (Mbitini, Kitui); **Kambe:** Mkoma; **Malakote:** Mokoma; **Mbeere:** Irara; **Orma:** Kone, Meti (young); **Pokomo:** Mkoma (tree), Mlala (leaf), Milala (plural); **Pokot:** Tangayween (plural), Tangayua; **Rendille:** Gey-i-khoona, Baar; **Samburu:** Iparwa, Malala, Lparwai, Nkujit ae nkeok; **Sanya:** Auwaki, , Lkonga; **Somali:** Baar, Qoona (fruit), Dabell (young tree); **Swahili:** Mkoma, Mkoche, Mlala, Mnyaa, Muaa; **Taveta:** Irara; **Tharaka:** Muruguyu; **Turkana:** Eeng'ol, Eng'ol.

DESCRIPTION: An unusual **branched palm tree, to 25 m,** each branch crowned with large, **fan-shaped leaves,** the tree often surrounded by bushy young growth. BARK: Trunk grey. LEAVES: Have a long spiny stalk supporting the fan of leaflets. FLOWERS: Male and female on separate trees. FRUIT: **Orange to brown,** hanging down in **bunches,** each fruit to about **10 cm long, 2 sides flattened,** edible fibres below the tough shiny skin, one large hard seed.

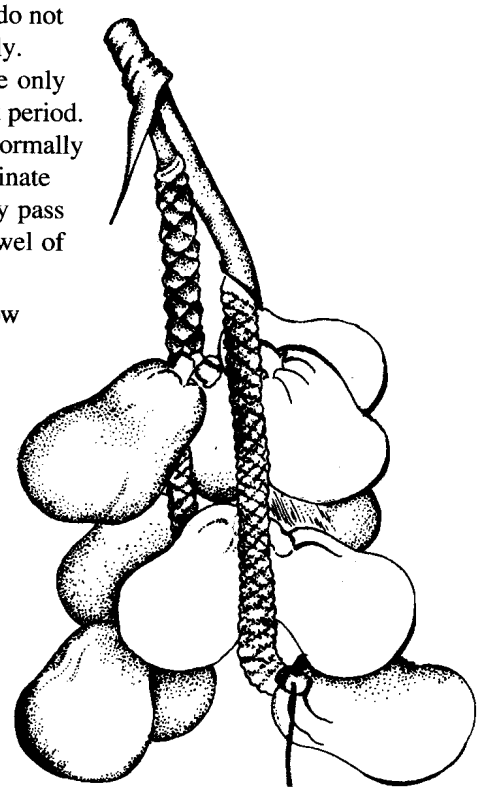
ECOLOGY: Widespread in lowland arid Africa, Madagascar and the Arabian peninsula to India. In Kenya, widely distributed in hot areas. Common in dry northern areas along river courses and lakes (Turkana). Also very common at the coast. The most conspicuous tree palm along the River Turkwel near Lodwar and in parts of the north coast, especially along the Witu–Lamu road. At the coast, the tree tends to be branched while in north-western Kenya it remains single stemmed. This tree requires a high water table and a hot dry climate for good growth. In dense riverine forests, such as in lower parts of Tana River, the tree may easily attain a height of 30 m. Altitude: 0–1,000 m. Agroclimatic Zones II–VII (riverine). Fruit available most of the year.

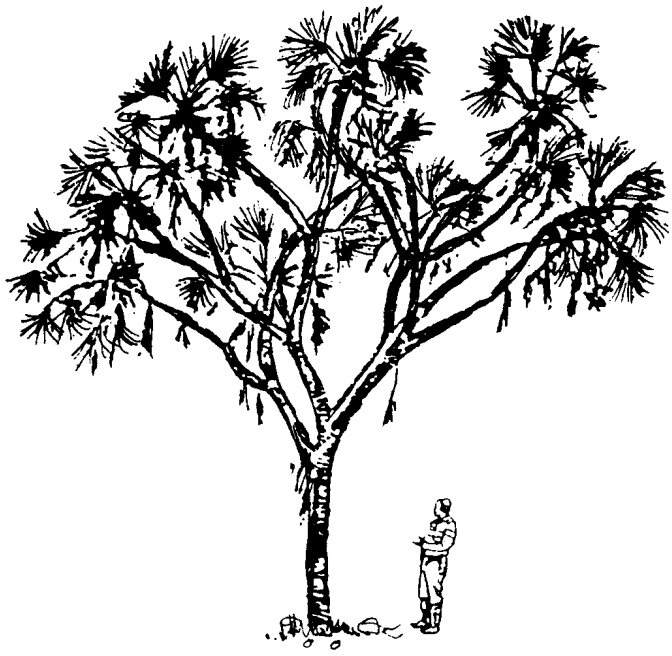
USES: Firewood, timber (for cabinets), poles, posts, beehives (trunk), edible fruit (pulp, kernel), drink (palm wine from the stem, juice from young fruit), shade, baskets, mats, general handicrafts (leaves), roofing (leaves), dune fixation, fibre, live fence, dead fencing (spiny leaf stalks), fishing rafts, carpets, brooms, hammocks, buttons, beads ('vegetable ivory').

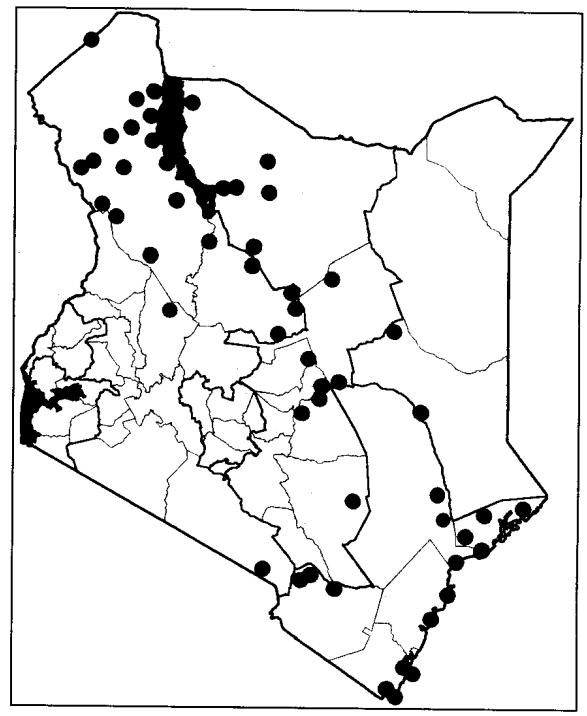
PROPAGATION: Direct sowing at site, either into carefully prepared pits or any other places where water collects naturally. Best sown in deep sand. Unsuitable for growing in nurseries since a long 'taproot' grows down to 50–100 cm before leaves appear. The 'root' will carry the embryo down into the ground, perhaps to the water table, then the first leaf will grow up to the soil surface. Suckers can also be used.

SEED: The seeds do not germinate easily. **storage:** Viable only for a very short period. Sow at once. Normally the seeds germinate naturally if they pass through the bowel of an elephant.

MANAGEMENT: Slow growing. Thinning to reduce







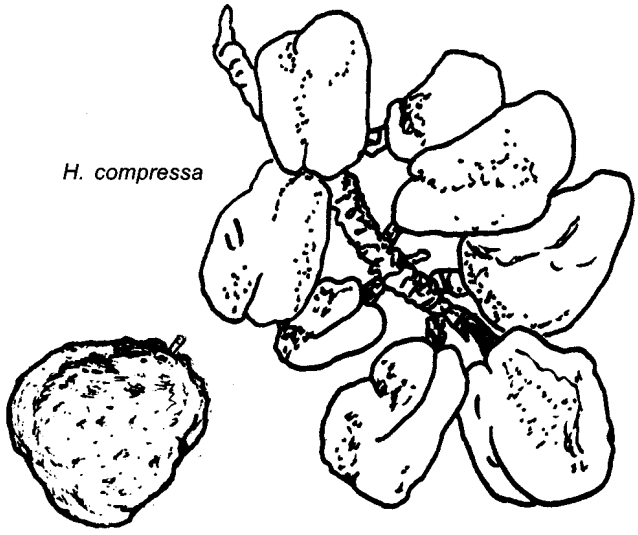
Hyphaene compressa (cont)

density; prune long spiny leaves for use as weaving material.

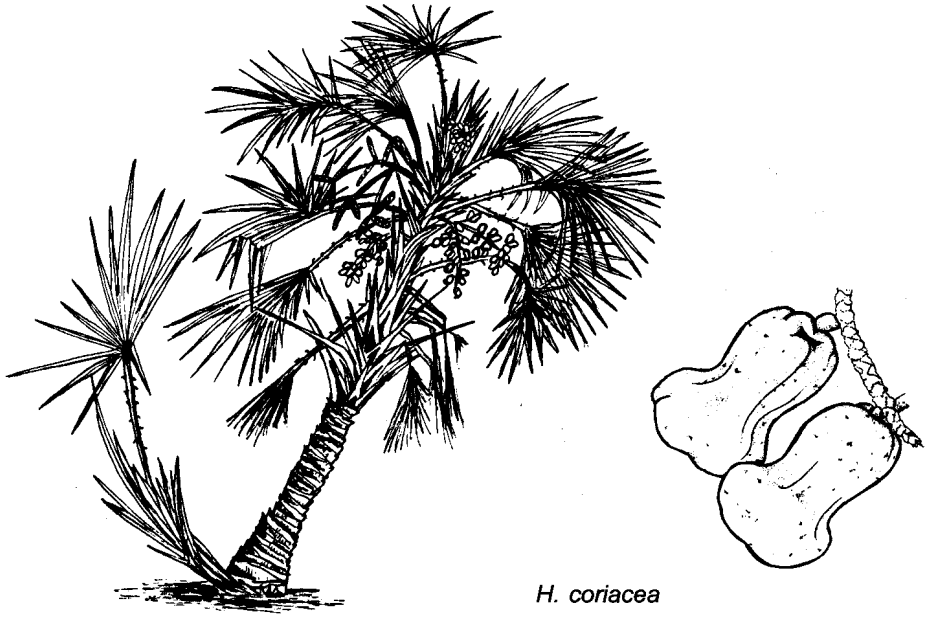
REMARKS: The fruit is heavily depended on as a source of food by the Turkana in times of food shortage. It can store well for long periods. Also an important source of thatch and handicraft material for the Pokomo and Turkana. Fruit are eaten by elephants and are a major food source for baboons and the endangered monkey the Tana River Crested Mangabey.

Another species, *H. coriacea* (**Boran:** Medi; **English:** Dwarf doum palm; **Swahili:** Mkoma wa pwani) is a much smaller palm, usually 3–4 m, and found in small colonies on sandy beaches near the sea. Trunks are short and usually lean to one side. Leaves form a characteristic curve towards the tip. Fruit are smaller and widen suddenly at the middle to form an enlarged base and an overall shape reminiscent of a small gourd but with an irregular but smooth surface. The palm has similar uses to those of *H. compressa* but it is less popular. *Hyphaene* is a relatively small genus of palms mainly found in Africa, the Indian Ocean islands and South Asia.

FURTHER READING: Beentje, 1994; Dharani, 2002; Maundu et al., 1999; Mbuya et al., 1994; Noad and Birnie, 1989; Ruffo et al., 2002.



H. compressa



H. coriacea

Ilex mitis

Aquifoliaceae

Indigenous

COMMON NAMES: **English:** African holly; **Kikuyu:** Munyamati, Muthumura; **Kipsigis:** Tongotuet; **Marakwet:** Seger; **Meru:** Murati; **Ogiek:** Tongotuet; **Sabaot:** Seger; **Samburu:** Lehenioibor.

DESCRIPTION: An evergreen shrub or tree, 4–24 m, very variable. The trunk usually short, but up to 1 m across with buttresses on large trees. BARK: **Pale grey-brown, smooth;** branchlets with a purple colour. LEAVES: **Dark green and shiny,** long oval to 14 cm, tip pointed, narrowing to a short stalk, the **middle of the stalk deeply channelled into the thick leaf.** The edge may have a few sharp spines. FLOWERS: Small (to 3 cm), **white and fragrant,** on hairy stalks beside leaves. FRUIT: Berry-like, 4–7 mm, yellow-green, ripening **shiny red;** soft and edible with 4–6 seeds inside.

ECOLOGY: This species extends from Ethiopia to South Africa, being widely distributed but extremely variable. In Kenya, it occurs in dry or moist highland and lower montane forests and may also be riverine; 1,450–3,150 m. Agroclimatic Zones I–III.

USES: Firewood, charcoal, timber (local construction), tool handles, farm implements, medicine (bark).

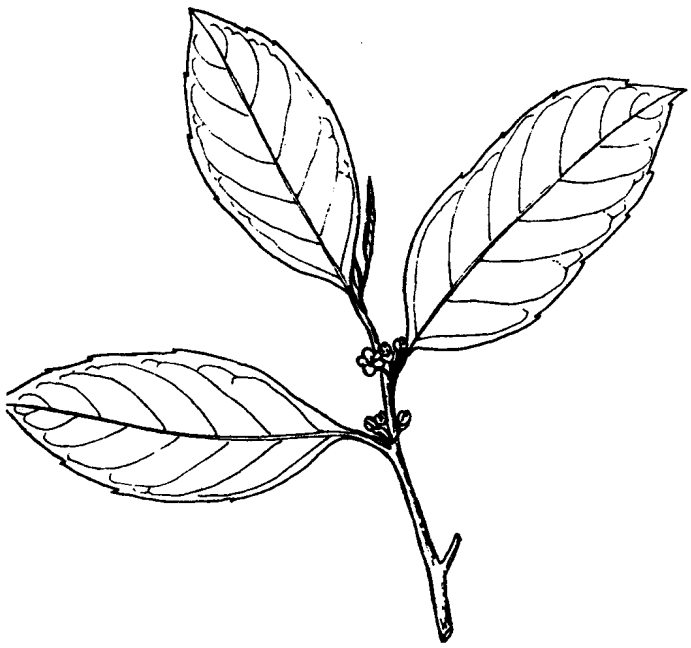
PROPAGATION: Seedlings, wildings.

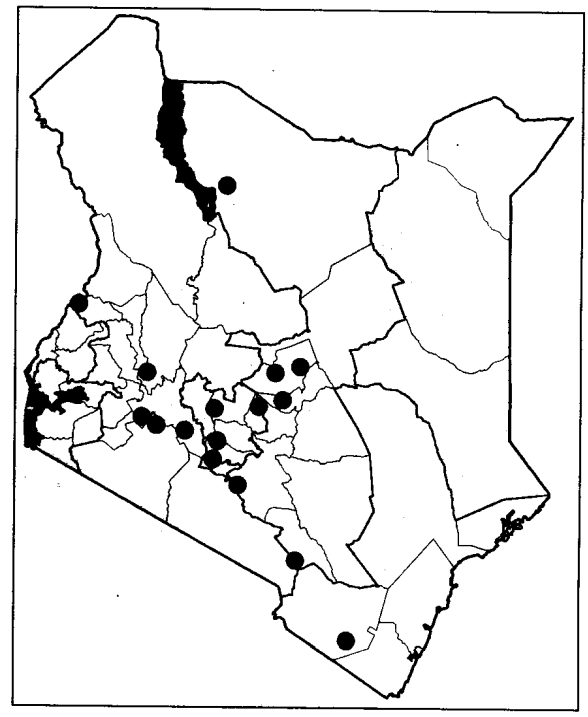
SEED: Collected from the ground and gradually dried. **treatment:** Not necessary.

MANAGEMENT: Pruning, lopping and pollarding.

REMARKS: The hard white wood is used as timber, but normally the trunk is too short to obtain long boards. This is the only species in Kenya in a genus with several hundred members of mainly trees and shrubs found mostly in Asia and America.

FURTHER READING: Beentje, 1994; Bekele-Tesemma et al., 1993; Katende et al., 1995; Kokwaro, 1993; Palgrave and Palgrave, 2002.





Jacaranda mimosifolia

Bignoniaceae

Brazil

COMMON NAMES: **English:** Jacaranda; **Kikuyu:** Mucakaranda; **Kisii:** Omosaria.

DESCRIPTION: A deciduous tree up to 20 m with spreading branches making a light crown. BARK: **Pale grey and smooth,** rough and peeling with age. LEAVES: Bipinnate and **feathery on a stalk to 40 cm,** up to 30 pairs of pinnae bearing the little **pointed leaflets.** FLOWERS: Striking **blue-violet,** in clusters, each flower bell-shaped to 4 cm, usually on the bare tree before leaf growth. FRUIT: **Rounded, woody capsules to 7 cm** across with a wavy edge, brown-black when mature, splitting on the tree to set free many light **winged seeds**. Capsules may hang on the tree for up to 2 years.

ECOLOGY: Widely grown as an ornamental throughout the highland tropics, up to 2,200 m. In Kenya, grows in most soils except waterlogged ones. Deep rooted. Grows best in wetter highlands but can grow in some drier areas, e.g. Machakos. Agroclimatic Zones II–V. The main flowering period is September–November in Nairobi with an October peak, and January in Kisumu, but a small number of flowers may be seen throughout the year on individual trees.

USES: Firewood, poles, carvings, bee forage, shade, ornamental, avenue tree, windbreak.

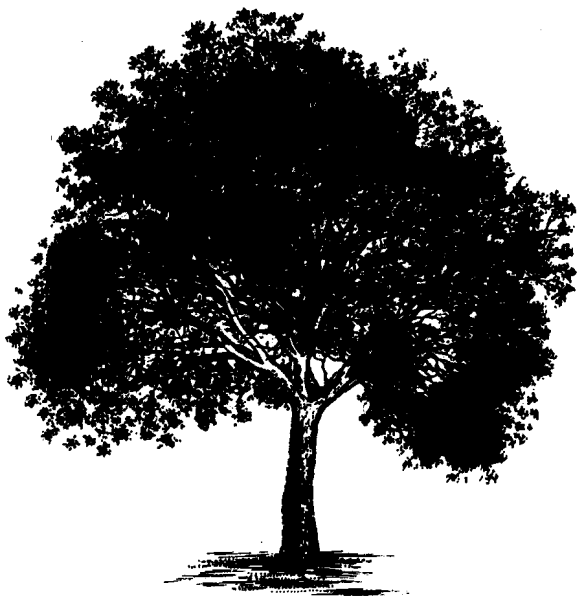
PROPAGATION: Seedlings, wildings.

SEED: Seeds profusely; 63,000–80,000 seeds per kg; germination rate 50–85%.
treatment: Not necessary
storage: Seed does not store well. Sow fresh seed for best result.

MANAGEMENT: Very fast growing on good sites; lopping, pollarding, coppicing, pruning (young trees).

REMARKS: A greedy feeder with an aggressive root system. Few plants can grow below this tree and it is unsuitable for intercropping. Flowering is an indicator of the onset of the rains in many areas. The wood is soft, white and polishes well. It is commonly used for carving household utensils. This is one of the earliest exotic tree species to be introduced to Kenya. It is now a common ornamental, avenue and shade tree in both humid and dry areas throughout Kenya. *Jacaranda* is a genus of a few dozen members, mainly trees and shrubs of tropical American origin.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Bein et al., 1996; Bekele-Tesemma et al., 1993; Dharani, 2002; Fichtl and Adi, 1994; Katende et al., 1995; Lötschert and Beese, 1983; Mbuya et al., 1994; Noad and Birnie, 1989; Palgrave and Palgrave, 2002; Storrs, 1979.



Winged seeds

Jatropha curcas

Euphorbiaceae

Tropical America

COMMON NAMES: **English:** Physic nut, Purging nut; **Kamba:** Kyaiki kyakyeni, Kya muunyi; **Luo:** Jok.

DESCRIPTION: An erect, stiffly branched **succulent shrub** or small tree 3–4 m. BARK: Thin and yellow-grey with a papery peel; an unpleasant milky sap when cut. LEAVES: **Alternate and simple with 3–5 shallow lobes, to 15 cm long,** widely rounded at the base on a **stalk to 16 cm.** FLOWERS: **Small, yellow-green, shortly stalked** on branched heads with a shorter stalk than the leaves. FRUIT: **Ovoid capsules,** slightly **3-angled 2.5–4 cm long,** black when ripe, containing **3 mottled seeds.** When crushed the seeds produce a yellow oil.

ECOLOGY: One of more than 150 *Jatropha* species, mainly occurring in tropical America and Africa. This species was introduced to Africa centuries ago and is now naturalized in drier areas in many countries. A decorative plant frequently planted as a live fence around homesteads or used as a boundary or grave marker. Also naturalized in bushland and along rivers in the western, central and coastal parts of Kenya, 0–1,650 m. Agroclimatic Zones II–III.

USES: Medicine (roots, seeds), live fence, boundary marking, ornamental.

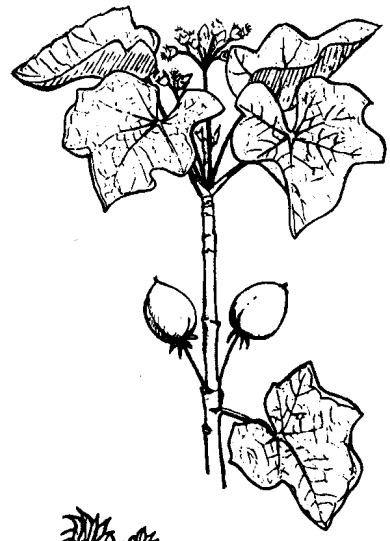
PROPAGATION: Seedlings, cuttings.

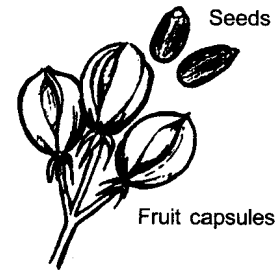
SEED: Collect when capsules split open. About 2,400 seeds per kg; germination rate 70–100%.
treatment: None.
storage: Seeds are oily and do not store for long. Use fresh seed.

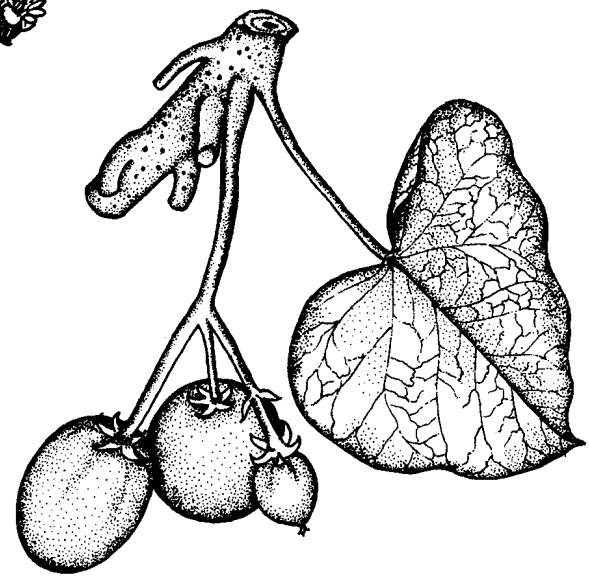
MANAGEMENT: Fast growing; pruning, trimming as a fence.

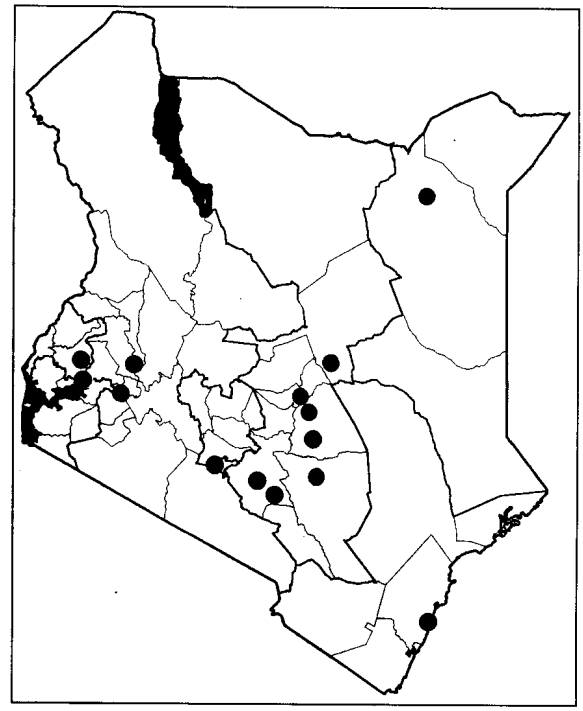
REMARKS: The name *Jatropha* comes from 2 Greek words meaning physician and food. The oil has purgative properties and seeds are poisonous. Even the remains from pressed seeds can be fatal. The plant has been used to make candles and soaps. A recent trial plantation at Malindi was defoliated by beetles and produced very little fruit.

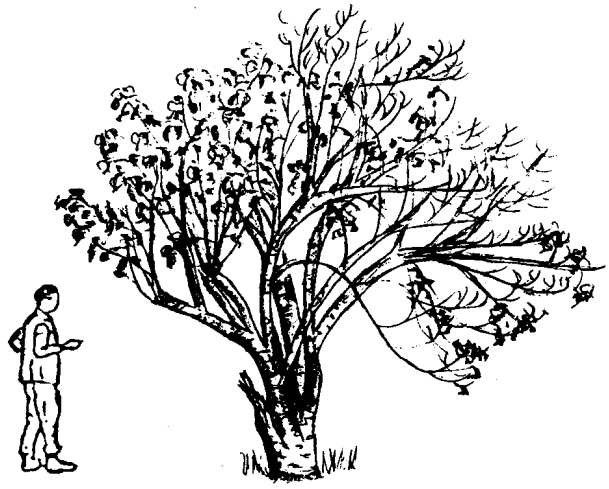
FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Beentje, 1994; Katende et al., 1995; Kokwaro, 1993; Lötschert and Beese, 1983; Palgrave and Palgrave, 2002.











Juniperus procera

Cupressaceae

Indigenous

COMMON NAMES: **Boran:** Aru; **English:** East African cedar, Pencil cedar; **Kamba:** Mukuu; **Kikuyu:** Mutarakwa; **Luhya (Bukusu):** Kumutarakwa; **Maasai:** Oltarakwai, Entarakwai; **Marakwet:** Tarakwet, Tarokwa; **Meru:** Muraana, Mutarakwa; **Nandi:** Tarakwet, Turkwet; **Ogiek:** Teet; **Pokot:** Tarokwa; **Sabaot:** Torokio; **Tugen:** Tarokwa; **Turkana:** Eminet, Ethaiyeiit.

DESCRIPTION: An evergreen tree to about 40 m with a straight trunk; pyramidal shape when young. The foliage **is finer and more open than cypress.** BARK: Thin grey-brown, fissured, peeling with age. LEAVES: Small, sharply pointed, **young leaves to 1 cm,** soon replaced by tiny scale-like mature leaves, blue-green, triangular and closely overlapping on the branchlets. CONES: Male cones small, elongate to 3 mm long, yellow with pollen when mature; female cones brown, roundish. Ripe fruit **purple-blue fleshy round 'berries' about 8 mm,** the pulp containing 1–4 hard seeds.

ECOLOGY: A large, valuable timber tree found in the highland forests of eastern Africa, from Eritrea to Tanzania, 1,050–3,000 m, but mainly above 1,800 m where it forms associations with *Podocarpus* and *Olea*. In Kenya, occurring, e.g. on the lower slopes of Mt Kenya, the Aberdares, Tugen Hills, Mt Elgon and in Loita Forest. It does best in moderate-rainfall areas but can survive quite dry conditions once established. Agroclimatic Zones III.

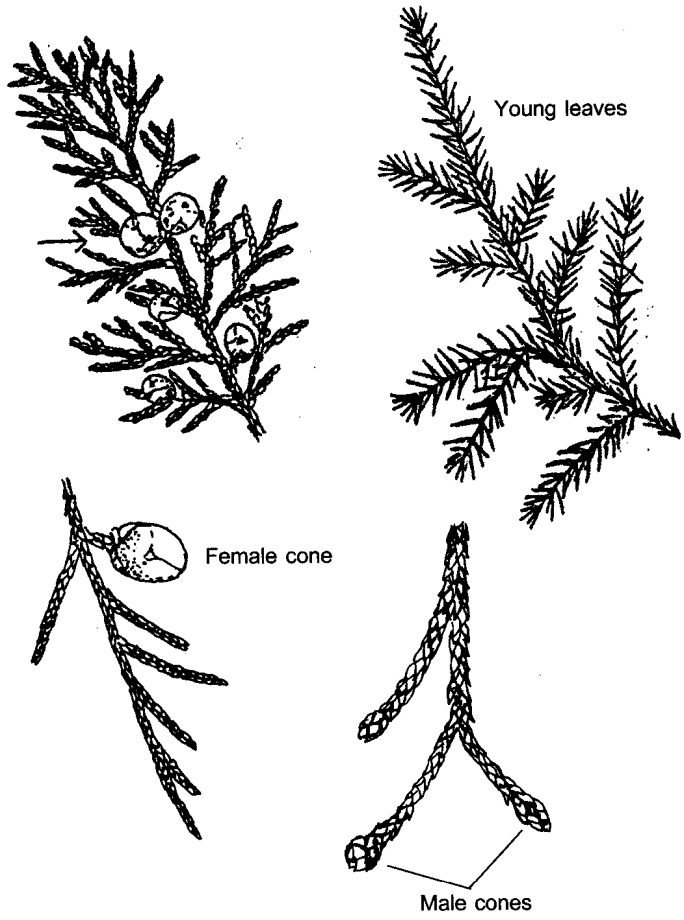
USES: Firewood, charcoal (poor quality), timber (joinery, pencils, construction), poles, posts (long-lasting in the ground), beehives, shingles, flooring, medicine (bark, leaves, twigs and buds), shade, ornamental, windbreak, veterinary medicine, ceremonial.

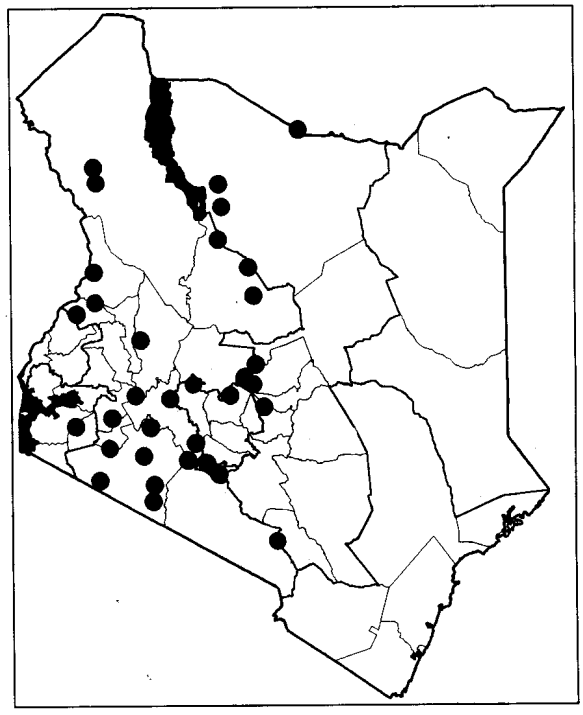
PROPAGATION: Seedlings, wildings. Mature brown to purplish black fruits are collected from the crown. Spread fruit in a thin layer on a floor for drying, then crush the fruit with a mortar and pestle. Sieve and winnow to separate seeds from the rest of the cones.

SEED: About 41,000 seeds per kg; germination rate 30–70% within 25–80 days.
treatment: Not necessary.
storage: Seed can be stored in airtight containers for some time if dried properly.

MANAGEMENT: Fairly fast growing in its natural environment, slow growing when planted elsewhere. Prune and thin trees for timber and poles. The tree takes at least 30 years to grow to maturity.

REMARKS: This is one of the most useful timber trees in Kenya, but also one of the most threatened by over-





Juniperus procera (cont)

exploitation. The wood is termite resistant and can last for up to 100 years in the ground, therefore some of the main uses are as a source of posts and door frames. Used for making fire sticks by the Maasai (*entoole*), as a source of firewood (burns fast but charcoal is not long lasting), and making long-lasting beehives and salt troughs for livestock (**Maasai:** *embeut*). Large trees are often inhabited by bees. Does not grow well with crops. This tree is now rare due to exploitation without replanting. It regenerates well and deserves high priority in reforestation programmes. Also affected by the cypress aphid. Most of the 50 or so members of the genus *Juniperus* are found in the northern hemisphere and are a source of timber, while others are ornamentals.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Albrecht, 1993; Backes and Ahenda, 1998; Beentje, 1994; Bein et al., 1996; Bekele-Tesemma et al., 1993; Dharani, 2002; ITDG and IIRR, 1996; Katende et al., 1995; Kokwaro, 1993; Mbuya et al., 1994; Noad and Birnie, 1989; Palgrave and Palgrave, 2002; Sommerlatte and Sommerlatte, 1990.

Kedrostis pseudogijef

Cucurbitaceae

Indigenous

COMMON NAMES: Daasanach: Yierit etha; **Kamba:** Mukauw'u; **Samburu:** Sakurdumii.

DESCRIPTION: A climbing deciduous liana with thick foliage. Stems greyish white, ridged, rough, with tendrils. LEAVES: Up to 5 cm long, divided into 3 leaflets with toothed margins. Leaflets without a stalk, may or may not be lobed. FLOWERS: Dioecious, usually appearing when the plant is leafless, often borne in clusters, male flowers numerous, female flowers one to a few. FRUIT: Usually in clusters (1–7), conical, roughly hairy, grooved, fleshy, to 2 cm long.

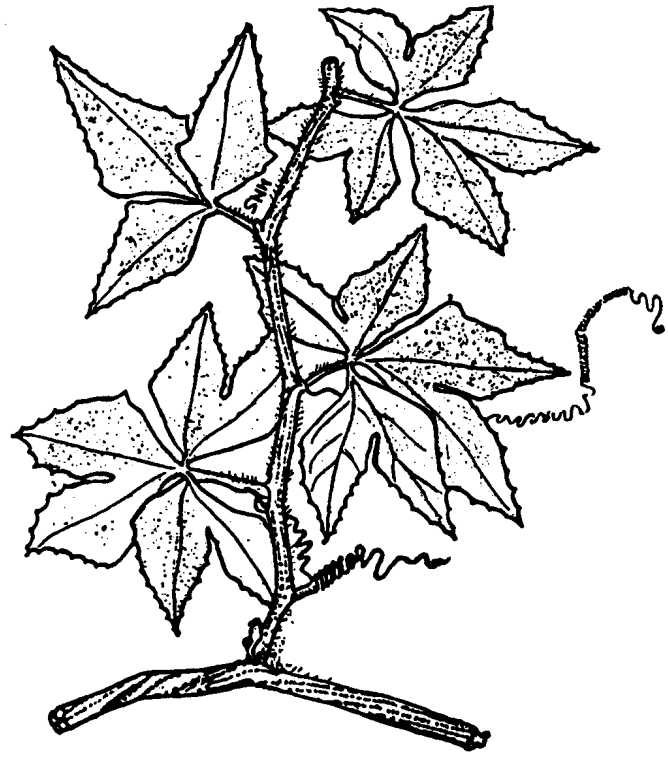
ECOLOGY: Known to grow naturally only in Ethiopia, Kenya, Uganda and Tanzania. Found in many parts of Kenya, for example in Moyale, Waita (Mwingi), Mutomo, south-eastern Makueni, Voi, Kitui, Taita and Marsabit. Dry *Acacia–Commiphora* bushland on red, sandy or rocky soil, 500–1,200 m. Often associated with *Adansonia, Delonix, Entada, Acacia brevispica* and *A. tortilis*. Rainfall 450–600 mm. Agroclimatic Zones: V–VI.

USES: Edible fruit, edible leaves and young shoots (after boiling and change of boiling water), medicine, rope (vines), mats (branches).

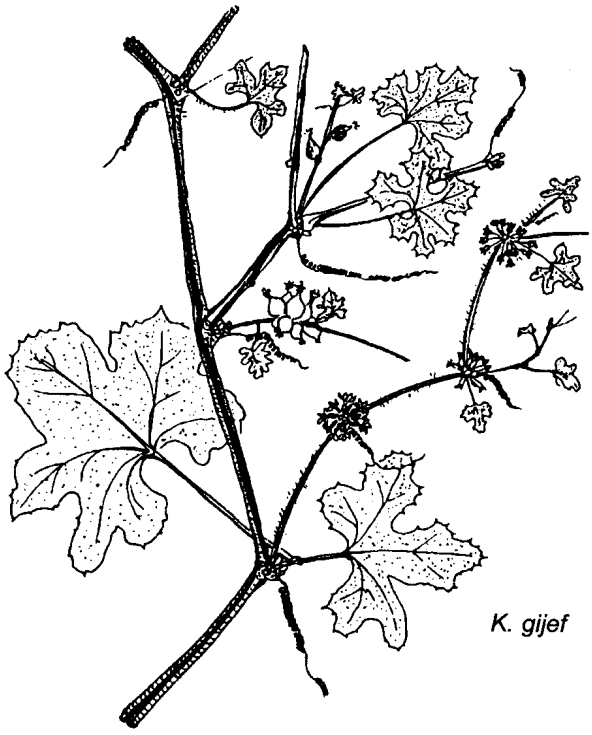
PROPAGATION: Seedlings, possibly also by cuttings.

REMARKS: A related species, *K. gijef* (**Gabra:** Gaale; **Kamba:** Witulu), also has edible fruit. Unlike *K. pseudogijef*, which has 3-foliate leaves, this has simple, kidney- or heart-shaped leaves. It is found in most dry lowland areas of Kenya, north to the Arabian peninsula. Important camel and goat fodder and used as medicine among the Turkana. *Kedrostis* is an Old World tropics genus with about 2 dozen species.

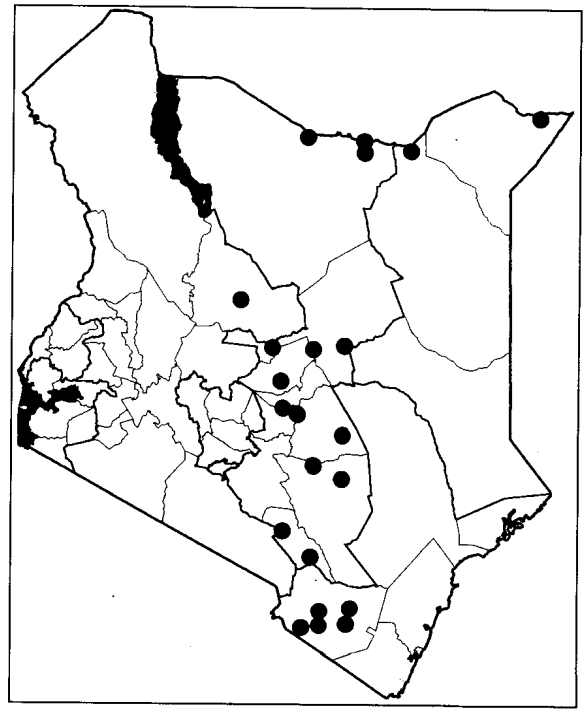
FURTHER READING: Beentje, 1994; Kokwaro, 1993 (*K. gijef*); Maundu et al., 1999.



K. pseudogijef



K. gijef



Kigelia africana (K. aethiopum, K. pinnata) Bignoniaceae

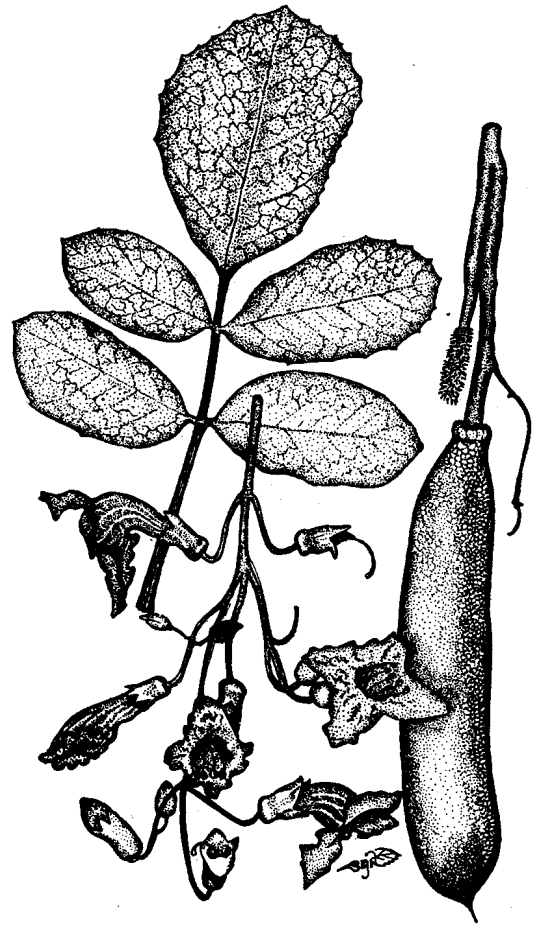
Indigenous

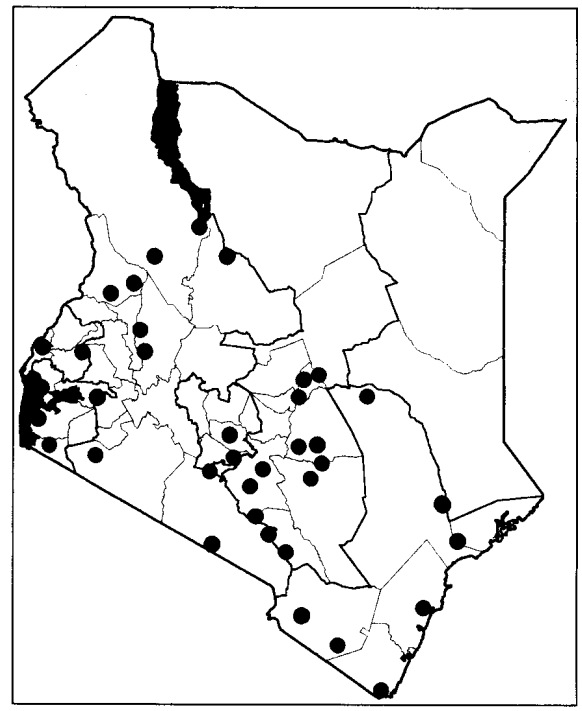
COMMON NAMES: **Boni:** Shelola, Shelole; **English:** Sausage tree; **Giriama:** Mobwoka, Muratina; **Kamba:** Muatine (tree/fruit); **Kikuyu:** Muratina; **Kipsigis:** Ratuinet; **Luhya (Bukusu):** Kumufungu; **Luo:** Yago; **Maasai:** Oldarpoi, Oltarpoi; **Marakwet:** Rotio; **Meru:** Murantina, Muratina; **Nandi:** Ratinuet; **Orma:** Bogh; **Pokomo:** Mbwoka; **Pokot:** Roti (plural), Rotin; **Rendille:** Muun; **Samburu:** Imombi; **Somali:** Bukuraal; **Swahili:** Mwengea, Mwegea, Mvungunya; **Taita:** Mwasina, Mwaisina; **Taveta:** Mukisha; **Tharaka:** Muthigu, Muratina; **Turkana:** Edot.

DESCRIPTION: A semi-deciduous tree with a rounded crown, to 9 m in open woodland but 18 m beside rivers. BARK: Grey-brown, smooth, flaking in round patches with age. LEAVES: Compound, **growing in 3s,** at the end of branches, few leaflets, each broadly oval, **very rough and hard, up to 10 cm,** often with a **sharp tip, edge wavy.** FLOWERS: On long rope-like stalks, 2–3 m. Horizontal, reddish branches, in 3s, bear upturned trumpet-like flowers, petals folded and wavy, **dark maroon with heavy yellow veins** outside; an unpleasant smell. FRUIT: Large **grey-green 'sausages',** 30–60 cm long. Hanging stalks remain on the tree. Several kilos of fibrous pulp contain the seeds—released only when fruit rots on the ground.

ECOLOGY: Widespread in tropical Africa. Also found in India. A tree of savanna and along rivers in arid areas. Distributed in Kenya from the coast to the highlands in wooded grassland, shrubland and riverine vegetation. Common on hillsides, 0–2,200 m. Does best in well-drained soils, especially loam, red clay and on rocky ground. Also found in valley bottoms. Rainfall 500–1,500 mm. Agroclimatic Zones II–V. Fruits persist on the tree, and are occasionally seen even when the plant is flowering. Flowers in December–January (Kitui). Fruits in April–May, and occasionally in December–January in Kitui, Machakos, Tharaka, Makueni, Mwingi; flowers in March–April and fruits in August–November in Nyanza and western Kenya.

USES: Firewood, charcoal, furniture (stools), poles, beehives, utensils (water troughs, mortars, milk pots), boat building (canoes), drink (fruit used in fermentation of sugar cane and honey beer), medicine (fruit, leaves, stem bark, root), fodder (leaves), bee forage, veterinary medicine, ceremonial, shade, ornamental, windbreak.





Kigelia africana (cont)

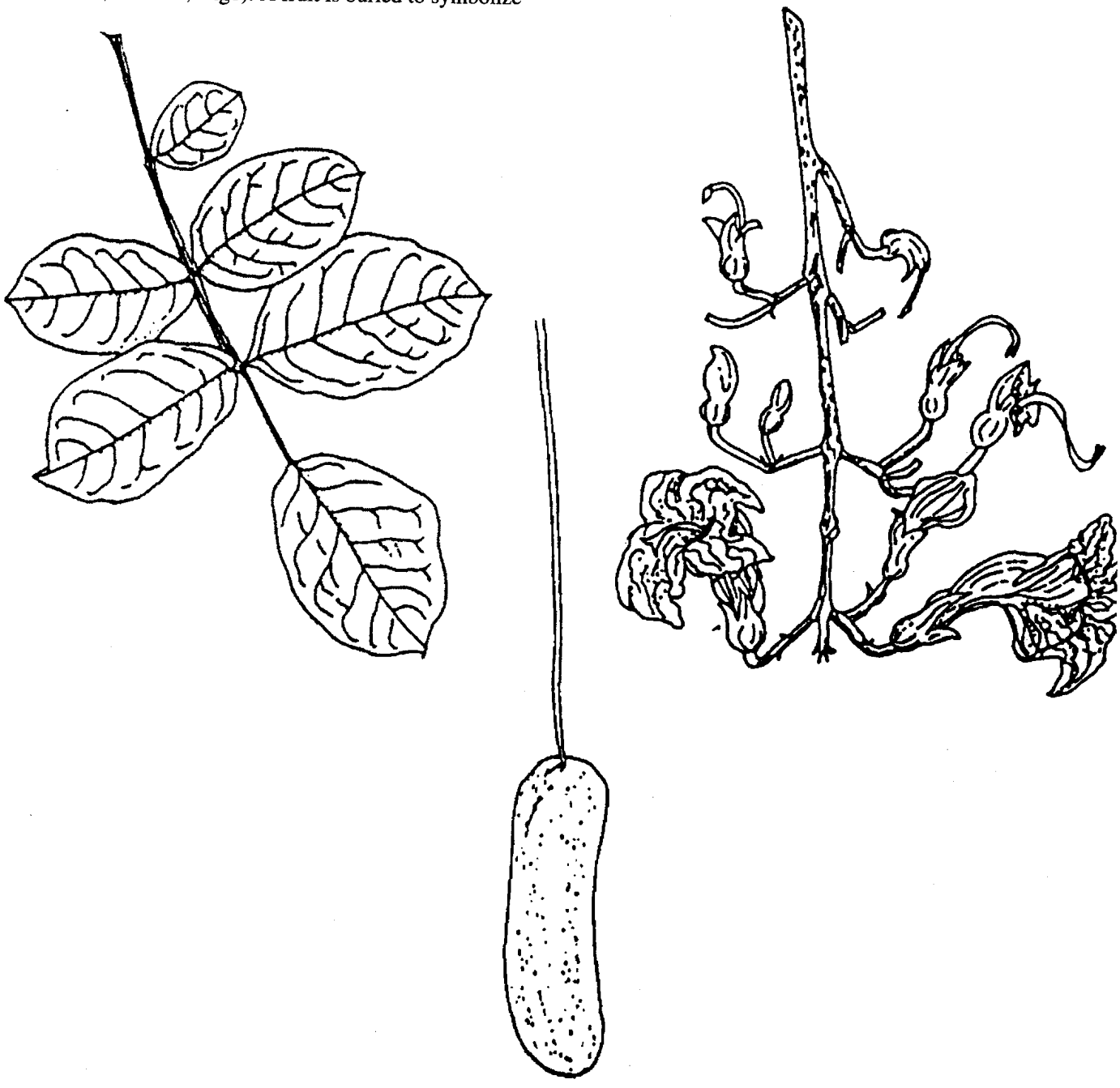
PROPAGATION: Seedlings, direct sowing at site. Cut ripe fruit in half lengthwise and put cut side down on a patch of rich, moist soil. After a few weeks there will be many seedlings.

SEED: Not a prolific seeder; 3,400–6,000 seeds per kg. Poor germination rate and slow to germinate.
treatment: Not necessary.
storage: Seed does not store for long.

MANAGEMENT: Slow growing; pruning and pollarding, coppices readily.

REMARKS: A ceremonial tree revered by most communities and usually preserved on farms while other tree species are cut. The tree is most well known for its sausage-like fruits, which are opened lengthwise and used for fermenting traditional beer (Kamba, Kikuyu, Mbeere, Embu, Tharaka, Giriama, Digo). A fruit is buried to symbolize the body of a lost person believed to be dead (Luo, Luhya). Some other communities bury a piece of stem in a similar ceremony. Not planted around the homestead but planted to mark grave sites (Luo). The unripe fruit is poisonous. The tree is not competitive to crops. Fruit of commercial value for use in beer making. *Kigelia* is a genus probably consisting of just this one very variable member, whose synonym, *K. pinnata*, is also widely used.

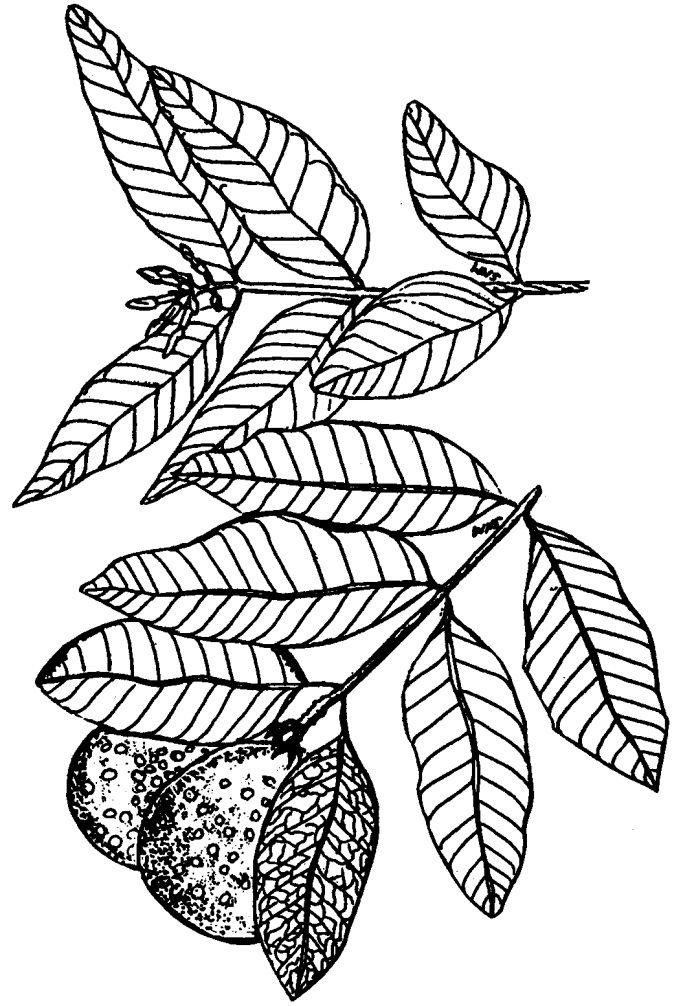
FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Backes and Ahenda, 1998; Beentje, 1994; Bein et al., 1996; Bekele-Tesemma et al., 1993; Blundell, 1987; Dharani, 2002; Katende et al., 1995, 1999; Kokwaro, 1993; Lötschert and Beese, 1983; Maundu et al., 1999; Mbuya et al., 1994; Noad and Birnie, 1989; Palgrave and Palgrave, 2002; Ruffo et al., 2002; Storrs, 1979; van Wyk, 1993.



Landolphia buchananii

Apocynaceae

Indigenous



COMMON NAMES: **Digo:** Mpira; **Kamba:** Kiongoa (Makueni), Maongoa (fruit); **Kikuyu:** Mugu, Mugu wa munyati; **Kipsigis:** Ngiingichet, Tunoiyet; **Maasai:** Entiangege (Narok); **Marakwet:** Ng'eng'echwo, Ng'eng'ech (plural); **Meru:** Muungu; **Nandi:** Ngungyet, Nyingiget; **Pokot:** Ng'eng'echwo, Ng'eng'eech (fruit); **Samburu:** Lkutetei, Sebit; **Swahili:** Mbungo.

DESCRIPTION: An extensive **strong-stemmed liana** to 20 m or more. Stems dark brown, flexible, strong, usually narrow, young stems with **tendrils** that are **branched at the tip**. The plant exudes **white latex** when any part is injured. LEAVES: Opposite, long, widest close to the middle, tip narrow but blunt. Young leaves tinged red. FLOWERS: **White**, tubular, borne in axillary (at angle between leaf and branch) or terminal heads. FRUIT: Round, 4–6 cm across, light green with **corky, grey-white or brown patches on the surface** of a tough rind. Ripe fruit the same colour, soft with several seeds embedded in a white juicy pulp.

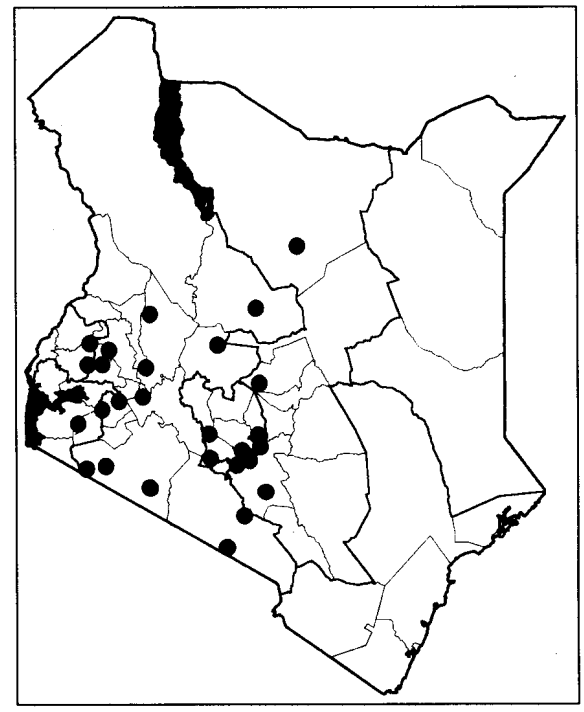
ECOLOGY: Widely distributed from West Africa east to Ethiopia and south through eastern Africa and the Congo basin to Zimbabwe and Mozambique. In Kenya, found mainly in central and western parts, e.g. in Karura Forest, Thika, Namanga, Thui Hill (Makueni), Marsabit, Kisii, Nandi, Uasin Gishu, Baringo and Meru in hillside thickets and bushland, riverine forest in clay loam, especially on sloping rocky areas. Agroclimatic Zones II–IV. Fruits in February in Kisii, July–August in Machakos and Meru, October in Baringo and November–December in Kiambu.

USES: Edible fruit, medicine (ripe or unripe fruit, roots), fodder (leaves for goats and sheep), rope (branches), basketry, latex (rubber substitute).

PROPAGATION: Seedlings, wildings.

REMARKS: The ripe fruit is eaten. The white juicy pulp has a sour sweet taste. Seeds are usually discarded. They are known to germinate readily after passing through animals' guts (e.g. monkeys). Unripe fruit is bitter. The pulp has been used to make jam. Branches used as string (Kikuyu), for tying beehives (Kamba), for building (Maasai, Kamba), and weaving baskets and winnowing trays (Kikuyu). The twigs used to be sold in the past (Mukuyuni, Makueni). The liana is cut, warmed in water to avoid snapping then rolled up in rings and sold as ropes. *Landolphia* is a genus of several dozen members found mainly on the Indian Ocean islands and in tropical Africa and America. Most members are latex-exuding lianas.

FURTHER READING: Beentje, 1994; Maundu et al., 1999.



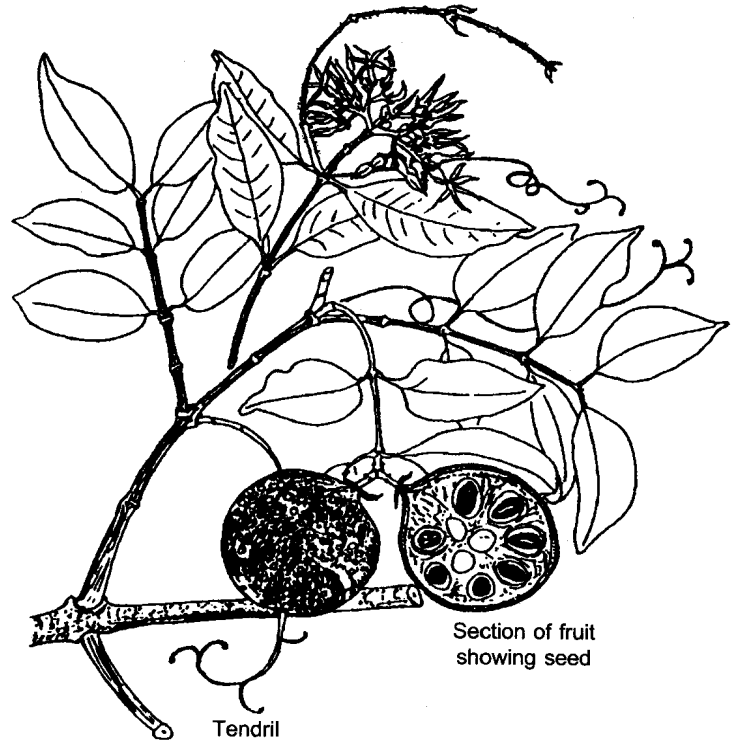
Landolphia kirkii

Apocynaceae

Indigenous

COMMON NAMES: **Boni:** Dabeh, Daber; **Digo:** Mpira, Libugu, Kitoria (fruit); **Giriama:** Mutongazi, Mtoria, Muungo; **Swahili:** Ulimbo, Mpira, Mbunga, Kilungwana, Moyo, Mpyo; **Taita:** Mmeru sukari.

DESCRIPTION: An **evergreen climber 2–6 m,** or sometimes a shrub. All parts exuding **sticky white latex** when injured. BARK: Smooth at first, then rough grey-brown. **Tendrils** to 15 cm (sometimes absent) are **branched at the very tip.** LEAVES: **Small, opposite,** long oval, variable but **3–8 cm long, tapering to a short blunt tip,** hairy when young, later shiny. FLOWERS: Terminal loose **heads of flowers** or beside leaves, hardly stalked, each flower tubular, very small, **white–pale pink.** FRUIT: Rounded to oval, a many-seeded berry with a hard skin, **to 15 cm, dull green but spotted**—the size of an orange. The 4–5 ovoid seeds lie in juicy edible pulp.



ECOLOGY: A strong climber commonly found at forest edges and in *Brachystegia* and related woodlands from the Democratic Republic of Congo and Kenya south to South Africa. In Kenya, restricted to the coastal belt, 0–300 m. Occurs in secondary forest or forest margins, secondary bushland in coastal sandy soils. Agroclimatic Zones II–III. Flowers in March and November and fruits in March–April and November–December in Kilifi.

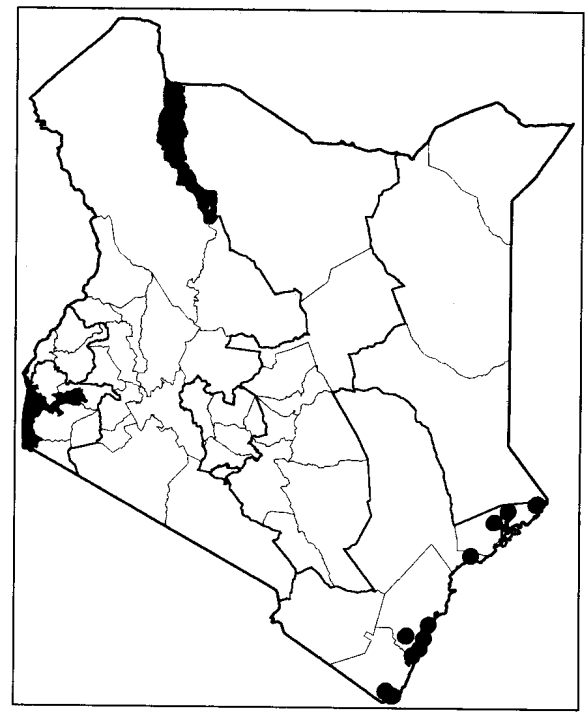
USES: Edible fruit, medicine (leaves, roots), shade, gum (leaves, bark, fruit), dye.

PROPAGATION: Seedlings, cuttings, wildings, root suckers. Raised fastest from cuttings or root suckers.

MANAGEMENT: Coppicing.

REMARKS: One of the most promising wild fruit species. The ripe fruit is edible and is sweet with an acid taste. It is cut in half and the yellow, juicy pulp eaten raw. The fruit is sold in most coastal towns including Mombasa, Malindi and Kilifi, where it is very popular. The latex is often used for trapping birds. This is a fast-growing climber which gives shade if grown in a woodlot. It can become a weed if not well managed. If grown along hedges and near trees where it can climb, this plant can be a good source of fruit for the household.

FURTHER READING: Beentje, 1994; Maundu et al., 1999; Ruffo et al., 2002.



Lannea alata

Anacardiaceae

Indigenous

COMMON NAMES: **Boran:** Kumude; **Giriama:** Manga, Mnthungu **Kamba:** Kikolya (Makueni), Kitungu (Mwingi), Ndungu (fruit), Ngolya (fruit); **Malakote:** Sufi bara, Supu bora; **Orma:** Kumudhe; **Rendille:** Bejelo; **Samburu:** Ikinoi, Kinoi; **Somali:** Kumudhe (Tana River), Wanreh; **Taita:** Mshiga, Ngarizo; **Tharaka:** Mituungu.

DESCRIPTION: **A much-branched spreading deciduous shrub** usually 1.5–4 m high, with drooping branches and a spiky appearance. BARK: Dark grey, smooth. Stem base and **main roots normally covered with brown, thread-like growths resembling cotton wool**. LEAVES: Usually **clustered on short shoots** and divided into **tiny leaflets** which are **bluntly toothed** towards the tip; midrib often winged. FLOWERS: Borne in groups, their common stalk arising together with that of leaves in the short shoots, greenish yellow, small, inconspicuous. FRUIT: Up to 2 cm across, fleshy, green turning yellow to orange or red-brown on ripening. Seeds green with a rough surface.

ECOLOGY: Occurs in Somalia, coastal areas and inland parts of eastern and north-eastern Kenya and northern Tanzania. In Kenya, may be found for example in Mandera, Tana River and Kitui on rocky hillsides, in *Acacia–Commiphora* bushland; often associated with *Acacia tortilis*, *Adansonia digitata*, *Delonix alata*, *Grewia* species, *Lannea triphylla* and *Sterculia stenocarpa* in light red clay and in rocky areas, 0–1,200 m. Rainfall 400–600 mm. Agroclimatic Zones V–VI. Flowers in September–October in Makueni, Tharaka, Kitui and Taita, and in December in Tana River; fruits in February–March in Makueni, Tharaka, Kitui, Taita and Wajir, in May in Mandera, in July–August in Kilifi and Kwale, and in December in Garissa.

USES: Firewood, edible fruit, medicine, fodder (fruit for goats and camels), fibre ('wool' from roots).

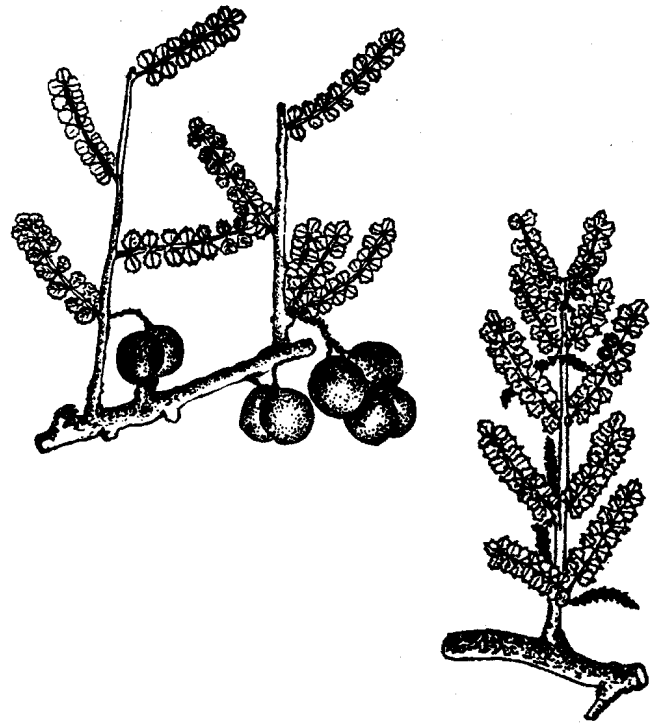
PROPAGATION: Direct sowing at site, seedlings, cuttings. Sow seed in pots if seedlings are to be raised.

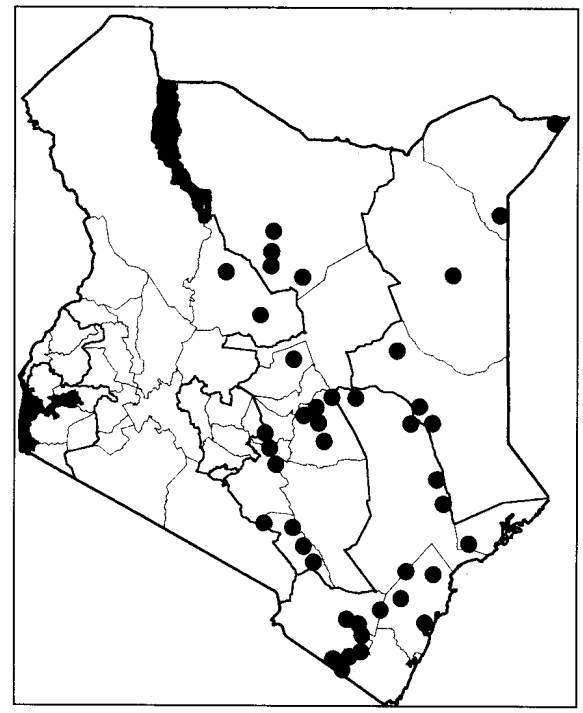
SEED: Fruit can be collected on the ground under the trees, either fresh or dry. Soak fruit, separate seed from pulp and dry the seed or sow immediately.
treatment: Soaking in lukewarm or cold water may improve germination if seeds were dried.
storage: Best to use fresh seed.

MANAGEMENT: The haphazard spreading habit needs to be controlled by pruning.

REMARKS: Fruit are edible and much liked (Samburu, Somali, Rendille, Boran, Kamba, Taita). They are sweet but also have a rather sour taste. With good rains fruit are juicy. They are sold in Mwingi District. 'Wool' from the roots used for stuffing pillows and mattresses (Somali, Tharaka, Kamba, Mbeere). An excellent fruit tree for drylands. *Lannea* is a genus of several dozen members found mainly in savanna parts of Africa but also extending to south Asia.

FURTHER READING: Beentje, 1994; Blundell, 1987; Maundu et al., 1999.





Lannea fulva

Anacardiaceae

Indigenous

COMMON NAMES: **Luhya (Bukusu):** Kumubumbu; **Marakwet:** Gorot, Lolotwa; **Pokot:** Lolotwo, Lalat (plural).

DESCRIPTION: A deciduous leafy **shrub spreading near the ground**, or a tree 3–10 m with a short irregular bole and much branching to a rounded crown, branchlets drooping. BARK: Thick, grey-brown, flaking. Tough and used for string. **Branchlets, leaf and flower stalks have yellow hairs.** LEAVES: Some single leaves but **usually 3 leaflets, the large central leaflet 5–8 cm,** on a 2-cm stalk, lateral leaflets smaller, leaflets oval to rounded, tip rounded, blunt or notched, **dark shiny green above when mature, but very dense pale yellow-brown hairs below.** FLOWERS: Small, yellow-green, on **simple 4–12 cm spikes,** with some branches, beside leaves, **stalk white, hairy.** FRUIT: Purple when ripe, less than 1 cm, oblong, somewhat flattened.

ECOLOGY: A widespread tree in eastern Africa, Rwanda, Burundi and the Democratic Republic of Congo in open wooded grassland, often on rock outcrops and termite mounds and at forest edges, 900–1,600 m. In Kenya, restricted to the western region. Very common near Ramogi Hill in Bondo District and in parts of West Pokot. Agroclimatic Zones II–III. Fruits in June–July and in December–January in Nyanza and Western Kenya.

USES: Firewood, charcoal, poles (construction), edible fruit, medicine (bark, roots), shade, ornamental.

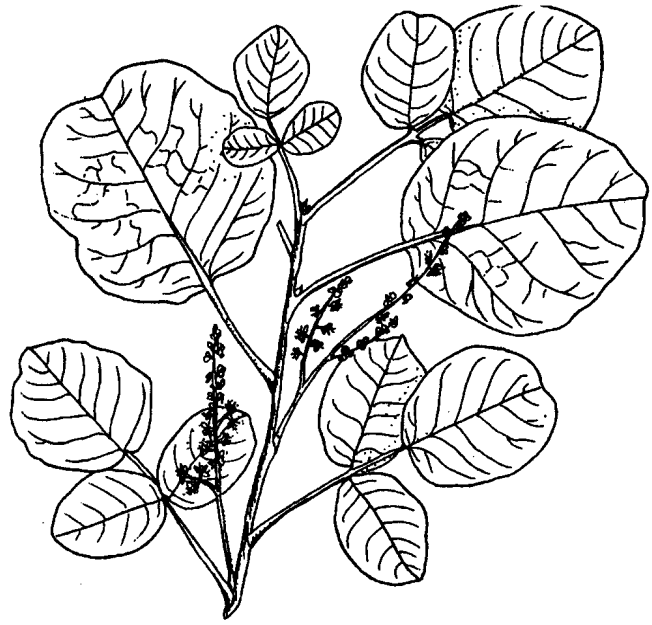
PROPAGATION: Direct sowing at site, seedlings, cuttings. Sow seed in pots if seedlings are to be raised.

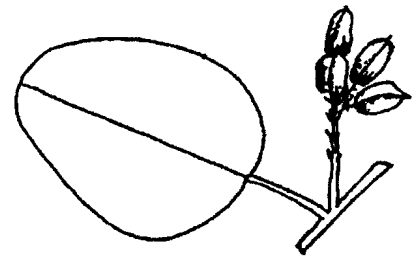
SEED: Fruit can be collected on the ground under the trees either fresh or dry. Soak fruit, separate seed from pulp and dry the seed or sow immediately.
treatment: Soaking in lukewarm or cold water may improve germination if seeds were dried.
storage: Best to use fresh seed.

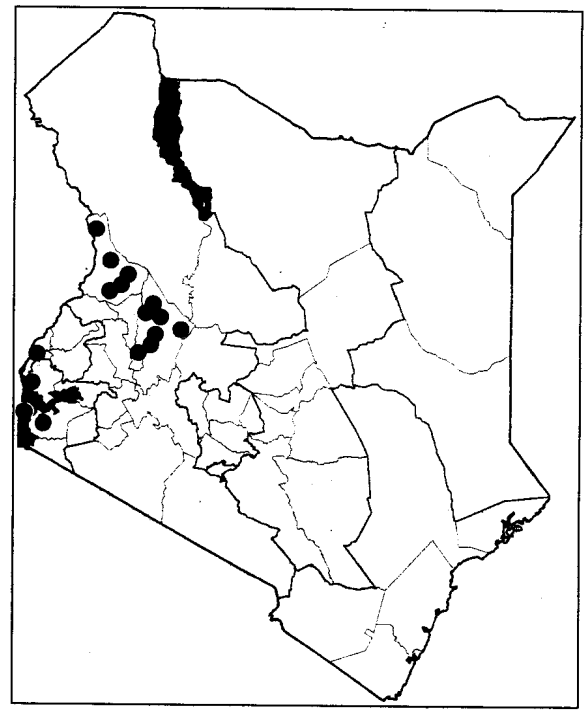
MANAGEMENT: Coppicing, pollarding.

REMARKS: A beautiful shrub due to its green and pale yellow leaves with potential as an ornamental shrub and shade tree. The heavy foliage of these trees stands out in areas that have been overgrazed. Cattle herders should be encouraged to plant them around their homesteads or watering places.

FURTHER READING: Beentje, 1994; Katende et al., 1995, 1999; Kokwaro, 1993; Ruffo et al., 2002.







Lannea rivae (L. floccosa) Anacardiaceae

Indigenous

COMMON NAMES: **Kamba:** Kithaala, Kithaalua kya kiima; **Marakwet:** Latat (plural), Lolowe; **Pokot:** Lolotwo; **Somali:** Anri, Jidwey; **Turkana:** Etopojo.

DESCRIPTION: A deciduous shrub or small tree, 1.5–6 m, with a flat spreading crown. BARK: More or less smooth, becoming cracked and rough, underbark red. Short thick branches with rough raised breathing pores. LEAVES: **Wide oval to rounded, 3–10 cm, rough above and dense star-shaped white hairs below,** leaf stalks to 4 cm with similar hairs, **leaves single** but several crowded on the short small knobbly side branches. FLOWERS: Often on the bare tree, very small, along **spike-like stalks 1–3 cm,** on short lateral branches, petals yellow-green to 5 mm, **sepals** and stalks covered with white star-shaped hairs. FRUIT: **Ovoid, to 1.4 cm long, densely hairy,** with edible flesh around the seed.

ECOLOGY: Occurs in southern Ethiopia, Kenya and northern Tanzania. In Kenya, for example at Moyale, Masii (Machakos), Bisil (Kajiado) in open *Terminalia–Combretum* bushland and wooded grassland, 300–2,000 m. Most common at 1,400–1,900 m on well-aerated sandy, rocky and loam soils. Agroclimatic Zones IV–V.

USES: Edible fruit, edible inner bark, medicine (inner bark), shade, fibre, live fence, toothbrushes.

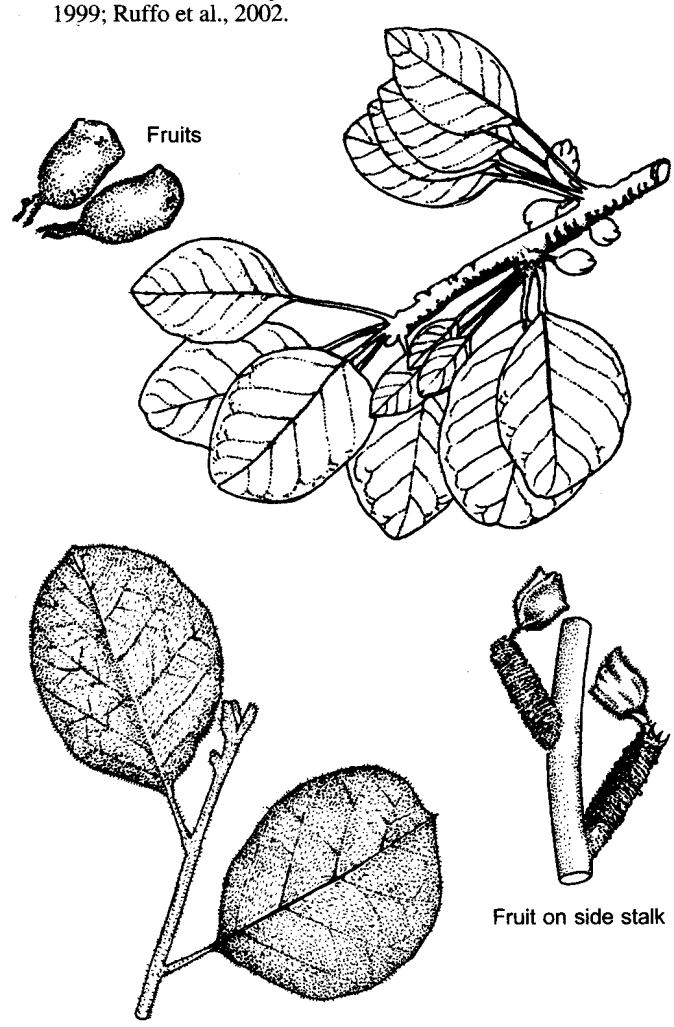
PROPAGATION: Direct sowing at site, seedlings, cuttings. Sow seed in pots if seedlings are to be raised.

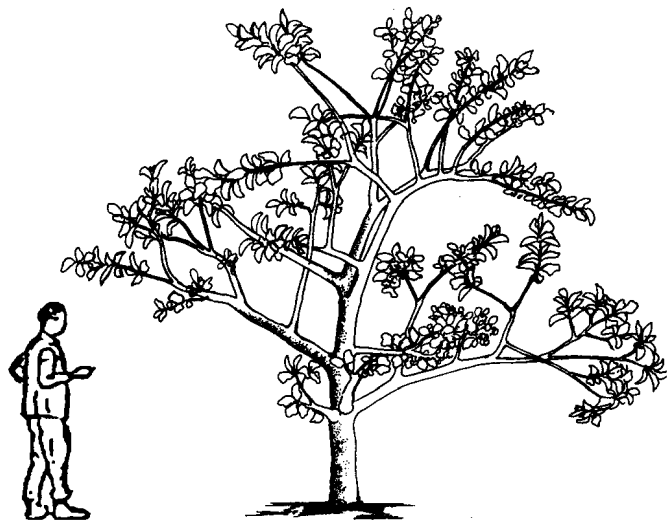
SEED: Fruit can be collected on the ground under the trees either fresh or dry. Soak fruit, separate seed from pulp and dry the seed or sow immediately.
treatment: Soaking in lukewarm or cold water may improve germination if seeds were dried.
storage: Best to use fresh seed.

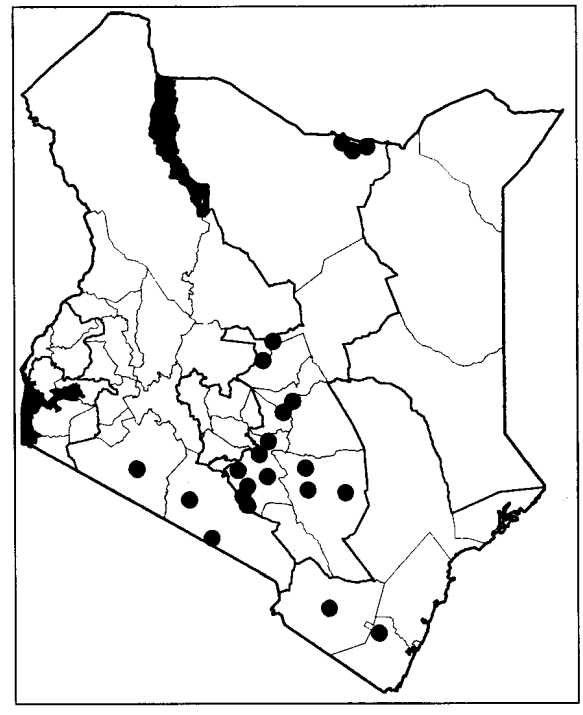
MANAGEMENT: Lopping, pollarding. Coppices easily when cut.

REMARKS: Inner bark chewed for its sweet taste and as a refreshment. Fibre obtained after chewing is used for ropes and weaving. 'Wool' of dug up roots is used for stuffing mattresses (Mbeere). The tree is used as a bird-scaring platform in millet fields (Kamba). This species resembles *L. triphylla*, distinguished by its divided leaves with 3 leaflets, smaller growth habit and narrower branches. Generally uncommon but common in some localities.

FURTHER READING: Beentje, 1994; Blundell, 1987; Maundu et al., 1999; Ruffo et al., 2002.







Lannea schimperi

Anacardiaceae

Indigenous

COMMON NAMES: Boran: Andaraka; **Giriama:** Mwanakabaga; **Kamba:** Kithoona, Kithauna (Kitui), Nthoona (fruit); **Luhya (Bukusu):** Kumubumbu, Kumuumbu; **Luo:** Kwogo, Kuogo; **Marakwet:** Lolotwa, Latat (plural); **Nandi:** Kwetingwet; **Pokot:** Cheprukwa, Cheprukwo; **Turkana:** Etopojo.

DESCRIPTION: A small deciduous tree to 7 m, occasionally medium-sized to 15 m high, **irregular branching** and a semi-spherical crown with medium to dense foliage. **Leafless during the dry season**. Trunk to 45 cm or more in diameter. BARK: Smooth or fissured, pale grey, rough and dark grey in older trees. LEAVES: Often **crowded on short stout branches**, large, pinnately compound with a terminal leaflet, each leaflet to 10 cm or more, underside of leaflets and young **leaves with rusty hairs**. FLOWERS: Greenish yellow, borne on long spikes. FRUIT: Fleshy, egg-shaped, to 1.5 cm long, without hairs, red when ripe.

ECOLOGY: Found from Nigeria east to Ethiopia and south to Zimbabwe and Mozambique. In Kenya, found in woodland and bushland, in shrubland on rocky hillsides and also left in cultivated land, for example in Machakos (Kanzalu Range) and in Kitui. Common in West Pokot and parts of Turkana (Loima Hills), around Mt Elgon, around Eldoret and in Marakwet. Often found where soils are well drained such as sandy or rocky places. Agroclimatic Zones II–IV. Flowers in April–May and fruit in June–August in Bungoma.

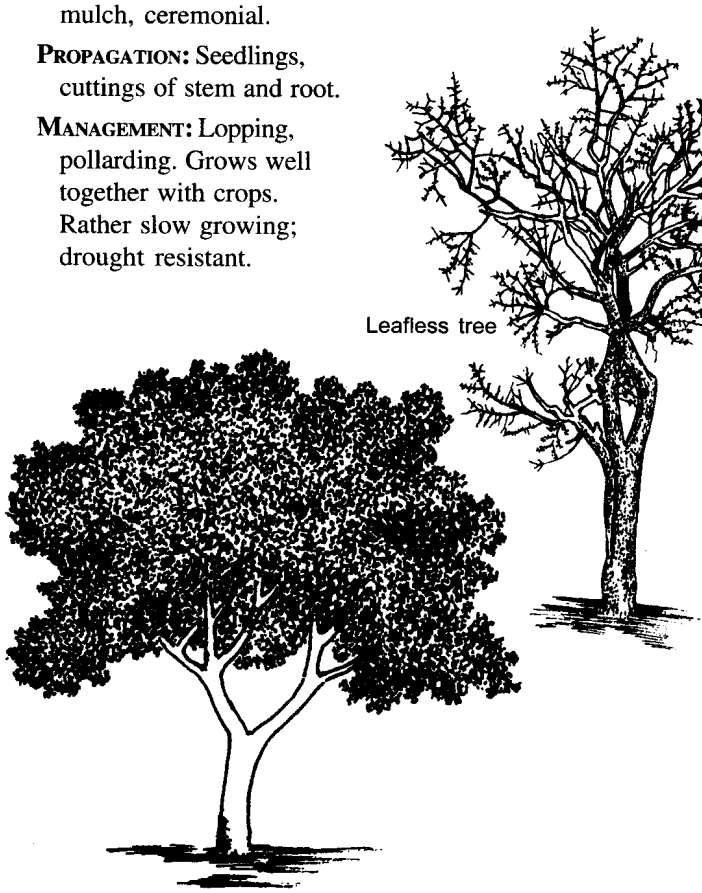
USES: Firewood, charcoal, poles, furniture (stools), tool handles, utensils (mortars, bowls), edible fruit, drink ('tea' made from the bark), medicine (bark, root), shade, mulch, ceremonial.

PROPAGATION: Seedlings, cuttings of stem and root.

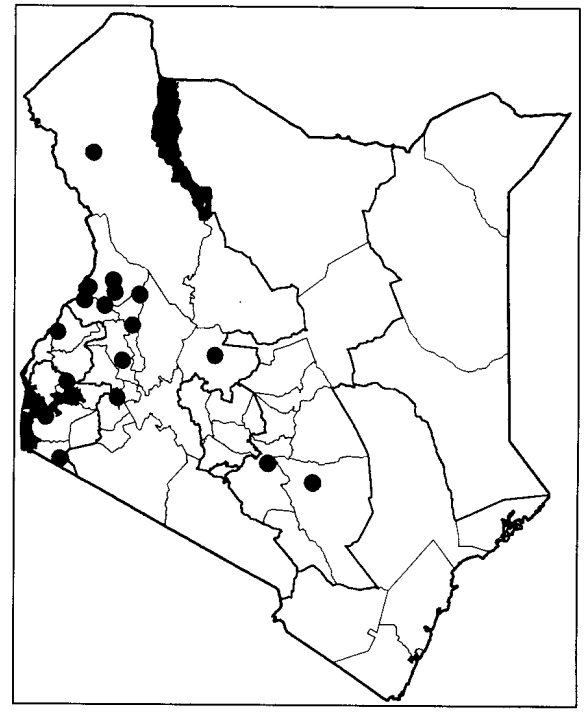
MANAGEMENT: Lopping, pollarding. Grows well together with crops. Rather slow growing; drought resistant.

REMARKS: Fruit is eaten by the Pokot, Kamba, Turkana and Marakwet. Bark used as tea leaves by the Pokot. Generally not very common.

FURTHER READING: Backes and Ahenda, 1998; Beentje, 1994; Blundell, 1987; Kokwaro, 1993; Maundu et al., 1999; Palgrave and Palgrave, 2002; Storrs, 1979.



Leafless tree



Lannea schweinfurthii

Anacardiaceae

Indigenous

COMMON NAMES: **Boni:** Waharr; **Boran:** Ile, Tile; **Digo:** Mnyumbu; **Giriama:** Mjumbu maji, Mukivure, Kyuasi; **Kamba:** Kyuasi, Muasi, Mwethi; **Luo:** Bongo, Kuogo, Kwogo; **Maasai:** Orpande; **Mbeere:** Moino; **Pokot:** Orolwo; **Samburu:** Muthuchi; **Swahili:** Mongo, Mnyumbu, Munyumbu maji; **Taveta:** Rubandi; **Tharaka:** Muthuchi.

DESCRIPTION: A deciduous shrub or tree, to 20 m, with irregular branching habit, rounded often dense crown, branchlets drooping. BARK: Grey-brown, fairly smooth, flaking when older. LEAVES: Compound, usually crowded at the ends of branches, few leaflets, usually **3–5, shiny** and stiff, oval, **larger terminal leaflet to 9 cm,** tips blunt, leaf stalk grooved. FLOWERS: Strongly scented, small, cream coloured, in hanging spikes to 20 cm. Male and female trees. FRUIT: Oblong **1–2 cm, red-brown,** fleshy, edible.

ECOLOGY: Widespread in Africa from Sudan and Somalia to South Africa, 0–1,800 m. Common in wooded grassland, dry forest, river valleys. It is found all over Kenya, particularly in subhumid and semi-arid areas, in woodland, wooded grassland and bushland. Commonly found on sandy soils and steep rocky places. Agroclimatic Zones III–V. Flowers in December–January (Kitui) and November–December in Nyanza and Western Provinces; fruits in January–March (Kitui, Mwingi and Coast).

USES: Firewood, charcoal, timber (doors), furniture (stools), beehives, tool handles, utensils (mortars, containers), walking sticks, cart wheels, edible fruit, drink (tea from soft fleshy bark), medicine (bark and root), fodder (leaves), bee forage, shade, fibre (inner bark for string, stuffing material from roots), basketry (inner bark), live fence, dye (bark).

PROPAGATION: Seedlings, cuttings, root suckers. Sow seed in pots if seedlings are to be raised.

SEED: Fruit can be collected on the ground under the trees either fresh or dry. Soak fruit, separate seed from pulp and dry the seed or sow immediately; 40,000–45,000 seeds per kg. Germination is good and completed within 45 days.

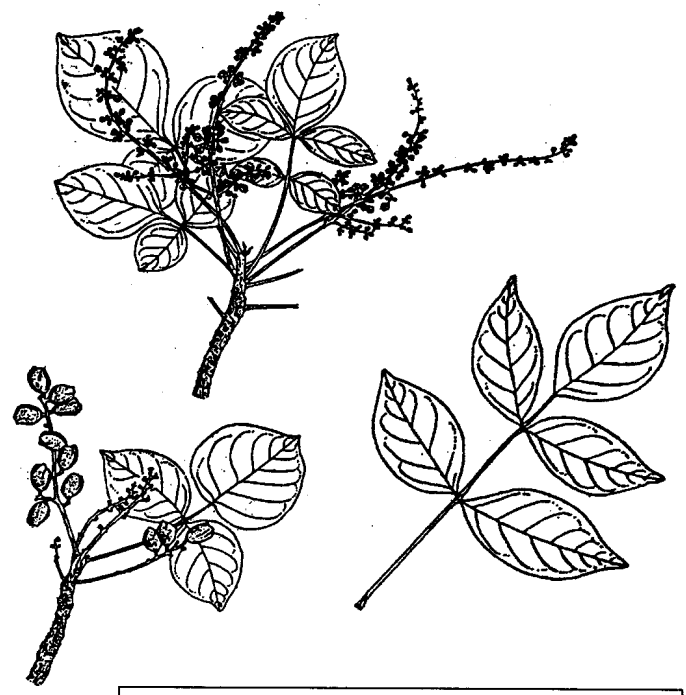
treatment: Soaking in lukewarm or cold water may improve germination if seeds were dried. No treatment required for fresh seed.

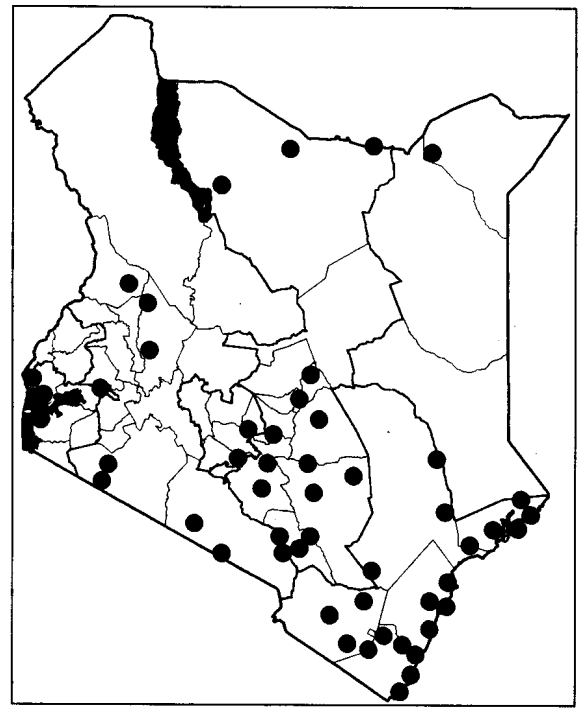
storage: Best to use fresh seed.

MANAGEMENT: Fast growing; lopping, pollarding.

REMARKS: The inner bark is a source of string (Maasai) and used to make grain containers and baskets (*syondo*: Kamba). The brown dye obtained from bark is used to decorate the baskets. A brown 'wool' used for stuffing mattresses is obtained from roots just below the ground surface (Kamba, Tharaka, Mbeere). The large trunk is carved into stools, beehives, mortars and drums for storing honey (Kamba, Tharaka). The tree is resistant to fire. Branches are very flexible, the white wood is soft and light.

FURTHER READING: Beentje, 1994; Blundell, 1987; Katende et al., 1995, 1999; Kokwaro, 1993; Maundu et al., 1999; Mbuya et al., 1994; Ruffo et al., 2002; Storrs, 1979.





Lannea triphylla

Anacardiaceae

Indigenous

COMMON NAMES: **Boran:** Andarak; **Embu:** Kitherema; **Ilchamus:** Nkampurori, Nkampurok, Nkampiror; **Kamba:** Kithaala, Kithaalwa, Muthaalwa, Nzaala (fruit); **Kambe:** Mnyumbe; **Luo:** Kuogo; **Maasai:** Orpande; **Marakwet:** Man, Monwo (plural); **Mbeere:** Muracu; **Orma:** Hadaraku, Hararaku, Kararaku; **Pokot:** Moino; **Rendille:** Niondoh; **Samburu:** Lapuroi; **Somali:** Anri, Anthri, Baaror, Waanri (Tana River); **Tugen:** Tapuya; **Turkana:** Atopojo, Etopojo.

DESCRIPTION: Deciduous **spreading shrub** or small tree to about 5 m high. Branches **flexible, stout**. BARK: **Fleshy, smooth**, grey to dark grey on the surface. LEAVES: **Crowded on short branches**, often divided into 3 leaflets, each covered with **dense soft white hairs beneath**. FLOWERS: Tiny, less than 5 mm, cream, in spike-like inflorescences (flowering part or branch). FRUIT: Dirty green, softly hairy, turning dirty red on ripening. Seed red.

ECOLOGY: Uganda, north-eastern Tanzania, Ethiopia, Somalia and the Arabian peninsula. In Kenya, found, for example, in Moyale, Baringo, southern Turkana, Kwale, Machakos and Marsabit Districts in *Acacia–Commiphora* bushland, 340–1,400 m. Common on red clay, sandy clay and in rocky areas. Agroclimatic Zones IV–VI.

USES: Branches and wood used for construction of local houses, edible fruit, edible roots, edible inner bark, drink (tea from bark), medicine (bark), fodder (leaves for camels and goats), fibre (inner bark for basketry and ropes), live fence, toothbrushes.

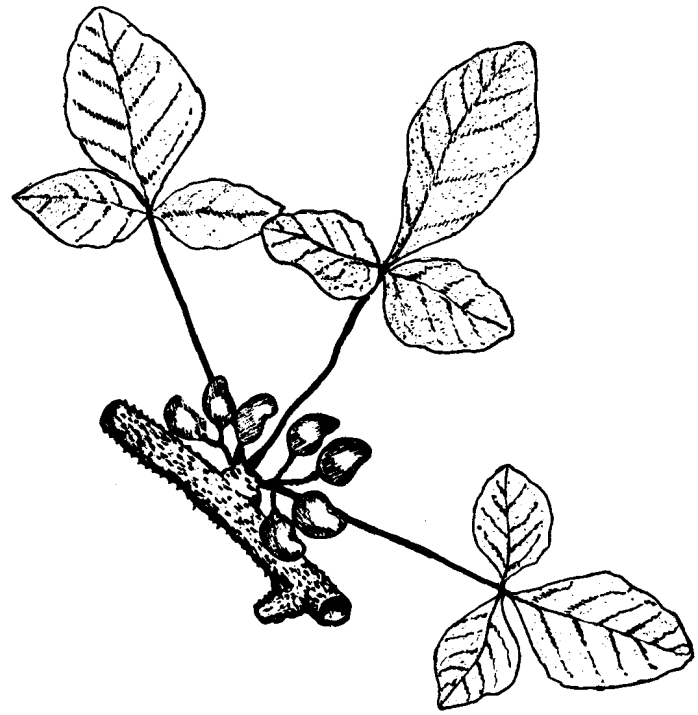
PROPAGATION: Direct sowing at site, seedlings, cuttings. Sow seed in pots if seedlings are to be raised.

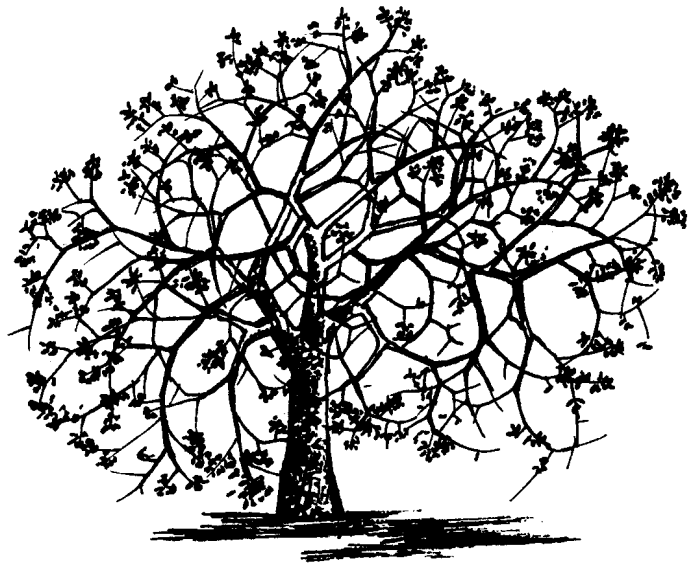
SEED: Fruit can be collected on the ground under the trees either fresh or dry. Soak fruit, separate seed from pulp and dry the seed or sow immediately.
treatment: Soaking in lukewarm or cold water may improve germination if seeds were dried.
storage: Best to use fresh seed.

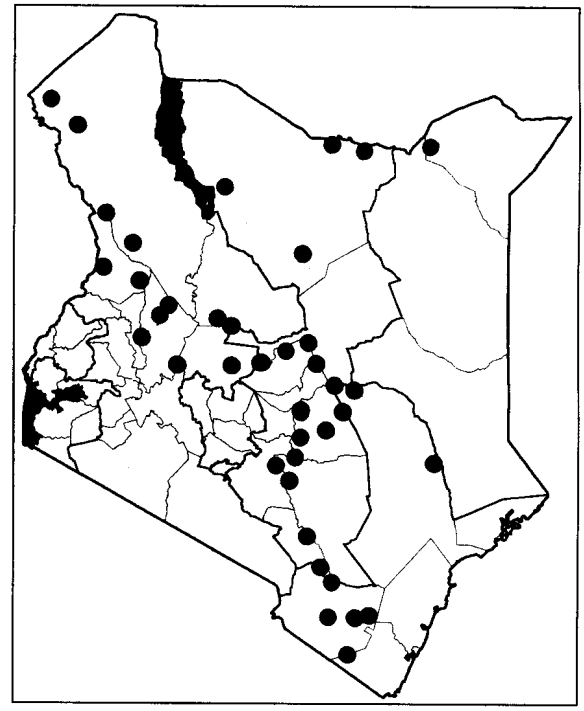
MANAGEMENT: Lopping, pollarding.

REMARKS: Roots, especially from young plants, peeled and chewed raw during the dry season, sweet and succulent inside (Turkana, Pokot, Kamba). Ripe fruit edible. The inner bark is also chewed for its water and sweetness. Bark boiled to make 'tea'. Flexible stems used in hut building. Inner bark a source of fibre used for weaving baskets and ropes (Pokot, Kamba). Toothbrushes (Pokot, Kamba). Wood used in construction and said to be termite resistant. This plant may easily be confused with *L. rivae,* which it resembles in habit. The leaves are a distinguishing feature, those of *L. rivae* usually being a single leaflet and much larger than those of *L. triphylla.*

FURTHER READING: Beentje, 1994; Maundu et al., 1999.







Lawsonia inermis

Lythraceae

Indigenous

COMMON NAMES: **Bajun:** Mvuma nyuki; **Boni:** Gomojia, Komochi, Kornochi; **Boran:** Urrur, Elmi, Elan; **English:** Henna; **Kamba:** Kitiliku, **Pokot:** Kaparamenion; **Pokomo:** Muasimini, Musurua; **Somali:** Elan, Erip; **Swahili:** Mkokoa, Mhina; **Tharaka:** Mugokora; **Turkana:** Esajait.

DESCRIPTION: A twiggy shrub or small tree to 4 m, with **short side shoots often ending in a spine. Young stems with a square cross-section.** LEAVES: **Small and widest at the middle or slightly towards the tip,** up to 2 x 4 cm, opposite, shiny, usually tinged reddish brown when young. FLOWERS: White to cream, small, in long branching heads to 30 cm, **sweet-scented.** FRUIT: Small round reddish-yellow capsules **borne in dense clusters,** each to 8 mm, with persistent style, **splitting into 4 parts.** Capsules turning brown as they dry.

ECOLOGY: A shrub widely distributed from North to West and Central Africa. Also cultivated in many parts of the world as an ornamental and source of dye. Common at the Kenyan coast, along river courses and in semi-arid parts of north and eastern Kenya. It is mostly restricted to flood plains of larger rivers, seasonally flooded areas and occasionally in luggas. Found, for example, around Mutomo in Kitui, in Mwingi District, lower parts of River Tana, Kibwezi area of Makueni, Tsavo East National Park and in Mandera. Agroclimatic Zones V–VI.

USES: Firewood, poles, farm implements (carriers for use on donkeys), bows and arrows, spear shafts, edible resin, medicine (roots, juice from bark), fodder (leaves and fruiting branches), bee forage, river-bank stabilization, thatch, live fence, dead fence (thorny branches), dye (henna), perfume (volatile oil).

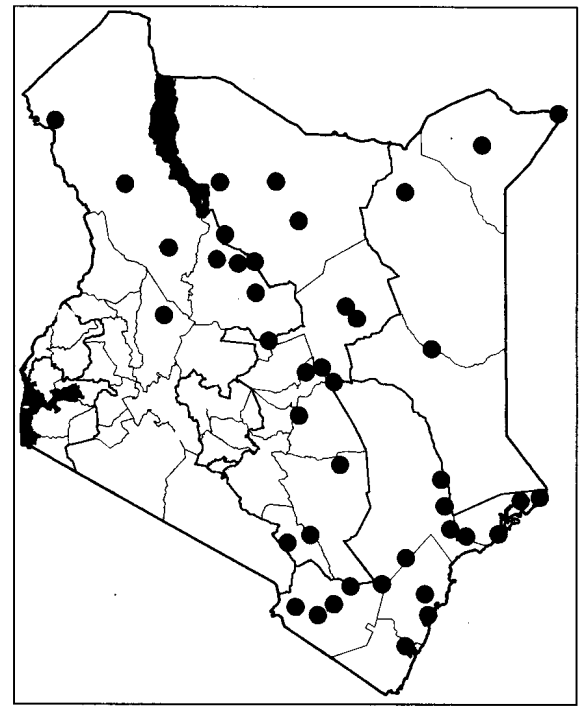
PROPAGATION: Seedlings and cuttings.

SEED: 100,000–500,000 seeds per kg; germination rate up to 70%. Sow in seedbed and prick out.
treatment: None.

MANAGEMENT: Slow growing; pruning, coppicing. May become a weed.

REMARKS: This is the henna plant, the source of a fast brown or orange-red dye obtained from the leaves and young shoots. The dye is widely used, especially from South Asia and India west through the Middle East and the whole of North, West and eastern Africa to dye the hands and feet of women, and hair, beard, nails, eyebrows, etc. Among the Swahili, women apply henna during festivities such as weddings. It is particularly used to decorate the hands and feet of brides with intricate and artistic patterns, a meticulous and time-consuming task performed by several women over a period of up to 3 days. The dye is also used to decorate fabrics and leather. The leaves and young shoots are dried and made into a powder, to which water and citric or tartaric acid from lemon juice or tamarind are added to form the dye. The leaves and fruiting branches provide fodder for livestock. Flowers are fragrantly scented and essential oil from them is used in parts of Africa as a perfume in other cosmetics. This is the only species in the genus *Lawsonia*.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Beentje, 1994; Bekele-Tesemma et al., 1993; Blundell, 1987; Bein et al., 1996; Kokwaro, 1993; Mbuya et al., 1994; Noad and Birnie, 1989.



Lecaniodiscus fraxinifolius

Sapindaceae

Indigenous

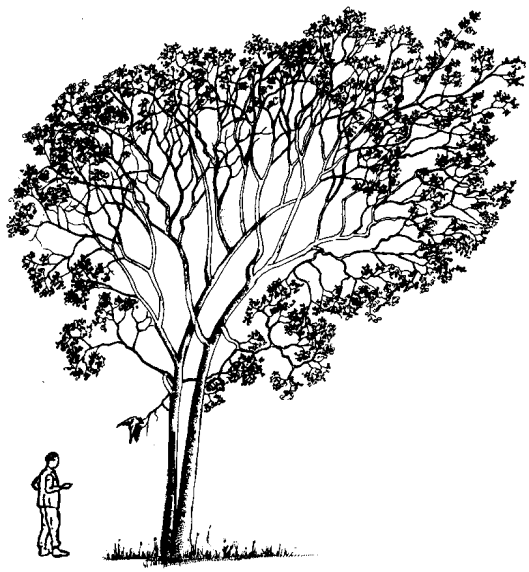
COMMON NAMES: **Boni:** Chona; **Duruma:** Mnyandakanda; **English:** River litchi; **Giriama:** Mbelenga; **Luo:** Mwanda; **Malakote:** Motobwi; **Pokomo:** Muhumbi, Muhumbi mweupe; **Sanya:** Muthompa; **Somali:** Chana; **Swahili:** Mkunguma; Mbwewe, Mnanyakanda; **Wardei:** Jana.

DESCRIPTION: A leafy tree 5–18 m, usually about 7 m. BARK: Fairly smooth, grey, becoming darker and rougher, even scaly, with age. LEAVES: Alternate, compound, with 3–7 pairs of thin leaflets, generally oval, 3–11 cm long, the lowest leaflets often smaller, on a stalk to 5.5 cm, young leaflets orange-red, turning yellow-green, **tip tapering but blunt,** base rounded, almost stalkless, the edge wavy when dried. FLOWERS: Yellow-green, small, along rather loose unbranched **spike-like heads about 10 cm long, from leaf axils,** separate male and female trees, **no petals** but **4–5 sepals to 3 mm,** about 10 stamens, very small yellow female flowers on shorter stalks than male flowers, urn-like in shape with soft black hairs at the tip of the neck. FRUIT: Yellow–orange–pink **capsules, ovoid, about 1 cm** long, the surface covered with short dense hairs; when ripe the **skin breaks irregularly to set free one hard seed** enclosed in an edible, blue-white fleshy covering.

ECOLOGY: Occurs in eastern Africa including Uganda, Tanzania, Burundi, Ethiopia and Somalia. In Kenya, mainly found along the coast and along River Tana. Also found in the Lake Victoria region but rare in the rest of the country. At the coast and in the Lake region found in forests, especially at forest edges and in disturbed areas. Elsewhere it is restricted to riverine forests and woodland. Does not seem to prefer red soil. Agroclimatic Zones II–VII (riverine). Flowers in January–February and seeds mature in April at the coast.

USES: Firewood, charcoal, poles (house construction), tool handles, carvings, utensils (wooden spoons, mortars, fish traps), edible fruit, medicine (bark, roots), bee forage, shade, material for basketry.

PROPAGATION: Seedlings, wildings.

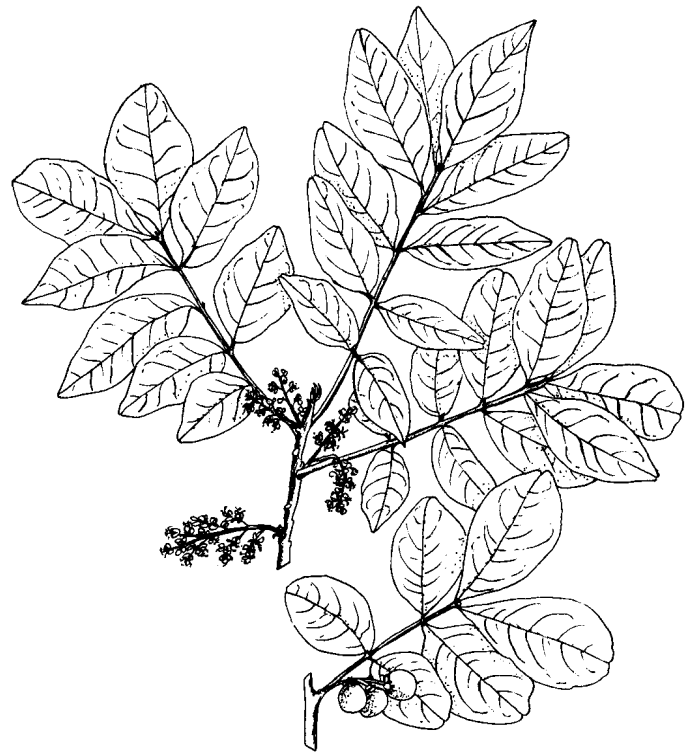


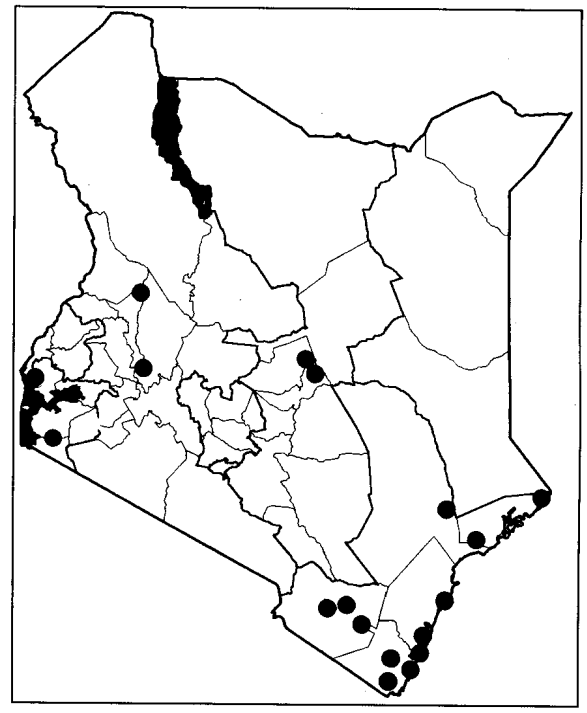
SEED: Seed germinate easily.

MANAGEMENT: Coppicing.

REMARKS: When producing new leaves the tree is occasionally inhabited by insect larvae with irritating hairs. This tree has very hard wood and can live for several hundred years. The tree on Ramogi Hill that the Luo regard as sacred and where their ancestor, Ramogi, is said to have tethered his animals, is this species. *Lecaniodiscus* is an African genus with only a few species.

FURTHER READING: Beentje, 1994; Kokwaro, 1993; Palgrave and Palgrave, 2002; Ruffo et al., 2002.





Lepisanthes senegalensis

Sapindaceae

Indigenous

COMMON NAMES: **Luhya:** Musaretsi; **Luhya (Bukusu):** Kumwimbirichi; **Luo:** Ochol; **Maasai:** Oleragai; **Malakote:** Muqanto; **Samburu:** Ilkisiriko; **Tharaka:** Mukubu; **Turkana:** Kisriku.

DESCRIPTION: An evergreen tree, 6–21 m, with a heavy leafy crown. BARK: Smooth, pale grey-brown. LEAVES: **Compound, pinnate,** the leaf stalks to 10 cm and crimson when young as well as the lower midrib, **1–3 pairs of large leaflets, 8–19 cm,** the top pair always opposite, shortly stalked, slightly one-sided, the long tip blunt or rounded, drying grey-green above and paler below. FLOWERS: Small, yellow-green male and female flowers with a rather unpleasant smell, growing along loose branched heads from leaf axils, or all appearing terminal, **usually flowering with new leaf growth. Flowering heads 5–20 cm,** the **young stalks with golden hairs,** each flower with **5 white petals, to 4 mm, with a hairy fringe, 5–7 yellow** stamens. FRUIT: **Oval, red 12–18 mm,** containing 2 black seeds.

ECOLOGY: Found from West Africa to Ethiopia, Kenya, Tanzania and south to Mozambique; also in India and Malaysia. Widely distributed in Kenya, from the coast to the west and north of the country, mainly in evergreen lowland, riverine and submontane forests. It is common on coral or lava rock in forests near the sea; 0–1,900 m. Agroclimatic Zones II–V. Fruits in June–July in Bungoma.

USES: Firewood, charcoal, timber, poles, furniture, tool handles, utensils (wooden spoons), edible fruit, medicine (root), shade, fish poison (flowers).

PROPAGATION: Seedlings.

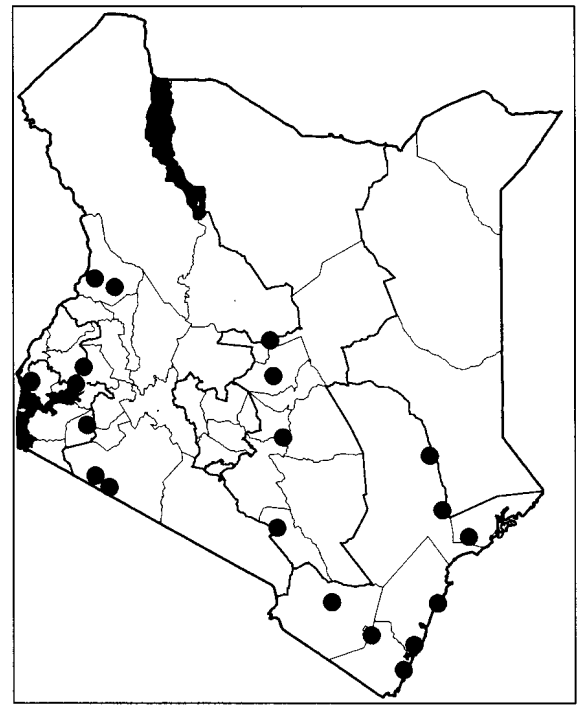
SEED:

treatment: Not necessary.

storage: Fresh seed should be used.

REMARKS: Leaves and seeds are reported to be poisonous to goats and the flowers to fish. The tree is rarely found in cropland but more often in homesteads and along farm boundaries. *Lepisanthes* is a genus with about 2 dozen species, occurring mainly in Africa and Asia.

FURTHER READING: Backes and Ahenda, 1998; Beentje, 1994; Blundell, 1987; Ruffo et al., 2002; Sommerlatte and Sommerlatte, 1990; Verheij and Coronel, 1991.



Leptadenia hastata

Asclepiadaceae

Indigenous

COMMON NAMES: **Pokot:** Chesakisyon; **Turkana:** Ekamong'o.

DESCRIPTION: **A leafy climber, hairy on all parts**; milky latex exudes if broken. LEAVES: Opposite and entire, **long oval to 10 cm**, light green, the base flat to rounded, on a stalk. FLOWERS: **Cream, in dense masses on short stalks** beside leaves, each flower with 5 pointed sepals, the petal lobes hairy. FRUIT: In 2 free pod-like segments each up to 8 x 2 cm, splitting along one side to release cottony winged seeds.

ECOLOGY: Distributed from West Africa through Sudan, the Congo basin to eastern and southern Africa, Botswana and Madagascar. In Kenya, restricted to the north-western part of the country along the Turkwel and Kerio Rivers and elsewhere in Baringo, Turkana and West Pokot in bushland and riverine bushland. Only riverine in the driest areas. Seen as a creeper in open areas or climbing on bushes; 500–1,600 m. Agroclimatic Zones VI–VII.

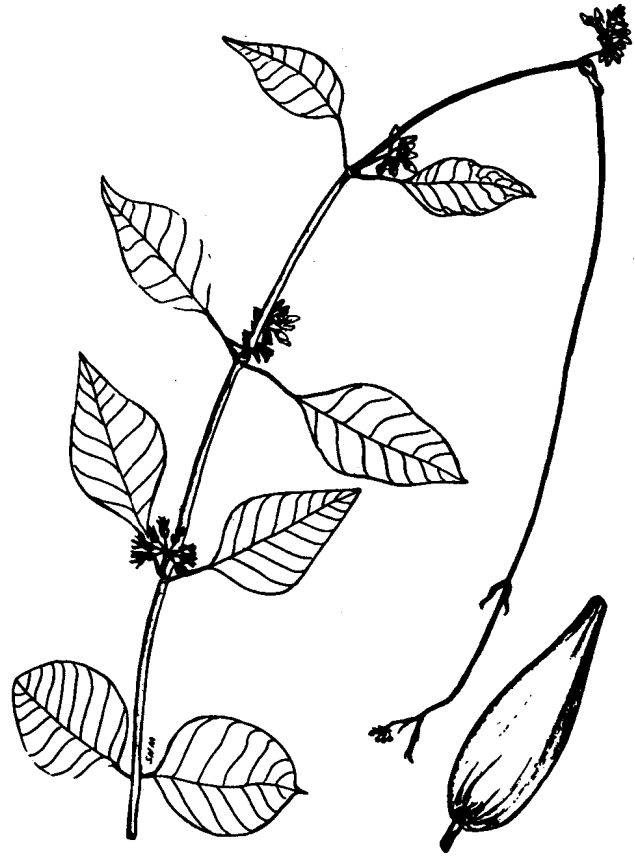
USES: Edible young leaves, medicine (sap from stems applied to wounds), fodder (leaves for camels, goats and cattle), veterinary medicine.

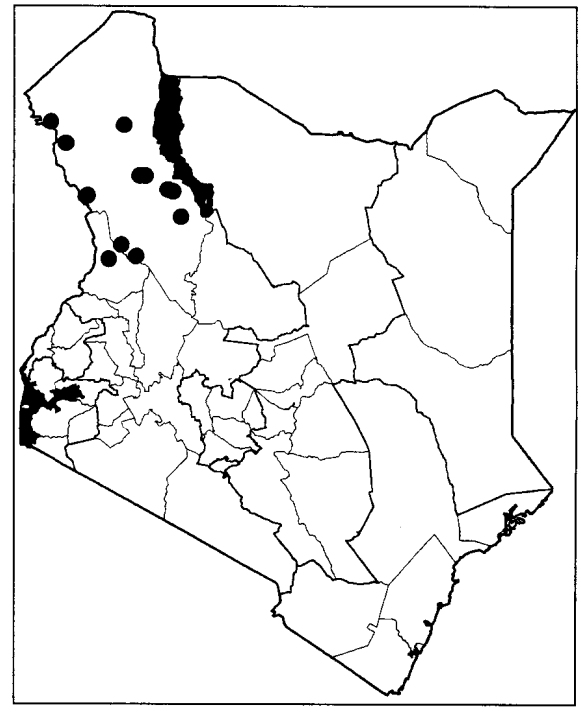
PROPAGATION: Unknown. Can probably be propagated by seeds.

REMARKS: The plant is highly appreciated in West Pokot and southern Turkana among the Ng'ikebootok community, where it is used as a leafy vegetable. The plant is very common in the flood plains of the Turkwel River and has potential as a hedge and vegetable.

A plant with a similar habit in the same family is *Pentarrhinum insipidum* (**Maasai:** Orkorirr; **Samburu:** Lng'arboi, Ng'arboi; **Somali:** Ayab), a climber with simple, entire, heart-shaped leaves, fruit to 10 cm long, with a milky latex and numerous projections on the surface. Widely distributed in Kenya in bushland, especially in low-lying seasonally flooded areas. Common on alluvial and light sandy clay soils. The leaves are also used as a vegetable and are said to be tasty (Maasai). The ripe fruit are edible and liked by children and women.

FURTHER READING: Beentje, 1994; ITDG and IIRR, 1996; Katende et al., 1999; Maundu et al., 1999.





Leucaena diversifolia

Fabaceae (Mimosaceae)

Central America

COMMON NAMES: **English:** Leucaena, Pink leucaena.

DESCRIPTION: A shrub about 2 m or a tree to 20 m—as the name suggests, very variable. Usually upright with light open branching. LEAVES: **Bipinnate, the minute leaflets only 3–6 mm with large glands on the leaf stalk.** FLOWERS: Flower heads like **'balls', 6–15 mm across, pink-purple with red anthers,** over 40 flowers in the head. FRUIT: **Small straight pods 5–15 cm long,** 5–12 mm wide, **deep red-purple when young,** later brown. Many pods may hang together in heavy drooping clusters. Each pod contains 18–26 **very small seeds,** taking a month to mature.

ECOLOGY: This species is the 2nd most widely cultivated *Leucaena* species in tropical highlands. It grows naturally in the highlands of Central America, often as an understorey tree in pine forests. Can tolerate acid soils. It grows faster than *L. leucocephala* at higher altitudes and has shown better tolerance to the leucaena psyllid. Agroclimatic Zones I–II.

USES: Firewood fodder (leaves), bee forage, mulch, green manure, nitrogen-fixing, soil conservation and improvement, tannin, dye.

PROPAGATION: Direct sowing at site, seedlings.

SEED: Obtained from mature pods; the seeds are the smallest of all *Leucaena* and very hard. About 26,000 seeds per kg.
treatment: Soaking seeds in boiling water for 10 seconds, followed by soaking overnight in cold water will improve the germination rate. An alternative is to nick the seed at the distal (cotyledon) end with a knife or a nail clipper.
storage: Properly dried seed can be stored for long periods in airtight containers at room temperature.

MANAGEMENT: Fast growing; coppicing and pruning.

REMARKS: *Leucaena* spp. have been tried in agroforestry systems with intensive management. Falling leaves and loppings add organic matter to the soil and the species fix nitrogen. Leucaena are highly valued for their fast growth and many uses. The leaves contain mimosine, which can cause hair loss, infertility and stomach problems for non-ruminant livestock. Livestock feed should therefore not contain more than 20% leucaena. The genus *Leucaena*, with close to 2 dozen species, is American in origin with members distributed from the southern United States to Peru. They are known for their quality livestock fodder and as a source of firewood. The species often hybridize with one another.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Albrecht, 1993; Katende et al., 1995.

Leucaena leucocephala (L. glauca, L. latisiliqua) Fabaceae (Mimosaceae)

Central America

COMMON NAMES: **English:** Leucaena, Lead tree; **Luo:** Lusina; **Swahili:** Lusina.

DESCRIPTION: An evergreen shrub or tree 5–20 m, depending on the variety and site, medium leafy canopy, develops a deep taproot even as a seedling. LEAVES: Compound alternate with many **leaflets, each thin and pointed, to 1.5 cm.** Leaves and **leaflets fold up** with heat, cold or lack of water. There is a conspicuous round mark on the leaf stalk just before the leaflets. FLOWERS: **White, round heads, about 2 cm** across on a long stalk from the leaf axil. FRUIT: Numerous bunches of **thin, dry pods** 10–15 cm, persisting on the tree, releasing 12–25 hard, **shiny brown seeds.**

ECOLOGY: Widely introduced in the tropics over the last 100 years, reaching Africa in 1950. Grows best at altitudes of 0–1,600 m, in full sunlight and in well-drained neutral or calcareous soil. It does not tolerate acidic soils. Needs more than 600 mm rainfall. It is naturalized and to some extent invasive in some parts of Kenya, especially in the humid coastal lowlands and in other areas where there is moisture in the ground and a warm climate. It is recognized as an invasive species and it is replacing indigenous forests in the Hawaiian Islands. A psyllid insect pest, *Heteropsylla cubana*, causes defoliation. The insect spread by chance from Central America to Hawaii in 1984, and has more recently spread through Asia and into eastern Africa. In Kenya, the psyllid defoliates the leucaena, resulting in severely reduced production of fodder as well as wood, but without killing the leucaena. Agroclimatic Zones II–V.

USES: Firewood, poles, medicine (roots), fodder (leaves and shoots), bee forage, shade, mulch, nitrogen-fixing, soil conservation and improvement, windbreak, tannin, dye.

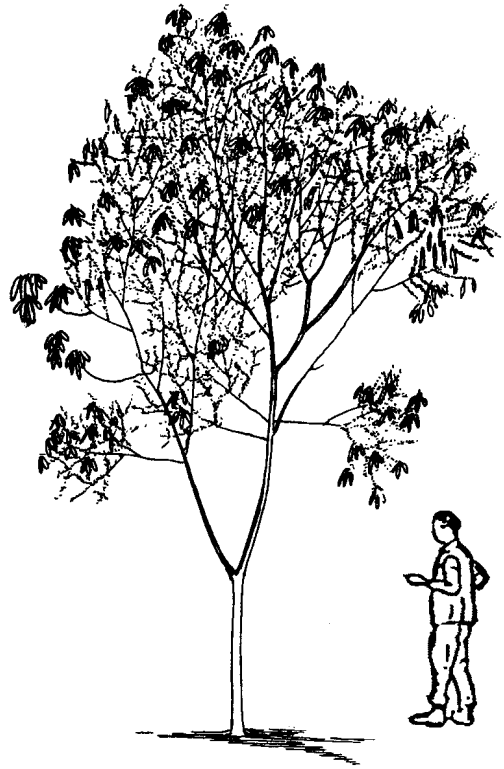
PROPAGATION: Seedlings, direct sowing at site.

SEED: The species yields plenty of viable seed. About 20,000 seeds per kg; germination rate 50–85%.
treatment: Soak in hot water for 2 minutes or nick the seed coat at the distal (cotyledon) end using a nail clipper or a knife.
storage: Properly dried seed can be stored for long periods.

MANAGEMENT: Very fast growing on suitable sites; pollarding, lopping, coppicing. Can become a weed.

REMARKS: This species exhibits great variation. The mimosine in the leaves can cause hair loss, infertility and stomach problems in livestock, especially non-ruminants, e.g. donkeys. Livestock feed should not contain more than 20% *Leucaena*.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Albrecht, 1993; Bein et al., 1996; Bekele-Tesemma et al., 1993; Dharani, 2002; Fichtl and Adi, 1994; Jensen, 1999; Katende et al., 1995; Kokwaro, 1993; Mbuya et al., 1994; National Academy of Sciences, 1979, 1980; Noad and Birnie, 1989; von Maydell, 1990.



Lippia kituiensis (*L. ukambensis*)

Verbenaceae

Indigenous

COMMON NAMES: **Kamba:** Muthiti, Mutheyti; **Kikuyu:** Muthiriti, Muthuroti, Mucohi; **Kipsigis:** Mwokiot; **Maasai:** Osinoni, Olsinoni, Ilsinon (plural); **Meru:** Muthirith, Muthiritii; **Pokot:** Mosonyon, Mojonyon, Chepchai; **Samburu:** Sinoni, Senoni; **Swahili:** Mvuti; **Taita:** Mvudi.

DESCRIPTION: A much-branched aromatic shrub to 3.5 m, stems hairy, often forming pure stands. BARK: On old stems rough with long fissures. LEAVES: Usually opposite, occasionally in 3s, long oval 2–12 cm long, tip usually blunt, the edges with shallow, finely round teeth, **upper and lower surfaces sandpapery**, almost stalkless. FLOWERS: Small and **white crowded in oval to hemispherical heads on stalks 2–6 cm;** up to 3 stalks beside leaves; the **corolla tube 2–4 mm** with a **yellow throat**. **Bracts at the base of the flower head are twice as wide as upper bracts.** FRUIT: Two dry fruit sections (mericarps) each with one seed.

ECOLOGY: Found in Kenya, south-eastern Ethiopia, Somalia, Uganda, Tanzania and Malawi in bushland, woodland, rough grassland, often on volcanic soil or lava rocks. Widespread in Kenya, but uncommon at the coast. It is an important plant on long-destroyed forest sites where it may be locally dominant in secondary bush, and at the margins of evergreen woodlands. A colonizer of cultivated or disturbed land, so a problem in rangelands; 400–2,600 m. Agroclimatic Zones III–V.

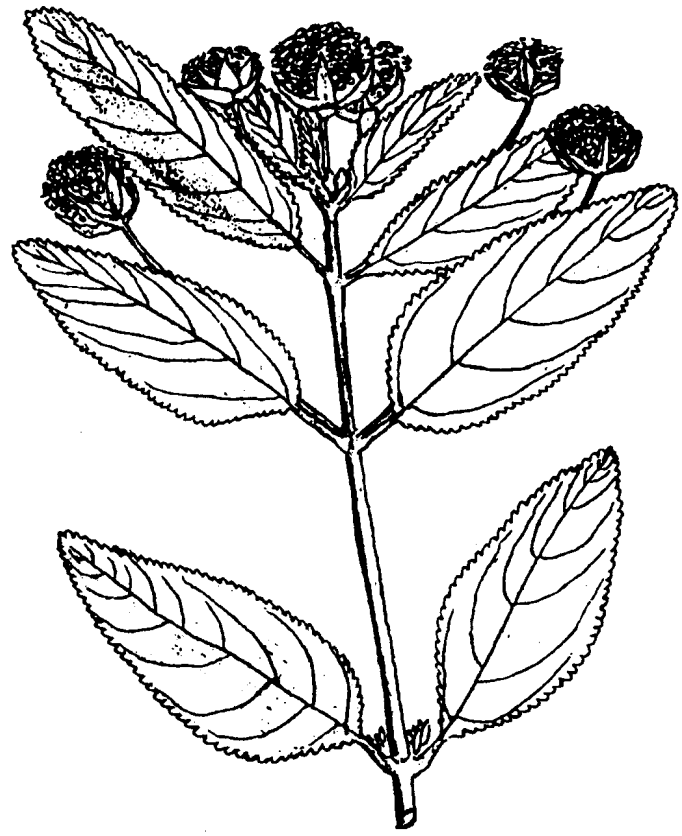
USES: Firewood, utensils (storage pots), arrow shafts, edible fruit, drink (leaves are boiled, sugar added and the liquid drunk), medicine (leaves), bee forage, ornamental, termite repellent (wood).

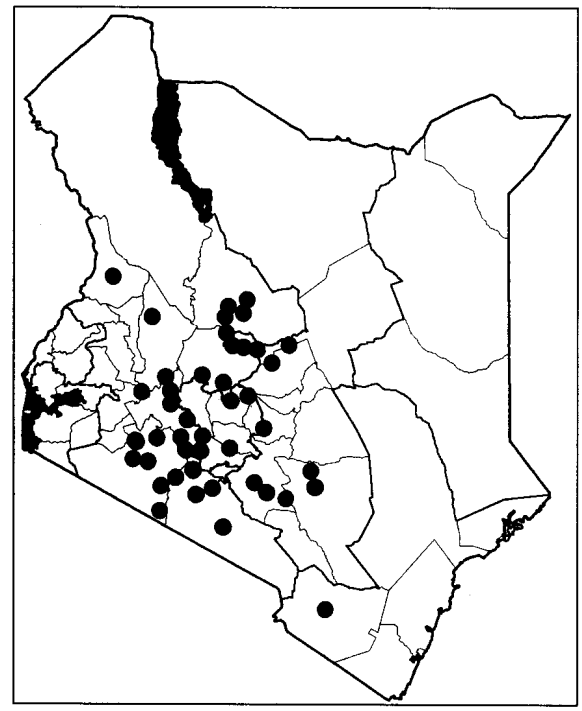
PROPAGATION: Can be propagated by seed, but there is no need for this since natural regeneration is profuse.

REMARKS: This plant is often used to flavour tea and in traditional medicine. Leaves are rich in an essential oil (myrcenone). It often forms a pure stand in disturbed areas.

Other species of *Lippia* in Kenya have similar uses. *L. carviodora* (**Pokot:** Chemchai, Tapa murkutwo; **Rendille:** Galafu; **Samburu:** Leminyani, Lomunyanyi, Lmakutikuti, Reexam; **Somali:** Ged hamu, Dhaye dhabe **Turkana:** Eur) is a small much-branched shrub, usually 0.5–1.3 m. Stems are ribbed, dark grey, and branchlets grey with a peeling surface. Leaves very aromatic. It is found in Kenya, south-eastern Ethiopia and Somalia. In Kenya occurs in Turkana, Marsabit and Samburu in dry bushed grassland, usually on rocky ground, 500–1,150 m. The leaves are used for flavouring tea (Turkana, Pokot, Somali). In the past the leaves were chewed as tobacco and to cleanse the breath (Pokot). Leaves are often sold in Lodwar market (Turkana). *L. javanica* (**English:** Sedge plant, Wild tea; **Kamba:** Muthiiti; **Kikuyu:** Muthiriti; **Kipsigis:** Mwokiot; **Luo:** Ang'were rao, Mweny; **Maasai:** Osinoni, Ilsinon (plural); **Meru:** Muthiritii; **Pokot:** Mosonyon, Chepchai; **Samburu:** Sinoni; **Swahili:** Mvuti; **Taita:** Mvudi) is a shrub to 3 m, very common at mid-highland levels in disturbed areas, especially around Nairobi. It resembles *L. kituiensis* but leaves are sandpapery only on the upper surface. This species easily invades areas opened for pasture.

FURTHER READING: Beentje, 1994; Blundell, 1987; Kokwaro, 1993; Maundu et al., 1999; Ruffo et al., 2002.





Macadamia integrifolia

Proteaceae

Eastern Australia (Queensland)

COMMONE NAMES: **English:** Macadamia nut, Queensland nut; **Kikuyu:** Mukandamia.

DESCRIPTION: A low-branching evergreen tree to 15 m. BARK: Grey, smooth. LEAVES: **In whorls of 3, dull to olive-green**, wavy, **young leaves edged with sharp forward-pointing spines**, old leaves 25 cm x 4 cm, entire with a tough texture. FLOWERS: **In slender drooping spikes, 25 cm, creamy white**, the stalks persist on the tree like stiff threads. FRUIT: **A hard round nut, to 3 cm across**, husk black, containing the exceptionally hard shiny brown nutshell. These **fall to the ground and are collected for the white seed within**.

ECOLOGY: The macadamia is the only commercial food crop indigenous to Australia, originating in the Australian rainforests. The crop was first developed in Hawaii with trees imported in the 1880s, but not until the 1950s did the Hawaiian success encourage other countries to grow macadamia on a commercial scale. The tree was introduced to the Kenya highlands in the coffee growing areas, especially Central Province, for its valuable nuts. The minimum rainfall for macadamia to do well is about 1,000 mm, and the rainfall should be well distributed throughout the year. Macadamia can be grown in a wide range of soils but not on heavy, impermeable clays and saline or calcareous soils. Best is a deep, well-drained soil with good organic matter content and pH 5–6. The presence of pollinator bees is important for good fruit set. Agroclimatic Zones II–III.

USES: Charcoal (fruit shells), timber, food (nuts), bee forage, shade, ornamental, windbreak, oil (used in cosmetics and animal feeds).

PROPAGATION: Seedlings are slow to commence bearing and will vary in yield and fruit quality. Seeds germinate readily and 9–12-month-old seedlings can be used as rootstock. Grafting with scion material of 1–1.3 cm diameter. Grafted material will bear after about 3 years, ungrafted seedlings after 7 years or more.

SEED: **treatment**: Crack hard seed coat before sowing.

MANAGEMENT: Mulching is recommended for young trees. The need for pruning depends on cultivars, but some pruning is often needed to avoid later breakage of branches. Weeding is also important when the tree is young. Fertilizer application may give a positive response if the soil is lacking in any of N, P, K, Zn, B, S, Mg, Fe or Cu.

REMARKS: The original species grown around Thika was *M. ternifolia,* which is rarely grown today. Nowadays grafted material of *M. tetraphylla* and *M. integrifolia* is grown commercially. Old, unproductive trees can be crown grafted with improved varieties. Can be intercropped with coffee and other shade-tolerant crops without affecting the yield. This is a good cash crop with a ready market. The fruit of *M. tetraphylla* split while still on the tree. *Macadamia* is a genus of South East Asia, the Western Pacific Islands and Australia with about a dozen species, but the 2 most important ones *M. tetraphylla* and *M. integrifolia* are both from eastern Australia.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Dharani, 2002; Jensen, 1999; Mbuya et al., 1994; Noad and Birnie, 1989; Verheij and Coronel, 1991.

M. tetraphylla

Macaranga kilimandscharica Euphorbiaceae

Indigenous

COMMON NAMES: **Kikuyu:** Mukuhakuha; **Kamba:** Mukulati; **Kipsigis:** Logomaita; **Marakwet:** Kibgetouoa; **Meru:** Mukarati; **Nandi:** Sebesebet; **Ogiek:** Logomaita; **Sabaot:** Kaptebema.

DESCRIPTION: A tree that can reach 20 m, with a straight trunk to a dense crown of shiny leaves, the bole fluted in older trees with broad round columns. It may also be a multi-stemmed small tree when in thickets. BARK: Pale red-brown or grey, thin and smooth. LEAVES: Grouped at the ends of up-curving branches and hanging down. Generally **heart-shaped with a long pointed tip,** about 13 cm x 8 cm on a **long stalk to 9 cm,** the base usually rounded. **Two typical glands lie on the leaf stalk just below the blade.** Leaves **3–7 nerved** from the base and **dense rusty and glandular hairs below,** very clear on youngest leaves. FLOWERS: Yellow-green, male and female separate, very small, on stalks to 10 cm. FRUIT: Small **dull green capsules, rounded, about 6 mm long,** covered in **yellow glands** and containing shiny brown seeds.

ECOLOGY: A tree abundant in wetter montane forests of eastern Africa. It is a very fast-growing pioneer species, often regenerating profusely at forest edges, 1,500–3,000 m. Generally abundant in wetter montane forests in Kenya. Agroclimatic Zones I–III.

USES: Firewood, charcoal, timber (boxes and crates), poles, medicine (roots and leaves), soil conservation.

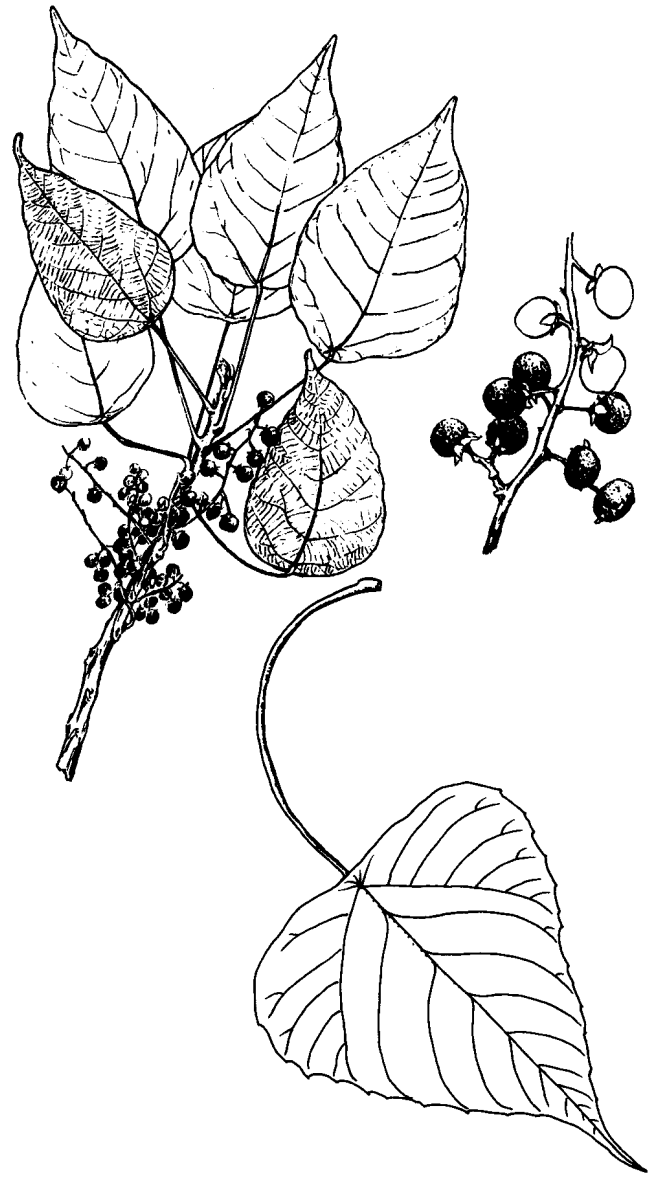
PROPAGATION: Seedlings, wildings.

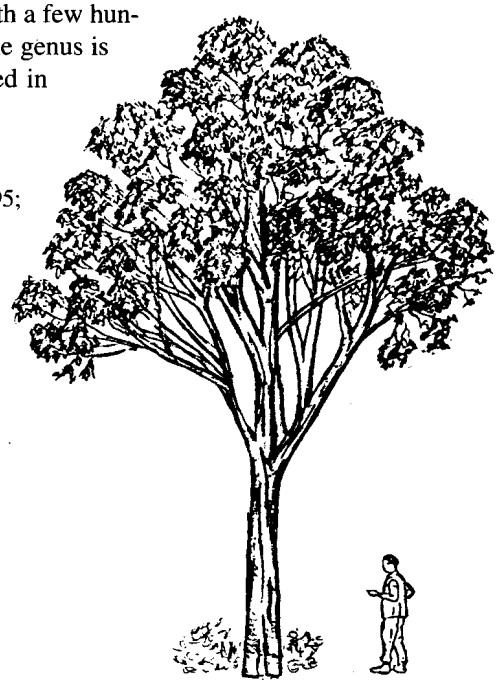
SEED: Many seeds are produced in one season. Since they are shiny, they are very easy to find on the ground.
treatment: Not necessary.
storage: Sow as soon as collected.

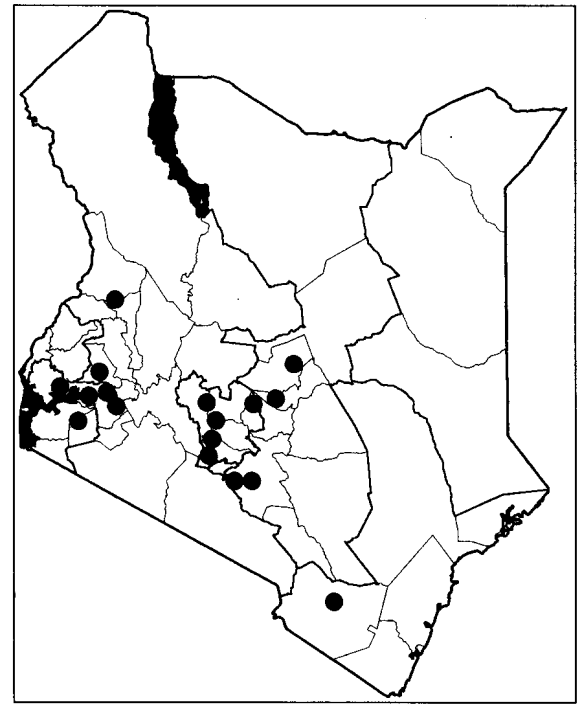
MANAGEMENT: Fast growing.

REMARKS: Will produce firewood within 3 years. Can be planted as a pure stand for firewood and poles or intercropped with coffee and banana. *Macaranga* is an Old World genus with a few hundred species. The genus is better represented in South Asia.

FURTHER READING:
Beentje, 1994;
Katende et al., 1995;
Kokwaro, 1993.







Maerua decumbens (*M. subcordata, M. edulis*) Capparidaceae

Indigenous

COMMON NAMES: Bajun: Abiro; **Boran:** Bariyub, Agarnyaab; **Daasanach:** Haluf; **Giriama:** Mkulube; **Ilchamus:** Lamayoki, Lamayokin, Lamaloki, Lamalogi; **Kamba:** Munatha; **Luo:** Amoyo; **Maasai:** Olkiage; **Malakote:** Dawa nyoka, Dawa aaze; **Marakwet:** Chepiliowo, Chebillio (plural); **Mbeere:** Mukindaarithi, Mutunguarithi, Mundarithi, Gindarithi; **Orma:** Kukube tari, Kukube dik; **Pokomo:** Mwiya maji; **Pokot:** Chepuluswo, Chepiliswo, Chebliswo; **Samburu:** Lamuyaki; **Somali:** Abarmog (Mandera), Ohia sagara (Tana River); **Taita:** Kangalige; **Tharaka:** Munatha; **Turkana:** Eerut; **Wardei:** Ohia sagcared, Oalangal.

DESCRIPTION: A much-branched shrub, branches stiff, ascending to 1–3 m, or a woody herb with a perennial rootstock, often large and swollen. LEAVES: Alternate, **simple,** blue-green and slightly fleshy, **smooth and hairless,** variable in shape from narrow oval to almost round, the tip often with a small pointed **stiff protrusion** (mucro); leaf **0.8–4 cm long,** base usually rounded to **a short stalk, only 6 mm,** generally 3–5 nerved. FLOWERS: Yellow-green, borne singly in upper leaf axils, no petals but **3–4 narrow oval sepals about 1 cm long,** the central white stamens to 2.5 cm long, the **stalked ovary to 3 cm, recurved when mature.** FRUIT: A globose or ovoid capsule, yellow-orange, 1.5–3 cm long with a pointed beak, containing 1–4 seeds.

ECOLOGY: A small shrub common in dry areas from Somalia, Ethiopia and Sudan in the north and south to Gauteng in South Africa. Widespread in Kenya, e.g. in northern Baringo, southern Turkana, Kitui, Mandera, Tana River and Kilifi in dry bushland and open areas in riverine vegetation. Conspicuous in burnt grassland, where it regenerates quickly from its thick woody root. Commonly found in sandy, alluvial or sandy-loam soils and in rocky areas, 0–1,800 m. Agroclimatic Zones IV–VI.

USES: Edible fruit, edible seeds (after boiling for a long time), edible roots (chewed to quench thirst), medicine (roots and bark: some records of toxicity), fodder, bee forage, live fence, clears muddy water, fish poison, sterilizing milk containers.

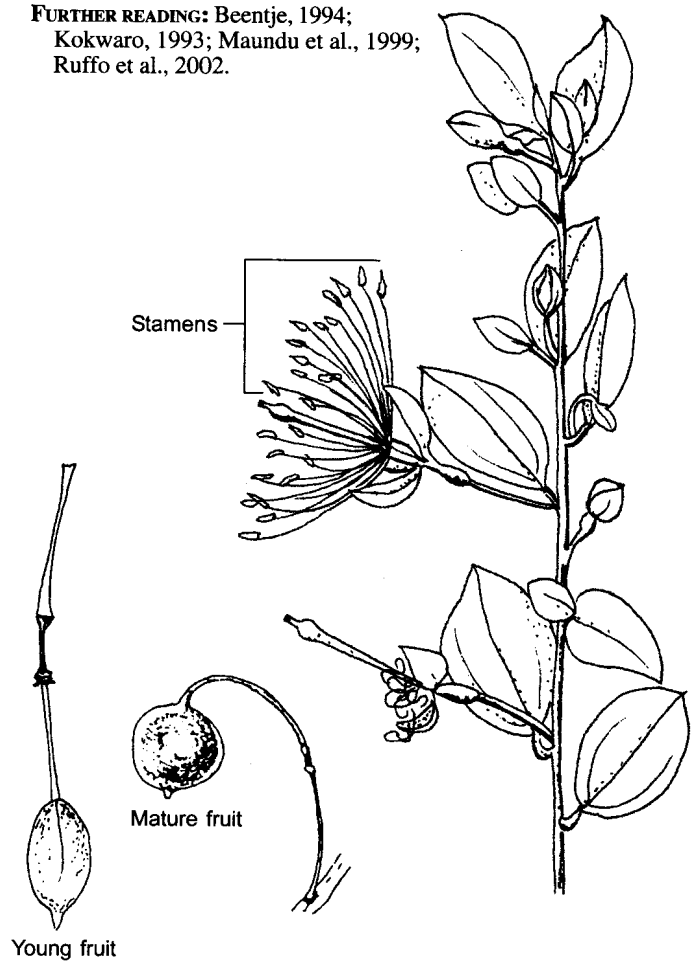
PROPAGATION: Wildings, seedlings.

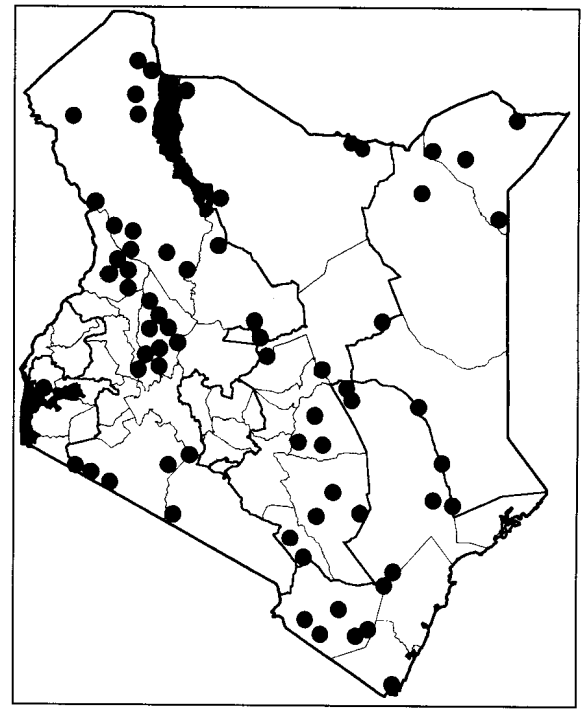
MANAGEMENT: Coppices well.

REMARK: The pulp of the ripe fruit is sweet and may be sucked. In arid areas of northern Kenya the seeds are boiled for 3–4 hours, with the water being replaced 4–6 times, then eaten (Pokot, Turkana), or the seeds are soaked for up to 2 days, rinsed and then cooked (Bajun). The roots are added to water to make it slightly sweet. This water is used for preparing tea or as a drink which causes thirst, enabling one to drink a lot more, a useful attribute before setting out on a long journey in a hot arid area (Pokot). The roots are added to muddy water and left overnight for purification (Pokomo, Pokot, Turkana, Somali, Samburu, Bajun, Maasai (Narok), Daasanach). The roots of this species may sometimes be toxic. Several herbarium specimens bear information on incidents of toxicity, some of which have resulted in death. (Toxicity is believed to be related to the method of preparation.)

Many species in the family Capparidaceae are known for their sweetening and flocculating (water-purification) properties. Camels and goats eat the shoots, but only sparingly and mainly in the dry season. *Maerua* is a genus with a few dozen species occurring from Africa to India.

FURTHER READING: Beentje, 1994; Kokwaro, 1993; Maundu et al., 1999; Ruffo et al., 2002.





Maesopsis eminii

Rhamnaceae

Indigenous

STANDARD/TRADE NAME: Mutere, Musizi.

COMMON NAMES: **Luhya:** Mutere, Muhunya.

DESCRIPTION: A leafy semi-deciduous tree 10–30 m, often with a clear bole to 10 m, the **branches rather horizontal,** the **crown flattened when young but more rounded with age**. BARK: Pale grey-brown to silvery grey, branchlets dotted with breathing pores, grooved with age. Slash red and yellow. LEAVES: Appear as though compound but in fact alternate on the twig, **on stalks to 1 cm,** each **long and shiny, pointed, to 14 cm,** the edge with **characteristic well-spaced rounded teeth.** FLOWERS: Small and green in heads beside leaves. FRUIT: Egg-shaped with the widest end towards the tip, to 3 cm long, fleshy and yellow, turning purple, with 1–2 hard seeds.

ECOLOGY: A large timber tree typical of rainforest from West and Central Africa and reaching its natural eastern limit in the Kakamega Forest area, 1,550–1,650 m. Widely planted in wetter highland districts of western Kenya and north-eastern Tanzania. It has also been grown in the Taita Hills, mainly as a timber tree. The species is invasive in the East Usambaras in Tanzania where it was introduced in the early part of the last century. There, it easily replaces other species in the gaps in this submontane evergreen forest at 800–1,200 m altitude. Agroclimatic Zones I–II.

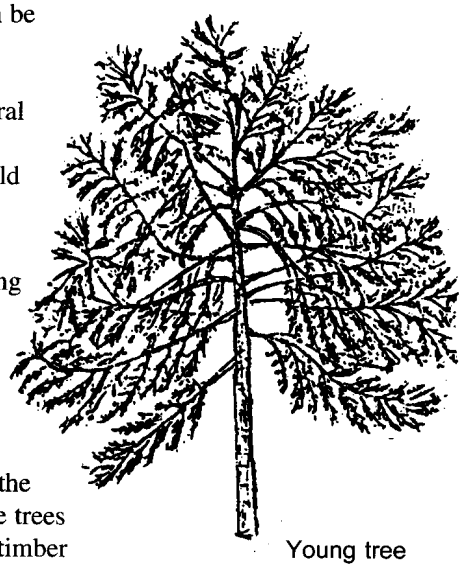
USES: Firewood, timber (light construction), furniture, poles, veneer, medicine, fodder (fruit), shade (for tea and coffee), ornamental.

PROPAGATION: Seedlings, wildings, direct sowing at site.

SEED: About 700 seeds per kg; germination rate up to 70% but often much lower. After collection the seeds are extracted from the pulp by soaking in water for 24 hours and then rubbing and washing them so that the pulp is torn away. The seeds can then either be dried and stored or sown immediately. Germination is slow: up to 70 days. **treatment:** None for fresh seed, dried seeds should be nicked at the distal end. **storage:** Seed can be stored for up to 5 months at room temperature, several years in airtight containers in a cold store.

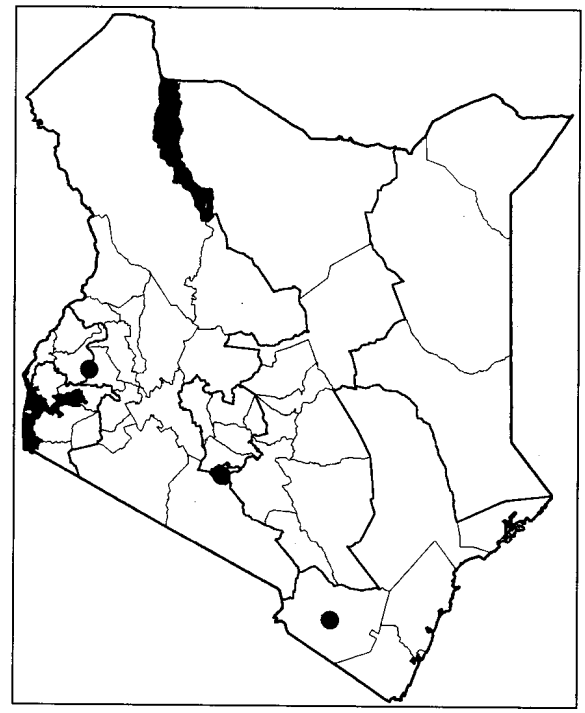
MANAGEMENT: Fast growing; coppicing while young.

REMARKS: Although the species can be intercropped, maize production is affected due to the heavy shade as the trees grow bigger. The timber is not resistant to fungi or termites so rots quickly. Hornbills and chimpanzees eat the fruit and disperse the seed. This species is internationally listed as an invader, so care with further spread is called for, although in its natural habitat in Kakamega Forest it is not particularly abundant. The famous Mama Mutere tree, the highest in Kakamega Forest at over 40 m, belongs to this species. This is the only species in the genus *Maesopsis.*



Young tree

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Albrecht, 1993; Beentje, 1994; Katende et al., 1995; Mbuya et al., 1994; National Academy of Sciences, 1983; Noad and Birnie, 1989; Sommerlatte and Sommerlatte, 1990; Storrs, 1979.



Mangifera indica

Anacardiaceae

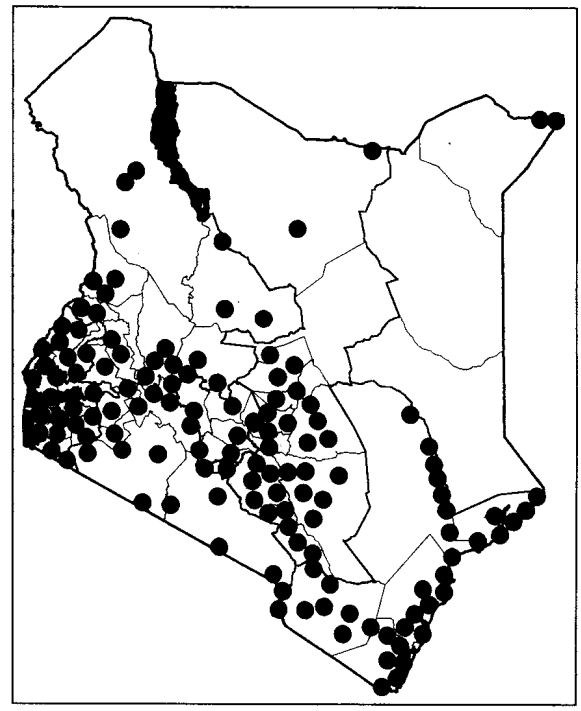
Northern India, Burma

COMMON NAMES: **English:** Mango; **Kamba:** Maembe, Muembe; **Kikuyu:** Mwiembe; **Kisii:** Rieembe; **Luhya:** Liembe; **Luo:** Maembe, Mawembe; **Somali:** Amba; **Swahili:** Mwembe; **Tharaka:** Mwembe.

DESCRIPTION: A densely leafed evergreen tree with a trunk soon branching to a rounded crown, usually 10–15 m but occasionally reaching 25 m. BARK: Dark brown, cracking with age. LEAVES: Dark green, crowded at the ends of branches, to 30 cm long, smelling of turpentine when crushed. Young leaves soft, **copper-coloured** and **hanging limply.** FLOWERS: Numerous and small in **pink-brown pyramidal heads.** Pollination by flies and other insects. FRUIT: **Fleshy, 8–15 cm, the skin green–red–yellow,** the flattened 'stone' is fibrous and woody around the large seed.

ECOLOGY: One of the most important tropical fruit trees brought very early to eastern Africa (about 1,000 years ago). Now naturalized at the coast and on the banks of the lower part of River Tana where trees measuring over 2.5 m in diameter can be found. Grows also on river banks along River Daua at the Kenya–Ethiopian border near Mandera. Tropical areas with a pronounced dry season are best for regular fruiting. It does not tolerate flooding and prefers sandy–loamy and alluvial loamy sand that is well drained; it can do quite well in dry areas. Roots penetrate deeply, so rocky sub-soil is not favoured. Extensive shallow roots collect water and nutrients in the upper levels of the soil. Does well in a hot humid climate, usually below 1,500 m. Growth and reproduction are adversely affected above 1,800 m. Agroclimatic Zones II–V (riverine in Zones VI–VII). Flowers in September in Machakos and Kitui, fruit mature in February; fruits in November–December in Nyanza and in December–January in lower Tana.

USES: Firewood, timber (soft wood), carvings, boat building (dugout canoes at the coast), food (fruit), drink (juice), fodder (leaves for goats), bee forage, shade, ornamental, mulch, soil conservation, river-bank stabilization, windbreak, gum, veterinary medicine.



Mangifera indica (cont)

PROPAGATION: Seedlings, grafting. Rootstock can be raised from seed, although cultivars specifically recommended for rootstock material have been developed. Good cultivars should be grafted onto the rootstock. It can be done at any age, but the earliest possible time is when the thinnest possible graft wood matches the girth of the rootstock, which is normally about 8 weeks from sowing. The rootstock stem should be sufficiently woody and thick (pencil size) to support cuts for budding. High temperatures, actively growing rootstocks and hardened scion wood are important for success. Young trees are susceptible to attack by termites and this has limited the spread of the crop in the drier areas.

SEED: 40–50 seeds per kg; germination rate 60–90%. Separate seed from pulp and clean before storage or sowing.

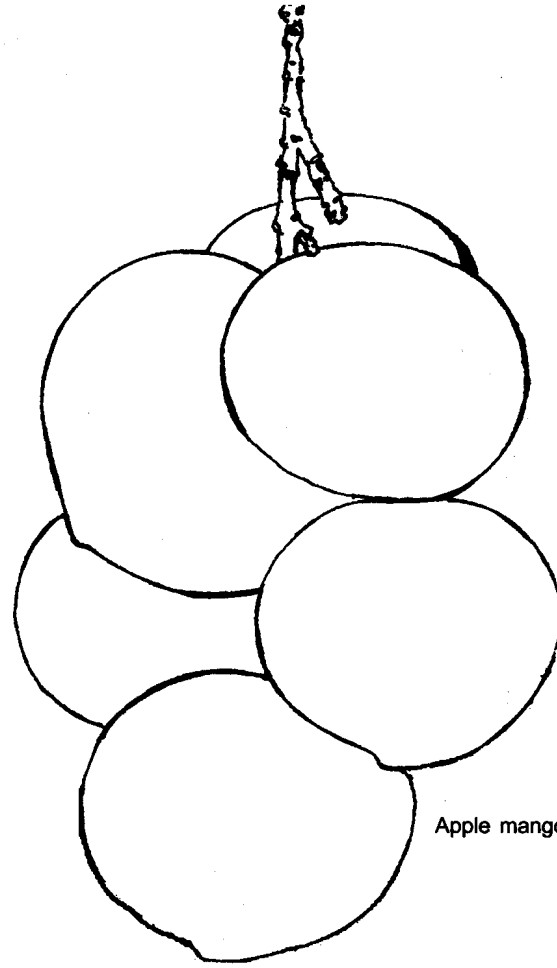
treatment: Treatment is not necessary, but nicking the seed enhances germination. Nicking must be done on the side away from the points where the first shoot and root will develop.

storage: Seed can be stored for only a month at room temperature. For best results, fresh seed should be used.

MANAGEMENT: Fairly fast growing; lopping, The tree coppices, but not very well. Adversely affected by fire.

REMARKS: One of the most important fruit trees of the tropics. Over a dozen varieties are available in Kenya. Some fruit are fibrous; others have a faint smell of turpentine. For quicker growth and early production of fruit, grafted material should be used. Good varieties with little or no fibre are now increasingly being grown, especially at the coast and in Eastern Province. Examples are the types locally known as 'Tommy Atkins', 'Ngowe' and 'Apple'. The potential of this tree has not been fully realized as much of the fruit goes to waste at the height of the fruiting season. Well-cured mango wood makes good carvings, and the tree is increasingly being promoted in the wood-carving industry. This is a good use for old unproductive trees. Due to the heavy shade and high water demand, the tree does not support undergrowth, including crops. The mango genus (*Mangifera*) has several dozen other species, most of which have edible fruit, the most well known being the true 'apple' mango, *M. odorata*. The genus *Mangifera* is Indo-Malaysian.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Bein et al., 1996; Bekele-Tesemma et al., 1993; Dharani, 2002; Fichtl and Adi, 1994; ITDG and IIRR, 1996; Jensen, 1999; Katende et al., 1995; Lötschert and Beese, 1983; Mbuya et al., 1994; Noad and Birnie, 1989; Palgrave and Palgrave, 2002; Verheij and Coronel, 1991; von Maydell, 1990.



Apple mangoes

Manihot glaziovii

Euphorbiaceae

Brazil

COMMON NAMES: **English:** Tree cassava; **Kamba:** Kyanga; **Kikuyu:** Kimuanga; **Luo:** Muhogo mar opira; **Swahili:** Mpira.

DESCRIPTION: A leafy deciduous tree, rounded, to 8 m. BARK: Pale grey-brown, marked with **horizontal leaf scars**, producing much **white latex** if cut. LEAVES: Deep green and soft, often drooping, crowded at the ends of branches, **lobed 3–5 times, even 7 times, on long stalks**. FLOWERS: Small, yellow-green. FRUIT: Green **rounded capsules**.

ECOLOGY: A small deciduous tree native to Brazil. In Kenya, naturalized in places. Grown in drylands, highlands and lower-altitude areas down to the coast, usually as a shade tree in the homestead. Agroclimatic Zones I–V.

USES: Fodder (leaves for goats, used in the coastal areas), shade, ornamental, soil conservation.

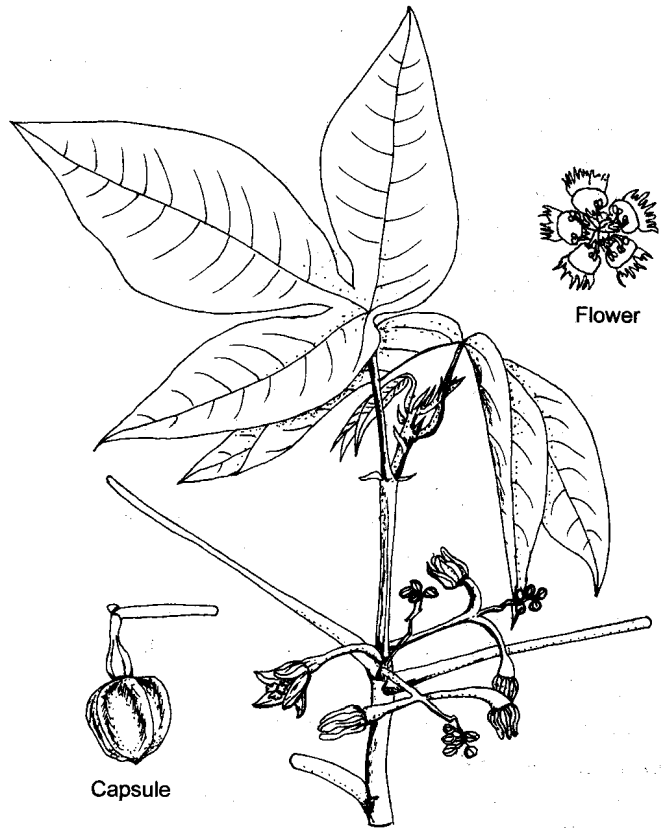
PROPAGATION: Cuttings. Plant cuttings at an angle and ensure they are not upside down.

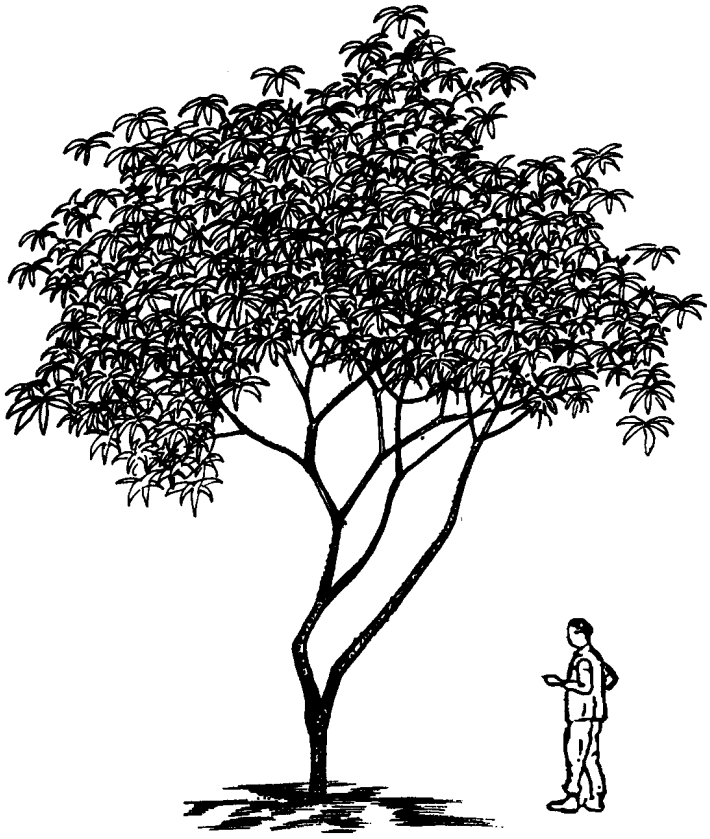
SEED: Not used for propagation.

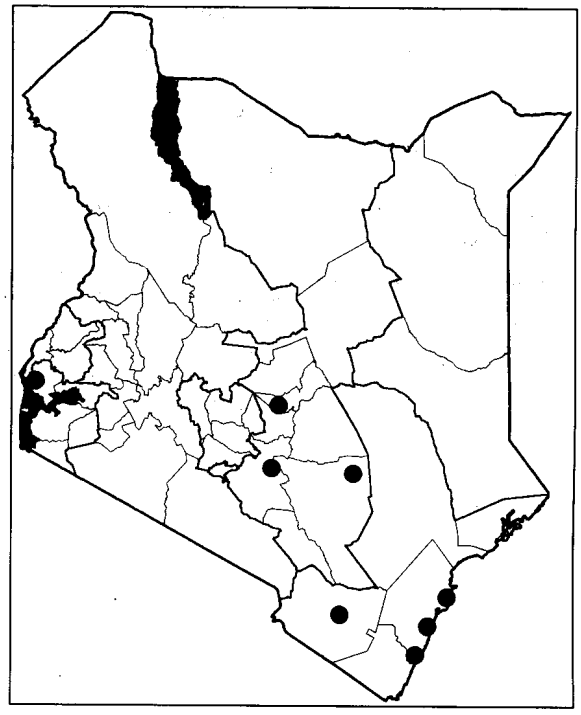
MANAGEMENT: Fast growing; pollarding and coppicing.

REMARKS: In southern Africa (Malawi) the leaves are eaten, prepared like cassava leaves. In other areas the leaves are said to be toxic. The tree was introduced for its good-quality latex, but production proved to be too irregular. This species is related to the cassava (manioc or tapioca), *Manihot esculenta* (syn. *M. utilissima*) also from Brazil and widely grown in Kenya, especially in Nyanza, Western and Coast Provinces. The entire genus, with close to a hundred species, is American.

FURTHER READING: Lötschert and Beese, 1983; Mbuya et al., 1994; Noad and Birnie, 1989.







Manilkara mochisia

Sapotaceae

Indigenous

COMMON NAMES: **Bajun:** Warendi; **Chonyi:** Munago, Nago (fruit); **English:** Milk berry; **Giriama:** Munago, Nago (fruit); **Kamba:** Kisaa (Mwala), Kinako (Kibwezi); **Malakote:** Muwarande; **Orma:** Waradhe; **Samburu:** Itooj; **Somali:** Waradhe (Tana River); **Swahili:** Mnago, Msapa, Mtalawanda; **Tugen:** Noswo.

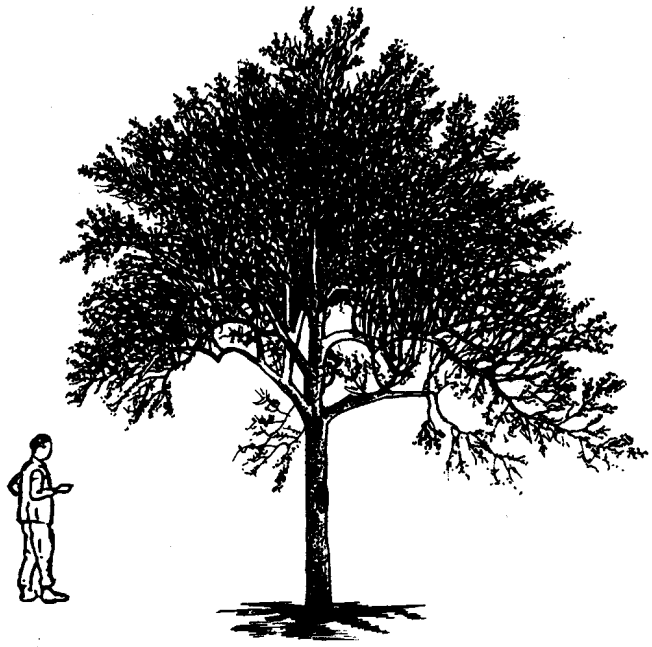
DESCRIPTION: A large shrub or, more usually, a small- to medium-sized tree 3–20 m, with low branching and a spreading crown. BARK: Brown–grey–black with deep longitudinal grooves but rather smooth in young plants. LEAVES: In characteristic **tight terminal rosettes growing from short side shoots,** stalks about 1 cm, blade stiff and shiny, **wider at the tip, 2–6 cm long, tip rounded or notched,** young leaves hairy below, 10–14 pairs of lateral nerves. FLOWERS: In leaf axils, **on stalks 6–13 mm, densely clustered, cream-yellow,** sepals in 2 series of 3, petals with many narrow segments. FRUIT: **Yellow, rounded, to 1.8 cm long,** containing a tasty soft red pulp around 1–3 dark brown flattened seeds.

ECOLOGY: Found from Somalia south to South Africa, Mozambique and Angola. In Kenya, e.g. in Kwale, Kilifi, Tana River, Kibwezi forest, Mwale, Taita and Lamu in dry deciduous bushland and bushed grassland, especially along dry watercourses, 0–1,200 m, occasionally up to 1,700 m. Sandy, light red clay and occasionally black-cotton soils. Agroclimatic Zones V–VII (riverine). Flowers in November–December in Tana River and Kilifi, May in Machakos District.

USES: Firewood, charcoal, timber (construction), poles, flooring, tools, tool handles, carving, utensils (wooden spoons), boat building (dhows), bows, wooden roofs, edible fruit, medicine (bark), bee forage, shade.

PROPAGATION: Seedlings.

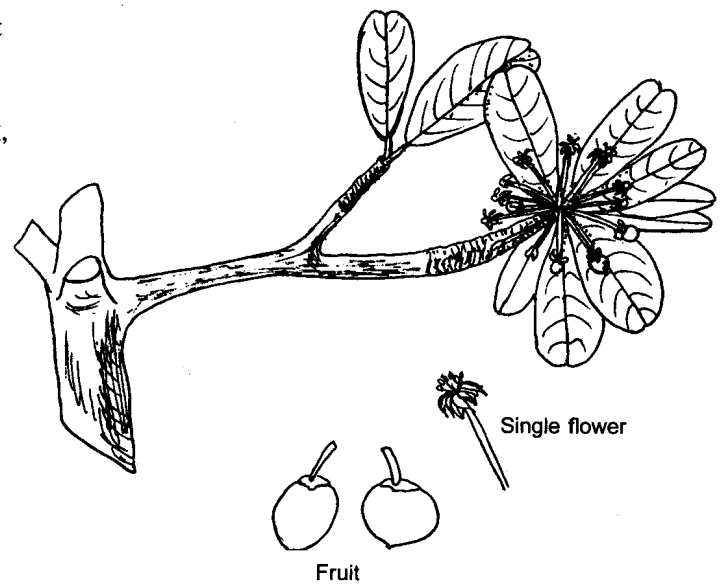
SEED: 3,500–4,000 seeds per kg. Germination very good; 95% after 3 weeks.
treatment: Not necessary.
storage: Seed can be stored for long periods.

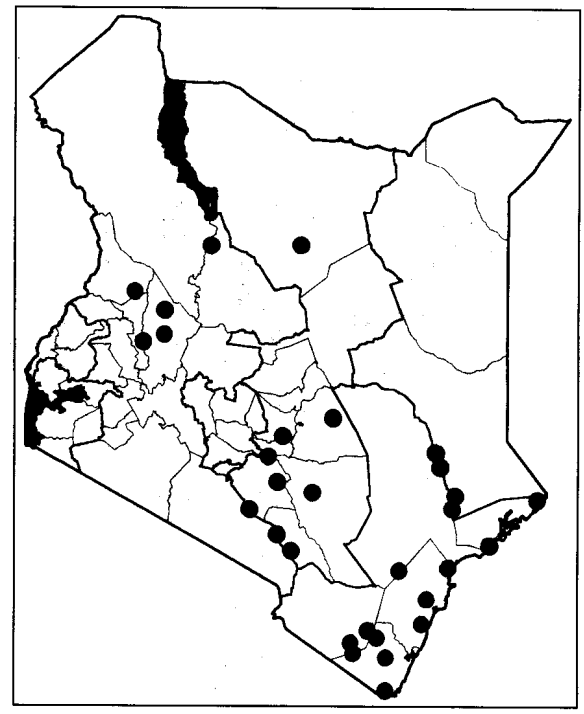


MANAGEMENT: Slow growing when mature, rather fast when young. Weed well during the first few years. The tree can attain a height of 10 m within the first 10 years of growth, but the trunk may remain small.

REMARKS: This tree has durable timber, is resistant to termites and has potential for agroforestry in semi-arid areas. The hard, heavy timber is resistant to sea water and has been used to build dhows. The wood is in high demand at the coast, hence the tree needs protection and increased cultivation. This is both a New and an Old World genus with several dozen members. Some members are sources of latex exploited commercially. The trees produce good timber and edible fruit.

FURTHER READING: Beentje, 1994; Maundu et al., 1999; Mbuya et al., 1994; Palgrave and Palgrave, 2002; Ruffo et al., 2002.





Manilkara sansibarensis

Sapotaceae

Indigenous

STANDARD/TRADE name: Mngambo.

COMMON NAMES: Chonyi: Mngambo, Mungambo, Ngambo (fruit); **Digo:** Mng'ambo, Mungambo; **Giriama:** Mng'ambo maziya, Mungambo, Ngambo (fruit); **Kambe:** Mngambo; **Sanya:** Doka, Dhoka; **Swahili:** Mshonjie, Mguvi, Mchegi, Mngambo, Mti chuma, Doka, Mwambo.

DESCRIPTION: A medium-sized evergreen tree with a bushy crown, to 25 m. The base sometimes buttressed and the bole fluted. BARK: Rough, grey–brown–black, producing white latex when cut. LEAVES: Simple, **oblong to 14 cm, tip rounded or notched,** very stiff, **on stalks to 3 cm, dull green,** at the end of twigs, **side veins closely parallel.** FLOWERS: Very small, green-white, in groups of 4–12 in leaf axils; flower stalks and outer calyx very hairy, flowers fragrant. FRUIT: Tough, round or oval **berries, to 1.3 cm,** containing 1–4 shiny flat seeds.

ECOLOGY: Found along the coast in Kenya through Tanzania to Mozambique in lowland forest and coastal bushland. In Kenya, found in *Brachystegia* and *Afzelia* woodland and forests, e.g. in Marafa, Arabuko-Sokoke Forest, 0–300 m. Deep coastal red sandy soils. Agroclimatic Zones II–IV. Flowers in May–June, November–December and fruits in February–March and August–September in Kwale and Kilifi.

USES: Firewood, timber (mallets, railway sleepers, bridges, piers), furniture, flooring, tool handles, carvings, boat building (dhows), edible fruit, medicine (bark, roots), shade, latex.

PROPAGATION: Cuttings, seedlings.

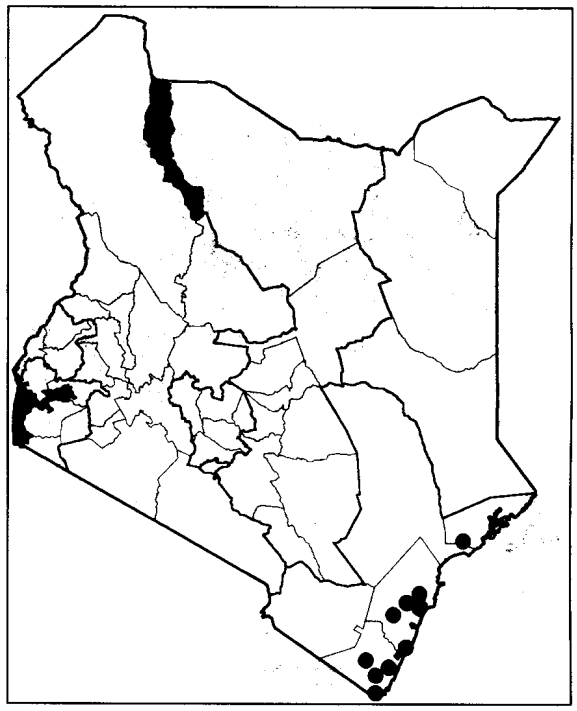
SEED:

treatment: Soak seed in cold water for 24 hours.

MANAGEMENT: Coppicing.

REMARKS: The wood is strong, long lasting and resists sea water, hence its use for dhows, bridges, piers. It is hard, heavy and termite resistant. Ripe fruits have a milky sweet pulp, which is eaten.

FURTHER READING: Beentje, 1994; Kokwaro, 1993; Maundu et al., 1999; Mbuya et al., 1994; Ruffo et al., 2002.



Manilkara sulcata Sapotaceae

Indigenous

COMMON NAMES: **Bajun:** Mkurati; **Boni:** Kuragi; **Digo:** Nzezi, Mtsezi; **Giriama:** Mtsezi, Mtsedzi; **Pokomo:** Muaraghidhe; **Sanya:** Kuraga; **Swahili:** Mchambigi, Mchedi, Mcheje mume, Mteweji; **Wardei:** Waradeya.

DESCRIPTION: An evergreen shrub or small much-branched tree, usually 3–6 m. BARK: Grey, only slight longitudinal grooves. LEAVES: **Small, dark shiny green above, paler below,** clustered at branch tips, oval and wider at the tip, which is notched or rounded, **2.5–8 cm long,** only **young shoots, buds and flower stalks are covered with dense rusty hairs.** FLOWERS: **Cream, yellow-green, in groups of 2–6 beside leaves,** each flower to 5 mm long with pale green divided petal lobes surrounded by 2 rows of sepals. FRUIT: Long oval, **pale green-yellow to 1.3 cm long,** without hairs, tipped by the old style, containing one seed in sweet edible pulp.

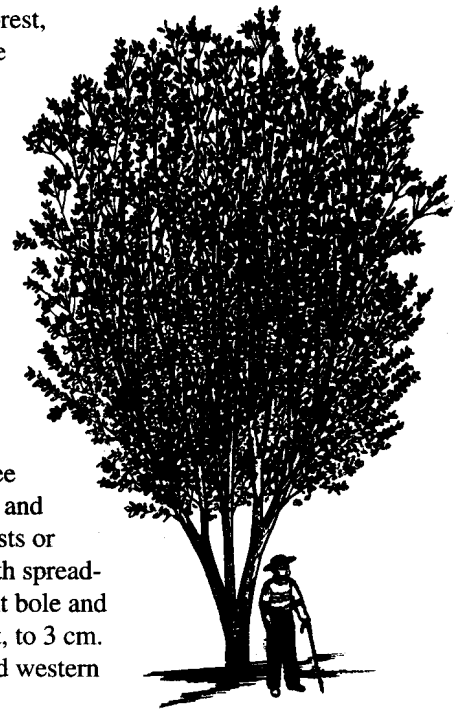
ECOLOGY: Known only from the coastal region and adjacent areas in Kenya, north-eastern Tanzania, Zanzibar and Pemba. Common in *Cynometra* thickets, coastal bushland, *Brachystegia* woodland and coastal forests, mainly on sandy and especially coastal red sandy soils; 0–1,000 m. Agroclimatic Zones II–IV. Flowers in May–June, November–December and fruits in February–March and August–September in Kwale and Kilifi.

USES: Firewood, timber (rough construction), carvings, utensils (combs, wooden spoons), fishing rods, edible fruit, medicine (leaves, roots).

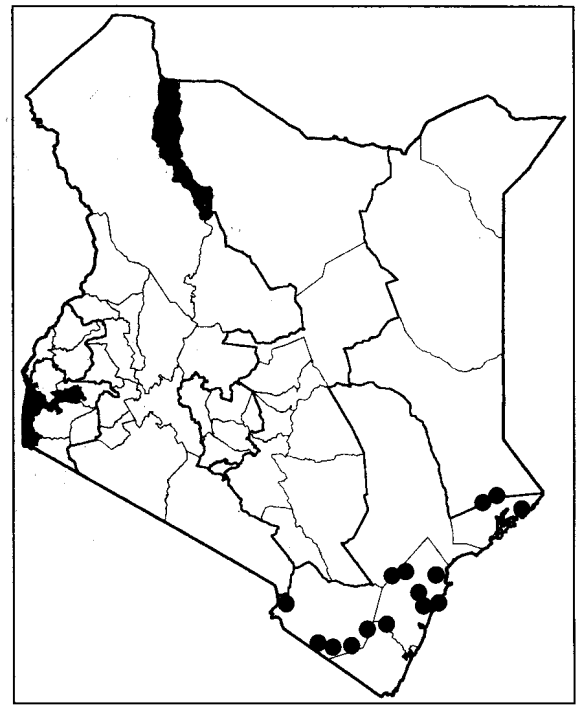
PROPAGATION: Seedlings

REMARKS: Ripe fruit edible and sweet. Fruits, known as 'marafa' in Malindi, are also much liked by elephants. The wood is hard and is used in construction and for many other purposes by the Giriama. Most *Manilkara* species in Kenya have sweet and edible fruits, which are much liked despite their usually small size.

Other notable species are:
M. discolor a dry forest, usually riverine, tree to 20 m with dark grey bark. Leaves clustered towards the end of branchlets. Flowers yellow, in clusters. Found in northern, central and southern parts of Kenya and in coastal hinterlands.
M. butugi (**Luhya:** Lunduli) is a tall tree occurring in upland and western Kenya forests or riverine, usually with spreading crown, a straight bole and relatively large fruit, to 3 cm. Found in central and western parts of Kenya and in Uganda, southern Sudan and Ethiopia.



FURTHER READING: Beentje, 1994; Kokwaro, 1993; Maundu et al., 1999; Ruffo et al., 2002.



Margaritaria discoidea (*Phyllanthus discoideus*) Euphorbiaceae

Indigenous

COMMON NAMES: **Giriama:** Mukololo; **Kikuyu:** Mukarara; **Luo:** Atego, Otego; **Meru:** Mugaruturu; **Swahili:** Mjangari; **Teso:** Lusengo; **Tugen:** Tusuandet.

DESCRIPTION: A deciduous tree to 25 m high, occasionally a shrub but very variable depending on the habitat. Usually branched near the base, spreading and drooping branchlets. Branches on young trees are at right angles to the trunk. BARK: Thin, smooth grey-brown, slightly fissured, becoming rough and fibrous and scaling in big pieces with age. LEAVES: Simple, alternate, sometimes appear compound on young shoots, variable in size, **oval, bright green and thin,** about 10 cm, **veins indistinct,** edge of leaf clear when held up to the light. FLOWERS: Male and female on separate trees; flowers small and inconspicuous, **green-yellow and fragrant,** appear on the bare tree. FRUIT: **Yellow-brown 3-part capsule, 1 cm or less,** breaking open to set free **3 blue-black metallic-shiny seeds.**

ECOLOGY: A widespread African tree distributed from Senegal east to Sudan and south to Angola and South Africa. In Kenya, widely distributed from the coast to western parts of the country in moist or dry forest margins and forest remnants. It is often a pioneer of lowland forests; 0–2,000 m. Agroclimatic Zones II–IV.

USES: Firewood, charcoal, timber (cabinet work), poles, medicine (roots).

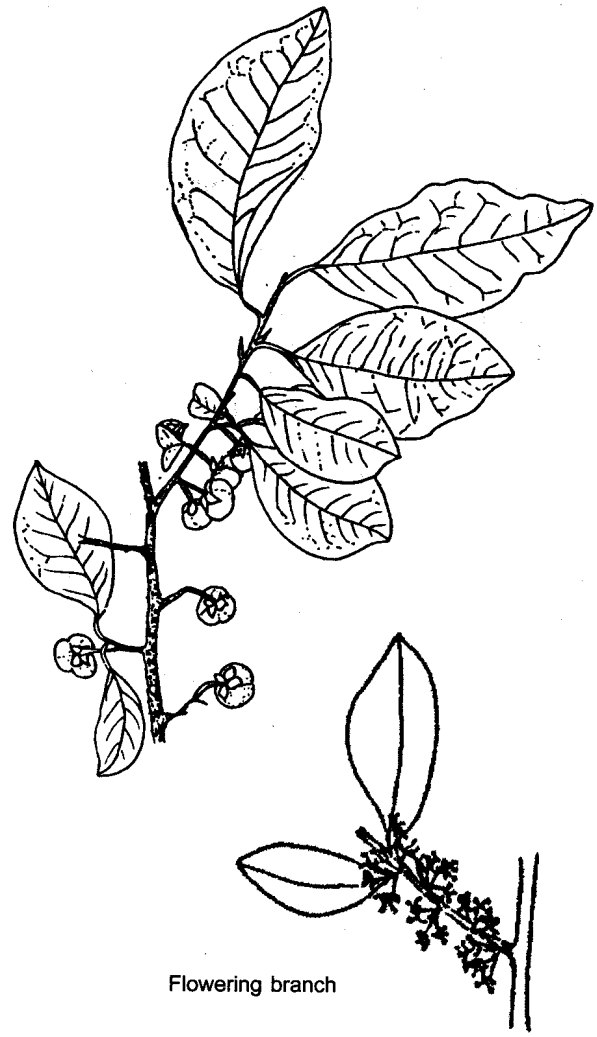
PROPAGATION: Seedlings, wildings, direct sowing at site.

SEED: Seeds prolifically. Unopened capsules can be collected from under the mother tree, then crushed and the seeds separated from the chaff.
treatment: Soaking in cold water for 12 hours before sowing will hasten germination.
storage: Dried seed can be stored for some time in sealed containers in a cool place.

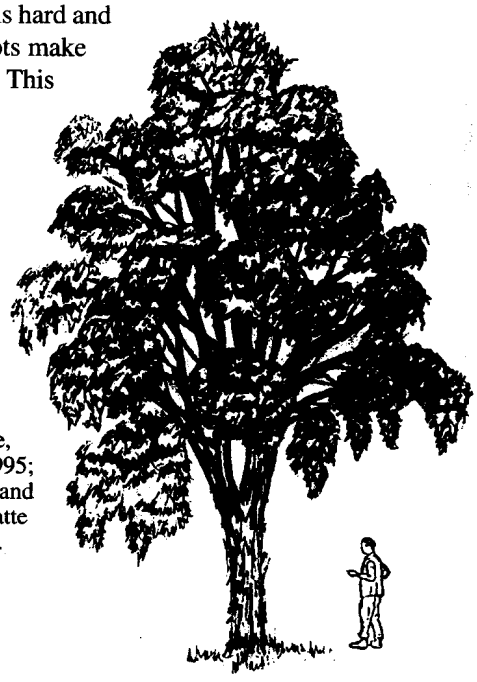
MANAGEMENT: Coppicing, pollarding, pruning.

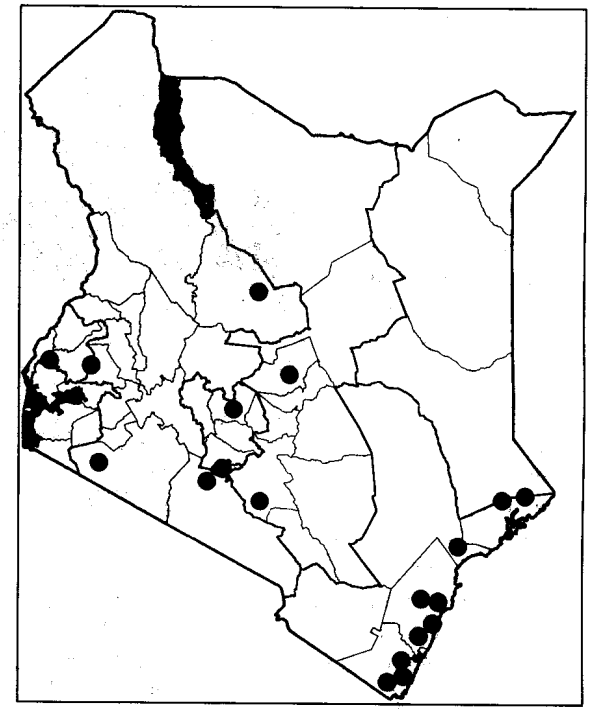
REMARKS: The timber is hard and heavy. Coppice shoots make good building poles. This tree would be suitable for timber plantations and woodlots in areas where it occurs naturally. *Margaritaria* is a genus of the tropics with about a dozen members.

FURTHER READING: Beentje, 1994; Katende et al., 1995; Kokwaro, 1993; Noad and Birnie, 1989; Sommerlatte and Sommerlatte, 1990.



Flowering branch





Markhamia lutea (M. platycalyx, M. hildebrandtii) Bignoniaceae

Indigenous

COMMON NAMES: **Embu:** Muu; **Kamba:** Kyoo; **Kikuyu:** Muu; **Luhya:** Lusiola; **Luhya (Bukusu):** Kumusoola; **Luo:** Siala; **Meru:** Muu, Mung'uani; **Nandi:** Mobet; **Somali:** Sogdu; **Turkana:** Ekokwait.

DESCRIPTION: An upright evergreen tree with a narrow irregular crown, usually 10–15 m. BARK: Light brown, finely cracked. LEAVES: Compound, pinnate, with 7–11 leaflets, often in bunches, thin and wavy, each leaflet to 10 cm, wider at the tip. Often **round leafy outgrowths at the base.** FLOWERS: **Bright yellow** clusters, each trumpet-shaped, orange-red stripes in the throat, buds furry, splitting on one side. FRUIT: **Long thin capsules, to 75 cm, hang** in spiralling clusters, split on the tree to release many flat winged seeds. Mature seed is yellow-white, prematurely collected seed turns black.

ECOLOGY: A tropical African tree common in the Lake basin and highland areas, to 2,000 m. It will stand acid heavy clay soil, but not waterlogging; prefers red loam and has deep roots. Agroclimatic Zones II–III.

USES: Firewood (domestic as well as for tobacco curing), charcoal, timber, furniture, poles, posts, tool handles, walking sticks, boat building, banana props, medicine (leaves), bee forage, shade, ornamental, mulch, soil conservation, windbreak, ceremonial, boundary marking.

PROPAGATION: Seedlings, wildings.

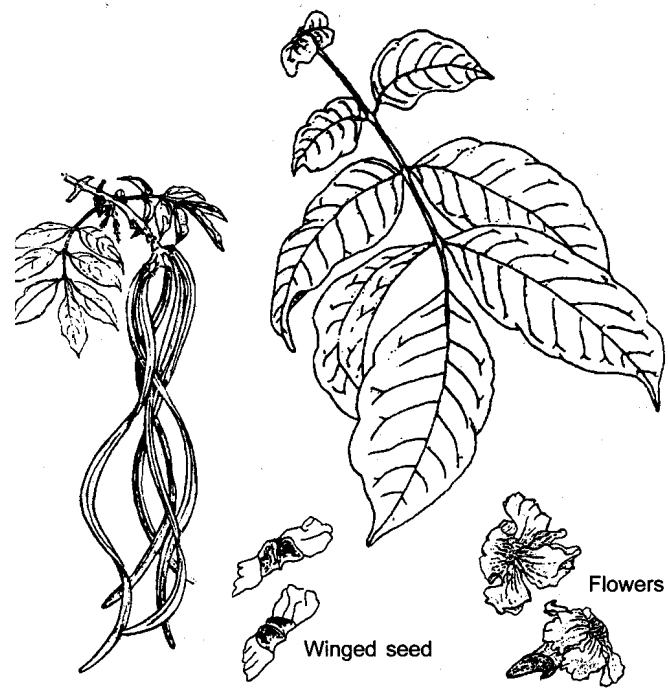
SEED: The tree is a prolific seeder and seeds throughout the year in some areas. About 70,000–80,000 seeds per kg; germination 30–60% in 20–30 days. Timing is important for collection: pods must be mature, indicated by the pale yellow colour turning grey. Once the pods split the seeds are dispersed by wind. The pods are collected and dried in the sun to facilitate the opening and release of seed.
treatment: Not necessary.
storage: Seed does not store well at room temperature. Best to sow fresh.

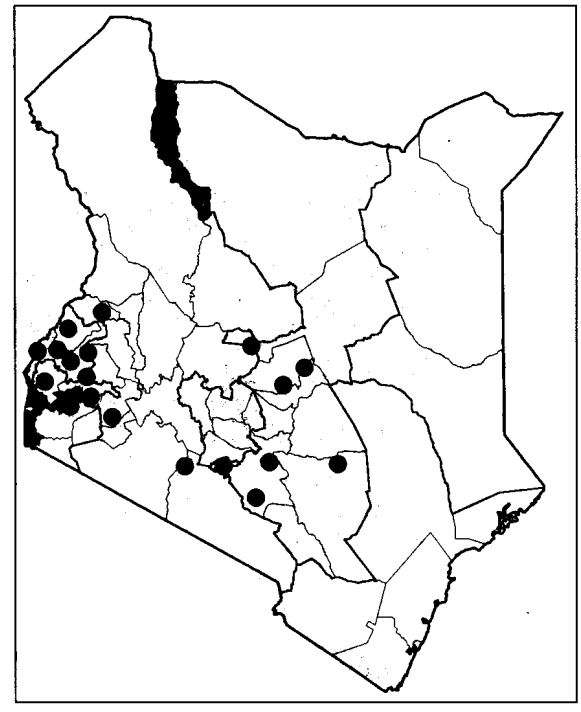
MANAGEMENT: Fast growing, coppicing.

REMARKS: The species is widely used in western Kenya. The wood is fairly termite resistant.

M. zanzibarica (**Bajun:** Mchawanda; **Digo:** Mpalawanda; **Giriama:** Muchalanda; **Malakote:** Mchaanda; **Swahili:** Mtawanda; **Taita:** Mkenga) is a related species found mainly in dry forest and secondary bush at the coast. It is a smaller tree, often a shrub, with smaller flowers and fruit. It is used for poles, firewood, bows, arrows and tool handles. *Markhamia* is a mainly African genus with a few members in Asia.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Albrecht, 1993; Backes and Ahenda, 1998; Beentje, 1994; Bekele-Tesemma et al., 1993; Blundell, 1987; Dharani, 2002; Katende et al., 1995; Kokwaro, 1993; Mbuya et al., 1994; Noad and Birnie, 1989.





Maytenus senegalensis

Celastraceae

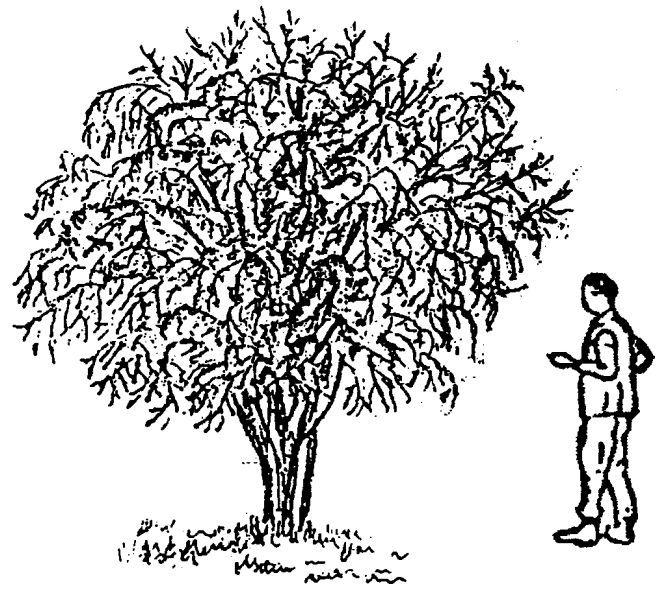
Indigenous

COMMON NAMES: **Digo:** Mtsokolangongo; **Giriama:** Mkokoa, Mdziyadziya; **Kamba:** Kithethuki, Kivundangiti; **Luhya (Bukusu):** Kumwayakhafu; **Luo:** Mathari, Nyamage, Nyandema; **Maasai:** Olaimurunyai; **Malakote:** Baagasa; **Pokot:** Akwichanian; **Sabaot:** Chemetio; **Samburu:** Laimurunyai; **Sanya:** Boja, Adhe; **Tharaka:** Mugugutu; **Turkana:** Ekaburu.

DESCRIPTION: Usually a shrub, but can be a tree to 8 m high, the trunk straight with drooping branches and many sucker shoots, either with or without spines. Deciduous. BARK: Trunk grey, rough and thick, vertical grooves; spines to 1–5 cm, on smooth red or grey-green branches that have no hairs or dots. LEAVES: Alternate or in clusters, smooth, often fleshy, variable in shape, oval, the **tip often wider than the base,** 3–12 cm long, the edge **finely round toothed,** the short **stalk and midrib often pink.** FLOWERS: **White–cream–green** in dense stalked clusters about 4 cm across, sweet scented, often covering the tree. FRUIT: A 2- or 3-part capsule, green then **red, round, to 6 mm, 1–2 shiny red-brown seeds,** more than half covered by a soft **white aril.**

ECOLOGY: A tropical African shrub or tree from North Africa, Somalia to Senegal, south to South Africa, in Madagascar and east to Bangladesh, with a wide altitude range from sea level up to 2,400 m. In Kenya, found in most of the country except the dry north-eastern parts in wooded grassland and in riverine vegetation in the drier parts. At the coast it is found near ponds, in clay soils or on coral rag. Tolerates salinity, 0–2,100 m. Agroclimatic Zones I–III. Flowers in February and fruits in April at the coast. Flowers in May in Nairobi and nearby districts, March–May and November–December in Nyanza and Western Kenya. In fruit in July–September in Bungoma and November–December in Nyanza.

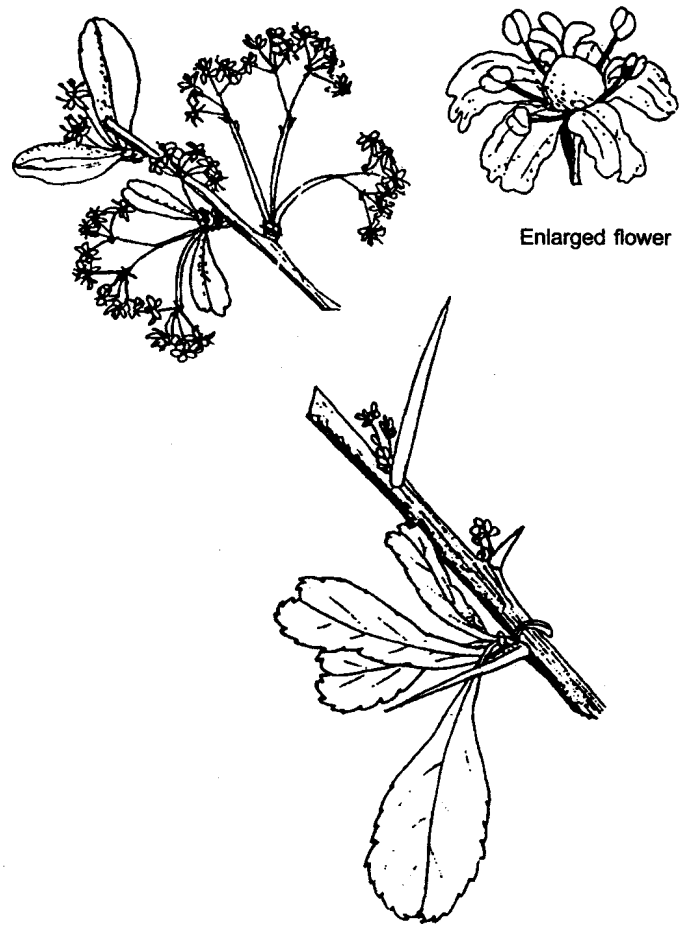
USES: Firewood, charcoal, poles, tool handles, walking sticks, combs, medicine (root, leaves, bark), fodder (leaves), bee forage, live fence, dry fencing (spiny branches used around cattle bomas), ornamental. Flowers are put in coconut oil to perfume it for use as body oil.

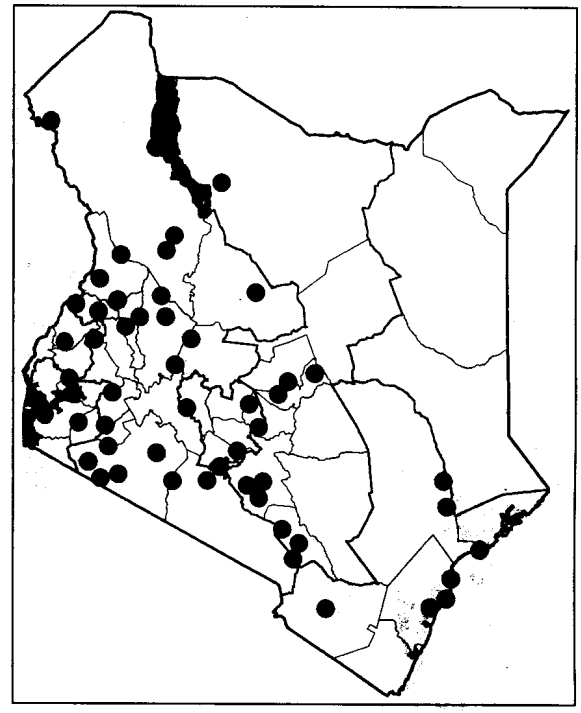


PROPAGATION: Seedlings.

SEED: Prolific seeder. Seeds usually dispersed by birds.
treatment: Not necessary.
storage: Mature and dry seed can be stored for some time if kept cool in sealed containers.

MANAGEMENT: Lopping, trimming tops and sides if the aim is to produce a good live fence.

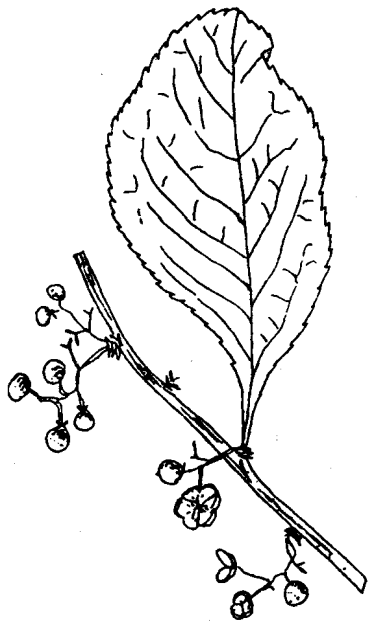




Maytenus senegalensis (cont)

REMARKS: This is a common shrub that has many uses. When in flower it becomes a beautiful bush with the very many small cream-green sweetly scented flowers that attract pollinators, especially bees. It can be a good ornamental. The wood is yellow-white, hard and durable. *Maytenus* is a relatively large genus with close to 200 species, mainly occurring in the tropics of both the New and Old Worlds.

FURTHER READING: Backes and Ahenda, 1998; Beentje, 1994; Bein et al., 1996; Bekele-Tesemma et al., 1993; Blundell, 1987; Dharani, 2002; Fichtl and Adi, 1994; Kokwaro, 1993; Noad and Birnie, 1989; Palgrave and Palgrave, 2002; Sommerlatte and Sommerlatte, 1990; von Maydell, 1990.



Melia azedarach

Meliaceae

Asia, Australia

COMMON NAMES: **English:** Persian lilac, Chinaberry, China tree; **Luo:** Dwele.

DESCRIPTION: A small tree, 5–6 m, but can reach 10 m, usually deciduous, with a thin trunk and spreading crown. BARK: Grey, smooth, later rough and brown, branchlets dotted with breathing pores. LEAVES: Alternate, 2-pinnately divided, on branched stalks, **to 40 cm long,** up to 6 pairs of pinnae and **3–9 leaflets,** each one bright shiny green, narrow, to 8 cm, the **edge irregularly toothed, the tip long and pointed.** FLOWERS: Lilac coloured, fragrant in large **rounded clusters** to 25 cm, each flower with 5 pale purple-white petals and **a dark purple centre.** FRUIT: Yellow-orange, oval to 1.5 cm, persisting on the bare tree. Each fruit contains a stone with 4–6 dark brown seeds inside.

ECOLOGY: A popular ornamental tree planted since Babylonian times. Native of Asia and Australia but now grown throughout the tropics and subtropics for its beautiful lilac flowers and large dark-green compound leaves. Naturalized in many parts of the world including the United States. The growth rate in Kenya is not as good as in its natural area, and in dry areas it often suffers from termite attack. Nevertheless it is widely planted, mainly for shade and as an ornamental. It grows in most soils, both acidic and saline, from the coast to 2,000 m. Agroclimatic Zones II–V. In flower November–December in Nyanza and Western Kenya.

USES: Timber, furniture, poles, posts, tool handles, medicine, bee forage, shade, ornamental, beads (seeds).

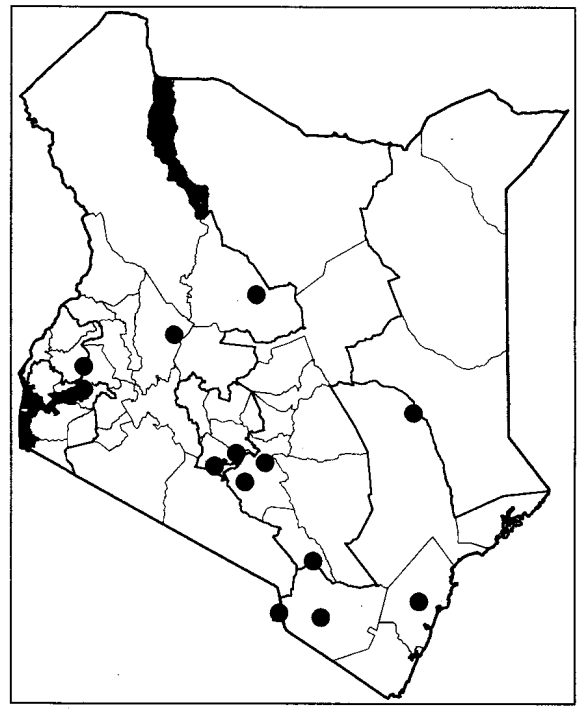
PROPAGATION: Seedlings, wildings, direct sowing at site.

SEED: The species is a prolific seeder with a high germination rate; 500–3,000 stones per kg (average in Kenya around 2,100), each stone with 4–6 seeds (multi-germ). Pulp should be removed from the stones and the stones cleaned, but with minimal human exposure due to fruit toxicity.

treatment: Not necessary.
storage: Seed can be stored at room temperature for some time.

MANAGEMENT: Fairly fast growing, pollarding, lopping, coppicing, pruning.

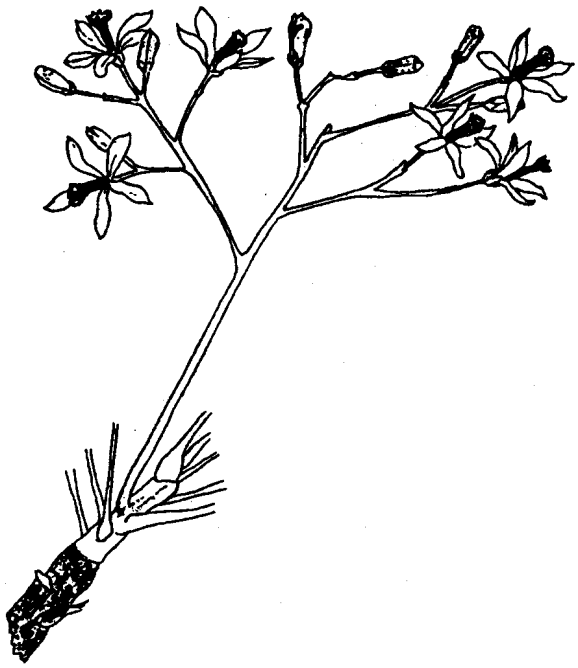
REMARKS: The seeds, and to a lesser extent the leaves and bark, are poisonous to human beings, livestock and poultry if large amounts are ingested. Care should be taken when using the plant for medicine as overdoses have been known to cause stomach and nerve disorders.

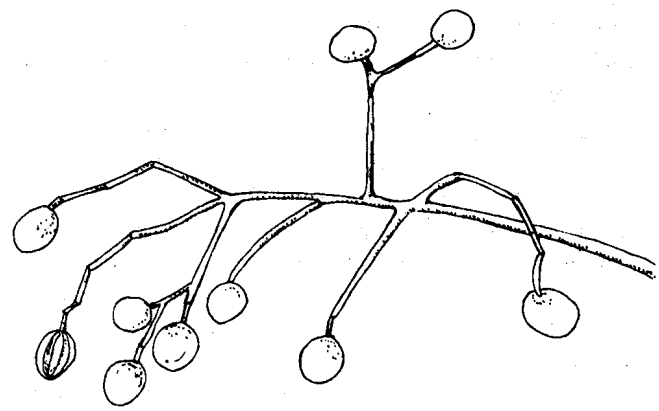


Melia azedarach (cont)

The tree is very fast growing in the Himalayas. The species has been widely misidentified and confused with the neem tree, *Azadirachta indica*, which it resembles but is easily distinguished by the leaves (see illustrations). Extracts from the plant have been reported to have insecticidal and antiviral properties. The species may become weedy, but in Kenya this has not been a problem. It is relatively drought resistant. Flowers and seeds are dropped in large quantities and may therefore be a menace when in season. The genus *Melia* is a small one. consisting of only 3 members.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Albrecht, 1993; Bein et al., 1996; Bekele-Tesemma et al., 1993; Blundell, 1987; Dharani, 2002; Fichtl and Adi, 1994; Katende et al., 1995; Lötschert and Beese, 1983; Mbuya et al., 1994; National Academy of Sciences, 1983; Noad and Birnie, 1989; Palgrave and Palgrave, 2002.





Fruiting branch

Melia volkensii

Meliaceae

Indigenous

STANDARD/TRADE NAME: Mukau.

COMMON NAMES: **Boran:** Bamba, Barnha; **Digo:** Kirumbuta; **Kamba:** Mukau; **Kikuyu:** Mukau; **Samburu:** Maramarui; **Somali:** Bamba; **Taita:** Kirumbutu; **Taveta:** Mkowe, Mukowe; **Tharaka:** Mukau.

DESCRIPTION: A deciduous tree, to 15 m, with a light, rounded or spreading crown and branches that hang down low. BARK: Grey, fairly smooth. LEAVES: Bright green, compound, **leaflets many, each narrowing to the tip**. FLOWERS: Dense, white, borne in a branching head. FRUIT: **Yellow and oval to 4 cm long**, conspicuous on the bare tree.

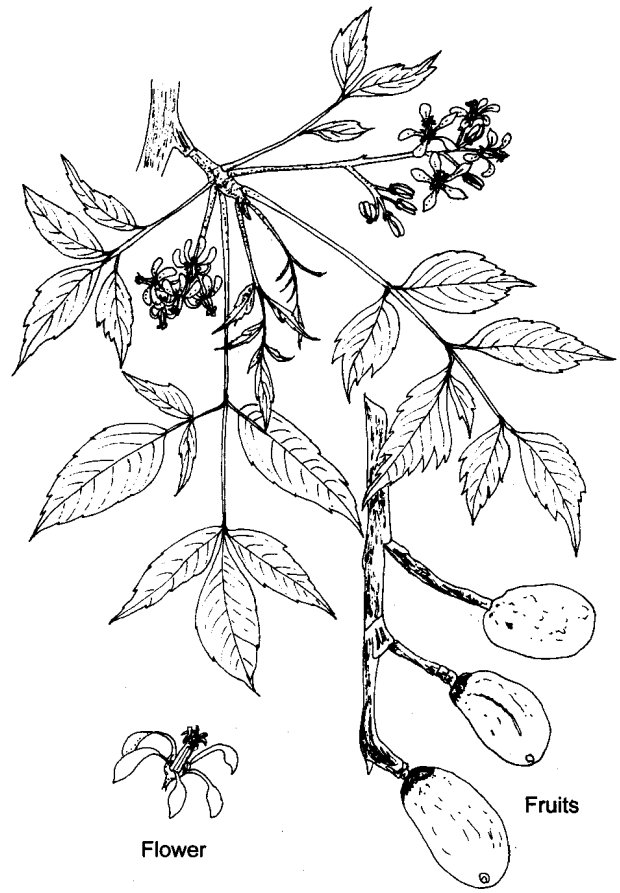
ECOLOGY: A valuable tree of semi-arid areas in Ethiopia and Somalia south to Tanzania. In Kenya, found in Kitui, Mwingi, Machakos, Embu, Taita, Samburu, Isiolo, Makueni, Voi, Tsavo National Park and Moyale in dry bushland or woodland and drier wooded grasslands. Found in the coastal hinterlands, but not very near the coast. When in leaf, noticeably green in dry areas; 400–1,650 m. Agroclimatic Zones V–VI. Flowers in October and seeds in March–August in Kitui and Makueni areas.

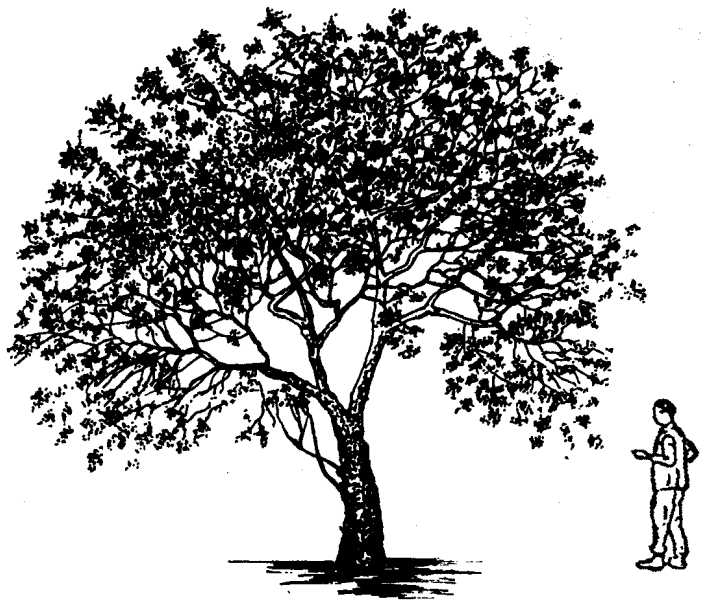
USES: Firewood, timber (construction, door frames), medicine (bark), fodder (fruit), bee forage, shade, mulch, soil conservation.

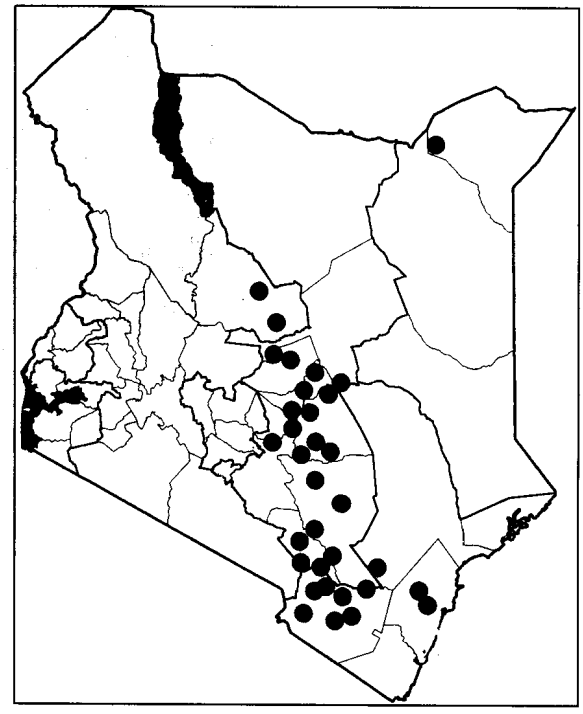
PROPAGATION: Seedlings, root cuttings or root suckers, wildlings. Use of root suckers is the best method. Collection of wildings is a better option than seeds for raising seedlings in a nursery.

SEED: Seed germination is very difficult to achieve. Germination rate 40–80% at best, often lower, within 15–35 days; 200–300 stones per kg.
treatment: After collection, the fruit pulp is removed by pounding fruit in a mortar. Before sowing, the stones should be dried in the sun, and then cracked to release the seed. An alternative is to burn the berries lightly in a heap of trash, then soak the seeds in warm water and sow without storage.
storage: Seed storage is not recommended; use fresh seed.

MANAGEMENT: Fast growing if propagated using root suckers. Careful protection of young trees against goats; coppicing.







Melia volkensii (cont)

REMARKS: Wood hard, brown, and makes good timber, resistant to attack by borers. The Kamba make door frames from the wood. A highly prized tree in the dry areas where it is intercropped with food crops with no adverse effects and occasionally improved yields. Also kept around the homestead as a shade tree. An overdose of the medicine is poisonous. This is a very drought-resistant tree, more so than the related *Melia azedarach*. Under drought conditions, *M. volkensii* has an effective mechanism for accumulating water in all tissues for use in times of extreme water stress. The plant is deeply rooted and exhibits a good degree of resistance to attack by common insects.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Albrecht, 1993; Beentje, 1994; Kokwaro, 1993; Milimo, P. 1994 (http://www.ifa.unimelb.edu.au/abstracts/phdabstract1994/milimo1994.htm); Noad and Birnie, 1989.

Meyna tetraphylla

Rubiaceae

Indigenous

COMMON NAMES: **Boran:** Qaaleda; **Chonyi:** Mtamba chiko; **Giriama:** Mtamba kiko; **Kamba:** Kitotoo, Kitolousuu; **Kambe:** Tamba kiko; **Malakote:** Mubururi; **Marakwet:** Tiling'wo, Tiliny (plural); **Orma:** Bururi; **Pokot:** Tiling'wo, Tiling (plural); **Rendille:** Yeho; **Samburu:** Ikerimichoi, Leturmet; **Tharaka:** Mukurungu, Ngurungu (fruit); **Tugen:** Tilingwo, Tilinyek (fruit); **Turkana:** Esugumaran.

DESCRIPTION: A spiny shrub, 2–4 m high with ascending branches and a narrow crown or, rarely, a liana. BARK: **Grey-brown**. Stems armed with **strong paired spines growing horizontally** above the leaf nodes. LEAVES: Yellow-green, slightly glossy. FLOWERS: Cream-green, densely clustered in leaf axils. FRUIT: A more or less round **5-angled berry** up to 2 cm across.

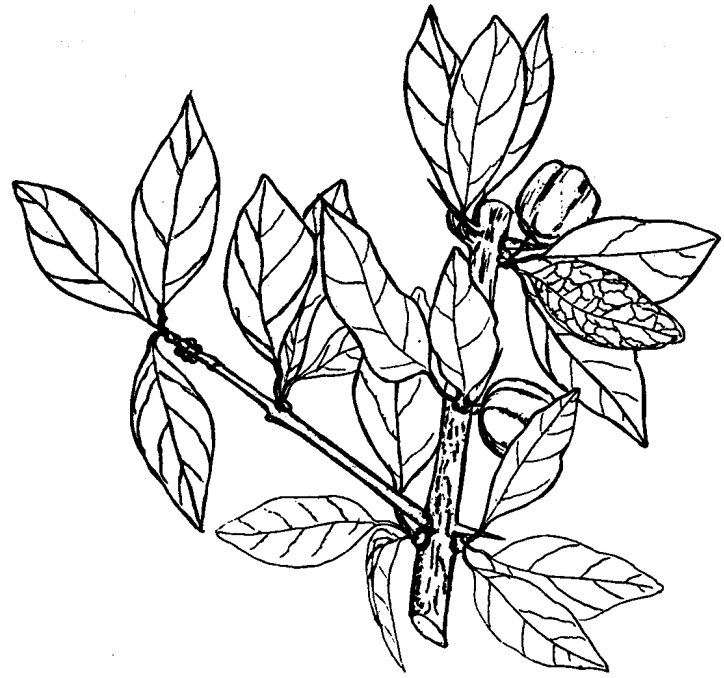
ECOLOGY: Occurs in eastern Africa, southern Ethiopia, Somalia and the Comoro Islands. In Kenya, for example in Kitui, Turkana, Baringo and Samburu, 0–1,100 m, in riverine bushland and along seasonal watercourses in dry country. At the coast, also in bushland away from watercourses. Mainly rocky and sandy soils. Agroclimatic Zones III–IV (coast)–VII (riverine).

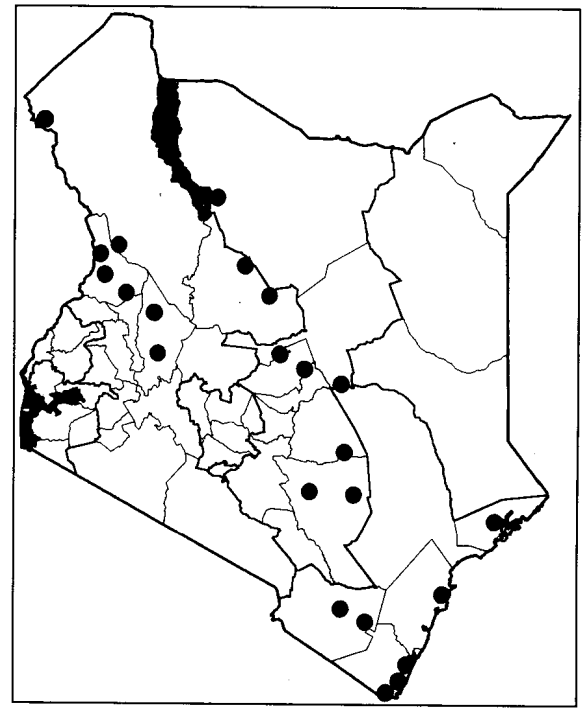
USES: Edible fruit, medicine (roots), veterinary medicine (leaves), live fence.

REMARKS: Ripe fruit fleshy, sweet and much liked by pastoralists. The plant has good potential for live fencing. *Meyna* is a genus of about a dozen species found in Africa and the Indian Ocean islands to South East Asia.

Many of the members of the closely related genera *Keetia*, *Psydrax* and *Multidentia* have edible fruit too. A species often confused with *Meyna tetraphylla* is *Canthium glaucum* (**Boran:** Ladana; **Chonyi:** Mtamba chiko; **Giriama:** Mfuranje; **Kambe:** Mtamba chiko; **Pokot:** Molkotwo; **Somali:** Natana; **Swahili:** Mtengeji, **Turkana:** Emidakan, Etoukoroe), a spiny shrub usually 2–4 m high. Bark brown to grey. Leaves with very short stalks, elliptic, usually 2–5 cm long, borne at nodes or on short shoots below the paired spines. Flowers in groups, few, greenish. Fruit square in outline, green, turning yellow-orange when ripe. Found in coastal bushland and forest, usually in open places with deep sandy soils, 0–150 m, e.g. in Marafa and Arabuko-Sokoke Forest (Kilifi). Also in *Combretum* woodland at higher altitude; 0–800 m. Fruits in March–April (Sabaki), April–June (Kilifi, Malindi). Like *Meyna*, this species has potential for live fencing.

FURTHER READING: Beentje, 1994; Maundu et al., 1999.





Milicia excelsa (Chlorophora excelsa) Moraceae

Indigenous

STANDARD/TRADE NAME: Mvule, Iroko.

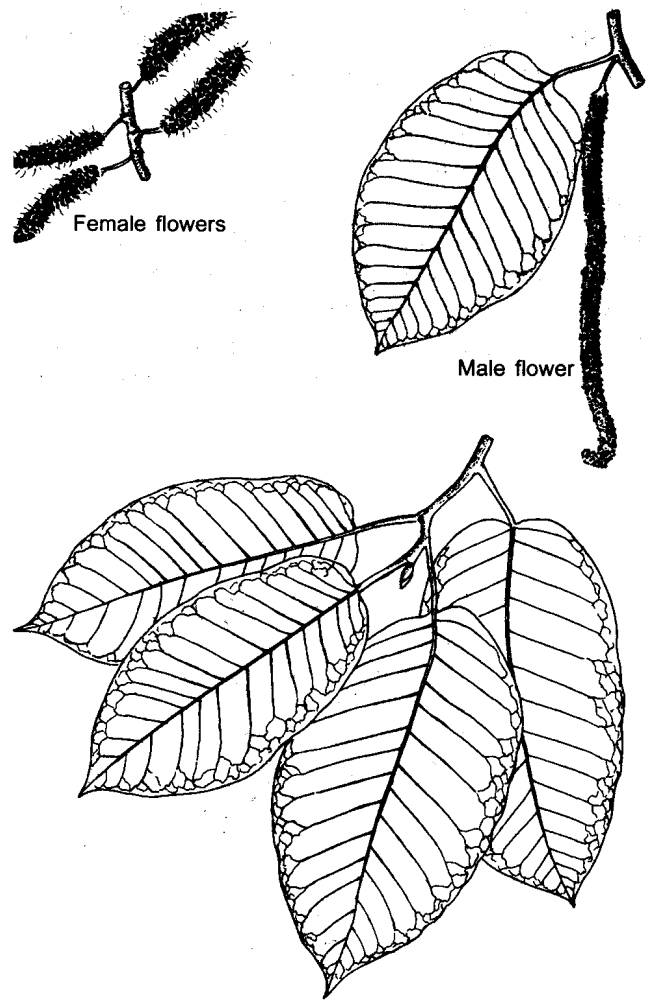
COMMON NAMES: **Boni:** Minarui; **Digo:** Mvure; **Giriama:** Mvure; **Kamba:** Kitangure, Muvuli; **Luhya:** Murumba; **Luhya (Bukusu):** Kumurumba; **Luo:** Olua, Olwa; **Meru:** Mururi; **Sanya:** Mvule; **Swahili:** Mvule; **Taveta:** Murie, Mvure; **Teso:** Eluwa.

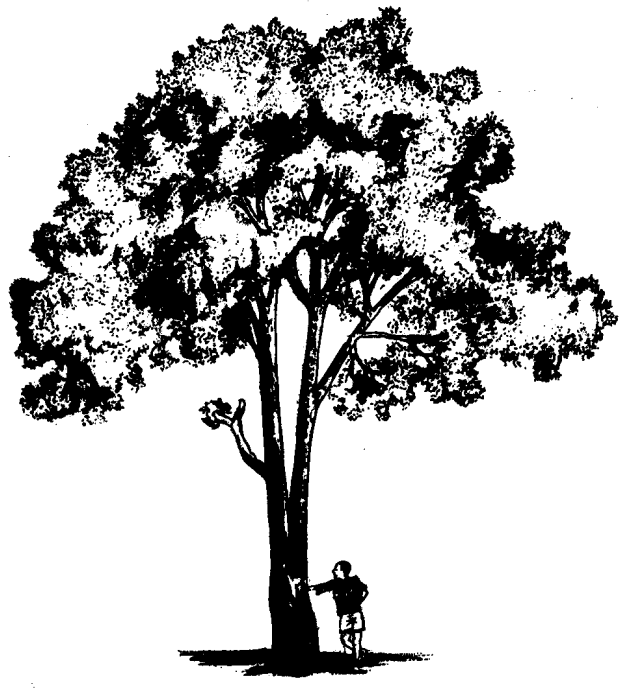
DESCRIPTION: A giant deciduous forest tree to 30 m or occasionally even more. Old trees may have a **straight trunk clear to 21 m and 2 m in diameter.** The high umbrella crown grows from a few thick branches. Ultimate branches hang down (only female trees; male trees have upright branches). BARK: Thick, pale, grey then brown, exudes slightly milky sap, as do the leaves. LEAVES: Large, **oval to 18 cm,** rather thin, **a well-pointed tip,** 10–18 pairs clear side veins, base rounded, often unequal-sided, stalk to 4 cm, **leaf edge finely toothed and wavy.** FLOWERS: Trees are male or female, both with small flowers in spikes, **male flowers in drooping catkins to 15 cm,** female shorter and thicker. FRUIT: Like a long green mulberry, 6–7 cm, the soft pulp attracting birds and bats. Fruit ferment rapidly on the ground. Small hard seeds lie in the pulp.

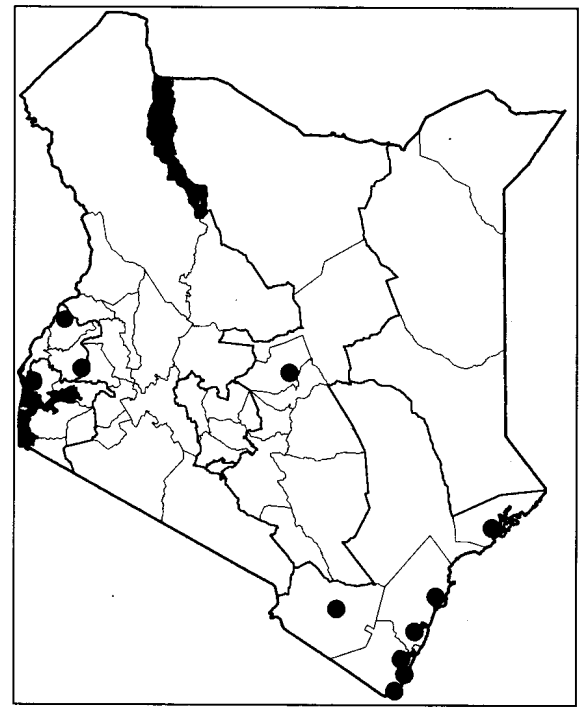
ECOLOGY: Widespread in tropical Africa, from Guinea Bissau to Angola and Sudan to Mozambique. In Kenya, it is occasional at the coast. Common in Rabai area. It is found in lowland forest and wet savanna and is logged commercially throughout its range. In the drier savanna areas the tree needs a good supply of underground water. It does not tolerate waterlogging and the soil must be well drained and relatively fertile. In Kenya, formerly more common but heavily exploited; remnants found at the coast and in Meru and Nyanza; 0–1,400 m. Agroclimatic Zones I–II.

USES: Firewood, charcoal, timber, poles, furniture, tool handles, boat building, medicine (bark), fodder, bee forage, shade, ornamental, mulch, soil conservation, ceremonial.

PROPAGATION: Seedlings, wildings. Produces root suckers.







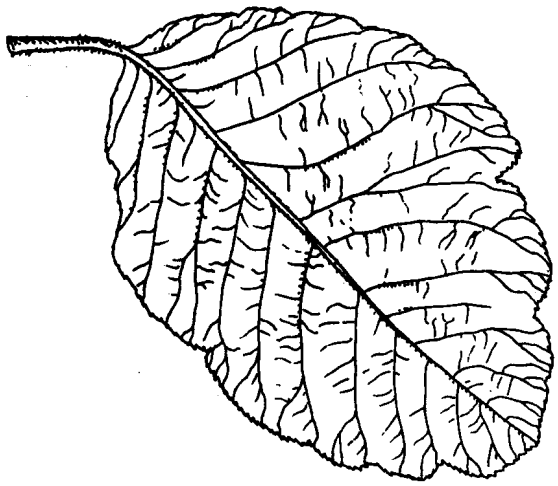
Milicia excelsa (cont)

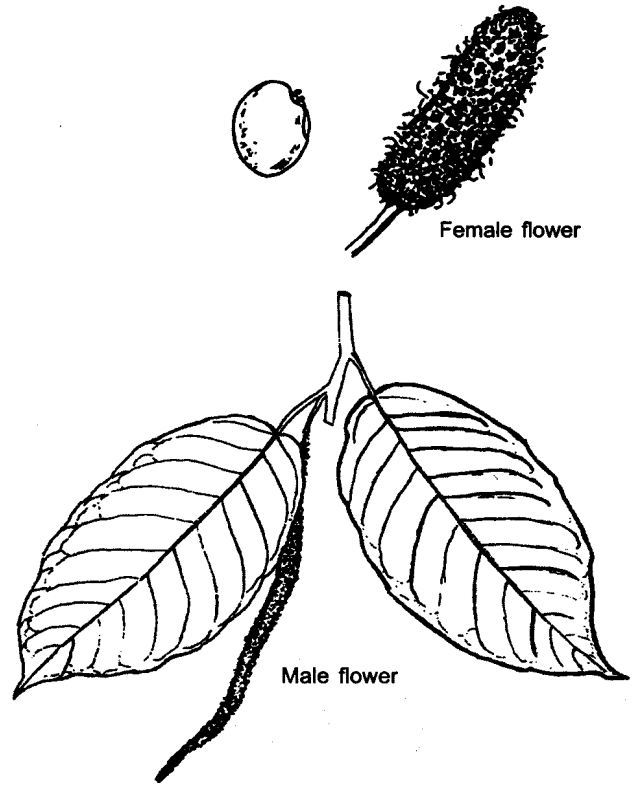
SEED: The tree is not a prolific seeder. Germination slow and poor. Collect fruit (caterpillar-like syncarps) by cutting small twigs from the crown. Normally the seeds are mature before the syncarp is fully ripe. If the syncarps are not totally ripe they should be spread out in the shade for ripening. When ripe, they are soaked in water overnight and the seeds are squeezed off the fruit. Seed can be separated from the pulp by floating; the seeds will sink. Dry seeds in the shade for a few days before sowing. About 475,000 seeds per kg; germination rate up to 45%.
treatment: Not necessary.
storage: Seed loses viability quickly.

MANAGEMENT: Fast growing compared with other hardwoods, but slower than *Khaya* spp.; pruning, coppicing. Regeneration rates are low in most areas.

REMARKS: One of the most important timber species, but over-exploitation has made it very rare. The heartwood is brown to yellow and easy to work. The wood resists termite attack almost as well as teak. It is extremely valuable timber, used especially for quality indoor and outdoor furniture. In Kenya, the species is now rare. Trees planted in Uganda 50 years ago are now ready for harvest, so there is scope for commercial production, but with some patience. In the Luo community, the tree is not planted in homesteads as it is believed to cause deaths within families, and traditionally the wood cannot be used for doors or beds. This species is one of only 2 in the genus, the other being the West African *Milicia regia*, also commercially referred to as Iroko (a Yoruba name). The 2 species occasionally hybridize where their distributions overlap.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Albrecht, 1993; Backes and Ahenda, 1998; Beentje, 1994; Bekele-Tesemma et al., 1993; Katende et al., 1995; Mbuya et al., 1994; Noad and Birnie, 1989; Sommerlatte and Sommerlatte, 1990.





Millettia dura

Fabaceae (Papilionaceae)

Indigenous

COMMON NAMES: **Embu:** Muvanga; **Kikuyu:** Muhatia; **Kisii:** Mwongwa; **Meru:** Mwanga.

DESCRIPTION: A much-branched deciduous tree to 15 m with light foliage. BARK: Grey and smooth. LEAVES: Compound, dull green, **5–12 pairs leaflets,** each 1 to 5 cm, often unequal-sided. **Young leaves and stalks have orange-brown hairs.** The base of the stalk has a thickening (the pulvinus). FLOWERS: **Mauve sprays to 20 cm,** often on the bare tree, pea-shaped flowers, petals over 2 cm long. FRUIT: **Thick flat pods,** to 25 x 2 cm, splitting open explosively.

ECOLOGY: A small tree of moist forest edges or beneath more open forest in Kenya, Uganda and Ethiopia. Found naturally in Kenya in secondary scrub and forest margins of Central Province, 1,500–2,000 m, but planted successfully elsewhere, as it is drought resistant. Agroclimatic Zones II–III.

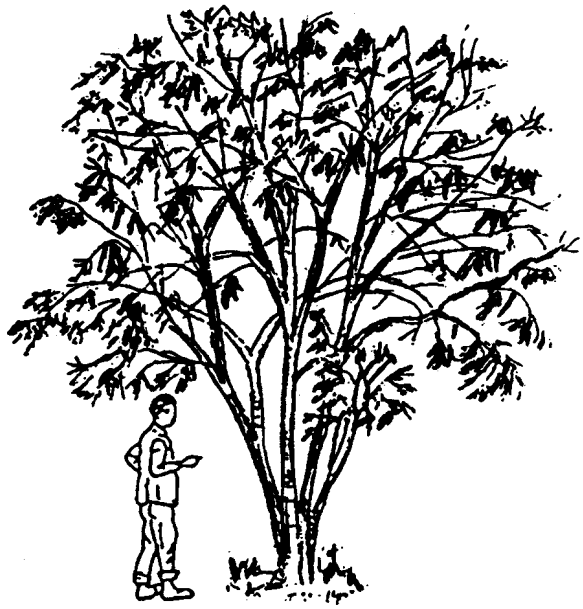
USES: Poles, tool handles, fodder (leaves), shade, ornamental, mulch, soil conservation and improvement.

PROPAGATION: Seedlings (sow seed in pots), direct sowing at site, wildings.

SEED: About 10,000 seeds per kg. Germination is very good; up to 80% after 20 days.
treatment: None, or soak in cold water for 6 hours.
storage: Seed can be stored for long periods if kept free from insects. Add ash to reduce insect damage.

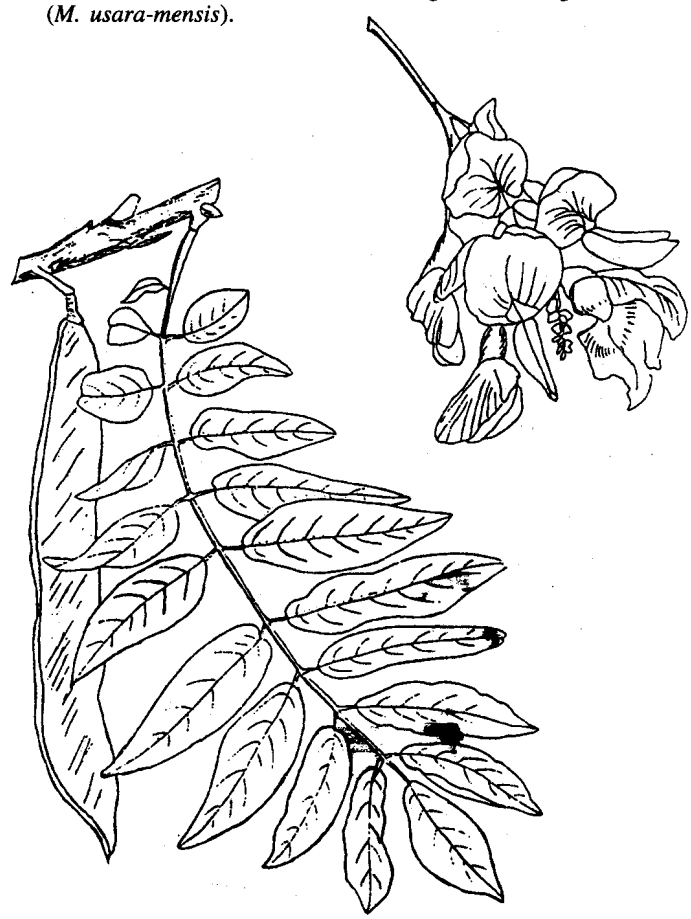
MANAGEMENT: Fairly fast growing; coppicing, pollarding.

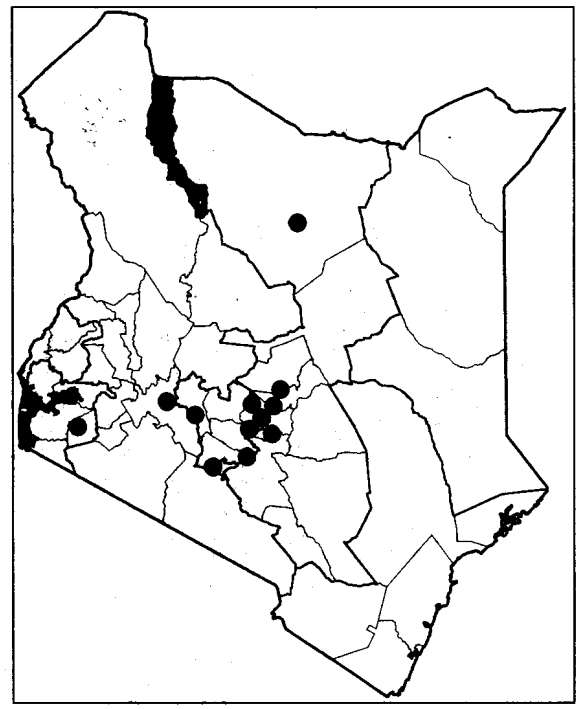
REMARKS: The tree was formerly used as a shade tree for coffee. The wood is tough and resistant to termites. Another species, *Millettia usaramensis* (**Giriama:** M'thupa, Muhawa; **Swahili:** Mti chuma) is a small shrub or tree found in coastal bush and forest edges. It has mauve to purple-blue flowers. Fruit are smaller (about 1 x 10 cm). Seeds germinate easily. It is used for furniture, poles for house construction and as an ornamental. It occurs in Kenya and Zanzibar south to Mozambique.



The 6 or so *Millettia* species occurring in Kenya are among the most threatened as half of them are endemic with limited distribution. The genus *Millettia* as a whole has close to 100 members, mainly found in Africa and Asia.

FURTHER READING: Beentje, 1994; Blundell, 1987; Dharani, 2002; Katende et al., 1995; Kokwaro, 1993 (*M. usaramensis*); Mbuya et al., 1994; Noad and Birnie, 1989; Palgrave and Palgrave, 2002 (*M. usara-mensis*).





Mimusops kummel

Sapotaceae

Indigenous

COMMON NAMES: **English:** Mimusops, Milkwood, Red milkwood; **Kikuyu:** Mugumo ciano; **Luo:** Nyabondo, Ochond achak; **Mbeere:** Mugumo ciano; **Pokot:** Chemalokutan, Pusyooni; **Tugen:** Lolowa.

DESCRIPTION: An evergreen tree that can reach 35 m and have a diameter of more than 1 m, the crown leafy and oval. BARK: Dark grey, rough and deeply grooved, **branchlets covered with red-brown hairs.** LEAVES: Oval to 10 cm, the tip blunt, **the midrib below hairy** and also **the leaf stalk to 15 mm.** FLOWERS: Fragrant, cream-white, 1–4 in leaf axils, on stalks to 2–5 cm. Flower parts in 4s, rather flat, star-shaped, **stalks and outer calyx with brown hairs,** central ovary with silky pale hairs. FRUIT: A **drupe to 2 cm,** pointed and orange-yellow, contains **one** red-brown **seed.**

ECOLOGY: A widespread eastern African tree extending to Ethiopia and Eritrea, Sudan and to West Africa in riverine vegetation and also in dry evergreen forest, in wooded grassland and on rocky hills in dry areas. In Kenya, found around Nairobi (e.g. Kiambu, Ngong Forest) and westwards to Nyanza Province in riparian vegetation and dry forests, 500–2,250 m. Agroclimatic Zones III–IV.

USES: Firewood, charcoal, timber (construction), beehives, tool handles, carvings, utensils, edible fruit, drink (inner bark for tea, dried fruit powder used for making juice or brew), medicine, shade.

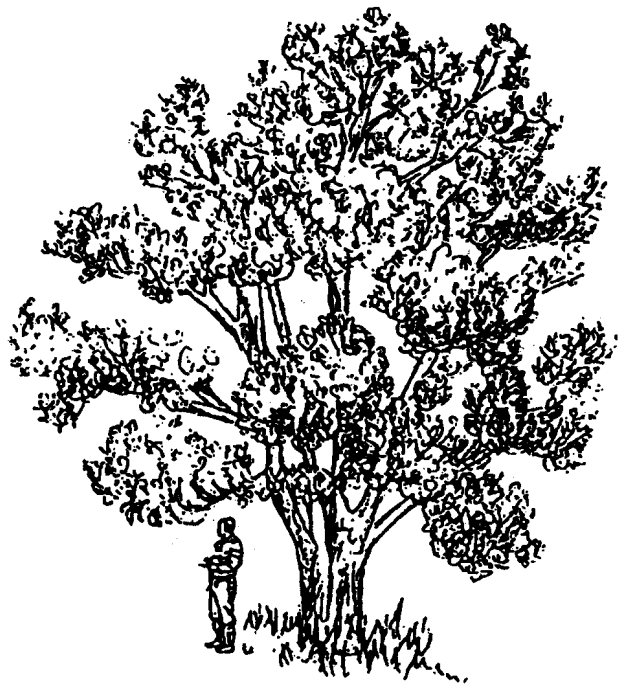
PROPAGATION: Seedlings (sow seed in pots), wildings.

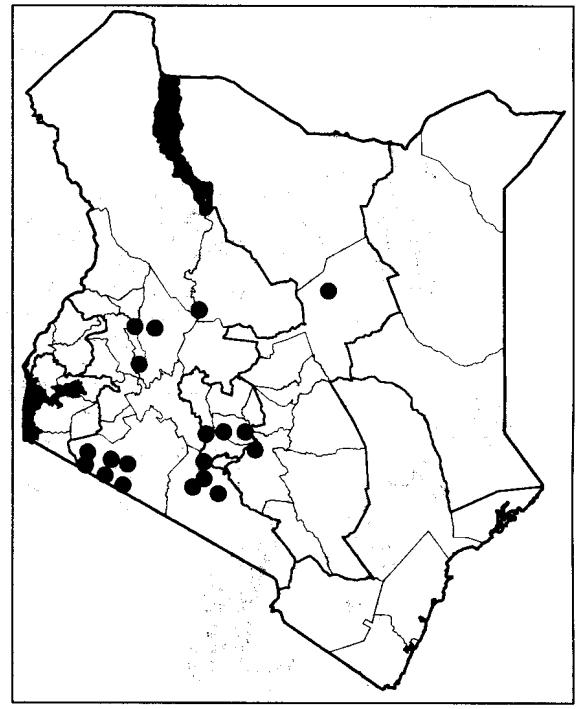
SEED: Seed contained in the drupe. Remove outer coat to release seed.
treatment: Not necessary.
storage: Seed can be stored for long periods. Add ash to reduce insect damage.

MANAGEMENT: Pruning, lopping, pollarding.

REMARKS: The wood is hard and heavy. *M. kummel* is a good fruit tree that would be worth domestication efforts. A related species is *M. bagshawei* (**Kipsigis:** Lalwet; **Luhya:** Ludolia; **Maasai:** Olalwait; **Nandi:** Leliat), only found to the west of the Rift Valley in riverine and moist forests. It is a tree to 30 m, often with a rough bark. Leaves clustered at the end of branchlets, up to 5 x 14 cm, usually widest in the middle but narrowing abruptly near the tip. Flowers are greenish to cream, small. Fruit slightly elongate, pointed, up to 3 cm long, orange-yellow when ripe, edible. The flower stalk in *M. kummel* is longer than in *M. bagshawei.*

FURTHER READING: Beentje, 1994; Bein et al., 1996; Bekele-Tesemma et al., 1993; Katende et al., 1995; Maundu et al., 1999; Noad and Birnie, 1989; Ruffo et al., 2002.





Mimusops obtusifolia (M. fruticosa)

Sapotaceae

Indigenous

COMMON NAMES: **Boran:** Denyo; **Chonyi:** Mng'ambo kapehe; **Giriama:** Mng'ambo kapehe, Mtsami; **Kambe:** Mng'ambo kapehe; **Malakote:** Munugau; **Orma:** Kolati, Qolati; **Pokomo:** Munguvwe, Nguvwe (fruit); **Sanya:** Badhesa; **Somali:** Kolati (Tana River); **Swahili:** Mng'ambo kapee, Mnguvi.

DESCRIPTION: A large evergreen tree to 15 m or more or, rarely, a shrub and resembling *Manilkara sansibarensis*. Young branches with hairs that are soon lost. BARK: **Dark grey, rough** with grooves. LEAVES: Up to 5 x 8 cm, widest in the middle or **towards the tip**, which is **usually notched,** occasionally rounded or sharply pointed, narrowing towards the base to a stalk about 1 cm long, shiny green above, dull green below. FLOWERS: Star-like, cream, **petals in 2 whorls**. Arising several at a time in each axil. FRUIT: Orange to red, round to 2.5 cm in diameter, skin rather tough, pulp enclosing several seeds.

ECOLOGY: Grows in eastern and southern Africa, Madagascar and the Comoro Islands. In Kenya, confined to the coastal areas in dry coastal forests, bushland and near sand dunes. Also found along lower parts of River Tana, 0–400 m. Agroclimatic Zones IV–VII (riverine).

USES: Firewood, charcoal, timber, poles (house construction), carving, canoe building, spear shafts, bee forage, edible fruit, medicine (roots), shade.

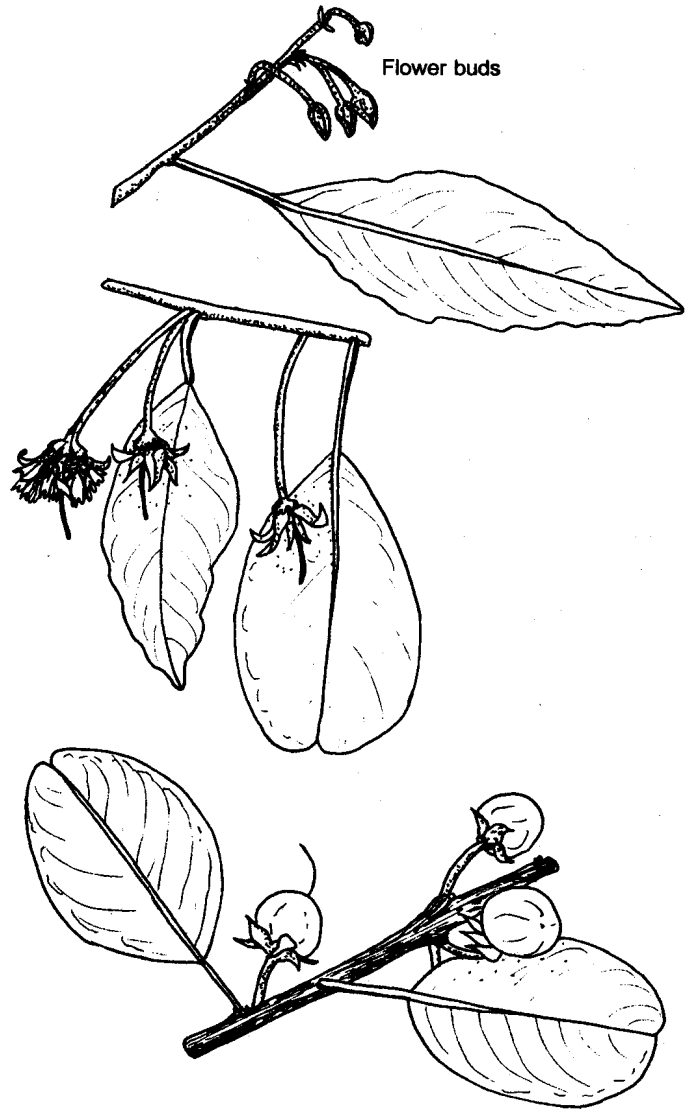
PROPAGATION: Seedlings.

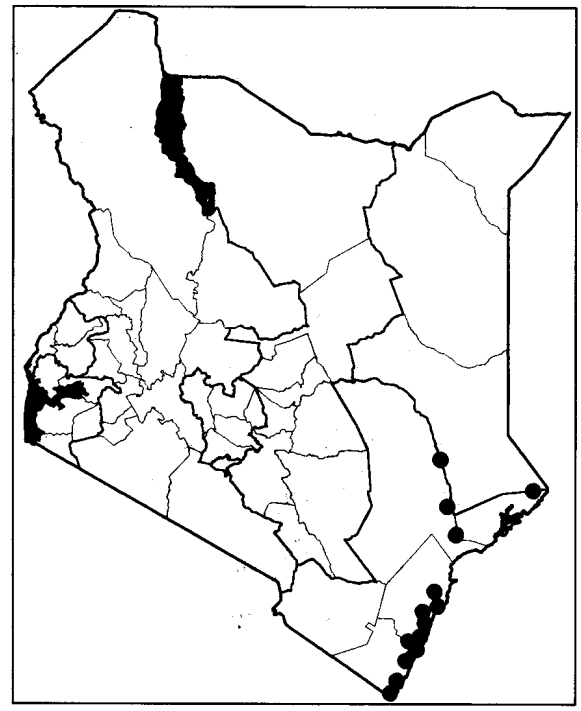
SEED: Remove the pulp, clean the seed and sow.
treatment: Not necessary.
storage: Can be stored for some time, but susceptible to insect attack.

MANAGEMENT: The young trees perform best under shade, and some shade is needed to get a trunk of good timber quality. Fairly fast growing.

REMARKS: This species has one of the best indigenous fruits. *M. somalensis* (**Digo:** Mgama) is a related medium-sized tree with leaves clustered at the end of shoots. Found in coastal Kenya and Tanzania only. Fruits are good to eat and the wood is used for timber and firewood. Roots are used in veterinary medicine. *Mimusops* is a genus closely related to *Manilkara*. It has a few dozen species, found mainly in tropical Africa and the Indian Ocean islands.

FURTHER READING: Beentje, 1994; Maundu et al., 1999; Palgrave and Palgrave, 2002.





Mkilua fragrans

Annonaceae

Indigenous

STANDARD/TRADE NAMES: Mkilua.

COMMON NAMES: **Digo:** Chingade; **Giriama:** Mkilua; **Swahili:** Mkilua, Mlua.

DESCRIPTION: A shrub or occasionally a tree to 8 m. LEAVES: Alternate, usually large, to 15 cm long, widest in the middle, **base asymmetric**, tip blunt, **stalk very short, not more than 2 mm long**. FLOWERS: Hanging on a long stalk, petals pale yellow to orange, outer ones large, to 3.5 cm, inner ones to 2 cm. FRUIT: Parts (monocarps) numerous, **elongate up to 1 x 5 cm**, red.

ECOLOGY: Found only in north-east Tanzania near the Kenyan border, Zanzibar and coastal Kenya in moist evergreen forest and well-drained sandy soil, 0–450 m. Agroclimatic Zones II–IV.

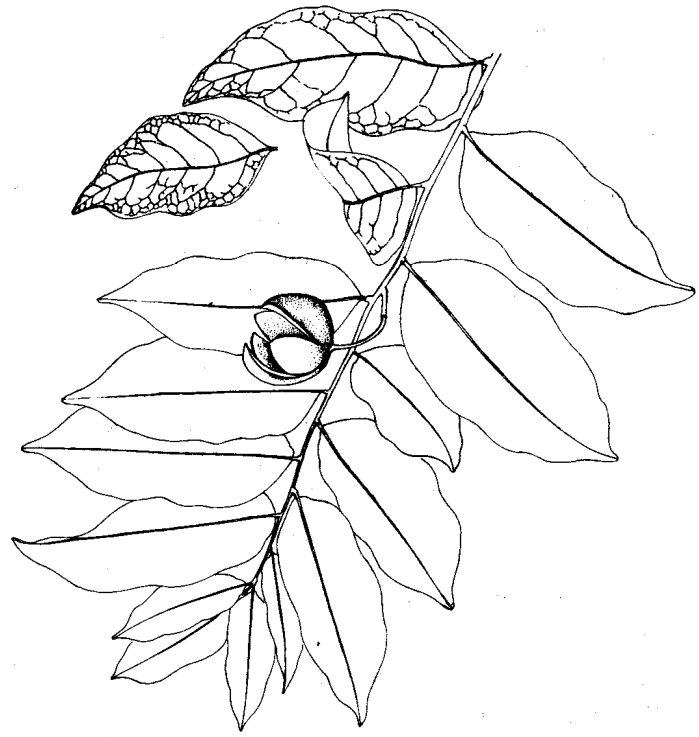
USES: Firewood, posts, medicine (roots), ornamental, perfume, ceremonial.

PROPAGATION: Seedlings.

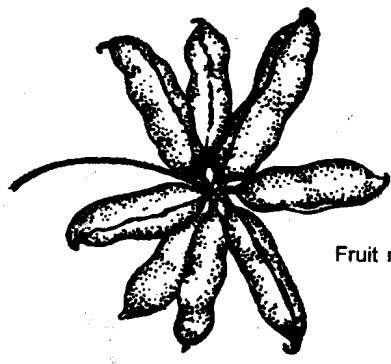
REMARKS: The genus *Mkilua* is typified by this one species native to the East African coast, where it is also grown for its flowers. Now it is cultivated in many parts of the world. The relatively large flowers are used as a source of aroma. Wreaths are made from flowers of this species and those of species such as ylang-ylang (or the perfume tree *Cananga odorata*) and *Jasminum* and worn during weddings ceremonies, particularly by the Swahili.

Cananga odorata, in the same family (Annonaceae), is also grown at the coast for its sweetly scented flowers. A native of Indo-Malaysia it is now grown throughout India and the Pacific Ocean islands. It grows to a tree 10 m high or more. Leaves medium-green, alternate, arranged on one plane on the branch, each widest towards the base and narrowing to a pointed tip. Flowers are sweet smelling, large with long narrow almost linear yellow to yellow-green trailing petals. Monocarps are several to many, black, short and ovoid. The plant is propagated by seed (takes time to germinate) or cuttings mainly as an ornamental, but has escaped and become naturalized in some parts of the world. It needs a warm, moist climate. The plant is the source of ylang-ylang oil used in perfumery and medicines.

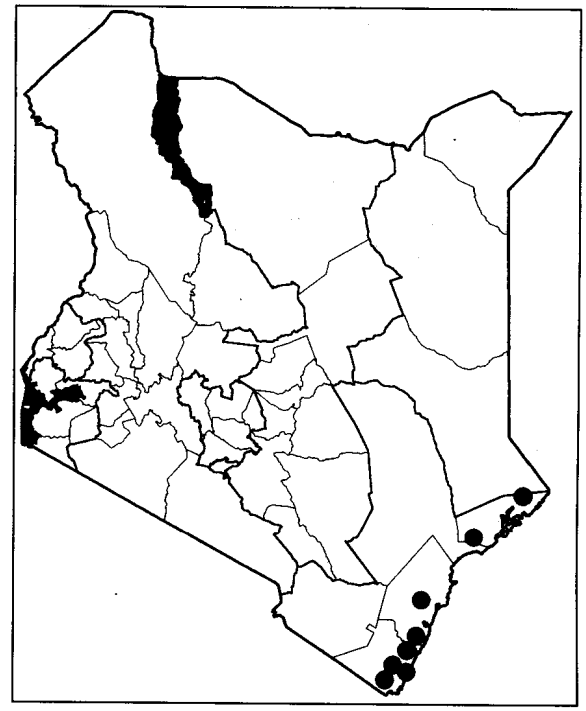
FURTHER READING: http/:www.org/pier/caodo.htm; Beentje, 1994.



Branch bearing a flower (petals have dropped)



Fruit monocarps



Mondia whytei

Asclepiadaceae

Indigenous

COMMON NAMES: **Kikuyu:** Muhukura; **Luhya (Bukusu):** Kumukombera; **Luhya (Marachi):** Omugombera; **Luhya (Marama):** Omukombera; **Luhya (Tachoni):** Omikombela; **Luo:** Muombo, Ogombo.

DESCRIPTION: A woody climbing shrub, 5 m, from a tuberous rootstock, the **stems twining** over bushes. It has conspicuous milky white latex. **Easily recognized by a fringe of reflexed toothed stipules** at each node, which become a hard spiky grey ring with age. LEAVES: In opposite pairs, **generally oval** to almost circular, to 20 cm but usually smaller, heart-shaped at the base and with a **clearly defined pointed tip.** The midrib may have **scattered hairs.** FLOWERS: Small, on **axillary drooping heads to 15 cm,** the branches with few to many flowers, each about 2 cm across, with 5 hairy sepals, the **5 fleshy petal lobes mauve-purple inside, greenish outside,** the central cream corona with many lobes, some thread-like. FRUIT: A pair of large diverging capsules about 12 cm long, containing many seeds bearing silky white hairs.

ECOLOGY: Distributed in moist tropical Africa. In Kenya, found in Kakamega Forest, Busia, Bungoma, Murang'a at forest edges, *Markhamia lutea* woodland and in riverine vegetation, often under trees on soft ground with plenty of humus, 1,500–2,000 m. Agroclimatic Zones I–III.

USES: Edible bark of roots, medicine (roots), ceremonial, toothbrushes (roots).

PROPAGATION: Cuttings, seedlings.

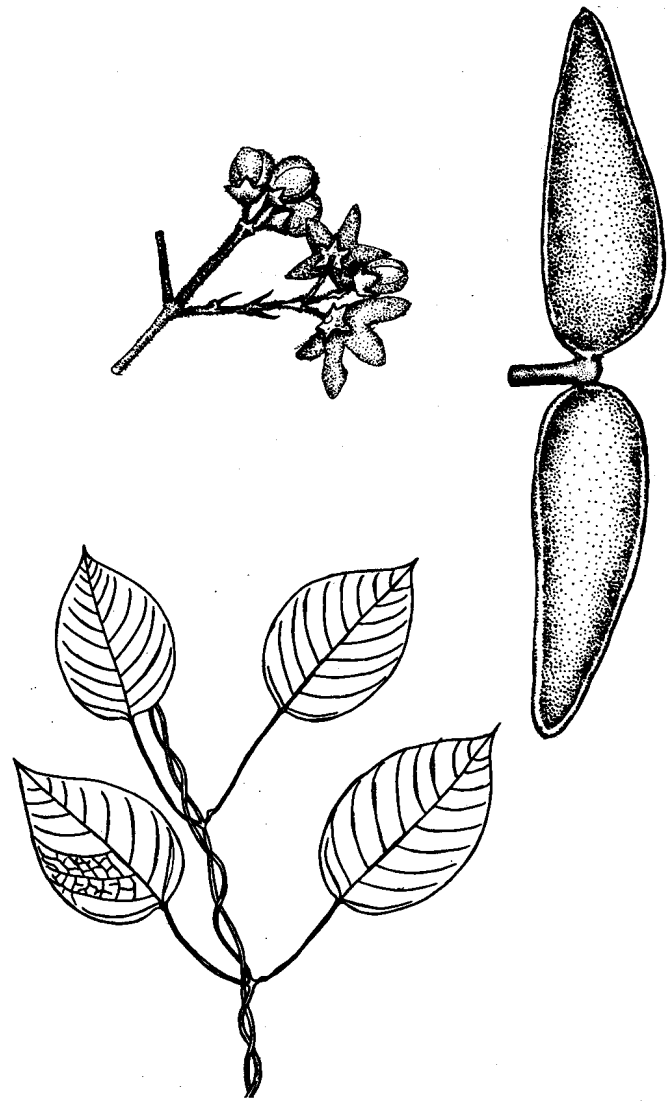
SEED:

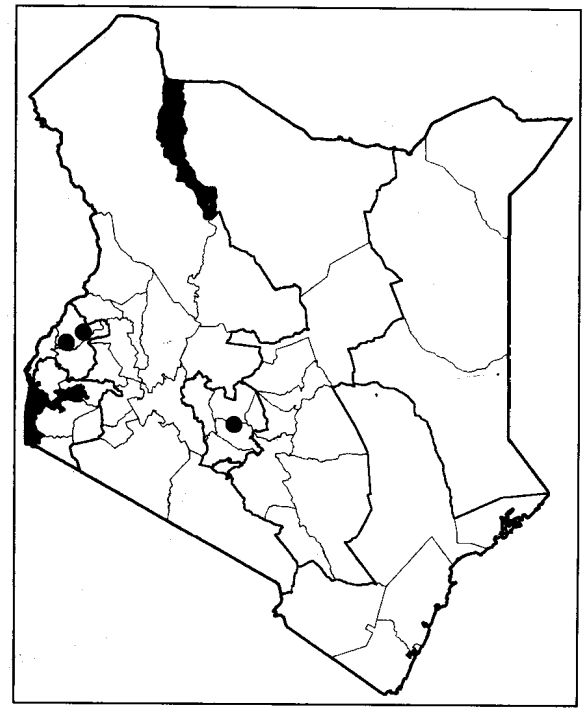
treatment: Not necessary.

REMARKS: The fleshy bark of the thin roots is eaten raw or occasionally dried (Kikuyu, Luhya, Nandi, Luo) for its good taste, as an appetizer (Luhya), to freshen the mouth (Luhya, Kikuyu) and for pleasure (Kikuyu). The root tastes rather hot and bitter at first then slightly sweet later. It leaves a persistent spicy taste in the mouth that is easily recognized. The root may be dried, stored and eaten when desired. The woody middle part of thicker roots is reported to be used as a toothbrush. Roots chewed for good luck (Luhya) before setting out to perform a difficult task. Roots are sold in Western Province and in Nairobi. The plant is now quite rare in Central Province and populations in Western Province are under increasing pressure due to the high demand for the roots. The main threat is that of destruction of its habitat. *Mondia* is a genus of humid tropical Africa with at most 2 species.

FURTHER READING: Beentje, 1994; Katende et al., 1999; Kokwaro, 1993; Maundu et al., 1999.

Root with section of bark removed





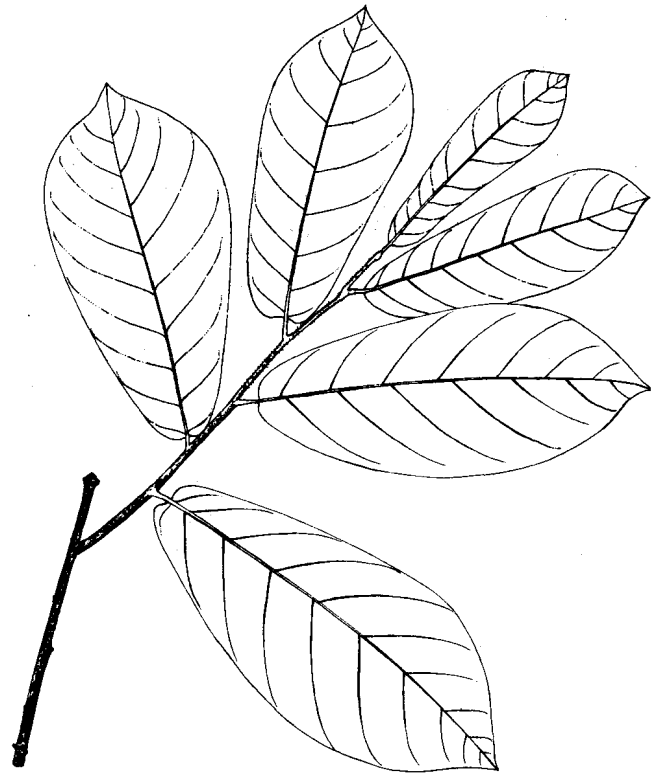
Monodora grandidieri

Annonaceae

Indigenous

COMMON NAMES: Giriama: Mudzala simba.

DESCRIPTION: A shrub, scrambler or a small tree to 6 m. LEAVES: Large, up to 8 x 20 cm, usually much smaller, **base cordate (blunt) or slightly heart-shaped, leaf blade widening towards the tip** then narrowing abruptly to a sharp tip. FLOWERS: **Large, outer petals to about 6 cm**; borne singly on a long stalk arising from branch tips or sides; appearing with young leaves or sometimes before, yellow-white with **pinkish to red streaks** along the petals. FRUIT: **Rounded or slightly elongate to about 4 x 7 cm**, green with white marks.



ECOLOGY: A shrub of the eastern African coast found in evergreen forest, *Brachystegia* woodland, thickets, bushland, cashew nut plantations, 0–400 m. Agroclimatic Zones II–IV. Flowers in March and July, fruits in May and October at the coast.

USES: Bows, withies for building, edible fruit, medicine.

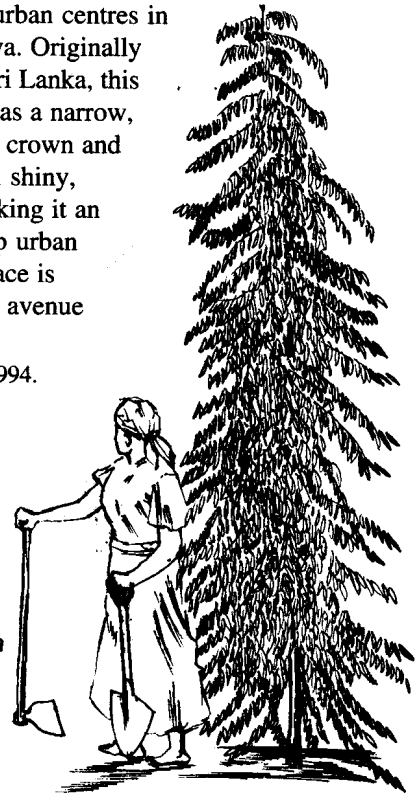
PROPAGATION: Seedlings, wildings.

REMARKS: The plant is much liked by elephants.

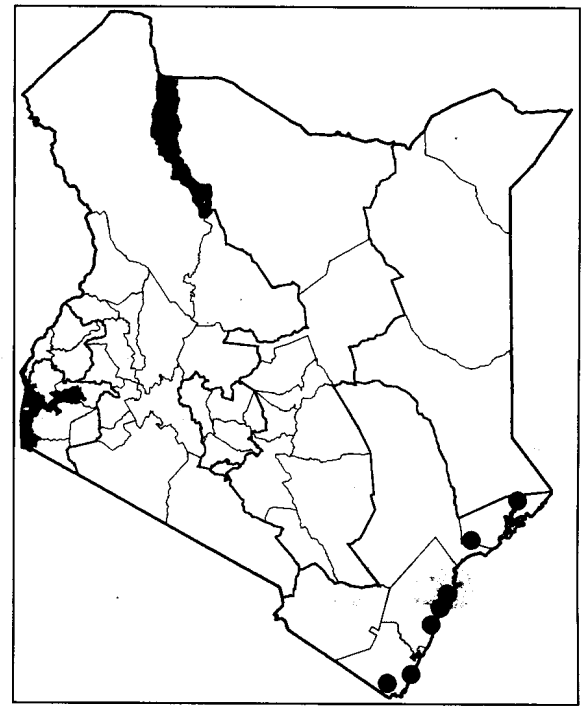
M. myristica (**English:** Calabash nutmeg; **Luhya:** Lubushi) is a large deciduous tree found in Kakamega Forest. Leaves are very large, to 30 cm or more, base rounded or slightly heart-shaped. Flowers large, yellow-white, solitary, outer petals to 10 cm. Fruit to 20 cm or more. It is mainly riverine in Kakamega Forest. The plant is a source of firewood and medicine. Fruits are said to be edible and elsewhere the seeds are used like nutmeg. The genus *Monodora* has about a dozen members, all of African origin.

A recently introduced tree, *Polyalthia longifolia*, or the mast tree, also in the family Annonaceae, is now the most popular ornamental in urban centres in the coastal part of Kenya. Originally from South India and Sri Lanka, this strikingly upright tree has a narrow, almost columnar, dense crown and drooping branches with shiny, long narrow leaves, making it an ideal choice for built-up urban environments where space is limited. It is a beautiful avenue tree.

FURTHER READING: Beentje, 1994.



Polyalthia longifolia



Moringa oleifera — Moringaceae

North-west India

COMMON NAMES: **Chonyi:** Muzungwi; **Daasanach:** Hocholoch; **English:** Ben oil tree, Drumstick tree, Horse-radish tree, Moringa; **Giriama:** Muzungi, Muzumbwi, Muzungwi; **Kambe:** Muzungwi; **Sanya:** Muzungwa; **Swahili:** Mrongo, Mzunze; **Tharaka:** Muguunda.

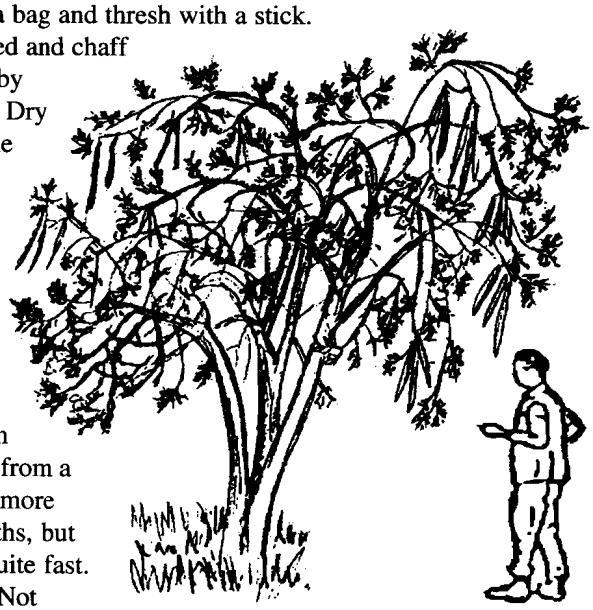
DESCRIPTION: A deciduous tree to 10 m, usually smaller, with tuberous roots, **pale feathery foliage** and drooping branches. BARK: Grey, thick and corky, peeling in patches. LEAVES: Pale green, **thrice compound,** the whole leaf **30–60 cm,** leaflets **usually oval, tip rounded 1–2 cm long.** FLOWERS: **Cream,** fading yellow, in long sprays, each flower with 5 petals, 1 erect and 4 bent back, sweet-scented, attracting insects. FRUIT: Long capsules, to 45 cm, **bluntly triangular in section,** splitting when dry to release **9 dark brown 3-winged seeds** from the pith.

ECOLOGY: A species native to northern India but now cultivated throughout the tropics, especially in arid areas. It is a very drought-resistant and valuable tree, grown at the coast, in Makindu and other drier parts of the country. Introduced in the early 1990s for afforestation and soil conservation in Mandera town and rehabilitation of a former refugee camp site. Prefers sandy soils, 0–1,450 m, but most common at the coast. Requires generally well-drained soils, but needs a high groundwater table in areas where rainfall is less than 350 mm. Agroclimatic Zones III–VI. Normally flowers in August–September and seeds mature December– February around Malindi; fruit mature in December in Nyanza.

USES: Edible leaves and fruit capsules (prepared as a vegetable), medicine (oil from seeds and root), fodder (leaves, young fruit), bee forage, shade, windbreak, fibre, tannin, live fence, oil (Ben oil for industrial use), water purification (powder from seeds), spice (roots substitute for horse-radish or mustard).

PROPAGATION: Large stem cuttings (truncheons, more than 1 m long), root cuttings, direct sowing at site or seedlings.

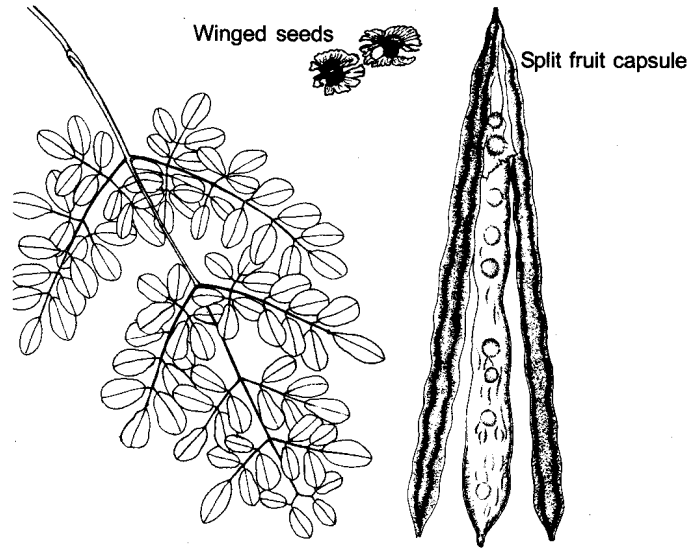
SEED: Pick mature (brown) capsules from the tree, dry in the sun, put in a bag and thresh with a stick. Separate seed and chaff by hand or by winnowing. Dry further in the sun for 3–5 days. Germination rate 50–95%; 3,700–6,000 seeds per kg. Germination time ranges from a few days to more than 2 months, but usually is quite fast. **treatment:** Not necessary. **storage:** Seed can be stored for long periods.

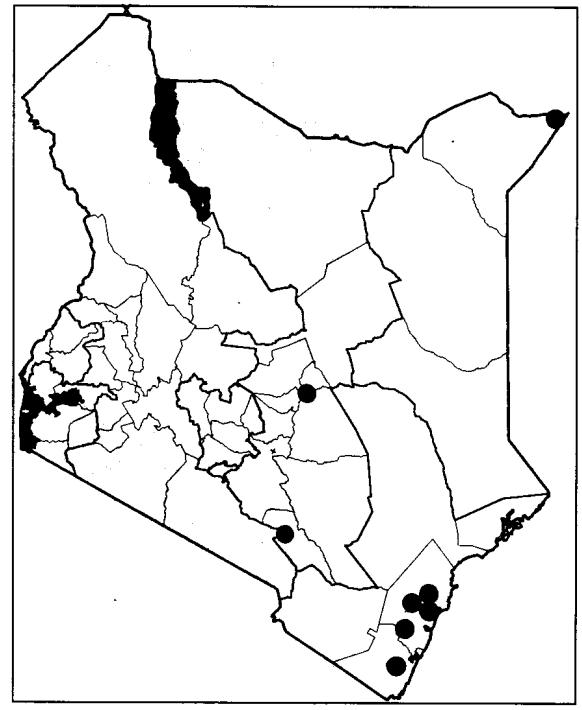


MANAGEMENT: Fast growing; pollarding, coppicing, lopping.

REMARKS: The leaves are used as a vegetable (Mijikenda), while the young capsules (drumsticks) are a delicacy among the Asian community. Immature seeds can be used like green peas. Grown as a living fence in coastal homesteads. The wood is soft. Root bark contains poisonous alkaloids, so care should be taken in its use as a spice or medicine. It is said to cause dizziness (*kisuzi*, Mijikenda). *Moringa* is a small genus with about a dozen members in Africa and Asia. Most species are from north-eastern Africa and western Asia.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Albrecht, 1993; Beentje, 1994; Bein et al., 1996; Bekele-Tesemma et al., 1993; Dharani, 2002; Jensen, 1999; Katende et al., 1995; Lötschert and Beese, 1983; Maundu et al., 1999; Mbuya et al., 1994; Noad and Birnie, 1989; Palgrave and Palgrave, 2002; Verheij and Coronel, 1991; von Maydell, 1990.





Moringa stenopetala

Moringaceae

Indigenous

COMMON NAMES: **Boni:** Safara; **Daasanach:** Hocholoch; **Samburu:** Lorsanjo; **Somali:** Mau, Mawali, Mawe (Mandera); **Tharaka:** Muguunda.

DESCRIPTION: A tree up to 9 m with a **much-branched crown and soft branches** with **bright green feathery foliage**. BARK: **Smooth, grey-white**. LEAVES: Compound, 2–3 pinnate, large, to 55 cm long, first division consisting of about 5 pairs of primary branches each with up to 9 leaflets, each up to about 6 cm. FLOWERS: Small, petals to 1 cm, parts in 5s, sweet-scented, white to cream, in numerous long, lax sprays each up to 60 cm. FRUIT: Long, pod-like capsules to 50 cm long, **reddish with a grey bloom**, opening to release long, **3-winged seeds**.

ECOLOGY: Found in Ethiopia and Kenya. In Kenya, occurs mainly in Baringo, Isiolo, Marsabit and Turkana Districts in riverine vegetation and along lakes. Particularly common in sandy areas with a high water table, but also seen on rocky ground. Common around Isiolo and on the islands in Lake Baringo. The species becomes riverine in the very dry areas. It is now cultivated in several areas; 450–1,200 m. Agroclimatic Zones V–VII (riverine).

USES: Firewood, edible leaves, edible fruit capsules, water purification (pounded seeds), medicine (roots), shade, ornamental.

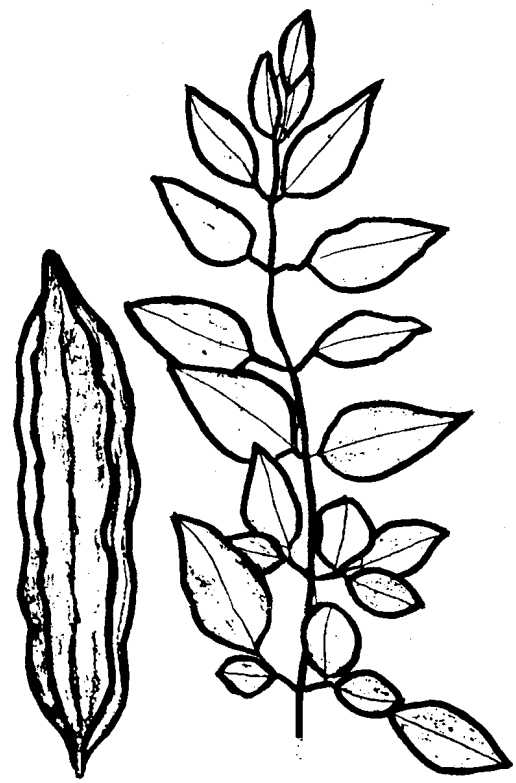
PROPAGATION: Seedlings, cuttings.

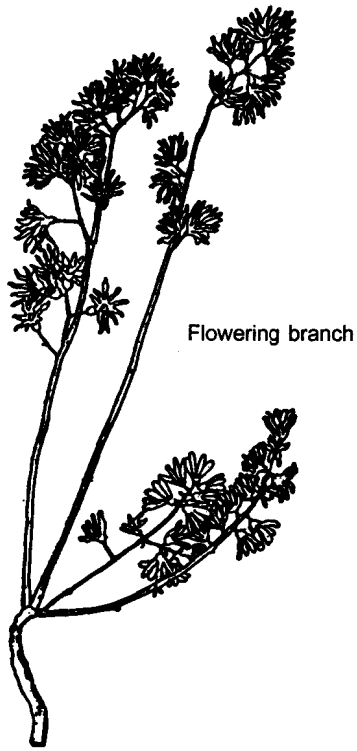
SEED:
treatment: Not necessary.
storage: Seed can be stored for long periods.

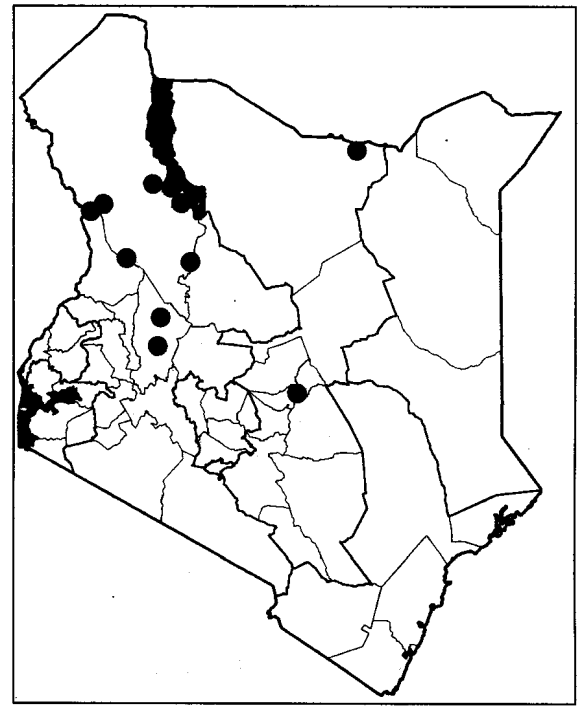
MANAGEMENT: Coppicing.

REMARKS: This species, like its relative *M. oleifera*, has potential as a food plant. The pod-like fruit and the leaves are used as a vegetable, for example in Mandera and in Ethiopia by the Konso. Seeds are used for purifying muddy water (Somali).

FURTHER READING: Albrecht, 1993; Beentje, 1994; Dharani, 2002; Maundu et al., 1999; Noad and Birnie, 1989.







Morus alba

Moraceae

China

COMMON NAMES: **English:** Mulberry; **Kamba:** Kitae, Ndae (fruit); **Kikuyu:** Mutare; **Luo:** Onunga; **Swahili:** Mforsadi.

DESCRIPTION: A small exotic tree now widely planted in homesteads, rounded in shape. LEAVES: Very variable in shape even on one branch; oval to 3-lobed or heart-shaped, 5–15 cm long, 3 veins from the base, edge roughly toothed, tip pointed, on stalks to 5 cm, **upper leaf surface smooth,** but some hairs on veins below at least. FLOWERS: Sexes separate, small and **greenish, in drooping spikes.** FRUIT: Compound, about **2 cm long, white-pink** or red, sweet and juicy but rather tasteless.

ECOLOGY: A tree native to warm temperate Asia, probably of mountainous China where it can reach more than 20 m. Now widely cultivated in Africa where it is much smaller, sometimes naturalized. It tolerates drought and heat once established. Common as a back-yard bush for fruit and shade up to 2,000 m. Agroclimatic Zones II–V. Flowers during the rainy season in most areas.

USES: Firewood, edible fruit, vegetable, fodder (leaves), bee forage, shade, ornamental, soil conservation, windbreak, live fence, feeding silkworms (leaves).

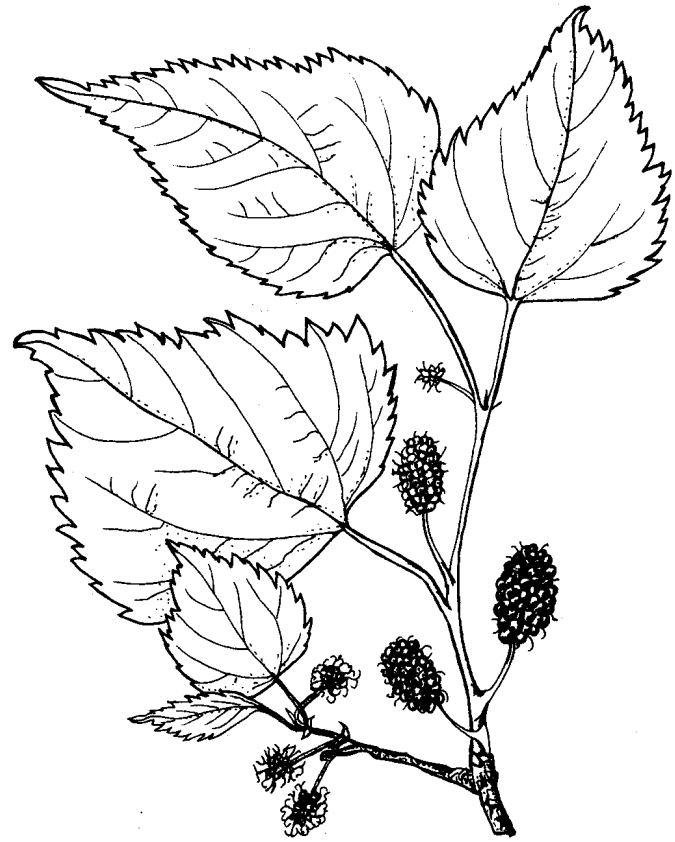
PROPAGATION: Seedlings, cuttings. Cuttings are the best method of propagation.

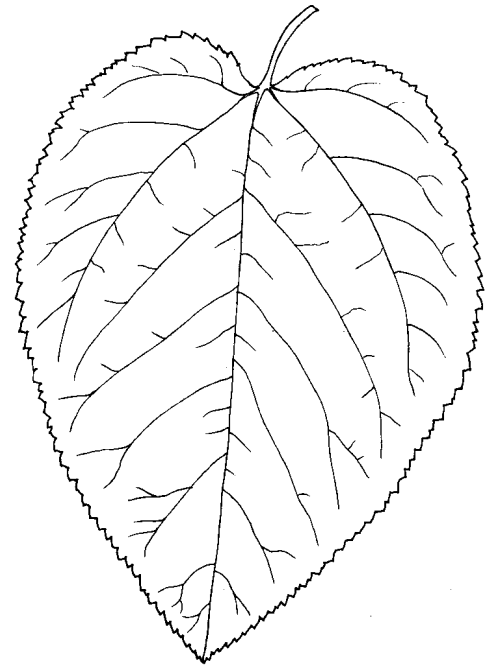
SEED: Poor germination; 325,000–700,000 seed per kg.
treatment: Soak in cold water for 48 hours.
storage: Can be stored for long periods.

MANAGEMENT: Fast growing, especially when grown from cuttings; pruning, pollarding and trimming of fence or of crown to keep the height and shape as required. Fruits fall quite easily as birds feed on them.

REMARKS: The ripe red fruits are a favourite with children, and a number of animals and birds, which are the main dispersal agents. Trees grown from cuttings will produce fruit within 3 years as opposed to trees grown from seed, which take 5–8 years. The species is wind pollinated. It can grow in relatively dry areas. Another species, *Morus nigra*, is similar to *M. alba* and produces purple-black berries. Can grow in slightly cooler climates than *M. alba*. Both species are grown as ornamentals and for their juicy fruit. They are excellent shade trees. The genus *Morus* has about a dozen species found from the tropics to the temperate lands of both Old and New Worlds.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Bekele-Tesemma et al., 1993; Dharani, 2002; Fichtl and Adi, 1994; Jensen, 1999; Katende et al., 1995; Maundu et al., 1999; Mbuya et al., 1994; Noad and Birnie, 1989; Palgrave and Palgrave, 2002.





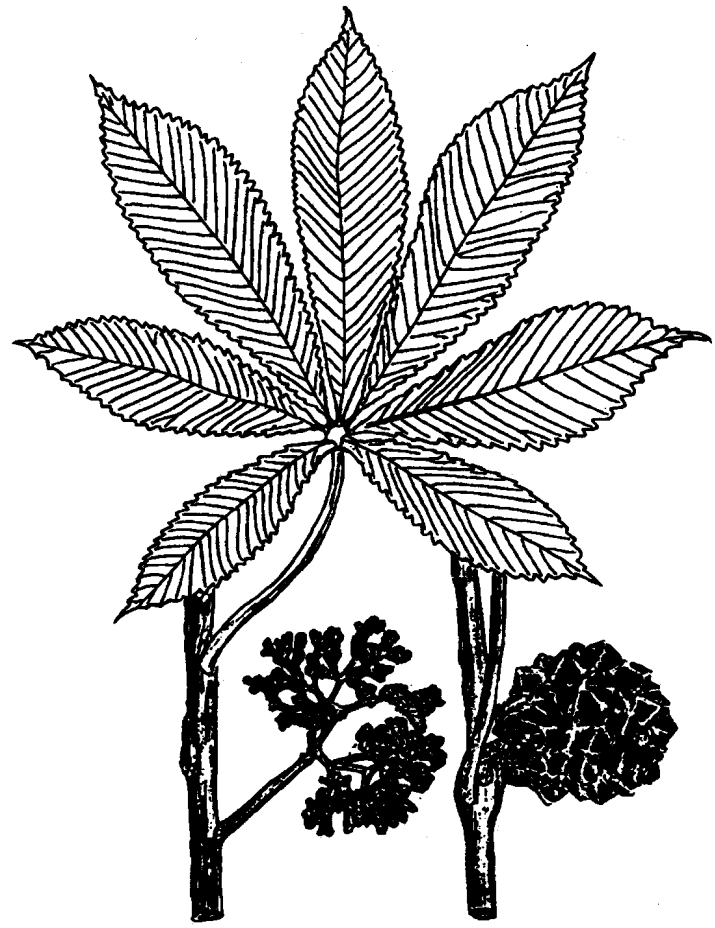
Myrianthus holstii

Cecropiaceae

Indigenous

COMMON NAMES: English: Giant yellow mulberry; **Kikuyu:** Mutuya; **Kipsigis:** Saounet; **Meru:** Mutuja.

DESCRIPTION: A medium-sized tree to 20 m with a short trunk and large branches, often with stilt roots to 60 cm. BARK: Grey-brown, much watery sap inside that turns black when exposed to the air. LEAVES: Distinctive, **very large, 25–60 cm across and compound palmate with 5–7 leaflets,** the largest central leaflets 20–30 cm long, outer leaflets smaller, **edge saw-toothed,** upper leaf smooth dark green, **lower side grey-green, hairy**, with conspicuous veins, on a brown hairy stalk 7–35 cm long. FLOWERS: Sexes separate: male flowers on thick branched heads 4–15 cm across, 6 cm long, densely covered with **tiny green flowers with orange anthers;** female flowers 20–40 on a **stalked head, yellow, 2 cm diameter.** FRUIT: **Round and yellow, 4 cm across, with hard sections, each conical and pointed** (resembling a small pineapple). Each seed in a section surrounded by acid edible pulp.



ECOLOGY: Distributed from Nigeria and Cameroon through the Congo basin to eastern Africa and south to Malawi, northern Zambia, eastern Zimbabwe and Mozambique. Found only in central Kenya, e.g. around Mt Kenya, Nyambene Hills, and in the Aberdares in highland forests, especially on forest edges and near watercourses, 900–2,400 m. Requires more than 1,000 mm rainfall. Agroclimatic Zones I–II.

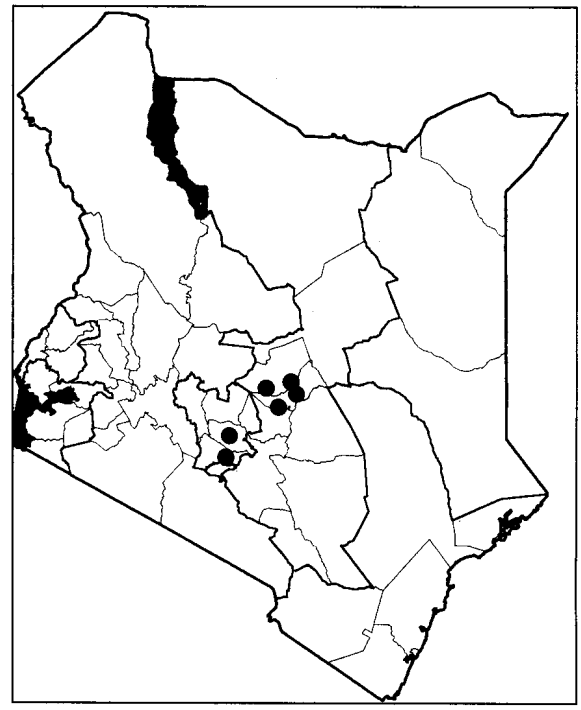
USES: Firewood, utensils (cups), edible fruit, fodder (leaves), shade, mulch, soil conservation.

PROPAGATION: Seedlings. Produces root suckers.

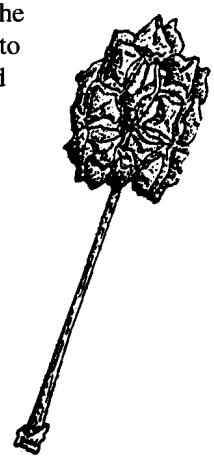
SEED: Seeds should be extracted from ripe fruit, cleaned and sown fresh.
storage: Use fresh seed.

MANAGEMENT: Coppicing.

REMARKS: At one time (1930s) sold in some local markets in Central Province, but now the tree has become rare. Large leaves rot below the tree. The wood is light and therefore does not find much use in the household. *M. arboreus* is a related species, usually with bigger fruit. It is found in Uganda and Tanzania westwards to West Africa. The genus *Myrianthus*, with fewer than 10 species, is tropical African. It was formerly placed in the family Moraceae but has now been moved to Cecropiaceae, a family with members allied to both Urticaceae (stinging nettles) and Moraceae.



FURTHER READING: Beentje, 1994; Dharani, 2002; Katende et al., 1995, 1999; Maundu et al., 1999; Mbuya et al., 1994; Palgrave and Palgrave, 2002; Ruffo et al., 2002.



Fruit

Myrsine africana

Myrsinaceae

Indigenous

COMMON NAMES: **Kamba:** Muketa munini; **Kikuyu:** Mugaita; **Kipsigis:** Osegeteti; **Maasai:** Eseketeti, Olseketeti, Seketeti (seed), Enkoduai; **Marakwet:** Segatet, Segetetwa; **Meru:** Tigiji; **Nandi:** Seketetwa; **Samburu:** Seketeta; **Tugen:** Segetetwa; **Turkana:** Ekaiyi.

DESCRIPTION: An evergreen perennial undershrub or small tree, 1–5 m, often much branched; branches grey–brown–purple and finely grooved, new shoots densely hairy. BARK: Red-brown, rough. LEAVES: Alternate, simple and **small, 0.5–2 cm long, rather crowded on branchlets, leathery, shiny** green above, almost stalkless, variable in shape, the **margin usually with tiny sharp teeth, often confined to the apex,** tip narrowed, often notched, base narrowed. FLOWERS: Small (3 mm), male and female or both, in **axillary clusters** among new leaves, green-white to pink-crimson, rather large **purple anthers hang out beyond the 4 petals, calyx with glands.** FRUIT: **Round berries, 5-mm diameter, pink-purple when ripe, thinly fleshy, containing 1 seed.**

ECOLOGY: Distributed from the Azores off the west coast of Africa east through the Arabian peninsula to China. In Europe cultivated from seed as an ornamental shrub. Also widespread in montane areas of eastern Africa from Ethiopia to Zambia, Angola and South Africa. In Kenya, widely distributed in highland areas from the Taita Hills north-west to the Kisii highlands and north to Samburu and Turkana Districts. Very common in highland areas of Nyandarua. Found particularly in upland dry forests and rocky hillsides, in open woodland or at margins of dry forests. Often a pioneer species. Grows above the limit for taller trees on mountains, near the moorlands, 1,500–3,000 m. Agroclimatic Zones II–III.

USES: Branches used for weaving structures (withies), edible fruit, medicine (fruit), ornamental, veterinary medicine.

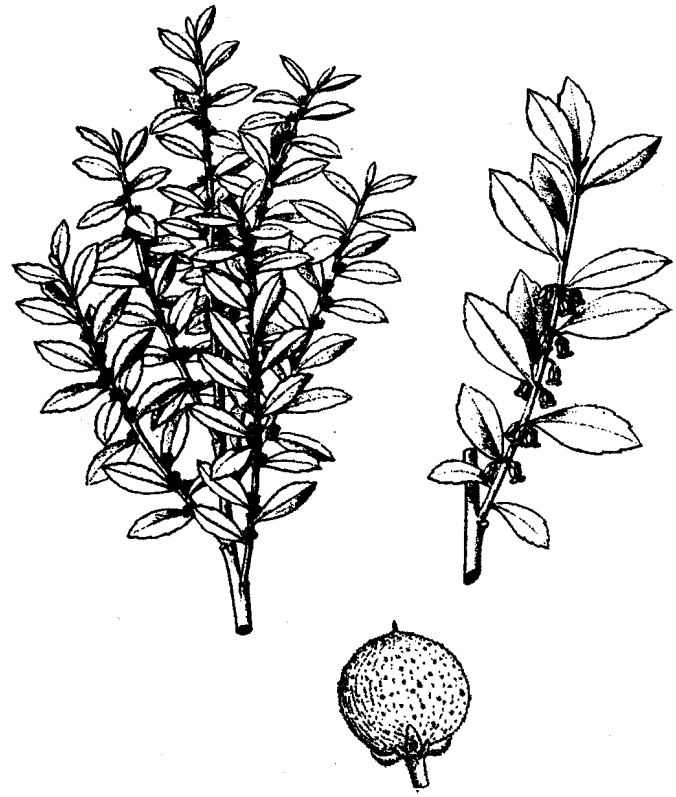
PROPAGATION: Seedlings.

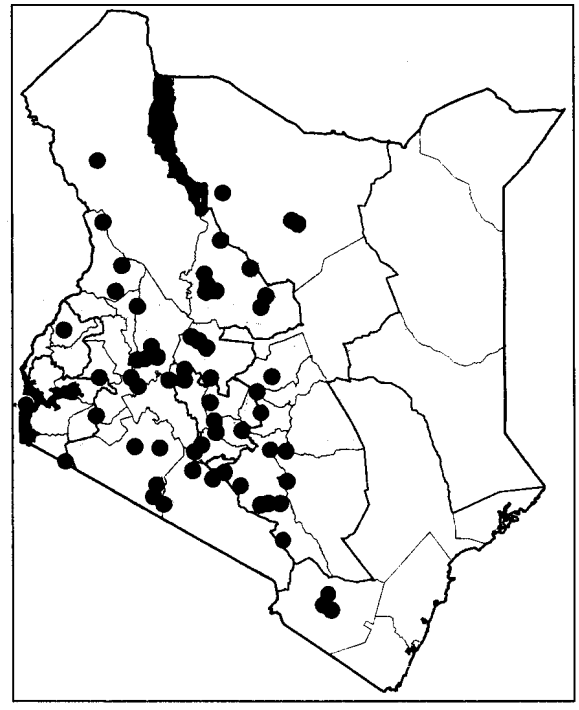
MANAGEMENT: Prune to desired shape if grown as an ornamental.

REMARKS: The berries are dried, ground and made into an extract or infusion like tea, which is taken as an anthelmintic.

With similar seeds that find the same anthelmintic use is *Rapanea melanophloeos* (**English:** Rapanea; **Kamba:** Muketa munene; **Keiyo:** Situtua; **Kikuyu:** Mugaita; **Maasai:** Olengabura; **Marakwet:** Sitotwet; **Meru:** Mugeta, Muthitha; **Nandi:** Situtwa; **Ogiek:** Kwarabariet; **Pokot:** Sirtuot; **Sabaot:** Situtwa). This is an evergreen tree to 15 m with a bark that is grey outside and red inside. Young branches are weak, purple, and with conspicuous leaf scars. Leaves up to 5 x 11 cm, widest in the middle or towards the tip, light green, with dots of resin, glossy above, and clustered at branch tips; leaf stalk and midrib red when young. Flowers clustered below leaves, small, white to yellow-green. Fruit small, purple, round, up to 5 mm. Found from the coast to the western part of the country and most of tropical Africa to South Africa. It is more common in highland forests to altitudes as high as 3,800 m. Most parts of the plant are used as medicine (mainly against intestinal worms). The wood is soft and finds some limited use as timber.

FURTHER READING: Beentje, 1994; ITDG and IIRR, 1996; Kokwaro, 1993; Palgrave and Palgrave, 2002; Ruffo et al., 2002.





Newtonia buchananii

Fabaceae (Mimosaceae)

Indigenous

STANDARD/TRADE NAMES: Newtonia.

COMMON NAMES: Kikuyu: Mukui; **Meru:** Mukui; **Taita:** Makuruma, Mofu, Mkufi; **Taveta:** Mseri.

DESCRIPTION: A tall deciduous tree to 40 m with fine feathery leaves, rather flat topped. In forest valleys the tree can have a clear trunk. BARK: Smooth, light grey, large trees with **strongly fluted buttresses.** LEAVES: Bipinnate like *Acacia,* **12–23 pairs of pinnae**, the leaflets very numerous, **tiny and light green when young.** The leaf stalk has tiny glands between the opposite pinnae. Branchlets with rust-brown hairs. FLOWERS: Clusters of erect **cream spikes to 18 cm, fading brown.** FRUIT: Thin straight **brown pods 15–30 cm, splitting open on one side** only to set free **distinctive red-brown seed to 7 cm with a wing all round.**

ECOLOGY: A large spreading tree of lowland and upland rainforest, riverine, mist and swamp forest. Widespread as far south as South Africa. The tree can be found from the coast to the central districts of Kenya. Conspicuous in eastern Mt Kenya, Embu, Meru, Thika, Taita and Taveta. Also common in Karura Forest and around Chania Falls, Thika, Mbololo Hill and Kasigau Forest in riverine and swamp forest, 600–2,200 m. Agroclimatic Zones II–VI (riverine). Flowers almost throughout the year in Central Province.

USES: Firewood, timber (cabinet work, wagons, bridges), boat building, fodder (leaves), shade, ornamental, mulch, nitrogen-fixing.

PROPAGATION: Seedlings, wildings. Produces root suckers.

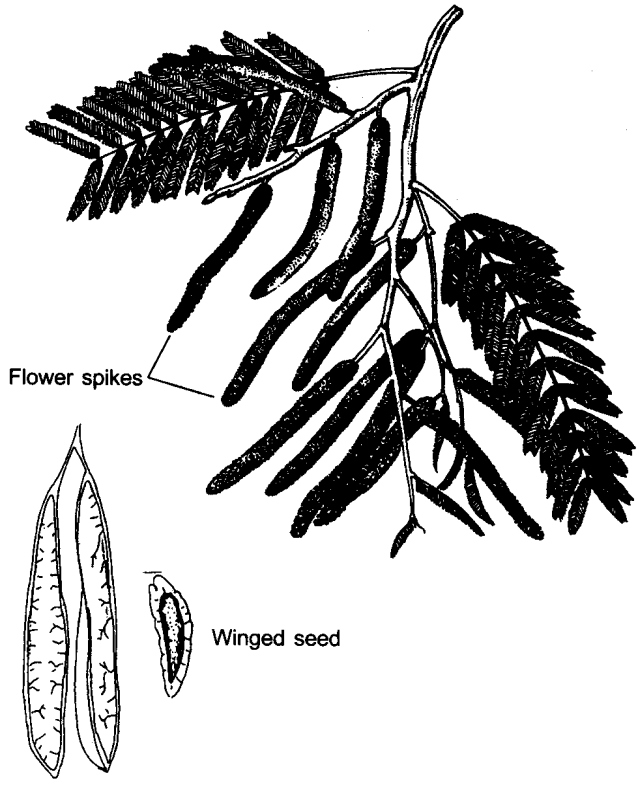
SEED: About 5,300 seeds per kg; germination rate 60–70% within 30–40 days. Collect from the tree crown immediately pods turn brown, sun dry and shake out the seeds.
treatment: Not necessary.
storage: Retains viability for at least a few weeks at room temperature if kept free from insects. Add ash to reduce insect damage.

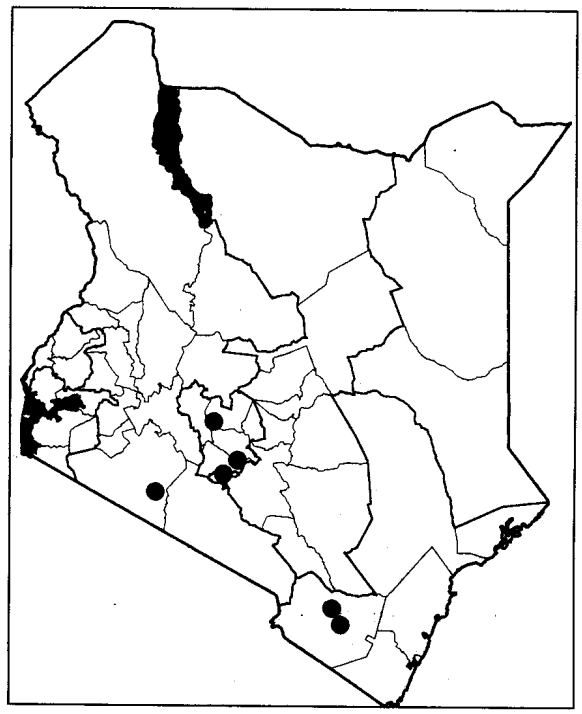
MANAGEMENT: Fairly fast growing once established; needs care at establishment phase.

REMARKS: The brown to red-brown heartwood is durable in water and is used for canoes on Lake Victoria.

N. paucijuga (**Digo:** Mleha; **Giriama:** Mbwaga zembe, **Swahili:** Mche) is a species of the coastal forests, for example in Arabuko-Sokoke Forest where it grows in all types of clay. It produces good-quality timber for carving and other purposes, and also bee forage. This tropical African genus with about a dozen species is known for its hard woods.

FURTHER READING: Beentje, 1994; Noad and Birnie, 1989; Palgrave and Palgrave, 2002; Mbuya et al., 1994; Katende et al., 1995; Albrecht, 1993; Dharani, 2002.





Newtonia hildebrandtii

Fabaceae (Mimosaceae)

Indigenous

COMMON NAMES: **Giriama:** Mbwaga zembe; **Kamba:** Mukame; **Malakote:** Muwarale; **Orma:** Mirole; **Samburu:** Elmugi, Lmuki; **Swahili:** Mgunga; **Tharaka:** Mukame.

DESCRIPTION: A tree to 25 m high with spreading crown. BARK: Grey-brown, rough. LEAVES: Compound, with **4–7 pairs of pinnae**; leaflets in 6–19 pairs, elliptic up to 1 cm long. FLOWERS: Cream or yellow, in **spikes 4–12 cm long.** Leaflets in 6–19 pairs. FRUIT: A dark reddish brown leathery pod up to 28 cm long. Seeds brownish, winged.

ECOLOGY: In Kenya, mainly concentrated at the coast, most of Eastern Province and Samburu District. Common in the dry parts of Machakos, Makueni and Taita-Taveta Districts such as in Kibwezi Forest, Tsavo National Park and along the Voi–Mombasa Road. Mainly found in bushland, but more common in riverine conditions in the dry areas. The tree does not extend very near the coast, 100–1,000 m. Agroclimatic Zones IV–VI.

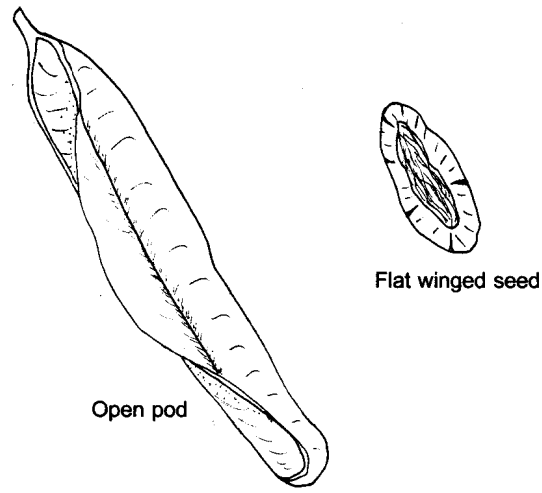
USES: Firewood, posts (for houses), charcoal, carvings, medicine (roots).

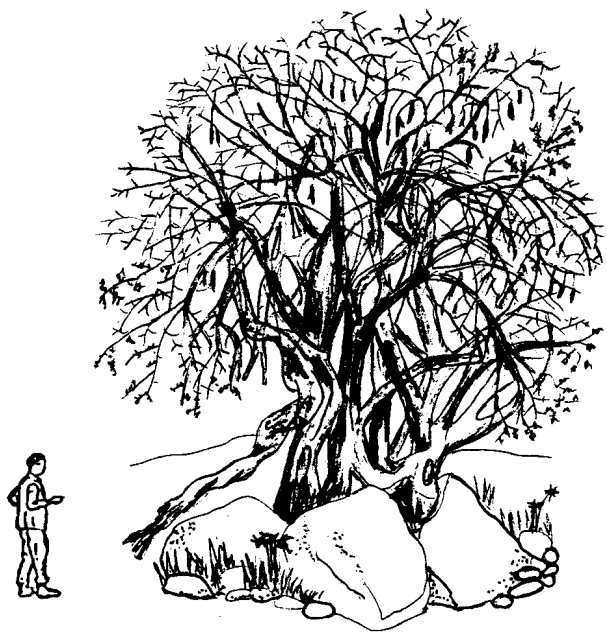
PROPAGATION: Seedlings.

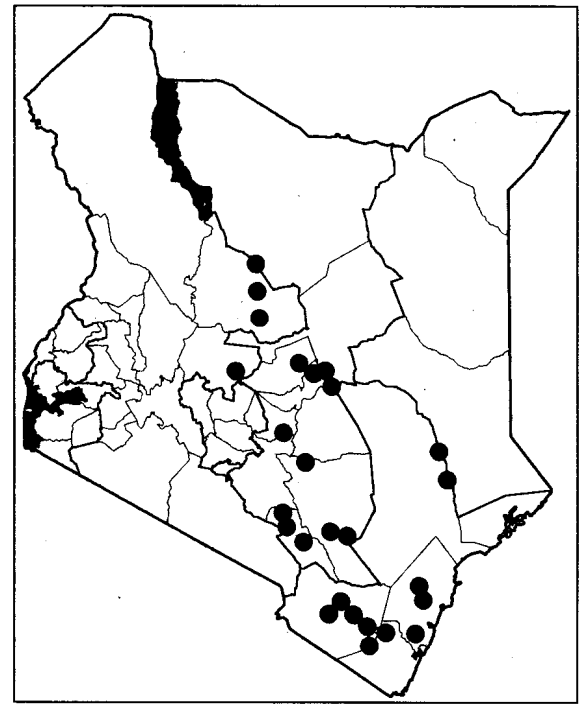
SEED: Trials indicate that germination is poor.

REMARKS: Excellent fuelwood and high-quality charcoal. It is being over-exploited by charcoal burners in Kibwezi and Mwingi. A related species, *N. erlangeri* (**Boni:** Tuari; **Pokomo:** Mukami; **Wardei:** Gesi reebu), is a large tree restricted to lower parts of Tana River and in Lamu and Garissa Districts in low lying bushland and riverine areas. It is common in Boni Forest. Leaves have 1–4 pairs of pinnae. It is a locally important tree used for firewood and building.

FURTHER READING: Beentje, 1994; Kokwaro, 1993; Palgrave and Palgrave, 2002; van Wyk, 1993.







Nuxia congesta

Buddlejaceae

Indigenous

COMMON NAMES: **Kamba:** Mukalaliki, Muu; **Kikuyu:** Muchorowe, Mwanda; **Luhya:** Lubambo, Mmonyo; **Maasai:** Olpiron, Orpiron; **Marakwet:** Chorua; **Nandi:** Chorua; **Kipsigis:** Chorua; **Sabaot:** Chorua, Murosuet; **Tugen:** Kerruwa; **Turkana:** Akwanga, Eonochorie; **Taita:** Mgaraso, Mora.

DESCRIPTION: A deciduous shrub or tree to 20 m. The bole is often short, **twisted, and the low branches droop.** Older trunks often bumpy and fluted and younger trees multi-stemmed. BARK: Rough, brownish grey, shedding long **fibrous strips** with age. Young **branchlets** clearly **3- or 6-sided** with thick nodes where the leaves grow out. LEAVES: Rather leathery, **dull green,** scaly, usually growing out **in 3s,** crowded at the ends of branches, variable in size, shape and texture, hairy or not, oval to rounded, 1–8 cm, **tip rounded or notched,** edge occasionally toothed, a stalk to 2 cm, midrib clear. FLOWERS: Fragrant **white-mauve in dense crowded heads,** flat or round-topped at the ends of branches, the 4 petals hairy outside, hardly longer than the **bell-shaped calyx,** which is sticky and attracts bees. The dry flowers persist on the tree. FRUIT: The **calyx persists** surrounding **small hairy capsules,** which split to set free many seeds.

ECOLOGY: A tree of the upper limits of afro-montane forest and also a shrubby tree of the lower-storey vegetation, normally at forest edges and in drier evergreen highland forest. It grows from Sierra Leone to Sudan, Ethiopia, Eritrea and eastern Africa and as far south as South Africa. In Kenya, it is found in montane forest, in the bamboo zone and on hilltops above the forest margin, 1,550–2,850 m. Agroclimatic Zones II–III.

USES: Firewood, charcoal, medicine (leaves and bark), bee forage, live fence, firesticks.

PROPAGATION: Wildings, seedlings.

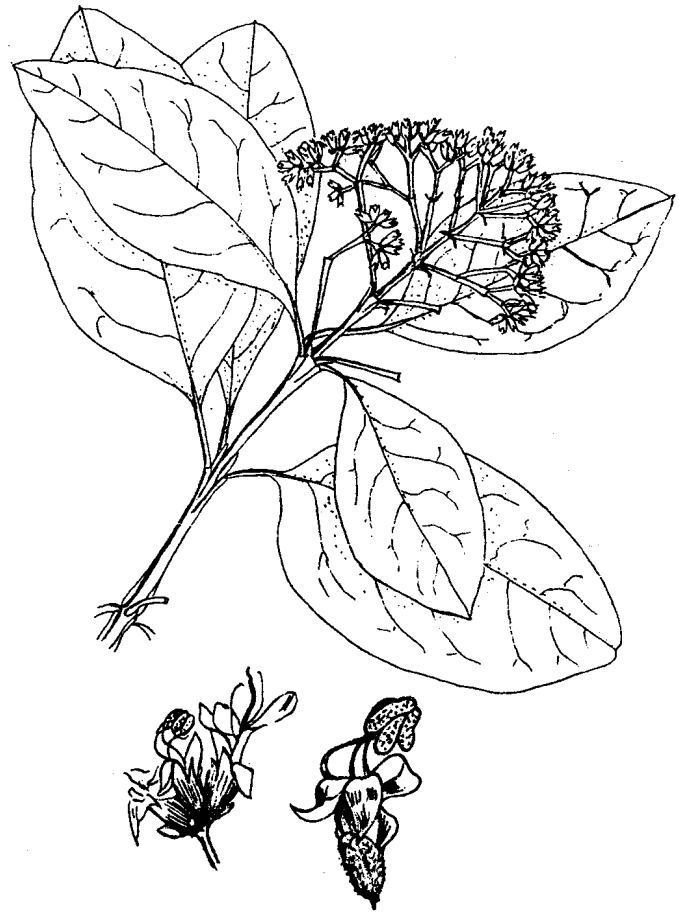
SEED: Collect mature capsules and thresh out seed.
treatment: Not necessary.
storage: Can be stored for some time in a dry and cool place.

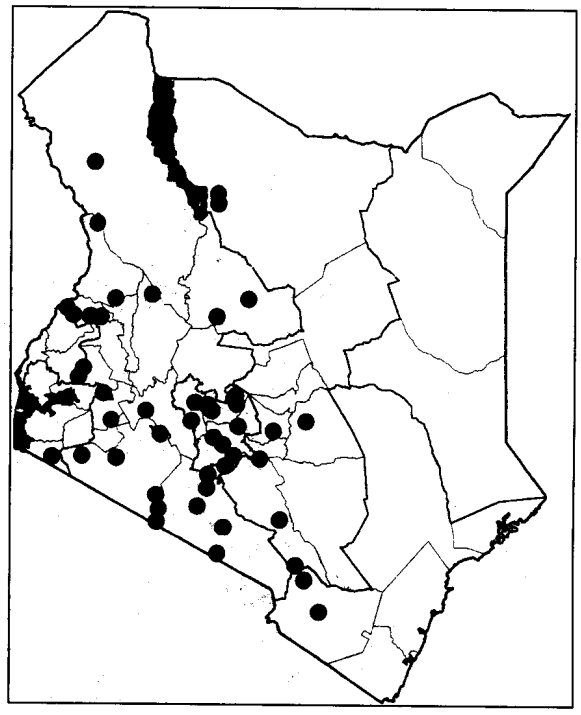
MANAGEMENT: Coppicing.

REMARKS: A good bee-forage tree. Wood is used for construction.

A related species, *N. floribunda* (**Taita:** Mora, Mwarigaso), is a tree to 25 m found on Taita and Ngulia Hills. It is similar to *N. congesta* but can be distinguished by the usually longer leaf stalk in *N. floribunda* (up to 5.5 cm) and the corolla lobes that are hairless outside. The species is also distributed further south to South Africa where it is occasionally planted as an ornamental. Both these species have leaves occurring in 3s or 4s. *Nuxia oppositifolia* (**Samburu:** Loberondo; **Taita:** Mora) can be distinguished by its leaves, which are opposite or nearly so. It is less common than *N. congesta* and is mainly found in riverine vegetation, particularly in mountain areas. The wood of all the 3 species is used in construction and as firewood. In a recent revision, the genus *Nuxia*, with slightly more than a dozen species distributed in Africa, the Arabian peninsula and the Indian Ocean islands, has been put under the new family Buddlejaceae, which has been created from Loganiaceae.

FURTHER READING: Beentje, 1994; Bein et al., 1996; Bekele-Tesemma et al., 1993; Fichtl and Adi, 1994; Katende et al., 1995; Kokwaro, 1993; Noad and Birnie, 1989; Palgrave and Palgrave, 2002; Sommerlatte and Sommerlatte, 1990.





Ocotea usambarensis Lauraceae

Indigenous

COMMON NAMES: **Embu:** Muzura; **English:** East African camphor wood; **Kikuyu:** Muthaiti; **Meru:** Muura; **Taita:** Mkongo.

DESCRIPTION: Mature trees may reach 40 m with a massive trunk up to 3 m across. Young trees are green-grey with a conical shape. Leaves and wood are camphor scented, but not the bark. Branchlets are slightly hairy. BARK: Grey, granular, **then red-brown, scaling** in large flakes. LEAVES: Dark green, oval to rounded, **grey-white below, the veins wavy and brown, the edge thickened.** FLOWERS: Separate male and female flowers, 8–10 yellow–white–green flowers, hairy and stalked. FRUIT: A smooth green drupe, very small, seeds surrounded by pulp.

ECOLOGY: A majestic evergreen timber tree widely distributed from the eastern parts of the Democratic Republic of Congo and Rwanda, throughout eastern Africa to northern parts of Malawi and Zambia. It is more common in wetter forests. For optimum growth it requires deep fertile soils with good drainage. Once dominant in the wet forests of the eastern Aberdares and southern Mt Kenya, up to 2,600 m, also in Taita Hills, but now rare everywhere due to over-exploitation. Agroclimatic Zones I–II.

USES: Firewood, charcoal, timber (joinery), poles, furniture, veneer, plywood, panelling, medicine (roots and inner bark).

PROPAGATION: Root suckers, seedlings.

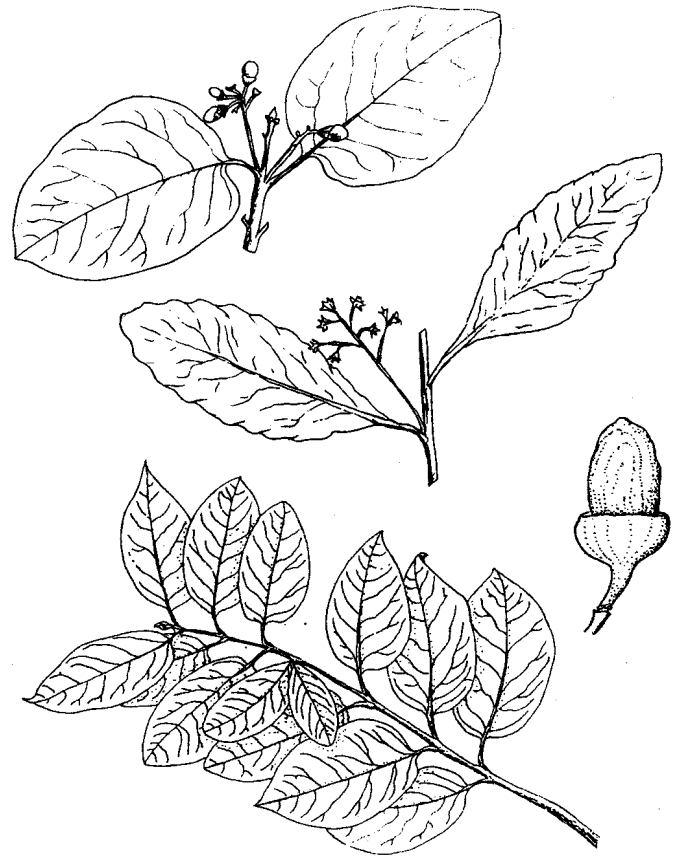
SEED: Fruit may be attacked by insects, but the tree produces plenty of seed. About 1,500 seeds per kg. Germination rate at the most 45% in 30–45 days, but it is often sporadic, within 2–3 months. Pulp should be separated from seed by rubbing and floating in water.
treatment: Not necessary.
storage: Sow seed immediately after extraction. Storage in moist sawdust can prolong the lifespan of the seed a little.

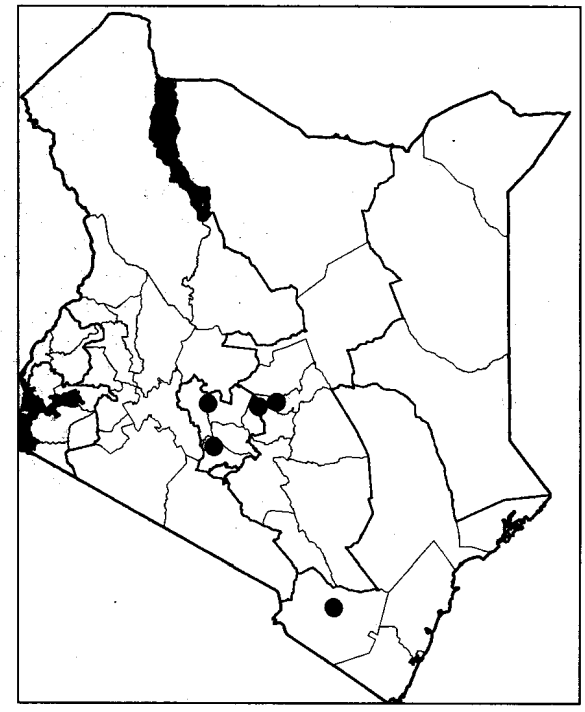
MANAGEMENT: Fast growing.

REMARKS: Planting of this useful, valuable (and now rare) tree should be encouraged. The timber is one of the best for furniture, although not resistant to termites. The tree is easily propagated from root suckers, a practice widely used in northern Tanzania.

O. kenyensis (**Kikuyu:** Muthaiti; **Kipsigis:** Mututuriet; **Tugen:** Knaget) is another evergreen tree to 30 m with a dark grey flaking bark. It can be distinguished from the other species by its leaves, which are greenish beneath, and the branchlets, which are not hairy. This species too has good timber. It is found in highland mist forests 1,150–2,100 m, from Taita Hills north through the central Kenya highlands, including Mt Kenya, north to Mt Kulal near Lake Turkana. The genus *Ocotea* has many valuable timber species. Most of its several hundred members are, however, tropical American and, to a lesser extent, Indian Ocean island species.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Albrecht, 1993; Beentje, 1994; Katende et al., 1995; Kokwaro, 1993; Mbuya et al., 1994.





Olea capensis subsp. *macrocarpa* (*O. hochstetteri*) Oleaceae

Indigenous

COMMON NAMES: **English:** East African olive, Elgon olive; **Keiyo:** Loliondet, Bomondet; **Kikuyu:** Mucarage; **Luhya:** Omutukuyu, Mutukuyu; **Luhya (Bukusu):** Kumutamaywa; **Kipsigis:** Msaita; **Maasai:** Ololiondoi, Ololiondo; **Marakwet:** Musat; **Meru:** Muukuru, Mucharage; **Nandi:** Murguiywet, Murguiwet; **Ogiek:** Muruguguyet, Masaieta, Mosaita; **Pokot:** Muruuguyet; **Sabaot:** Masgat; **Samburu:** Loliontoi; **Turkana:** Eikwangat.

DESCRIPTION: A tree to 20 m or more with a straight bole, large ascending branches and a small crown. Smaller branches whitish-grey to light brown with conspicuous lenticels. BARK: Pale grey to white, smooth or grooved vertically. LEAVES: Stiff, in opposite pairs, **underside not white** (in contrast to *O. europaea* subsp. *cuspidata*). Widest in the middle, **up to 9 x 3 cm (2–3 times as long as wide)**, usually **sharply tipped, leaf stalk 1–1.5 cm long**, margin wavy, midrib pale and clear below, with scales. FLOWERS: Very many, small and white, in sprays to 8 cm long at the tip of branchlets. FRUIT: Purple with pointed apex. Oval, about 2 cm long.

ECOLOGY: A tree found from Ethiopia to West and Central Africa and south through Kenya, Uganda and the Democratic Republic of Congo to Angola and South Africa. Mainly found in upland dry evergreen forest. Found in similar places to *O. europaea* subsp. *cuspidata* but preferring higher-rainfall forest. In Kenya, widely distributed, occurring from Coast Province (Taita Hills) through to Western and Nyanza Provinces and also highland parts of northern Kenya. Altitude 1,100–2,600 m. Agroclimatic Zones II–III.

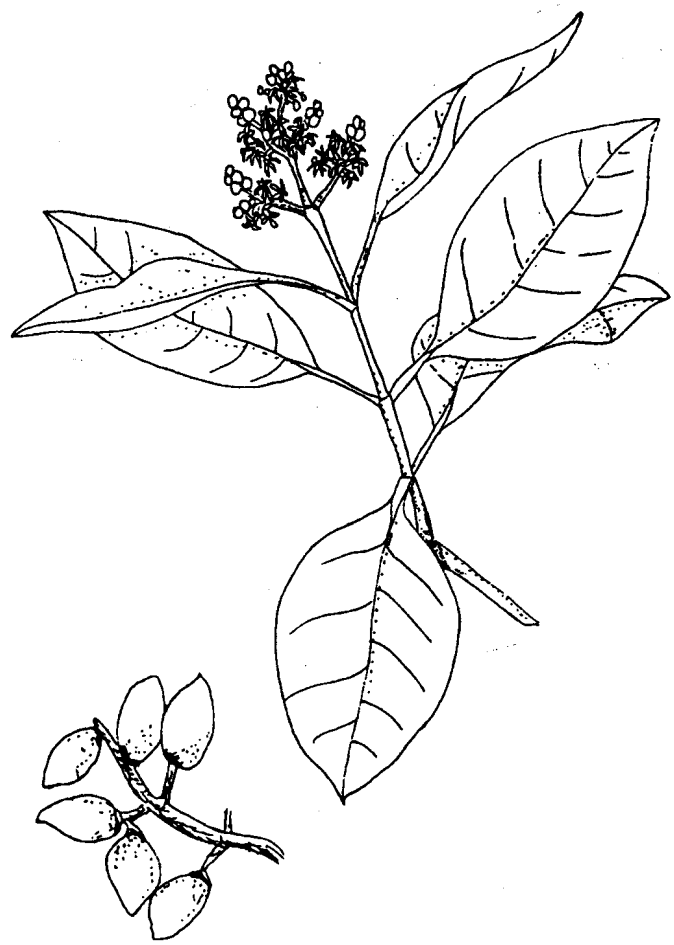
USES: Firewood (branches), charcoal, timber, furniture, veneer, panelling, flooring, tool handles, medicine (bark), bee forage, ceremonial (Maasai).

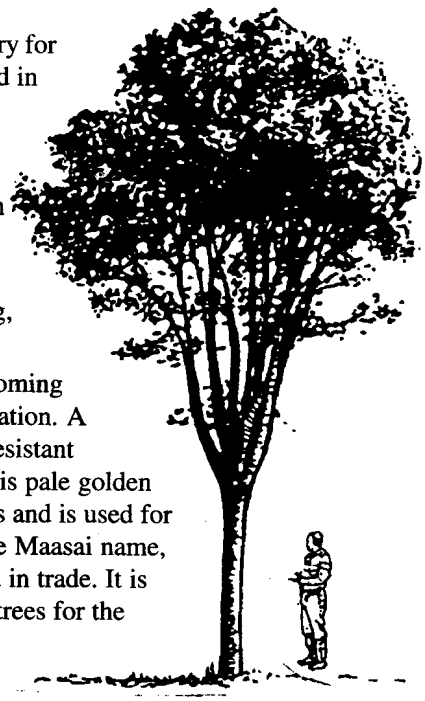
PROPAGATION: Seedlings, wildings.

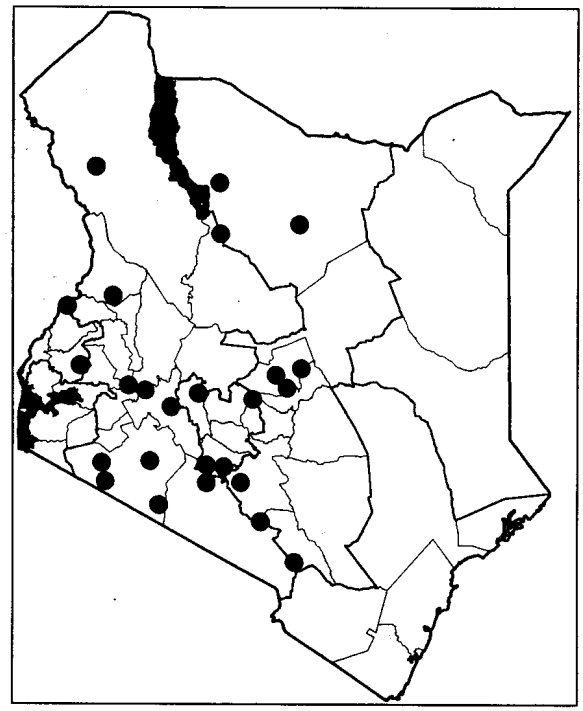
SEED: Slow germination; 1,500–3,000 seeds per kg. Pulp should be separated from the seed by rubbing and cleaning in running water. Then dry seed for storage or sow immediately.
treatment: Not necessary for fresh seed, soak dry seed in cold water for 48 hours.
storage: Seed can be stored for some months, but it is best to use fresh seed.

MANAGEMENT: Slow growing; lopping, pollarding, coppicing when young.

REMARKS: This tree is becoming rare due to over-exploitation. A very valuable termite-resistant timber tree. The timber is pale golden brown with paler streaks and is used for high-class furniture. The Maasai name, 'Loliondo' is often used in trade. It is among the most sacred trees for the Maasai, who shout the name to show the seriousness of a situation or matter. Neither do the Maasai use it as firewood. Over-exploitation has made it rare in Kenya. A closely related species, *O. welwitschii* (**English:** Elgon olive; **Kipsigis:** Msaita; **Luhya:** Mutukuyu; **Luhya (Bukusu):** Kumutamaywa; **Nandi:** Murguiywet, Murguiwet; **Sabaot:** Masgat) is distinguished from the above species in that the leaf is nar-



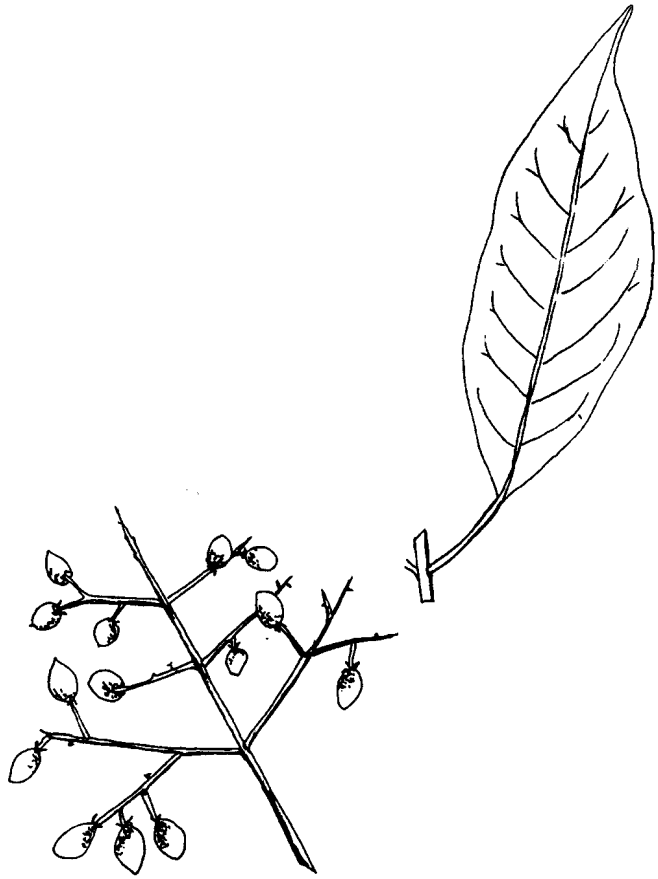




Olea capensis *subsp.* macrocarpa (cont)

rower, to 5 x 15 cm (3–4 times as long as wide), on a stalk about 2–4 cm long, the tip drawn out and pointed. The fruit is narrowly oval, about 1 cm long. This species had briefly been put under *O. capensis* but is now recognized as separate. The 2 are easily distinguished by the leaves. This is a tall tree to 25 m or more, and often with a straight bole, narrow crown and occasionally buttressed. Branches are grey but with less prominent lenticels. Flowers small, numerous, white, borne on a large, sparsely branched flower head appearing at branch tips. This species occurs from eastern Africa south to Zambia and Angola in lowland as well as upland evergreen forests. In Kenya it is mainly found in the western region. The wood is used in construction and for timber. Planting should be encouraged. The genus *Olea*, with about 20 species, is mainly found in the Old World.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Albrecht, 1993; Backes and Ahenda, 1998; Bekele-Tesemma et al., 1993; Beentje, 1994; Fichtl and Adi, 1994 (subsp. *hochstetteri*); Katende et al., 1995; Kokwaro, 1993; Mbuya et al., 1994; Sommerlatte and Sommerlatte, 1990 (subsp. *hochstetteri*).



Olea europaea subsp. *cuspidata* (*O. africana*)

Oleaceae

Indigenous

STANDARD/TRADE NAMES: Brown olive, Wild olive.

COMMON NAMES: **Boran:** Ejarse; **English:** African wild olive; **Kamba:** Muthata; **Keiyo:** Yemit; **Kikuyu:** Mutamaiyu; **Kipsigis:** Emitiot; **Luhya (Bukusu):** Kumunyubuti; **Luo:** Kang'o; **Maasai:** Oloirien, Olorien; **Marakwet:** Yemit; **Meru:** Muthata, Mutero; **Nandi:** Emidit; **Ogiek:** Yemdit; **Sabaot:** Yemit; **Samburu:** Tamiyai; **Somali:** Wera; **Taita:** Mkumbi; **Tugen:** Yemit; **Turkana:** Euriepei.

DESCRIPTION: An evergreen tree to 15 m, with a rounded crown and grey-green foliage, trunk often crooked. BARK: Rough grey to dark brown, longitudinally fissured, **branchlets white, dotted with breathing pores.** LEAVES: Stiff, **narrowly oval, sharply pointed, in opposite pairs,** glossy dark-green above, **underside pale to white or golden,** the midrib prominent, to 8 cm. FLOWERS: Small, white to cream, in branched heads to 5 cm arising laterally on the branches or terminally. FRUIT: **Oval, with a pointed tip, fleshy, to 1 cm,** purple and bitter–sweet when ripe.

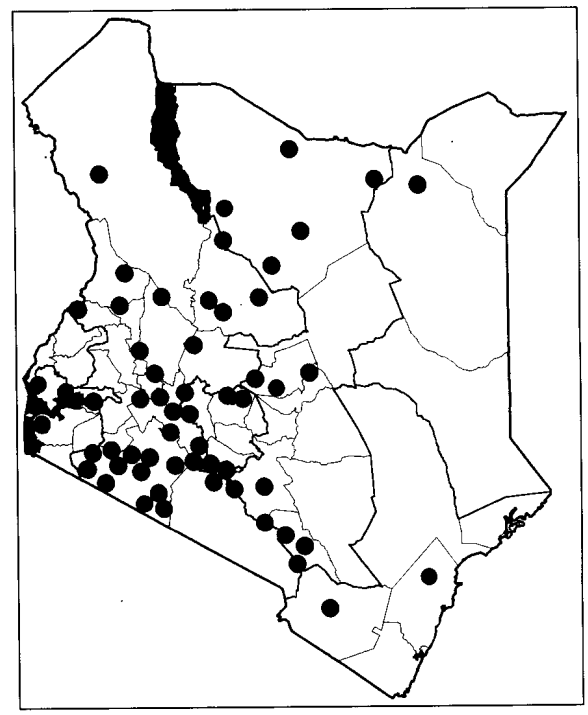
ECOLOGY: Found from Ethiopia to southern Africa, also on the Arabian peninsula and to India and China. In Kenya, found in most inland highland areas from Taita Hills to west and northern Kenya. Common in dry *Olea–Juniperus–Podocarpus* forests and forest margins, 950–2,500 m. Found on rocky hillsides, forest margins and along dry riverbeds, where it may occasionally form a pure stand. Does best in good forest soil, but once established, can withstand poor soils with little moisture. Agroclimatic Zones II–III.

USES: Firewood, charcoal (for cleaning calabashes), timber (house construction), furniture, poles, posts, flooring, panelling, carvings, utensils, clubs, walking sticks, seasoning (fermentation and flavouring milk), edible fruit, soup, medicine (stem, bark), bee forage, shade, ornamental, windbreak, ceremonial, toothbrushes.

PROPAGATION: Wildings, seedlings (difficult to raise).

SEED: A poor seeder; about 14,000 seeds per kg. Low germination rate; 20%, rarely higher, in 20–45 days. The collection should be done immediately after the fruit turns to purplish black because of the competition by birds. After collection, spread out in a thin layer for 2–3 days to ripen. Pulp should be separated from seed by rubbing and cleaning in running water, then dry seed for storage or sow immediately. It is also possible to collect depulped seeds from the ground.
treatment: Soak dried seed in cold water for 48 hours. Alternatively, crack the seed cover, but taking care not to damage the seed.
storage: Seed can be stored for some time at room temperature, but best to use fresh seed.

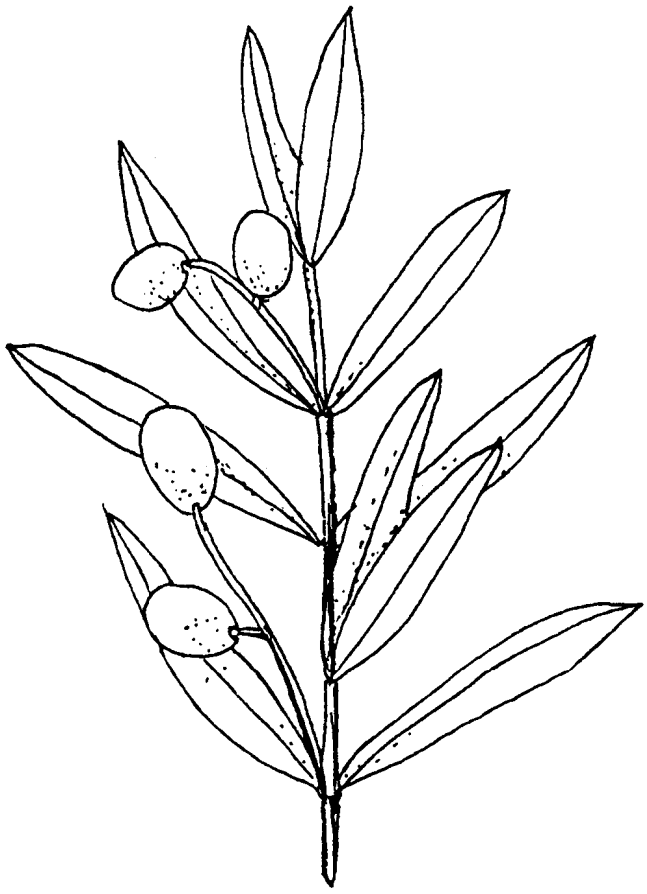
MANAGEMENT: Slow growing; pruning, thinning where necessary, pollarding.



Olea europaea subsp. *cuspidata* (cont)

REMARKS: This tree has one of the heaviest woods known. It is popular with the Maasai for making *rungu* (clubs). The poles are strong and are used to support the heavy earth roofs of traditional Maasai houses. The charcoal is used for cleaning calabashes and the sticks for smoking milk gourds. Burning branches are used for flavouring soup and giving it a nice smell. It is an important ceremonial tree among the Maasai. As is the case with the ancient 'olive branch' of peace, they burn green branches in all ceremonies for blessings, peace and good luck. This is the most valuable firewood plant. It burns easily and brightly, giving a good scent. Because of its evergreen nature, the tree provides excellent shade. Fruit have a thin mesocarp and therefore are not used to produce olive oil. *Olea europaea* is a complex of several subspecies and varieties. Subsp. *europaea* is the large-fruited type found in the Mediterranean region from which the olive oil widely used in cooking is extracted. The fruits are also preserved and eaten. Olives have been in cultivation in the Middle East for over 5,000 years.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Albrecht, 1993; Backes and Ahenda, 1998; Beentje, 1994; Bein et al., 1996; Bekele-Tesemma et al., 1993; Dharani, 2002; Katende et al., 1995; Kokwaro, 1993; Palgrave and Palgrave, 2002; van Wyk, 1993; Verheij and Coronel, 1991; Mbuya et al., 1994.



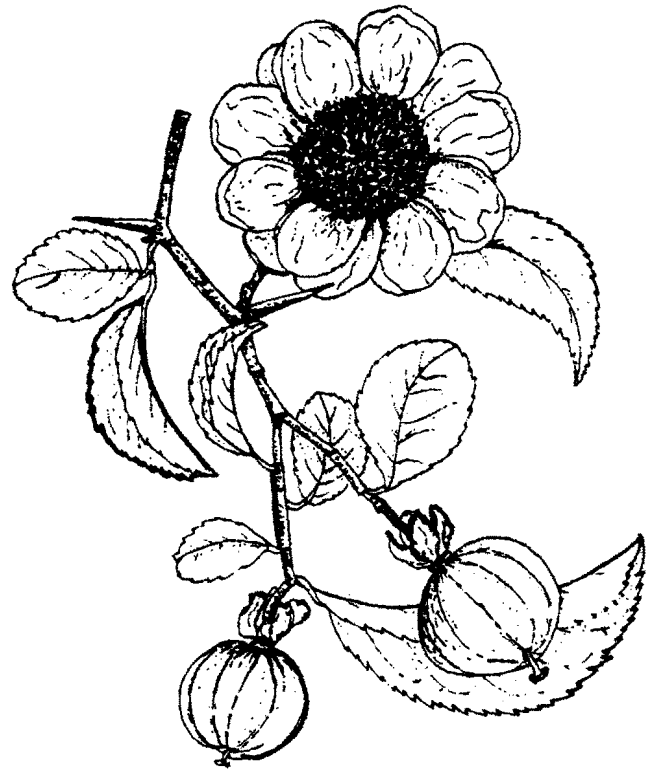
Oncoba spinosa

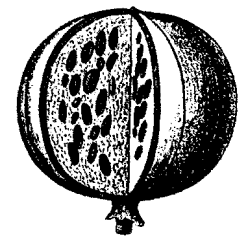
Flacourtiaceae

Indigenous

COMMON NAMES: **Boni:** Mawachandovu; **Boran:** Akoku; **Kikuyu:** Muigaigua, Kiage; **Kipsigis:** Tungurwet; **Luo:** Saa; **Malakote:** Muchaagu; **Meru:** Mwege; **Orma:** Shiko; **Pokot:** Kukugho onyot; **Pokomo:** Muh'puju, Mpuju; **Sabaot:** Kimesan; **Somali:** Siko; **Tugen:** Tongurua, Takuriya.

DESCRIPTION: A semi-deciduous spiny shrub or small tree 4–10 m, much branched to a rounded bushy crown. BARK: **Smooth, pale grey to brown, young branches speckled with lenticel dots,** becoming dark brown, scaly with age. Branches with **straight, axillary spines to 8 cm, slender and sharp,** while the main trunk may have shorter compound thorns. LEAVES: Alternate, leathery, **strong shiny green,** often recurved, broadly oval, about 8 cm long, margin with **small rounded or pointed teeth,** sometimes few, base tapering to a short stalk, tip well pointed. FLOWERS: **Solitary, showy and fragrant, white** or pale pink, up to **9 cm across,** on stalks 1–2 cm, with 8–10 white overlapping **petals about 3 cm long,** twice the size of 4 sepal lobes, **a mass of golden stamens in the centre,** the **green-cream central stigma knob about 4 mm across** (seen clearly on young fruit). FRUIT: **Round, shiny red-brown when ripe, 5–6 cm in diameter,** the hard 'shell' marked with **8 faint lines,** the old calyx persisting. Inside, shiny brown seeds lie in a dry thick yellow-brown pulp, edible but sour.





Fruit

ECOLOGY: A spiny tree or shrub well distributed throughout tropical Africa over a wide range of altitude north to the Arabian peninsula and south to South Africa. In Kenya, widely distributed throughout the country in humid riverine forests and moist bushland, 0–1,800 m. Found, for example, along Tana River and in Western Province. Agroclimatic Zones I–III.

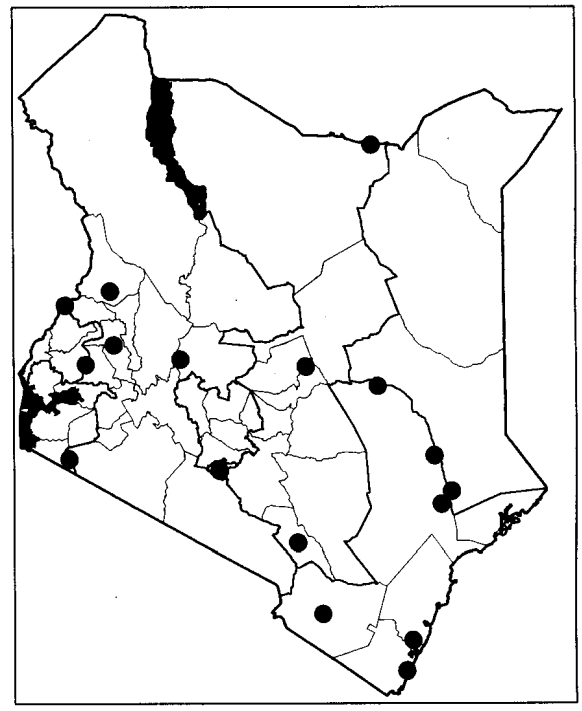
USES: Firewood, timber (furniture), edible fruit, medicine (roots), ornamental.

PROPAGATION: Seedlings, wildings.

SEED:

treatment: Break up and mash the fruit to extract the seed.

REMARKS: When seeds dry in the fruit they can be used as rattles by children and dancers. The species has potential as an ornamental, but is not much liked in cultivated areas because of its thorns, and it is also said to compete with crops. It is an important medicinal plant. The wood is rather soft. The related species *Oncoba routledgei* (**Kikuyu:** Mwigaigwa; **Kipsigis:** Takungwuiet; **Luhya:** Shirakalu; **Luo:** Sao; **Meru:** Mwege) is a shrub or a small tree to 10 m. It has mainly a western Kenya distribution. It is found in moist highland areas, especially along rivers. The leaf margins have larger teeth (>1 mm). Fruit shiny yellow to 6 cm. Like *O. spinosa*, this species is used a great deal in traditional medicine. It has now been exterminated in some regions as a result of over-harvesting. The genus *Oncoba* with only a few members occurs naturally only in Africa.



FURTHER READING: Beentje, 1994; Bein et al., 1996; Blundell, 1987; Kokwaro, 1993; Noad and Birnie, 1989; Palgrave and Palgrave, 2002; Ruffo et al., 2002; Storrs, 1979; van Wyk, 1993.

Opilia campestris var. *campestris*

Opiliaceae

Indigenous

COMMON NAMES: **Boran:** Godgodub, Goldigoloba; **Ilchamus:** Afuguba; **Kamba:** Muvuluvulu; **Maasai:** Engangolol, Engirushai; **Orma:** Afgub; **Somali:** Afgub; **Tharaka:** Kauru; **Wardei:** Afgub.

DESCRIPTION: A deciduous shrub to 5 m high, **appearing spiny when leafless** because of the numerous short twigs. BARK: Grey-brown or yellowish, splitting longitudinally, with corky lenticels forming ridges. LEAVES: Usually widest in the middle, up to 4 x 5 cm, **hairy when young**, later becoming hairless. FLOWERS: Small, yellowish green or cream, in racemes (flower stalks growing from a single axis) that are **scaly on the surface** (due to bracts) and **packed together enough when young** to appear cone-like, **appearing before the leaves are fully expanded**. FRUIT: Round but slightly elongate, widest in the middle, about 1 cm across, pale green to purple, succulent.

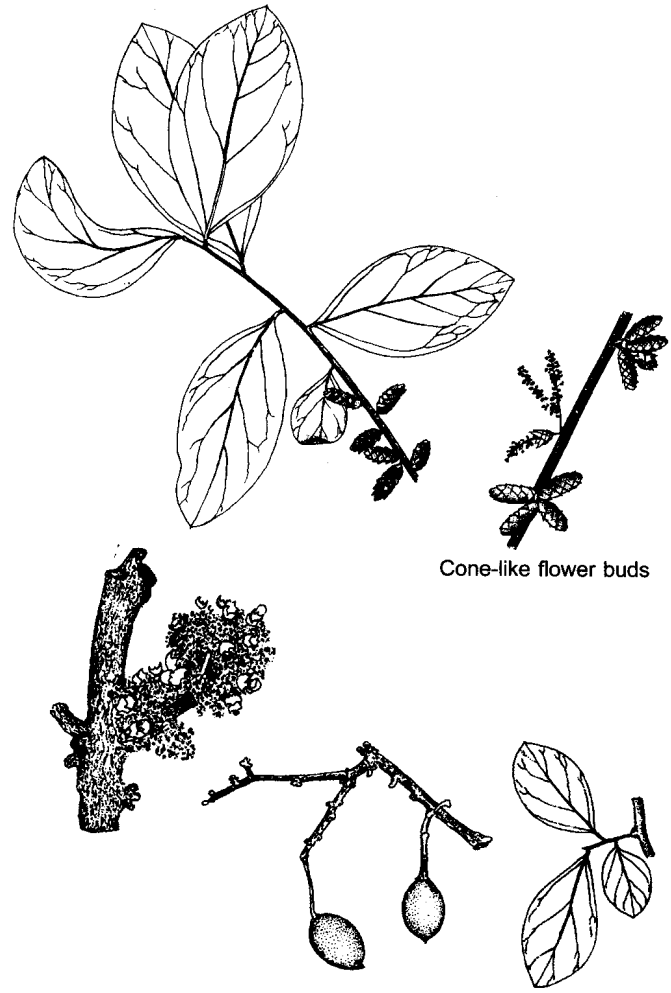
ECOLOGY: Found in Kenya and Tanzania south to Mozambique. In Kenya, widely distributed in semi-arid parts of Eastern, North Eastern and Coast Provinces and also Kajiado and Samburu Districts. It is a common plant in Kitui District. It occurs in dry deciduous bushland and wooded grassland, often on anthills; 0–1,500 m. Agroclimatic Zones V–VI.

USES: Edible fruit, fodder (leaves browsed by camels, goats), ornamental, toothbrushes.

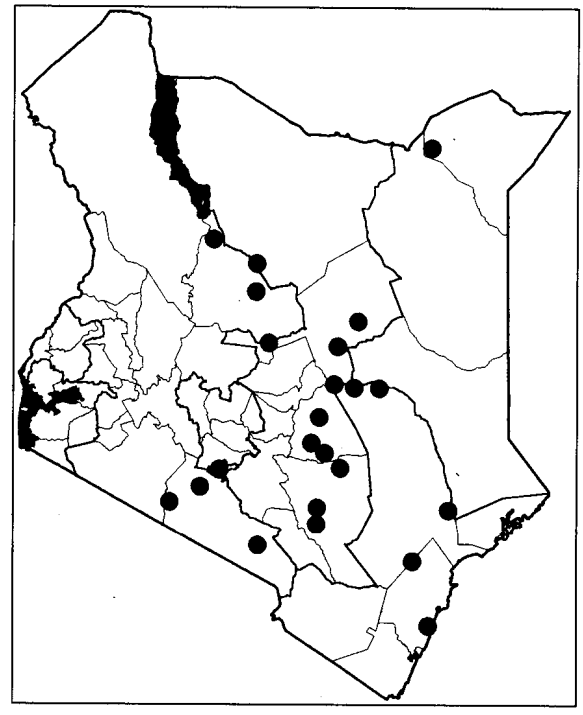
PROPAGATION: Seedlings, wildings.

REMARKS: This species has potential as a homestead plant, where it can serve both as a source of fruit and as an ornamental. A related and very similar species is *Opilia amentacea* (**Giriama:** Msigande; **Ilchamus:** Afuguba; **Kamba:** Muvuluvulu; **Maasai:** Engirushai; **Swahili:** Msigande), which is usually a liana, but occasionally a weak shrub. The bark resembles that of *O. campestris*. Leaves are alternate, on short stalks about 5 mm, widest in the middle and up to about 5 x 10 cm, shiny above, stiff, with a rounded or sharp tip. Flowers resemble those of *O. campestris* but racemes are longer (up to 5.5 cm) and the fruits resemble those of *O. campestris* but are larger (to 1.5–2 cm long), pale yellow to orange. The fruit are edible. This species occurs in southern, coastal, western and north-western parts of Kenya in bushland, especially *Acacia* woodland and riparian vegetation. It is found in most of eastern Africa, and is distributed in tropical Africa as far south as Angola. The wood is soft and used for toothbrushes and small household utensils. The flexible stems are also made into seats. When climbing on other plants such as acacias, the plant provides good shade. The genus *Opilia* has only 2 species.

FURTHER READING: Beentje, 1994; Ruffo, 2002 (*O. amentacea*).



Cone-like flower buds



Ormocarpum kirkii

Fabaceae (Papilionaceae)

Indigenous

COMMON NAMES: **Boni:** Mpotscho ndovu; **Boran:** Butiye; **Digo:** Chitadzi, Mkitaji; **Giriama:** Mkitaji, Kitwadzi; **Kamba:** Muthingii, Muema nzou; **Maasai:** Enkike empan, Engese mbaus; **Sanya:** Gur kolu; **Somali:** Lebi sauwer; **Swahili:** Mkitaji.

DESCRIPTION: A shrub or small tree 2–9 m. BARK: Rough and grey. Young twigs with a few white hairs. LEAVES: Usually **clustered on short side shoots** with **7–13 pairs of leaflets plus a terminal leaflet,** each **oblong, about 1 cm,** wider at the tip, which has a sharp point, the edge tightly rolled under, darker above than below, leaflets well spaced along the stalk with some hairs. FLOWERS: **Large, pink, deep mauve in the centre, pea-shaped,** towards the ends of branches, 1–3 together on short stalks, the standard petal about 1.5 cm long, wider across, **ovary and stalk densely hairy,** corolla remains around the fruit. FRUIT: A **very small pod, barely 2 cm,** hairy, curled into a ring within the brown petals; rarely maturing due to insect attack, so often there is only one perfect seed.

ECOLOGY: Found from the horn of Africa south to Mozambique, and the northern part of South Africa and Namibia. In Kenya, mainly found in the eastern dry lowlands of the country and coastal region. Very common in Machakos, Kitui, Makueni, Kajiado, Taita-Taveta and Kwale Districts in dry bushland. Agroclimatic Zones IV–VI. Flowers in May in Machakos District.

USES: Firewood, light construction, medicine (roots, ash after burning, leaves), fodder (goats, camels), walking sticks, ornamental.

PROPAGATION: Normally coppices very well, so natural regeneration may be sufficient in sites where the plant exists.

SEED: Seeds germinate easily, wildings.

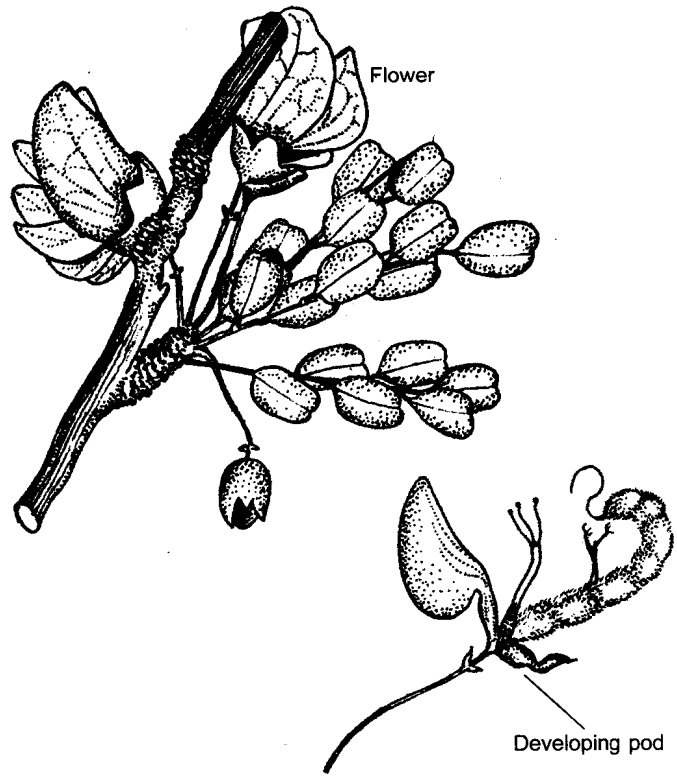
REMARKS: The bush or tree is covered with very many large, beautiful mauve flowers at certain seasons. *Ormocarpum* in Kenya is represented by about 6 species. Three others are common: *O. trichocarpum, O. trachycarpum* and *O. keniense.*

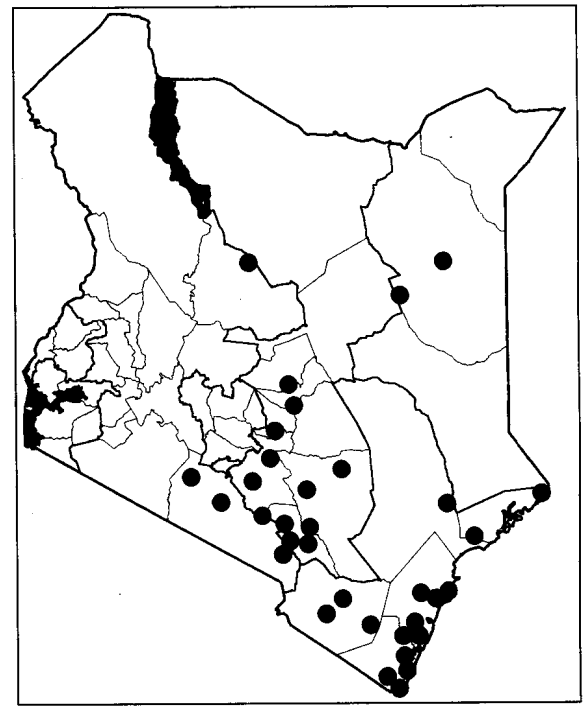
O. trichocarpum (**Boran:** Butiye; **Gabra:** Butiye; **Kipsigis:** Koipeyot ap tirita; **Luo:** Otamo liech, Det; **Maasai:** Enkike empan, Engese mbaus; **Pokot:** Makaran; **Samburu:** Lekweita; **Turkana:** Eseperai) is similar to *O. kirkii* but has a fruit without a persistent flower and 4–7 leaflets 2–3.5 mm long. The fruit has long stiff hairs to 7 mm long. It is mainly found in the moist lowlands of western Kenya, including the Lake Victoria basin.

O. trachycarpum (**Boni:** Mpotscho ndovu; **Boran:** Butiye; **Digo:** Chitadzi, Mkitaji; **Gabra:** Butiye; **Giriama:** Mkitaji, Kitwadzi; **Kamba:** Muthingii, Muema nzou; **Kipsigis:** Koipeyot ap tirita; **Luo:** Otamo liech, Det; **Maasai:** Enkike empan, Engese mbaus; **Pokot:** Makaran; **Samburu:** Lekweita; **Sanya:** Gur kolu; **Somali:** Lebi sauwer; **Swahili:** Mkitaji) is similar to the above species but has 9–17 leaflets per leaf, and a persistent flower. Unlike *O. kirkii*, the fruit protrudes beyond the flower remains and is straight.

O. keniense resembles *O. kirkii* in that the fruit is small, to 1.5 cm, and hidden within the flower but generally has more (11–19) but smaller leaflets (to 2 x 8 mm). It is more common in dry bushland. *Ormocarpum* was heavily used in refugee camps in north-eastern Kenya, for example at Dadaab, to meet needs for firewood and small-size building and fencing material. The genus as a whole has about 20 members found in the Old World.

FURTHER READING: Beentje, 1994; Bein et al., 1996; Blundell, 1987; Kokwaro, 1993; Palgrave and Palgrave, 2002; Ruffo et al., 2002.





Osyris lanceolata

Santalaceae

Indigenous

STANDARD/TRADE NAMES: East African sandalwood.

COMMON NAMES: **English:** East African sandalwood; **Kamba:** Kithawa; **Kikuyu:** Muthithii; **Kipsigis:** Kepurwet; **Maasai:** Olosesiai; **Marakwet:** Jemokabyl; **Meru:** Muchai; **Pokot:** Murmurwo; **Swahili:** Msandali; **Taita:** Kijulu.

DESCRIPTION: An evergreen shrub or small tree 1–6 m, smaller branches drooping. BARK: Smooth, grey, later thick and rough, branchlets obscurely angled. LEAVES: Simple and alternate, crowded along the stems, grey, blue or yellow-green, slightly fleshy, becoming tough and leathery, narrow oval, 1–7 cm long with a fine sharp tip, **edge tightly rolled under, the 2-mm stalk runs down the stem forming a ridge.** FLOWERS: **Small, pale yellow-green** on **few-flowered short heads from leaf axils,** sepal tube pale green with 3–6 lobes that are yellow-green like the disc, dull orange-green anthers. FRUIT: Waxy, oval–rounded **berries about 1 cm long, green-yellow ripening shiny red,** fleshy and edible, containing one seed.

ECOLOGY: Distributed in Ethiopia, Kenya, Burundi and south to South Africa. In Kenya, found from Taita District and much of Eastern Province westwards to western Kenya. Normally found in rocky sites where the original vegetation has been cleared. Also in margins of dry forests, evergreen bushland, grassland, thicket, 900–2,550m. Agroclimatic Zones II–IV.

USES: Firewood, timber, poles, utensils (pestles), edible fruit (fresh, seeds discarded, eaten only in emergencies), drink (tea made from the roots and bark, tonic in soup), medicine (bark, roots), ornamental, soil conservation, fibre, dye (red, from the roots), perfume (wood, roots).

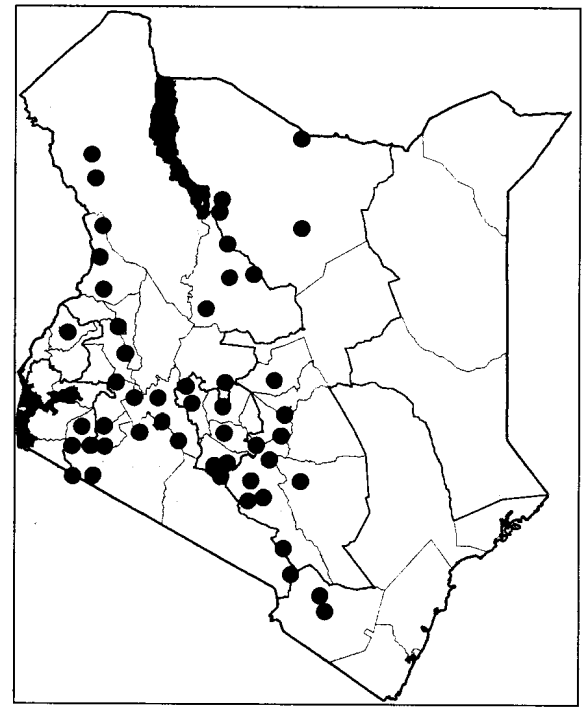
PROPAGATION: Seedlings, root suckers.

SEED: 10,000–11,000 seeds per kg.
treatment: No pretreatment is required, but nicking the base of the seed improves germination. Germination reaches 60% after 6 weeks.
storage: The seeds cannot be stored.

MANAGEMENT: Very slow growing. Requires the shade of nurse trees in the early stages of growth.

REMARKS: An endangered tree, having been heavily exploited in the past for extraction of perfume. Farmers should be encouraged to plant this tree on their farmlands. Bedsteads are made from the fragrant timber. Roots and bark provide a blood tonic. The genus *Osyris* has only a few members, mainly in Africa, Europe and Asia.

FURTHER READING: Beentje, 1994; Mbuya et al., 1994; Palgrave and Palgrave, 2002; Ruffo et al., 2002.



Oxystigma msoo

Fabaceae (Caesalpiniaceae)

Indigenous

COMMON NAMES: **Pokomo:** Mchochozi.

DESCRIPTION: A large tree to 40 m or more. BARK: Pale grey, **slightly flaking**. LEAVES: Compound, with **5–7 alternate leaflets**, up to 7 x 14 cm. Leaflets widest at the middle or towards the base. Tip pointed, base usually rounded. FLOWERS: Borne in a **loosely branched inflorescence** (flowering part or branch) to 17 cm long, **each branch ending in a spike** to 12 cm long or more. Individual flowers small, less than 3 mm, yellowish white; petals absent;10 stamens. FRUIT: Round but slightly elongate, **flattened, asymmetric**, 1-seeded, somewhat winged, to 6 cm long.

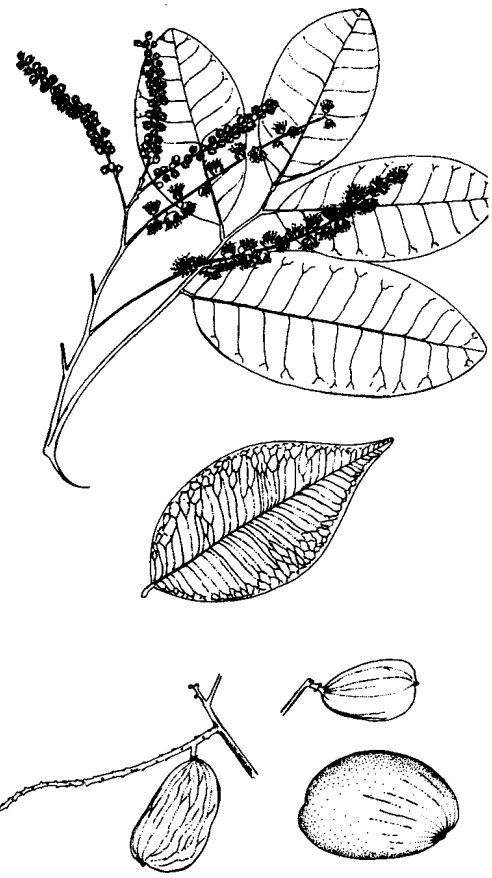
ECOLOGY: Restricted to Tanzania and Kenya. Found mainly in evergreen riverine forests, e.g. at Pangani and in the lower parts of Tana River (the Primate Reserve) and in the Tana Delta, 0–100 m. Agroclimatic Zones I–II.

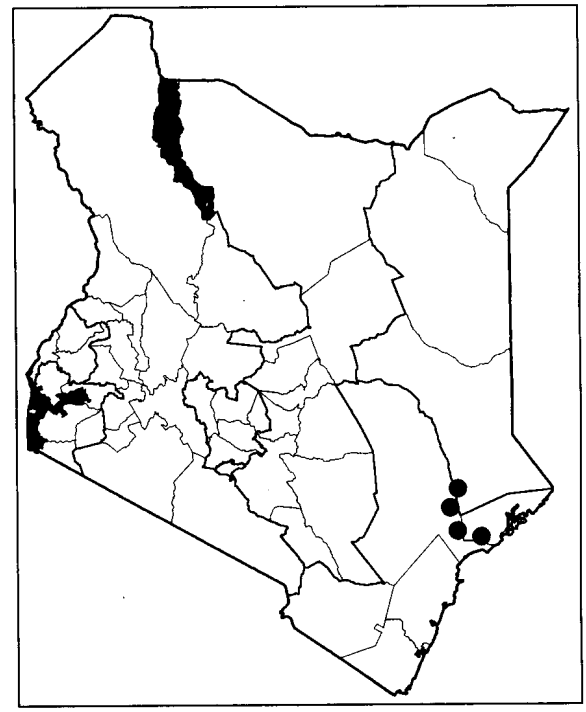
USES: Firewood, timber, boat/canoe building, construction.

REMARKS: This is a rare species, classified as vulnerable, but an important source of timber in the lower parts of Tana River. The timber is used by the Pokomo to build canoes, but is reportedly attacked by borers after some time.

A few other species in this genus occur in Africa and most are good timber trees. *O. msoo* is one of many coastal timber and construction species in the family Fabaceae. The following, not covered elsewhere in this book, are worth a mention. They can all be large trees 20–30 m high, often with smooth grey bark and compound leaves with just a few leaflets. *Erythrophleum suaveolens* (**Boni:** Kina; **Swahili:** Mkelekele, Mbaraka mkuu) has hard, durable wood resistant to borers. The bark is brown, fissured; leaves are divided into 2–4 pairs of pinnae, each with 7–14 leaflets. It is found in evergreen humid forests and wooded grassland along the coast. The bark is a source of dye. Bark and seeds are said to be poisonous. *Julbernardia magnistipulata* (**Digo:** Mkue; **Giriama:** Msahe; **Swahili:** Mkue, Mukuwa) usually has a buttressed trunk with smooth grey bark. Leaves are up to 7 x 14 cm with 2–3 pairs of asymmetric leaflets and oblong fruit to 3.5 x 14 cm. The tree is found in *Brachystegia* woodlands, at creek edges and in evergreen forest. A species related to this is *Paramacrolobium coeruleum* (**Digo:** Mkua, Mrihi; **Swahili:** Mkue) with drooping branches and a spreading crown and smooth bark. Leaves are 4.5 x 10 cm with 2–5 pairs of leaflets. Flowers are blue to mauve with one large petal. The bark is a source of fibre. The fruit is a pod to 8 x 18 cm. The species is common at the south coast, especially in *Brachystegia* woodland. *Scorodophloeos fischeri* (**Duruma:** Kifunga tanzu; **Swahili:** Mgodoma) has a slightly buttressed trunk, smooth grey bark and 3–5 alternate leaflets, which tend to be larger and conspicuously asymmetric towards the tip. Flowers are white. Fruits are short and thick to 4.5 x 7 cm. It is found in coastal evergreen forests and woodlands. *Gigasiphon macrosiphon* is a rare tree with smooth grey bark. Unlike the other species, leaves are simple and up to 16 x 20 cm, rather broad and tending to a heart shape. The fruit is a grey-black flattened pod to 7.5 x 30 cm. It occurs in a few isolated forests in coastal Kenya and into Tanzania, and has received great attention by conservationists as it is regarded as endangered.

FURTHER READING: Beentje, 1994.





Ozoroa insignis subsp. *reticulata* *(Heeria reticulata)* Anacardiaceae

Indigenous

COMMON NAMES: **Boran:** Garri; **Digo:** Msangasanga; **English:** Ozoroa; **Kamba:** Mugadi; **Kipsigis:** Lemejwet; **Luhya (Bukusu):** Kumwandanda; **Luo:** Achak, Madhari, Nyandumira, Wadhare; **Maasai:** Olokununoi; **Marakwet:** Mutungwa; **Meru:** Mutira nkong'u; **Ogiek:** Longononoi; **Pokot:** Kromwa; **Sabaot:** Chepkitowiondet; **Samburu:** Lokononoi; **Swahili:** Mwaalika; **Taita:** Mkalamke; **Tugen:** Mutungwa; **Turkana:** Lopsok orongole.

DESCRIPTION: A small, semi-deciduous shrub or tree to 14 m, the bole often twisted, with a light rounded crown. BARK: Grey, corky, **widely grooved and scaly, exuding drops of creamy resin if cut.** Branchlets covered with yellow hairs. LEAVES: Often 3 together, leathery, very variable, long, oval 5–17 cm, **dull green above,** but **silvery hairy below, the veins clearly parallel, the edge rolled under,** on a stalk to 2.5 cm. FLOWERS: Small cream-white in hairy sprays to 17 cm. FRUIT: Small, red, **bean-shaped,** flattened, **shiny black when ripe,** on branched sprays, one very hard seed inside.

ECOLOGY: Widely distributed from southern Ethiopia to South Africa; 0–2,200 m, occasionally even higher. It grows all over Kenya in wooded grassland and woodland, often in rocky places and on raised and well-drained ground. Agroclimatic Zones II–IV. Flowers in March–May and seeds in July–August in Bungoma.

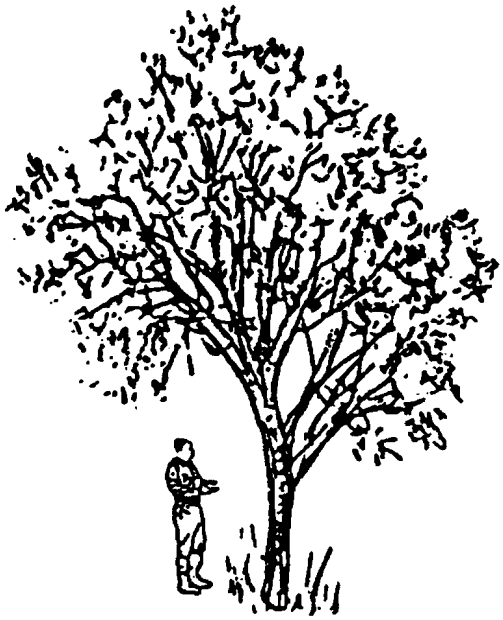
USES: Firewood, charcoal, timber, furniture, posts, construction material for granaries, wood for ox-cart wheels, medicine (bark, root and twigs), shade, gum (fruit).

PROPAGATION: Direct sowing at site and shaded. Produces root suckers.

SEED: Collected from the tree or as dry fruit from the ground. The species is a prolific seeder.
treatment: Not required.
storage: Best to use fresh seed.

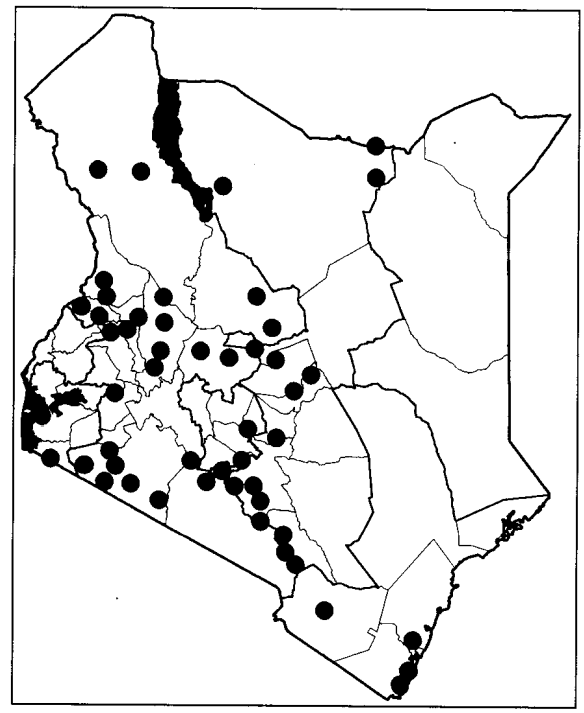
MANAGEMENT: Coppicing, pollarding.

REMARKS: The dark red wood is easy to work, tough, durable and termite resistant. Sticks are used by the Pokot to smoke milk gourds.



O. obovata (**Boni:** Kedula, Bangoe; **Digo:** Msalasanga, **Giriama:** Mukuikwaiyu, **Swahili:** Mwaalika) is a shrubby tree similar to *O. insignis,* found in coastal bushland, 0–300 m. The genus *Ozoroa* has a few dozen species found in tropical Africa.

FURTHER READING: Backes and Ahenda, 1998; Beentje, 1994; Bein et al., 1996; Katende et al., 1995; Kokwaro, 1993; Mbuya et al., 1994; Noad and Birnie, 1989; Palgrave and Palgrave, 2002; Storrs, 1979.



Pandanus kirkii

Pandanaceae

Indigenous

STANDARD/TRADE NAMES: Screwpine.

COMMON NAMES: Digo: Mkapu; **English:** Screwpine; **Giriama:** Mkadi; **Sanya:** Mkadi; **Swahili:** Mkadi; **Tharaka:** Muriira.

DESCRIPTION: A coastal tree 4–8 m tall with **up to 2-m high aerial (stilt) roots** at the base of the trunk to anchor the tree in the sand. BARK: Pale brown to grey. LEAVES: Strap-like, **clasping at base**, up to 90 x 5 cm, **margins and midribs spiny**, in stiff terminal whorls. FLOWERS: Male and female separate on the same plant; male very small, white and fragrant, in hanging spikes up to 10 cm long, concealed by the leafy bracts; female spikes greenish and smaller. FRUIT: **Cone-like**, 30 cm long, yellowish to red or orange when ripe.

ECOLOGY: Found in Kenya and Tanzania only on the sand just above the high-water mark, often in association with casuarinas and coconut palms. Agroclimatic Zones I–V.

USES: Medicine (flowers, roots), fibres (leaves used for baskets and mats), ornamental, windbreak.

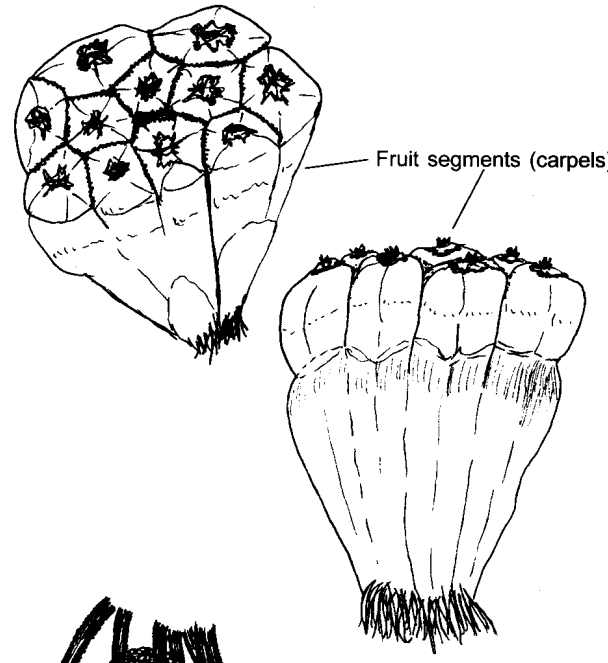
PROPAGATION: Produces suckers that can be used for planting.

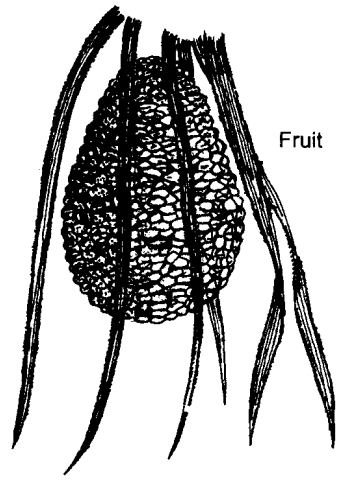
MANAGEMENT: None

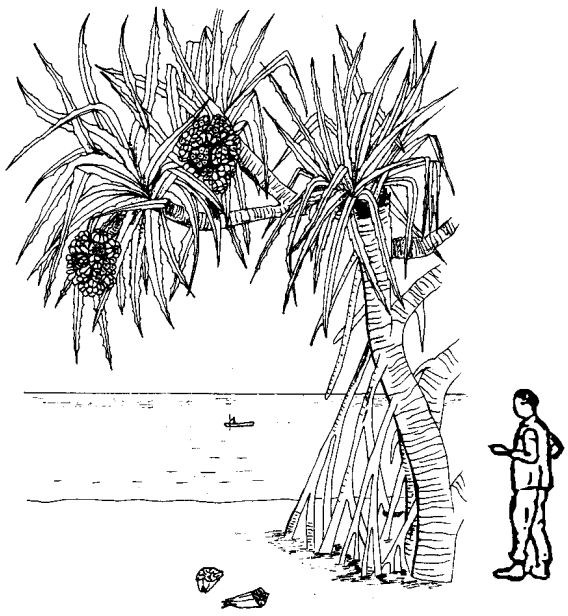
REMARKS: The fragrant flowers can be put in coconut milk to give it a nice scent.

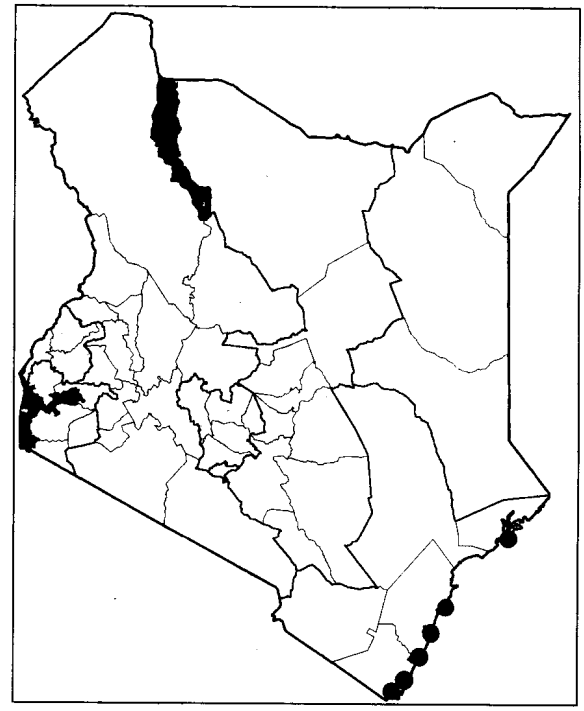
P. rabaiensis (**Digo:** Mkapu; **Duruma:** Mukurasa; **Giriama:** Mkaraza; **Swahili:** Msanaka) is another species found on the coast near Mombasa and on the south coast along streams, near creeks and in swampy areas. Fruits are said to be edible. It is generally taller than *P. kirkii*, up to 20 m, and also has stilt roots. This is a genus with hundreds of members, mainly occurring in Asia and the Indian Ocean islands, including Madagascar. They are generally used as ornamentals, in basketry, for making hats, mats, for thatch and flavouring food (leaves).

FURTHER READING: Beentje, 1994; Dharani, 2002; Noad and Birnie, 1989.









Pappea capensis

Sapindaceae

Indigenous

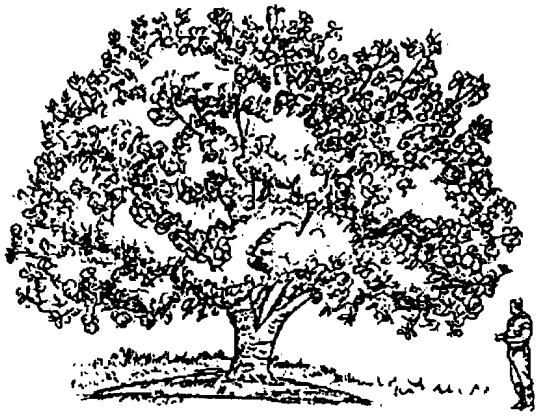
COMMON NAMES: **Boran:** Pika; **English:** Cape pappea; **Kamba:** Mba (fruit); **Kikuyu:** Ndirikumi; **Kipsigis:** Ngonyet, Engongaat; **Luhya (Bukusu):** Kumunyamanyama; **Luo:** Okuoro (Siaya), Okworo, Omaange (Homa Bay); **Maasai:** Oltimigomi, Warkisik ong'u, Orkisikong'u, Natua ekongu, Natwa ongo; **Marakwet:** Kipiriokwa, Kibiriokwo, Piriak (plural); **Mbeere:** Mubaa; **Meru:** Ntirikomi, Dilikoni; **Pokot:** Puriokwo, Priokwo, Priak (plural); **Samburu:** Loposeta, Lopisedi, Lgurugu, Lgurongui, Leroongo; **Somali:** Asel, Adadak; **Taita:** Mndendele, Ndendele (fruit), Mkongori; **Tugen:** Biriokwo; **Turkana:** Etolerh.

DESCRIPTION: A small, leafy, semi-deciduous tree, usually to 6 m, with a short trunk branching low down to form a spreading, rounded crown. BARK: **Pale to dark grey, smooth, with horizontal markings.** LEAVES: Distinctive, **oblong,** usually in **terminal clusters,** dull dark green, **stiff and wavy, the edge sometimes spine-toothed, base rounded.** FLOWERS: Green–yellow, in spikes to 12 cm, male flowers terminal, female at the base of the spike. FRUIT: Round, furry green capsules about 1 cm across, split to reveal a **bright orange-red jelly (the aril) covering a shiny dark red-brown to black oval seed.** This edible seed kernel is rich in oil. The juicy flesh is edible, slightly acid but pleasantly flavoured.

ECOLOGY: From Eritrea, Ethiopia and northern Somalia in the north, south through eastern Africa and the Democratic Republic of Congo to South Africa in the south. Widespread in Kenya in the wetter and higher parts of the semi-arid zones. Found in bushland and wooded or bushed grassland, 1,050–2,400 m, especially in black clay, sandy soil, sloping rocky ground with clay or sand. Agroclimatic Zones II–V. Flowers in February–March in Narok, May–June in Makueni and Machakos, August in Homa Bay, November–December in Baringo and Marsabit; fruits in February–March in Laikipia, August–September in Kajiado, Machakos, Kitui and Samburu.

USES: Firewood, charcoal, timber, furniture (stools), poles, tool handles, utensils (pestles, mortars, yokes, traditional sticks for cooking *ugali*, forked and hooked sticks for hanging beehives), bows, yokes, edible fruit, drink (tea from inner bark), medicine (oil, bark), fodder (fruit and leaves for cattle and goats during dry periods), bee forage, shade, ornamental, dye.

PROPAGATION: Seedlings, wildings. Also produces root suckers.

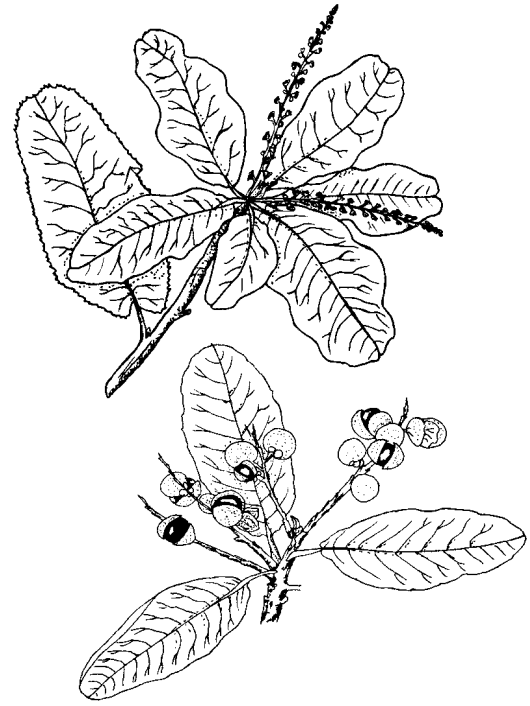


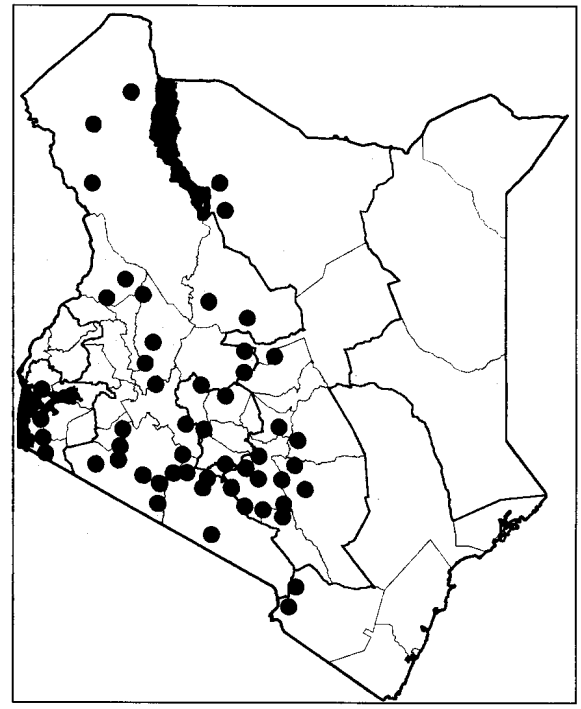
SEED:
treatment: Not necessary.

MANAGEMENT: A slow-growing tree; coppices well.

REMARKS: Fruits, which have a sweet–sour taste, are eaten both ripe and unripe. Inner bark is used to make tea (Maasai, Kipsigis). Roots used in soup (Kikuyu). Tender shoots and young leaves are chewed (Maasai). Ripe fruit liked by birds. The wood is hard, durable and tough with a twisted grain. In the Tugen Hills the tree flowers during the driest years. *P. capensis* is the only member of the genus *Pappea.*

FURTHER READING: Backes and Ahenda, 1998; Beentje, 1994; Bein et al., 1996; Blundell, 1987; Kokwaro, 1993; Maundu et al., 1999; Mbuya et al., 1994; Noad and Birnie, 1989; Palgrave and Palgrave, 2002; Ruffo et al., 2002; van Wyk, 1993.





Parinari curatellifolia

Chrysobalanaceae

Indigenous

COMMON NAMES: Embu: Mura; **English:** Mobola plum; **Kisii:** Omoraa; **Kuria:** Omutaburu; **Luhya (Bukusu):** Kumurinda (tree), Kamarinda (fruit); **Luhya (Tachoni):** Amarinda (fruit), Omurinda (tree); **Luo:** Ong'ora; **Maasai:** Olmatakuroi; **Mbeere:** Muura, Maura (fruit).

DESCRIPTION: A savanna shrub or tree to 15 m with **erect branches and a dense rounded crown.** Trunk occasionally buttressed at the base. BARK: Rough, dark grey-brown, grooved, later flaking in large squares. The **sap is reddish. Young shoots with yellow-brown hairs.** LEAVES: **Oval and alternate,** with **clear parallel veins,** shiny green above but hairy grey-white below, to 8 cm long and 4.5 cm wide, **tip blunt or notched;** on a short stalk. FLOWERS: Small, white-pink in short **flat-topped heads,** to 6 cm across. Flower stalks and the calyx have yellow-brown woolly hairs. FRUIT: **Oval to 5 cm,** with grey scales over **yellow–red–brown skin.** The fibrous yellow flesh is sweet but sharp and contains a hard stone with **one edible seed kernel.**

ECOLOGY: From Senegal east to Sudan and south to north-eastern South Africa and north-eastern Namibia. In Kenya, e.g. in Embu, Kisii, Maasai Mara, Homa Bay, Kuria and Kwale in bushland, wooded grassland, forest edges, 0–2,100 m; rainfall 700–1,500 mm. Common on sandy and light clay soils and rocky hill slopes. Agroclimatic Zones III–IV. Flowers in March in Embu, December in Kisii, July in Narok, September in Kwale; fruits in May–June in Embu, in July–August in Bungoma.

USES: Firewood, charcoal, timber, poles, edible fruit, medicine (bark, root), bee forage, shade, oil (seed kernel), dye.

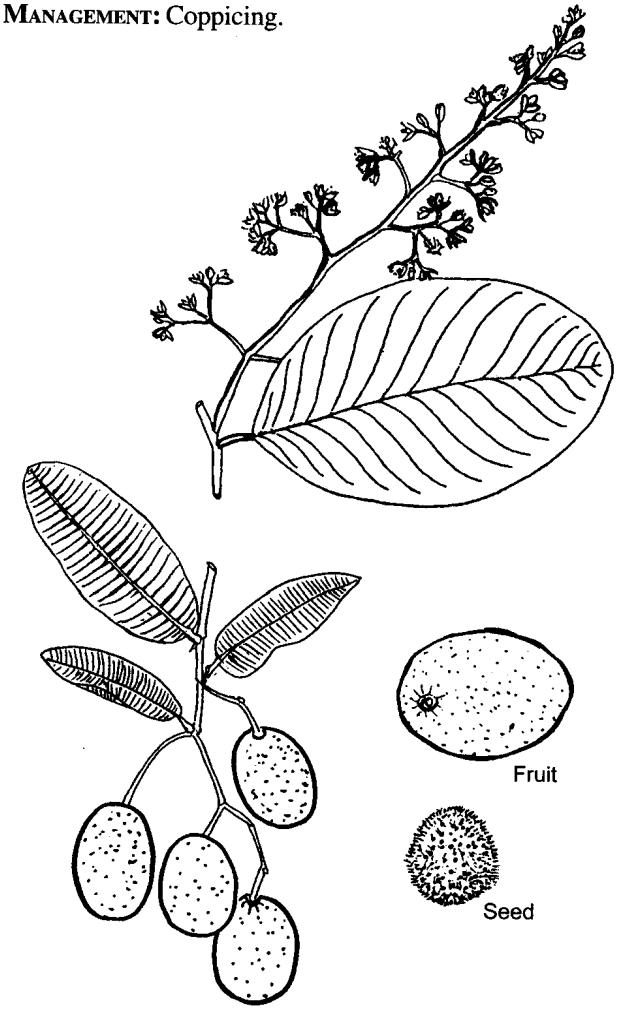
PROPAGATION: Seedlings (sow seeds in pots), wildings. Also produces root suckers.

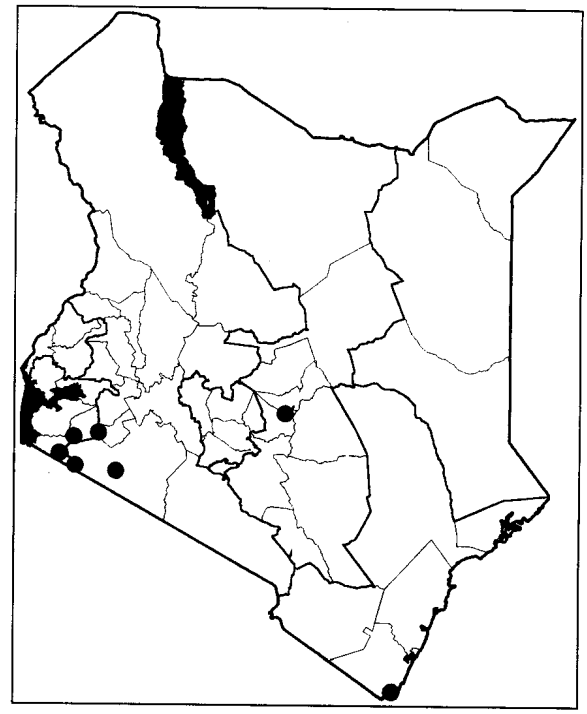
SEED: Collect fruit when ripe and soft. Put in a trench for the pulp to disintegrate and separate seeds, gradually dry and store.

treatment: The seed coat is very hard; immerse in hot water, allow to cool and soak for 24 hours. Alternatively, crack the seed coat with a hammer or stone. Without treatment, the seed may take up to 6 months to germinate.

storage: The seed is oily and should not be stored for long.

MANAGEMENT: Coppicing.





Parinari curatellifolia (cont)

REMARKS: The ripe fruit pulp is sweet with a strong pineapple smell. An important fruit tree, usually preserved by farmers. In southern Africa it is used for making both alcoholic and non-alcoholic drinks. The wood is red, hard and durable but difficult to cut and plane (silica crystals can blunt saw blades and other tools). The seeds have a high oil content. Two subspecies are recognized:

subsp. *curatellifolia* with leaves that have silvery grey hairs on the lower surface and in Kenya found inland in Embu, Kisii, Narok, Kuria, Homa Bay and Migori. It is commonest from Tanzania north-west to Senegal.

subsp. *mobola* with a brown hairy underside to the leaves and, on average, longer flowers. It is common in coastal areas and is the commonest in southern Africa.

Also in the same family is *Hirtella zanzibarica* (**Digo:** Mwawa), an evergreen tree with a buttressed base and smooth dark bark. Its ripe reddish fruit, which may be up to 25 mm long, are edible. It is found at the southern Kenyan coast, especially in the Shimba Hills. All these species were earlier placed in the family Rosaceae. *P. curatellifolia* is valued almost as much as *Sclerocarya birrea*. Their fruits resemble each other and are used in a similar manner; hence the local names are sometimes the same or share a common root. *P. curatellifolia* is the species under which David Livingstone, the 19th-century explorer, was buried. The genus *Parinari*, with a few dozen members, is distributed over most of the tropics of New and Old Worlds, including the Indian and Pacific Ocean islands.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Backes and Ahenda, 1998; Beentje, 1994; Katende et al., 1995, 1999; Maundu et al., 1999; Mbuya et al., 1994; Palgrave and Palgrave, 2002; Ruffo et al., 2002; Storrs, 1979; van Wyk, 1993.

Hirtella zanzibarica

Parkia filicoidea

Fabaceae (Mimosaceae)

Indigenous

STANDARD/TRADE NAMES: Mnienzi.

COMMON NAMES: **Digo:** Myenze; **English:** African locust bean; **Swahili:** Mnienze, Mkunde.

DESCRIPTION: A deciduous rainforest tree, 8–30 m, with a spreading flat crown and small rounded buttresses. BARK: Scaly or smooth, grey to yellow-brown, dark and fissured with age. **Orange-coloured resin if cut.** LEAVES: **Bipinnate and feathery** with 4–14 pinnae on each side on a stalk to 20 cm. About 11–17 pairs of leaflets on each pinna, the **leaflet oblong, slightly curved, tip rounded,** 2–3 cm. FLOWERS: Easy to recognize, small flowers in **bright red club-shaped heads hanging down on stalks to 30 cm, with a strong unpleasant scent (attracting fruit bats). Heads up to 8 cm long.** FRUIT: Characteristic pods hang down in **clusters, dark brown-purple, 30–60 cm long** with stalk, the pod somewhat narrowed between the seeds. **Thick black seeds lie in a dry mealy yellow pulp** which tastes sweet.

ECOLOGY: Distributed from Nigeria in West Africa to the eastern African countries and south to northern Mozambique, Malawi, Zambia, Zimbabwe and Angola. In Kenya, it is a coastal species found in moist lowland evergreen forest or swamp forest, 0–350 m. Agroclimatic Zones II–III.

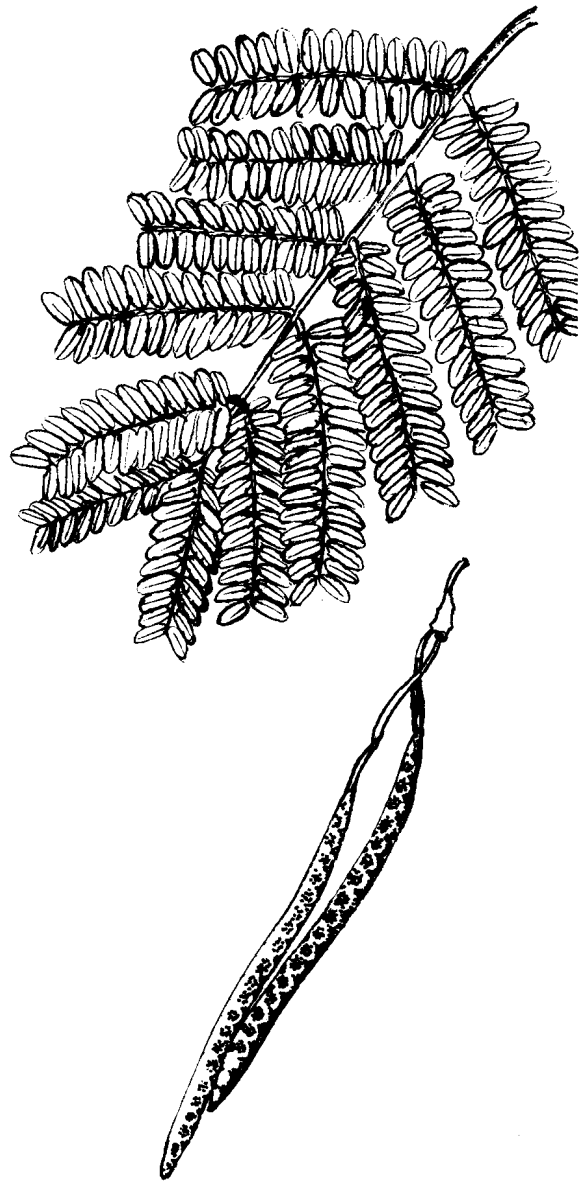
USES: Firewood, furniture (stools), beehives, utensils (water containers), edible young pod, edible mature seed (emergency food only), fodder (pods), bee forage, tannin (bark), dye (bark).

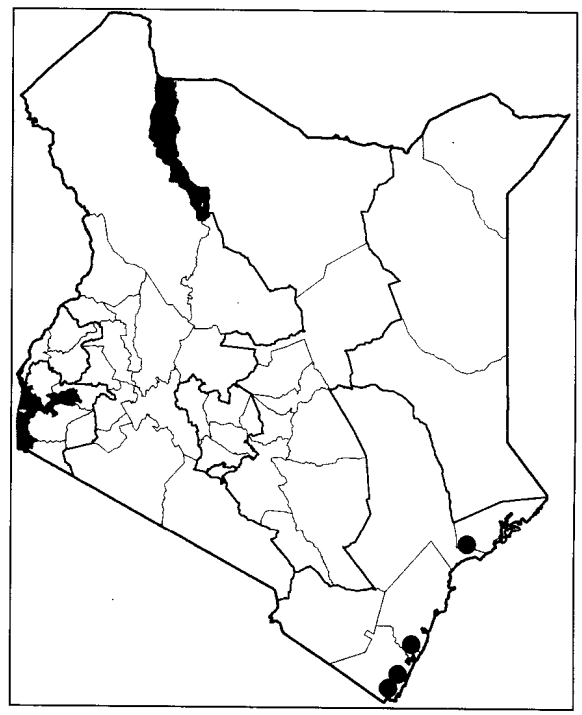
PROPAGATION: Seedlings (sow seed in pots), wildings.

SEED: Contained in a non-splitting pod which falls to the ground with the seed. To extract the seed, the pod must be crushed and the seed separated from the pulp.
treatment: Briefly boil the seed, allow to cool and soak for 12 hours.
storage: The pods and seeds are attacked by insects even when still on the mother tree. Seeds should be screened before storage. Store in sealed containers in a cool place and add ash to reduce insect damage.

REMARKS: Similar species in West Africa are often the only trees left standing in the savanna because their food products are well known. Leaves, rich in nitrogen, make valuable mulch. Pods are used in numerous West African food dishes and also as cattle feed. Seeds contain a high percentage of fat and protein. The fruit pulp is rich in carbohydrates, of which a good proportion is sugar. The bark contains both tannin and a red-brown dye used to colour leather. It is a beautiful avenue tree and deserves greater promotion. The more than 2dozen members of this genus are found throughout the tropics.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Beentje, 1994; Katende et al., 1995; Ruffo et al., 2002; Storrs, 1979.





Parkinsonia aculeata

Fabaceae (Caesalpiniaceae)

Tropical America

COMMON NAMES: **English:** Jerusalem thorn; **Luo:** Okwato; **Orma:** Muk bee.

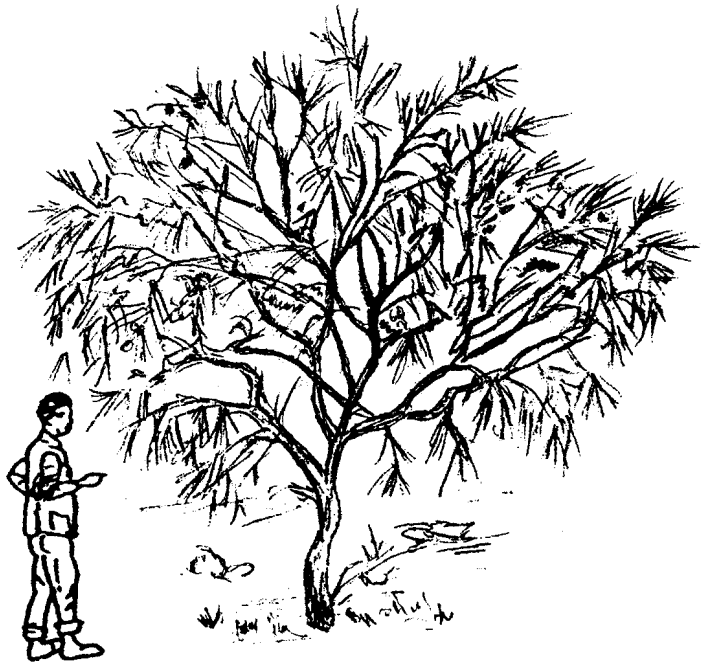
DESCRIPTION: A spiny shrub or small tree, usually 5–8 m high, with light, feathery foliage and a low crown, sometimes deciduous in the dry season. The long thin branchlets have **sharp, straight, paired thorns** beside the leaves at the nodes, each about 3–16 mm long. LEAVES: Groups of **thin winged leaf stalks to 40 cm with well-spaced tiny leaflets**. FLOWERS: Very fragrant, **bright yellow with orange stamens,** on spikes to 15 cm. FRUIT: Bunches of woody pale-brown **narrow pods to 0.7 x 11 cm** long with pointed tips, **constricted between seeds.** Pods contain 6 or more dark brown oval seeds and remain on the tree.

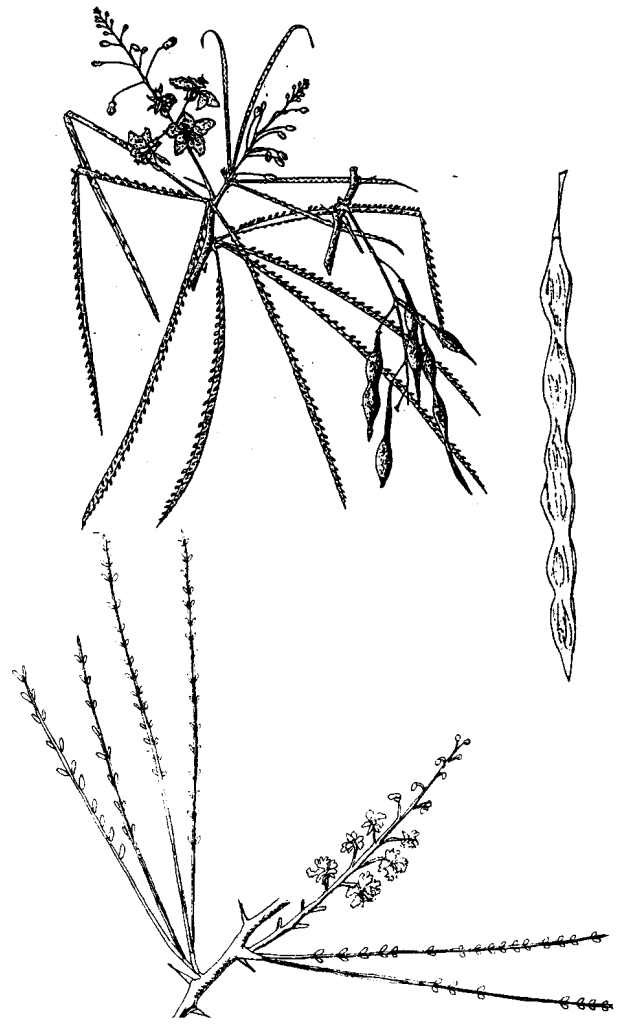
ECOLOGY: The natural range of this plant is the semi-arid areas of the southern United States and south into Argentina. Widely cultivated in dry tropical areas of Africa and South Asia. In Kenya, commonly grown in the drier parts as an ornamental and now almost naturalized from the coast to 1,800 m (Wajir, Hola, Magadi, Garissa, Homa Bay, Mombasa road). Occasionally seen on roadsides, but most commonly found as an ornamental in homesteads, and along rivers and swamps in hot areas. Tolerates strongly alkaline or saline soils, poor sandy eroded soil, but not flooding. Agroclimatic Zones III–V.

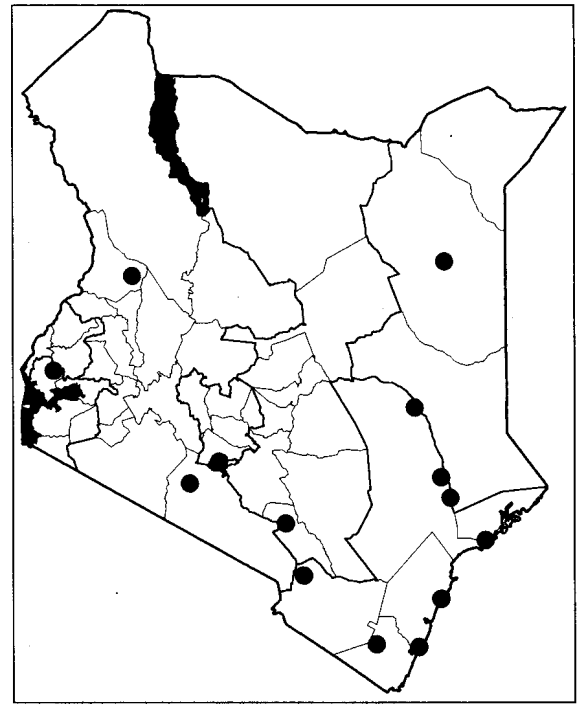
USES: Firewood, charcoal, fodder (pods, young branches), medicine, bee forage, shade, ornamental, mulch, soil conservation, sand stabilization, windbreak, live fence.

PROPAGATION: Seedlings, direct sowing at site.

SEED: The species is a prolific seeder. About 13,000 seeds per kg; germination 30 –70%. Collect as soon as the pods have turned yellow or pale brown to minimize insect damage. Dry in the sun and then thresh in a bag using a stick. Separate seed from chaff by winnowing. Separate seeds already attacked by insects by floating—the good seed will sink. Germination is fast and good, often about 90% of viable seeds within 2–10 days. **treatment:** Immerse seed in hot water and soak for 12 hours, or nick the seed at the distal (cotyledon) end.







Parkinsonia aculeata (cont)

storage: Dried seed can be stored for at least a year in sealed containers at room temperature.

MANAGEMENT: Fast growing; pollarding.

REMARKS: Seedlings are susceptible to attack by termites. Due to its prolific seeding the tree can become a weed. It is a useful species for the reclamation of degraded sites, as an ornamental and for light shade in dry areas. The leaves are liked by weavers to build their nests on.

Most of the over 2 dozen members of this genus are indigenous in tropical and warm parts of America. Two of the 4 indigenous in Africa occur in Kenya with one, *P. anacantha*, being endemic to the country and the other, *P. scioana*, to the region. *P. anacantha* has spineless branches. It is a shrub or small tree to 5 m with reddish brown bark. Leaves have 2–6 pairs of pinnae, each with 4–17 pairs of leaflets. Flowers are golden yellow and the fruit are long pods to 2 x 13 cm with a sharp tip. It is found in dry bushland in Turkana, Samburu, Marsabit, Isiolo, Meru, Tharaka, Garissa and northern parts of Tana River and Mwingi Districts. *P. scioana* (**Boran:** Kodi) is a low branching shrub or small tree, with branches that have paired short (<5 mm) hooked or straight spines. Leaves have 2–8 pairs of pinnae, each with 3–6 leaflets. The main axis of the leaf is rounded and up to 12 cm (compare *P. aculeata* with a longer and flattened axis). Flowers are yellow. Fruit are yellow to brown flattened pods to 2.5 x 10 cm. In Kenya, this species is restricted to the north-east, especially Wajir and Mandera Districts.

All species are potential ornamental plants. All are browsed by camels, game and goats.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Albrecht, 1993; Beentje, 1994; Bein et al., 1996; Bekele-Tesemma et al., 1993; Blundell, 1987; Dharani, 2002; Fichtl and Adi, 1994; Katende et al., 1995; Lötschert and Besse, 1983; Mbuya et al., 1994; National Academy of Sciences, 1980; Noad and Birnie, 1989; Palgrave and Palgrave, 2002; von Maydell, 1990.

Pavetta crassipes

Rubiaceae

Indigenous

COMMON NAMES: **Kamba:** Munyenyo, Muvembe; **Luhya (Bukusu):** Kumupepenambusi; **Luo:** Jathohonda, Mikumi, Rabuor.

DESCRIPTION: A deciduous shrub or, more rarely, a tree up to 7 m high with an **irregular shape and stout branches.** BARK: **Grey-black, cracking and peeling.** LEAVES: Opposite or **in whorls of 3–4, clustered at the end of branches**, entire, narrowly elliptic, 12–20 cm long, light green, leathery and without hairs. FLOWERS: On leafless branches, creamy-white, fragrant, many together. FRUIT: **Black, small and round**, up to 8 mm in diameter.

ECOLOGY: Found in wooded grassland and open woodland. Drought resistant. Agroclimatic Zones II–V. Flowers in April–June and fruits in September–November in Bungoma.

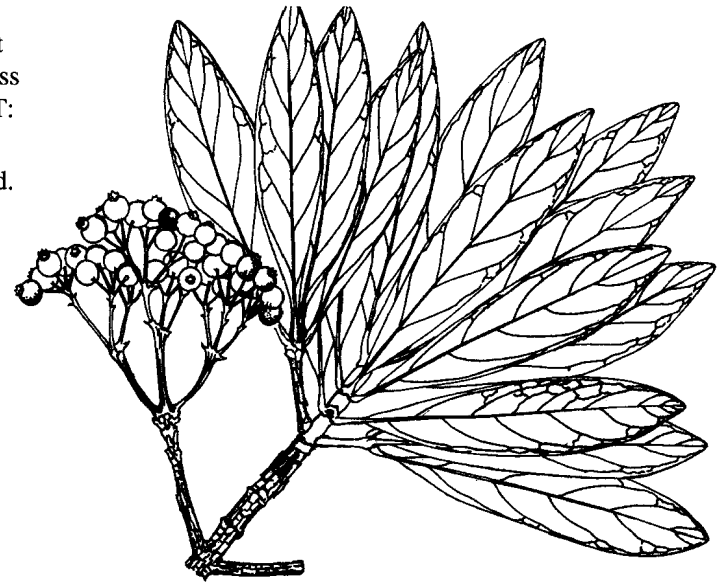
USES: Fodder, bee forage, medicine (leaves and root).

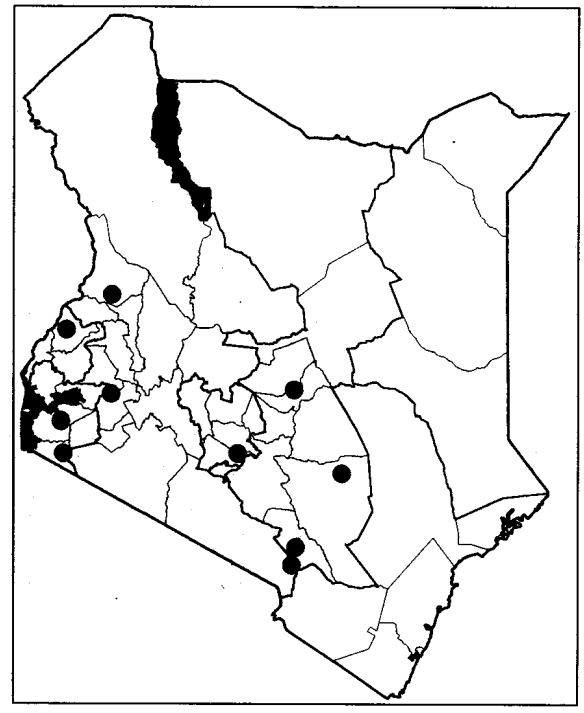
PROPAGATION: Seedlings.

MANAGEMENT: Coppices, but not very well.

REMARKS: There are close to 20 *Pavetta* species in Kenya, and several hundreds in the Old World tropics. They are easily recognized from their leaves, which usually have nitrogen-fixing bacteria nodules on them appearing as pale dots or stripes. The more common ones are the following. *P. abyssinica* (**Kamba:** Munyenyo, Muvembe; **Kikuyu:** Mwathathia, Muhurangware; **Kipsigis:** Belbeliet; **Luhya (Bukusu):** Kumupepenambusi; **Luo:** Jathohonda, Mikumi, Rabuor; **Marakwet:** Jeptabirirwa; **Tugen:** Kipkonorowa) is mainly a forest species but occasionally found in forest remnants. Found from western Kenya to Taita Hills and Marsabit District; 1,500–2,600 m. Leaves are often hairless and dry to a black colour. Fruit black, to 1 cm across. *P. gardeniifolia* (**Kamba:** Mwithongoi; **Kipsigis:** Chorlwet; **Maasai:** Olpiron; **Turkana:** Etoboka) has leaves that are usually hairless and green when dry. Stems are used as firesticks. It is found in bushland as well as dry forests. It is common in Machakos and Kajiado Districts and north in Isiolo, Laikipia and Samburu Districts. Larger stems are used for building. *P. oliverana* (**Kipsigis:** Kobetiotabosnet; **Maasai:** Olbungo; **Marakwet:** Kipchochin, Terwech; **Turkana:** Ekwanget) is a shrub to 3 m, mainly found in the western part of Kenya in a variety of habitats. Young stems are angular and leaves are densely hairy beneath.

FURTHER READING: Backes and Ahenda, 1998; Beentje, 1994; Kokwaro, 1993.





Persea americana

Lauraceae

Central America

COMMON NAMES: English: Avocado pear; **Kamba:** Ikoloviu; **Kikuyu:** Mukorobea, Maguna ngui (fruit); **Luo:** Avokado.

DESCRIPTION: A densely leafy evergreen tree to 10 m or more with a straight trunk. BARK: Grey-brown. LEAVES: Large, **oval and alternate, to 20 cm long,** shiny dark green above, veins very clear, young leaves pink, then bright green. FLOWERS: In **large terminal heads, pale yellow,** only 1 in 5,000 producing fruit. FRUIT: Large, **round to pear-shaped, to 25 cm long,** hanging heavily on the tree, the central seed surrounded by a thick layer of yellow-green flesh. The outer skin varies from green to purple.

ECOLOGY: A well-known fruit tree originating from tropical America and occurring from montane forests to coastal lowlands. Widely planted in moist areas in Kenya, up to 2,200 m. Agroclimatic Zones II–V.

USES: Timber, edible fruit, bee forage, shade, oil (cosmetics, soap, lighting).

PROPAGATION: Grafted materials (improved varieties), seedlings (sow seed directly at the desired site, 2–3 per station, and later select the strongest seedling to be grafted while the others are removed). It may be advisable to try propagation on farm rather than relying on nurseries since nurseries may be sources of disease unless they are very well managed. Some rootstocks have been selected that are less susceptible to root rot. Such trees, if available, must be propagated vegetatively to get the rootstock with the desired characteristics.

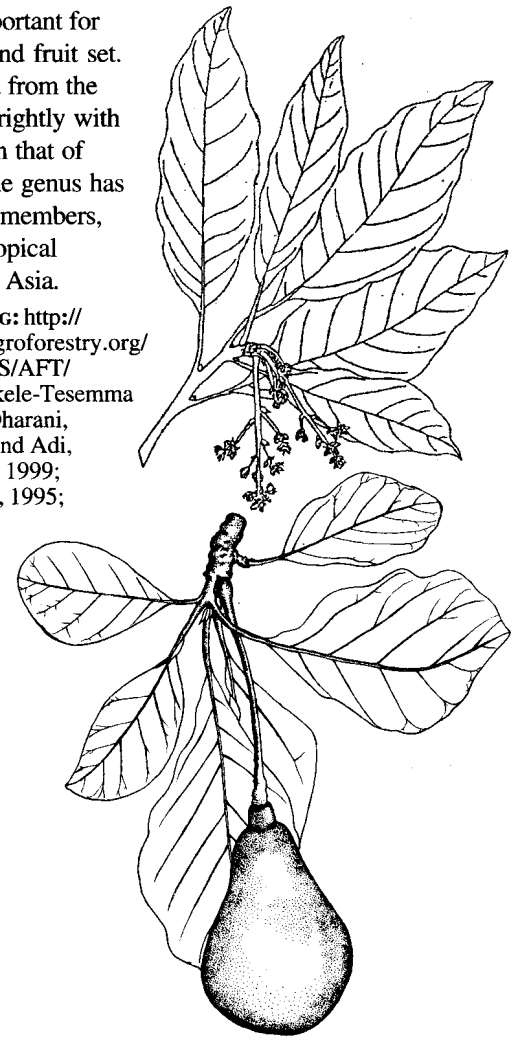
SEED: Eat the pulp of the fruit to obtain the seed.
treatment: Not necessary. Use fresh seed for best results. Select seed from disease-free fruit picked from the tree, not from the ground. Some viral diseases can be transmitted with the seed.
storage: Seed does not store well.

MANAGEMENT: Grafting to get best fruit varieties.

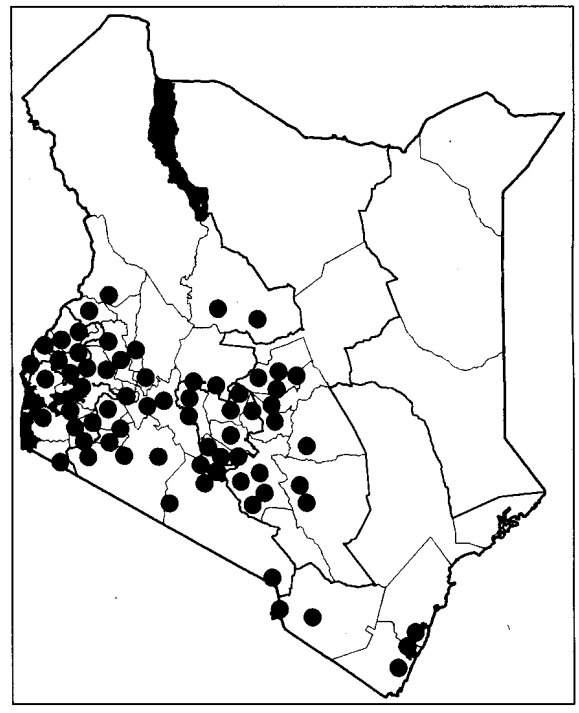
REMARKS: This is a fruit tree that has been in cultivation for many millennia. It is now a common fruit used in salads and desserts and often eaten as a snack. The fruit is also used in hair conditioning. There are many cultivated varieties adapted to a wide range of conditions (highland, lowland). The fruit is very nutritious, rich in oil, mineral salts, protein and vitamins (especially A, B and E). Bark, leaves and seeds are toxic to browsing livestock.

Unsuitable for intercropping since the tree produces dense shade and competes for nutrients through its dense shallow root system. Shade-tolerant crops like beans can, however, grow under avocado trees.

Bees are important for pollination and fruit set. Oil extracted from the fruit burns brightly with less soot than that of kerosene. The genus has close to 200 members, mainly in tropical America and Asia.



FURTHER READING: http://www.worldagroforestry.org/Sites/TreeDBS/AFT/AFT.htm; Bekele-Tesemma et al., 1993; Dharani, 2002; Fichtl and Adi, 1994; Jensen, 1999; Katende et al., 1995; Lötschert and Besse, 1983; Mbuya et al., 1994; Noad and Birnie, 1989; Verheij and Coronel, 1991.



Phoenix dactylifera

Arecaceae (Palmae)

Mediterranean, north-eastern Africa and the Middle East

COMMON NAMES: **English:** Date palm; **Kamba:** Ndende; **Luo:** Tende; **Somali:** Timir.

DESCRIPTION: A palm with a slender trunk reaching 20–30 m, the **trunk covered with the remains of leaf bases.** Many suckers or offshoots are produced around the trunk. LEAVES: 30–50 crowded leaves, **grey-green,** each to **3 m, the leaflets sharply pointed;** the lowest leaves are thorny and removed by cultivators. FLOWERS: Male and female trees: a ratio of 1 male to 40–50 female trees is required for fruiting, but the pollen may not always be ready at the best time for pollination. FRUIT: Large hanging bunches of dates, needing support. **Ripe dates 5 x 2 cm, yellow to golden-brown,** with one grooved seed, the 'stone'.

ECOLOGY: A well-known and important food tree found in arid and dry semi-arid areas of the tropics and subtropics all over the world, 0–1,500 m. Iraq is the largest producer of dates. It requires well-drained fertile soil, high temperatures and low humidity during fruiting. The palm must have a high water table. It will stand alkaline soil but not waterlogging. In Kenya, found in arid, semi-arid and coastal regions (Lamu, Garissa, Taveta, Isiolo, Malindi, Wajir, Moyale, Turkwel River plain, Turkana and in Kitui and Mwingi). It rarely produces well in Kenya. Agroclimatic Zones VII (riverine).

USES: Posts, furniture (beds), utensils, edible fruit, drink (palm wine can be tapped), medicine, fodder (seeds and leaves), shade, ornamental, windbreak, thatch (leaves).

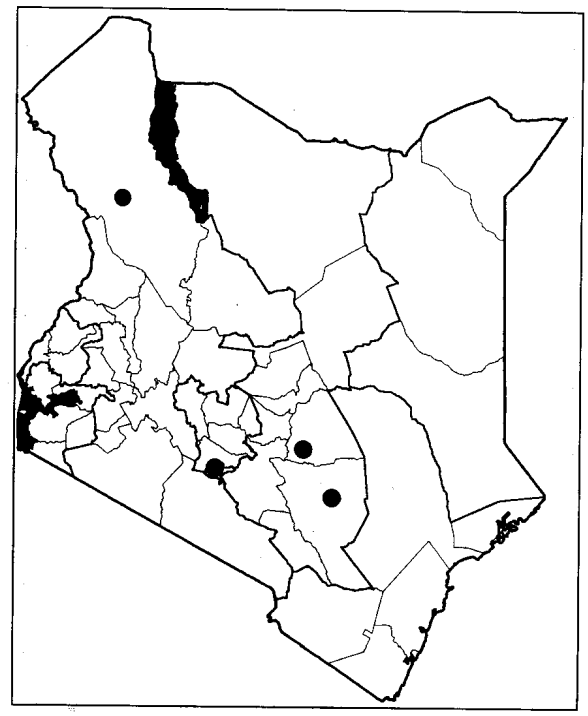
PROPAGATION: Suckers (offshoots) are preferable to seedlings because male or female plants can be chosen. Seedlings can, however, also be raised.

SEED: Remove fruit pulp, wash and dry for storage.
treatment: Not necessary.
storage: Seed can be stored for long periods.

MANAGEMENT: Hand pollination is recommended for good date production. Remove suckers and thorny lower leaf stalks.

REMARKS: A potential food and perhaps cash crop for selected sites in dry areas. Needs irrigation until established. Economic yields can be obtained after 6–7 years (about 45 kg yearly per palm up to several hundred kilograms at the peak of production). The date has a very high sugar content (60% or more) and is an important food for desert communities of the Arabian peninsula and North Africa. Fruit are dried or preserved in sugar. It is cultivated along the Turkwel River near Lodwar. Also grown as an ornamental plant in dry areas (Tseikuru-Mwingi). It is closely allied to *P. theophrasti* of Crete and Turkey and, less closely, to *P. reclinata*. The date palm is, however, presumed to be native to north-eastern Africa and the Arabian peninsula, where it may have been cultivated for over 6,000 years. It has since spread to the rest of the dry hot deserts where it is cultivated for its fruit. The genus *Phoenix* has about 17 members found from the Mediterranean region to Africa and Asia.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Bein et al., 1996; Bekele-Tesemma et al., 1993; Lötschert and Beese, 1983; Maundu et al., 1999; Sommerlatte and Sommerlatte, 1990; Storrs, 1979; Verheij and Coronel, 1991; von Maydell, 1990.



Phoenix reclinata

Arecaceae (Palmae)

Indigenous

COMMON NAMES: **Boni:** Gonyooriya; **Boran:** Meti; **Digo:** Mchindu, Makindu; **English:** Wild date palm, Dwarf date palm; **Giriama:** Mkindu, Mkindwi, Kindwi (fruit); **Kamba:** Mukindu; **Kikuyu:** Mukindu; **Kipsigis:** Sosiyot; **Luhya (Bukusu):** Kumukhendu; **Luhya (Marachi):** Lushindu; **Luo:** Othith; **Maasai:** Oltukai; **Malakote:** Gedo; **Orma:** Konchor; **Pokomo:** Mkindu; **Samburu:** Lekawai; **Sanya:** Itkindu, Gonyora; **Somali:** Alol, Alool, Maleqa; **Swahili:** Mkindu; **Taita:** Kigangachi; **Taveta:** Mhongana; **Teso:** Emusogot; **Tharaka:** Mukiindu; **Turkana:** Nakadoki.

DESCRIPTION: A palm tree usually to 15 m high, but may attain a height of 30 m in forest (e.g. lower parts of Tana River). The tree has a creeping rootstock. The mature palm trunk is usually slender and **often bent over** ('reclinata'), about 25 cm in diameter, covered in very rough leaf scars. LEAVES: To 2.7 m long, growing out from a fibrous leaf sheath, the crown of about 25 leaves arching over, **leaflets narrow, folded, bright shiny green, to 30 cm,** stiff and pointed. Lower leaflets spiny to 6 cm long, leaf stalk up to 50 cm. FLOWERS: Male and female on different trees. Male flowers cream-brown, to 7 mm, female flowers greenish, 2 mm. FRUIT: **Yellow-brown, about 2 cm, edible.**

ECOLOGY: Found throughout tropical Africa. In high-rainfall areas it will grow on open rocky hillsides and cliffs, as well as in rainforests, but only along watercourses in dry country. Widely distributed in Kenya, e.g. in Loita forest, Nandi Hills and the Tana River basin. Cultivated in towns as an ornamental. Often growing in dense clumps along watercourses and at forest edges, 0–2,600 m, occasionally higher. Agroclimatic Zones II–VII (only riverine in the driest areas). Flowers in October–November in Nairobi; immature fruit seen in January, which reach maturity in March–May in Nairobi.

USES: Firewood, beds, edible fruit, drink (palm wine), bee forage, ornamental, river-bank stabilization, thatch (leaves), mats and baskets (leaves), dye (roots), ceremonial, fire making.

PROPAGATION: Seedlings, suckers.

SEED: 900–5,000 seeds per kg. Remove fruit pulp and dry before storage. Germination is good and best for fresh seed.

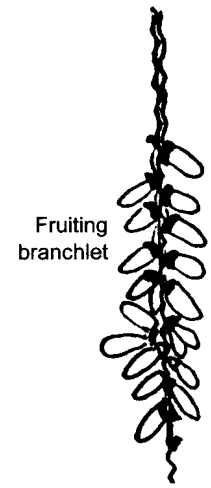
treatment: Not necessary.

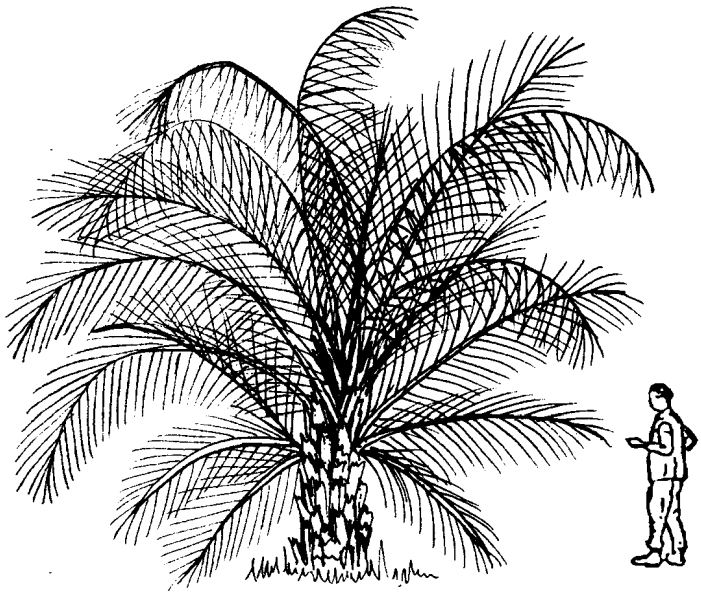
storage: Seed can be stored for long periods.

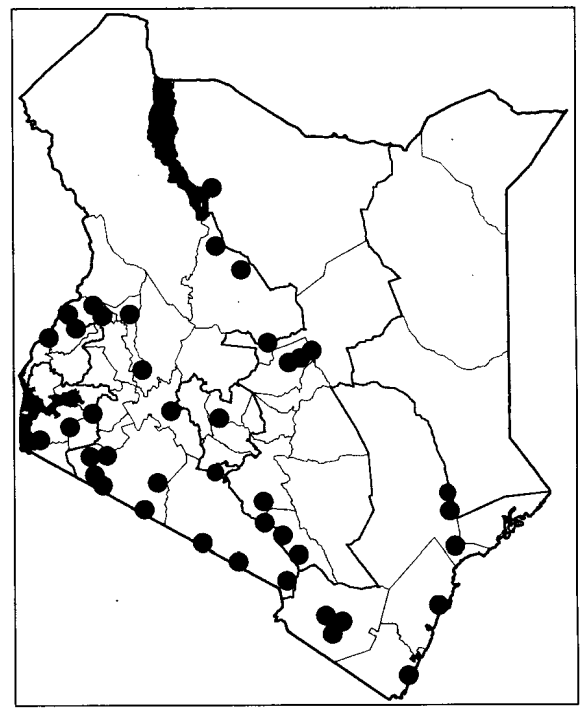
MANAGEMENT: Removal of leaf stalks and root suckers for ornamentals.

REMARKS: Ripe fruit edible. Palm wine (Tharaka, Pokomo). Leaf stems used to clean the inside of milk gourds (Maasai, Kipsigis). Roots a source of brown dye (Kikuyu). The leaf stems (rachis) are used to make traditional beds (Somali). This palm is over-exploited in northern and north-eastern Kenya for its use in handicrafts. Used a great deal by the Pokomo along the Tana River for mats (for sleeping on and resting), baskets, hats, etc.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Backes and Ahenda, 1998; Beentje, 1994; Bein et al., 1996; Bekele-Tesemma et al., 1993; Dharani, 2002; Fichtl and Adi, 1994; Katende et al., 1995, 1999; Maundu et al., 1999; Mbuya et al., 1994; Noad and Birnie, 1989; Palgrave and Palgrave, 2002; Ruffo et al., 2002; Sommerlatte and Sommerlatte, 1990; Storrs, 1979.







Piliostigma thonningii (Bauhinia thonningii) Fabaceae (Caesalpiniaceae)

Indigenous

COMMON NAMES: **Boran:** Abairtubata; **Chonyi:** Mkayamba; **Digo:** Mtsekeshe, Mutseketse; **English:** Camel's foot; **Giriama:** Mkayamba; **Kamba:** Mukolokolo; **Kambe:** Mkayamba; **Luhya:** Mbako, Mboyela; **Luhya (Bukusu):** Kumuyenjayenje, Kumulamalama; **Luo:** Ogalo, Otagalo, Tagalo; **Maasai:** Olsagararam, Ilsagararam (plural); **Mbeere:** Mukuura; **Nandi:** Kipsarkiat; **Pokot:** Koyopkwo; **Sabaot:** Sakiandet; **Samburu:** Lecholo; **Sanya:** Kimanjala; **Swahili:** Msegese, Mchekeche, Mchikichi; **Teso:** Epapai; **Tharaka:** Mukuura; **Turkana:** Eugomamur.

DESCRIPTION: A rounded deciduous tree, 3–5 m, branches twisted (occasionally climbing). BARK: Thick, dark and rough, fibrous within. Dark red if cut. LEAVES: **Large and bilobed,** a small bristle in the deep notch, often folded along midrib, **leathery,** pale green, to 12 cm long, lower surface brown, hairy, in between **many raised veins.** FLOWERS: **White, cream or pink, hanging down in sprays 10–20 cm, 5 petals, only 2 cm long, the calyx cups very hairy, fragrant.** FRUIT: **Flat brown and woody pods, hairy at first,** 15–20 cm long, persisting on the tree but finally decaying on the ground to free pea-sized seeds. Pulp surrounding the seed is eaten.

ECOLOGY: Widespread in Africa from Senegal to Sudan and south to Namibia and South Africa in open wooded grassland. Grows in various soils, commonly in sand. In Kenya, found at the coast, the Rift Valley and Nyanza, often in grassland with scattered trees or in wooded grassland with *Combretum*, 0–1,850 m. Agroclimatic Zones I–IV.

USES: Firewood, charcoal, posts (house construction), edible fruit (pulp from pods), edible fresh inner bark and young leaves chewed, medicine (roots, leaves and bark), fodder (young pods and young leaves), bee forage, shade, ornamental, mulch, soil conservation, fibre, tannin, dye (roots and bark), live fence, soap.

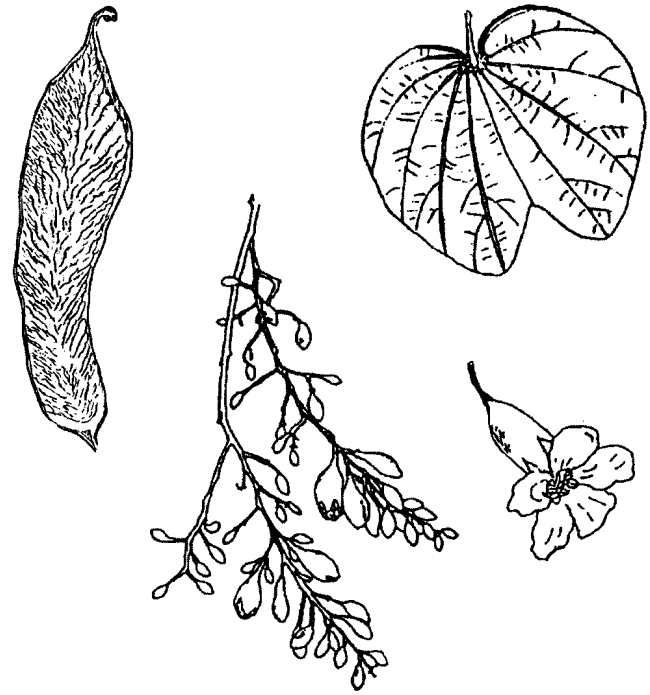
PROPAGATION: Seedlings (sow in pots). Produces root suckers from exposed roots.

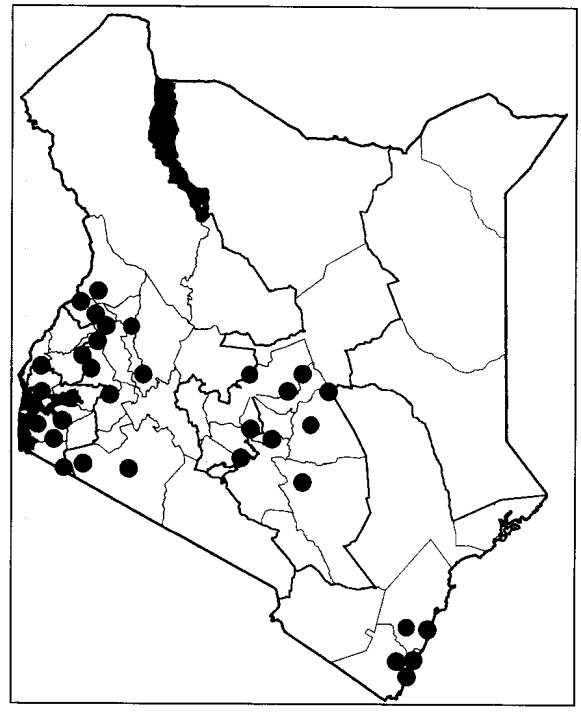
SEED: The tree produces many seeds with good germination rate. About 7,200 seeds per kg. Seeds difficult to extract. Dry the pods in the sun, cut them into pieces and pound in a mortar to separate the seeds from the pulp. **treatment:** Soak seed in cold water for 24 hours, or nick the seed coat at the distal (cotyledon) end of the seed. **storage:** Seed can be stored for long periods.

MANAGEMENT: Fast growing; coppicing, pollarding.

REMARKS: A good tree for intercropping, often left in shambas. Roots and pods a substitute for soap. Roots and bark yield a red-brown dye (Kikuyu, Maasai). The medicinal uses are very important and it is fire resistant.

FURTHER READING: Albrecht, 1993; Backes and Ahenda, 1998; Beentje, 1994; Bein et al., 1996; Bekele-Tesemma et al., 1993; Fichtl and Adi, 1994; Katende et al., 1995, 1999; Kokwaro, 1993; Maundu et al., 1999; Mbuya et al., 1994; Palgrave and Palgrave, 2002; Sommerlatte and Sommerlatte, 1990; Ruffo et al., 2002; Storrs, 1979; van Wyk, 1993; von Maydell, 1990.





Pinus patula Pinaceae

Mexico

COMMON NAMES: English: Mexican weeping pine; **Kikuyu:** Muchinda nugu.

DESCRIPTION: An evergreen tree to 35 m with light green, **weeping foliage** and a long straight trunk, branches more or less horizontal, turning up at the tips. BARK: Grey to dark brown, fairly smooth, papery red-brown on young branches. LEAVES: Long slender 'needles', **soft but hard-tipped, 15–23 cm long, in bundles of 3**. CONES: Female: small hard red spheres mature in 2 years to shiny brown cones; **base oblique, to 10 cm long, in clusters of 2–5 without stalks**. Male: on the same tree, **short terminal catkins,** yellow-brown, producing clouds of pollen. Seeds develop below the cone scales and are released over a long period.

ECOLOGY: Probably the most widely planted pine tree in tropical Africa and generally widespread as a plantation tree. It is tolerant of most soils and will grow in grassland. While growing best with over 1,000 mm rain and a cool climate, it can also grow in more adverse conditions. There are large plantations of this species in western Kenya, the Lambwe Valley and parts of Central Province. Agroclimatic Zones I–III.

USES: Firewood, timber (boxes, pulpwood and construction), posts (treated with preservatives), shade, ornamental, resin.

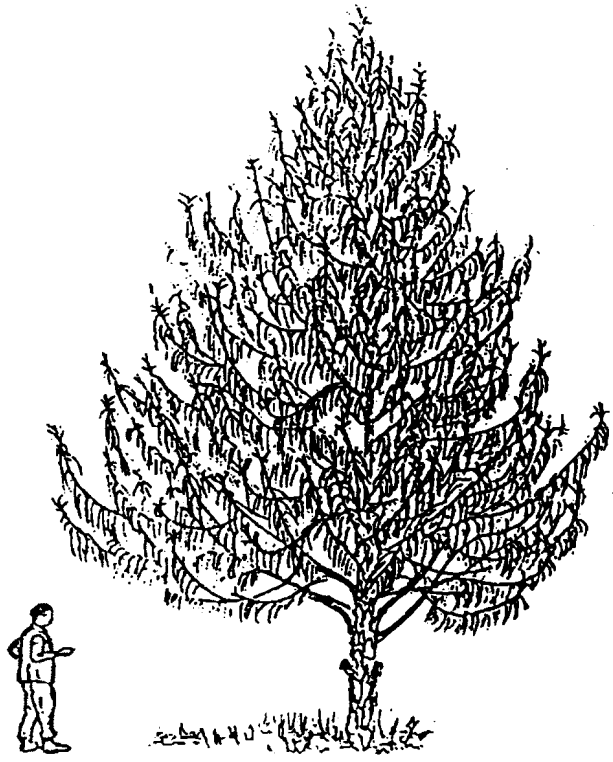
PROPAGATION: Seedlings, wildings. Soil for pines should be inoculated by mixing in some soil collected beneath mature pine trees.

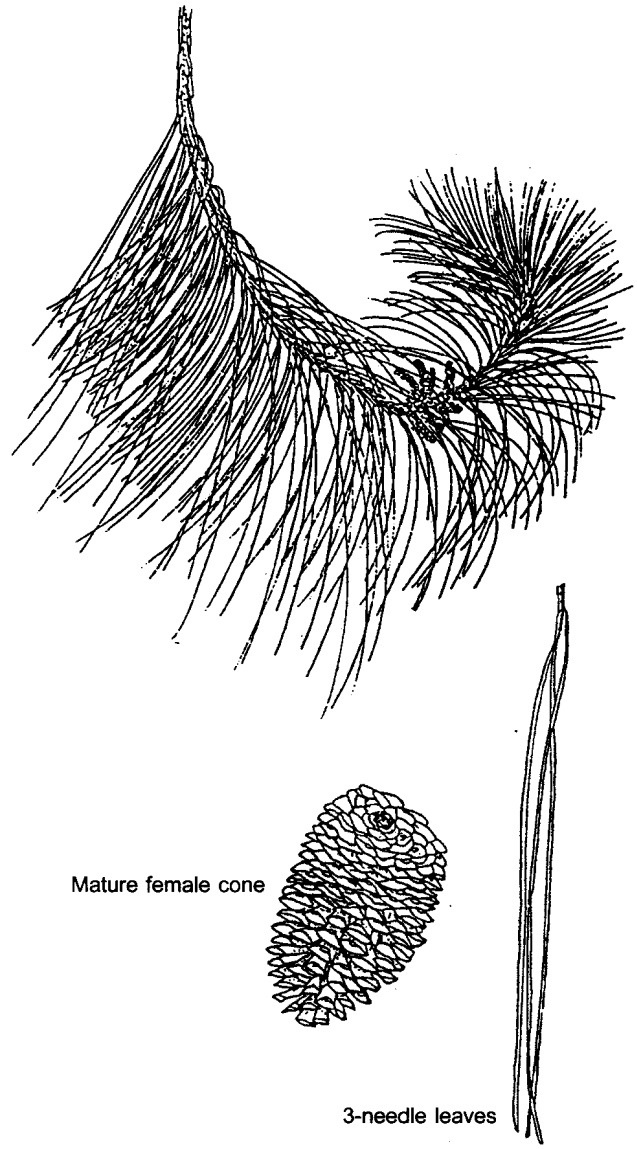
SEED: Approximately 140,000 seeds per kg; germination 75–85% in 35–60 days. A large proportion of the seeds are usually empty.
treatment: Not necessary.
storage: Seed can be stored for long periods.

MANAGEMENT: Fast growing; pruning and thinning for trees grown in timber plantations.

REMARKS: Approximately 30% of all plantation trees in Kenya are of this species. It should not be grown near crops due to its shallow root system. More suitable for woodlots. The genus *Pinus* has close to100 members, found mainly in Europe, South Asia and South America. They are monoecious cone-bearing trees with both scale leaves that are shed and needle-like leaves borne in clusters. They are important timber trees, a source of pulp for paper and of resin, which finds its way to pharmaceutical industries. *P. patula* is the most commonly planted in Kenya but a few other species are also grown. The wood is white to pale brown and light and soft. It finds use in doors, furniture and house ceilings. Wide variations in daily temperatures may result in the wood cracking.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Albrecht, 1993; Bekele-Tesemma et al., 1993; Dharani, 2002; Katende et al., 1995; Mbuya et al., 1994; Noad and Birnie, 1989; Palgrave and Palgrave, 2002; Sommerlatte and Sommerlatte, 1990; Storrs, 1979.





Pistacia aethiopica

Anacardiaceae

Indigenous

COMMON NAMES: **Kamba:** Musaa; **Kikuyu:** Muhehete, Mucherere; **Kipsigis:** Kibirirgorokiet, Chepkorokwet; **Maasai:** Oldangudwa, Oltangotua; **Samburu:** Olongoronok, Iltorel, Lasamarai; **Tugen:** Tulda.

DESCRIPTION: A spreading evergreen shrub or tree usually 3–15 m, often multi-stemmed. BARK: Rough, brown-black, exuding a resinous gum if cut, most parts smell of turpentine or mango when crushed. LEAVES: Compound to 10 cm long on a characteristic winged stalk, **aromatic,** usually 3–4 pairs of opposite leaflets, each 1–5 cm long, **red when young,** stiff when mature, few or no hairs. FLOWERS: Very small, greenish (olivaceous), purplish or yellow-cream **with a red tinge on the stalks, in compact heads on stalks** 1–5 cm, no petals but tiny petal-like bracteoles, 4–6 stamens. FRUIT: Small, rounded, **red on one side only,** to 5 mm diameter, containing one flattened seed, smelling like mango when crushed.

ECOLOGY: In Kenya, very common in highland parts of Kajiado and also around Nairobi and the highlands along the Rift Valley, such as Loita highlands. Occurs in dry upland forest often in association with *Juniperus procera, Podocarpus* and *Olea* and associated evergreen bushland or thicket and wooded savanna, 800–2,400 m. More or less wiped out around Nairobi as it is cut to obtain a gum for chewing. Agroclimatic Zones III–IV.

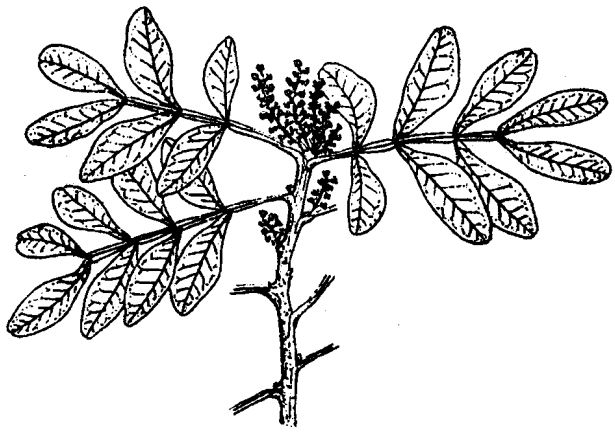
USES: Firewood, poles (house construction), tool handles, edible gum, drink (a root or bark infusion is drunk as a herbal tea), medicine, bee forage, ornamental, tooth-brushes (twigs).

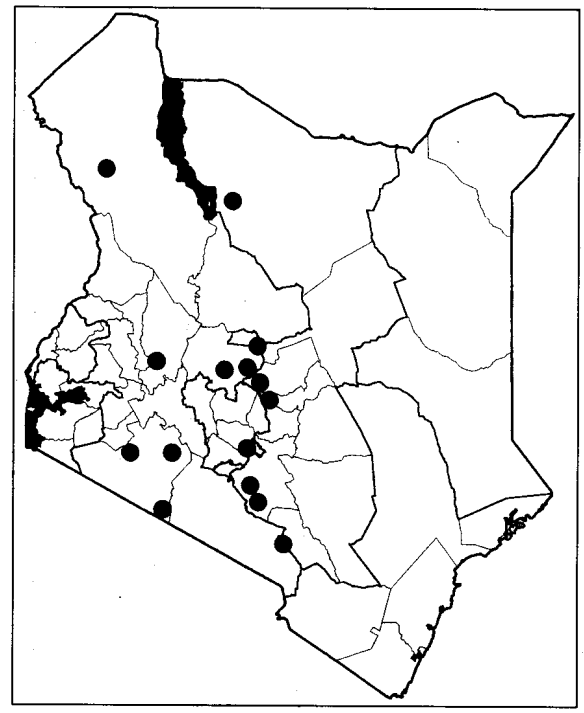
PROPAGATION: Seedlings.

REMARKS: The trunk yields a high-quality gum that is chewed by the Maasai. Several other species in the genus occur in the Mediterranean region, and also Asia and America.

The commercial pistachio nut (edible, also used in ice creams, etc.) comes from *P. vera*, a tree of west and central Asia, but this species has never been successfully introduced into Kenya. The aromatic resin of *P. atlantica* is used for varnish (Bombay mastic) and flavouring drinks.

FURTHER READING: Beentje, 1994; Noad and Birnie, 1989; Ruffo et al., 2002.





Pithecellobium dulce

Fabaceae (Mimosaceae)

Latin America

COMMON NAMES: **English:** Madras thorn, Manila tamarind; **Swahili:** Maramata.

DESCRIPTION: A thin shapeless shrub or tree 4–15 m. BARK: Pale and smooth with horizontal marks, bole short, young branches thorny, drooping. LEAVES: Thin stalks bear **2 pairs of leaflets, each to 5 cm,** asymmetric oval, the tip rounded or notched, short spines at the base of each leaf pair. FLOWERS: Small, cream-yellow on a short stalk, bunches of green-white stamens 1 cm across. FRUIT: **Heavy pods, about 12 cm, spirally twisted,** narrowed between seeds, red when mature, splitting to release glossy black seeds almost covered with the fleshy red and white edible aril. A sweet pulp surrounds the seeds.

ECOLOGY: Introduced in many parts of the tropics as a shade, fruit and hedge plant, and now widely naturalized in some areas, including Kenya (e.g. Thika and the coast). Found in bushland and on the fringes of woodland at lower altitudes. Tolerates arid and semi-arid conditions. Agroclimatic Zones III–VI.

USES: Firewood, poles (construction), edible fruit, drink (beverage from fruit), fodder (leaves, pods and seeds), bee forage, shade, sand stabilization, soil conservation, windbreak, tannin, oil (from seeds), live fence.

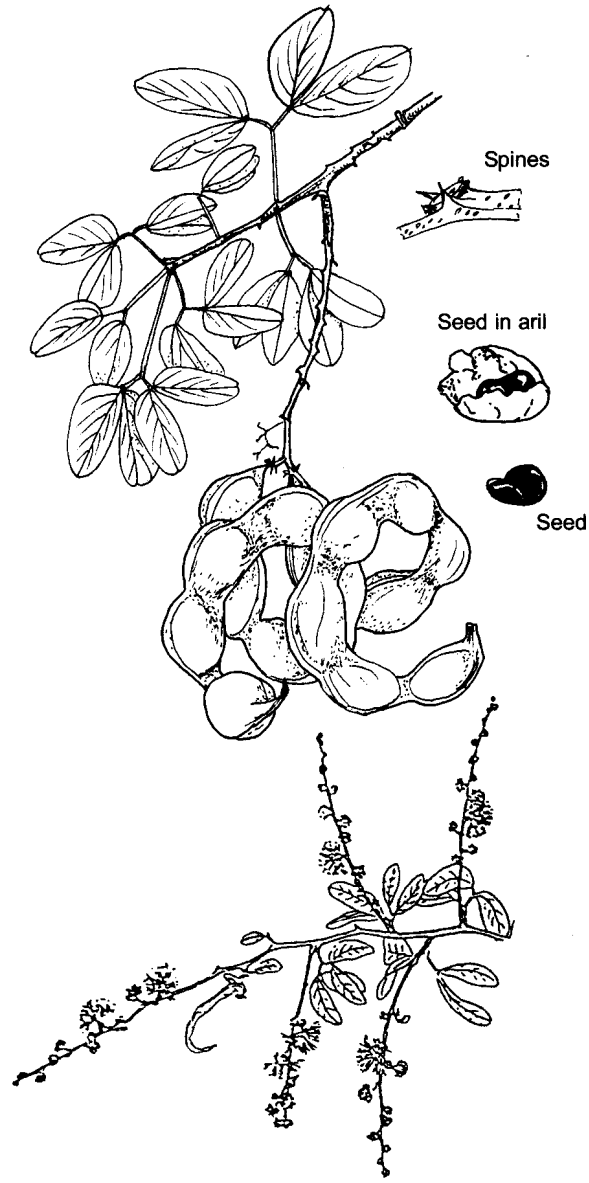
PROPAGATION: Seedlings, direct sowing at site, cuttings.

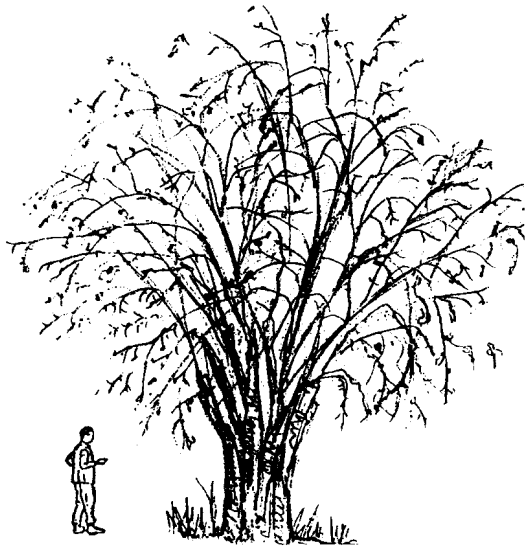
SEED: 7,000–16,000 seeds per kg.
treatment: Not necessary.

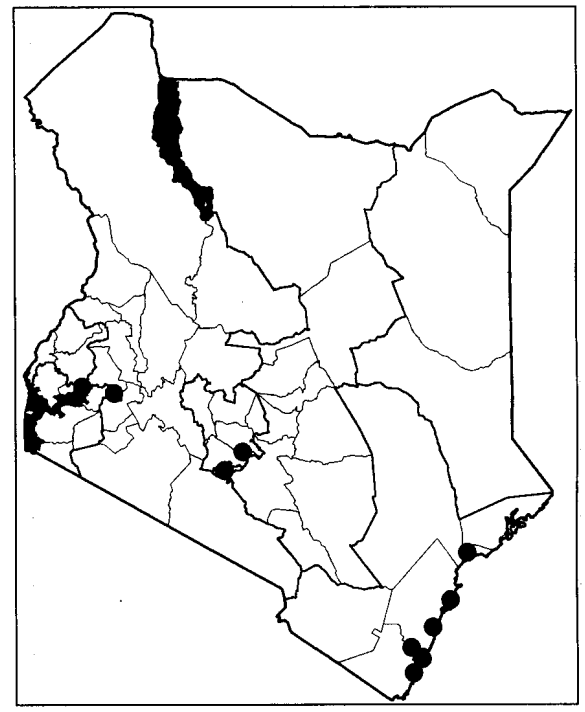
MANAGEMENT: Fairly fast growing; coppicing, trimming (for live fence).

REMARKS: This species has the potential for becoming a weed if not well managed. It is popular as a spiny hedge. The fruit pulp may be made into a drink. This genus has over 3 dozen species found in the warmer parts of America.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Beentje, 1994; Bein et al., 1996; Bekele-Tesemma et al., 1993; Dharani, 2002; Fichtl and Adi, 1994; Jensen, 1999; Mbuya et al., 1994; National Academy of Sciences, 1979, 1980.







Plectranthus barbatus

Labiatae

Indigenous

COMMON NAMES: **Kamba:** Kyooya, Kyoya, Muvou, Mwoya, Mwooya; **Kikuyu:** Maigoya; **Luhya:** Shilauha; **Luo:** Okita; **Meru:** Mwaraka; **Nandi:** Irakwet.

DESCRIPTION: An aromatic woody herb forming a dense bush or shrub 1–4 m high. **Stems and roots somewhat fleshy**. Young stems angled in cross-section. LEAVES: **Large, soft,** widest in the middle or towards the base, **up to 12 x 11 cm**, softly hairy on both surfaces, margins toothed, aromatic. FLOWERS: **Blue to blue-purple**, in terminal heads up to 40 cm long.

ECOLOGY: A tropical Old World species. In Kenya, widely distributed from the coast to western regions, but rather uncommon at the coast and in the very dry areas of north and north-eastern Kenya. Found at forest margins, in wooded grasslands, rocky grasslands and moist bushland, and frequently planted as a hedge, 600–2,800 m. Agroclimatic Zones I–IV.

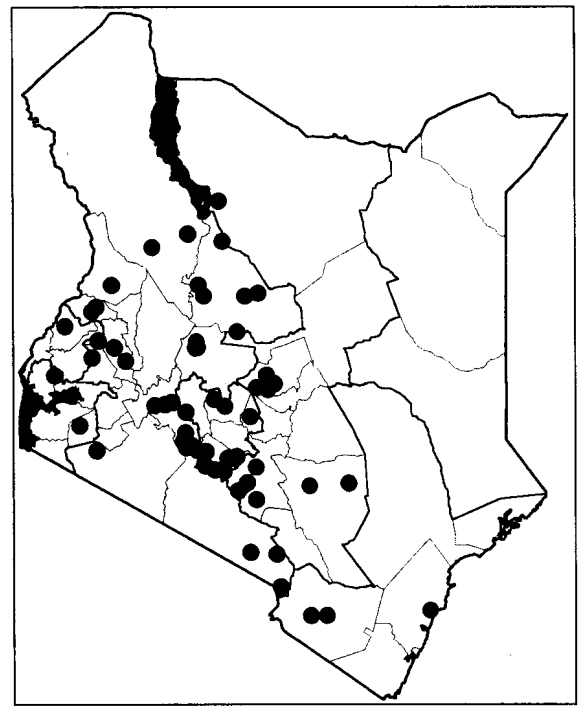
USES: Medicine (shoots, roots), live fence, banana ripening (leaves), alternative to toilet paper (leaves), perfume (fragrant leaves), ornamental.

PROPAGATION: Cuttings and rhizomes.

MANAGEMENT: Coppicing; once established it shoots up fast after cutting from the succulent below-ground stems and roots.

REMARKS: This is the commonest of the larger *Plectranthus* species in Kenya. It is commonly used as a hedge plant, especially among the Kikuyu and Kamba. Leaves are used to speed up banana ripening. Leaves are soft and used as a natural toilet tissue. It is commonly used for medicine. Many species in this genus have beautiful flowers and hence potential as ornamentals. *Plectranthus* is a relatively large genus with close to 200 members in the warm parts of the Old World.

FURTHER READING: Beentje, 1994; Blundell, 1987; Fichtl and Adi, 1994; Kokwaro, 1993.



Podocarpus falcatus (P. gracilior)

Podocarpaceae

Indigenous

COMMON NAMES: English: Podo; **Keiyo:** Benet; **Kikuyu:** Muthengera; **Kipsigis:** Saptet; **Maasai:** Olpiripiri, Orpiripiri, Ormusanduku; **Marakwet:** Ben, Benet; **Meru:** Mubiribiri; **Nandi:** Pirripirriet; **Ogiek:** Marabet; **Samburu:** Piripirindi; **Sabaot:** Sapta, Saptet; **Tugen:** Benet; **Turkana:** Lotimat.

DESCRIPTION: An evergreen tree with a straight bole, to 25 m or more. BARK: **Grey to dark brown, cracking and scaling into irregular rectangles**. LEAVES: Narrow, shiny dark green, **2–5 cm, gradually tapering**. Young leaves larger and brighter giving a **green flush**. CONES: 1–3 male catkins, **yellow-brown, about 2 cm**; female cones hard, rounded to 2 cm, very slow to develop, **green with dull purple bloom**, outer shell thin but inner flesh eaten by monkeys and birds.

ECOLOGY: Podo trees are mainly found in the southern hemisphere, particularly in the temperate zones and tropical highlands. They are conifers, the closest related species being yews and junipers, not pines. They are also known as yellow-woods. *P. falcatus* is a large tree of upland subhumid forest and dry *Olea–Juniperus* forest, 1,500–2,400 m. May be locally dominant in dry highland forests. Found on Mt Elgon and Cherangani Hills, the Loita Hills, Samburu, Baringo and western Mt Kenya. Agroclimatic Zones II–III. Flowers in December–February and fruits in March–April in Mt Elgon.

USES: Firewood, timber (boxes, boards, panelling), furniture, poles, plywood, medicine (bark), shade, ornamental.

PROPAGATION: Seedlings, wildings.

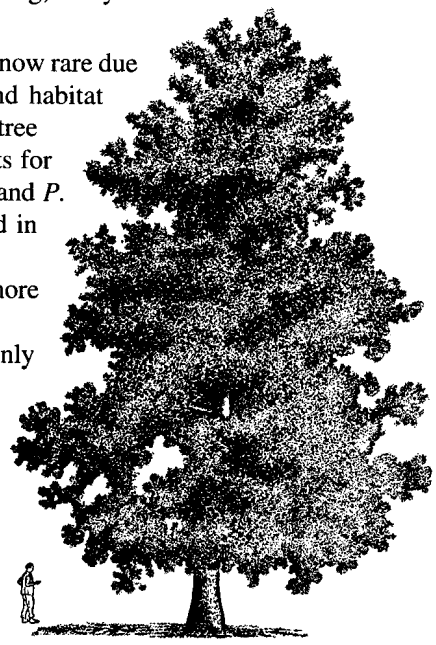
SEED: About 1,300 seeds per kg; germination 30–40%. Separate pulp from seed immediately after collection by soaking in water for 24 hours, then rubbing and floating. Dry seeds.

treatment: Crack the hard woody seed shell before sowing if the seeds were not stored for long. Stored seeds need no treatment.

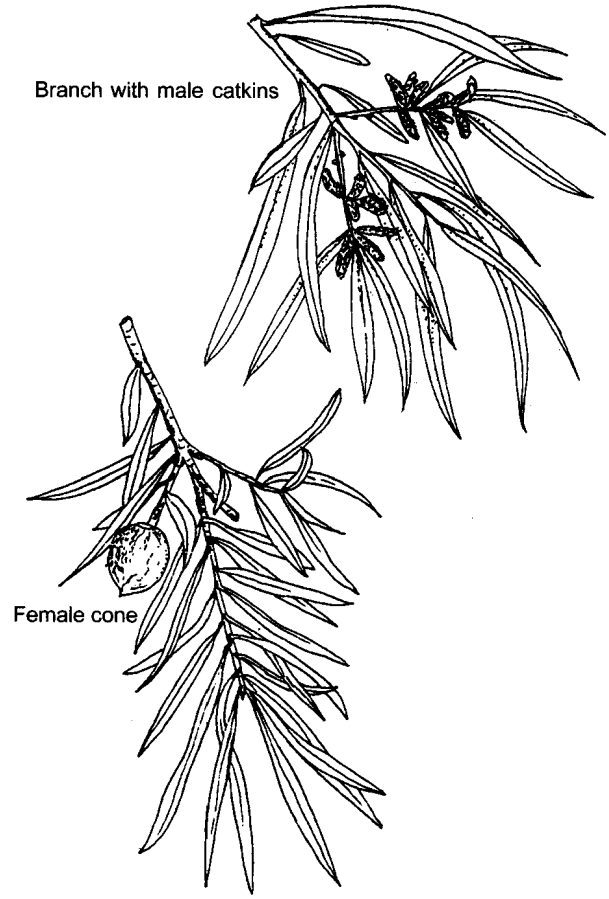
storage: Seed can be stored for long periods.

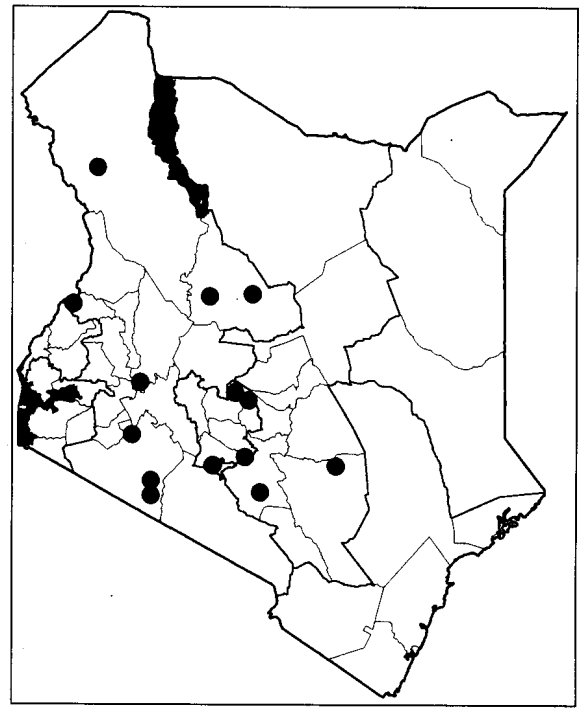
MANAGEMENT: Slow growing; hardy once established.

REMARKS: The species is now rare due to over-exploitation and habitat destruction. The large tree trunks are often habitats for bees. Both *P. falcatus* and *P. latifolius* may be found in same habitats, but *P. latifolius* tends to be more common in the wetter areas. Both are commonly grown as ornamentals and are therefore available in nurseries. The wood needs preservatives and careful seasoning to prevent warping. The genus *Podocarpus* with close to 100 members is mainly found in the temperate parts of the southern hemisphere (e.g. New Zealand, South America). Near the equator the species tend be found in highlands.



FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Albrecht, 1993; Backes and Ahenda, 1998; Beentje, 1994; Bekele-Tesemma et al., 1993; Dharani, 2002; Kokwaro, 1993; Mbuya et al., 1994; Noad and Birnie, 1989; Palgrave and Palgrave, 2002; Sommerlatte and Sommerlatte, 1990; Storrs, 1979; van Wyk, 1993.





Podocarpus latifolius (*P. milanjianus*)

Podocarpaceae

Indigenous

COMMON NAMES: **Elgeyo:** Serti; **English:** Podo, Red-fruited podo, East African yellow-wood; **Kikuyu:** Muthengera; **Luhya:** Mutarai; **Luo:** Okikacha; **Maasai:** Olpoiripiri; **Marakwet:** Serti; **Meru:** Mubiribiri; **Nandi:** Saptet; **Sabaot:** Sitatet; **Samburu:** Olchani; **Taita:** Maisa; **Tugen:** Septa.

DESCRIPTION: A forest tree to 35 m, **evergreen, conical in shape when young,** the trunk large and buttressed in old trees. BARK: Red-brown to grey-brown, narrowly fissured, **peeling in long fibrous strips.** LEAVES: Spirally arranged at the tips of branches, **very shiny, curved,** tough, **to 15 cm,** with a pointed tip, larger and fresh green colour when young. CONES: Male trees have **small pinkish catkins with pollen, to 5 cm;** female trees produce **soft fleshy 'fruit' about 1 cm,** ovoid, the thin leathery skin green-purple with a grey bloom. **The receptacle stalk** below the fruit is characteristically swollen, **soft and red,** 1–2 cm, soon falling ('podocarpus' means 'fruit with a stalk or foot'). The **inner shell is thin and woody** containing 1–2 woody seeds, smaller than those of *P. falcatus.*

ECOLOGY: This tree occurs from central to southern Africa, 900–3,200 m. *P. latifolius* is dominant over *P. falcatus* at higher altitudes and in the more humid highlands. It often dominates the higher subhumid to humid upland forests of Mt Kenya. In Kenya, it grows between 1,500 and 3,350 m, often forming pure stands above 2,600 m, sometimes going into the bamboo zone and associating with bamboo. It does well in Tugen Hills. Agroclimatic Zones I–II.

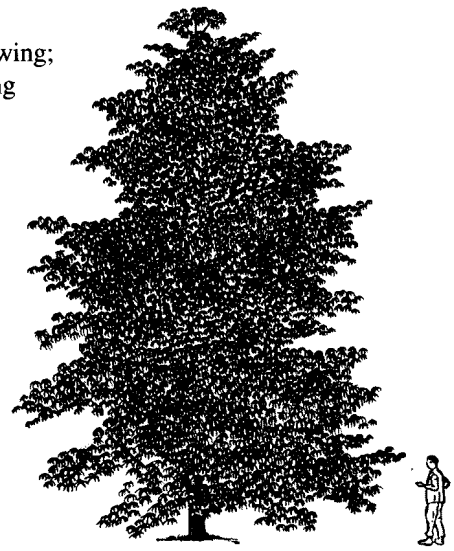
USES: Firewood, timber (boxes, bakery boards), furniture, poles, medicine (roots), shade, ornamental.

PROPAGATION: Seedlings, wildings.

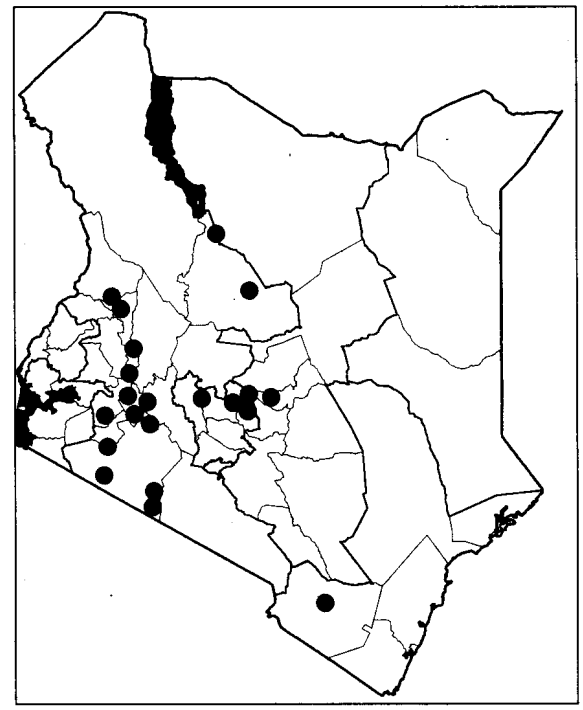
SEED: About 1,900 seeds per kg; germination: 60–80%. Fresh seeds germinate better. After collection, the red receptacle must be removed. The seeds should not be dried.
treatment: Not necessary.
storage: After removal of the receptacle seed can temporarily be stored spread out in the shade for up to 4 days. Seeds must not be dried (recalcitrant).

MANAGEMENT: Slow growing; coppicing when young (pole size).

REMARKS: This is a beautiful tree when young. It has bright green glossy leaves and a conical shape. It is therefore commonly used as an ornamental. The pale straight-grained timber is easy to work and polish.



FURTHER READING: Albrecht, 1993; Beentje, 1994; Katende et al., 1995; Kokwaro, 1993; Mbuya et al., 1994; Noad and Birnie, 1989; Palgrave and Palgrave, 2002; Sommerlatte, 1990; Storrs, 1979.



Polyscias fulva

Araliaceae

Indigenous

STANDARD/TRADE NAMES: Mutati.

COMMON NAMES: English: Parasol tree; **Keiyo:** Auoun; **Kikuyu:** Mutati; **Kipsigis:** Aounet; **Luhya:** Mwanzu; **Luo:** Nyakom ondiek; **Maasai:** Olyalilingi; **Marakwet:** Auoun; **Meru:** Mukurukuru; **Nandi:** Soiyet; **Ogiek:** Muachet; **Sabaot:** Ewondet; **Taita:** Mkanya; **Tugen:** Auwe.

DESCRIPTION: A deciduous tree to 25 m with a straight slender bole to approximately 9 m before the development of **whorls of branches, like spokes of an umbrella**. BARK: Grey, smooth, leaf scars prominent. LEAVES: **Compound, very large, to 1 m, leaflets opposite, to 14 x 8 cm**, base rounded, covered below with **soft golden hairs**. FLOWERS: Cream to light yellow, on long spikes. Primary branches to 70 cm long and secondary branches to 7 cm. FRUIT: Each fruit small, black, more or less oval, often ribbed, closely clustered, to 6 mm long. Agroclimatic Zones I–II.

ECOLOGY: A tall forest tree widely distributed in wetter highland forests into the bamboo zone and southwards to southern Africa, 1,750–2,750 m. Found in the tea-growing areas of Kenya, often left in plantations (Mau, Nandi, Elburgon, Tigoni, Nyambeni, Solai).

USES: Firewood, timber, beehives, veneer, plywood, utensils (containers, tea chests), mole traps, medicine (leaves), bee forage, mulch.

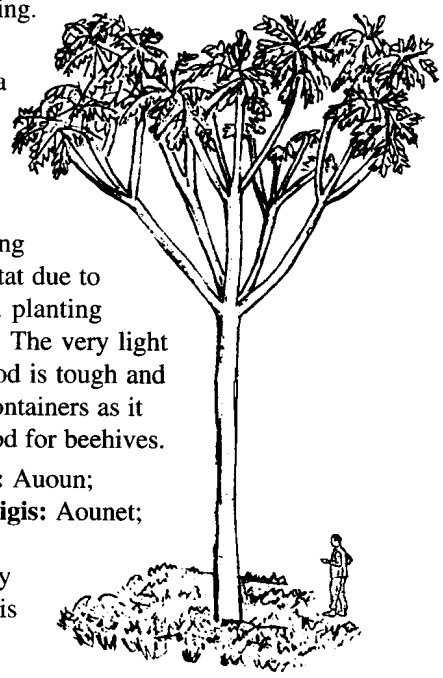
PROPAGATION: Wildlings, seedlings.

SEED: Can be collected from the ground, or collect fruits immediately they turn purple-black by climbing the tree. Let fruit mature in the shade for 1–2 days, then extract by soaking in cold water for 4–6 hours, squeeze out and separate by floating in water, then dry in the shade. About 300,000 seeds per kg; germination rate may be 75% in 35–45 days.
treatment: Not necessary, but soaking in cold water may speed up germination.
storage: Seed can be stored for long periods.

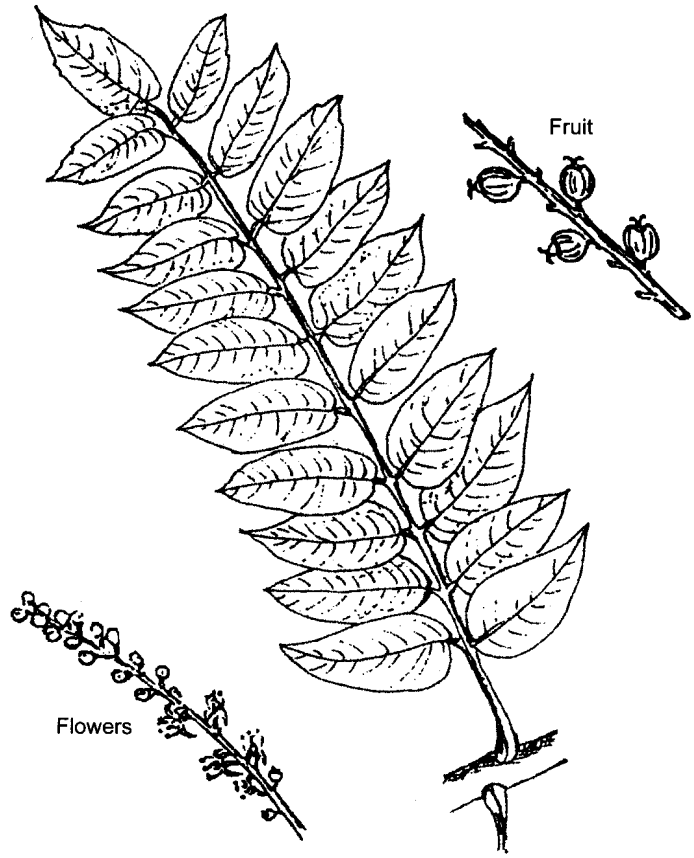
MANAGEMENT: Fast growing.

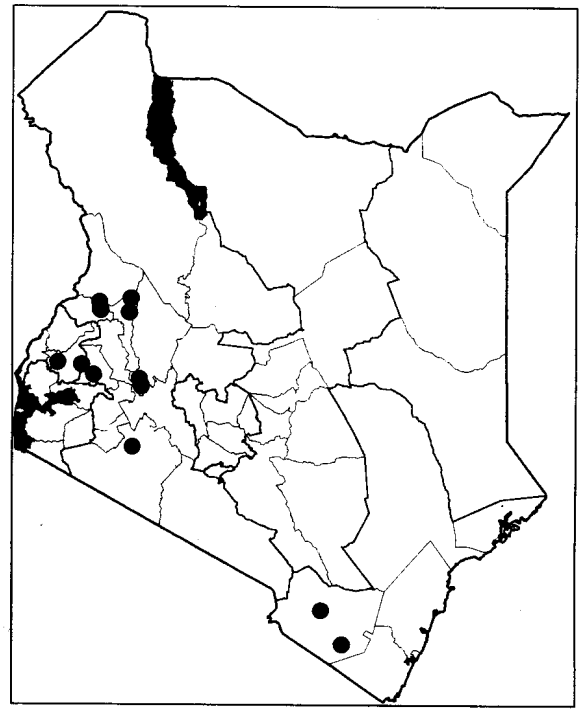
REMARKS: Can be grown with crops, e.g. banana or coffee. The high crown lets in sunlight and the leaves produce good mulch. The species is becoming rare in its natural habitat due to over-exploitation, and planting should be encouraged. The very light soft pale-coloured wood is tough and strong and good for containers as it has no smell. Also good for beehives.

P. kikuyuensis (**Keiyo:** Auoun; **Kikuyu:** Mutati; **Kipsigis:** Aounet; **Meru:** Mukurukuru; **Tugen:** Auweis) is very similar to *P. fulva* but is endemic to the central part of Kenya. Another species is *P. stuhlmannii* var. *stuhlmannii* (**Taita:** Kidongadi) endemic to the Taita Hills and Usambara and Uluguru Mountains in eastern Tanzania. The leaflets are hairless in this species.



FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm (*P. fulva*); Albrecht, 1993; Beentje, 1994; Dharani, 2002 (*P. fulva*); Fichtl and Adi, 1994; Katende, 1995 (*P. fulva*); Mbuya et al., 1994; Noad and Birnie, 1989.





Populus ilicifolia

Salicaceae

Indigenous

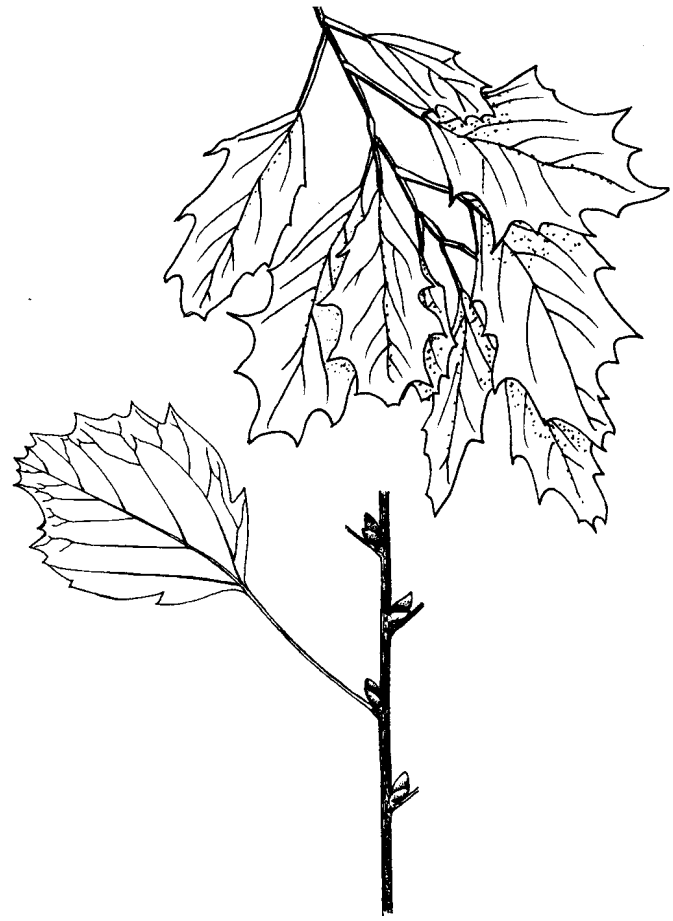
COMMON NAMES: **Boni:** Siricha; **Boran:** Guduba; **Duruma:** Mlalali; **English:** Tana River poplar; **Ilchamus:** Mulalati; **Kamba:** Muti wa udi, Muti woosi, Mungai; **Orma:** Lalafto; **Pokomo:** Lalaftu, Mlalahe; **Sanya:** Malalai; **Somali:** Sirkh.

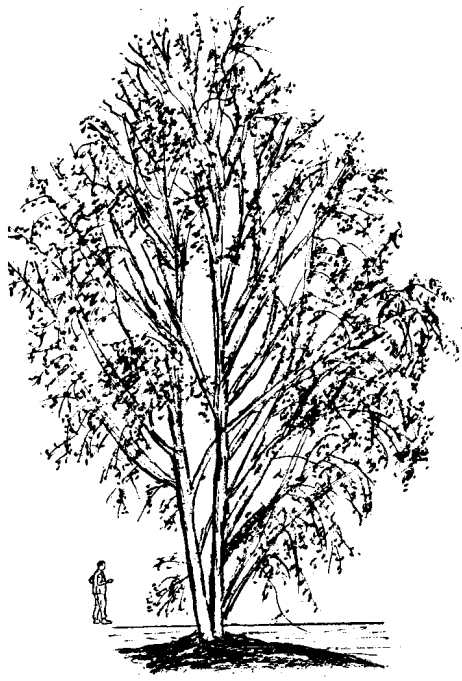
DESCRIPTION: A tall semi-deciduous or evergreen tree to 30 m. BARK: Smooth and white, becoming brown-grey and rough with deep fissures. LEAVES: **Grey-green or yellow-green, irregularly lobed**, widest in the middle or slightly towards the base (may vary from thin and without lobes to deeply toothed on seedlings, young plants and coppice shoots), tip long-narrow or ending abruptly (cut) and lobed or notched, 4–12 cm long, smooth, leaf stalk usually twisted so that the leaves hang vertically. FLOWERS: Dioecious (male and female on separate plants) in catkins (fluffy wind-pollinated heads/spikes), **male catkins axillary**, reddish, 1–2 cm long with 6–9 flowers; **female terminal**, yellow-green 1–4 cm long with 5–15 flowers. FRUIT: Ovoid **warty capsules**, pale grey, later pink, up to 15 mm long, 2–4 valved. Seeds are covered with cotton-like hairs.

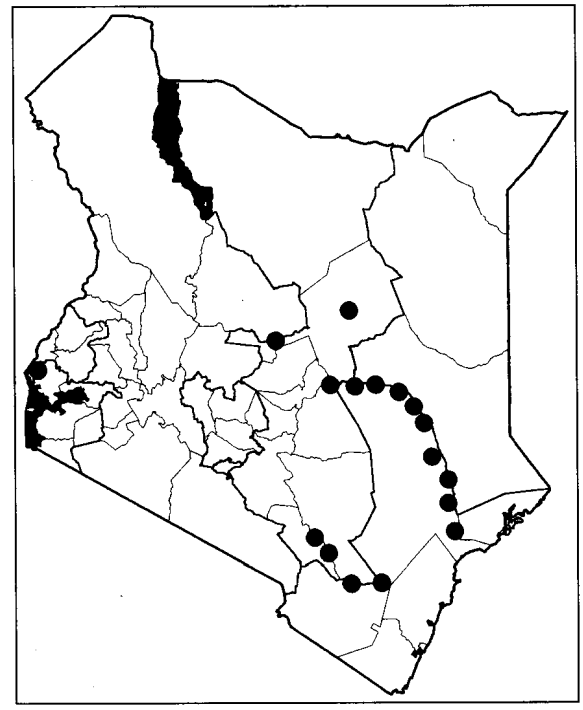
ECOLOGY: An endemic to Kenya, this species marks the southern-most natural distribution of the genus. Locally common in and restricted to riverine forests, sandbanks, riparian woodland along the banks of the Athi/Galana, Tana and Uaso Nyiro Rivers at low altitude, 0–850 m. A small population occurs near Ahero along the Nyando River in western Kenya at higher altitude than the rest of the area of distribution, but these trees we're probably planted. Usually found in alluvial soil but can also grow on other soils, including black cotton, so long as moisture and temperature levels are high. Agroclimatic Zones III–VII (riverine in all cases). Flowering periods are irregular, much influenced by moisture levels. Flowering in November (Yala); seeds mature in August–December in most areas, but also March–April in a few cases.

USES: Firewood (poor quality), poles, posts, beehives, utensils (mortars), boat building (canoes), withies, fodder, ornamental, avenue tree, river-bank stabilization.

PROPAGATION: Wildings, root suckers, layering, stem and root cuttings. Root suckers can be used for propagation of many species belonging to this genus.







Populus ilicifolia (cont)

MANAGEMENT: Requires deep well-drained soils. Fast growing and coppices well. Roots of most poplars can be troublesome near pavements, houses and drainage systems and should therefore not be planted near these structures.

REMARKS: Wood used by the Pokomo for poles and in canoe making, but it is soft. Some trees along the Tana show dieback (drying from the top) and leaves fall in substantial amounts during the rainy season. Seeds germinate easily when covered by alluvial soils. Livestock and elephants eat the leaves. The crown is thin, especially during the rainy season (the height of leaf fall) and therefore it may be intercropped with food crops such as maize, rice, millet and bananas. The tree has potential in the wood industry. *Populus* is a northern temperate genus with close to 3 dozen members distributed from North America across Europe and North Africa to Asia. They are popular in gardens and parks and as avenue trees. Most poplars have white soft timbers used for matches and boxes. They do not live long.

FURTHER READING: Beentje, 1994; FAO, 1979.

Pouteria adolfi-friedericii (*Aningeria adolfi-friedericii*) Sapotaceae

Indigenous

STANDARD/TRADE NAMES: Muna, Aningeria.

COMMON NAMES: **Kikuyu:** Muna; **Kipsigis:** Cheptatet; **Marakwet:** Seite; **Meru:** Mutunguru; **Ogiek:** Kipworbet; **Sabaot:** Lulyo, Luliondet; **Tugen:** Kipworbet, Ngecheberet, Nejebbe.

DESCRIPTION: **A very tall tree, to 40 m,** with a **clear straight bole to about 16 m,** topped by a rather **small dense crown,** mature trees **buttressed** at the base. BARK: Pale, grey-brown, smooth to lightly fissured, much **white latex** if cut and an **unpleasant smell.** Flower and leaf stalks, buds and shoots covered with **golden-brown hairs.** LEAVES: Stiff and large to 22 x 8 cm, usually smaller, dark shiny green above, **hairy. Pale orange below, 10–20 pairs prominent veins,** the tip pointed, on a twisted stalk to 2 cm. FLOWERS: Cream-green, very small, in clusters beside leaves, sepals and flower stalks brown, hairy, soon falling to the ground. FRUIT: Hard, green, **narrow, to 4 cm, with a beak,** the soft hairy skin milky but inside is **one shiny brown seed** to 3 cm long with a large white scar (hilum).

ECOLOGY: Found in Democratic Republic of Congo, Rwanda, Sudan, Uganda and Kenya. Grows naturally in moist evergreen rainforests (mainly in Kakamega, Kericho, Mt Elgon, Mathews Range, Meru, Mt Kenya and Taita Hills). Prefers deep fertile soils, 1,450–2,400 m. Agroclimatic Zones I–II.

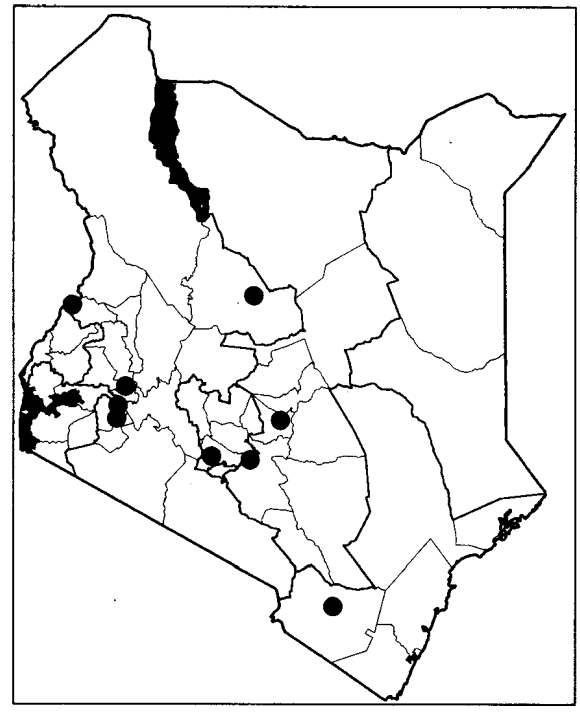
USES: Firewood, charcoal, timber (joinery, flooring, panelling, plywood, veneer), food (edible oil from the nut), shade.

PROPAGATION: Seedlings (sow seeds in pots), wildings.

SEED: 450 seeds per kg.
treatment: Not required, but seed should be sown fresh.
storage: Seed loses viability quickly.

MANAGEMENT: Slow growing; coppicing, pollarding.

REMARKS: This valuable timber tree has been planted in plantations. The wood is medium heavy and hard to saw but polishes well. It has also been planted in degraded montane forests in Uganda. The seed contains edible oil. Three subspecies have been identified in Kenya: subsp. *adolfi-friedericii* in western Kenya, subsp. *keniensis* in the central highlands and subsp. *usambarensis* in the coastal area.



FURTHER READING: Albrecht, 1993; Beentje, 1994; Bekele-Tesemma et al., 1993; Katende et al., 1995; Kokwaro, 1993Noad and Birnie, 1989; Palgrave and Palgrave, 2002; Sommerlatte and Sommerlatte, 1990.

Premna resinosa

Verbenaceae

Indigenous

COMMON NAMES: **Boran**: Dadessa, Tatessa; **Digo:** Mursapungu, Mvuma; **Giriama:** Mkitsano, Mvuma nyuki, Mvuma; **Kamba:** Mukaakaa; **Maasai:** Olmakarikara; **Orma:** Kate dimtu; **Pokomo:** Mukirikonko, Mphumphune; **Pokot:** Kekechwo; **Rendille:** Namaniela; **Samburu:** Lemaloni; **Somali:** Gradha gradha; **Swahili:** Mvumba ngombe; **Taita:** Mugamia, Mugambia; **Tharaka:** Mukarakara; **Tugen:** Kekech; **Turkana:** Ikorderedet.

DESCRIPTION: A much-branched shrub 1–4 m, older stems square in section. BARK: Thin, white-brown, peeling in strips. LEAVES: **Opposite, sometimes in 4s,** 2 large, 2 smaller leaves, oval to 7 cm long, edge sometimes with rounded teeth, usually shiny above and **a few hairs below,** base rounded or **narrowed to a short leaf stalk.** Both sides **dotted with glands,** aromatic-spicy smell when crushed. FLOWERS: **Green-white** with 4 tiny petals, in **loose terminal heads** 2–6 cm long. FRUIT: **Pea-sized or oval, 4–7 mm, red–purple–black** with thin fleshy skin, within the **enlarged green calyx cup.**

ECOLOGY: A common shrub in the drier parts of the region. Widely distributed in arid and semi-arid parts of Kenya, particularly lowland parts of Coast, Eastern, North Eastern and Rift Valley Provinces in dry bushland and thickets. Agroclimatic Zones IV–VI.

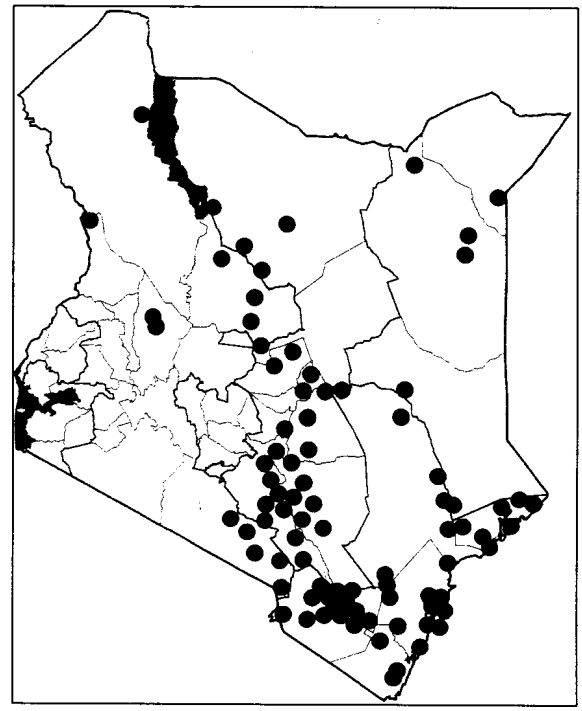
USES: Firewood, tool handles, edible fruit (sparingly), medicine (leaves, roots) fodder (leaves for goats and camels), bee forage, arrows.

PROPAGATION: Seedlings, wildings.

REMARKS: This is a common shrub in dry country. It is, however, very variable.

Most of the other 7 or so species of *Premna* in Kenya have a more limited distribution. Of interest is *P. angolensis* (**Luhya:** Mungalikuru), which can grow to tree size. In this species, leaves are in 4s. The species occurs in Kakamega Forest in forest margins and clearings, but is rare. *P. maxima* (**Meru:** Muchichio) can also grow to a tree over 20 m in height. It is a tree of moist evergreen forest found only in Meru and Marsabit and also rare. Leaves are opposite or in 3s. Both species are hardwoods with good timber. *P. chrysoclada* (**Digo:** Mvuma; **Giriama:** Mvuma nyuki, Mvuma; **Kamba:** Mukaakaa; **Pokomo:** Mukirikonko; **Swahili:** Mvuma nyuki) is a coastal shrub or a small tree with opposite leaves and a dense flower head. Uses are similar to those of *P. resinosa*. Members of this genus tend to have very hard wood, which finds many uses in the household. *Premna* is a genus with several dozen species found from Africa to the Pacific Ocean islands and Australia.

FURTHER READING: Beentje, 1994; Bein et al., 1996.



Prosopis chilensis Fabaceae (Mimosaceae)

Chile, Argentina

STANDARD/TRADE NAMES: Chilean mesquite, Mathenge (Kenya).

COMMON NAMES: **Turkana:** Eterai; **Somali:** Mathenge.

DESCRIPTION: A usually thorny tree or shrub 8–15 m with light to dense foliage. BARK: Grey, cracked. LEAVES: Alternate, compound. **Leaflets well spaced, oblong, tip pointed, narrow, 1.5 cm long, no terminal leaflet.** FLOWERS: In greenish yellow spikes turning yellow-brown. FRUIT: **Pods, about 10 cm long, yellow when ripe,** becoming black, borne in large numbers, each with up to 25 seeds within a slightly sweet pulp.

ECOLOGY: Cultivated all over the tropics. It is drought-resistant and grows on light sandy soils. Tolerates some waterlogging but is sensitive to weed competition while young. Tolerant of extreme temperatures, severe drought and overgrazing. Introduced in Kenya, e.g. in Baringo, Wajir, Magadi, Mandera and Turkana, 0–1,500 m. Listed internationally as an invasive species; invasiveness has been recorded from South Africa and Namibia to Australia. Seeds may remain dormant in the soil for up to 10 years, but germination is enhanced by passage through the digestive tract of herbivores. This species resprouts vigorously after cutting from dormant buds underground, so when attempting to clear it the roots must be grubbed out and the operation repeated in successive years. *Prosopis* species, generally referred to as mesquites, have demonstrated their invasiveness in Kenya too, especially in irrigation schemes in hot areas. Agroclimatic Zones IV–VII. Mature fruit in Garissa and Tana River in December and January.

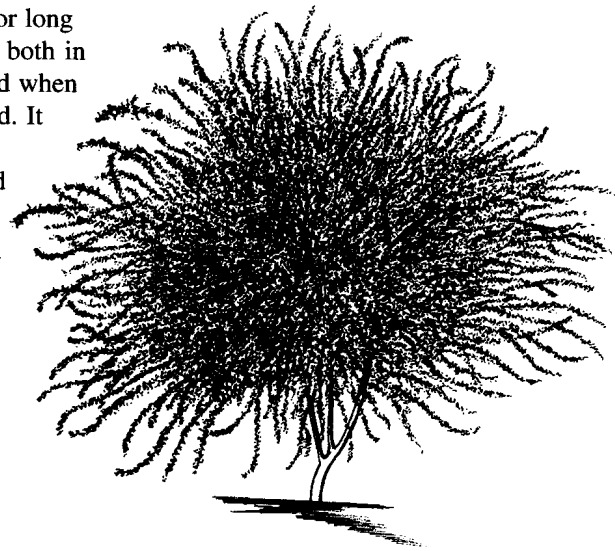
USES: Firewood, charcoal, timber, poles, posts, edible fruit and leaves, fodder (pods), bee forage, shade, soil conservation, gum, tannin, live fence.

PROPAGATION: Seedlings, direct sowing at site.

SEED: Seeds can be extracted by exposing pods to termites or soaking in water. Germination rate may be 45–80% within 10–30 days.

treatment: Immerse in boiling water, remove from fire and allow to soak for a minute. Alternatively, soak in cold water for 24 hours or nick seed.

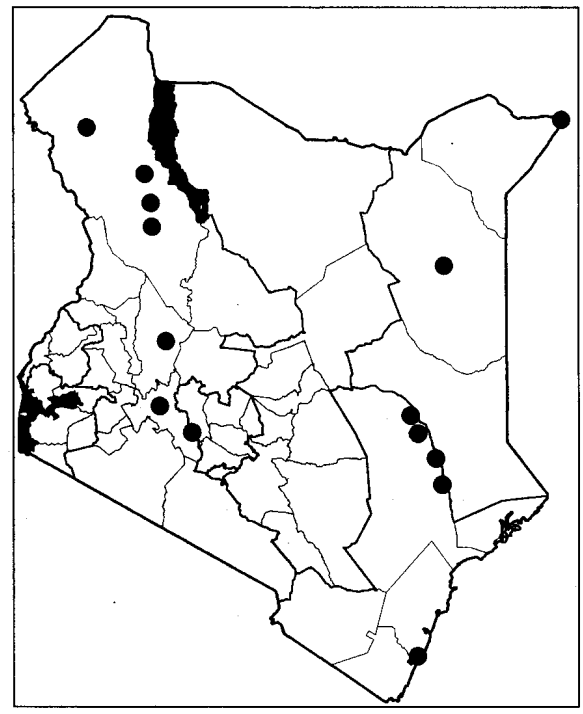
storage: Seed can be stored for long periods, both in pods and when extracted. It is not attacked by insects.



MANAGEMENT: Fairly fast growing even in dry conditions; coppicing, pruning. Leaves and pods can be lopped for goats.

REMARKS: This species has a shapely tree form (unlike *P. juliflora*). Some thornless forms may occur. Since the tree can become a weed in wetter areas, planting in cultivated areas, e.g. irrigation schemes, should be avoided. Pods contain much sugar and are excellent animal feed, sometimes ground to a powder concentrate. The tree has a shallow adventitious rooting system, and a very deep taproot. There are about 44 mesquites, most of which are found in the warmer parts of the Americas and a few in Asia and Africa. A number of them are terrible weeds.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Albrecht, 1993; Bein et al., 1996; Maundu et al., 1999; Mbuya et al., 1994; National Academy of Sciences, 1979, 1980; Palgrave and Palgrave, 2002.



Prosopis juliflora

Fabaceae (Mimosaceae)

Central America, Mexico

STANDARD/TRADE NAMES: Mesquite, Algaroba, Mathenge (Kenya).

COMMON NAMES: **Turkana:** Eterai; **Somali:** Mathenge.

DESCRIPTION: Often a spreading shrub, but can become a shapely tree to 6 m or more, though usually 3–5 m. The bole short, young branches smooth green. BARK: Thick, **rough green-grey,** scaly with age. Some with **pairs of thorns to 5 cm.** LEAVES: Bipinnate with 2–3 pairs of pinnae, stalks to 6 cm, **leaflets oblong narrow,** 1.5 cm long, no terminal leaflet. FLOWERS: Gold-yellow, densely crowded in **spikes, 5–10 cm, fragrant.** FRUIT: **Yellow pod, 10–20 cm (more brittle** than *P. chilensis),* sweeter, darker; 10–20 hard seeds inside, difficult to extract.

ECOLOGY: A thorny shrub or tree cultivated all over the tropics, it grows well in arid regions, producing deep roots and tolerating sandy, rocky or poor and saline soils, 0–1,500 m. Agroclimatic Zones II–VII (riverine).

USES: Firewood, charcoal, timber, poles, posts, carvings, edible fruit, medicine, fodder (leaves and pods), bee forage, shade, nitrogen-fixing, soil conservation, sand-dune stabilization, windbreak, live fence.

PROPAGATION: Seedlings, direct sowing at site. Produces root suckers.

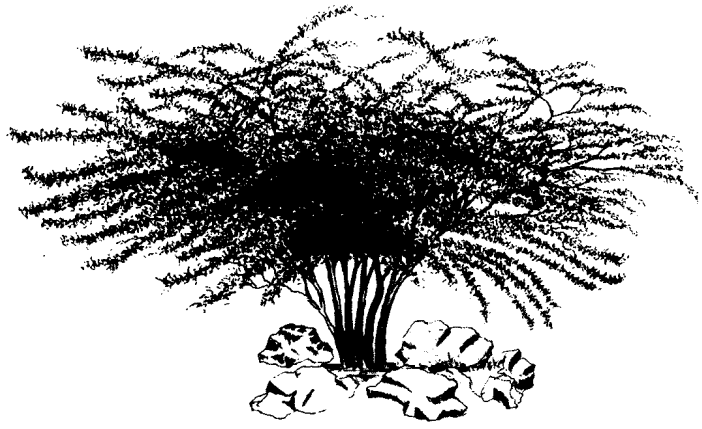
SEED: 8,000–15,000 seeds per kg; germination 40–80%. Seeds can be extracted by exposing pods to termites.
treatment: Not necessary.
storage: Seed stores well, both in pods and when extracted. They are not attacked by insects.

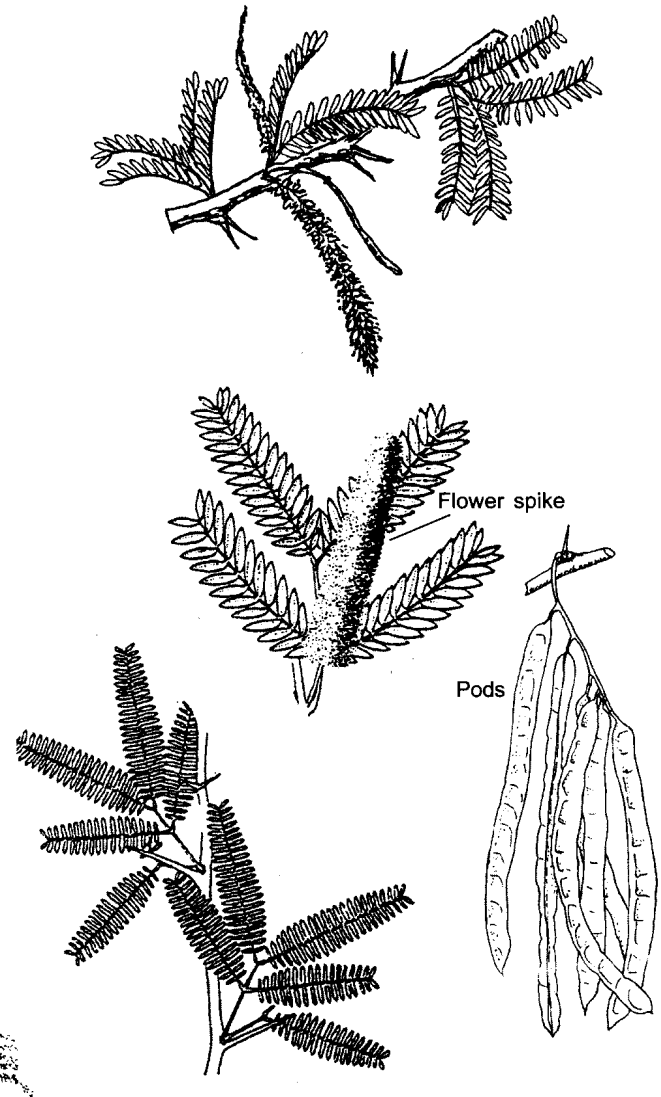
MANAGEMENT: Fairly fast growing; lopping, pollarding and coppicing. Leaves and pods can be lopped for goats.

REMARKS: This tree becomes a weed in hot areas, especially in irrigation schemes, where planting it should be avoided. It sets seed after 3–4 years. This *Prosopis* has a great many variants and is closely related to *P. chilensis*, causing some confusion in identification. But this species is more shrubby than *P. chilensis* and the leaflets are more closely packed; it also spreads faster, blocking rivers and roads, and competes more aggressively with crops.

These 2 species are now widely planted in Kenya, especially in dry areas such as Turkana District. Mesquite was introduced to North Eastern Province in the 1970s and is now naturalized. It has become an aggressive weed in most urban and peri-urban areas of northern Kenya and along the main rivers such as the Tana. Its thorns cause frequent tyre punctures in donkey carts and are reported to cause infections if they pierce the skin. Local herdsmen have attributed some deaths in livestock to prolonged consumption of mesquite. It is also reported that around water ponds the plant discolours water and affects the taste. As a result, people in those areas now have a negative attitude towards this plant.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Albrecht, 1993; Bekele-Tesemma et al., 1993; Dharani, 2002; Katende et al., 1995; Maundu et al., 1999; Mbuya et al., 1994; National Academy of Sciences, 1979, 1980; von Maydell, 1990.





Prunus africana

Rosaceae

Indigenous

STANDARD/TRADE NAMES: Red stinkwood, Prunus (Kenya).

COMMON NAMES: **Kamba:** Mumbaume, Mutimailu; **Keiyo:** Tenduet; **Kikuyu:** Muiri; **Kipsigis:** Arareut; **Kisii:** Omoiri; **Luhya:** Mwiritsa; **Luhya (Bukusu):** Kumuturu; **Maasai:** Olkoijuk; **Marakwet:** Tenduet; **Meru:** Mweria; **Nandi:** Tendwet; **Ogiek:** Tenduet; **Sabaot:** Oromoti; **Swahili:** Kiburabura; **Tugen:** Kunyukwa.

DESCRIPTION: An evergreen tree to 25 m or, rarely, a shrub. In forests, the dense foliage is open, the branches often pendulous, small buttresses occasionally present, but in grassland the tree is more stunted. BARK: Rough, dark, scaling irregularly, branches corky, **branchlets dotted with breathing pores.** LEAVES: Leathery, glossy dark green above, oval to 10 cm, **margin with shallow rounded teeth, leaf stalk typically pink to reddish brown,** to 2 cm. Crushed leaves have a bitter almond smell. FLOWERS: Sprays on stalks about 8 cm long, very small, fragrant, green-white. FRUIT: Rounded, **about 1 cm, dark red to purple-black, often bilobed,** containing one seed and topped by a persistent style.

ECOLOGY: A useful timber tree widespread from West to southern Africa, usually in high-rainfall areas, 1,500–2,300 m. It is a common tree in Kakamega and Nyahururu forests, Limuru and Kericho. Occurs in moist forest and riverine vegetation, also forest remnants and margins. Agroclimatic Zones I–III.

USES: Firewood, charcoal, timber (construction), furniture, poles, utensils (mortars), carvings (earrings), medicine (leaves, bark), bee forage, shade, ornamental, mulch, green manure, windbreak, veterinary medicine.

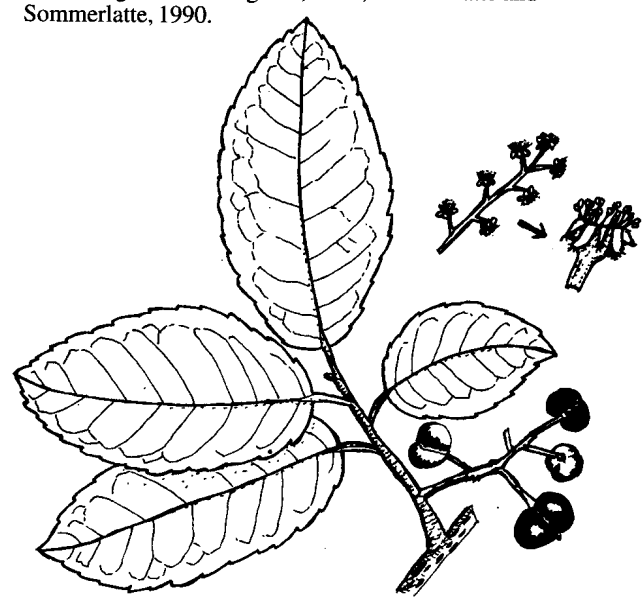
PROPAGATION: Seedlings, wildings.

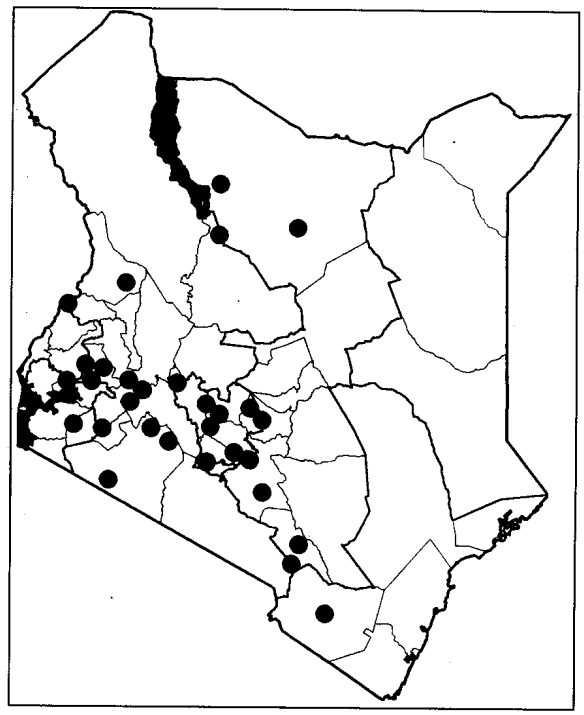
SEED: Average around 5,000 fresh seeds per kg; germination 60–80%.
treatment: Fleshy parts should be removed from the seed.
storage: Seed does not store well (recalcitrant). Fresh seed should be used.

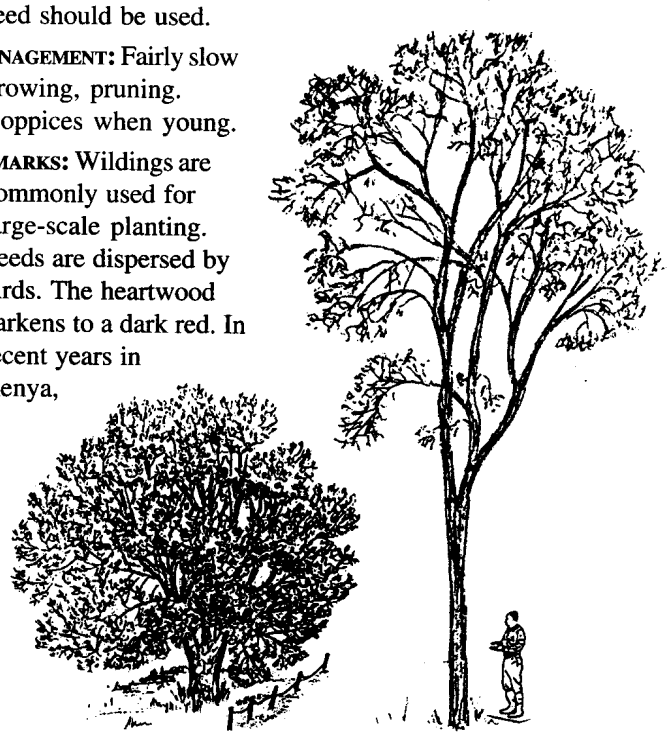
MANAGEMENT: Fairly slow growing, pruning. Coppices when young.

REMARKS: Wildings are commonly used for large-scale planting. Seeds are dispersed by birds. The heartwood darkens to a dark red. In recent years in Kenya, as in several other African countries, this tree has come under heavy pressure of bark extraction. The bark is exported for use by the pharmaceutical industry for the manufacture of a drug used to manage complications associated with prostatism, a benign enlargement of the prostate. The tree is becoming rare in the wild, although now a favourite in agroforestry and afforestation campaigns. It is also increasingly used as a shade tree and ornamental in the homestead. Hollow trees are often inhabited by bees. *Prunus* is a large genus with several hundred members mainly found in the north temperate zones and including well-known fruit such as apricot (*P. armeniaca*), plum, almond, peach and cherry.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Albrecht, 1993; Backes and Ahenda, 1998; Beentje, 1994; Bekele-Tesemma et al., 1993; Dharani, 2002; Fichtl and Adi, 1994; ITDG and IIRR, 1996; Katende et al., 1995; Kokwaro, 1993; Mbuya et al., 1994; Noad and Birnie, 1989; Palgrave and Palgrave, 2002; Sommerlatte and Sommerlatte, 1990.







Psidium guajava

Myrtaceae

South and Central America

COMMON NAMES: **English:** Guava; **Kamba:** Kivela; **Kikuyu:** Mubera; **Luhya:** Lipera; **Luo:** Mapera; **Somali:** Zeitun; **Swahili:** Mpera.

DESCRIPTION: A small evergreen tree to 8 m, branching irregularly. BARK: Smooth, pale brown, later peeling and flaking; **young shoots 4-sided.** LEAVES: Large, **dull and oval to 15 cm long,** side veins prominently hairy below, in opposite pairs. FLOWERS: White, about 2.5 cm across, 1–3 together beside leaves, many stamens. FRUIT: Rounded to 6 cm long, **tipped by remains of the calyx; pink, white or yellow,** depending on the variety. The **sweet flesh** surrounds many hard angular seeds. Seedless varieties exist.

ECOLOGY: A small tree or shrub now widely cultivated in the tropics for its fruit, naturalized in Kenya. The trees grow easily in most light soils. Popular in many areas, including dry ones. Bats, birds, including chickens, cattle, pigs and humans distribute the seed. It is internationally recognized as a serious invader. Recorded as invasive in Hawaii, the Galapagos Islands, South Africa, Zimbabwe and New Zealand. As it regenerates readily from the underground parts by suckering, it is extremely difficult to kill. In Kenya, it has spread extensively in the western parts of the country, particularly humid parts of Western and Nyanza Provinces. However, it does not seem to establish in and colonize natural ecosystems successfully but is a vigorous colonizer of disturbed ground, roadsides, etc. Agroclimatic Zones I–V. Mature fruit May–June in Machakos, July in Nairobi.

USES: Firewood, tool handles, edible fruit (rich in vitamin C), jam, jelly, drink (juice, tea from bark, roots used in soup), medicine, fodder (leaves for goats and camels), bee forage, ornamental, shade, soil conservation, dye (root bark), live fence, toothbrushes.

PROPAGATION: Seedlings, wildings, direct sowing at site, root suckers, root cuttings, air layering, grafting. Guava grown for processing may be propagated by seed; about 70% of seedlings retain the general characteristics of the mother tree. Guava grown for fresh fruit should be clonally propagated. Air layering is possible, but for larger numbers shield or patch budding or grafting onto seedling rootstocks is recommended.

SEED: Produces many seeds. Propagation by seed is very easy.
treatment: Not necessary.
storage: Seed can be stored for long periods.

MANAGEMENT: Fast growing; pruning, coppicing. Lower branches need constant pruning.

REMARKS: Trees begin to bear fruit after 2 years and continue fruiting up to 30 years. Improved varieties (fruit size and quality) exist. The wood is termite resistant. Quite competitive and branches and roots need pruning if grown with crops. The genus *Psidium*, with about 100 members, is tropical American. Several other species with smaller fruit are also cultivated in Kenya.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Bein et al., 1996; Bekele-Tesemma et al., 1993; Dharani, 2002; Fichtl and Adi, 1994; Jensen, 1999; Katende et al., 1995; Lötschert and Beese, 1983; Mbuya et al., 1994; National Academy of Sciences, 1983; Noad and Birnie, 1989; Verheij and Coronel, 1991.

Raphia farinifera

Arecaceae (Palmae)

Indigenous

COMMON NAMES: **English:** Raffia palm; **Swahili:** Mwaale; **Taveta:** Mavale, Mwaale; **Tharaka:** Mware.

DESCRIPTION: A massive palm growing in clusters in swamp forest, reaching 25 m but usually much less; the trunk 60 cm or more across and to 10 m high, covered with large leaf bases, old rotting ones, plant debris and epiphytes. LEAVES: Pinnate and erect, only slightly spreading, to 8 m long, usually less, the base sheathing the stem. The leaf stalk very strong, orange-brown to crimson when young, cylindrical to 1.5 m long and 20 cm diameter at the base, narrowing to 12 cm across where leaflets arise; 150 or more leaflets grow in 2 planes, each to 1 m long, 8 cm wide, edged with little spines, hardly drooping or rather stiff. Leaflets like an upside-down 'V' in cross-section. FLOWERS: Male and female flowers on the same plant, grow in massive hanging heads from the top of the stem, to **3 m x 35 cm.** After flowering the plant dies, often the majority in an area dying in the same year. FRUIT: Resembling a cone, **shiny orange-brown and ovoid, about 10 cm long by 5 cm across,** with 12–13 rows of tightly packed convex scales. Inside are an oily layer and one seed about 5 cm long, shaped like the fruit.

ECOLOGY: A palm tree that grows in eastern Africa and throughout southern tropical Africa. It is widespread in riverine forest and freshwater swamp forest and is frequently cultivated. In Kenya, it grows in low-lying wet places and along river banks. Found, for example, at Fourteen Falls on the Athi River near Thika and in the wetter forests of the Lake Victoria belt, up to 1,400 m. Also found on the south coast. Thrives in deep black sandy clay loams. Agroclimatic Zones II–IV.

USES: Furniture (leaf stalks), edible oil (extracted from the fruit), fibre (from leaves for ropes, mats and baskets), thatch (leaves), rafters (leaf midrib), chairs (leaf midrib), ladders (leaf midrib), decoration (fruit).

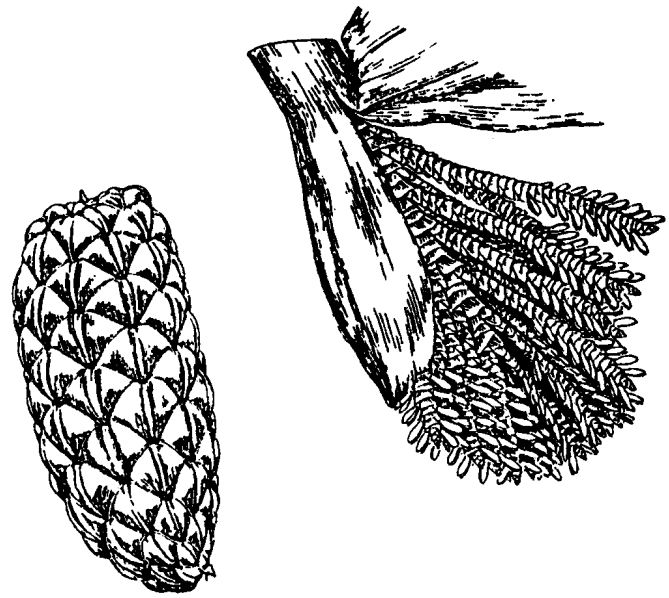
PROPAGATION: Seedlings (sow seeds in pots) and wildings.

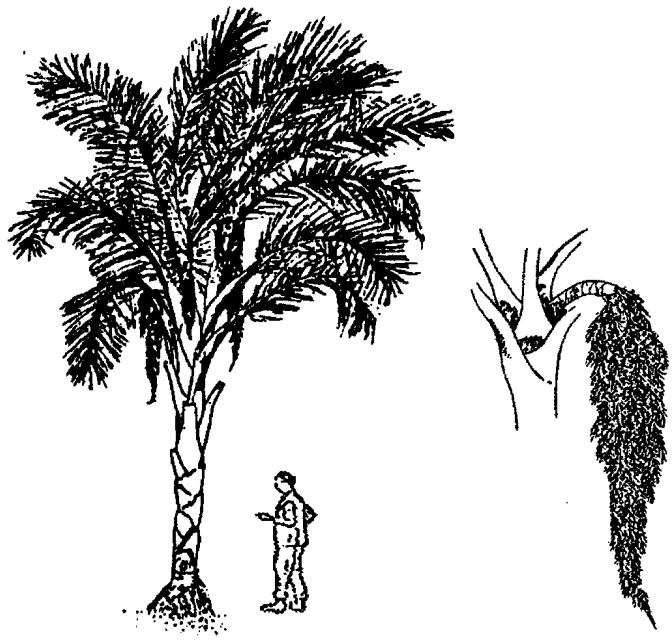
SEED: The large seed can be collected under old trees.
treatment: Not necessary.
storage: Avoid storage. The seed is very hard.

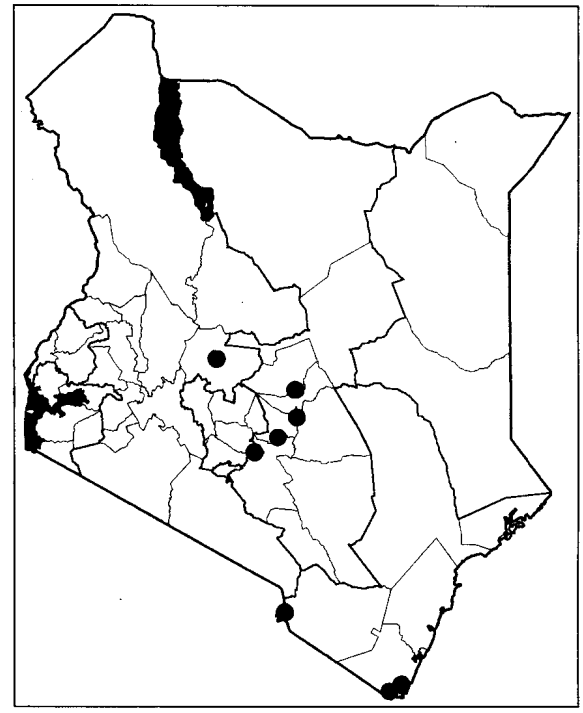
MANAGEMENT: Grows on raised ground in wet or moist areas.

REMARKS: *Raphia* has some of the biggest leaves of all plants. This species is quickly disappearing as its habitat is being destroyed. There is a need to protect its habitat and control its use to prevent over-exploitation. The outer skin of young leaflets is stripped off and makes excellent fibres for ropes and baskets—the raffia of commerce. The strong midrib is used locally for rafters, chairs and ladders. Leaf stalks are used for furniture and leaves make a good thatch.

FURTHER READING: Beentje, 1994; Dharani, 2002; Katende et al., 1995, 1999; Palgrave and Palgrave, 2002; Ruffo et al., 2002; Storrs, 1979.







Rauvolfia caffra Apocynaceae

Indigenous

COMMON NAMES: **English:** Quinine tree; **Kikuyu:** Mutongo, Mwerere; **Kipsigis:** Rerendet; **Kisii:** Omumure; **Luhya (Bukusu):** Kumunandebe; **Luo:** Obokeran, Ogandi; **Maasai:** Olemudongo; **Meru:** Mutuu; **Swahili:** Mkufi, Mwembe mwitu; **Taveta:** Mbariabari; **Tharaka:** Mukinduri munene.

DESCRIPTION: A much-branched evergreen tree up to 35 m high with a straight bole reaching 1.5 m in diameter and with a leafy, spreading crown. The tree **resembles mango** but is more oval and less dense, branches often whorled. BARK: Light brown or greyish white with irregular fissures. LEAVES: Thinly leathery, arranged in **whorls of 3–5 towards the ends of branchlets, shiny, dark green** above, 6–32 cm long and 1.5–7.5 cm wide, tip drawn out. If removed, thin **white latex** drips out. FLOWERS: Small, **white, tubular, sweet scented**, in large **dense clusters, to 20 cm across**. FRUIT: Rounded and smooth, about 1.3 cm across, green at first, changing to **blackish purple** and wrinkled when ripe, 1–2-seeded.

ECOLOGY: Widely distributed in Africa from Ghana in the west to Kenya and south to South Africa. In Kenya, Tanzania and southern Africa it is found in riverine *Brachystegia* woodland, lowland forests, dry and wet montane forests; 0–2,100 m, rainfall 500–1,300 mm. It is a characteristic feature of areas where there is a high groundwater table. Agroclimatic Zones II–III.

USES: Firewood, timber, furniture (stools), beehives, utensils (grain mortars), medicine (bark, roots), bee forage, shade (in coffee), ornamental, veterinary medicine.

PROPAGATION: Easily grown from seedlings, wildings or cuttings. Produces root suckers.

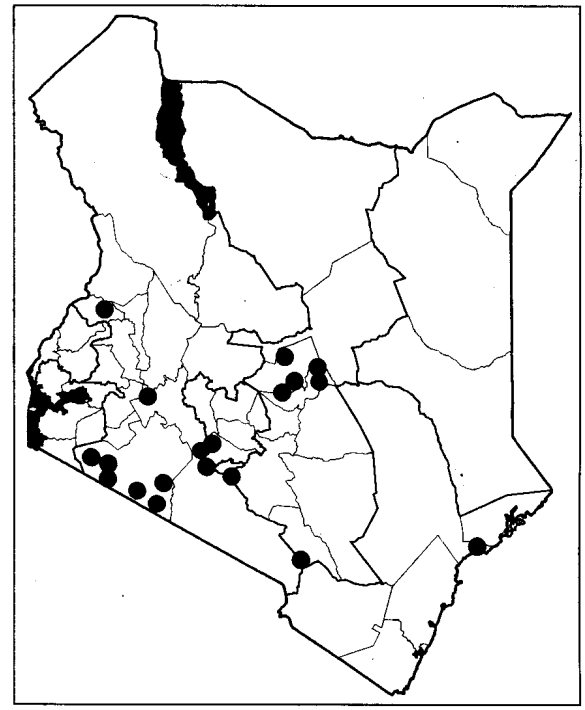
SEED: 4,500–5,000 seeds per kg.
treatment: Remove fruit pulp and wash with water before sowing. Sow in a seedbed and prick out at the 3-leaf stage. Germination is fast and good; up to 80% after 2 weeks.
storage: Can retain viability for only a short period (1 month) at room temperature.

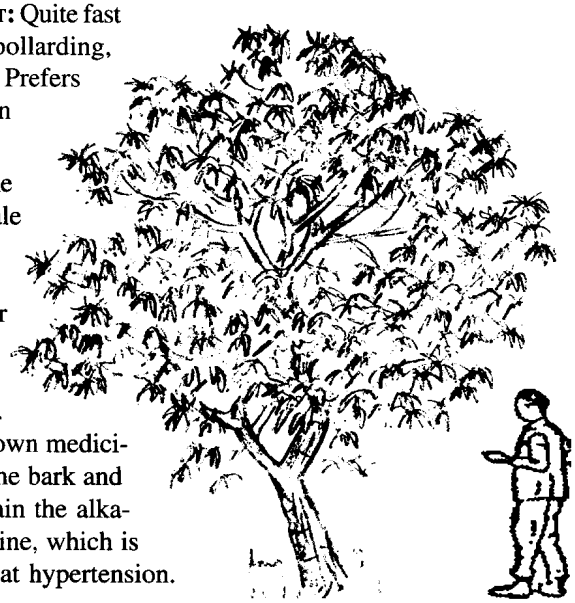
MANAGEMENT: Quite fast growing; pollarding, coppicing. Prefers shade when young.

REMARKS: The wood is pale and light and very suitable for carving utensils and curios. A well-known medicinal tree. The bark and roots contain the alkaloid reserpine, which is used to treat hypertension. The English name 'quinine tree' refers to the bitter and supposedly quinine-like properties of the bark.

Two other species of *Rauvolfia* occur in Kenya. *R. mannii* (**Kamba:** Musua ndui; **Kikuyu:** Munieria, Mutongo; **Taita:** Mamapemba, Msasa) is found in Taita, Kitui and the central Kenya highlands at forest margins and in disturbed areas. It is a shrub or small tree distinguished from the other species by the long narrow end to the leaves and a short (2–5 mm) flower head. Fruits are red to purplish black. *R. mombasiana* (**Boni:** Kihere; **Malakote:** Lupiki; **Swahili:** Mti sumu) is found in Coast Province in riverine thicket and at forest edges. It is an evergreen shrub or small tree with greenish white flowers and orange-red fruits. Its bark is used as rat poison.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Backes and Ahenda, 1998; Beentje, 1994; ITDG and IIRR, 1996; Katende et al., 1995; Kokwaro, 1993; Mbuya et al., 1994; Noad and Birnie, 1989; Palgrave and Palgrave, 2002; Storrs, 1979; van Wyk, 1993.





Rhamnus staddo

Rhamnaceae

Indigenous

COMMON NAMES: **Boran:** Gale; **Kikuyu:** Mubura; **Kipsigis:** Ketarwet, Kosisitiet; **Kisii:** Omonmanengo; **Luo:** Rahande, Amurukia; **Maasai:** Olkokola; **Marakwet:** Kipser; **Meru:** Mukuruu, Ngakula; **Ogiek:** Arapsoi, Korsosiat; **Samburu:** Ikokokai, Kokilai.

DESCRIPTION: A bushy rigidly branched shrub or small tree growing to 5 m. BARK: Grey-brown, smooth. LEAVES: **Small,** narrow and oblong, to 5.5 cm long, **clustered** on short side branches, which may be spine-tipped. **The leaf tip is pointed, rounded** or notched, the edge with small rounded teeth. FLOWERS: Small green-yellow, only 2–4 together, **4 petals,** almond scented. FRUIT: **Red to purple berries, turning black,** only **5 mm** across.

ECOLOGY: Distributed from Eritrea and Ethiopia south through eastern Africa and in the Democratic Republic of Congo to Zimbabwe. In Kenya, it is found in highland areas in Central, Rift Valley, Nyanza and Western Provinces as well as northern Kenya. It grows in rocky places and valleys in dry upland forest edges or secondary evergreen bushland, bushed grasslands, 1,400–2,900 m. Agroclimatic Zones II–IV.

Uses: Firewood, tool handles, seasoning, flavouring (leaves), medicine (roots).

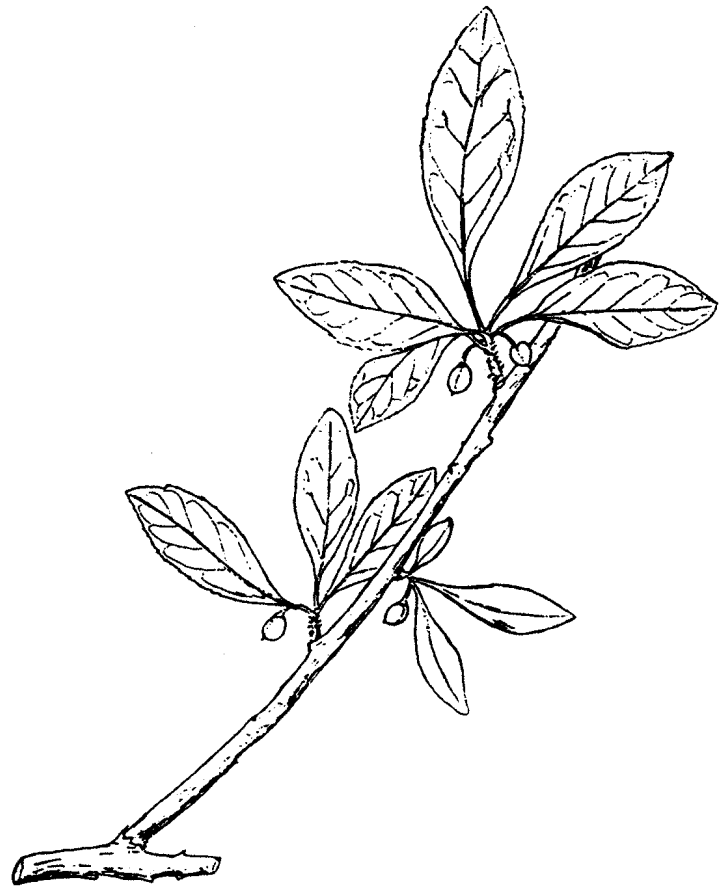
PROPAGATION: Seedlings.

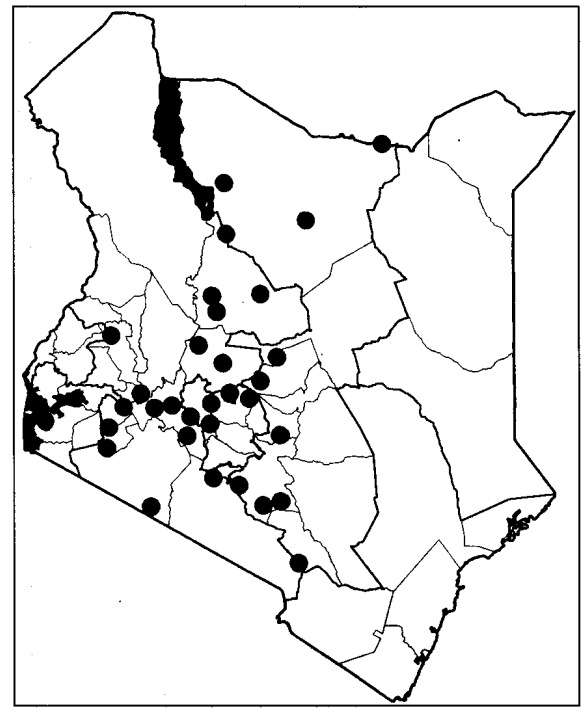
SEED:
treatment: Not necessary.
storage: Seed can be stored for long periods.

MANAGEMENT: The species tolerates repeated coppicing.

REMARKS: *R. staddo* is an extremely important medicinal plant in eastern Africa. *R. prinoides* (**Kikuyu:** Mukarakinga; **Kipsigis:** Kosisitiet; **Kisii:** Omungura; **Maasai:** Olkonyil; **Marakwet:** Kosisit; **Meru:** Mugorona; **Ogiek:** Kwasisitiet; **Samburu:** Ikenyeli; **Sabaot:** Moyawarura, Muapuarua; **Tugen:** Kukutua, Mizisitwa), a related species, is used a great deal in traditional medicine. It is a shrubby plant, occasionally a small tree, with grey bark, shiny leaves and red fruits turning purple-black on ripening. It has larger leaves than those of *R. staddo*. Both species have a more or less similar distribution but *R. prinoides* also occurs in the Taita Hills.

FURTHER READING: Backes and Ahenda, 1998; Beentje, 1994; Bein et al., 1996; Bekele-Tesemma et al., 1993; Kokwaro, 1993; Maundu et al., 1999 (*R. prinoides*); Noad and Birnie, 1989; Palgrave and Palgrave, 2002.





Rhizophora mucronata

Rhizophoraceae

Indigenous

STANDARD/TRADE NAMES: Mkoko.

COMMON NAMES: **Digo:** Mkpwoko; **Duruma:** Mkoko; **Giriama:** Mkoko; **Sanya:** Mkoko; **Swahili:** Mkoko.

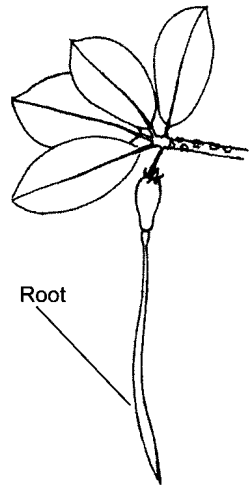
DESCRIPTION: The commonest mangrove tree in Kenya, with a straight trunk to 10 m, confined to coastal mudflats. The tree develops characteristic aerial **stilt roots** up to 2 m in length, which arch over and anchor in the mud. At high tide the tree appears to be floating on the water, and at low tide perched above the mud on stilts. The branches are soft and brittle. BARK: Reddish brown to black. LEAVES: **Opposite, dark green, lower surface with corky spots, thick and leathery**, up to 15 cm long and 8 cm wide with a distinctive hair-like tip. FLOWERS: Cream, fleshy, in groups of 4–8. FRUIT: Leathery green, **cone-shaped berries** to 5 cm long. The single **seed germinates while the fruit is still on the tree** (viviparous). A green cylindrical root emerges, growing downwards, to 45 cm long. Eventually the whole torpedo-like structure drops off and may float away, to put out true roots and leaves on lodging in the mud.

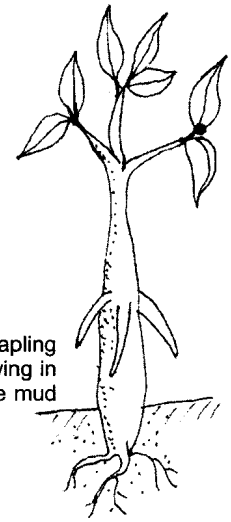
ECOLOGY: Widely distributed on the Indian Ocean shorelines. In Kenya, this mangrove species is most frequently found mixed with *Avicennia* on the seaward side of mangrove swamp forest. Commonly found on muddy shores, especially on creeks, where it is often the dominant species.

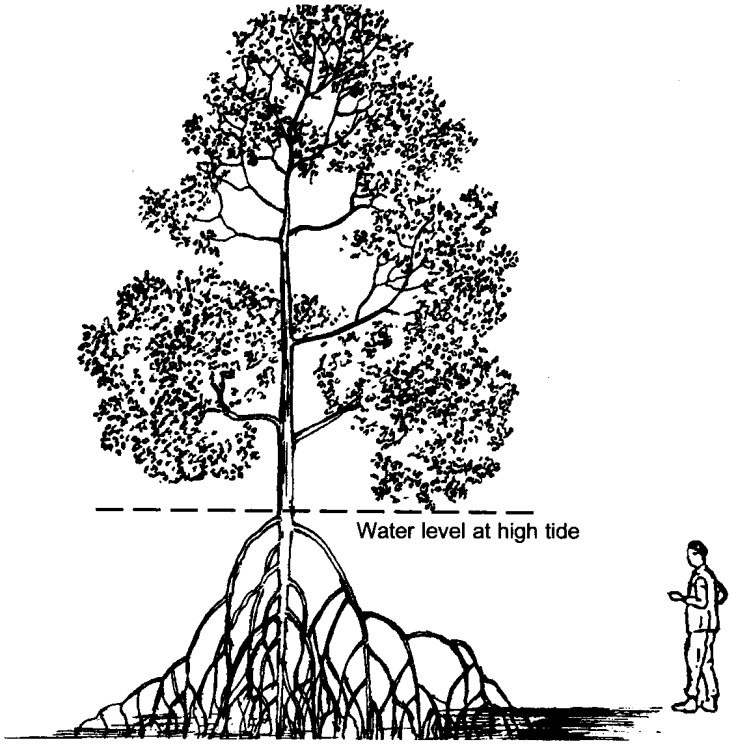
USES: Firewood, charcoal, timber (roof construction), poles, baskets (split branches), medicine (leaves and roots).

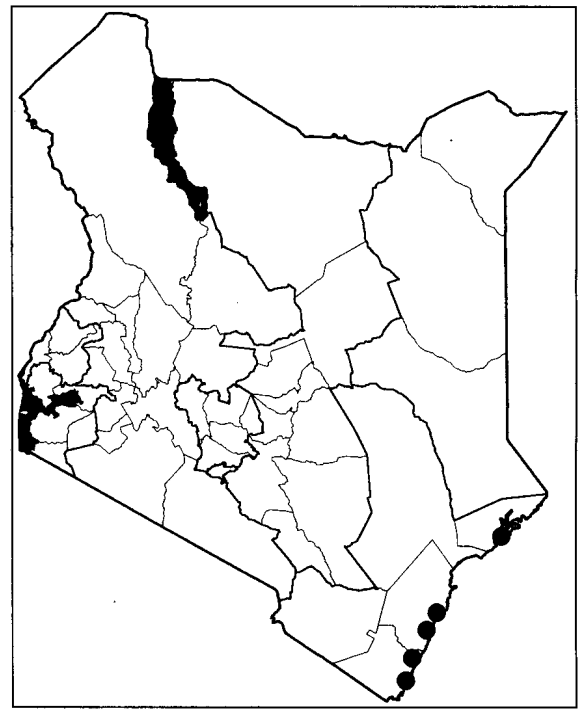
PROPAGATION: Seeds germinate when the fruit is still on the mother plant (viviparous). Young recently dropped seedlings may be used for propagation.

SEED: Not used.









Rhizophora mucronata (cont)

REMARKS: This plant is among the most useful sources of building material at the Kenya coast. The wood is hard and tough and therefore a source of superior building poles and charcoal. The bark has a high tannin content. *Ceriops tagal* (**Swahili:** Mkandaa), also in the family Rhizophoraceae, is a shrub or tree, seldom exceeding 6 m, with stilt roots and finger-like aerial roots arising from the mud. It is found along the entire Kenyan coastline where there are mangrove swamps and saline creeks. The bark is fibrous. Leaves are up to 9 cm long with a rounded tip. Flowers are white. The fruit is up to 2 cm long with a ridged root (radicle) to 25 cm long on the tree. This is also excellent firewood. The bark also has a high tannin content (45%) and is used in tanning and as a source of dye. The timber is said to be the most durable of all mangroves. The species is also found on the coasts of the Indian and western Pacific Oceans.

While the family Rhizophoraceae contributes 3 of the 8 mangrove genera occurring in Kenya (*Rhizophora*, *Ceriops* and *Bruguiera*), the other families, Combretaceae, Sonneratiaceae, Verbenaceae, Meliaceae and Chenopodiaceae, contribute one each:

Sonneratia alba (**Swahili:** Mlilana), the only one in the family Sonneratiaceae, is a tree to about 10 m high with many finger-like aerial breathing roots arising from ordinary roots. Bark smooth or rough. Leaves widest towards the tip or almost round, to 9 cm long. Flowers white or pink, 1–3 together at shoot ends, to 3.5 cm long. Stamens many, in rows. Fruit a berry, wider on one end, to 4 cm long. Wherever it occurs with other mangroves, this species usually occupies the seaward edge. The species is distributed on the Indian and Pacific Ocean coastlines. The wood is used in carpentry. The bark yields tannin and the leaves are fodder for camels. The breathing roots are used as fishermen's floats.

Yet another mangrove, *Xylocarpus granatum,* in the family Meliaceae (**Swahili:** Mtonga, Mkomafi), is an evergreen tree, seldom exceeding 10 m, with a network of spreading flattish surface roots whose upper edges protrude above the mud looking like snakes. Leaves are divided into leaflets, usually 2–4. Leaflets have a rounded tip, coloured orange-brown on drying. Flowers are cream, small. Fruit large, to 25 cm in diameter, 4–valved. This mangrove species is found near the high-water mark along the East African coast and east to the Pacific. The related *X. moluccensis* (**Swahili:** Mkomafi) is a shrub or small tree found in coral in thickets or bushland along the Kenyan coast. It is reported to develop pneumatophores (breathing roots). The leaflets dry yellow-green and have a sharper end than in *X. granatum*. The fruit is generally smaller. The timber is used as dhow masts and in furniture.

Lumnitzera racemosa (**Swahili:** Mkandaa mwitu, Kikandaa), in the family Combretaceae, is an evergreen shrub or small tree rarely exceeding 4 m. It is found at the high-water mark, mainly on the Kenya south coast. It has a brown fissured bark and may sometimes have knee-shaped breathing roots. The spirally arranged leathery leaves have a rounded tip. Flowers are white, in spikes arising from the leaf axils. The fruit is small, woody, up to 12 mm long with a persistent calyx. The species is used for poles and as firewood. Though not a true mangrove, *Suaeda monoica* (**Boran:** Durte; **Gabra:** Durte; **Maasai:** Olnyarusa; **Rendille:** Lufute hadu'un; **Somali:** Amaressa; **Swahili:** Mwinyonye, Mwinamia maji; **Taveta:** Musiwa; **Turkana:** Muyee) in the family Chenopodiaceae is found on the landward side of mangroves and also inland at the edges of saltpans, swamps and on other saline soils in the dry parts of Kenya, particularly Taveta and Amboseli, around Lake Turkana and in North Eastern and Eastern Provinces. It is usually the dominant species wherever it occurs. It is good fodder plant and is very salty. The related shrub, *Salsola dendroides*, common in arid northern Kenya along luggas, is also quite salty but good camel fodder. It is often known by the same local names.

FURTHER READING: Beentje, 1994; Dharani, 2002; Lötschert and Beese, 1983; National Academy of Sciences, 1980, 1983; Noad and Birnie, 1989; Palgrave and Palgrave, 2002; Verheij and Coronel, 1991.

Rhoicissus tridentata

Vitaceae

Indigenous

COMMON NAMES: Digo: Munwa madzi; **Kamba:** Kivosya nguguu; **Kikuyu:** Mutumutua; **Kipsigis:** Dorodwet; **Kisii:** Omonyambeche, Egesanga; **Luhya (Bukusu):** Kumukoyakoye; **Luo:** Bwombwe liech; **Maasai:** Olkilenyei; **Marakwet:** Iwambova, Torotwa; **Pokot:** Taratwo; **Taita:** Mgerugeru.

DESCRIPTION: A shrub to 1.5 m or a **climber** to 9 m **with tendrils** that are opposite the leaves. BARK: Brownish in old parts. LEAVES: Divided into **3 leaflets** with a toothed edge, always **hairy**, more so on the underside. FLOWERS: Reddish brown, small, in lax groups of flowers whose growing points are each in turn terminated by a flower; petals about 3 mm. FRUIT: Small, black, round, 10–15 mm, many seeded, purple-black when ripe.

ECOLOGY: Found in East and Central Africa south to South Africa. Widely distributed in Kenya in wooded grassland and moist bushland, usually on rocky hillsides, also in drier forest margins, 0–2,250 m. Agroclimatic Zones II–III.

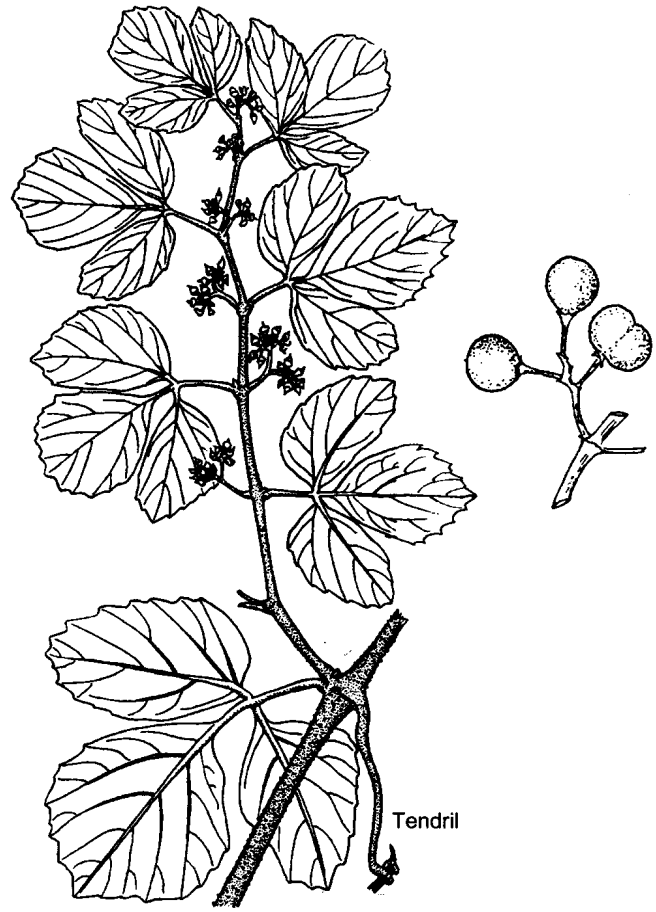
Uses: Edible fruit, medicine (roots, sap), rope (stems), live fence.

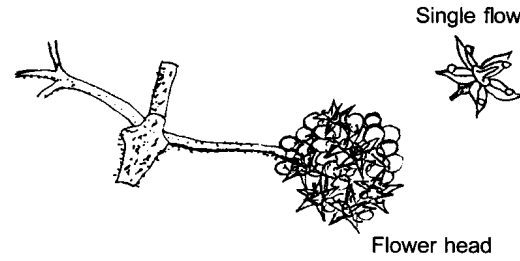
PROPAGATION: Seeds.

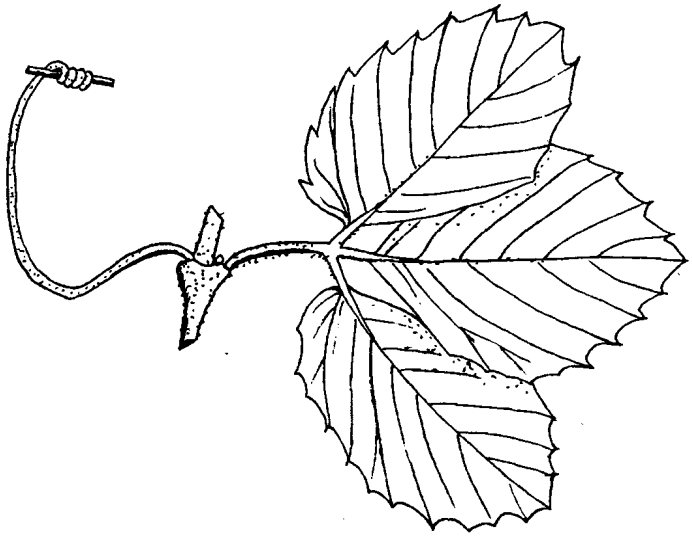
MANAGEMENT: The plant has tendrils and requires something to climb and hook on. Stake the plants, or plant them where there are other plants to climb on.

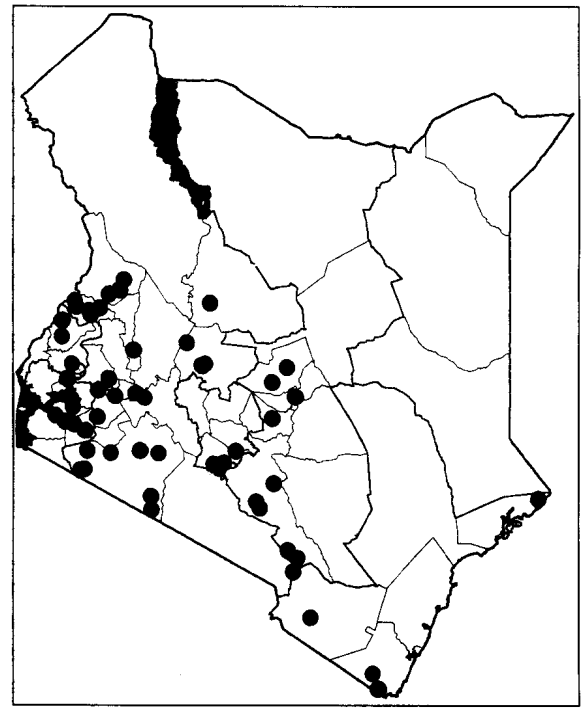
REMARKS: *R. revoilii* (**Kipsigis:** Tarotuet; **Luo:** Bumwe, Ochog dhok, Rabong'o; **Swahili:** Mgongolo) is distinguished by its leaflets whose edges are not toothed. The species is widely distributed in Kenya. It has more or less similar uses as *R. tridentata.*

FURTHER READING: Backes and Ahenda, 1998; Beentje, 1994; Bekele-Tesemma et al., 1993; Kokwaro, 1993; Palgrave and Palgrave, 2002.









Rhus natalensis

Anacardiaceae

Indigenous

COMMON NAMES: **Boni:** Idamula; **Boran:** Daboobes, Adesa; **Digo:** Mgwanyahi, Mbwananyahi; **English:** Natal rhus; **Gabra:** Dabobbessa; **Ilchamus:** Lmisigiyoi, Lmisigiyo; **Kamba:** Mutheu, Ntheu (fruit); **Kikuyu:** Muthigio; **Kipsigis:** Suriat; **Luhya (Bukusu):** Busangura nabili (fruit), Kumusangura nabili (tree); **Luhya (Tachoni):** Obusangura, Busecha (fruit); **Luo:** Sangla, Osangla; **Maasai:** Olmisigiyoi, Ilmisigiyo (plural); **Mbeere:** Muthanguta, Mutheru, Muthigiyu, Muthiigi; **Meru:** Murikitha; **Nandi:** Monjororioyot; **Ogiek:** Sirontet; **Pokot:** Siriewo, Siria (plural); **Sabaot:** Sirwa; **Samburu:** Ilmisingiyot, Lmisigiyoi; **Swahili:** Mtishangwe, Mvunja kondo, Mkuna chuma, Mkono chuma; **Taita:** Kitarika; **Teso:** Ewayo, Ebubu; **Tugen:** Siriande; **Turkana:** Ekadetewa.

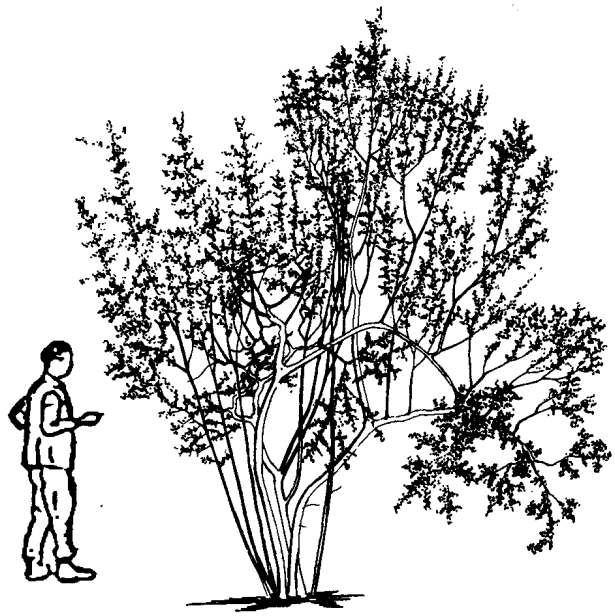
DESCRIPTION: A many-branched shrub or tree, sometimes tending to scramble, up to 8 m in height. BARK: Grey, often almost white, branchlets pale and dotted with breathing pores, **branches angular**. LEAVES: **3 leaflets, the central one largest, to 9 cm, usually dark green, rather leathery**, hairless, sometimes toothed, very variable, **wider towards the tip**, narrowed to the base, on a stalk 2–4 cm. FLOWERS: Green-yellow with tiny flowers in loose heads to 15 cm. FRUIT: Oblong to bean-shaped, smooth, **red with thin flesh** and a waxy covering, about 5 mm, edible. The dry papery fruits soon fall.

ECOLOGY: Widespread in Africa from Guinea to Somalia and south to South Africa. Also in the Arabian peninsula. In Kenya it is found in most areas except the driest parts. It is usually found in wooded savanna, at forest edges and beside rivers, 0–3,000 m. Agroclimatic Zones I–V. Flowers in January–April and fruits in March–June in Bungoma.

USES: Firewood, charcoal, timber, edible fruit, medicine (leaves, roots, bark), fodder, ornamental, shade, dye (bark of roots), toothbrushes.

PROPAGATION: Seedlings.

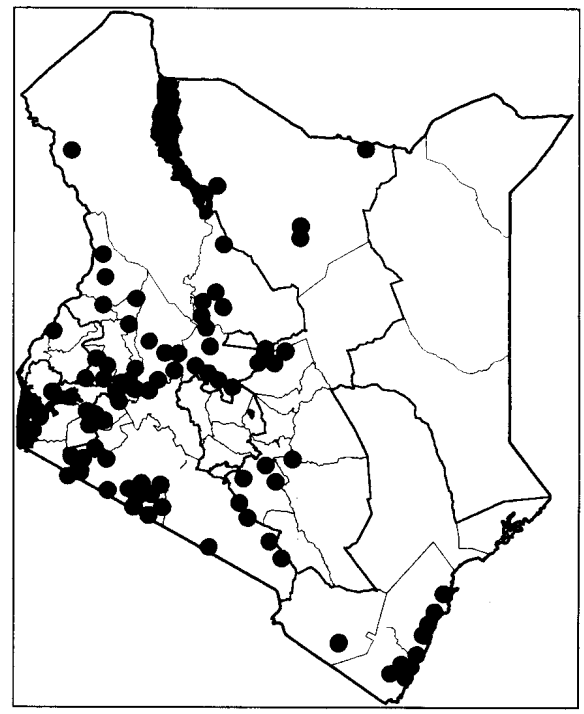
SEED: 26,000–30,000 seeds per kg.
treatment: Not necessary. Germination is fast and good.
storage: Remains viable for only about 3 months at room temperature.



MANAGEMENT: Coppicing, pruning, pollarding.

REMARKS: This is the most widespread and commonest *Rhus* species in the country. All species in the genus *Rhus* in Kenya have edible fruit. They are a good source of toothbrushes and the wood burns well. Because they share many characteristics they are usually known locally by the same names.

FURTHER READING: Backes and Ahenda, 1998; Beentje, 1994; Bein et al., 1996; Bekele-Tesemma et al., 1993; Blundell, 1987; Dharani, 2002; Katende et al., 1999; Kokwaro, 1993; Maundu et al., 1999; Mbuya et al., 1994; Noad and Birnie, 1989; Palgrave and Palgrave, 2002; Ruffo et al., 2002.



Rhus tenuinervis

Anacardiaceae

Indigenous

COMMON NAMES: **Kamba:** Mutheu, Kitheu; **Maasai:** Olmisigiyoi.

DESCRIPTION: A shrub or small tree to 6 m, usually 2.5–4 m. **Branches twiggy**, some thorn-like. LEAVES: **Small**, with 3 softly hairy leaflets. **Leaflet edges sparsely toothed towards the tip.** FLOWERS: Greenish yellow, small, borne on a branched flowering head. FRUIT: Small, to 7 mm long, **angled, compressed, green, turning brownish yellow** on ripening.

ECOLOGY: Occurs from Ethiopia and Sudan south to South Africa. In Kenya mainly found in Kitui, Mbeere, Machakos and Kajiado Districts (locally very common in Machakos and Kajiado) in *Combretum* bushland and bushed grassland, 900–1,850 m. Thrives in semi-arid areas with sandy soil, red clay or black-cotton soil; rainfall 500–800 mm. Agroclimatic Zones IV–V. In full flower in May in Machakos District.

USES: Firewood, charcoal, edible fruit, medicine, fodder (leaves), shade, dye (bark of the root), live fence, dead fence, toothbrushes.

PROPAGATION: Easy to raise from seed. Produces suckers when cut.

SEED:

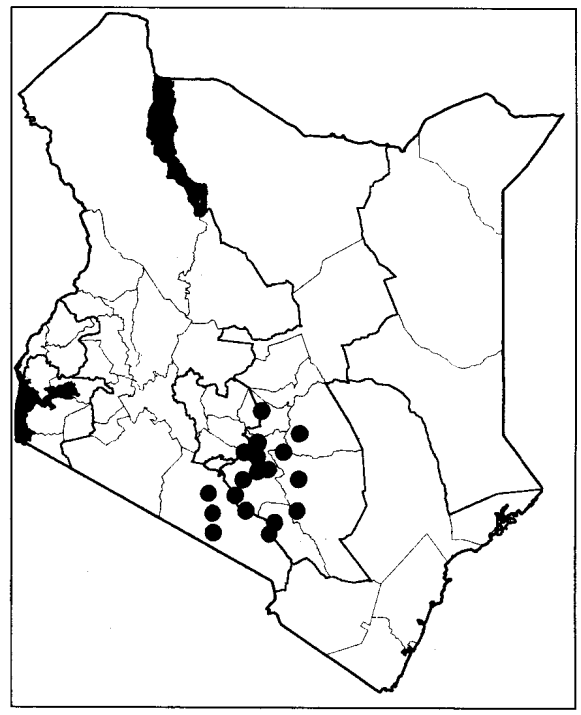
treatment: Not necessary.

MANAGEMENT: Prune lower branches and remove unnecessary stems in multi-stemmed plants.

REMARKS: Fruits eaten mainly by children and have an appealing sweet–acid taste. Young shoots and leaves are sour and are chewed like *khat* (*Catha edulis*), the juice being swallowed and the rest discarded (Maasai, Kikuyu). The trunk produces intense heat when burned, hence used by blacksmiths (Kamba). Branches cut and stuck into the ground in a row to form a fence (Kamba). Toothbrushes (Maasai, Kamba). Provides good shade, but often harbours hairy caterpillars at certain seasons.

R. ruspolii (**Embu:** Mushishuna; **Kikuyu:** Muthigio; **Sabaot:** Njowaruwa; **Tugen:** Sirwa, Siwopyoyon) is a shrub or tree to 5 m found mainly in highland areas, at dry forest margins and in evergreen bushland from the central highlands to north-western Kenya, 1,500–2,400 m. Leaves and flowering parts are bigger than those of *R. tenuinervis*. Leaflets are up to 18 cm long, softly hairy with a rounded tip, edge sparsely toothed towards the tip. Flowers yellow, in long heads (up to 28 cm). Fruits 3–4 mm long.

FURTHER READING: Beentje, 1994; Maundu et al., 1999; Palgrave and Palgrave, 2002.



Rhus vulgaris

Anacardiaceae

Indigenous

COMMON NAMES: **Digo:** Mbwana nyahi, Mbwanyahi; **Embu:** Muthigiu; **Kamba:** Mutheu, Mutheu munene, Kitheu, Ntheu (fruit); **Kikuyu:** Muthigio; **Kipsigis:** Suriet, Munjororriat; **Luhya (Bukusu):** Busangura busecha (fruit), Kumusangura kumusecha (plant); **Luhya (Tachoni):** Obusangura (fruit), Omusangura (plant); **Luo:** Sangla madhako (Migori), Sangla maduong (South Nyanza), Awayo (Siaya); **Maasai:** Ormungushi, Olmungushi, Olmisigiyioi, Ilmisigiyoi (plural), Emungushi, Engarani; **Mbeere:** Mubebiaiciya, Muthanguta, Mutheru, Muthigiyo, Muthiigi; **Meru:** Mirimuthu, Mirimamuthua, Muthigiu; **Nandi:** Monjororioyat; **Pokot:** Siriewo kaptamu; **Sabaot:** Njowaruwa; **Samburu:** Sioloran, Lejoro; **Swahili:** Mlishangwe, Mlama mwitu, Mkono chuma, Mrinja kondo; **Taita:** Mkungu, Seria; **Teso:** Ekwatet, Ekwayu, Epwatet.

DESCRIPTION: A shrub or small tree that occasionally reaches 6 m. BARK: Branchlets brown, hairy, young stems green. LEAVES: **With 3 leaflets, which are usually densely hairy underneath**, entire, occasionally toothed towards the tip, **the middle leaflet usually larger than lateral ones,** leaf stalk to 4 cm, **very variable.** FLOWERS: Small, round, in hairy branched heads, to 20 cm long, yellow-green, with bright yellow stamens. FRUIT: Small, green at first, turning reddish brown when mature, almost round but slightly flattened when dry, **up to 6 mm across,** acidic, edible.

ECOLOGY: Range extends from Cameroon in West Africa to Ethiopia and south to Mozambique, Malawi, Zambia and Zimbabwe. Widespread in Kenya, e.g. in the Chyulu Hills, Mt Elgon, Ngong Hills, Thui Hill (Makueni), Kitui Hills, Chepareria (West Pokot), in bushland (usually disturbed), 800–2,700 m. Soils vary—clay, sandy or rocky. Rainfall 700–1,500 mm. Agroclimatic Zones II–III. Flowers in January–April and fruits in March–June in Bungoma.

USES: Firewood, posts, farm implements, tool handles, edible fruit, medicine (roots, seeds), fodder (goats and game eat the leaves), ornamental, mulch, live fence, dead fence (cut stems), toothbrushes, veterinary medicine, wedges made from stem for enlarging ear-lobe holes.

PROPAGATION: Seedlings.

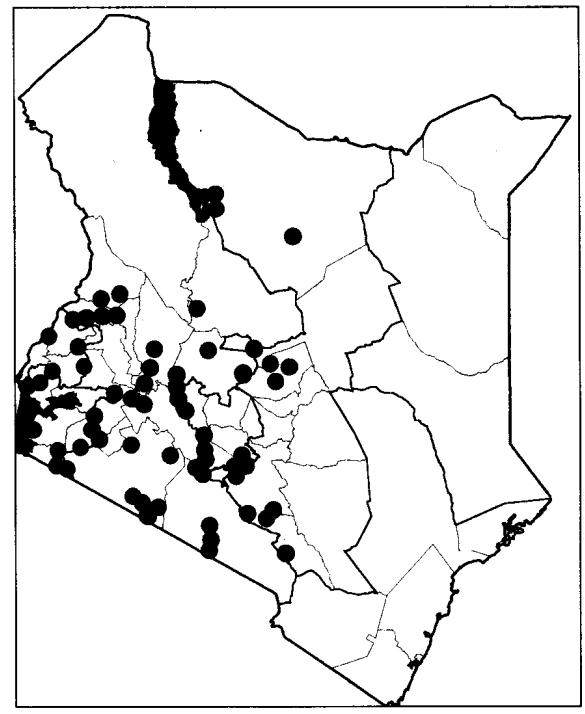
SEED:

storage: Remains viable only about 3 months at room temperature.

MANAGEMENT: Trimming if grown for fence; coppicing, pruning to reduce shade. Generally a slow grower. Once pruned, it sends out new straight shoots.

REMARKS: The fruits are small, but large quantities are produced. They have a sweetish acid taste. The species is widely accepted in cultivated fields in Bungoma and is widespread along boundaries and as a live fence.

FURTHER READING: Backes and Ahenda, 1998; Beentje, 1994; Bekele-Tesemma et al., 1993; Dharani, 2002; ITDG and IIRR, 1996; Katende et al., 1999; Kokwaro, 1993; Maundu et al., 1999; Noad and Birnie, 1989; Palgrave and Palgrave, 2002; Ruffo et al., 2002.



Ricinus communis

Euphorbiaceae

Indigenous to Africa

COMMON NAMES: **Boran:** Kobor; **Digo:** Mwono; **Embu:** Mwacariki; **English:** Castor oil plant; **Giriama:** M'bono; **Ilchamus:** Mobonu; **Kamba:** Kivunu, Kyaiki, Mwaiki; **Kikuyu:** Mwariki; **Kipsigis:** Menuet, Imanek; **Kisii:** Omobono; **Luhya:** Libono, Mubonebone; **Luhya (Bukusu):** Kumubono; **Luo:** Odagwa, Obala ndagwa; **Maasai:** Oldule, Orpaliki; **Marakwet:** Manwa; **Meru:** Mwariki; **Orma:** Koboo; **Pokot:** Pondon; **Rendille:** Fololo; **Samburu:** Laibelelhi, Lampalegi; **Somali:** Gitkalat; **Swahili:** Bonoo, Mbariki; **Taita:** Mbonu; **Turkana:** Ebune.

DESCRIPTION: An evergreen shrub or tree to 5 m. **Stems often red,** hollow with age, well-marked leaf nodes and leaf scars. LEAVES: Large compound **palmate leaves to 50 cm across** with **5–11 lobes,** the **edge toothed,** on a long hollow leaf stalk. Young leaves soft, shiny, dark red-green above. FLOWERS: Crowded on upright spikes to 60 cm, male flowers with **creamy-yellow stamens** at the base; female flowers with soft green spines and 3 bright red divided stigmas at the top. FRUIT: Round, **green-brown capsules,** spiny, to 2.5 cm across, split to set free **3 seeds,** grey-purple-brown, shiny and spotted with a small white structure (caruncle) at one end.

ECOLOGY: A genus with only one species (but many different varieties), probably indigenous to tropical Africa, but now cultivated and often wild in most tropical and many temperate countries. In Kenya, it grows over a wide range of altitudes and habitats, preferring humus-rich and disturbed ground, especially along streams, 500–2,100 m. Widely cultivated and sometimes regenerates naturally in secondary scrub and gaps in forests. Agroclimatic Zones II–III.

USES: Medicine (roots, stems, oil from leaves, oil from seed), castor oil (from seed, for technical uses), tannin (used in Baringo), soil conservation, river-bank stabilization, veterinary medicine.

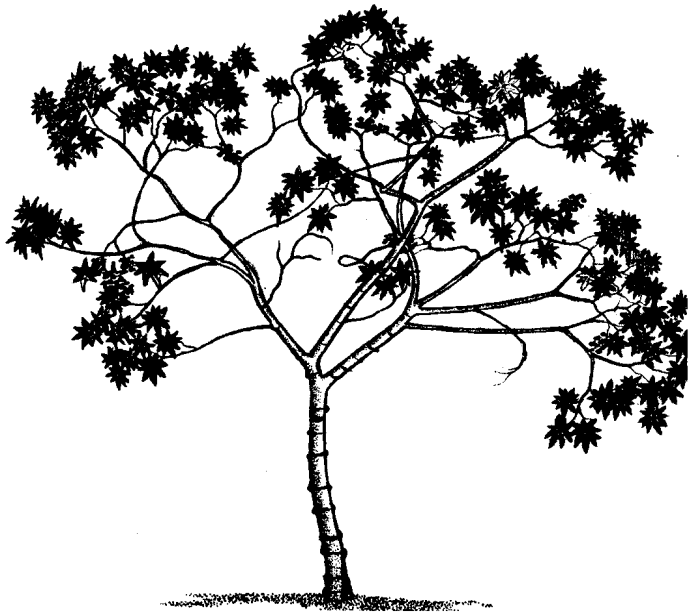
PROPAGATION: Seedlings, direct sowing at site.

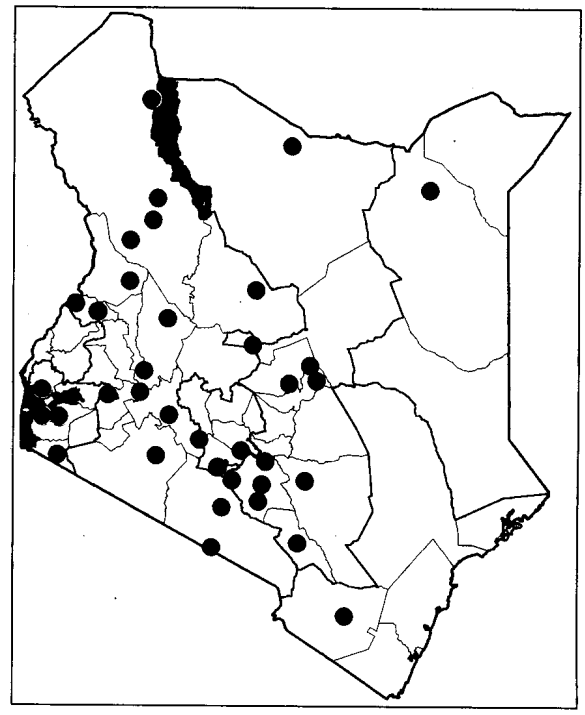
SEED: Collect mature fruits before they split open. About 1,300 seeds per kg.

treatment: Not necessary. Germination is very good and fast, about 90% after 3 weeks.

storage: Seed can be stored for long periods (2–3 years).

MANAGEMENT: A fast-growing but short-lived plant. Can be grown as a fallow plant and on croplands. Often found in homesteads.

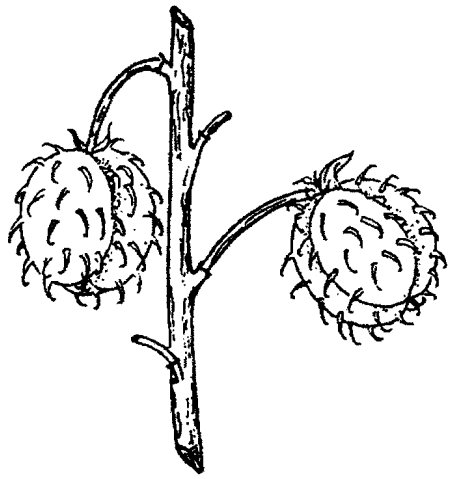


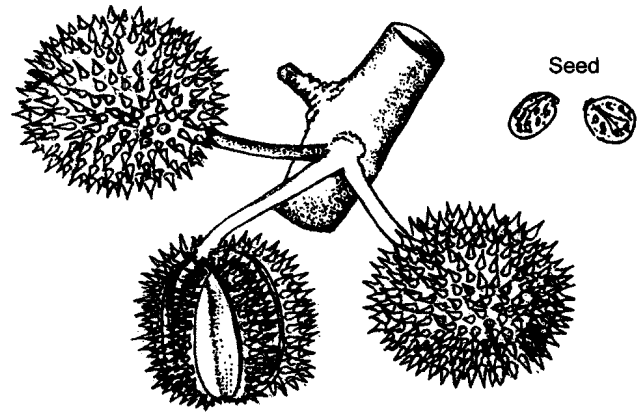


Ricinus communis (cont)

REMARKS: The plant is drought and termite resistant. The seed coat and leaves are poisonous to animals and to poultry, and even the oil residue can be used only as stock feed if specially treated. It is, however, good as an organic manure. The seeds yield up to 50% oil, an oil that has many industrial uses. For medicinal purposes, the oil extract must be heated to neutralize the strong poison, ricin. Even a few seeds can kill if they are chewed—so take care with children. The oil is good as a body lotion but it has also been widely used as a purgative. The Pokot have used it for tanning leather.

FURTHER READING: Backes and Ahenda, 1998; Beentje, 1994; Bein et al., 1996; Bekele-Tesemma et al., 1993; Blundell, 1987; Dharani, 2002; Fichtl and Adi, 1994; ITDG and IIRR, 1996; Katende et al., 1995; Kokwaro, 1993; Mbuya et al., 1994; Noad and Birnie, 1989.





Rubus apetalus (*R. rigidus, R. adolfi-friedericii*)

Rosaceae

Indigenous

COMMON NAMES: **Kikuyu:** Mutare; **Luhya (Bukusu):** Bukararambi; **Luhya (Tachoni):** Obukararambi; **Luo:** Onunga; **Maasai:** Olayakuji, Ngayakuji; **Taita:** Ndaindai.

DESCRIPTION: A **scrambling shrub** to 2.5 m with scattered **hooked spines on the stems**. Branches hairy. LEAVES: With **3–7 leaflets, with a single leaflet at the tip, each leaflet to 9 cm long**, oval or ellipse-shaped, softly **hairy, pale green beneath with toothed margins**. Petals to 9 mm. FLOWERS: With small pale pink petals or none, in branched flower heads to 21 cm long. FRUIT: Consisting of many parts. Light green, turning yellow to **purple-black on ripening**.

ECOLOGY: From West Africa to Ethiopia and south to Malawi. Widely distributed in Kenya, e.g. in the Nyambene Hills, Mt Nyiru, Mt Kulal, Kandara (Maragua), Chania Falls, Ngong Hills, Maasai Mara, Meru, Kisii, Migori and Marsabit in riverine vegetation, at forest edges, in humid bushland and disturbed areas or near hillside springs, 1,450–2,700 m. Agroclimatic Zones II–III. Flowers throughout the year.

USES: Edible fruit, medicine (roots), live fence, ornamental.

PROPAGATION: Propagated vegetatively: use root suckers or divisions of plants. Branches may root when they touch the ground.

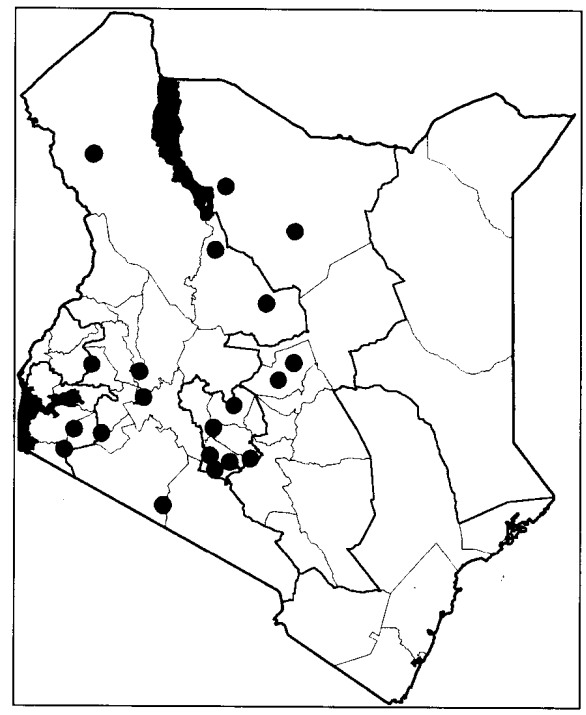
SEED: Seed not used.

MANAGEMENT: Trim and control as a live fence.

REMARKS: Fruits edible, with a sweet–acid taste. Honeybees collect pollen and nectar from the flowers frequently. A species with the potential for use as a live fence and ornamental.

As many as 9 species of *Rubus* are found wild in Kenya. Many of these have edible fruit and are potentially good as live hedge plants or ornamentals. A few are very closely related and therefore difficult to distinguish. *R. pinnatus* (**Embu:** Mutare, Ndare (fruit); **Kamba:** Kitae, Ndae (fruit); **Kikuyu:** Mutare, Ndare (fruit); **Kipsigis:** Tangaimamiet; **Luhya (Bukusu):** Bukararambi; **Luhya (Tachoni):** Obukararambi; **Maasai:** Engaiyaguji; **Marakwet:** Momoon; **Meru:** Ntare; **Pokot:** Monmonwo, Monmoon (plural); **Swahili:** Matoje (fruit), Mtoje; **Taita:** Maratua; Ndaendae, Ndaindai; **Tugen:** Momonwo, Mowonwo) resembles *R. apetalus* but is less common. Stems are without hairs but may have a white bloom. Leaves almost hairless, with up to 9 leaflets. Flowers are in branched heads up to 36 cm long with tiny petals (or none), to 4 mm, and reddish black fruits on ripening. It is found in tropical Africa to South Africa in riverine vegetation, near springs and at forest edges, 1,500–2,750 m. Common in disturbed areas. Fruits are edible, sweet. May be used as a hedge plant.

FURTHER READING: Backes and Ahenda, 1998; Beentje, 1994; Fichtl and Adi, 1994; Maundu et al., 1999; Ruffo et al., 2002.



Rubus volkensii Rosaceae

Indigenous

COMMON NAMES: **Kikuyu:** Mutare kigombe, Mutare, Ndare (fruit), **Kipsigis:** Kipsoeniot, Nemingin, Tagaimamiet; **Maasai:** Engaiyaguji.

DESCRIPTION: A prickly shrub up to 4 m. Stems with hooked prickles, **covered with brown sticky hairs**. Prickles to 4 mm. LEAVES: Compound with up to and usually 5 leaflets, the stalks prickly. **Leaflets hairy**, with toothed margins, leaflets to 12 mm long, **the ones at the tip often incompletely divided.** FLOWERS: Yellow-white, borne in branched heads to 8 cm long. FRUIT: To 1.5 cm across, **orange to red** when ripe.

ECOLOGY: Found in Uganda, northern Tanzania, Kenya and Ethiopia. In Kenya, found in the central Kenya highlands and central and north Rift Valley region, e.g. Mt Elgon, Limuru, Lari, the Mau Range, Kericho and Aberdares at high-altitude forest edges and bushland, in *Hagenia–Hypericum* woodland, bamboo margins, 2,150–3,550 m. Agroclimatic Zones I–II. Fruits in December in Central Province.

USES: Edible fruit, live fence.

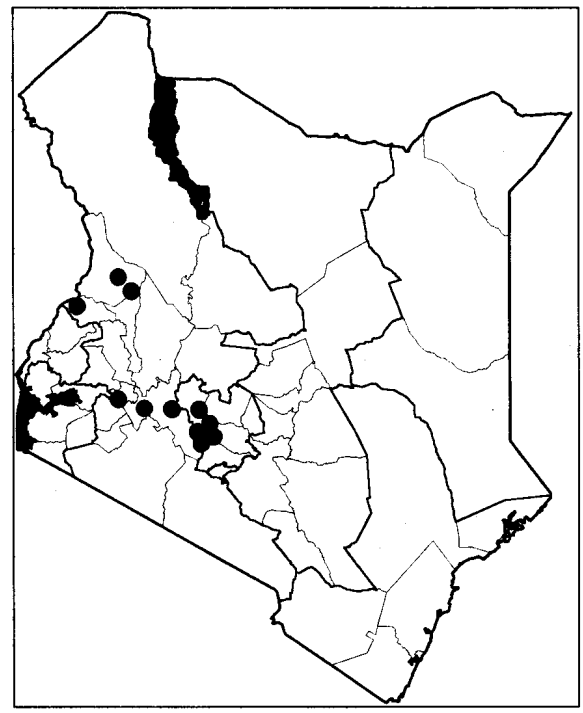
PROPAGATION: Propagated vegetatively: use root suckers or divisions of plant bases.

SEED: Seed normally not used.

MANAGEMENT: It is necessary to control its spread if used as a hedge.

REMARKS: The fruit is delicious. May be locally common. Many of the Kenyan *Rubus* species are edible. *R. steudneri* is also a high-altitude species found in upland forests of Central Kenya and Rift Valley, up to the bamboo zone (1,900–3,200 m). It is distinguished by its 3–5 leaflets that arise from one point. Flowers are white to mauve in branched heads to 30 cm. Fruits up to 1.5 cm across. *R. scheffleri*, usually with densely hairy red-to-black fruit, is found in central and north-western Kenya, Uganda and Tanzania at forest margins and in evergreen bushland. *R. niveus* (**Luhya:** Butunduli), distinguished by the white undersurface of the leaf and a white bloom on the stems, is believed to have been introduced from the Indian/Malayan region. It is naturalized in many forested areas. Also cultivated as an ornamental.

FURTHER READING: Beentje, 1994; Maundu et al., 1999.



Saba comorensis (S. florida)

Apocynaceae

Indigenous

COMMON NAMES: **Digo:** Muungo; **Kamba:** Kilia (Makueni), Kiongwa (Kitui), Kiongoa (Kitui), Kyongoa (Kitui), Mongoa (fruits, Kitui); **Luhya (Bukusu):** Kumuchabungwe (plant), Kamachabungwe (fruit); **Luo:** Abuno, Abuna, Jobune; **Malakote:** Loguo; **Marakwet:** Ochon; **Mbeere:** Mungo, Rwonge; **Pokomo:** Maungo, Muungo, Mbwiga; **Somali:** Dhangalow, Dongola, Dakaja; **Swahili:** Mbungo, Mpira, Bungo (fruit); **Taita:** Meru, Mameru (plural), Ndimu; **Taveta:** Ivungu.

DESCRIPTION: An **extensive liana** climbing up to the tops of trees and capable of creeping over low bushes for over 50 m. **Stems hairless and reddish, dotted with white breathing pores** (lenticels) with **long, brown tendrils to 12 cm or more**. All parts of the plant exuding milky white latex when injured. LEAVES: Large, **leathery**, dark green, glossy, often with a rounded tip. FLOWERS: **In dense terminal clusters, white with a yellow throat,** scented, corolla tubular. FRUIT: **Light green, large**, the size of a small orange **(up to 7 cm across), turning yellow to orange-brown on ripening**, coat drying to a hard brown shell. Seeds numerous, embedded in a brown pulp.

ECOLOGY: Widespread in West Africa through Central Africa to Ethiopia and southern Somalia, and south to Mozambique, Zimbabwe and Malawi. Found in most parts of Kenya (except the dry north), e.g. in Thui Hill (Makueni), Kitui Hills and Nzeeu River (Kitui), Kuja and Ongoche Rivers (Migori), Cherangani, Muhoroni, Bungoma, Kihanja, Pengo Hill (Kwale), Wundanyi, Witu, Murang'a and along the Thiba River. Usually in riverine vegetation, on rocky hillsides, often forming thickets, or in lowland evergreen forest on alluvial, sandy clay or on rocky ground, 0–1,800 m. Agroclimatic Zones II–III. Flowers in September–November in Siaya, Kwale and Taita, in March in Kitui and Makueni. Fruits in April in Kitui and in August in Migori, Bungoma and Kitui, in September in Makueni and Kitui.

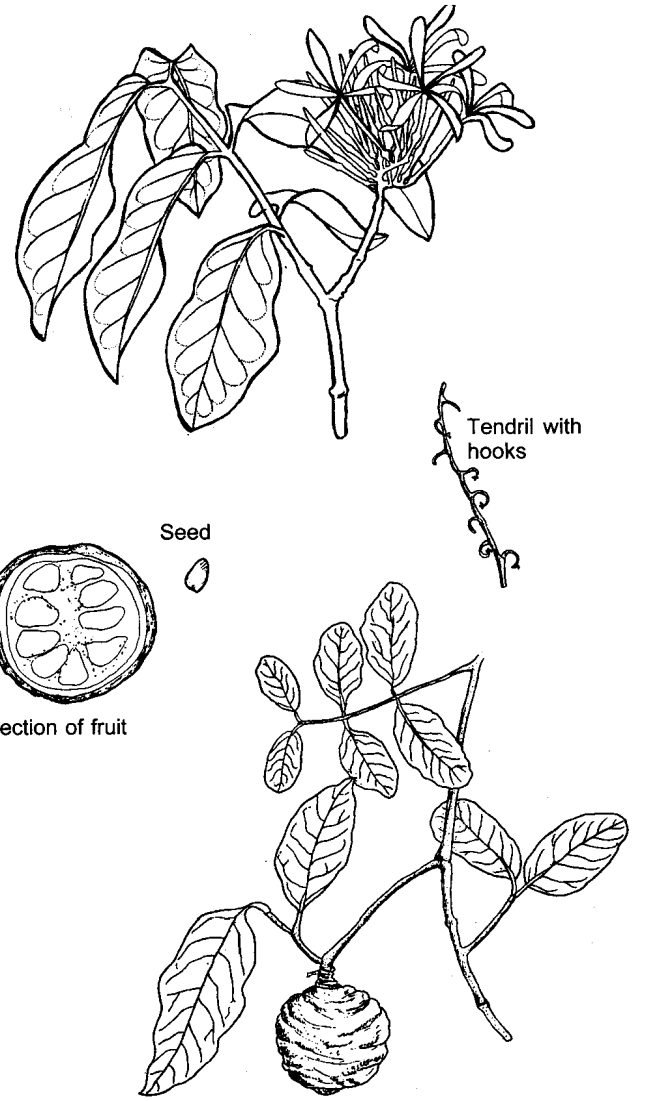
USES: Edible fruit, medicine, ornamental, weaving material for granaries, gum.

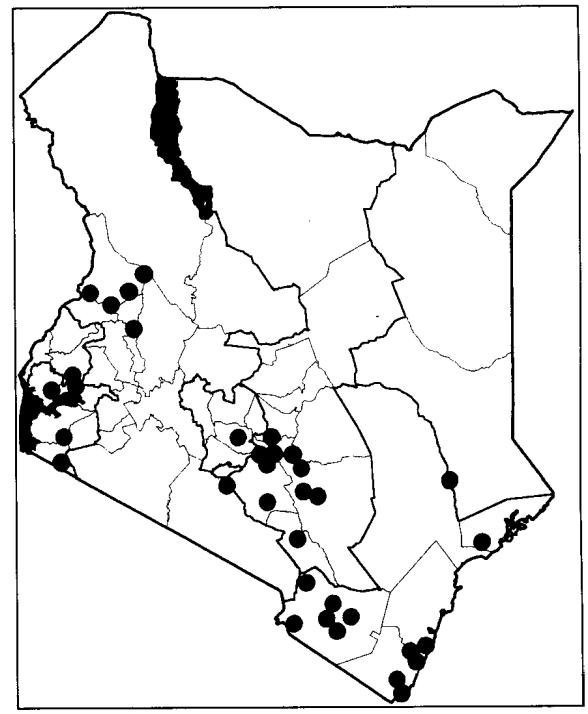
PROPAGATION: Propagated by seed. Reported to grow from cuttings too.

SEED: Collected at the end of the rainy season and beginning of the dry season.
treatment: Germinates readily after passing through animal gut. Hot water treatment may be a substitute for that.
storage: Not to be stored.

REMARKS: Ripe fruits burst open when pressed. Seeds are sucked and discarded. Fruit have a sweet–acid taste and are much liked by both children and adults. Can be used as a climber on a live fence or as an ornamental. It has beautiful flowers and leaves and the flowers are fragrant. Generally rare but locally common in a few areas. Much reduced in recent years due to encroachment into its habitats.

FURTHER READING: Backes and Ahenda, 1998; Beentje, 1994; Blundell, 1987; Katende et al., 1999; Kokwaro, 1993; Maundu et al., 1999; Ruffo et al., 2002.





Salvadora persica

Salvadoraceae

Indigenous

COMMON NAMES: **Boran:** Huda; **Chonyi:** Mswaki, Mueza moyo; **Daasanach:** Nyedhe, Nyaa (plural); **Digo:** Mswaki; **English:** Toothbrush tree; **Gabra:** Aadde; **Giriama:** Mswaki, Mjungumoto, Mueza moyo; **Kamba:** Mukayau; **Kambe:** Mswaki, Mueza moyo; **Luo:** Mswak, Nyamit amita; **Maasai:** Oremit, Iremito (plural), Olremit; **Malakote:** Muswaki; **Orma:** Adhe; **Pokomo:** Muade; **Pokot:** Asiokonion, Chokowo; **Rendille:** Hayay, Akhai (fruit); **Samburu:** Sokotu, Sokotei; **Sanya:** Adhei, Rigathu; **Somali:** Adhee (Mandera), Adhei; **Swahili:** Mswaki; **Taita:** Kizingumoto; **Tharaka:** Makayayu; **Tugen:** Sogotaiwa, Barsute; **Turkana:** Esokon, Esekon.

DESCRIPTION: An evergreen trailing shrub or small tree, 3–7 m, **young flexible branches hanging down,** older wood twisted. BARK: Smooth and pale, later brown and corky. LEAVES: **Yellow-green, dull, rather fleshy** but hard with rough gland dots and raised veins, **oblong to rounded to 5 cm.** FLOWERS: In loose heads, to 10 cm, small, white. FRUIT: **White, then pink to purple, 1 cm,** one seeded, juicy, sweet but peppery.

ECOLOGY: Found in India and Sri Lanka, the Middle East, North and West Africa and south to Mozambique and Angola. Grows in most low-altitude areas of Kenya, especially arid, semi-arid and coastal regions in riverine vegetation on sandy, sandy-loam and alluvial soils or on rocky ground, 0–1,500 m. Very drought resistant; tolerates areas with less than 200 mm annual rainfall. An important indicator plant of saline soils even though it prefers sandy-clay soils of watercourses. Riverine in very dry areas. Occasionally in red soils in bushland. Agroclimatic Zones V–VI.

USES: Fruit, medicine (roots and bark), fodder (leaves, young shoots and fruit), bee forage, shade, soil conservation, dune fixation, river-bank stabilization, toothbrushes, veterinary medicine.

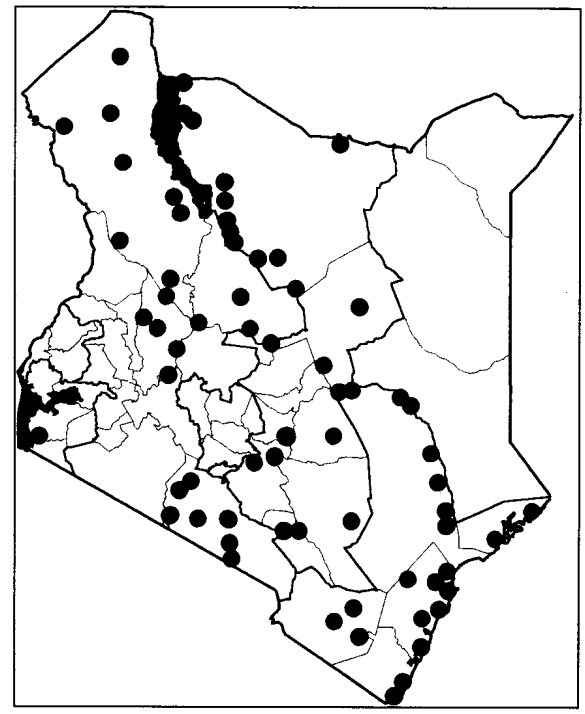
PROPAGATION: Seedlings. Produces root suckers.

SEED: About 3,400 seeds per kg. Germination: 40–50%.
treatment: Fruit pulp should be removed and seed washed in water before sowing. Soaking in lukewarm water for 24–72 hours may hasten germination. Soaked, de-pulped seed may germinate in 24 hours.
storage: Dried seed can be stored for about a month.

MANAGEMENT: Slow growing. Trees for shade should be planted near other trees such as *Acacia tortilis* for support. Pollarding for fodder and to produce short stems to be harvested for toothbrushes.

REMARKS: Fruits are eaten whole; have a slightly hot taste. Leaves and fruit are important fodder for camels and goats in dry areas when nothing else is available. Bark contains an antibiotic that keeps the mouth clean and prevents tooth decay. Toothbrushes made from roots or small branches have been used for over a thousand years, especially by Muslim peoples of India, Arabia and Africa. *S. persica* is evergreen and often the only green plant seen during the dry season in areas where it grows. It provides excellent shade. The wood is soft, white, easy to work and not liable to termite attack.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Albrecht, 1993; Beentje, 1994; Bein et al., 1996; Bekele-Tesemma et al., 1993; Dharani, 2002; ITDG and IIRR, 1996; Kokwaro, 1993; Maundu et al., 1999; Mbuya et al., 1994; Noad and Birnie, 1989; Palgrave and Palgrave, 2002; Ruffo et al., 2002; von Maydell, 1990.



Sapium ellipticum

Euphorbiaceae

Indigenous

COMMON NAMES: **Kikuyu:** Muhathi, Muthathi; **Luhya:** Mugoso; **Luhya (Bukusu):** Kumuchaso, Kumuchaswa; **Luo:** Amoyo, Achak, Achaka, Nyalewe yom; **Nandi:** Mseset; **Samburu:** Ngereni.

DESCRIPTION: A small- to medium-sized deciduous tree occasionally reaching 20 m. The trunk may be crooked; drooping branches arise low down giving a spreading crown. BARK: Light brown to almost black, rough, **branches tending to droop.** White latex only seen when young parts are cut. LEAVES: Long, oval, dark above, paler below, turning dark red before falling, to 14 cm long, tip pointed, **edge irregularly toothed,** midrib and veins raised below, about 10 pairs side veins; base narrow or rounded to a 1–2 cm stalk. FLOWERS: No petals or sepals. Flowers **catkin-like, in spikes** 5–10 cm long, the upper part with tiny male flowers each with yellow stamens; 2–5 rounded female flowers at the base, larger, on longer stalks. FRUIT: **2-part red capsules about 1 cm** across, topped with remains of style. The capsule finally opens to set free seeds. Seeds often eaten by insect larvae.

ECOLOGY: A tree of secondary scrub, fringing forest and forest edges extending from West Africa to Eritrea and Ethiopia and south to South Africa. In Kenya, in riverine forest, moist or dry forests (in dry forest only near water). Agroclimatic Zones II–IV. Flowers in April–May and seeds mature in July–September in Bungoma.

USES: Firewood, charcoal, timber, tool handles, farm implements, medicine, fodder, shade, ornamental.

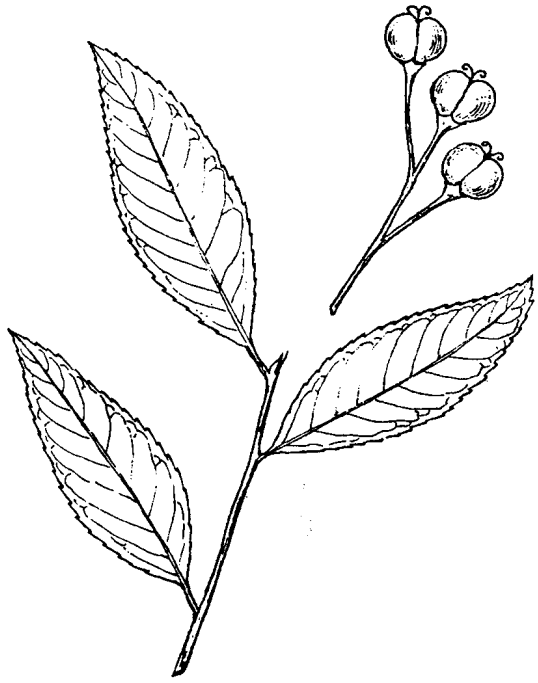
PROPAGATION: Wildings, direct sowing at site.

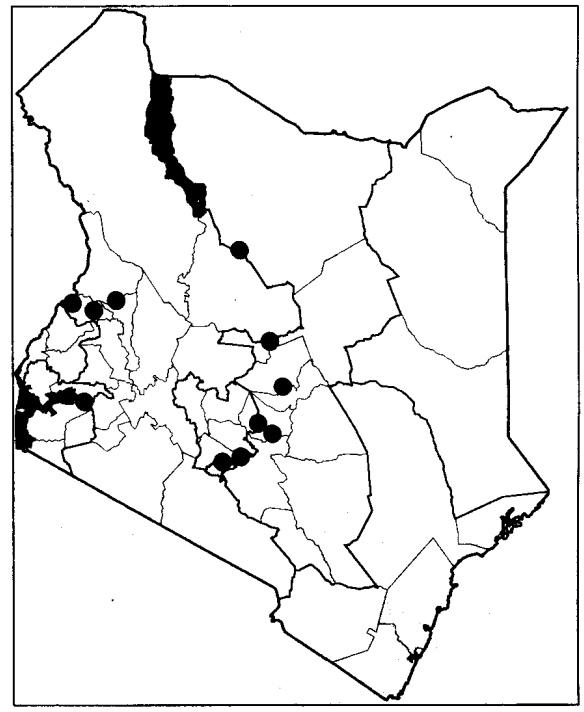
SEED: Collected in capsules, which are cracked to extract seed.
treatment: Not necessary.
storage: Seed can be stored for long periods.

MANAGEMENT: Coppicing, pollarding, lopping.

REMARKS: The leaves are protein-rich and good for livestock fodder. It has become scarce in some areas because of incursion of its habitat.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Backes and Ahenda, 1998; Beentje, 1994; Bekele-Tesemma et al., 1993; Fichtl and Adi, 1994; Katende et al., 1995; Kokwaro, 1993; Palgrave and Palgrave, 2002.





Schinus molle

Anacardiaceae

Peru, Andes

COMMON NAMES: **English:** Pepper tree, Peruvian mastic; **Kikuyu:** Mubiribiri.

DESCRIPTION: A tree with attractive light **weeping foliage** to 15 m, the trunk short, the crown spreading. BARK: **Dark brown,** peeling; **very sticky latex** forms if the bark is damaged. LEAVES: Compound to 30 cm, many **narrow leaflets to 7 cm,** with a peppery smell if crushed. FLOWERS: Very small, green-yellow. FRUIT: Hanging on female trees, small **round berries, green, turn to red then black.**

ECOLOGY: An evergreen tree commonly planted in dry warm climates throughout the world and in most districts of Kenya; almost naturalized in places; 0–2,400 m. Tolerant of most soils including dry sand and black-cotton soil as well as alkaline and saline soils. Extremely drought resistant once established. Reaches maturity in less than 20 years. Termites are known to avoid areas near the tree. Agroclimatic Zones III–V. Flowering and seeding occur throughout the year.

USES: Firewood, charcoal, spices (from berries and leaves), medicine (leaves and bark), bee forage, shade, ornamental, avenue tree, soil conservation, latex, tannin, insect repellent.

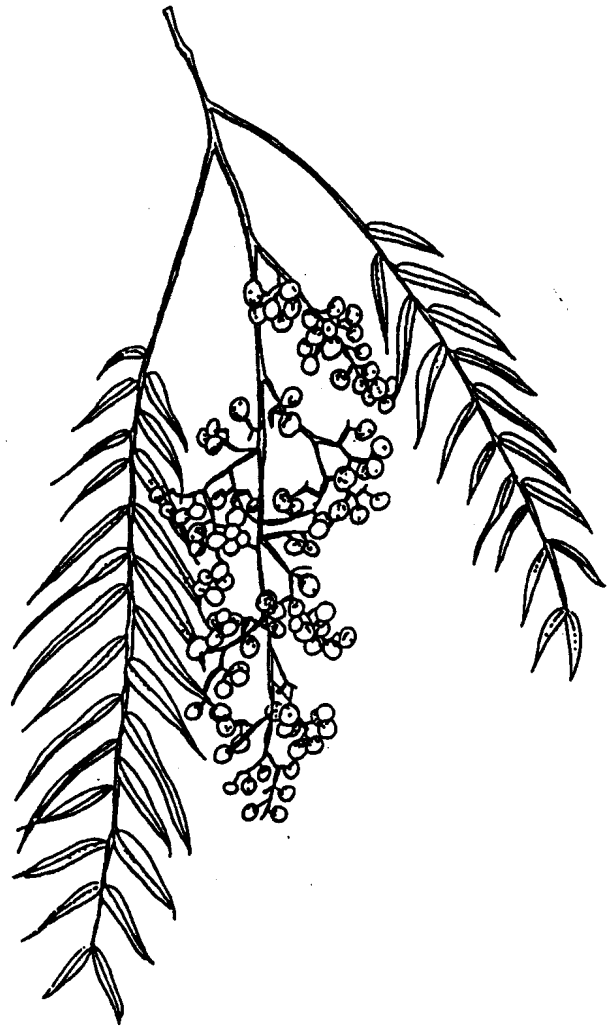
PROPAGATION: Seedlings.

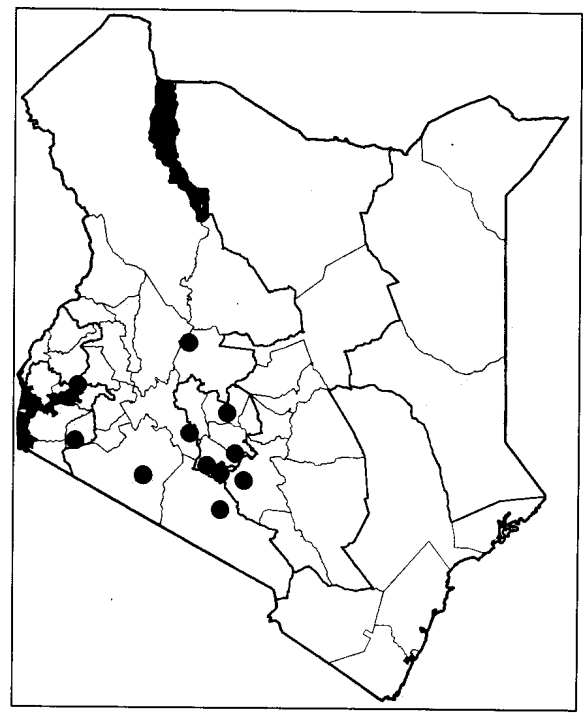
SEED: Germination rate 40–80%; 31,000–44,000 seeds per kg. Seeds are prone to insect attack.
treatment: Sun-dried fruits are pounded and winnowed to separate the seeds from the fruit pulp. Treatment before sowing is not necessary.
storage: Seed can be stored for long periods.

MANAGEMENT: A fast-growing tree. Pollarding, lopping and coppicing.

REMARKS: The tree should not be planted too close to buildings due to falling branches as the tree ages. It is shallow rooted and likely to be blown over. Pollarding is a good way of reducing this risk. The wood is termite resistant.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Albrecht, 1993; Beentje, 1994; Bein et al., 1996; Bekele-Tesemma et al., 1993; Dharani, 2002; Fichtl and Adi, 1994; Katende et al., 1995; Mbuya et al., 1994; Noad and Birnie, 1989; Palgrave and Palgrave, 2002.





Schrebera alata

Oleaceae

Indigenous

COMMON NAMES: **Keiyo:** Kakaruet; **Kikuyu:** Mutoma; **Kipsigis:** Lamaiyak, Kabigiriet; **Luo:** Ochol; **Maasai:** Oliala, Olkakawa; **Nandi:** Kakaawet; **Pokot:** Chetoye; **Taita:** Msegembe; **Tugen:** Kakaawet.

DESCRIPTION: A graceful deciduous tree 9–25 m high, the bole fluted and the crown fairly open. BARK: Smooth and pale grey or yellow-brown, flaking in patches, becoming darker and cracking with age. LEAVES: Pale green and soft when young, pinnate with **2 pairs lateral leaflets plus a larger terminal leaflet** to 12 cm long, tip broadly tapering, sometimes rounded and notched, lateral leaflets often unequal-sided. The **leaf stalk characteristically winged.** FLOWERS: In **terminal heads** on short branches, compact, 4–6 cm across, **each flower cream-white, marked purple and sweetly scented, about 1.5 cm** diameter, the tubular corolla powdered with brown, 2 yellow stamens. FRUIT: **Pear-shaped woody capsule, 3–6 cm long,** often in groups of 4–5, pale brown and persisting on the tree; splitting open when ripe to set free many **papery winged seeds to 2.5 cm.**

ECOLOGY: A widespread tree of bushland and forest from Ethiopia to Angola. Occurs in dry forests and forest edges and remnants, often associated with *Juniperus*, *Olea*, *Vepris* and *Croton*; also in evergreen bushland, less often in scattered tree grassland, 1,500–2,400 m. Agroclimatic Zone III.

USES: Firewood, charcoal, medicine (bark and leaves), ornamental.

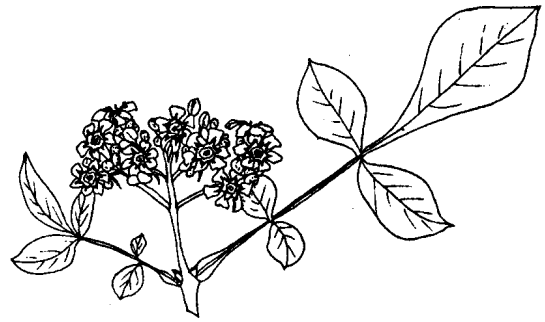
PROPAGATION: Wildings, seedlings.

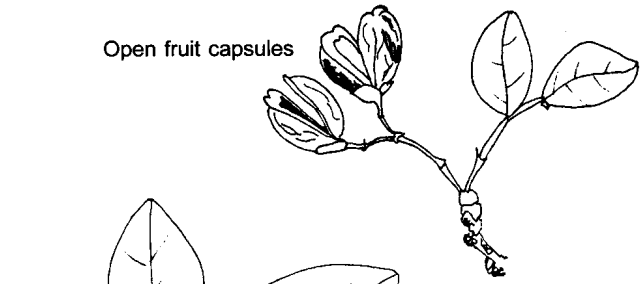
SEED: Seeds are blown away from the mother tree. Collect mature capsules just before they open and dry in the sun and then separate seeds when the capsules open.
treatment: Not necessary. Sow seed with wings up.
storage: Seed can be stored for long periods.

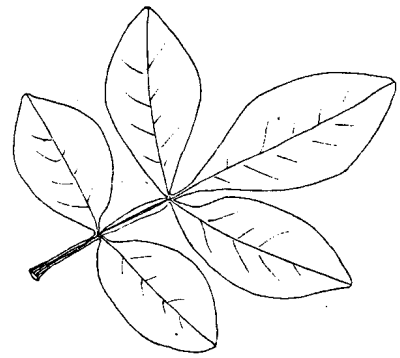
MANAGEMENT: Fairly fast growing in good soil; coppicing, pruning.

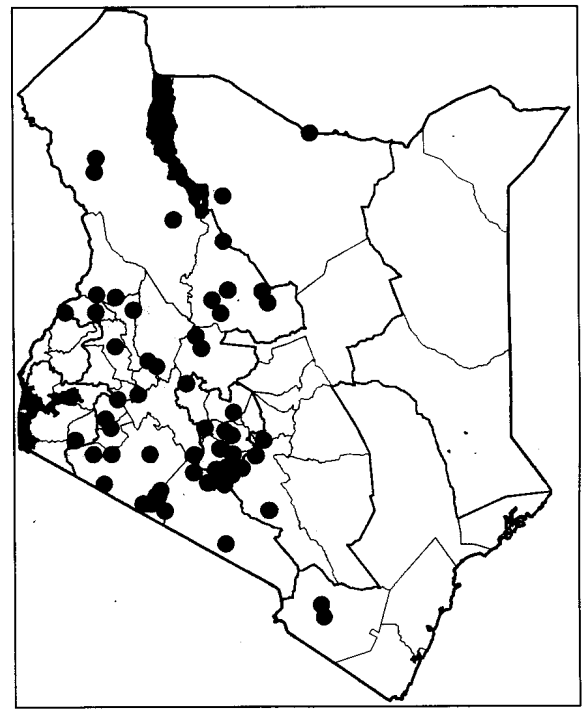
REMARKS: The pale brown wood is hard and heavy and makes excellent firewood and charcoal. A potential firewood crop for highland farmers, it can be planted as a woodlot, managed by coppicing or intercropped with arabica coffee.

FURTHER READING: Beentje, 1994; Blundell, 1987; Dharani, 2002; Katende et al., 1995; Kokwaro, 1993; Noad and Birnie, 1989; Palgrave and Palgrave, 2002; Storrs, 1979; van Wyk, 1993.









Sclerocarya birrea (S. caffra)

Anacardiaceae

Indigenous

COMMON NAMES: **Boran:** Didissa; **Chonyi:** Fula (fruit), Mfula; **Digo:** Mng'ongo; **English:** Marula; **Giriama:** Mfula, Mufula, Fula (fruit); **Ilchamus:** Lmang'wa; **Kamba:** Mauw'a (fruit), Maua (fruit), Muuw'a; **Luo:** Ong'ong'o, Ng'ongo, Mang'u; **Maasai:** Olmang'uai, Ilmanguai (plant); **Marakwet:** Arol, Oroluo; **Meru:** Mura; **Pokot:** Orolwo; **Sabaot:** Kotelalam, Katetalam; **Swahili:** Mng'ongo, Mongo, Mungango, Morula; **Teso:** Ekajikai; **Tugen:** Tololokwo; **Turkana:** Ekajiket.

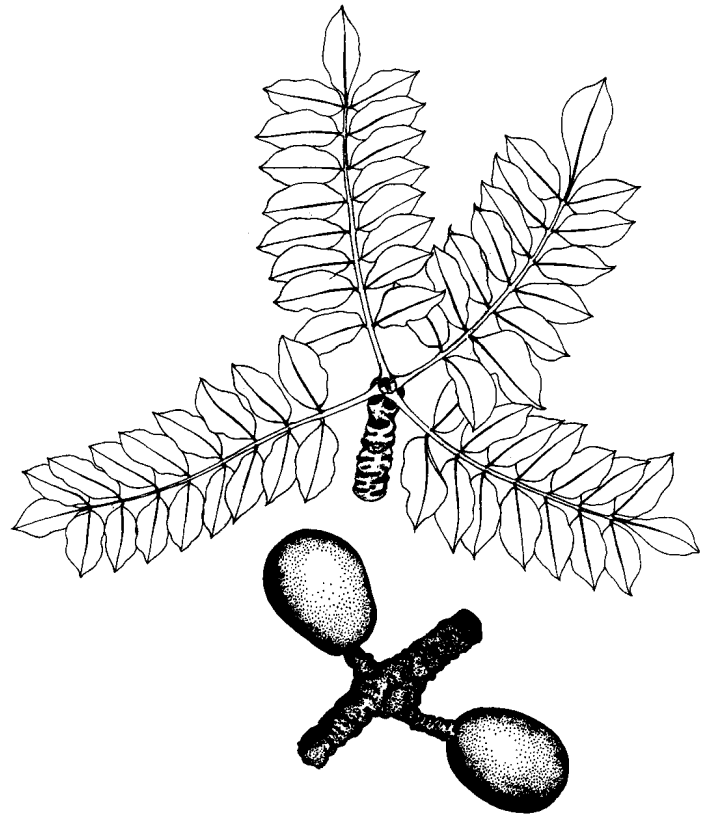
DESCRIPTION: A deciduous tree 10–18 m with a thick bole and **large branches** to a light, rounded crown. BARK: Grey, then **black and thick with irregular cracks and raised scales; inner bark pink-red.** LEAVES: Compound, crowded at tips of branches, **3–18 pairs of leaflets, each stalked, oval to 10 cm,** tip pointed or blunt. FLOWERS: Male and female flowers on the same or different trees; pale green male flowers in spikes, hanging down and often with insects; **female flowers solitary, green-pink.** FRUIT: **Rounded and fleshy to 3.5 cm across, skin cream, spotted,** peeling away from the **sweet flesh,** which tastes a bit like mango. Each fruit contains a hard edible stone that has **2–3 large seeds inside,** oily and edible.

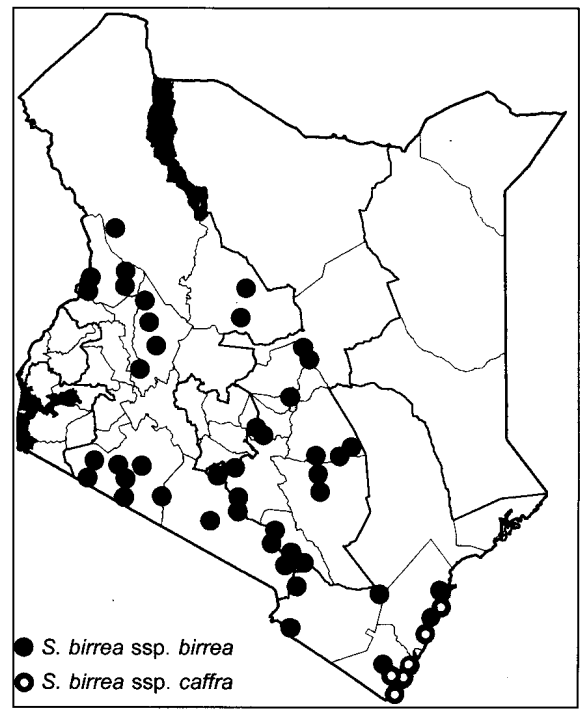
ECOLOGY: An African fruit tree occurring at medium to low altitudes from West Africa to Ethiopia and south to Natal scattered in mixed deciduous woodland and wooded grassland. Subsp. *birrea* is found from Senegal to Ethiopia and widespread in Kenya, e.g. in Lambwe Valley, Moyale, in West Pokot and Baringo, in wooded grasslands and on rocky hillsides; 500–1,600 m. Commonest on sandy loam soils as well as dry rocky riverbeds. Subsp. *caffra* is found in coastal and adjoining areas; 0–1,200 m. Open bushland, especially on sandy loam soils and rocky hillsides. Subsp. *caffra* is known to be highly salt tolerant. In Israel it grows well under irrigation with salty water. Agroclimatic Zones III (in warm humid areas)–V.

USES: Firewood, charcoal, timber (general purpose), furniture (stools), poles, beehives, carvings, utensils (pestles, grain mortars, bowls), edible fruit, drink, fat (seed), medicine (bark, roots, leaves), fodder (leaves, seeds), bee forage, shade, mulch, fibre (bark), dye (bark).

PROPAGATION: Seedlings, cuttings, truncheons (large woody cuttings), grafting; produces root suckers.

SEED: Mature fruits fall while still green and ripen to a yellow colour on the ground. About 400–450 stones per kg, each with 2–3 seeds. Germination is 40% after 6 weeks.





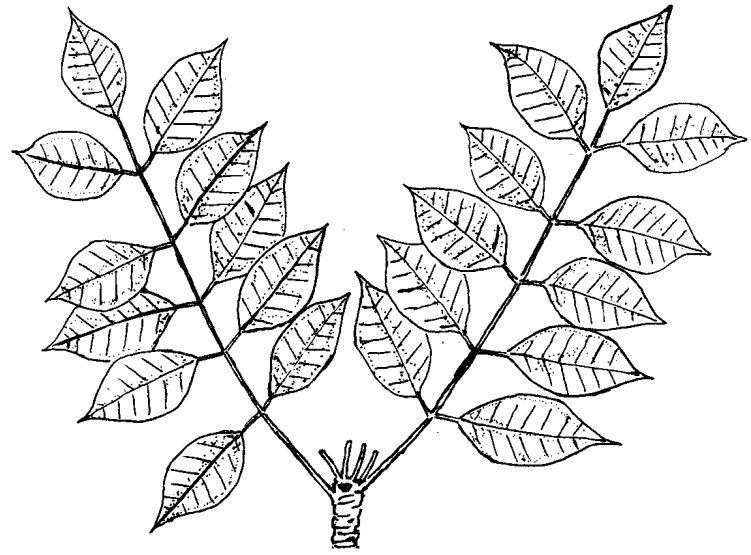
Sclerocarya birrea (cont)

treatment: Germination is hastened if flesh is removed, seed cleaned and soaked for 24 hours in cold water before sowing.
storage: Viability is lost within a month at room temperature. Stores well in airtight containers at cooler temperatures.

MANAGEMENT: Young trees coppice easily; can be grafted for best varieties.

REMARKS: The leaves of the 2 subspecies differ. Subsp. *caffra* has leaflets usually longer than 3 cm and with a pointed tip, while subsp. *birrea* has leaflets usually less than 3 cm long and that are blunt or sharp at the tip. Young trees are susceptible to fire damage. The fruit is rich in vitamin C, is well liked by children and also eaten by a variety of game (including elephants), and also by goats. The firewood takes time to dry. Archaeological evidence indicates that the fruit of *S. birrea* subsp. *caffra* was known and consumed by humans in Africa more than 10,000 years ago.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Beentje, 1994; Bein et al., 1996; Katende et al., 1995, 1999; Kokwaro, 1993; Maundu et al., 1999; Mbuya et al., 1994; Palgrave and Palgrave, 2002; Ruffo et al., 2002; Storrs, 1979; van Wyk, 1993; von Maydell, 1990.



S. birrea ssp. *caffra*

Scutia myrtina

Rhamnaceae

Indigenous

COMMON NAMES: **Boni:** Tsina; **Giriama:** Munyahi; **Kamba:** Kitumbuu; **Kikuyu:** Muhurangware, Mulangari; **Kipsigis:** Simbejwet; **Luhya (Bukusu):** Lunani, Lusecha; **Luo:** Migodha, Osiri; **Maasai:** Osanangururi; **Marakwet:** Sumbeyiwa, Tolgokwa; **Sabaot:** Letwa; **Samburu:** Laturudei, Sanunguri; **Sanya:** Boja, Huda huda; **Tugen:** Sumboywa; **Wardei:** Goraa.

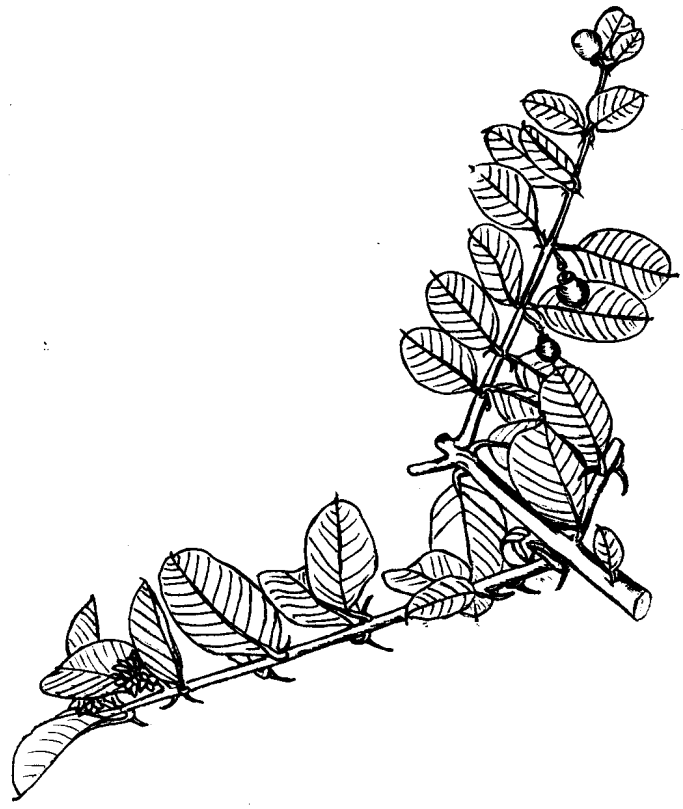
DESCRIPTION: A spiny often **scrambling shrub** to 6 m high. Branches scattered and spreading with **recurved thorns** that are normally in pairs, grey with shiny brown tips. BARK: Grey, smooth, older bark dark, corky with vertical fissures. LEAVES: **Glossy** mid-green above, **usually opposite**, broadly oval, to 6 cm long, tip rounded or with a tiny sharp protrusion. FLOWERS: Small, **creamy-green**, bell-shaped, in clusters at the leaf axils. FRUIT: Green, later red and turning **purple-black on ripening**, up to 1 cm in diameter, edible when ripe, much eaten by birds.

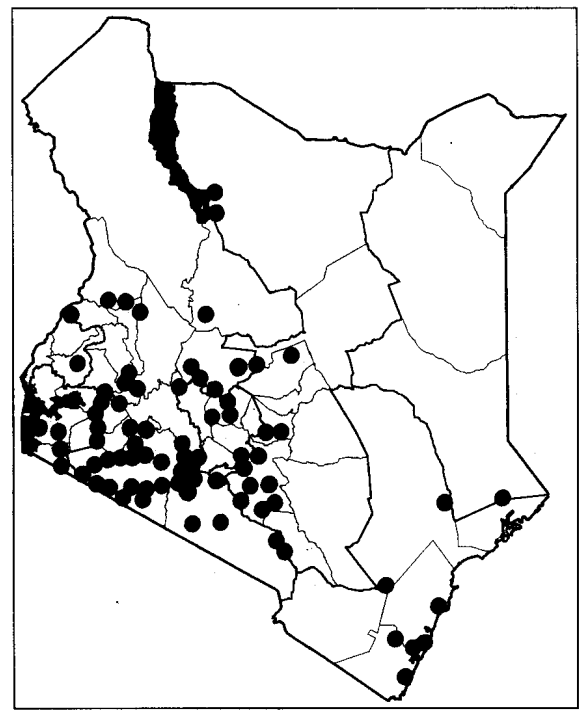
ECOLOGY: Distributed from Kenya and Uganda south to South Africa and Madagascar; India, Sri Lanka and east to Vietnam. Widely distributed in Kenya and common in the dry middle- to high-altitude areas in bushed grassland and thickets, 0–2,700 m. Confined to riverine vegetation and near pools, swamps as well as near the sea in the lower dry altitudes. Common on clay soils, coral soil and on red and black-cotton soil, often on termite hills. Agroclimatic Zones II–IV. Fruits in January–April at the coast; flowers in June in Narok and fruits in February and July in Kajiado and Kitui.

USES: Food (fruit), medicine (roots, leaves), fodder, shade.

PROPAGATION: Wildings. Seeds germinate well, but are difficult to collect since the fruits are eaten by birds and squirrels. Root suckers are also produced.

FURTHER READING: Backes and Ahenda, 1998; Beentje, 1994; Kokwaro, 1993; Maundu et al., 1999; Noad and Birnie, 1989; Palgrave and Palgrave, 2002.





Senna siamea (Cassia siamea)

Fabaceae (Caesalpiniaceae)

South East Asia

COMMON NAMES: English: Siamese senna; **Kamba:** Ikengeta; **Luo:** Ndek owinu, Mbengo.

DESCRIPTION: An evergreen tree to 20 m. BARK: Smooth, pale grey-brown. LEAVES: Compound, **stalk to 30 cm**, grooved, **leaflets oblong, 4–16 pairs, round at base and tip, which may be notched,** dark, shiny green above. FLOWERS: **Pale yellow in dense heads**, each flower about 3 cm across. FRUIT: Pods in dense clusters, **flat yellow-brown and smooth,** slightly curved, indented across. About 20 seeds in each pod.

ECOLOGY: A small tree cultivated all over the tropics from subhumid to semi-arid and even arid zones. Prefers a high water table, but will tolerate extended drought; 0–1,800 m. Common at the coast and lower altitude areas in Kenya. Tolerates a variety of soils although not salinity. Agroclimatic Zones III–IV.

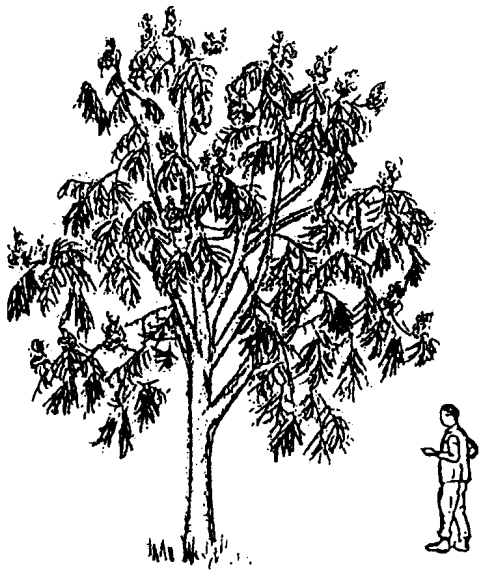
USES: Firewood, charcoal, timber, furniture, poles, medicine (roots and bark), bee forage, shade, ornamental, mulch, soil conservation, windbreak, tannin, dye.

PROPAGATION: Seedling, wildings, direct sowing at site.

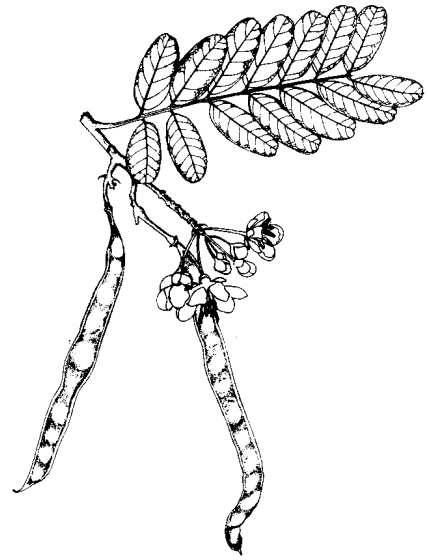
SEED: This tree is a prolific seeder; 38,000–45,000 seeds per kg.
treatment: Stored seed: Pour hot water on seed, allow to cool and soak for 24 hours. Fresh seed requires no pretreatment. Seed should be sown in areas with full sunlight as the slightest shade reduces germination.
storage: Seed can be stored for up to 3 years in airtight containers. but germination rate drops with time.

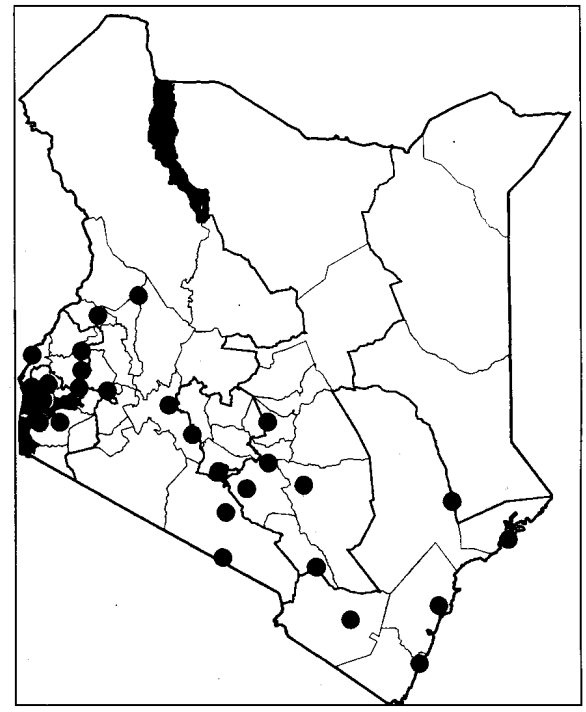
MANAGEMENT: Fast growing; lopping, coppicing, pruning for compatibility with crops.

REMARKS: An earlier name of this species was *Cassia siamea.* The tree is not preferred by livestock and so is easy to establish. Foliage is poisonous to pigs but not to cattle or sheep. Termite resistant. Drought resistant, although there may be dieback during severe drought; but the tree usually recovers when there is rain. Susceptible to mildew attack on the leaves. May conserve soil but competes with crops.



FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Bein et al., 1996; Bekele-Tesemma et al., 1993; Dharani, 2002; Katende et al., 1995; Mbuya et al., 1994; Noad and Birnie, 1989; Storrs, 1979.





Senna singueana (Cassia singueana)

Fabaceae (Caesalpiniaceae)

Indigenous

COMMON NAMES: **Digo:** Muhumba; **Giriama:** Muhumbu; **Kamba:** Mukengeka, Munyunga nai; **Luhya (Bukusu):** Kumusilamosi; **Samburu:** Senetoi; **Swahili:** Mbaraka; **Taita:** Msua, Mwangia.

DESCRIPTION: A deciduous shrub or small tree, usually 4–5 m, with a light open crown. Rarely up to 15 m tall. BARK: Red, becoming grey-brown and rough. LEAVES: Compound with **4–10 pairs oval leaflets**, bright green, 2.5–5 cm long. **Between each leaflet pair there is a conspicuous gland on the stalk.** Leaflets are round at the tip and base and have a very **short stalk**. FLOWERS: Striking **deep yellow**, fragrant, in large **loose sprays** to 15 cm, at the ends of branches on the bare tree. The **5 sepals and 5 petals are rounded and yellow**, to 3 cm long; the 10 stamens are of 3 different sizes. **The flower stalks, 2–4 cm, have conspicuous glands**. FRUIT: **A narrow cylindrical pod to 25 cm, sharply pointed and narrowed between seeds**. Pods hang in clusters and ripen the following year; yellow when ripe. **Seeds circular, flat, only 5–6 mm.**

ECOLOGY: A widespread plant in semi-arid parts of tropical Africa. Found in Kenya at the coast as well as in the central and western parts in bushed or wooded grassland, dry or coastal bushland, often on termite mounds, in luggas or riverine. Agroclimatic Zones IV–V. Flowers in January–March and fruits in October–December in Bungoma; in full flower in May in Machakos District.

USES: Medicine (roots), tannin.

PROPAGATION: Seedlings, wildings.

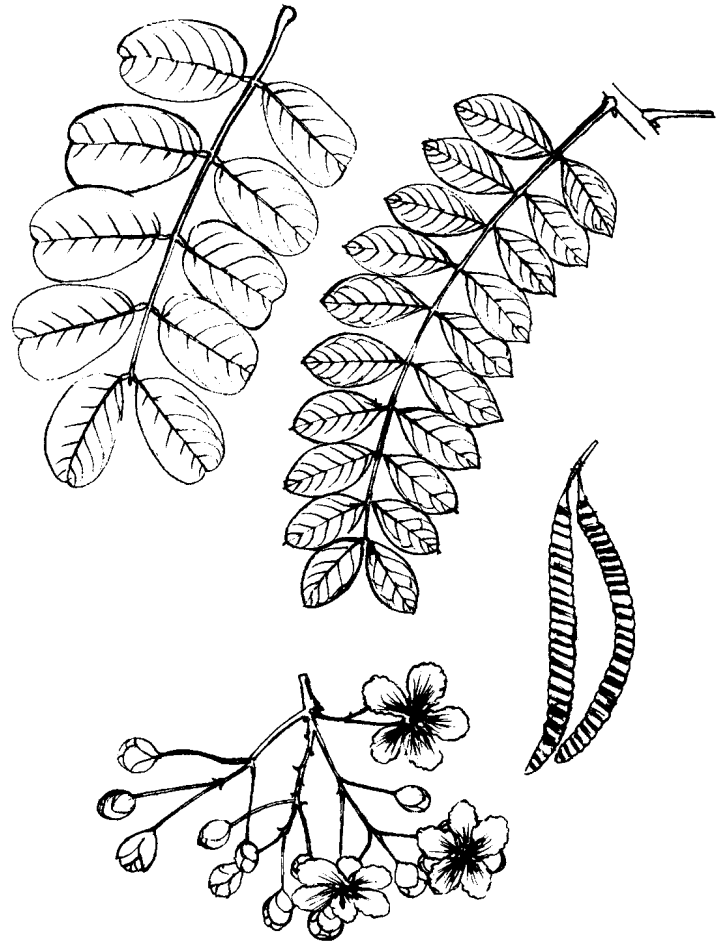
SEED:

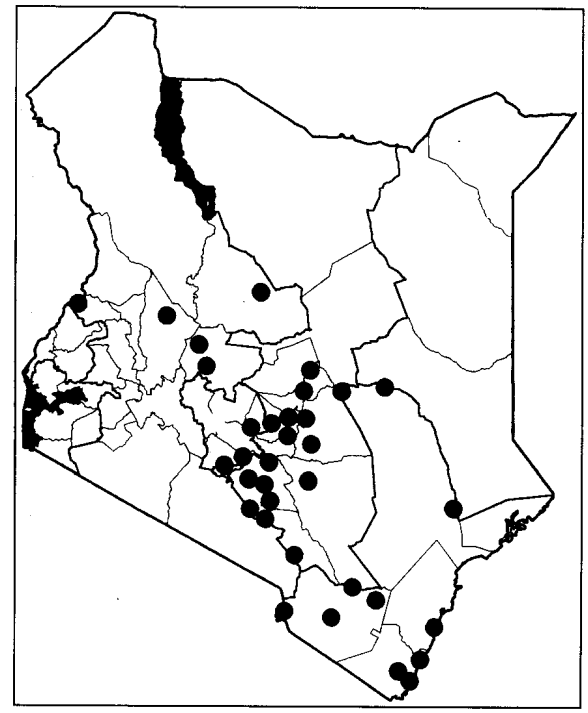
treatment: Not necessary.

MANAGEMENT: Coppicing.

REMARKS: A good medicinal tree for many ailments, e.g. stomach pains.

FURTHER READING: Backes and Ahenda, 1998; Beentje, 1994; Bein et al., 1996; Dharani, 2002; Palgrave and Palgrave, 2002; Ruffo et al., 2002; Storrs, 1979.





Senna spectabilis (*Cassia spectabilis*)

Fabaceae (Caesalpiniaceae)

Tropical America

COMMON NAMES: Kikuyu: Muchingiri; **Swahili:** Mhomba; **Teso:** Igasha.

DESCRIPTION: A deciduous tree with a rounded crown, usually less than 10 m tall but occasionally to 20 m. The bole is short and tends to fork near the ground. The tree is bare for several months of the year. BARK: Smooth, grey with horizontal makings. LEAVES: Compound to 40 cm, with **many pointed leaflets,** often softly hairy below. FLOWERS: **Golden yellow in erect pyramid clusters to 60 cm high**, all over the tree. FRUIT: **Long cylindrical** or flattened pods, turning from **green to black,** the seeds in separate compartments.

ECOLOGY: One of several exotic *Senna* spp. introduced to Africa. It grows well on deep, moist sandy loam but will even grow on black-cotton soil if the site is not too dry. Planted up to 2,000 m altitude. Agroclimatic Zones II–IV. Flowers in April–June and seeds in July–August in Nairobi. Seeds collected in December at the coast.

USES: Firewood, charcoal, wood for crates, poles, tool handles, bee forage, shade, ornamental, mulch, wind-break.

PROPAGATION: Seedlings, direct sowing at site.

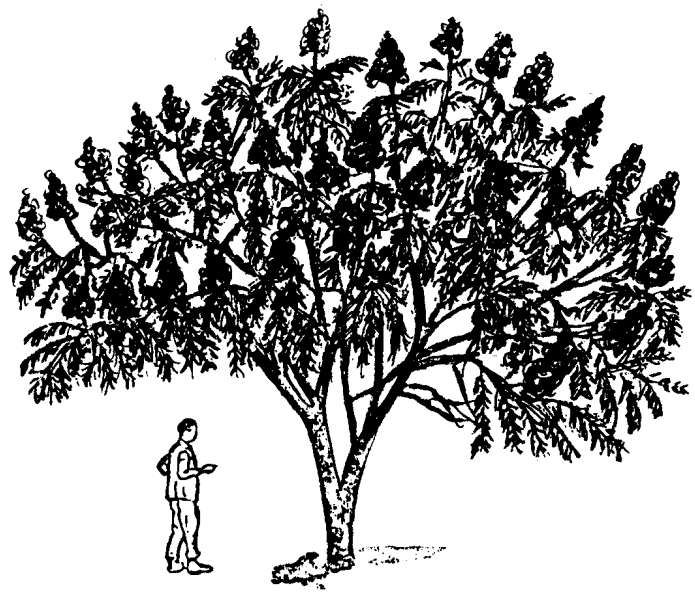
SEED: Seeds profusely; 38,000–40,000 seeds per kg.
treatment: Pour boiling water over seed, allow to cool and soak for 24 hours.
storage: Seed can be stored for long periods.

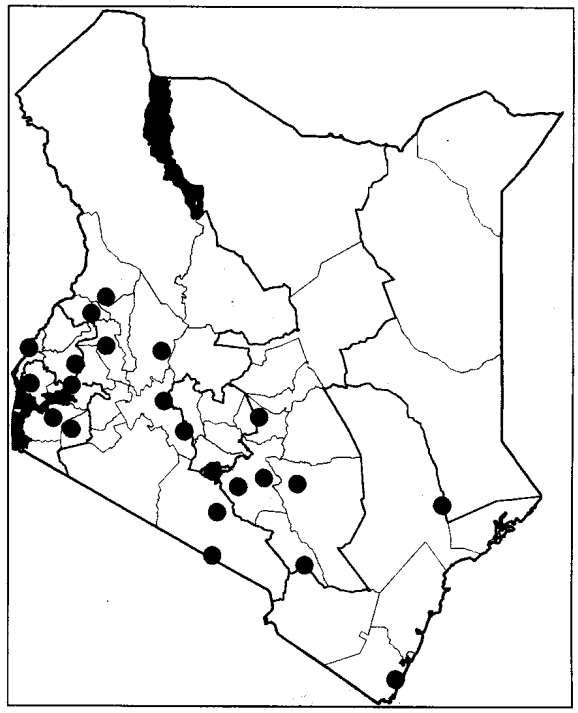
MANAGEMENT: Fast growing on good sites, slow on drier sites; coppicing.

REMARKS: The wood is termite resistant. Easy to raise, less susceptible to pests and diseases and more drought resistant than *S. siamea.* The coppicing ability is very good and trees more than 50 years old are still coppicing.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Dharani, 2002; Katende et al., 1995; Mbuya et al., 1994; Noad and Birnie, 1989; Storrs, 1979.

Pod





Sesbania bispinosa

Fabaceae (Papilionaceae)

Indigenous or from India

COMMON NAMES: **Digo:** Murindaziya; **English:** Prickly sesbania; **Swahili:** Mrindazia.

DESCRIPTION: A woody herb, tall and straight, often unbranched, in crowded stands, 6 m high, otherwise low and spreading, multi-stemmed. **Stems, leaf and flower stalks prickly**. LEAVES: **Compound, with up to 30 pairs leaflets**, each 1 cm. FLOWERS: **Yellow, 9–12 on a short stalk**, the largest petal spotted green outside, marked violet inside. FRUIT: **Very long narrow pods**, about 25 cm, **curved and beaked** with 35–40 brown seeds.

ECOLOGY: Occurs throughout eastern Africa extending to South Africa and east to China, though it may have been introduced in much of its range. Naturally mostly found in low-lying wet areas of Kenya, especially at the coast and in lower Tana, sometimes as a weed in rice fields. Commonly grown near homesteads in parts of western Kenya, 0–1,850 m. It tolerates difficult sites such as alkaline, waterlogged soils and rice paddies. Requires moisture to grow fast. Agroclimatic Zones II–III.

USES: Firewood (low quality), poles (short durability), medicine, fodder (leaves), shade, mulch, green manure, nitrogen-fixing, soil conservation, soil improvement, windbreak, fibre (stem), resin.

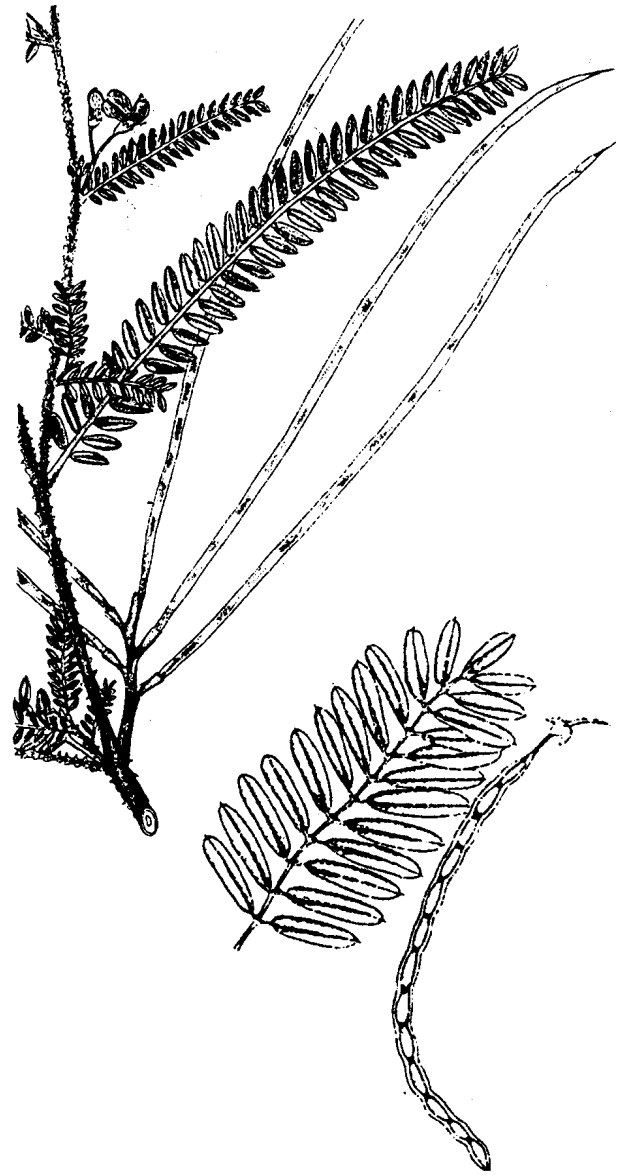
PROPAGATION: Direct sowing at site.

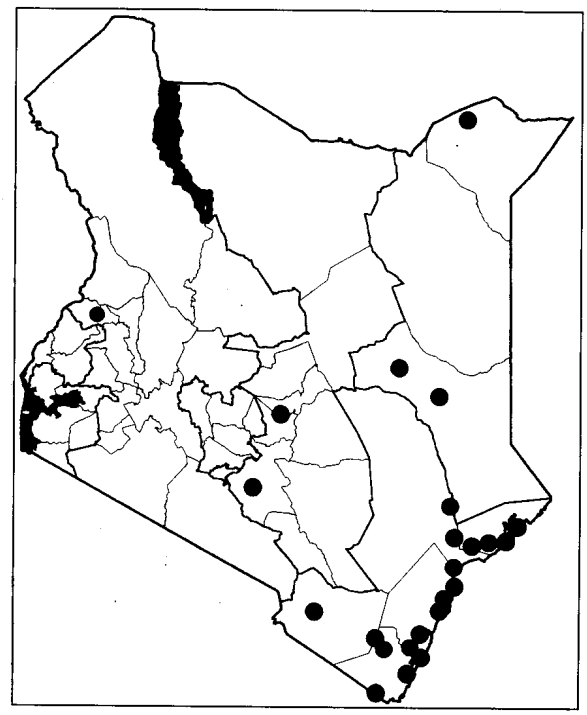
SEED: If sown as a sole crop for green manure, about 90–100 kg seed is required per hectare when broadcast or 20–60 kg when drilled in rows.
treatment: Not necessary.
storage: Seeds can be stored for long periods, but best germination is from fresh seed. Dry seeds well before storage.

MANAGEMENT: Very fast growing; lopping, pruning, short rotations.

REMARKS: A fast-growing short-lived plant with vigorous nodulation and good ability to fix nitrogen. Poor-quality firewood due to the hollow stems. The stem yields a strong fibre that is especially durable under water. It can stand a wide range of temperatures and difficult soils and is highly resistant to drought. The foliage turned into the soil as green manure has been shown to increase crop yields.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Beentje, 1994; Katende et al., 1995; National Academy of Sciences, 1979, 1980.





Sesbania sesban

Fabaceae (Papilionaceae)

Indigenous

COMMON NAMES: **Boran:** Daisa; **English:** Sesbania, River bean, Egyptian rattle pod; **Giriama:** Kinuka muhondo; **Kamba:** Munyongo; **Keiyo:** Natiatia; **Kikuyu:** Mwethia; **Kisii:** Omosabisabi; **Luhya (Bukusu):** Chisubasubi; **Luhya:** Kumusubasubi, Lukhule; **Luo:** Oyieko (Siaya), Sawo sawo; **Maasai:** Oloiyangalani; **Nandi:** Walbaiyondet; **Samburu:** Loiyangalani.

DESCRIPTION: A deciduous, short-lived shrub or tree to 8 m. BARK: Red-brown, young shoots hairy. LEAVES: Compound to 12 cm long, 10–25 pairs leaflets, each leaflet to **2 cm, oblong, tip notched, narrow**. FLOWERS: **Pale yellow, speckled maroon,** in few-flowered **sprays to 15 cm long**. FRUIT: Abundant bunches of thin **pale brown pods to 20 cm,** with separated sections so **seeds rattle within.**

ECOLOGY: One of many useful African *Sesbania* spp. that survive waterlogging and fix nitrogen. Naturally distributed from Senegal to Somalia and south to South Africa. Cultivated throughout tropical Africa and Asia. In Kenya, it is found at the margin of freshwater lakes like Naivasha and Baringo and in seasonal ponds. It tolerates acid and saline soil. Common in riverine vegetation. May occur in dense stands. Widely cultivated in western Kenya; 350–1,900 m. Agroclimatic Zones I–IV. Seeds in November–December in Nairobi.

USES: Firewood, poles, medicine (leaves and roots), fodder, shade, nitrogen-fixing, soil conservation (improved fallows), fibre, veterinary medicine, soap (leaves).

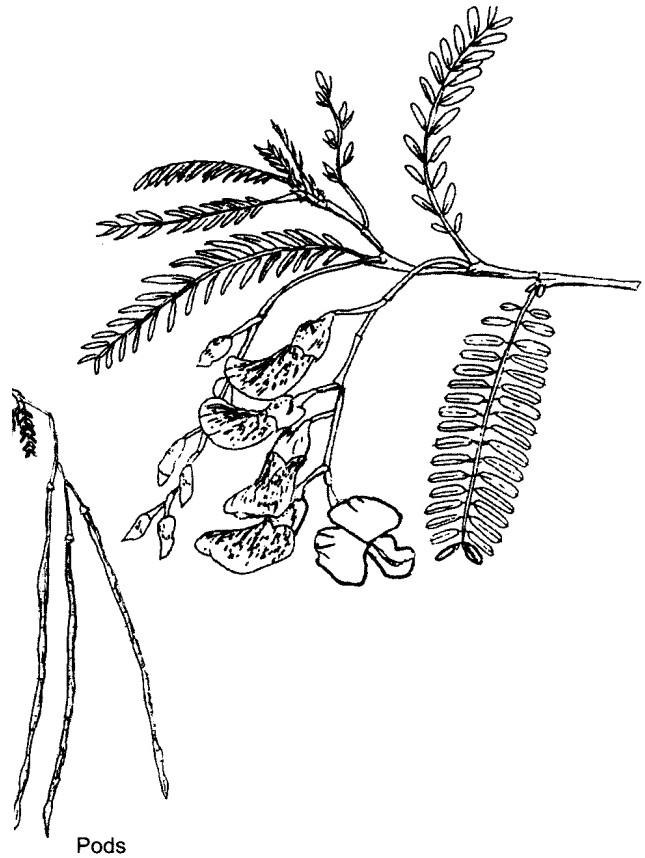
PROPAGATION: Direct sowing at site, wildings.

SEED: The species is a prolific seeder with a germination rate of about 80%; 85,000–110,000 seeds per kg. **treatment:** Not necessary for fresh seed, soak stored seed in cold or tepid water for 24 hours before sowing. **storage:** Seed can be stored for long periods, but it is best to germinate from fresh seed.

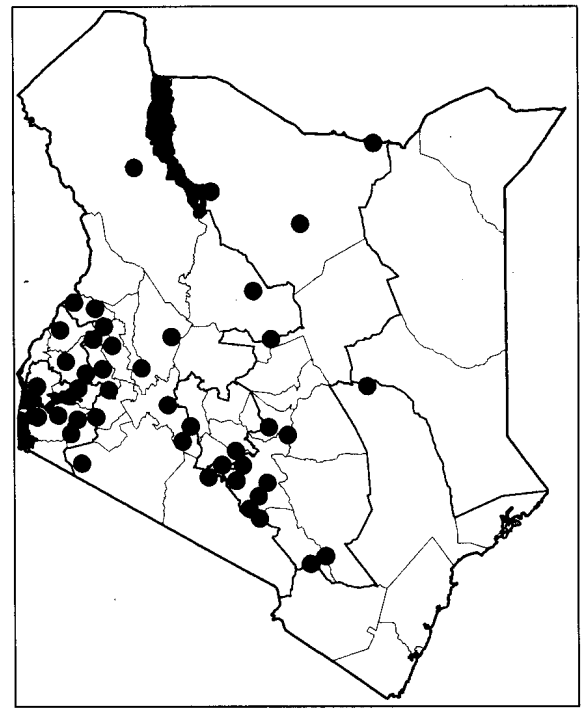
MANAGEMENT: Very fast growing; pruning, short rotation.

REMARKS: The species harbours rootknot nematodes and should therefore be avoided in combination with crops that are very sensitive to nematodes like banana and Irish potatoes. The leaf mulch and nitrogen-fixation features make this tree of great potential for soil improvement on small farms. Widely used in western Kenya.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Albrecht, 1993; Backes and Ahenda, 1998; Beentje, 1994; Bekele-Tesemma et al., 1993; Blundell, 1987; Dharani, 2002; ITDG and IIRR, 1996; Katende et al., 1995; Kokwaro, 1993; Mbuya et al., 1994; National Academy of Sciences, 1979, 1980, 1983; Noad and Birnie, 1989; Palgrave and Palgrave, 2002.



Pods



Sideroxylon inerme (S. diospyroides) Sapotaceae

Indigenous

COMMON NAMES: **Giriama:** Mutsani; **Sanya:** Garbithi hadaa; **Swahili:** Mkokobara, Mtunda, Mtunda wa ng'ombe.

DESCRIPTION: A dense, dark green leafy shrub or small tree with a single stem but **branching low**, up to 12 m tall. **Stem and branches often twisted**. It has a **spreading crown** with branches that often rest on the ground. BARK: Grey, becoming thick and **dark to almost black and fissured**; young branches covered with fine soft grey to rusty hairs. **Milky latex** oozes out if plant is injured. LEAVES: Alternate, simple, tending to be **wider towards the tip**, up to 12 cm long and up to 5 cm wide, **shiny dark green above**, paler green below, often with rusty hairs that rub off with age, leaving patches until all the hairs have finally fallen, **tip often notched**; leaf stalk up to 1.5 cm. FLOWERS: Greenish to white, up to 4 mm long, solitary or in few- to many-flowered clusters, in the leaf axils or sometimes on older wood, **stalk short**, to 7 mm long. Bisexual, all floral parts in 5s. FRUIT: Spherical, fleshy, up to 1.5 cm in diameter, short stalked, **solitary or in clusters along the stem**, smooth, **purplish black** when mature, **containing a milky latex**, one seed in each fruit.

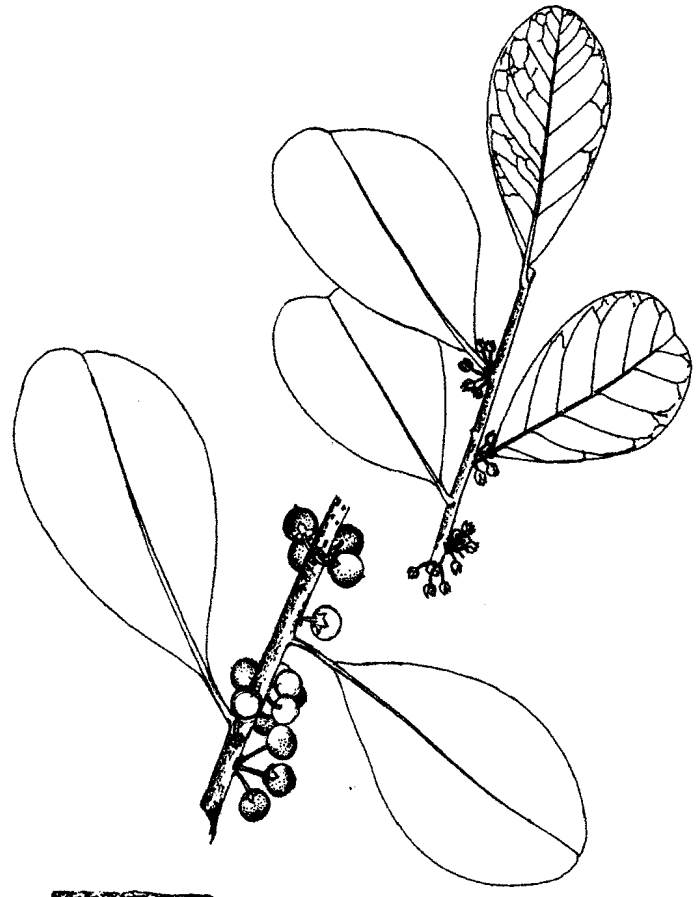
ECOLOGY: Found from Somalia south to Cape Province of South Africa and on the islands of Zanzibar and the Aldabra Islands. Occurs near the high-water mark on the edge of coastal evergreen bushland, in dune scrub, or on the landward side of mangrove, less frequently in coastal bushland; inland found only in riverine thickets along the Kiboko and Tsavo Rivers. Agroclimatic Zones III–IV. Flowers mostly in March; fruits in May–June at the coast, although it may flower up to 3 times a year.

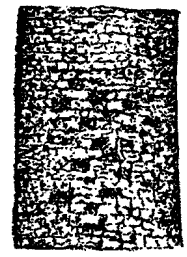
USES: Timber, poles, edible fruit.

PROPAGATION: Wildings, seedlings, cuttings.

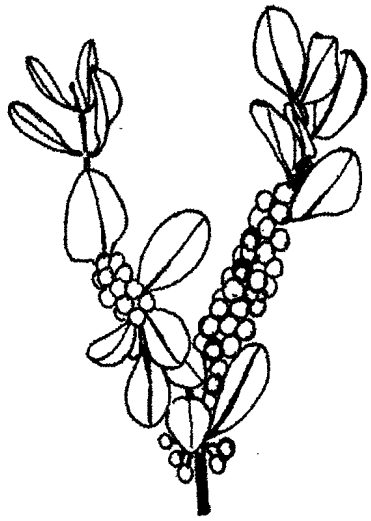
REMARKS: The wood of this species is heavy, very hard, strong, finely textured and durable, even in damp conditions. It has been used as general-purpose timber and for building boats, bridges, etc. The fruit is much eaten by wildlife. The tree may reach a great age; some trees in South Africa are believed to be up to 600 years old.

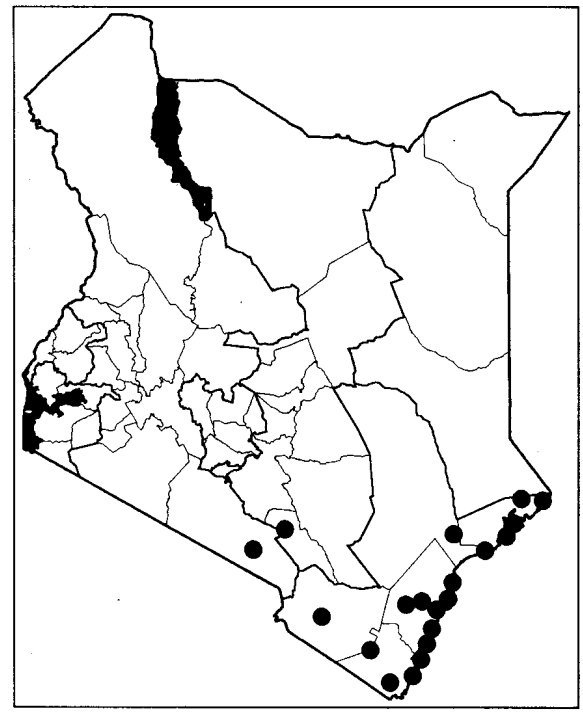
FURTHER READING: Beentje, 1994; Palgrave and Palgrave, 2002; van Wyk, 1993.





Bark





Solanecio mannii (Crassocephalum mannii)

Asteraceae (Compositae)

Indigenous

COMMON NAMES: **Kamba:** Mooa, Ilangala; **Kikuyu:** Muthakwa wathi, Musariki, Mwathathi; **Kipsigis:** Chekurbet; **Luhya (Bukusu):** Nandebe; **Luhya (Tiriki):** Kaibaraki; **Luo:** Marowo, Maroo; **Maasai:** Olmusakwa entim, Olairamirami; **Marakwet:** Tergekwa; **Meru:** Mutomboro; **Samburu:** Lugugutt; **Taita:** Mkorombosha.

DESCRIPTION: A much-branched sub-succulent woody shrub or tree to 10 m. **The branching is in 3s.** BARK: Usually **grey-green,** but grey-brown on old specimens. Branches marked clearly with old leaf scars. LEAVES: Crowded at the end of branches, long oval and narrow, pale green, **rather fleshy,** about 15 cm (up to 40 cm), the tip pointed, the edge deeply and irregularly toothed, tapering to the base, which clasps the stem. FLOWERS: Small yellow-orange flowers in **large branched terminal** or axillary **heads** 15–80 cm long with 6 florets together **(florets only tubular**—no ray florets). Flowers open at dusk and have a very unpleasant smell. FRUIT: Typical of the family, **small nutlets/seeds** that have **hairy tufts** like parachutes. Seed is blown and dispersed by wind.

ECOLOGY: A shrub or tree common in eastern Africa and also into South Africa. It grows in secondary scrub, forest gaps and plantations, preferring higher wet areas of Kenya, 0–2,600 m. Agroclimatic Zones III–IV.

USES: Firewood, medicine (roots and leaves), fodder, ornamental, live fence, boundary marking.

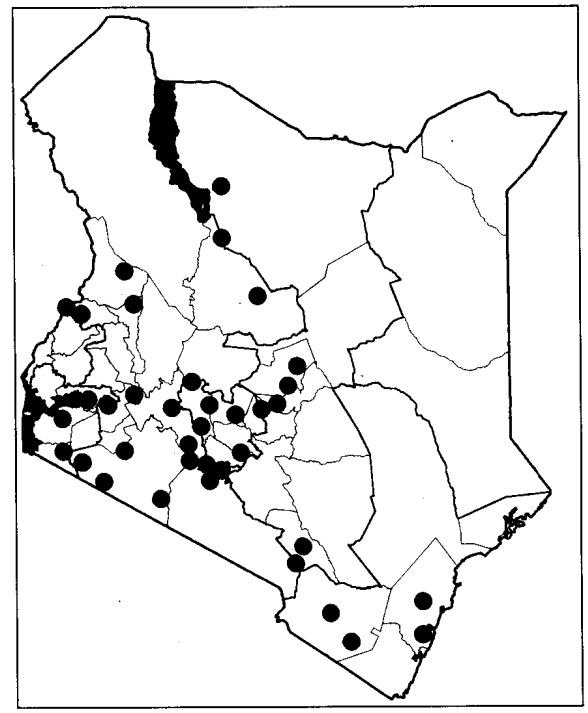
PROPAGATION: Direct sowing at site, cuttings.

SEED: Collect fruits before they are ripe. Put them in a polythene bag to ripen so the seeds are released there and can be easily collected.
treatment: Not necessary.
storage: Sow seeds fresh.

MANAGEMENT: Fast growing. Trimming if grown as fence.

REMARKS: The wood is extremely soft and burns quickly.

FURTHER READING: Backes and Ahenda, 1998; Beentje, 1994; Blundell, 1987; Fichtl and Adi, 1994; Katende et al., 1995; Palgrave and Palgrave, 2002.



Sorindeia madagascariensis

Anacardiaceae

Indigenous

COMMON NAMES: **Digo:** Mkunguma; **Duruma:** Msanzanza; **Giriama:** Mkunguma; **Malakote:** Mwebebe; **Pokomo:** Munyambembe; **Swahili:** Mtunguma, Mkunguma; **Taita:** Mkunguruli; **Taveta:** Mundaraha.

DESCRIPTION: An evergreen tree to 20 m, or occasionally more. BARK: Grey-brown, **flaking**. LEAVES: Compound, divided once into up to 15 leaflets, **lower leaflets smaller**, each leaflet hairless, usually with an **asymmetrical base**. FLOWERS: In **long, loose, branched flowering heads, 20–90 cm long, from older wood**. Like many of the members of this family, the species is **dioecious** (male and female flower parts on separate plants), each flower yellow with some pink near the base, **small**, hardly 5 mm. FRUIT: 1–2.5 cm long, in clusters, **oval and fleshy**, green, ripening to yellow-orange.

ECOLOGY: Distributed in Kenya, Tanzania, Malawi, Mozambique and the Mascarene Islands. In Kenya, found in riverine vegetation, especially along the lower Tana River, coastal forests, in areas with high groundwater, usually on sand or loam, 0–1,500 m. Agroclimatic Zones II–III. Fruits ripen in August–September at the coast.

USES: Firewood, edible fruit.

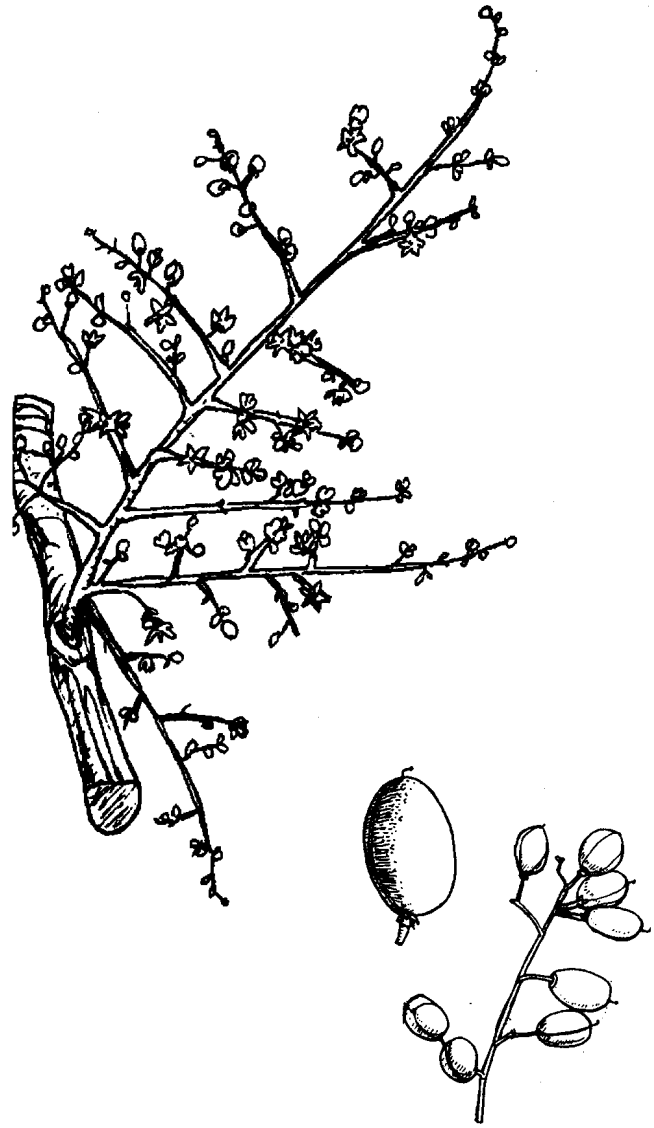
PROPAGATION: Seedlings.

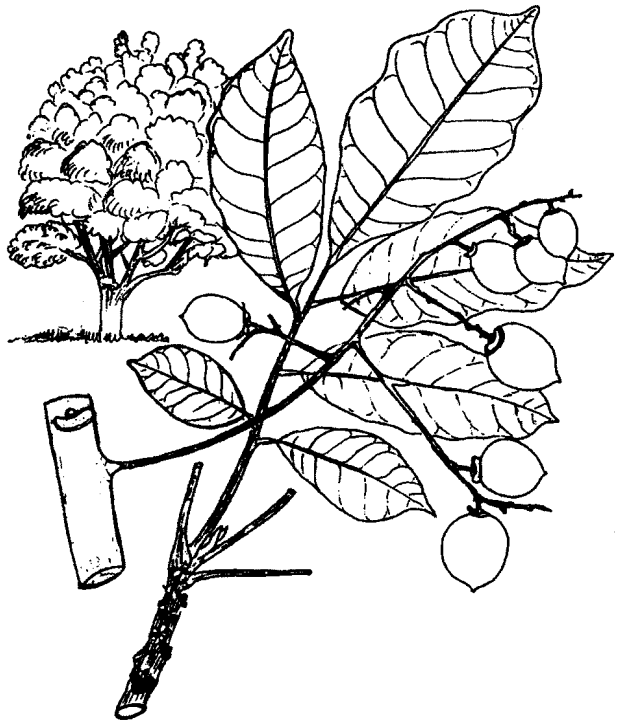
SEED:

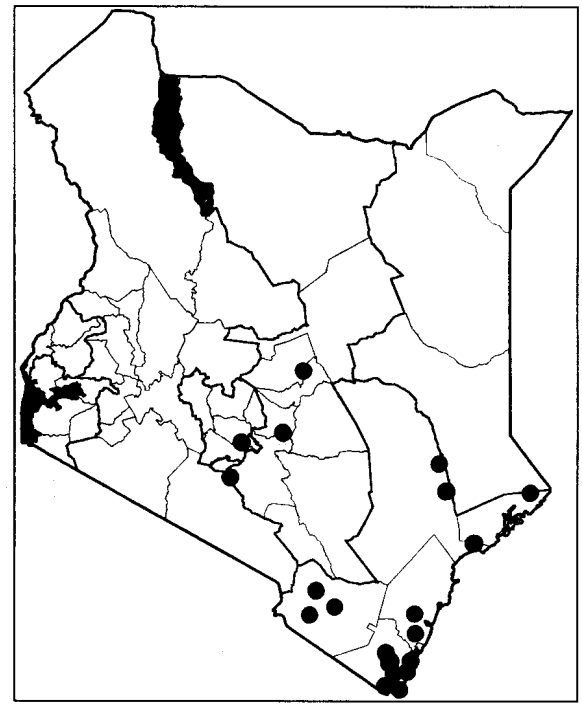
storage: Seeds lose viability quickly, should not be stored.

REMARKS: The only member in its genus found in Kenya. The fleshy ripe fruit has a pleasant flavour. Rated as one of the best indigenous fruits by the Pokomo and Malakote.

FURTHER READING: Beentje, 1994; Kokwaro, 1993; Maundu et al., 1999; Ruffo et al., 2002.







Spathodea campanulata (S. nilotica)

Bignoniaceae

Indigenous

COMMON NAMES: **English:** Nandi flame, African tulip tree; **Kipsigis:** Sebetaiyet; **Luhya:** Mutsulia; **Luhya (Bukusu):** Kumuchirisia, Kumusesi, Kumuchuri; **Luo:** Nyawend agwata, Madungudungu; **Nandi:** Sebetaiyet; **Pokot:** Repko; **Teso:** Ekakale.

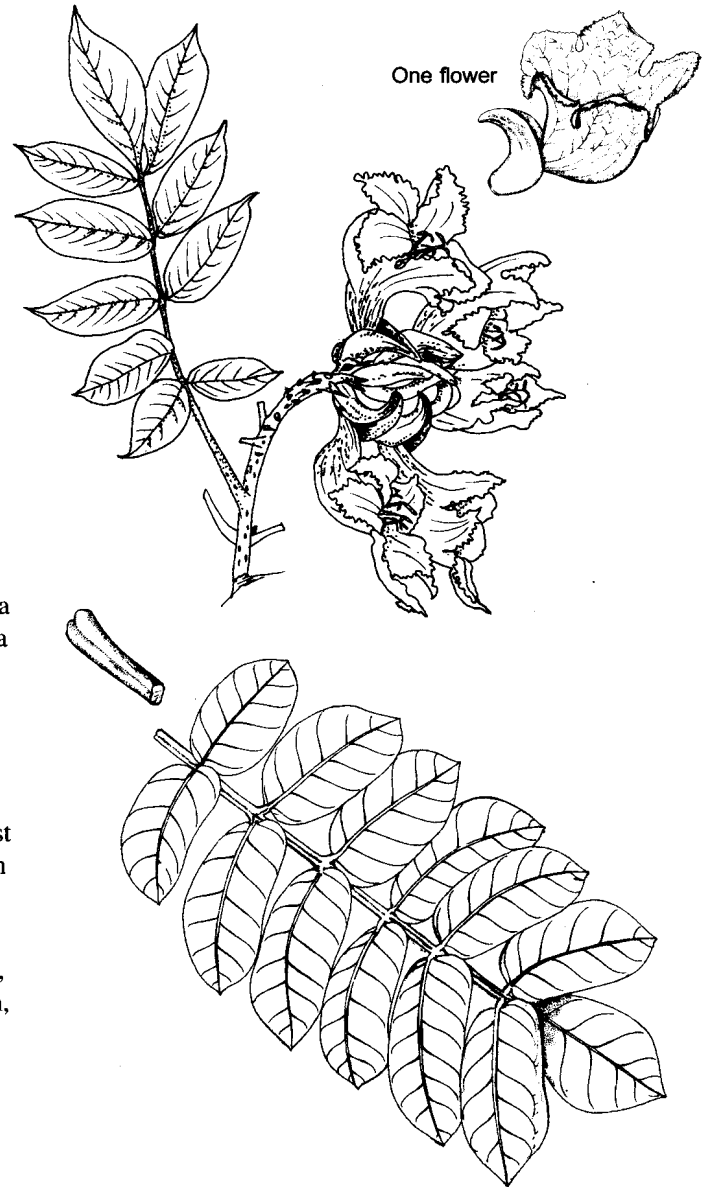
DESCRIPTION: A deciduous tree, bare many months, crown rounded, usually 10–15 m. BARK: **Pale, grey-brown and smooth,** rough with age. LEAVES: **Compound to 40 cm long, 6 pairs of leaflets,** plus a central leaflet, each wavy, tip pointed. **Yellow-brown hairs** on shoots, buds, branchlets and underside of leaves. FLOWERS: **Bright orange-red clusters** stand out all over the tree, a yellow edge on the frilly petals. A yellow-flowering variety exists. Furry buds contain watery liquid. FRUIT: Large **woody capsules** to 25 cm, split on the ground releasing many flat **winged seeds.**

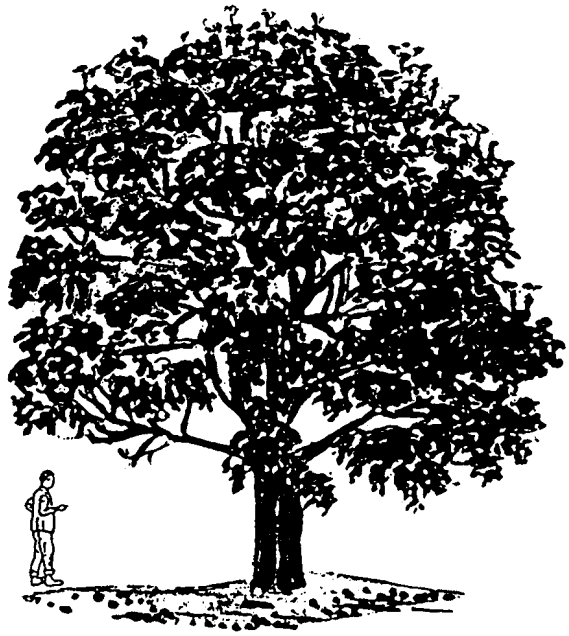
ECOLOGY: A decorative tree widely planted throughout the tropics. It grows naturally in tropical Africa from Ethiopia south to Zambia and Angola and west to Ghana. In Kenya from 2,000 m to the coast, in high-rainfall areas; 1,300–2,000 mm annual rainfall. It does best in red soil, but can also grow in black-cotton soil. Drought resistant once established and tolerates both well-drained and poorly drained soils. Widely planted as an ornamental and avenue tree. Agroclimatic Zones II–III. Flowers in August and in May in Nairobi; flowers in February–March and in September–November and seeds in June–July and December–February in Bungoma.

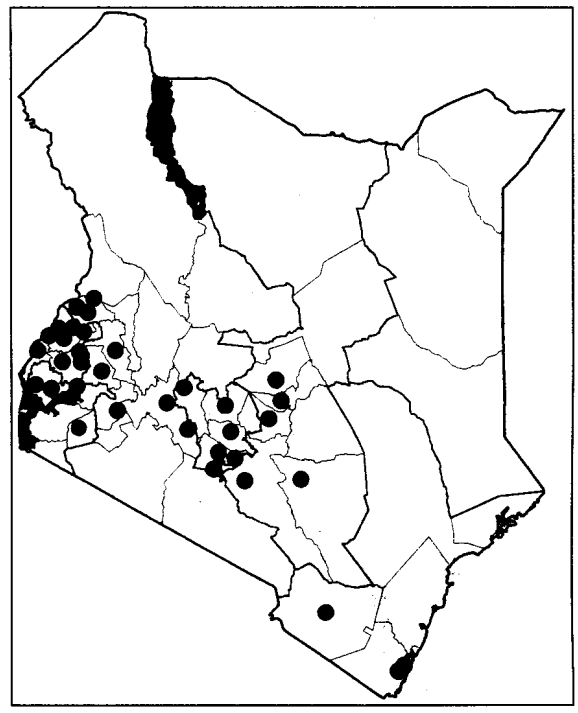
USES: Firewood, charcoal, carving, medicine (bark, flowers, roots), bee forage, shade, ornamental, avenue tree, mulch, windbreak.

PROPAGATION: Seedlings, wildings.

SEED: Good germination rate. About 125,000–150,000 seeds per kg. Collect the pods after they turn brown and leave them to air dry until they split open.
treatment: Not necessary.







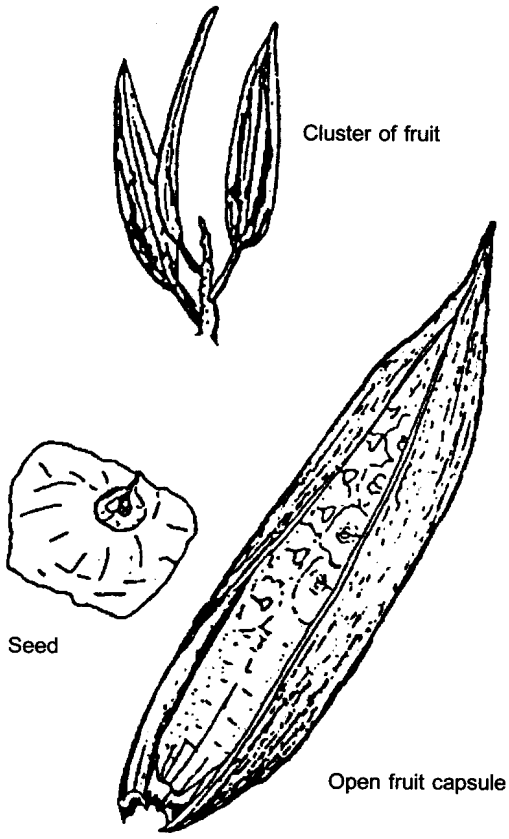
Spathodea campanulata (cont)

storage: Seed does not store well. Use fresh seed for best results.

MANAGEMENT: Fairly fast growing; pruning, pollarding. Coppicing on good sites, but only when young.

REMARKS: Not browsed by domestic animals. According to Luo beliefs, the species should not be planted near the homestead as it may attract lightning.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Backes and Ahenda, 1998; Beentje, 1994; Bekele-Tesemma et al., 1993; Blundell, 1987; Dharani, 2002; Katende et al., 1995; Kokwaro, 1993; Lötschert and Beese, 1983; Mbuya et al., 1994; Noad and Birnie, 1989; Sommerlatte and Sommerlatte, 1990; Storrs, 1979.



Spirostachys venenifera

Euphorbiaceae

Indigenous

COMMON NAMES: **Boran:** Siricho; **Duruma:** Mtanga; **Giriama:** Mutanga; **Malakote:** Mwacha; **Orma:** Wolkon; **Pokomo:** Mtolo, Mtongotongo, Mutongotango, Mchalaka; **Sanya:** Mtanga; **Somali:** Haiyah badad, Ayabedeo; **Swahili:** Mtanga; **Tharaka:** Mureetha; **Wardei:** Walkon.

DESCRIPTION: A tree usually 5–7 m high, occasionally to 12 m, with twiggy branches that hang low. **Milky latex present.** BARK: Dark grey, fissured. LEAVES: Simple, to 6 cm long, widest at base or middle narrowing to a blunt tip, base usually rounded, margin with **shallow rounded teeth**. FLOWERS: Small, less than 1 mm, borne on narrow reddish brown **spikes to 7 cm** on leaf axils. **Stalk 1–2.5 cm long.** FRUIT: 3-lobed, to 1 cm long.

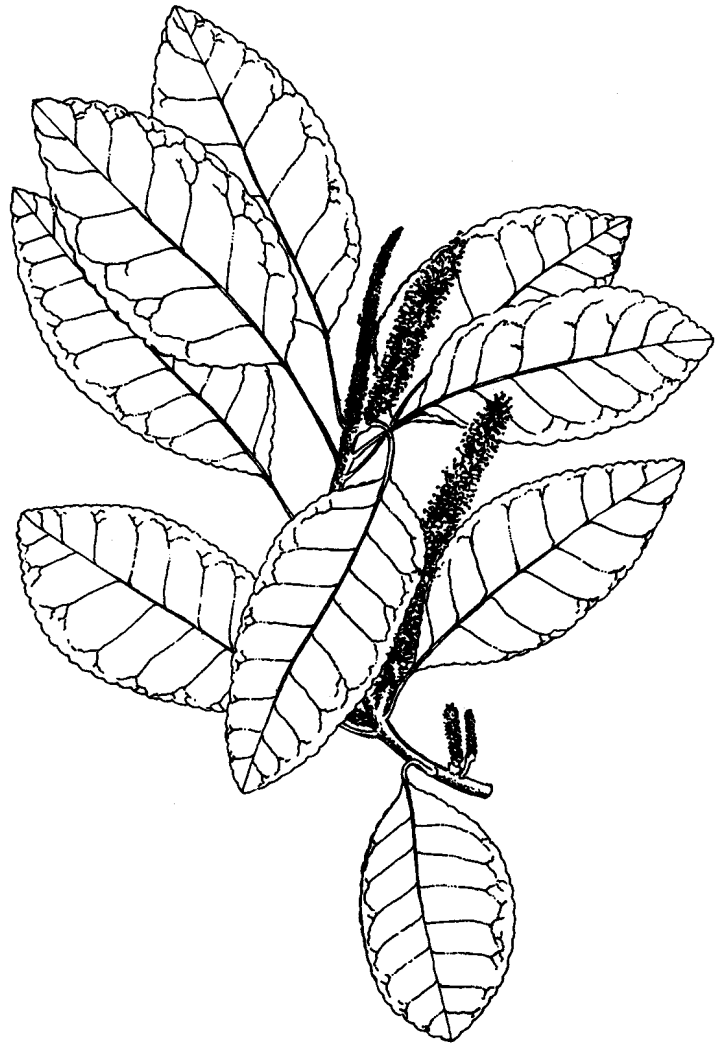
ECOLOGY: Found in rocky areas, also in river valleys and swamps; 0–1,450 m. Agroclimatic Zones III–VI. Fruits year-round.

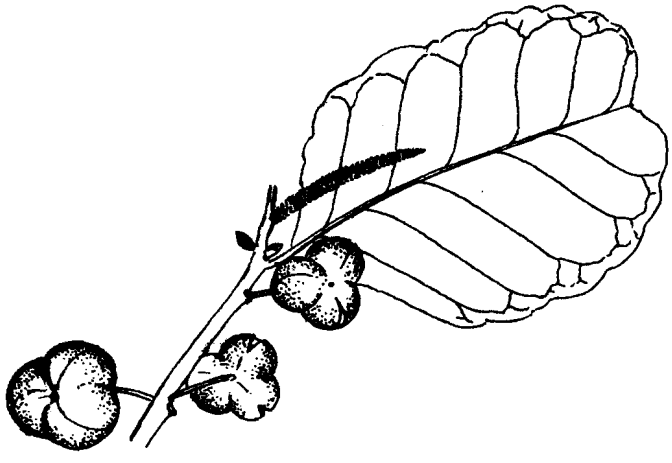
USES: Timber, poles, tool handles, carvings, bows, wooden combs, medicine (treatment of prolapsed uterus).

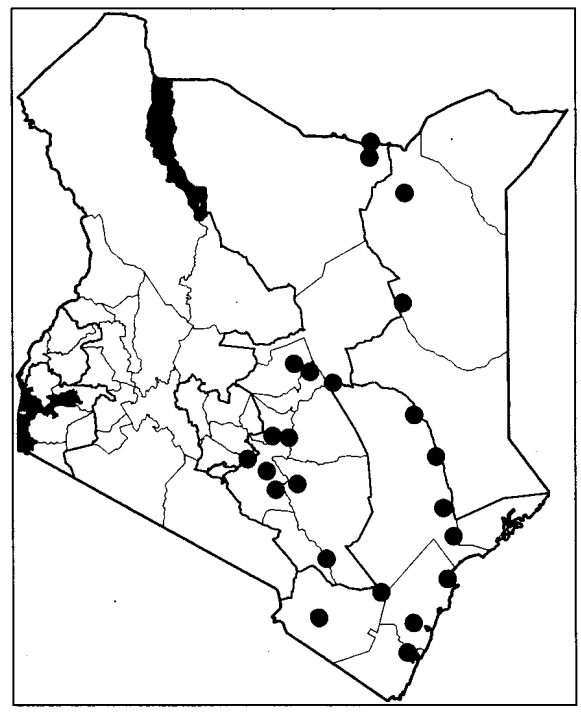
REMARKS: The latex of this species is said to be poisonous to livestock and people. It irritates the eyes and may cause blindness. The bark, mixed with bark of other species, is burned and the fragrant smoke and ash are used in beehives to attract swarms. Tharaka women also use the sweet-smelling and fragrant smoke from burning a mixture of dry wood chips from this tree and roots of *Justicia odora* and *Ocotea usambarensis* as a perfume. The wood cannot be worked fresh because of the sticky latex, but the tree is cut and left for 2–3 weeks to dry before use. Among the Pokomo, this tree is left in farms for its good shade.

A related and very similar species is *S. africana* (**Duruma:** Msarakana; **Swahili:** Msarakana). Leaves and flowers resemble those of *S. venenifera*. Flower spikes up to 2.5 cm with a relatively short stalk (to 1 cm), these being the main distinguishing features between the two species. Fruit is up to 12 mm. It is found at the coast below 900 m in riverine vegetation and also coastal bushland. The heartwood is heavy and fragrant. Used in wood carving at the coast.

FURTHER READING: Beentje, 1994.







Spondias cytherea (S. dulcis)

Anacardiaceae

South and South East Asia

COMMON NAMES: **English:** Ambarella, Otaheite apple, Golden apple; **Swahili:** Embe ng'ongo.

DESCRIPTION: An erect, stately, semi-deciduous tree, usually stiff in appearance, to 20–25 m tall. Bark shallowly fissured, greyish to reddish brown. LEAVES: **Large, compound, to 30 cm**, with 11–23 oval to oblong leaflets each 6–8 cm long, tip pointed. FLOWERS: Small, whitish, in large **loose 20–30-cm long terminal sprays**. FRUITS: Oval or slightly egg-shaped, 4–10 cm long, bright orange-yellow. Produced in **long hanging clusters of 2–10.** The **skin** is as **thick** as that of mango, but tougher. The pale yellow flesh is firm and very juicy. The flavour resembles apple; sometimes, however, it is resinous or pungent. The **seed is large**, oval, 2.5 cm long, **covered with stiff spines or bristles** to which the surrounding flesh clings tenaciously.

Ecology: Native throughout South and South East Asia and widely cultivated in the tropics. Cultivated in Kenya in the coastal areas, up to 600 m altitude. It is less hardy than mango. Demands light to produce well, tolerates drought and requires a free-draining soil. Sheltered locations are best as the brittle branches break easily. The fruit matures 6–8 months after flowering. In the humid tropics it produces more or less continuously. In climates with a long dry season the flowering will be concentrated to the dry season while the trees are more or less leafless. Agroclimatic Zones II–III.

USES: Timber (boat making), edible fruit and leaves, medicine, fodder (leaves, fruit), shade, ornamental, live fence (live posts).

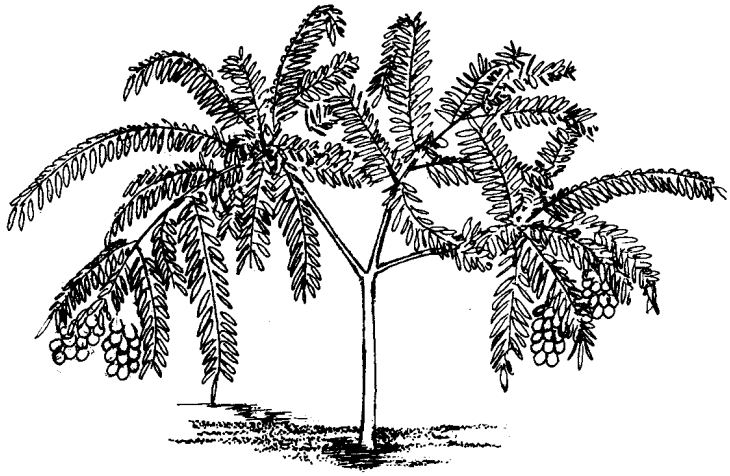
PROPAGATION: Seedlings, cuttings, air layers, budding, grafting, truncheons.

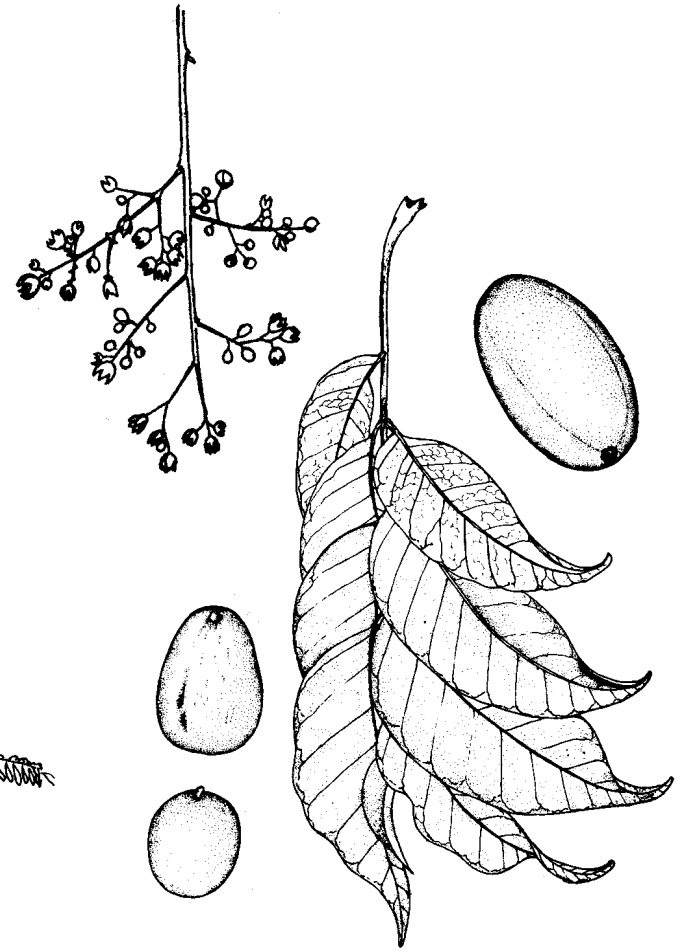
SEED: Many fruits have only 1 or 2 seeds.
treatment: Not necessary.
storage: Use fresh seed.

MANAGEMENT: The tree is fast growing and bears fruit within 4 years of planting. Fruits are harvested while still green. It can be either used unripe or kept until it ripens. Does not store well fresh, but boiled and dried fruit can be kept for several months.

REMARKS: Ambarella can be propagated from seed, but clonal propagation of superior trees is recommended and not difficult. Both cuttings and air layers root easily. Approximately 50-cm long sections of mature stems from good mother trees can be planted directly in the field at a spacing of 7–12 m. Alternatively, large stumps can be stuck in the ground to obtain live fence posts. Grafting or shield budding is also possible. Seedling trees are more vigorous than budded or grafted trees. Fruits of the best forms can be eaten raw, but this is rarely done in eastern Africa. The green fruits are harvested and the flesh is cut and eaten with salt. It can also be prepared in various ways in salads, curries and pickles. The fruit is a very good source of vitamin C and potassium. It also contains reasonable levels of carbohydrates, iron and phosphorus, as well as traces of vitamins A, B_1 and B_2. Citric acid is the predominant organic acid in the fruit, hence its taste. Young steamed leaves can also be eaten as a vegetable and the wood is good for boat making. Ambarella is a valuable homestead tree.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Jensen, 1999; Verheij and Coronel, 1991.





Sterculia africana Sterculiaceae

Indigenous

COMMON NAMES: **Boni:** Darab; **Digo:** Mgoza; **English:** African star chestnut, African sterculia; **Gabra:** K'arrari; **Giriama:** Muoria; **Kamba:** Muusya, Kisya, Kyusya; **Maasai:** Olkharasha; **Malakote:** Qararhi; **Orma:** Kharrari, Kharandri; **Sanya:** K'arari; **Somali:** Danrab, Qharanri; **Swahili:** Mgoza, Ngozo; **Taita:** Moja; **Turkana:** Etete.

DESCRIPTION: A deciduous tree with a thick, fluted trunk, usually 5–12 m but may reach 25 m, the erect branches spreading to a rounded crown. Branches soft and brittle. BARK: **Smooth, often shiny white,** later flaking irregularly into patches to reveal a beautiful purple–green–white–brown underbark. LEAVES: Crowded at the tips of branches, **deeply divided with 3–5 lobes,** over 10 cm across, on a **stalk to 10 cm, lobes pointed.** FLOWERS: Appear on the bare tree, sexes separate on the same tree, in branched heads to 9 cm, **green-yellow sepals** (no petals) joined together, **2.5 cm across with red lines within.** FRUIT: **1–5 woody beaked sections,** boat-shaped, with short yellow hairs. One side only breaks open to free 3–10 flat, **blue-grey seeds** that hang like ticks around the open edge.

ECOLOGY: An indigenous tree occurring from Kenya to South Africa. It is commonly found at low altitudes in hot dry areas, on rocky hills or the fringes of woodlands. The bare-branched tree with pale bark stands out. Scattered in occurrence, usually below 600 m, but found up to 1,000 m. Closely associated with *Acacia–Commiphora* bushland. Agroclimatic Zones V–VI.

USES: Timber, furniture, bee forage, ornamental, fibre (bark), mats, gum.

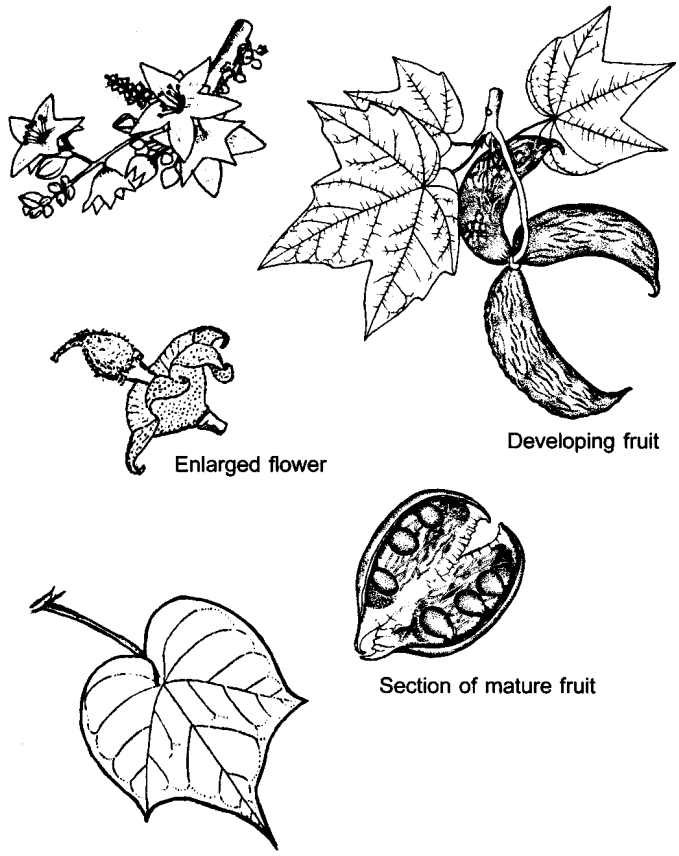
PROPAGATION: Seedlings, cuttings, truncheons (large woody cuttings).

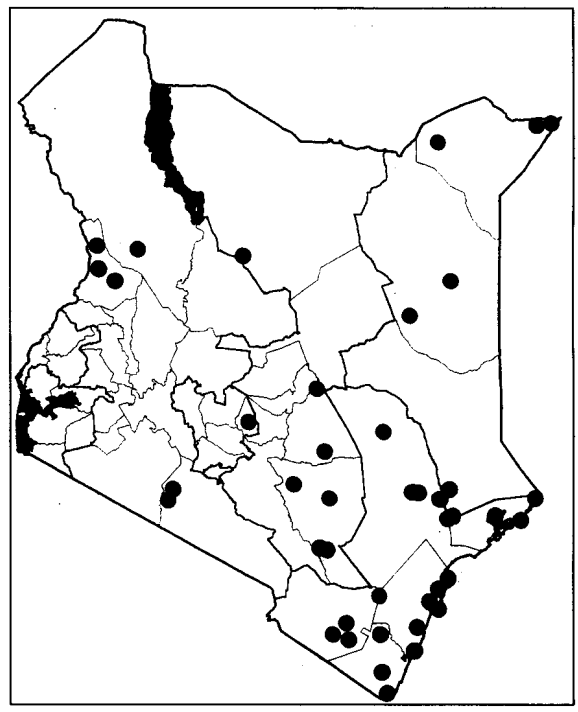
SEED: 15,000–17,000 seeds per kg. Germination is good and fast, completed after 20 days.
treatment: Not necessary.
storage: Remain viable only for about 2 months at room temperature.

MANAGEMENT: Pruning, coppicing.

REMARKS: The hairs on the fruit irritate the skin. The soft, light wood is used only to make local furniture items. The bark rope can be used to tie thatching materials and poles in house construction.

FURTHER READING: Beentje, 1994; Bein et al., 1996; Dharani, 2002; Kokwaro, 1993; Maundu et al., 1999 (*S. stenocarpa*); Mbuya et al., 1994; Palgrave and Palgrave, 2002; Ruffo et al., 2002; Storrs, 1979; van Wyk, 1993.





Sterculia appendiculata Sterculiaceae

Indigenous

Standard/Trade name: Mfune.

COMMON NAMES: **Digo:** Mfune; **Giriama:** Mfune; **Malakote:** Mufuno; **Orma:** Mafuno; **Pokomo:** Mfuno, Mufune; **Sanya:** Wales; **Somali:** Munyangatta; **Swahili:** Mfune, Msefu.

DESCRIPTION: A **tall, straight** deciduous tree **up to 40 m high with a dense rounded crown.** Trees have a clear bole, 15–20 m, and often emerge above the surrounding woodland. BARK: **Pale yellow**, smooth, conspicuous and powdery. Branchlets have dense rust-yellow hairs. LEAVES: At the end of branches, **large, 14–30 cm across, the leaf blade divided into 3–7 lobes. Young leaves usually densely woolly with rusty hairs**, lost at maturity. **Leaf stalks over 6 cm, hairy at first**. FLOWERS: **Green–yellow–brown to 2.8 cm across** in hairy few-flowered **sprays to 12 cm**, before leaves. FRUIT: Made up of **2–3 sections** each to 9 cm covered with **soft brown hairs** on the outside. When opened, **seeds line the edges**, each **2 cm long, brown with a soft yellow aril at the base**.

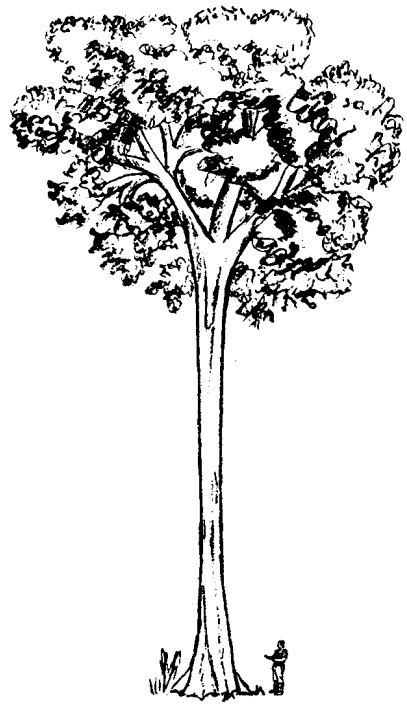
ECOLOGY: A tree of coastal and riverine forests, abandoned homesteads, coastal bushland, woodland and coral rag, at low altitudes from Kenya to South Africa. In Kenya, found in lower parts of Tana River and the rest of the coastal areas below 400 m. Agroclimatic Zones V–VII. Flowers in March and seeds in September at the coast.

USES: Timber, carvings, walking sticks, veneer, edible seeds, medicine (roots, bark, leaves), shade, ornamental.

PROPAGATION: Seedlings.

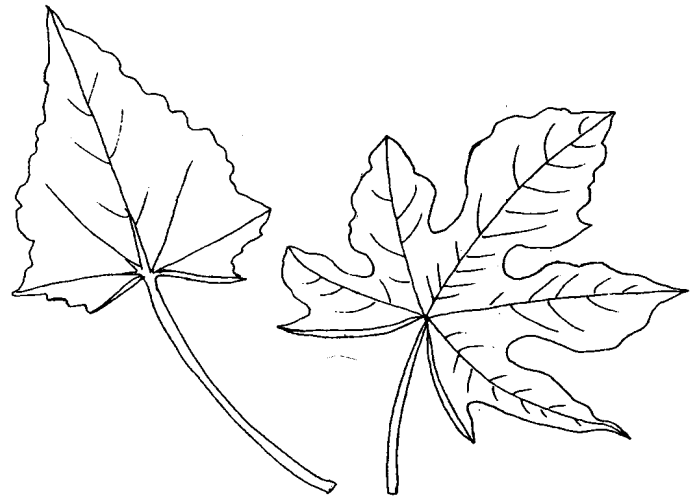
SEED: 12,000–15,000 seeds per kg. Germination is good, up to 60% and completed in 20 days.
treatment: Not necessary.
storage: Remains viable up to 2 months at room temperature.

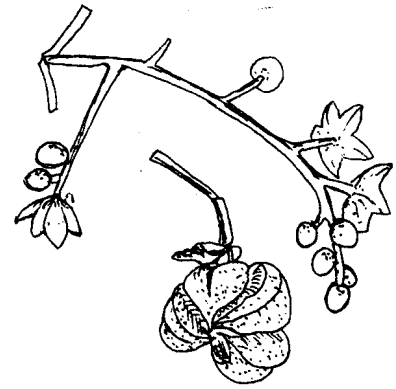
MANAGEMENT: A fast-growing tree. Needs protection from fire.

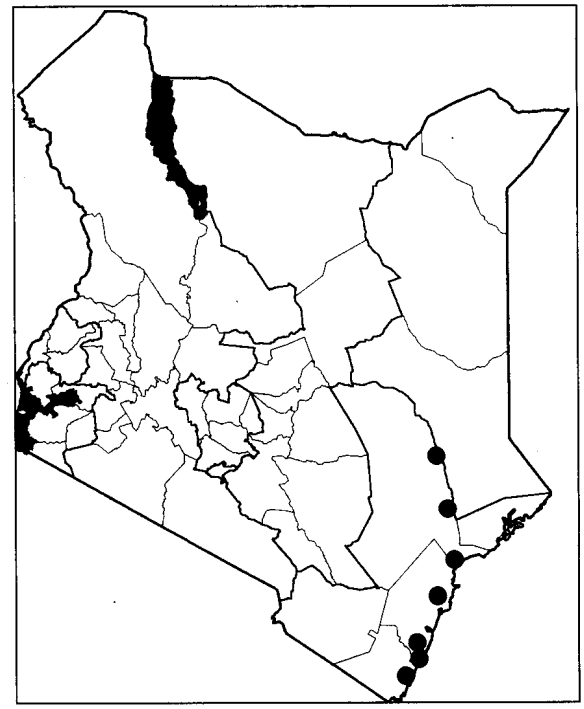


REMARKS: The timber is soft and perishable. Bark and leaves are used for medicinal purposes by the Digo. Often left in farmland at the coast. A tree associated with many myths. The trunk has a very smooth bark. Said to be difficult even for monkeys and baboons to climb.

FURTHER READING: Beentje, 1994; Kokwaro, 1993; Mbuya et al., 1994; Palgrave and Palgrave, 2002; Ruffo et al., 2002.







Stereospermum kunthianum Bignoniaceae

Indigenous

COMMON NAMES: **Digo:** Ndondu, Mwagaivu; **Luhya:** Mahorlu; **Luhya (Bukusu):** Kumutumolo; **Luo:** Pololok, Nyariango; **Swahili:** Mti sumu; **Turkana:** Nyakabur.

DESCRIPTION: A deciduous tree, 5–13 m, the trunk waved or spiral, **rarely straight**, crown rounded. BARK: Grey and **flaking in round patches to show paler under bark** (like *Eucalyptus*). LEAVES: Compound, with 4 pairs leaflets plus 1 on a stalk to 7 cm, each leaflet oval–oblong, pointed, to 8 cm, young leaves sometimes toothed and hairy. FLOWERS: Fragrant, **in large drooping 20–30-cm long heads on the bare tree, pink–lilac**–dark pink, the bell-shaped tube to 3 cm long, opening to 5-petal lobes, 4 cm across, lobes marked with red lines inside, **2 long, 2 short stamens** inside. FRUIT: **Very long thin cylindrical capsules**, twisted, red-brown, to 60 cm but only 1 cm across. They split to release many **winged seeds** 2–3 cm long and then remain many months on the tree.

ECOLOGY: An attractive flowering tree distributed from Ethiopia south to South Africa and from low to high altitudes. In Kenya, it is a small tree frequently occurring on rocky outcrops, in rocky bushland, wooded grassland; on the coast also in forest margins and secondary bush. Below 300 m at the coast and 900–2,100 m inland. Agroclimatic Zones III.

USES: Firewood, charcoal, poles, furniture, tool handles, sticks, medicine (bark, fruit), bee forage, ornamental.

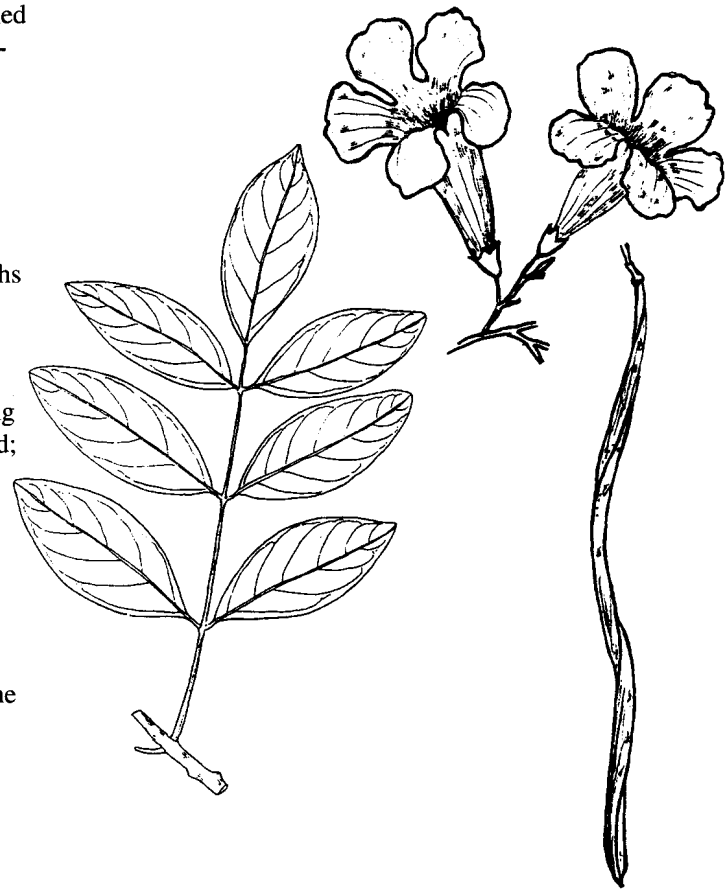
PROPAGATION: Seedlings, root suckers.

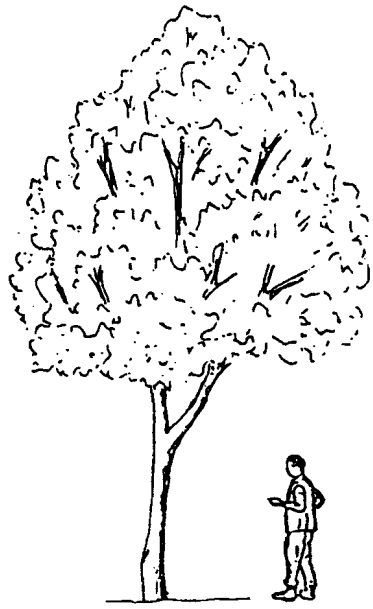
SEED: Collect before the capsule splits open; otherwise the seeds will be blown away. About 35,000 seeds per kg.
treatment: Not necessary, the germination is fast (in 2 weeks) but often low germination rate.
storage: Can be stored for at least 3 months at room temperature.

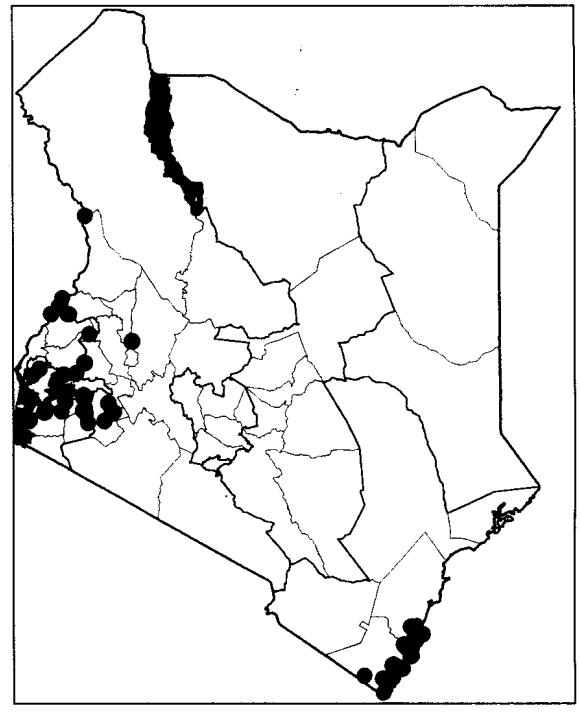
MANAGEMENT: Fast growing; coppicing, pollarding.

REMARKS: The fruit capsules, chewed with salt, are used by Ugandans as a cough remedy. The wood is white-yellow and makes good tool handles and sticks but is liable to borer, termite and fungal attack. Best planted as solitary trees.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Backes and Ahenda, 1998; Beentje, 1994; Bein et al., 1996; Bekele-Tesemma et al., 1993; Dharani, 2002; Fichtl and Adi, 1994; Katende et al., 1995; Kokwaro, 1993; Mbuya et al., 1994; Palgrave and Palgrave, 2002; Sommerlatte and Sommerlatte, 1990; Storrs, 1979; von Maydell, 1990.







Strombosia scheffleri

Olacaceae

Indigenous

STANDARD/TRADE NAME: Strombosia.

COMMON NAMES: **Kamba:** Mutianzunu; **Kikuyu:** Munyenye, Muthiringu; **Meru:** Mutimuiru, Murithi; **Taita:** Msangana.

DESCRIPTION: An evergreen tree to 30 m with a clean bole to a dense short or long crown, not spreading but very shady. The trunk may be fluted and there are sometimes small buttresses. Branchlets drooping; lowest branches grow up vertically. BARK: **Thin and smooth**, light brown or yellow-green, **flaking in small or large pieces** (to 30 x 20 cm) **giving a mosaic of several colours**. The inner bark may be red. LEAVES: Alternate, leathery and large, up **to 23 x 10 cm**, often smaller, with **5–7 pairs of lateral veins, very prominent below, base broad to rounded with a grooved stalk to 2 cm long**. FLOWERS: Inconspicuous and small yellow–green–white clusters on short side shoots, all parts in 5s. FRUIT: Long, **stalked, a rounded to oval fleshy edible berry, 2–3 cm long, black when ripe, a depression at the top has the old style in the middle**. A hard fibrous seed lies within.

ECOLOGY: An understorey forest tree in Sudan and eastern Africa. In Kenya, it is a tree of moist forests, 1,200–2,300 m, where it is sometimes the dominant species. Agroclimatic Zones III–IV.

USES: Firewood, charcoal, timber (construction, interior works), furniture, utensils (mortars), shade.

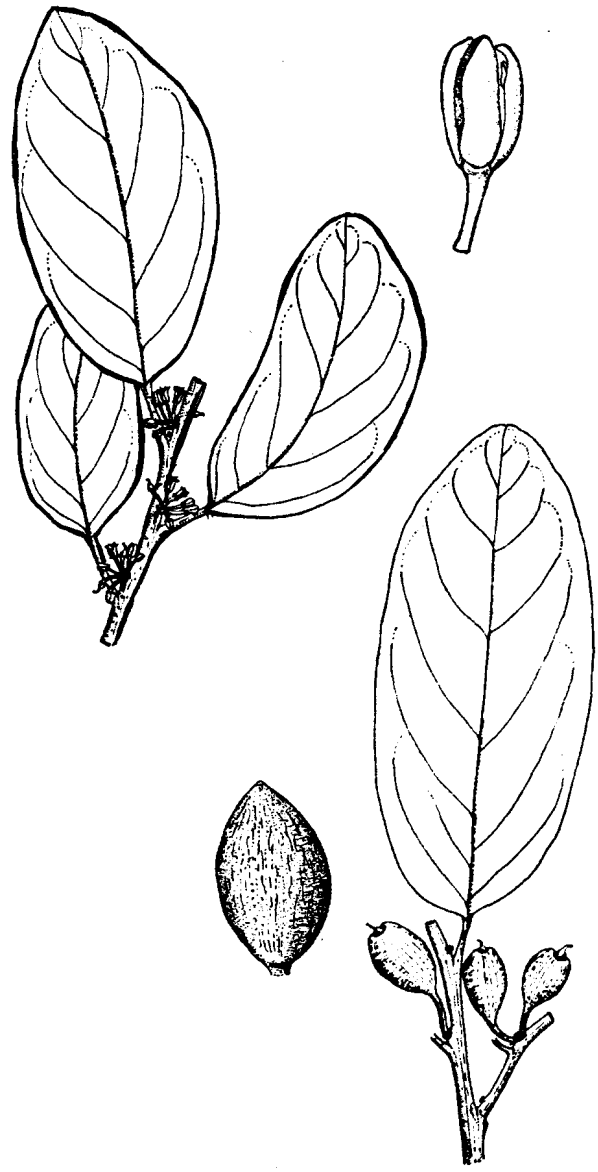
PROPAGATION: Wildings, seedlings (sow seed in pots).

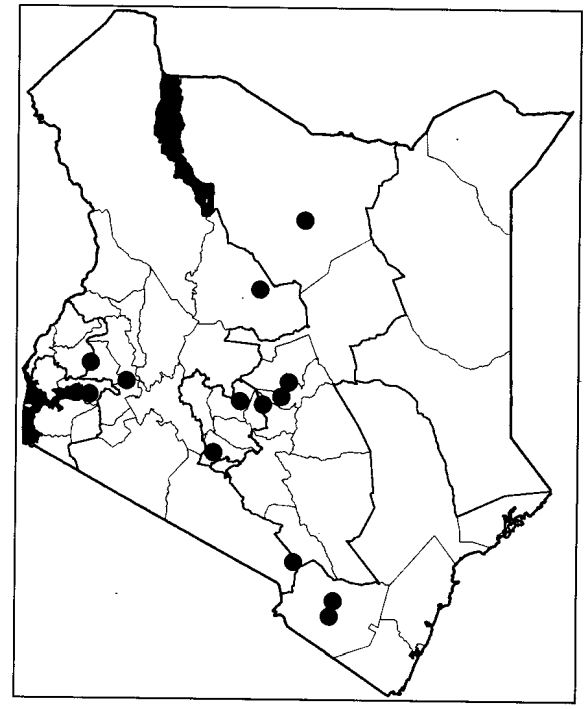
SEED: The seed is contained inside the fleshy fruit.
treatment: The fruits should be depulped immediately after collection by rubbing over a wire mesh under a flowing stream of water. Sand can be added to facilitate the process. Pulp and seed can then be separated by floating in water. Dry the seed after washing. Soak again in cold water for 24 hours before sowing.
storage: Seed can be stored for some time if spread out in a cool dry place.

MANAGEMENT: Pruning, lopping, pollarding.

REMARKS: Mortars made of *Strombosia* have a reputation for being durable. The timber is hard, red and close-grained and takes a high polish. It is not durable in the ground.

FURTHER READING: Beentje, 1994; Katende et al., 1995; Kokwaro, 1993; Palgrave and Palgrave, 2002; Sommerlatte and Sommerlatte, 1990.





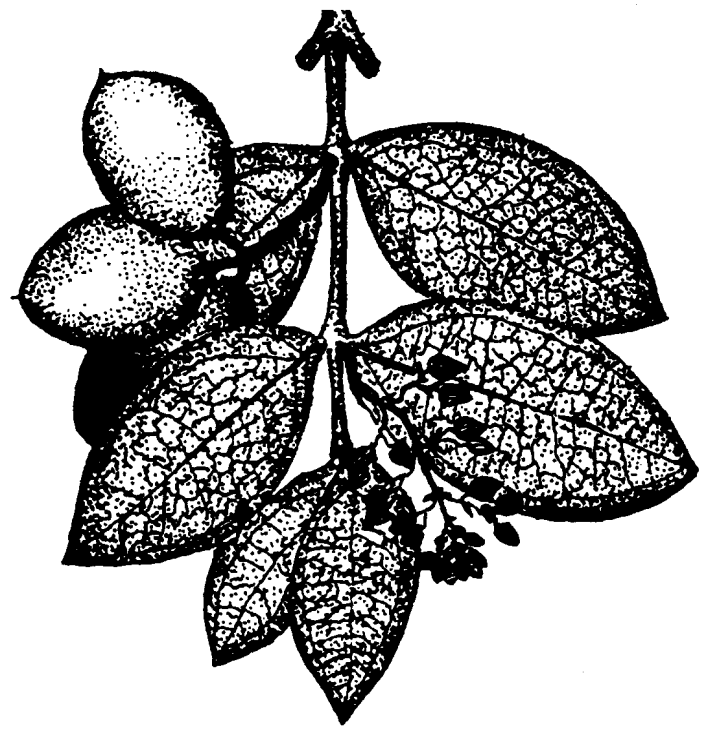
Strychnos henningsii

Loganiaceae

Indigenous

COMMON NAMES: **Boran:** Karaa; **English:** Henning's strychnos; **Giriama:** M'bathe; **Kamba:** Muteta; **Kikuyu:** Muteta; **Kipsigis:** Maset; **Luhya (Bukusu):** Kumukhubwe; **Maasai:** Entuyesi, Oltipilikwa; **Mbeere:** Mutambi; **Meru:** Muchimbi; **Pokot:** Kapkamkam; **Samburu:** Nchipilikwa; **Somali:** Hadesa; **Tugen:** Turukukwa; **Turkana:** Yopoliss.

DESCRIPTION: A very variable shrub or small tree, usually dense and rounded to 6 m, occasionally to 20 m. BARK: Pale grey-brown then darker. LEAVES: **Leathery, shiny** above, quite sticky, **broadly oval to 6 cm, 3 prominent veins,** short leaf stalks. Opposite, with each pair of leaves at right angles to the next pair along the stem. FLOWERS: Small, cream-yellow, in dense heads. FRUIT: **Round or ellipsoid, fleshy, orange** then ripening to red, 1–2 cm long, the thin pulp contains **1–2 seeds, each grooved like a coffee bean.**



ECOLOGY: Found in Sudan and Somalia south to South Africa in dry forests, along river banks, in scrub as well as coastal forests. Widely distributed in Kenya in dry *Podocarpus* and *Olea* forests, hillsides, thickets and *Combretum* bushland, 0–2,300 m. Very common in forests near Nairobi. Agroclimatic Zones III–V.

USES: Poles, tool handles, soup (stems and leaves), medicine (toxic alkaloid in roots, fruits and bark), live fence.

PROPAGATION: Seedlings; produces root suckers.

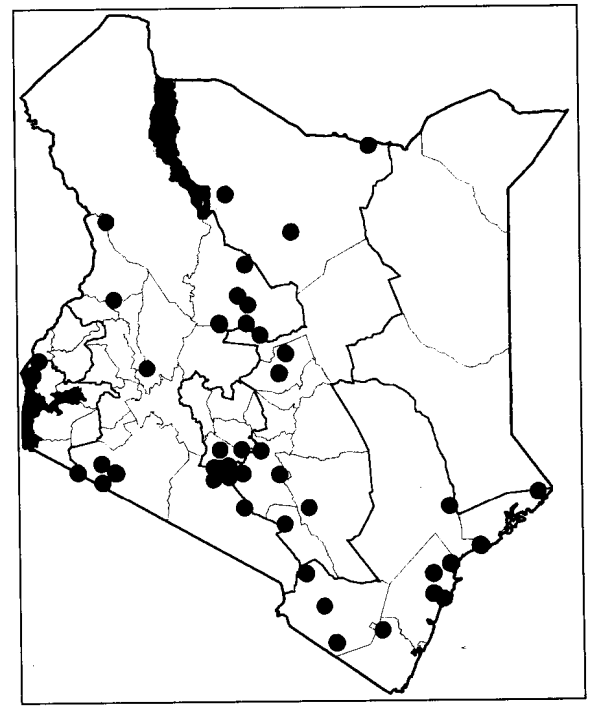
SEED:

treatment: Pulp should be removed from the seeds before sowing.

storage: Seed can be stored for some time.

MANAGEMENT: Pruning, coppicing.

REMARKS: Heavy, termite-resistant wood, durable heartwood used by the Maasai for building huts. Soup, called 'muteta', sold in some major hotels, especially in Nairobi. The right quantity of root should be used as they are bitter. **Care should be taken while collecting this plant in the wild as it can easily be confused with *Acokanthera* spp. used to prepare arrow poison.** Another species, *S. usambarensis* (**Kikuyu:** Mutikani, **Tugen:** Kapkendogi) is a forest tree to 10 m, with layered branches, the leaves tapering to the tip, fruit to 1 cm, fleshy and yellow. Common around Nairobi, in Central Province and Kakamega.



FURTHER READING: Backes and Ahenda, 1998; Beentje, 1994; Bekele-Tesemma et al., 1993; Kokwaro, 1993; Maundu et al., 1999; Noad and Birnie, 1989; Palgrave and Palgrave, 2002.

Strychnos mitis

Loganiaceae

Indigenous

COMMON NAMES: **Boran:** Karaa; **Kikuyu:** Mutikani; **Kipsigis:** Mase; **Luhya (Bukusu):** Kumukhubwe; **Maasai:** Olduyesi; **Samburu:** Itagurmut; **Swahili:** Mwanga jini ndogo; **Tugen:** Turukukwa.

DESCRIPTION: An evergreen forest tree to 24 m tall, occasionally more, the trunk usually crooked, with low branches and a spreading crown, trunks appearing twisted (like *Eucalyptus*). The dense leafy crown resembles that of *Cynometra*. The base may be thick and fluted but there are no buttresses. BARK: Grey-brown, **very thin and smooth**, slightly flaking with age, underbark often green. LEAVES: Opposite, stiff, shiny above, **long oval 4–11 cm long, tip usually pointed, a short stalk**. All *Strychnos* have 3 veins from the base, but the lateral vein in this species is faint, **the pair above are much clearer, about 1 cm from the base**. FLOWERS: White-cream, **small and hairy, in dense heads, only 1.2 cm**, usually terminal, but also beside leaves. FRUIT: Yellow-orange, rounded to oval, 1–2 cm in diameter; eaten by baboons.

ECOLOGY: A forest tree common in tropical rainforest throughout eastern Africa; also in Sudan and Zimbabwe. In Kenya, it occurs in dry or riverine forests up to 2,000 m. Agroclimatic Zones II–III.

USES: Firewood, charcoal, timber (heavy construction, rail sleepers), poles, shade, ornamental, avenue tree.

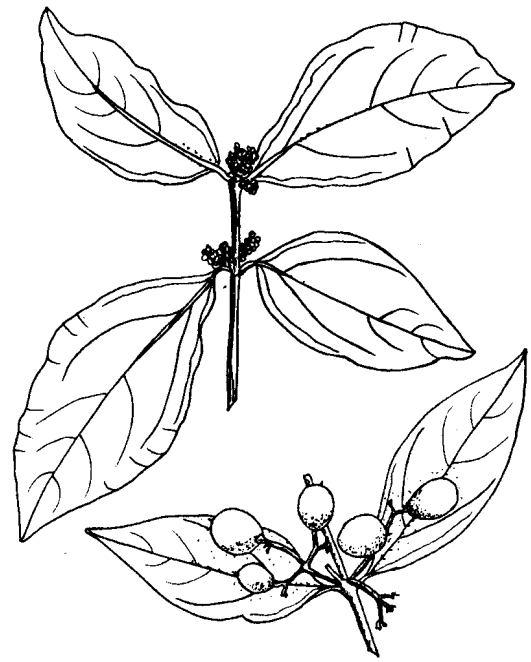
PROPAGATION: Regenerates naturally from seed in profuse numbers. Wildings, direct sowing at site, seedlings.

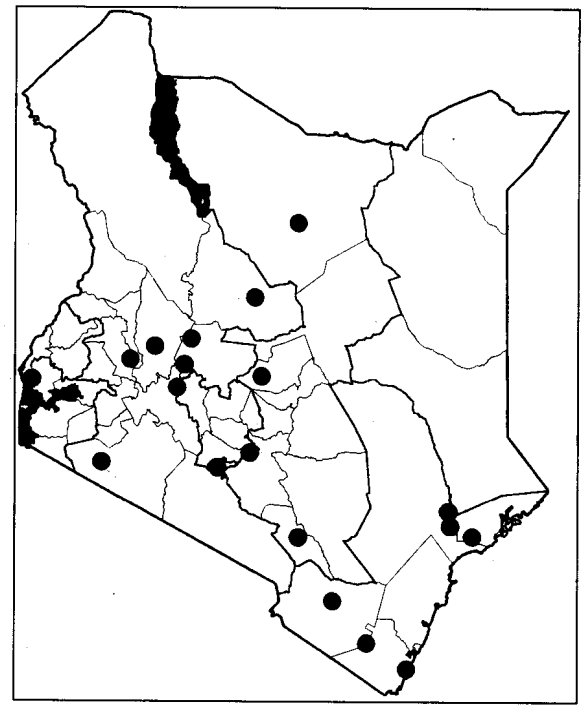
SEED: Fruit are produced all year round. These are collected, seeds extracted and thoroughly dried. **treatment:** Soak in water overnight before sowing. **storage:** Store in sealed containers in a cool place.

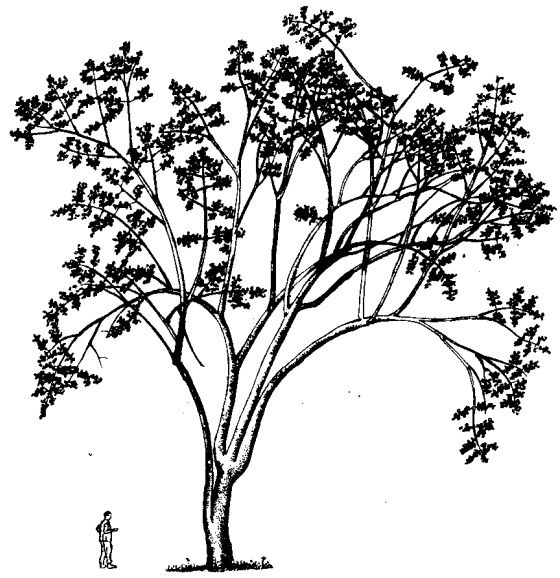
MANAGEMENT: Pollarding and coppicing.

REMARKS: The timber is hard and difficult to work but used for building and heavy construction. Several other *Strychnos* species are useful. One is *S. madagascariensis* (**Boni:** Mangula; **Chonyi:** Mkwakwa; **Digo:** Muhonga, Musikiro, Mkwakwa; **Giriama:** Mujaje, Majaje (fruit), Mkwakwa; **Kamba:** Kikolakolania; **Kambe:** Mkwakwa; **Sanya:** Korocha, Mangula; **Swahili:** Mtonga, Kikwakwa), a much-branched shrub or small tree to 6 m high with pale grey bark and large fruits, to 8 cm across, green with a hard cover, turning orange-yellow on ripening; edible and can be made into juice, but seeds should be discarded. Seeds are not as many as in *S. spinosa*. It is found at the coast and inland to Makueni District in coastal bushland, on rocky hillsides and thickets, 0–700 m. Propagated by seed, good germination. Another related species, *S. innocua*, usually with smaller fruits, 4–7 cm in diameter, has been found only in West Pokot District. The deep yellow ripe fruit is edible.

FURTHER READING: Backes and Ahenda, 1998; Beentje, 1994; Katende et al., 1995; Maundu et al.. 1999 (*S. innocua*); Mbuya et al., 1994 (*S. innocua*); Palgrave and Palgrave, 2002; Ruffo et al., 2002 (*S. innocua*); Sommerlatte and Sommerlatte, 1990 (*S. innocua*).







Strychnos spinosa

Loganiaceae

Indigenous

COMMON NAMES: **Bajun:** Myae; **Boni:** Mangula; **Digo:** Muhonga, Mursapungu; **English:** Elephant orange, Spiny monkey ball; **Giriama:** Mujaje; **Kamba:** Kiae, Kyae (Kitui), Kimee, Mumee (Machakos), Mamee (fruit); **Luhya (Bukusu):** Kumukhubwe; **Luo:** Akwalakwala liech; **Mbeere:** Mwange, Mwange wa ndue, Mubage; **Pokomo:** Bungo; **Pokot:** Kukuwol, Kukugho; **Sanya:** Mangula; **Swahili:** Mtonga; **Teso:** Eturukurut.

DESCRIPTION: A semi-deciduous thorny tree, often multi-stemmed, usually 2–5 m but up to 9 m, crown rounded. BARK: Grey-brown, rough, with **black-tipped thorns, short and hooked, in pairs,** along the branches. LEAVES: **Opposite, oval to round, to 10 cm**, shiny green and leathery, edge wavy, 3–5 veins from the base. FLOWERS: Small, cream–green–white, in bunches at the end of branches. FRUIT: **Round and woody**, green then **yellow-brown** when ripe, **to 12 cm across**, conspicuous and hanging many months on the tree, 10–100 flat seeds lie in **juicy, rather acid but edible flesh.**

ECOLOGY: A semi-evergreen shrub found all over tropical Africa. It grows in a wide variety of dry woodland, savanna forests and riverine fringes. Found in the coastal zone and a few inland areas, e.g. in Mbeere, Kitui, West Pokot and Baringo in bushland and wooded grassland, 0–1,800 m. Mainly in sandy soil. Agroclimatic Zones III–IV. Fruits in August in Kitui and Kwale and in January–February in Lamu and Kilifi. Flowers in April–May and November–December and fruits in May–July and in January–February in Bungoma.

USES: Firewood, charcoal, timber, furniture, edible ripe fruit (unripe poisonous!), medicine (roots, fruits), fodder, shade, ornamental, musical instrument (dry fruit shell), insect repellent (ground roots mixed with oil).

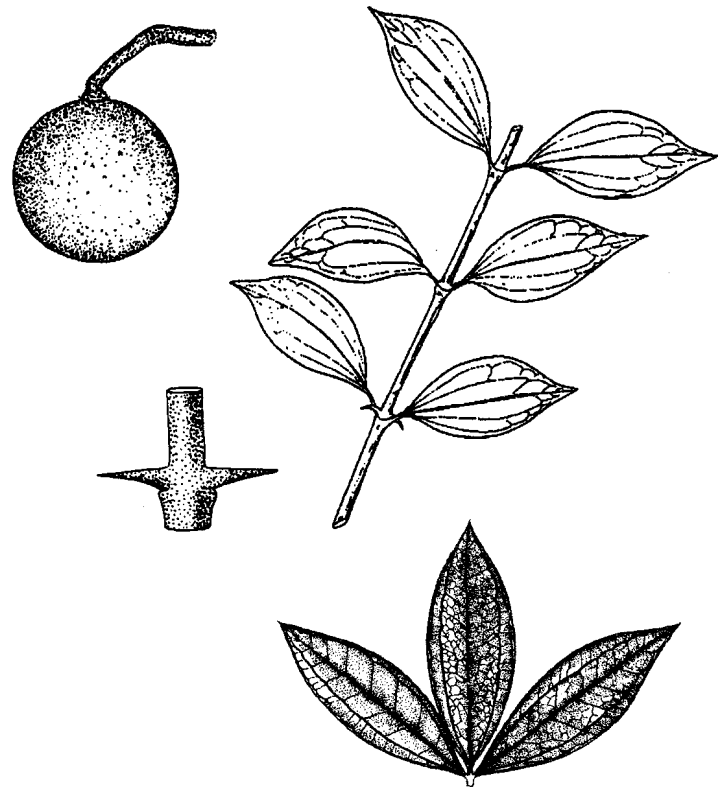
PROPAGATION: Seedlings. Produces root suckers.

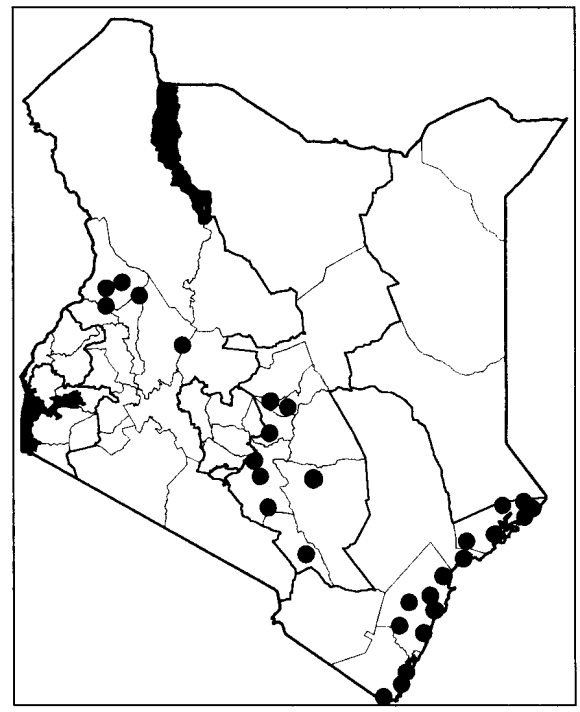
SEED: Seed has a hard coat but germinates well after treatment. It is easy to raise seedlings. About 1,800 seeds per kg.
treatment: Immerse seed in hot water, or burn seed coat.
storage: Seed can be stored for long periods.

MANAGEMENT: Coppicing, pruning. Root suckers can be induced or encouraged by pruning or injuring the roots.

REMARKS: Although the fruit is edible, seeds are toxic. The ripe fruits have a sweet–acid taste. Unripe fruits are poisonous. Wood is pale, straight grained and planes well. Like most *Strychnos* spp. it is often left in shambas.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Backes and Ahenda, 1998; Beentje, 1994; Bekele-Tesemma et al., 1993; Katende et al., 1995, 1999; Kokwaro, 1993; Maundu et al., 1999; Mbuya et al., 1994; Palgrave and Palgrave, 2002; Ruffo et al., 2002; Storrs, 1979; von Maydell, 1990.





Synsepalum brevipes (Pachystela brevipes) Sapotaceae

Indigenous

COMMON NAMES: **Digo:** Mtsamvia, Msami; **Kikuyu:** Kinoa, Munoa; **Luo:** Kang'o; **Swahili:** Msamvia.

DESCRIPTION: A much-branched tree to 25 m, the bole often like a pillar, **deeply ridged and usually buttressed** at the base with a dense crown. Young shoots and leaf stalks with dense hairs. BARK: Grey, rough, flaking into rectangular scales, exuding white latex. LEAVES: Alternate, long, oval, **wider at the tip, 9–20 cm long**, young leaves grey, hairy, narrowed to a 1-cm stalk. **A pair of 1-cm long hair-like stipules** persist at the base of the leaf stalk. FLOWERS: Small and fragrant, **yellow–cream–green, in dense clusters** below leaves. FRUIT: **Yellow-orange, long oval with a pointed tip and thick skin, 2.5 cm**, containing milky juice and white acid-sweet edible pulp. **The one seed is shiny brown with a large scar on one side.**

ECOLOGY: A tree widespread in tropical Africa from Guinea to Sudan and south to Zimbabwe, Angola and Mozambique. Typical of lowland rainforest where there is a high permanent water table, in riverine forest or margins of lakes. In Kenya, it is found in riverine forests, moist forests or forest remnants, and in groundwater forests both at the coast and inland, and in forests on the shores of Lake Victoria, up to 1,500 m. Common at the south coast. Agroclimatic Zones II–III.

USES: Firewood, charcoal, timber (construction), poles, utensils, edible fruit, shade, mulch.

PROPAGATION: Seedlings, wildings.

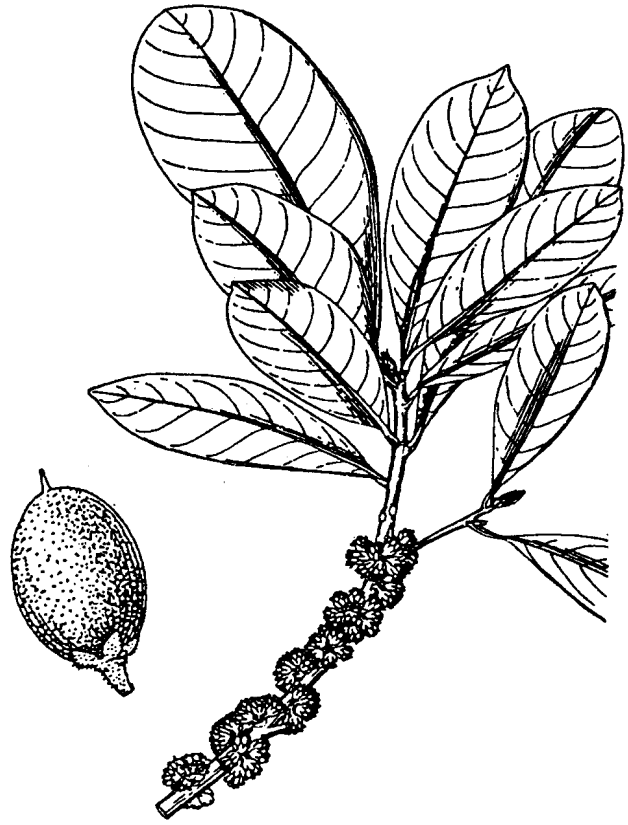
SEED: The ripe berries should be crushed and the seeds separated.
treatment: Soak in cold water for 12 hours before sowing. Water sparingly before germination to avoid the seed rotting.
storage: Store dried seed in sealed containers in a cool place.

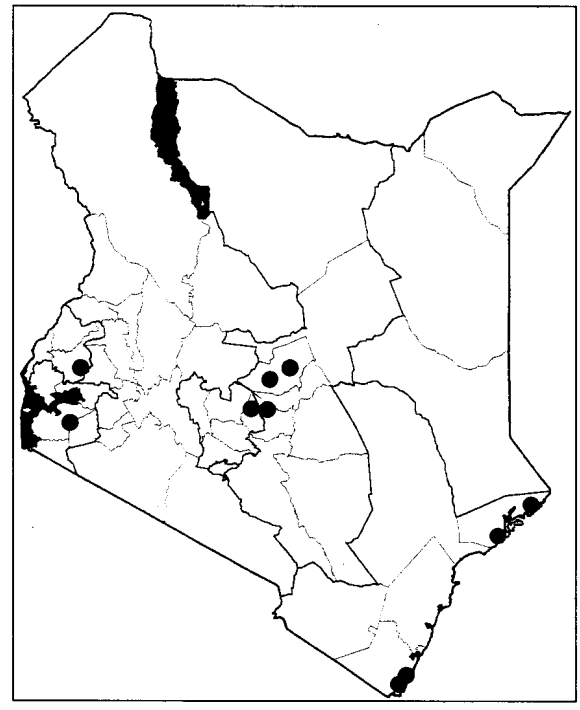
MANAGEMENT: Coppicing, pollarding.

REMARKS: A tree that can be planted as single trees for fruit, as an avenue or for shade. The red-yellow heartwood is hard and durable and has been used to make pestles and mortars. The fruit pulp is edible and liked, especially by children. Common on Ssese Islands in the Ugandan part of Lake Victoria.

A related species, *S. msolo* (*Pachystela msolo*) (**Digo:** Mtsamvia; **Pokomo:** Mtsamvia; **Swahili:** Msamvia), is a medium-sized tree to 20 m or more found in riverine forests of the lower Tana River and in wet forests of Kwale District below 100 m. It is also found from West Africa east to eastern Africa. The trunk is deeply ridged and the base buttressed. Leaves are widest towards the tip, large, to 35 cm, and the lower surface may be slightly hairy. Flowers are small, greenish white, fragrant, in clusters on old wood. Flower stalks of this species are generally more than 4 mm (compared with those of *S. brevipes,* which are less than 2 mm long). Fruit is almost round, to 2.5 cm in diameter, dull yellow when ripe, skin thin, containing juicy flesh and single seed to 1.8 cm with an aril-like scar. The fruits are edible and are sweet. The wood is a source of firewood, charcoal and building poles. It is also a shade tree.

FURTHER READING: Beentje, 1994; Katende et al., 1999; Maundu et al., 1999; Palgrave and Palgrave, 2002; Ruffo et al., 2002; Sommerlatte and Sommerlatte, 1990.





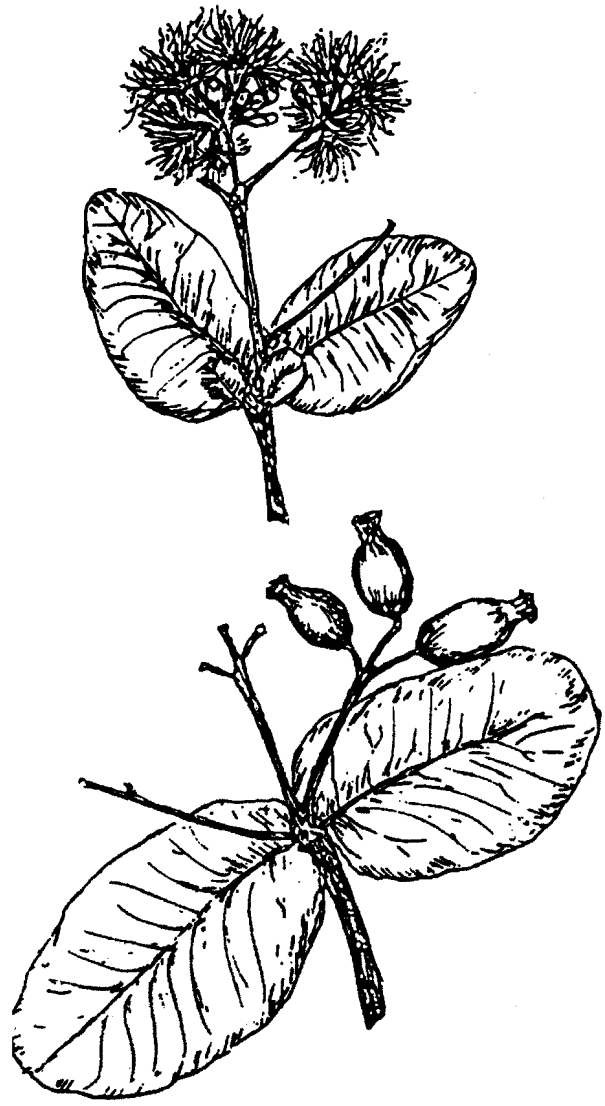
Syzygium cordatum

Myrtaceae

Indigenous

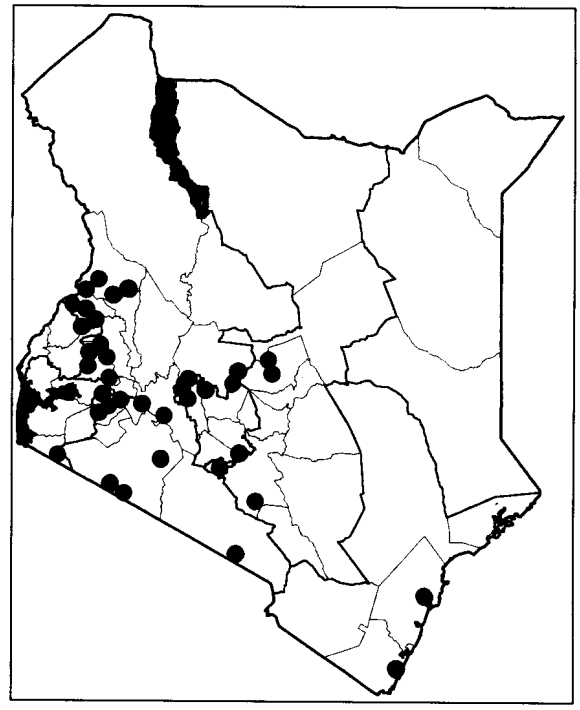
COMMON NAMES: **Digo:** Muziahi, Mzihae; **English:** Waterberry tree, Waterwood; **Kamba:** Muvuena, Muvueni, Kivuini; **Kikuyu:** Muriru; **Kipsigis:** Lemeyet; **Kisii:** Omosambarao; **Luhya (Bukusu):** Kumusemwa; **Luhya (Maragoli):** Musioma; **Luhya (Marama):** Tsisirinya; **Luhya (Tachoni):** Omusemwa (plant), Obusemwa (fruit); **Luo:** Mukutan achak; **Maasai:** Oloiragai; **Marakwet:** Reper, Reperwo (plural); **Mbeere:** Muriru, Mukui; **Pokot:** Reper (plural), Reperwo; **Samburu:** Lairakai, Lamulii, Leperei; **Swahili:** Mzambarau, Mzuari, Myamayu; **Taita:** Musu.

DESCRIPTION: A medium-sized evergreen tree 8–15 m high, sometimes a flowering shrub, the crown compact and rounded from a short thick trunk, sometimes buttressed. BARK: Dark brown, rough and fissured, breaking into small squares; **branchlets square, edges winged.** LEAVES: Very many near the ends of branches, **clasping the stem** in opposite pairs, the **next leaf pair at right angles, leathery,** blue-green, **oblong to circular, to 8 cm, leaf base heart-shaped** ('cordatum'). FLOWERS: Dense, branched **clusters to 10 cm across, pink-white with conspicuous stamens,** abundant nectar. FRUIT: Fleshy **oval to 1.5 cm long, purple** when ripe, edible but acid, 1 seed.



ECOLOGY: A tree found beside fresh water and in swamps in eastern and Central Africa and south to Natal. Occurs in lowland forests as well as at medium to higher altitudes, always near water, in riverine thickets and forests. In Kenya, e.g. at Chepareria (West Pokot), Saiwa Swamp (Trans Nzoia), on the Thika road and in swamps in Amboseli National Park, in riverine vegetation along permanent streams or in swampy areas, 0–2,500 m. Agroclimatic Zones II–IV. Fruits in April–May in West Pokot; flowers in March–May and fruits in April–July in Bungoma.

USES: Firewood, charcoal, timber (construction), furniture, beehives, beams and rafters, boat building, edible fruit, drink, medicine (leaves, bark, roots), fodder, bee forage, shade, ornamental, river-bank stabilization, dye (bark), fish poison (pieces of bark or powdered bark).



PROPAGATION: Seedlings (sow seed in pots), wildings, direct sowing at site.

SEED: 400–450 seeds per kg. Germination is very good and uniform; 90% after 25 days.
treatment: Not necessary, but remove the flesh and wash before sowing.
storage: Seed cannot be stored (recalcitrant) and should not be dried.

MANAGEMENT: Fairly fast growing; pollarding.

REMARKS: The edible fruit may be made into a drink. Ripe fruits eaten by birds. The wood is fairly hard and used for construction. Milk gourds can be seasoned by the pleasantly aromatic smoke of the burning wood. *S. cordatum* hybridizes freely with *S. guineense* and the two species are thus not always clearly distinct.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Backes and Ahenda, 1998; Beentje, 1994; Katende et al., 1995, 1999; Kokwaro, 1993; Maundu et al., 1999; Mbuya et al., 1994; Palgrave and Palgrave, 2002; Ruffo et al., 2002; Storrs, 1979.

Syzygium cumini

Myrtaceae

India, Tropical Asia

COMMON NAMES: **Digo:** Mzambarau; **English:** Jambolan, Java plum; **Giriama:** Mzambarau, Zambarau; **Luo:** Jamna; **Sanya:** Mzambarau; **Swahili:** Mzambarau; **Teso:** Eme.

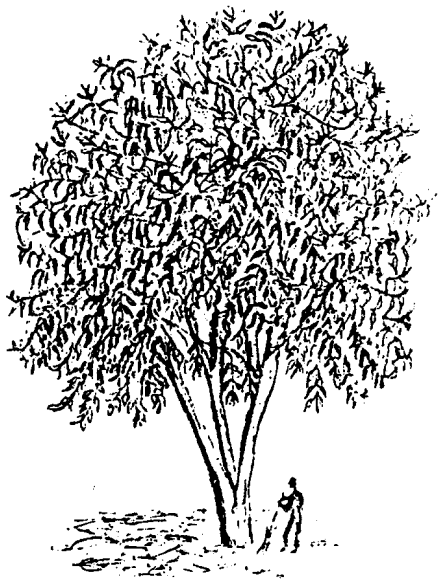
DESCRIPTION: A large tree to 30 m, though usually 15–18 m. The crown is well branched with dense, heavy foliage. BARK: Dark and rough on the bole, smooth and paler on the younger branches. LEAVES: Opposite, large and oval, to 20 cm, **smooth and shiny, with a distinct pointed tip, strongly aromatic if crushed.** Young leaves reddish. FLOWERS: Green-white, about 1.5 cm across, in clusters below leaves. **Flower branchlets very symmetric**, at right angles. FRUIT: **Fleshy purplish berry**, about 2.5 cm long and up to 2 cm in diameter. Sweet, but the juice dries the mouth.

ECOLOGY: A large tree, native to Burma, India, the Philippines, Sri Lanka and the Malay peninsula, introduced to many other tropical countries and even into the subtropics, e.g. Australia and Florida. In Kenya, a well-known ornamental evergreen tree long planted in Mombasa and other humid lowland areas where it has become naturalized, 0–1,800 m. The tree grows best with rainfall over 1,000 mm annually and in well-drained soils, although it can tolerate waterlogging. Agroclimatic Zones II–IV.

USES: Firewood, charcoal, timber, furniture, poles, tool handles, boat building, edible fruit, medicine, fodder (leaves), bee forage, shade, ornamental, dune fixation, windbreak, tannin, dye.

PROPAGATION: Very suitable for direct sowing at site, seedlings (sow seeds in pots). Natural regeneration is profuse around mother trees as seeds fall in large quantities. Can be grafted for best varieties. Each fruit produces 1–5 seedlings.

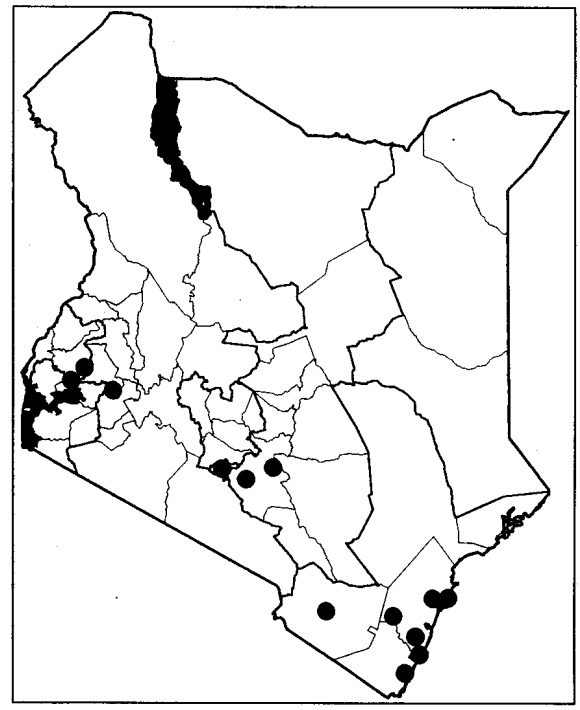
SEED: About 500 seeds per kg. Use fresh seeds. Germination takes 1–2 weeks and is good with fresh seeds.
treatment: Not necessary.
storage: Seed cannot be stored (recalcitrant) and should not be dried, but remove flesh and wash before sowing.



MANAGEMENT: Lopping, pollarding, pruning, coppicing. Fairly fast growing, seedlings may reach 4 m in only 2 years. Tolerates shade when young.

REMARKS: Honey produced from the flowers tastes very bitter. Its fruit is well liked and sold in markets. The charcoal made from the wood is excellent. In some areas jambolan has become one of the major cheap fruits. Planting for shade and fruit should be encouraged. Selected good clones are frequently propagated in Java and Florida.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Beentje, 1994; Dharani, 2002; Jensen, 1999; Katende et al., 1995; Maundu et al., 1999; Mbuya et al., 1994; National Academy of Sciences, 1980, 1983; Noad and Birnie, 1989; Palgrave and Palgrave, 2002; Verheij and Coronel, 1991.



Syzygium guineense

Myrtaceae

Indigenous

STANDARD/TRADE NAME: Mshiwi.

COMMON NAMES: Boran: Kada; **Digo:** Muziahi; **English:** Guinea waterberry; **Kamba:** Kivuena, Muvueni; **Kikuyu:** Mukoe, Ngoe (fruit); **Kipsigis:** Lamaiyat; **Luhya (Bukusu):** Kumusitole (plant), Busitole (fruit); **Luhya (Tachoni):** Obusitole (fruit), Omusitole (plant); **Maasai:** Oleragai (Narok), Olairagai; **Marakwet:** Lemaiyua; **Mbeere:** Mukui, Muriru; **Meru:** Muriru; **Nandi:** Limaiyua, Lamayuet; **Pokot:** Lomaiwo, Lamaiyua; **Sabaot:** Lemaiyua, Reberwo; **Samburu:** Lairakai, Lamulii, Leperei; **Swahili:** Mzuari, Mzambarau; **Taita:** Msu, Mkongo; **Taveta:** Mase; **Tugen:** Lomoiwo, Lamaek (fruit), Lamaywet (plant).

DESCRIPTION: A densely leafy forest tree, usually 10–15 m but up to 25 m, **the trunk broad and fluted and the crown rounded and heavy**, branchlets drooping, stems thick and angular. BARK: Smooth when young, black and rough with age, flaking, producing a red watery sap if cut. LEAVES: Young leaves purple-red, but mature leaves dark green, **opposite, shiny and smooth on both surfaces, the tip long but rounded,** on a **short, grooved stalk.** The leaves are variable in shape. FLOWERS: **White, showy stamens, in dense branched heads 10 cm across**, the **honey-sweet smell** attracting many insects; **stalks angular, square**. FRUIT: Oval, to 3 cm, purple-black and shiny, one-seeded, in big bunches of 20–30.

ECOLOGY: A large forest tree with a wide distribution in Africa and with several subspecies. Occurs from coastal areas of Kenya to 2,100 m, requiring rainfall of over 1,000 mm a year. It prefers moist soils with a high water table, but will also grow in open woodland. Agroclimatic Zones II–III. Flowers in March–June and fruits in May–July in Bungoma.

USES: Firewood, charcoal, timber, poles, posts, tool handles, edible fruit, medicine (bark and roots), bee forage, tannin, dye.

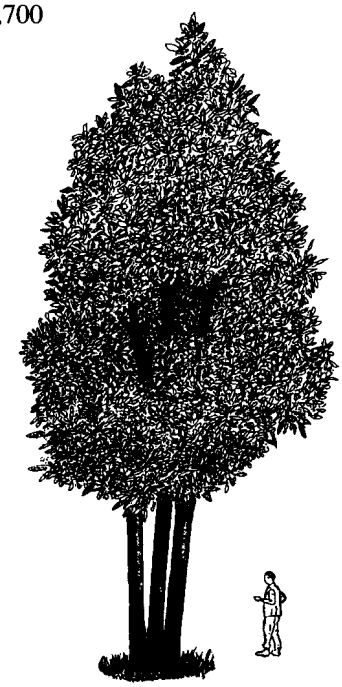
PROPAGATION: Direct sowing at site (best method), wildings, seedlings (sow seeds in pots).

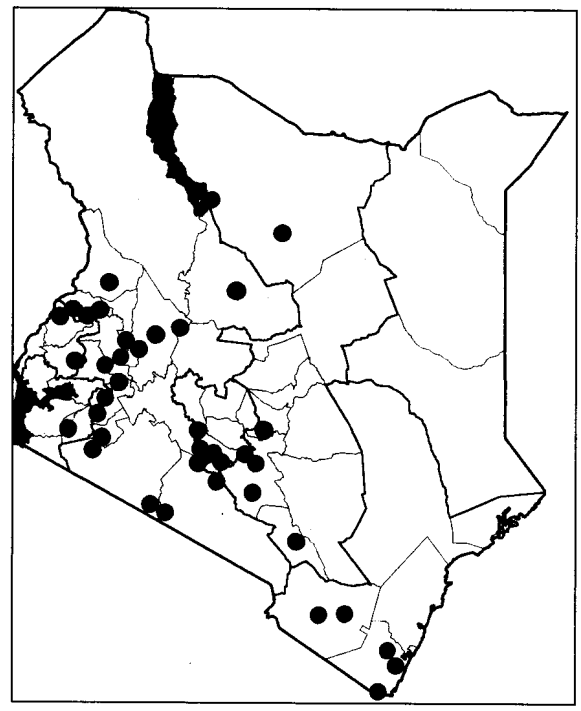
SEED: Good germination; 2,400–3,700 seeds per kg.
treatment: Not necessary, but remove flesh and wash in water before sowing.
storage: Seed cannot be stored (recalcitrant) and should not be dried.

MANAGEMENT: Pollarding, coppicing. Demands light.

REMARKS: The wood is brown, hard and strong. It is easily worked but liable to split. The bark has been reported to be poisonous. Smoke from the burning wood can be used to season milk containers.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Albrecht, 1993; Backes and Ahenda, 1998; Beentje, 1994; Bein et al., 1996; Bekele-Tesemma et al., 1993; Dharani, 2002; Fichtl and Adi, 1994; Katende et al., 1995, 1999; Kokwaro, 1993; Maundu et al., 1999; Mbuya et al., 1994; Noad and Birnie, 1989; Palgrave and Palgrave, 2002; Ruffo et al., 2002; Sommerlatte and Sommerlatte, 1990; Storrs, 1979; van Wyk, 1993.





Tamarindus indica

Fabaceae (Caesalpiniaceae)

Indigenous

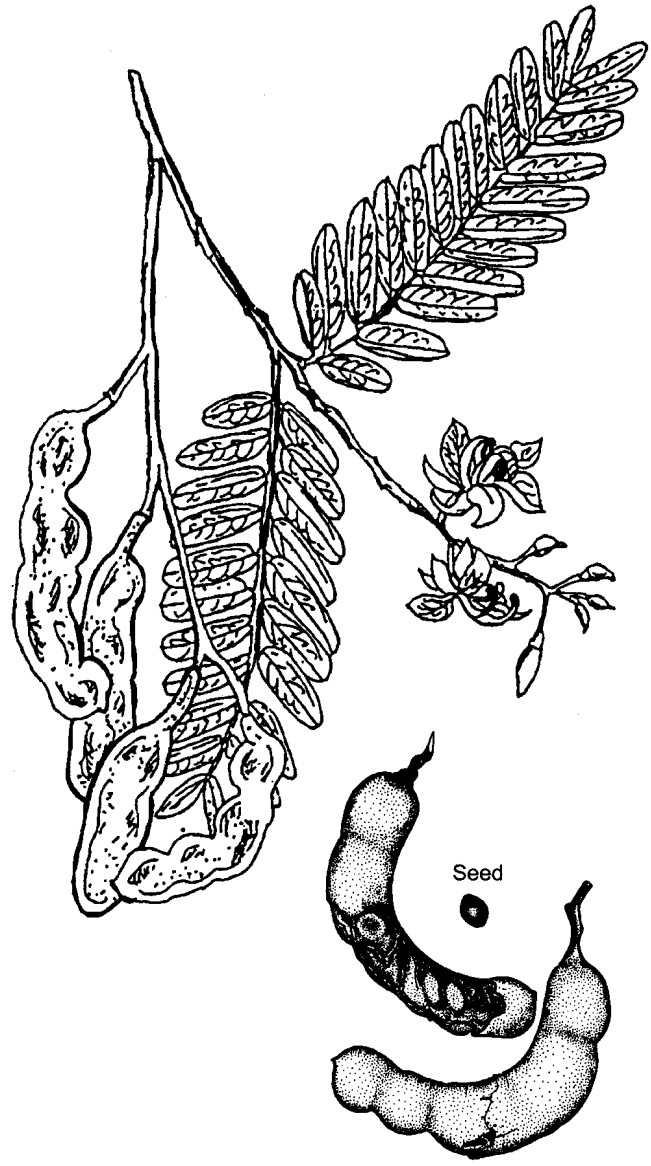
STANDARD/TRADE NAME: Tamarind, Mkwadju.

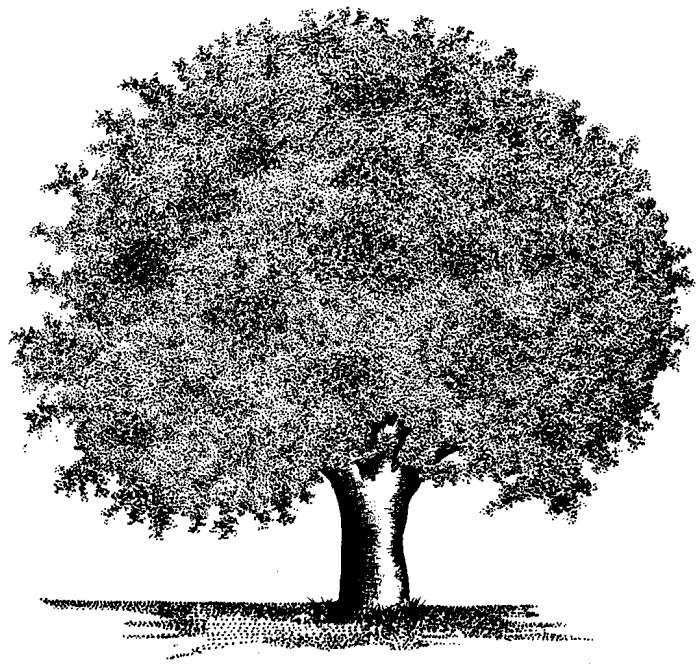
COMMON NAMES: **Bajun:** Ukwaju; **Boni:** Mukai; **Boran:** Roqa, Groha; **Digo:** Mkwadzu; **Embu:** Muthithi; **English:** Tamarind; **Giriama:** Mkwaju, Kwaju (fruit); **Kamba:** Kithumula, Kikwasu (south-eastern Makueni), Nthumula (fruit), Nzumula (fruit), Ngwasu (fruit); **Kipsigis:** Lemecwhet, Lamaiyat; **Luhya (Bukusu):** Kumukhuwa; **Luo:** Ochwaa, Chwaa; **Maasai:** Oloisijoi; **Malakote:** Morhoqa; **Marakwet:** Aron, Oron; **Mbeere:** Muthithi; **Meru:** Muthithi; **Nandi:** Limaiyua, Lamayuet; **Orma:** Roqa; **Pokomo:** Mkwayu; **Pokot:** Oron, Arol (plant); **Sabaot:** Lemaiyua; **Samburu:** Rogei; **Sanya:** Roka; **Somali:** Hamaar, Hamar, Raqee (Tana River), Roge, Roqhe; **Swahili:** Mkwaju, Msisi, Ukwaju (fruit); **Taita:** Mkwachu; **Taveta:** Mase, Muzumura; **Teso:** Epeduru; **Tharaka:** Muthithi; **Tugen:** Aryek (fruit), Arwe (plant); **Turkana:** Epeduru.

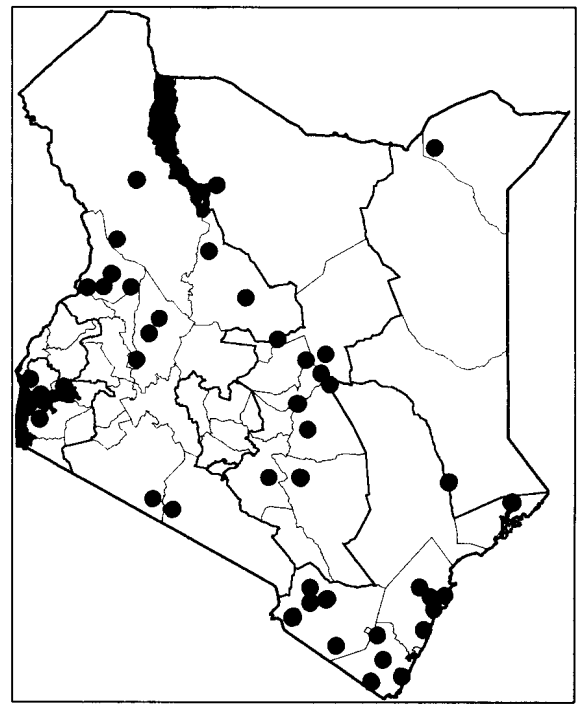
DESCRIPTION: A large tree to 30 m, with an **extensive dense crown**. The short bole can be 1 m in diameter. Evergreen or deciduous in dry areas. BARK: Rough, grey-brown, flaking. LEAVES: Compound, on hairy stalks to 15 cm, 10–18 pairs of leaflets, **dull green, to 3 cm, oblong,** round at the tip and base, veins raised. FLOWERS: Small, in few-flowered heads, buds red, petals gold with red veins. FRUITS: Pale brown, **sausage-like** hairy pods, cracking when mature to show **sticky brown pulp around 1–10 dark brown angular seeds.**

ECOLOGY: Indigenous to tropical Africa; widely used in the Sahel, India, South East Asia, the Caribbean and Central America. A very adaptable species, drought hardy, preferring semi-arid areas and wooded grasslands, tolerating salty, coastal winds, even monsoon climates, 0–1,500 m. Grows in most soils, but prefers well-drained deep alluvial soil; often riverine in very dry areas. Agroclimatic Zones III–V. Flowers in April–May and in September–November and fruits in July–August and January–February in Bungoma.

USES: Firewood, charcoal, timber, furniture, poles, posts, utensils (pestles and mortars, carts), boat building, food (edible fruit pulp, pulp also used for souring porridge,







Tamarindus indica (cont)

drink, fried seeds, seasoning, flavouring), medicine (leaves, twigs, bark, roots), fodder, bee forage, shade, ornamental, mulch, nitrogen-fixing, tannin, dye, veterinary medicine.

PROPAGATION: Good mother trees should be chosen for vegetative propagation. Seedlings, wildings, direct sowing at site, grafting and budding for best varieties.

SEED: About 1,400 seeds per kg.
treatment: Germination rate about 90%. Nick or soak seed in cold water for 12 hours.
storage: Seed can be stored for long periods but is susceptible to attack by weevils. About 350–1,000 seeds per kg.

MANAGEMENT: Slow growing but long lived; pollarding, coppicing, pruning.

REMARKS: The fruit has many uses and is important for nutrition in many parts of the world, not least in India. Local trade in the fruit is common. Budded and grafted on a large scale in the Philippines.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Albrecht, 1993; Backes and Ahenda, 1998; Beentje, 1994; Bein et al., 1996; Bekele-Tesemma et al., 1993; Blundell, 1987; Dharani, 2002; Fichtl and Adi, 1994; ITDG and IIRR, 1996; Jensen, 1999; Katende et al., 1995, 1999; Kokwaro, 1993; Lötschert and Beese, 1983; Maundu et al., 1999; Mbuya et al., 1994; National Academy of Sciences, 1979; Noad and Birnie, 1989; Palgrave and Palgrave, 2002; Ruffo et al., 2002; Storrs, 1979; Verheij and Coronel, 1991; on Maydell, 1990.

Tamarix nilotica

Tamaricaceae

Indigenous

COMMON NAMES: **English:** Tamarisk; **Kamba:** Nzinzinda; **Malakote:** Durtya jovu, Durtya wachaloh; **Orma:** Durte galana; **Somali:** Duur; **Turkana:** Echeme, Echekereng.

DESCRIPTION: A well-branched evergreen shrub or tree to 6 m. **Crown rather like that of a conifer, with whip-like stems.** BARK: Yellow-brown. LEAVES: **Minute and scale-like**, usually 1–3 mm long, without a conspicuous stalk, concave, alternate, glandular, on slender green branchlets. FLOWERS: **Flowers pink-white, at the tips of branchlets, small, in slender spikes** 5–9 cm long, each flower less than 2 mm long, with 5 floral parts. FRUIT: **A capsule**, 4–5 mm long, splitting to release tiny **seeds, each with a tuft of hairs at one end.**

ECOLOGY: Members of this family are common in the Mediterranean area. This species is found in the dry lowland areas of northern, eastern, southern and coastal Kenya, along rivers in woodland or bushland, and growing on almost pure sand, 0–1,050 m. It is common along the lower parts of Tana River and in parts of Turkana District. The shrub is very drought hardy and the slender green branchlets serve the usual function of green leaves. Agroclimatic Zones V–VI.

USES: Firewood, poles, posts, tool handles, shade, ornamental, mulch, dune fixation, river-bank stabilization, windbreak.

PROPAGATION: From cuttings of the previous year's growth, wildings.

SEED: Seed information is lacking but probably similar to *T. aphylla.* In the latter case, cuttings are preferred to seeds. Seeds in closed capsules are not usually fertile, therefore only capsules that are just opening or have partly opened should be collected. *T. aphylla* has 100,000–286,000 seeds per kg.

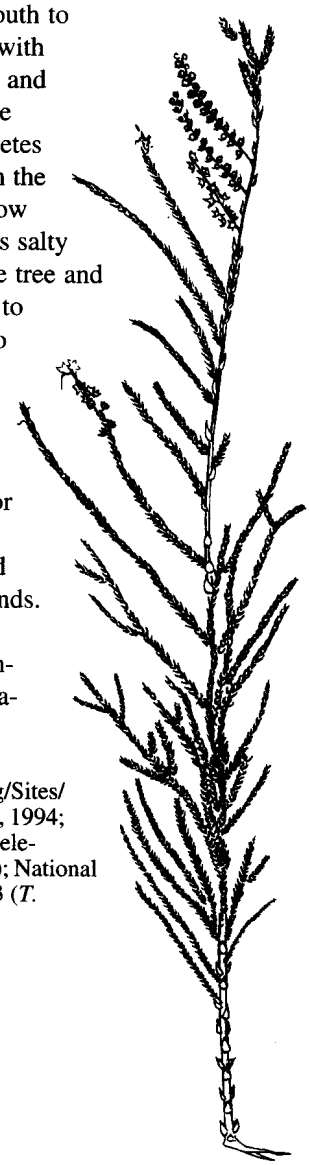
storage: Probably similar to those of *T. aphylla* which lose viability within a few days. Use cuttings.

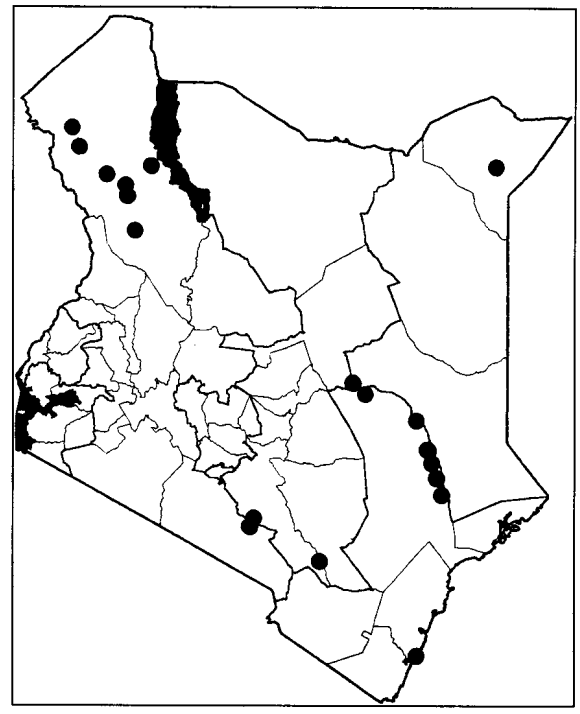
MANAGEMENT: Coppicing.

REMARKS: This species is much used by the Turkana in house construction and for firewood.

The closely related and better-known tamarisk, *T. aphylla* (**English:** Athel tree; **Somali:** Duur) has been recorded in Mandera. It is a well-branched evergreen shrub or tree to 9 m. The irregular grey-green crown is rather like that of a conifer. Bark is light grey to red-brown, becoming thick and rough and deeply ridged. Branches are smooth, purple-brown. Leaves are borne on slender green-grey branchlets of twigs. Leaves remain as 2-mm scales encircling the branchlets, each with a sharp tip and appearing as one section along the jointed twig. Flowers are at the tips of branchlets, each one less than 3 mm, pink-white. Fruit is a narrow pointed capsule, 5 mm, splitting into 3 to release tiny brown seeds, each with a tuft of white hairs. *T. aphylla* is a tree of humid lowland savanna and woodlands as well as open flood plains and along rivers. It is distributed in West, East and North Africa and is common in the Middle East, extending to north-west India and south to Tanzania. It is usually found with *Faidherbia albida, Balanites* and *Tamarindus*; 200–400 m. Like other tamarisk species, it excretes 'salt' that drips from glands in the leaves at night so the soil below may be covered with salt. This salty drip kills any plants below the tree and the fallen leaves are too salty to burn—hence this tree can also be used as a firebreak. Crops should not be planted close to tamarisk as the tree roots collect all nearby water and plant nutrients. There are 50 or so *Tamarix* species. Many are often found in saline soils and leaves have salt-secreting glands. Many others have brightly coloured twigs and so are commonly seen being used as ornamentals.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Beentje, 1994; Bein et al., 1996 (*T. aphylla*); Bekele-Tesemma et al., 1993; (*T. aphylla*); National Academy of Sciences, 1980, 1983 (*T. aphylla*).





Terminalia brownii

Combretaceae

Indigenous

COMMON NAMES: **Boran:** Baresa; **Embu:** Mururuku; **Kamba:** Muuku; **Kipsigis:** Moissot; **Luhya:** Shirha; **Luo:** Ong'ang', Manera; **Marakwet:** Goloswa; **Orma:** Haririgo; **Pokot:** Kalas (plant), Koloswo; **Samburu:** Ibukoi; **Somali:** Hareri biins, Harar; **Swahili:** Mbarao; **Tharaka:** Mururuku; **Tugen:** Koloswo, Koloswet; **Turkana:** Epiey.

DESCRIPTION: A semi-deciduous tree, 7–13 m, densely shady, somewhat layered, foliage drooping. BARK: Grey, fissured, young shoots hairy. LEAVES: **Oval, 7–10 cm,** wider at the tip, pointed or notched, edge wavy, side veins clear, **leaf stalk and underleaf hairy,** leaves turn red before falling. FLOWERS: **Whitish, unpleasant smell, in spikes to 12 cm.** FRUIT: A winged oval seed, **red to purple, 5 cm, tip rounded or notched,** narrowed to base.

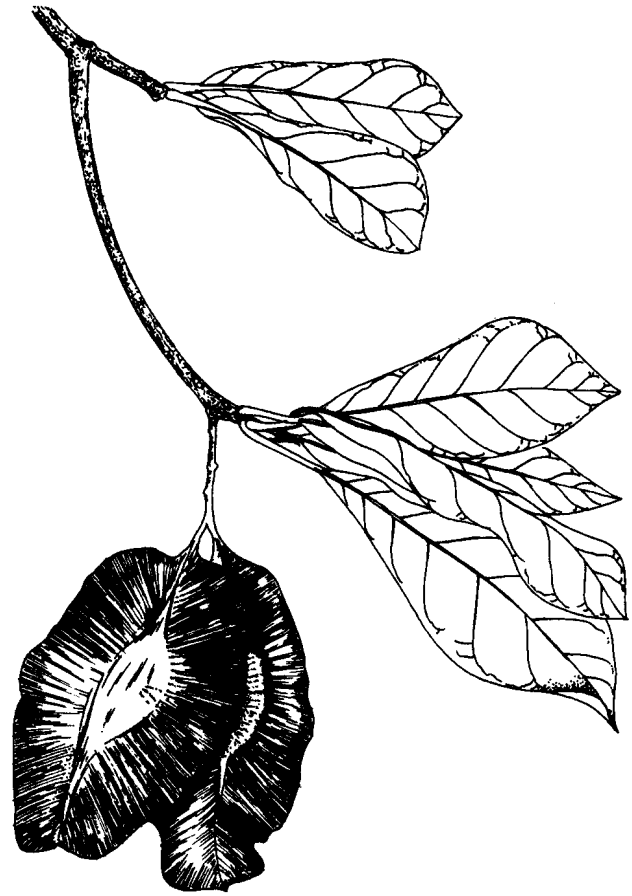
ECOLOGY: This is one of the very useful trees of semi-arid areas in the Democratic Republic of Congo, Kenya, Nigeria, Sudan, Ethiopia and Somalia. Probably the commonest and most widespread *Terminalia* in Kenya, found in deciduous woodland, bushland, wooded grassland and riverine vegetation. Often associated with *Combretum* and other *Terminalia* spp., 700–2,000 m. It has been planted in Kisumu and Nairobi. Prefers well-drained soils. Agroclimatic Zones IV–V.

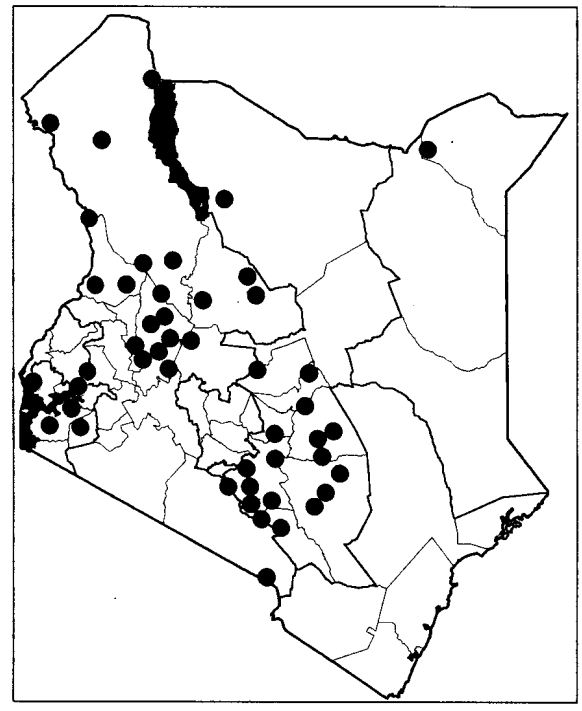
USES: Firewood, charcoal, timber (construction), poles, posts, beehives, tool handles, utensils (pestles and mortars), watering troughs, medicine (leaves and bark), fodder (leaves), shade, ornamental, mulch, soil conservation, soil improvement, dye, veterinary medicine.

PROPAGATION: Seedlings, wildings.

SEED: A prolific seeder, but a rather low germination rate. The tree seeds more or less continuously; about 3,000 seeds per kg.
treatment: Remove wings and soak in cold water overnight, or nip a V-shape on the distal end so that the tip of the seed is just visible. The procedure has to be done carefully so that the seed itself is not damaged. Light burning of the de-winged seed may also hasten germination.
storage: Seed can be stored for long periods if insect free.

MANAGEMENT: Fairly fast growing on good sites; coppicing, lopping, pollarding; needs protection from livestock when young.



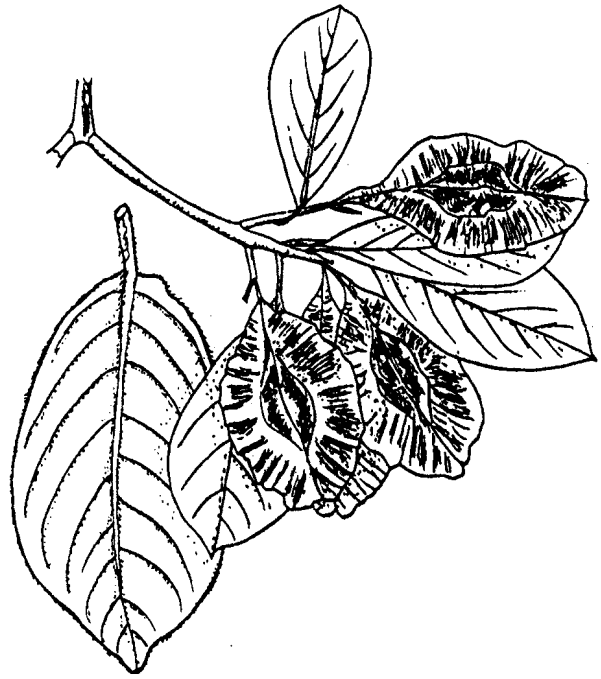


Terminalia brownii (cont)

REMARKS: The wood is yellow-brown, medium hard, light and termite resistant, and thus highly valued for house construction, poles, utensils and for building grain stores. In spite of its dense canopy, crops do well underneath and the tree is widely recommended for agroforestry. A very useful tree in semi-arid areas with resistance to both termites and drought once established. It has been planted in urban areas as an ornamental.

A very closely related species is *T. kilimandscharica* (**Boni:** Leh heli; **Boran:** Biress; **Kamba:** Muuuku, Kiuuku; **Swahili:** Mbambaro). Fruits of this species are relatively larger than those of *T. brownii*, measuring up to 11 cm long. It is common in relatively dry lowlands of Eastern and Coast Provinces. Uses are similar to those of *T. brownii*.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Albrecht, 1993; Beentje, 1994; Bein et al., 1996; Bekele-Tesemma et al., 1993; Blundell, 1987; Dharani, 2002; ITDG and IIRR, 1996; Katende et al., 1995; Kokwaro, 1993; Maundu et al., 1999; Mbuya et al., 1994; Noad and Birnie, 1989; Sommerlatte and Sommerlatte, 1990.



Terminalia catappa

Combretaceae

Asia, Australia

COMMON NAMES: Digo: Mukungu; **English:** Bastard almond, Indian almond; **Giriama:** Mkungu; **Swahili:** Mkungu.

DESCRIPTION: A tree to 25 m with **clear horizontally layered branches** when young. Mature trees with a wide spreading crown. BARK: Grey-brown, rough with age. LEAVES: **Very large to 30 x 15 cm, leathery** and shiny, in clusters, **bright red before falling,** wider at the tip, veins very clear. FLOWERS: Inconspicuous **green-white spikes.** FRUIT: Hard, to 7 cm, green-red, **rounded and flattened with 2 ridges** but no wings.

ECOLOGY: A conspicuous semi-deciduous tree of coastal areas throughout the warm tropics, including those of eastern Africa. Naturalized at the Kenya coast and also in Voi, Magadi, Kisumu. Its vast root system binds sandy and salty soil, but it prefers well-drained soils. Fruits are spread by fruit bats. Agroclimatic Zones II–III. At the coast, trees flower in April, fruits emerge in June and seed ripen in October–November.

USES: Timber, boat building, food (edible seed kernel), medicine (leaves and fruit), shade, ornamental, soil conservation, soil improvement, dune fixation, tannin (bark, leaves, roots, fruit shell), dye (trunk, roots, fruits), wrapping material (large leaves).

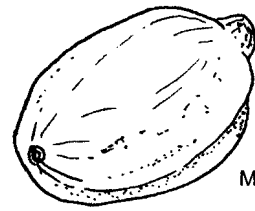
PROPAGATION: Seedlings.

SEED: 150–860 seeds per kg; germination rate 30–70%. **treatment:** To extract the seeds, collect the fruit in a heap, spray with water and cover with grass or leaves. After a day or so the outer cover becomes soft and the seeds can be extracted. After extraction the seeds should be soaked overnight in cold water and sown the following day.
storage: Seed can retain viability for long periods even after floating in water for long distances.

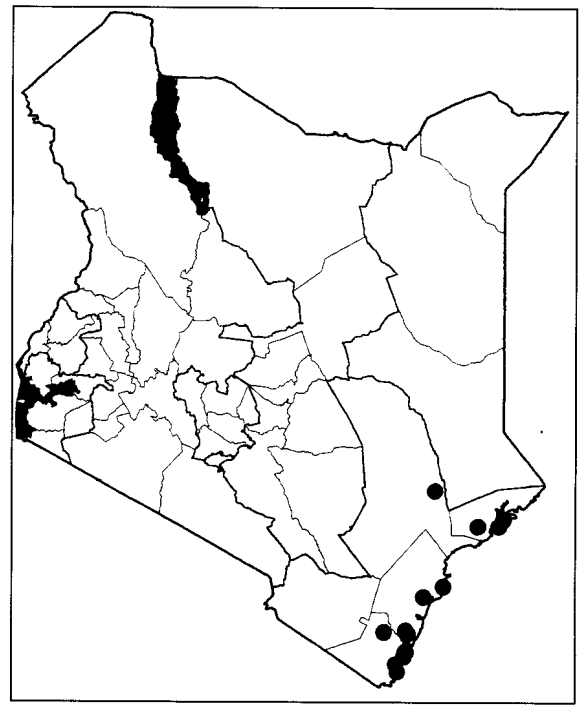
MANAGEMENT: Slow initial growth, later medium to fast growing. Coppices on good sites, pruning.

REMARKS: Fruits float in sea water and the kernel contains an extractable oil. The kernels (rather like almond nuts of Europe) can be eaten raw or roasted and have an almond taste. The outer shell is rich in tannin. The red timber has been used to build boats. The vast root system binds sand, hence the tree is effective as a sand-dune stabilizer at the coast.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Beentje, 1994; Dharani, 2002; Jensen, 1999; Lötschert and Beese, 1983; Mbuya et al., 1994; National Academy of Sciences, 1980, 1983; Noad and Birnie, 1989; Verheij and Coronel, 1991.



Mature fruit



Terminalia mantaly

Combretaceae

Madagascar

COMMON NAMES: **English:** Madagascar terminalia; **Giriama:** Mwanga.

DESCRIPTION: A shapely tree to about 10 m, with **leafy horizontal branches**. BARK: Pale grey, smooth. LEAVES: **In terminal rosettes of 4–9 unequal leaves on short thickened stalks,** up to 7 cm, tip rounded, **edge wavy,** base very tapered, leaves bright green when young. FLOWERS: Small, green, in erect spikes to 5 cm long. FRUIT: Small green and oval to 1.5 cm with no obvious wings.

ECOLOGY: A very popular evergreen tree in Kenya, originally from Madagascar. It grows from the coast to the highlands, prefers fertile soils and is drought resistant once established. The species rarely flowers at high altitudes, so seeds are collected from trees in lower, hotter areas, 0–2,000 m. Agroclimatic Zones III–V.

USES: Shade, ornamental.

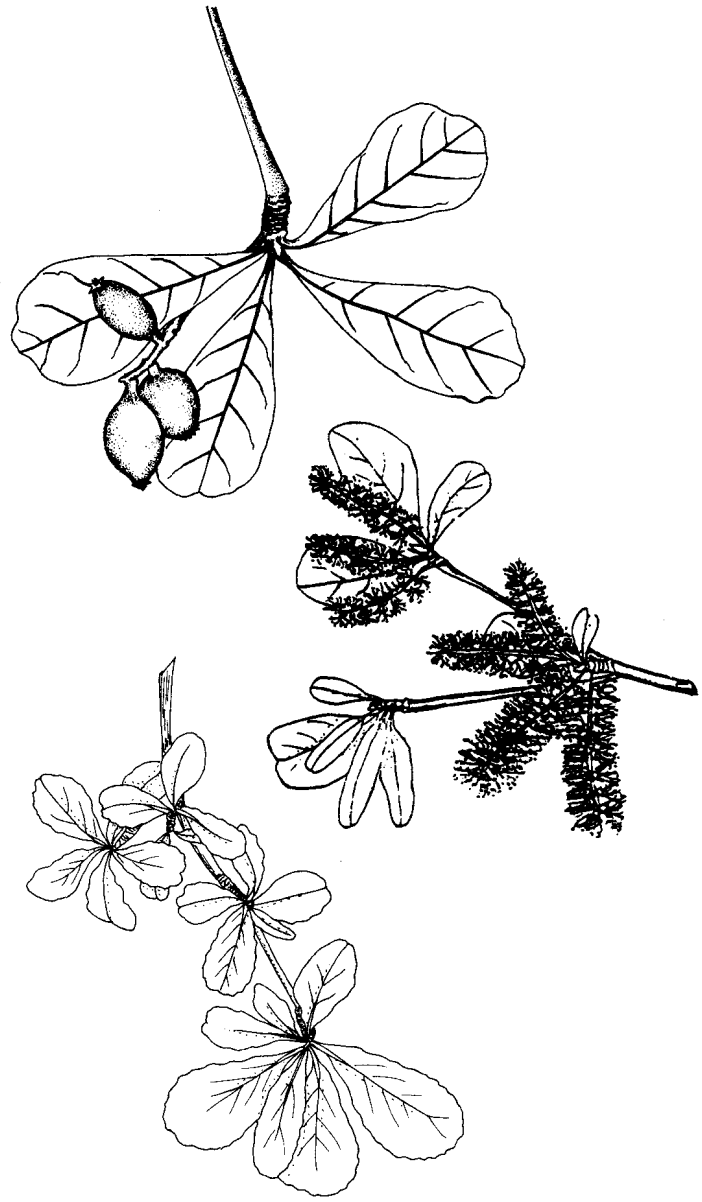
PROPAGATION: Seedlings.

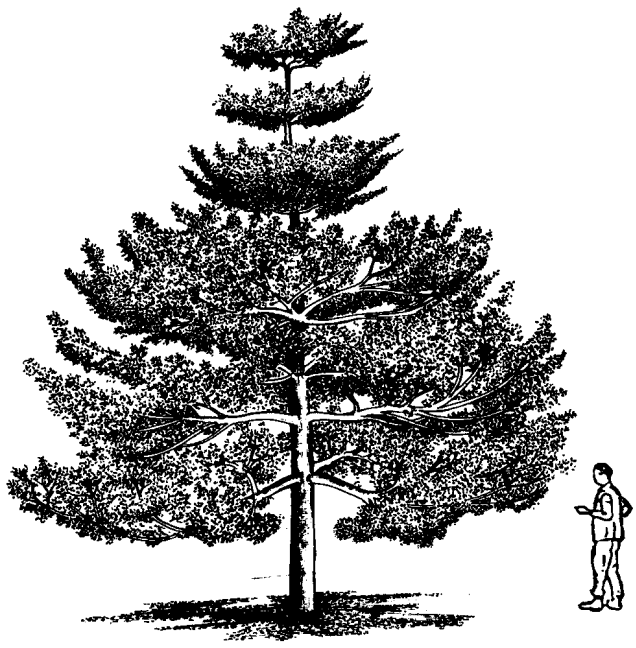
SEED: 14,000–15,000 seeds per kg.
treatment: Soak in cold water for 24 hours. Alternatively, make a V-shaped nip at the distal end so that the tip of the seed is just visible. The procedure has to be done carefully so that the seed itself is not damaged.
storage: Seed can be stored for long periods.

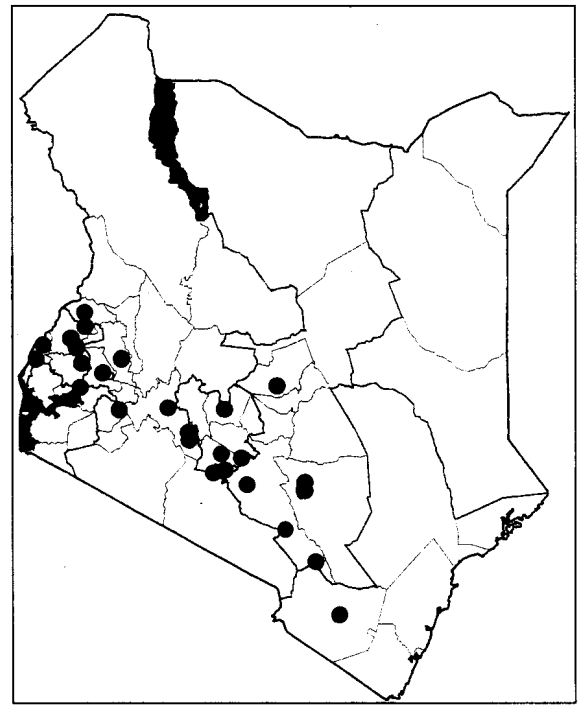
MANAGEMENT: Fast growing on good sites. Prune branches when necessary.

REMARKS: Seedlings of this species are sold at a good price in many areas. An excellent spreading shade tree, deservedly popular; fast growing in better soils and drought resistant once established.

FURTHER READING: Beentje, 1994; Dharani, 2002; Katende et al., 1995; Noad and Birnie, 1989.







Terminalia mollis

Combretaceae

Indigenous

COMMON NAMES: Luhya: Olokhongwe; **Luhya (Bukusu):** Kumukhongwe; **Luo:** Opok.

DESCRIPTION: A medium to large tree up to 15 m high, rarely with a straight trunk. Crown tapering to oval, no layered appearance. Dense foliage and an intense shade, but deciduous. BARK: Grey-black, fissured. LEAVES: Spirally arranged, elliptic or obovate, large, up to 37 cm long and up to 19 cm wide, slightly hairy above, **densely hairy beneath**. FLOWERS: White-cream, in 8–17-cm **long spikes from the leaf axils**. FRUIT: Winged, yellow green, up to 12 cm long and 5.5 cm wide.

ECOLOGY: Found in West Africa from Ghana east through Cameroon to south Sudan and south to Angola and Zambia. In Kenya, restricted to western parts around Lake Victoria, Kakamega, Bungoma, Trans Nzoia and adjoining areas in open woodland and wet savanna, on rocky hillsides and often left in cultivated fields. Resistant to drought, fire and termites once established. The tree is becoming rare due to charcoal burning and over-exploitation. Agroclimatic Zone II. Flowers in February–March and fruits in October–December in Bungoma.

USES: Firewood, charcoal, timber, furniture, posts, tool handles, wheels for ox-carts, medicine (roots), mulch, soil improvement, ceremonial.

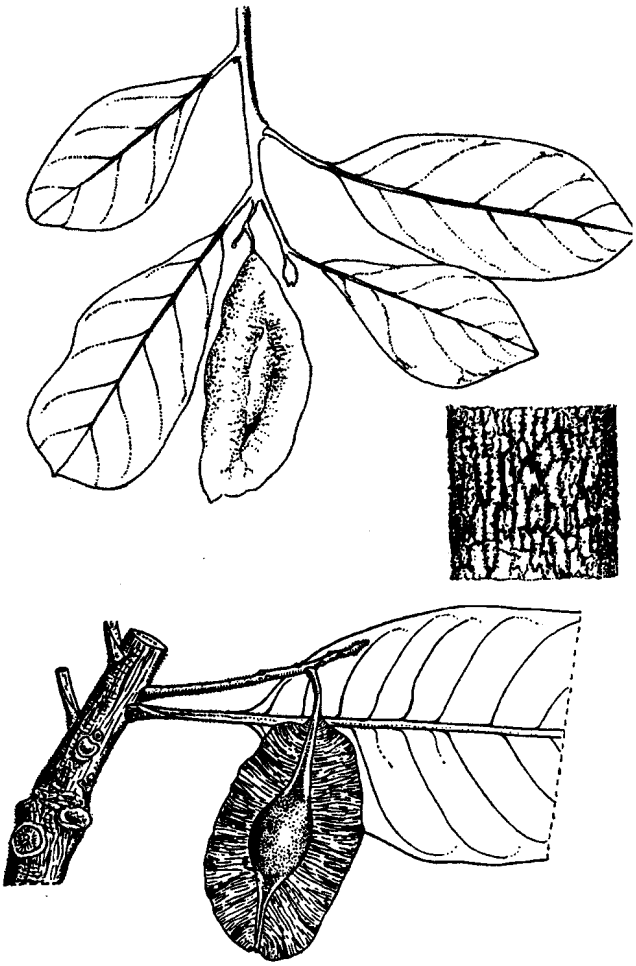
PROPAGATION: Wildings, seedlings. The species has a high natural reproduction ability and wildings can easily be collected in cultivated land or grazing land.

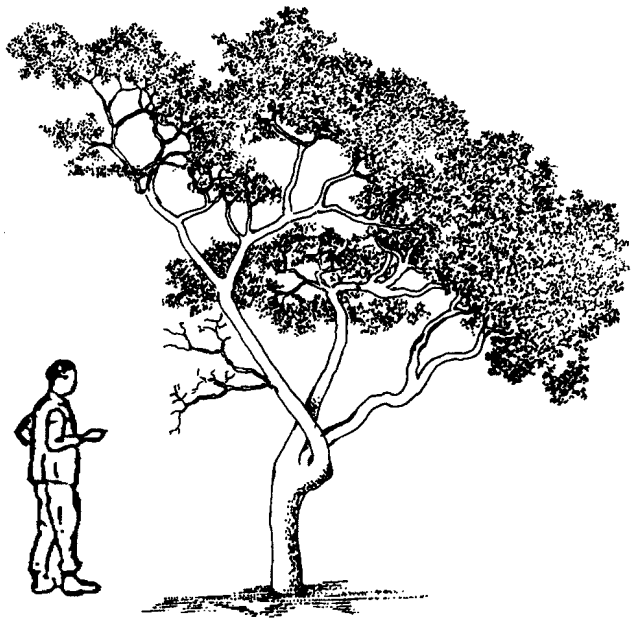
SEED: Large seed with 2 wings typical of many *Terminalia*.
treatment: Remove wings and soak in cold water overnight.
storage: Can be stored for some time if kept free from insects.

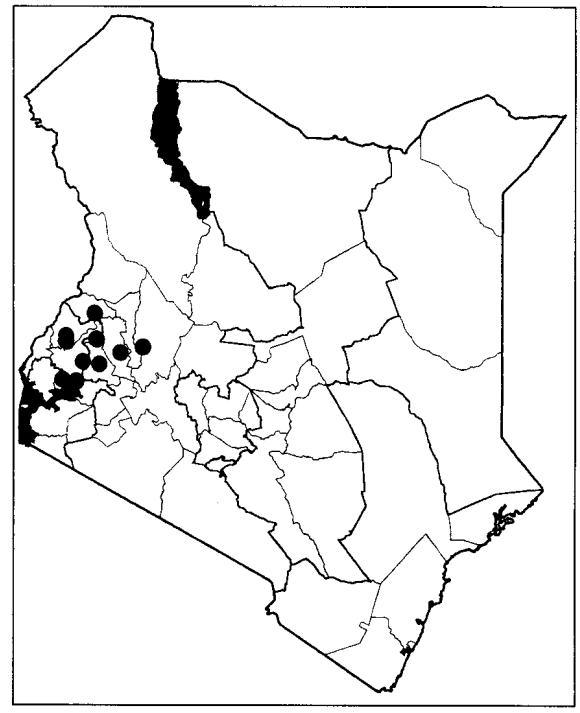
MANAGEMENT: Lopping and pollarding; prolific but slow growth.

REMARKS: *T. mollis* has abundant litter fall and good mulch quality. It grows well with all crops and is highly appreciated as a tree for intercropping.

FURTHER READING: Backes and Ahenda, 1998; Beentje, 1994; National Academy of Sciences, 1980; Palgrave and Palgrave, 2002; Storrs, 1979.







Terminalia orbicularis

Combretaceae

Indigenous

COMMON NAMES: **Boran:** Bissik; **Malakote:** Bisiqa; **Orma:** Bisik; **Samburu:** Lebokich; **Somali:** Bisakh, Bisiiq.

DESCRIPTION: A wide-spreading deciduous shrub or small tree to 6 m, often forming thickets. BARK: Grey, smooth, later peeling to show yellow green underbark. Young shoots zigzag. LEAVES: Almost round, to 1 cm long, base rounded or heart-shaped, tip shortly pointed, crowded on short side shoots. FLOWERS: Red with yellow centre, borne in spikes up to 5 cm long, appearing before or with the young leaves: FRUIT: Nearly round and winged, up to 10 cm across, pale pink to deep purplish red.

ECOLOGY: A shrub or tree occurring in *Acacia–Commiphora* bushland and locally co-dominant, 100–1,500 m. In Daua Valley (Mandera District), common in gravelly loamy sites 3–5 km from the river. Found in northern Kenya, Taita Hills, Machakos, Tsavo National Parks as well as in Ethiopia and Somalia. Agroclimatic Zones V–VI.

USES: Firewood, timber (construction), furniture, utensils, medicine, fodder (leaves), ornamental, dye.

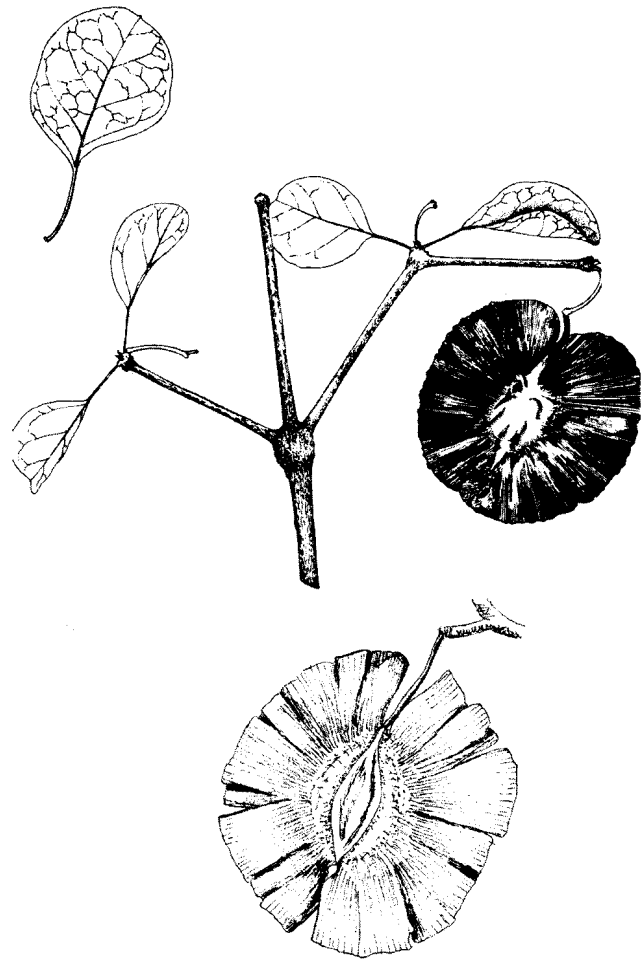
PROPAGATION: Seedlings, wildings.

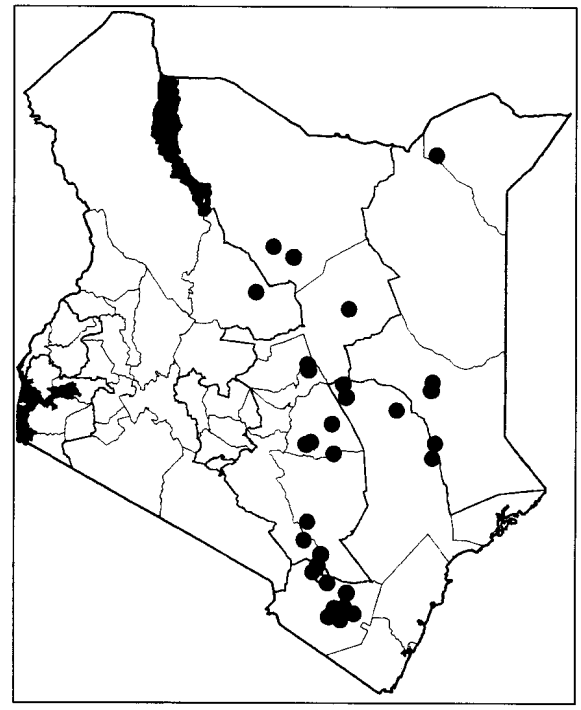
Management: Pollarding.

REMARKS: The heavy, durable wood has many uses. The Somali use it for making food containers. It has a beautiful grain, and nomads also use it to make decorative carvings that are tied to important camels.

T. polycarpa (**Boran:** Qordobo, Korabo; **Somali:** Hareri; **Swahili:** Mwanga, Mwangati) is a deciduous shrub or tree 3–15 m high. Its long shoots are zigzag, the bark dark grey, smooth, leaves crowded on short side shoots. White or cream flowers, appearing in spikes to 7.5 cm long. Two-winged fruit, yellowish purple or pink, up to 3 x 1.5 cm. Common along luggas in north-eastern Kenya in *Acacia–Commiphora* bushland. Found in the Daua River valley and other parts of Mandera District, but does not occur anywhere else in the country. Agroclimatic Zone VII (riverine in very dry areas). The tree is termite resistant and highly valued for its many uses; threatened. Cash is generated locally through sale of poles. Other uses are charcoal, utensils (pestles), medicine (sap), fodder (leaves and fruits), bee forage and shade.

FURTHER READING: Beentje, 1994; Blundell, 1987; Noad and Birnie, 1989.





Terminalia prunioides Combretaceae

Indigenous

COMMON NAMES: Boran: Korobo; **English:** Purple-pod terminalia; **Giriama:** Mwanga; **Kamba:** Mutoo; **Malakote:** Mwangata; **Orma:** Bires; **Pokot:** Apetaa, Tikit; **Sanya:** Korubo; **Somali:** Hareri; **Taita:** Msangano; **Swahili:** Mwangati, Mwangati punda; **Tharaka:** Mutooro; **Tugen:** Tikitua.

DESCRIPTION: A shrubby tree 3–10 m. Conspicuous in **young green leaf,** the rounded crown quite dense and sometimes **well layered, branches** long and drooping. BARK: Grey, grooved. LEAVES: Small, spirally arranged on **spiky side twigs,** shape **variable, 4–7 cm, the tip rounded or notched, 3–5 side veins** clear below. FLOWERS: Buds bright red, flowers cream, in **spikes to 8 cm,** the **smell unpleasant**; **much nectar.** FRUIT: **Purple-red to brown, 3.5 cm x 2 cm, or even larger,** clearly notched, persisting on the tree.

ECOLOGY: Widespread in Africa. A tree of dry forest and dry bushland. In Kenya, found in *Acacia–Commiphora* bushland or woodland, often near rivers or luggas; on the coast also on saline soils. Mainly found in Mwingi, Kitui, Makueni and coastal districts; 0–1,200 m. Agroclimatic Zones V–VI. Flowers in November–December (Mwingi, Tana River).

USES: Firewood, charcoal, timber, furniture (cabinets, etc.), poles, posts, tool handles, boat building, medicine, fodder (fruit), mulch, green manure.

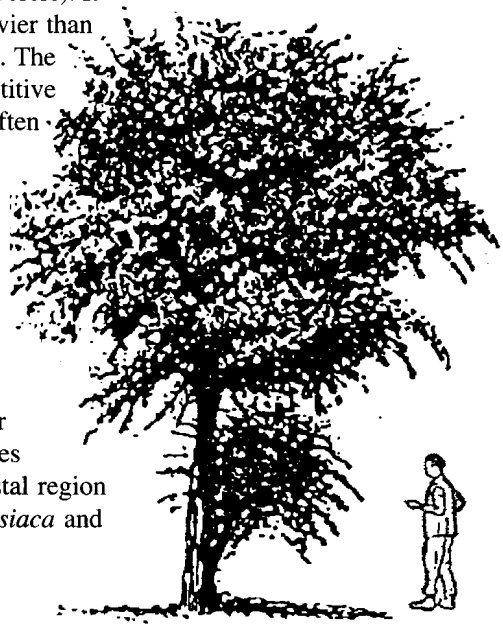
PROPAGATION: Seedlings.

SEED: 8,000–9,000 seeds per kg. Germination is often poor and may be slow, with a germination rate of about 20%. **treatment:** Remove wings and soak in cold water, or make a V-shaped nip at the distal end so that the tip of the seed is just visible. The procedure has to be done carefully so that the seed itself is not damaged **storage:** Seed can be stored for long periods in airtight containers.

MANAGEMENT: Pruning, pollarding, lopping.

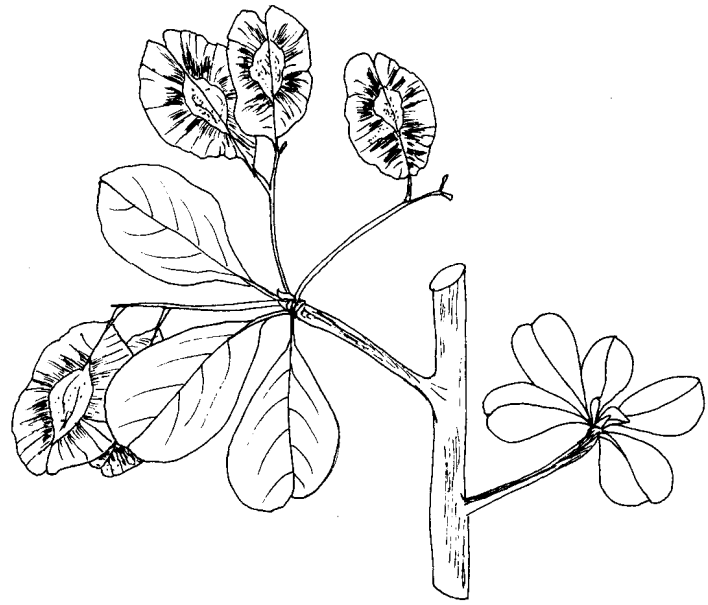
REMARKS: The wood is hard, tough and termite resistant; used in house construction and for dhow keels (resistant to salt water and borers). It is harder and heavier than that of *T. brownii*. The tree is not competitive with crops. It is often seen heavily pollarded and with beehives suspended from the upper branches.

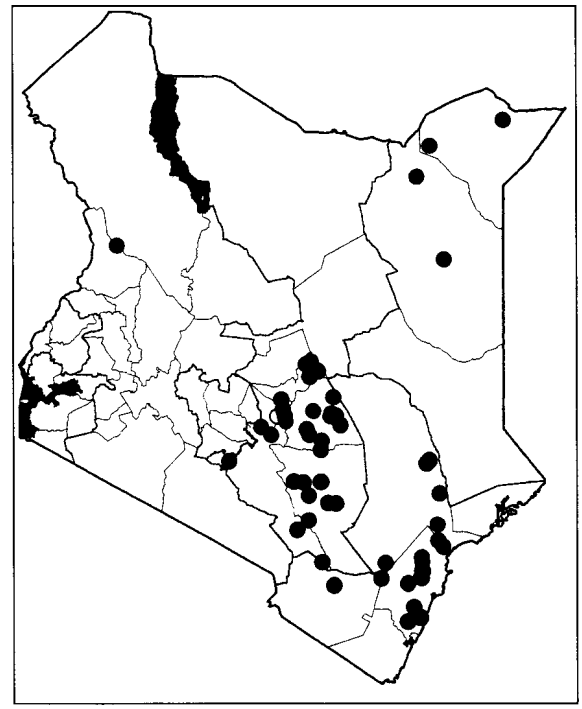
Besides this species and *T. spinosa*, the other indigenous species found in the coastal region include *T. sambesiaca* and *T. brevipes*.



T. sambesiaca (**Boni:** Mbabare; **Swahili:** Mbombaro) is a tall tree to 25 m high with large leaves to 13 cm long and long flower spikes to 15 cm. This is a strictly coastal species found in woodland and forest margins. It is a good timber tree used by the Digo for dhow masts, firewood and construction. *T. brevipes* (**Duruma:** Manga, Msuri; **Malakote:** Mkokola; **Pokomo:** Mualango; **Somali:** Allan), on the other hand, is a shrub or small tree to 9 m, occasionally climbing. The bark is thorny, while shoots end in a spine. This is a riverine species also seen around waterholes, especially in lower parts of the Tana River. The species is used for poles by the Pokomo and Wardei.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Albrecht, 1993; Beentje, 1994; Blundell, 1987; National Academy of Sciences, 1980; Noad and Birnie, 1989; Palgrave and Palgrave, 2002.





Terminalia spinosa Combretaceae

Indigenous

Standard/Trade name: Terminalia.

COMMON NAMES: **Boran:** Horobbo, Saeteh; **Digo:** Mwanga kululu, Mwanga; **Gabra:** K'orrobo; **Giriama:** Mwanga; **Kamba:** Mutula; **Pokot:** Tikit; **Pokomo:** Mukorobo, Muchancha; **Sanya:** Kurubo; **Somali:** Hareri; **Swahili:** Mwanga, Mwangati; **Turkana:** Etait, Epata; **Wardei:** Hafeer, Kabxan, Hareeri madow.

DESCRIPTION: A tree to 15 m, the branches horizontal, long shoots zigzag. BARK: Rough, grey, longitudinally fissured, **stout spines, 2–3 together** on short (up to 2-cm long) side shoots. LEAVES: **In clusters from side shoots,** up to 5 cm, **usually 2–3 cm, wider at the tip, clearly notched,** narrowed to a short stalk, often red. FLOWERS: 4–5 pink-white spikes in clusters beside leaves. FRUIT: **2–3-cm long on stalks,** orange-brown to dark brown, thin-winged.

ECOLOGY: A spiny tree of dry bush country in northern Tanzania, Kenya, Somalia, northern Uganda and Sudan. In Kenya, found in coastal bushland, wooded grassland, along luggas, often on rocky sites; may be locally dominant, up to 1,600 m. Common, for example, at Lake Bogoria and in Tugen Hills. Agroclimatic Zones III (coastal area)–VI (dry inland). Flowers in April–June and November–December in Mwingi and Tana River Districts. Seeds are collected from October to December at the coast.

USES: Firewood, charcoal, timber, furniture (traditional stools), poles (construction of houses and semi-permanent structures, roofs), carvings, utensils, boat building (dhows), medicine, fodder, live fence.

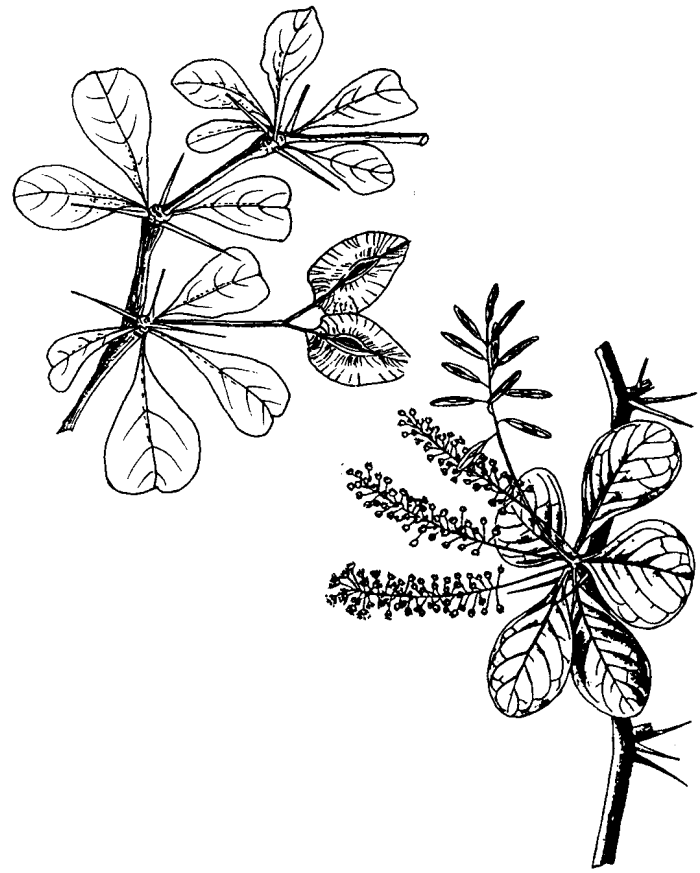
PROPAGATION: Seedlings, wildings.

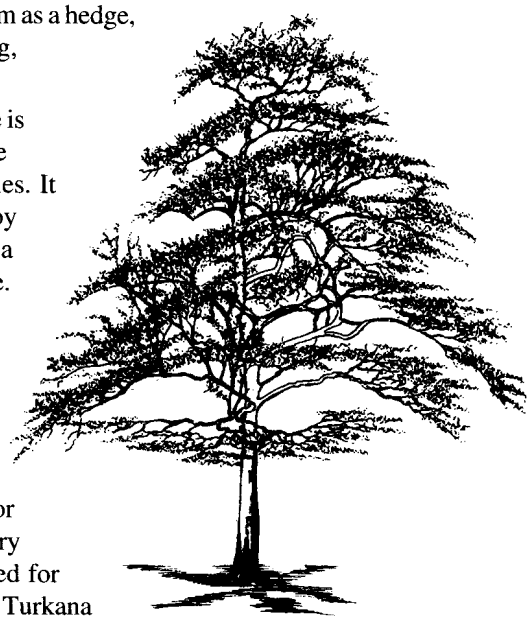
SEED: Tree seeds prolifically. Germination is slow but the germination rate is often quite good.
treatment: Remove wings and soak in cold water, or make a V-shaped nip at the distal end so that the tip of the seed is just visible. The procedure has to be done carefully so that the seed itself is not damaged.
storage: Seed can be stored for long periods.

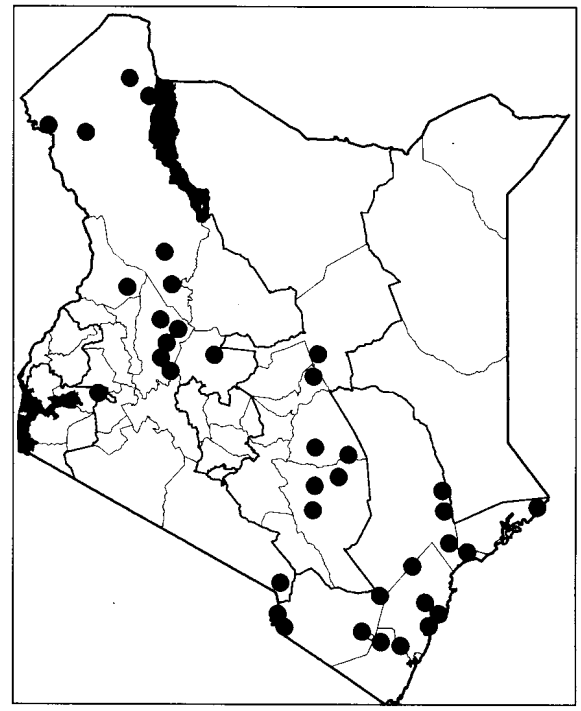
MANAGEMENT: Trim as a hedge, pruning, lopping, pollarding.

REMARKS: The tree is believed to have magical properties. It is not browsed by goats, so makes a useful live fence. The wood is resistant to termites and fungal attack. Its timber is hard and heavy, valued for building and very durable; also used for dhow keels and Turkana stools. In Bura the tree is not popular as firewood as its smell is unpleasant. Increasingly used for poles at the coast as supply of poles of other species is diminishing. Usually found outside forest reserves in bushland and therefore cutting is not regulated.

FURTHER READING: Beentje, 1994; Kokwaro, 1993; Mbuya et al., 1994; Noad and Birnie, 1989.







Tetradenia riparia

Labiatae

Indigenous

COMMON NAMES: **Kamba:** Kyooya kyovai; **Luo:** Okita lang'o; **Maasai:** Oring-lagaldes; **Marakwet:** Lonwa; **Pokot:** Lonuo; **Samburu:** Ngeliot.

DESCRIPTION: An erect **semi-succulent, strongly aromatic bush** or small tree to 3 m, stems often knobbly with leaf scars and densely hairy. The leaves have an unpleasant smell. BARK: Light grey-brown, smooth but peeling with age. LEAVES: Opposite and simple, wide ovate to 9 cm, **very soft due to dense, short green hairs both sides,** veins clear below, often sticky, the **edge coarsely round-toothed,** base rounded to a **stalk about 2 cm.** FLOWERS: **Very tiny, mauve–pink–white,** quite attractive, in large, dense, much-branched heads to 30 cm long. Flowers grow on spikes, male and female on different plants. FRUIT: A very small nutlet.

ECOLOGY: A common African shrub, extending to South Africa; locally common in dry rocky bushland, at forest margins and often near water. In Uganda, it is valued and cultivated for its medicinal uses. Agroclimatic Zones IV–V.

USES: Flavouring, seasoning, medicine (roots, leaves), soil conservation, live fence.

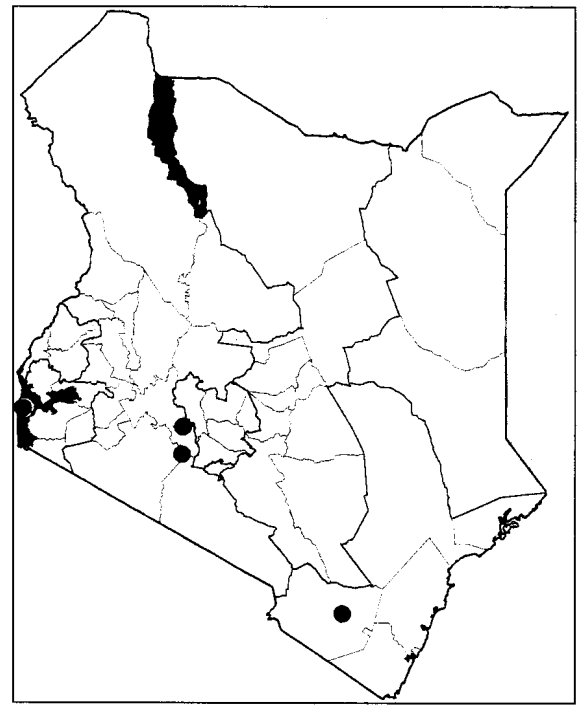
PROPAGATION: Vegetatively by division of bushes or use of cuttings.

SEED: Not used for propagation.

MANAGEMENT: Fast growing; coppicing and side trimming as a fence.

REMARKS: A good additive to meat. Can be used to marinate meat and can be added to raw blood to improve taste (Maasai). The plant is also effective in controlling soil erosion.

FURTHER READING: Beentje, 1994; Kokwaro, 1993.



Thespesia danis

Malvaceae

Indigenous

COMMON NAMES: **Boni:** Mlambale, Balambali; **Digo:** Muhowe; **Giriama:** Muhowe, Howe (fruit), Mkumbo; **Malakote:** Mudaanisa; **Orma:** Danis; **Pokomo:** Mwaro, Mwadhesa, Mkarara; **Sanya:** Dane, Danis; **Somali:** Kobhan, Khaphan, Denisa; **Swahili:** Muhowe, Muhonda; **Wardei:** Kabxan, Quaranari.

DESCRIPTION: A shrub or tree 1–6 m high. BARK: Dark grey, fissured. LEAVES: Very broadly ovate, **base heart-shaped**, tip without a long narrow sharp end, up to 9 cm long, densely scaly. FLOWERS: **Borne singly**, large, to 4 cm, **yellow, with a red, pink or purple centre** and a persistent calyx. FRUIT: Roundish, usually few.

ECOLOGY: A common plant in the coastal lowlands of eastern Africa. In Kenya, found in north-eastern parts and south to the coast. Common in flood zones and riverine vegetation, also at forest margins, in bushland and in thickets in lowland humid areas. Agroclimatic Zones III–VII (riparian in dry areas). Flowers in January–March and fruits ripen in July–August at the coast.

USES: Firewood, poles, posts, clubs, bows and arrows (stems), clubs, utensils (spoons, bowls), fibre (bark), withies (twigs), tool handles, food (fruit), medicine (roots), fodder, shade, river-bank stabilization, ornamental, used for making fire by friction.

PROPAGATION: Seedlings.

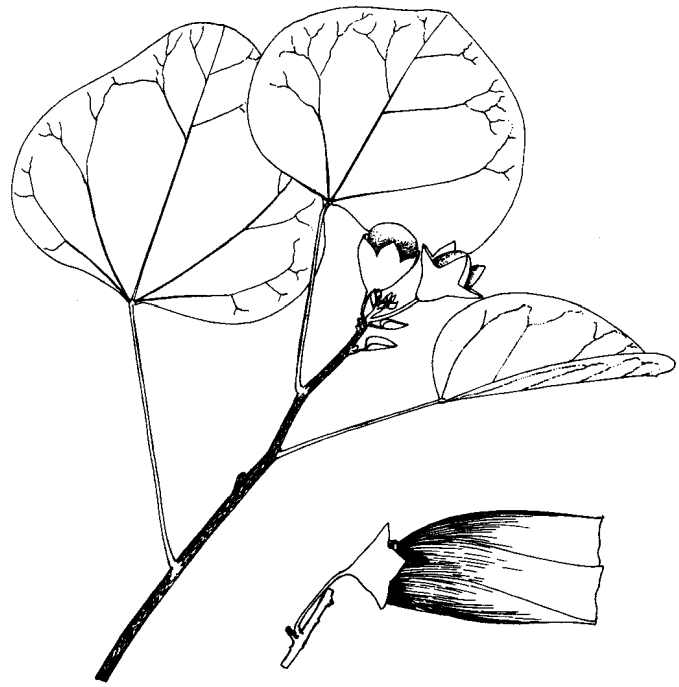
SEED: The seed germinates after the outer cover rots, which takes some time.
treatment: Remove fleshy part of the fruit and clean the seed to hasten germination.
storage: Seed frequently attacked by insects, thus avoid storage.

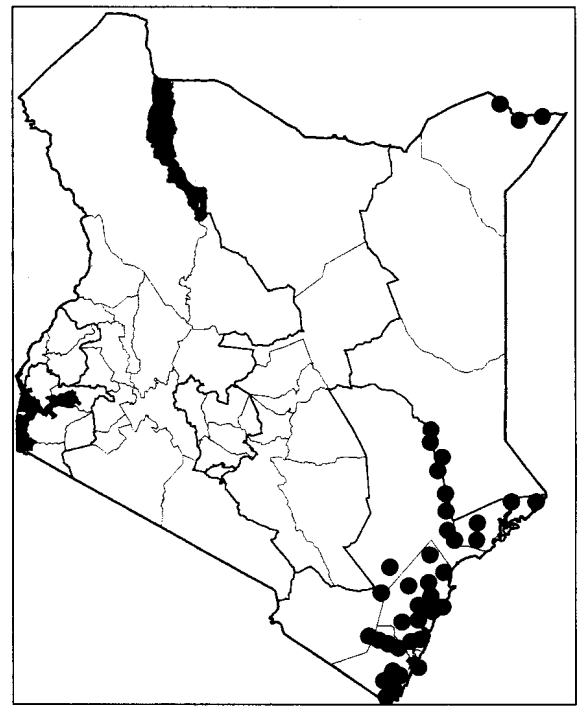
MANAGEMENT: Pruning, pollarding.

REMARKS: It can become a weed, as has happened along parts of the coast. The tree can produce fruit abundantly if grown in a fertile place. The wood is hard and durable, and hence is used for carving utensils.

Another two members of this tropical genus occur in Kenya: *T. garckeana* (*Azanza garckeana*) and *T. populnea*, a coastal shrub distinguished by the long sharp leaf tip (compared with that of *T. danis*). Flowers of *T. populnea* are usually larger (to 8 cm) and the fruit is round to 5 cm. Leaves are usually larger, to 15 cm. Very common along beaches from the high-water mark and also next to mangroves.

FURTHER READING: Beentje, 1994; Kokwaro, 1993.





Thespesia garckeana (Azanza garckeana) Malvaceae

Indigenous

COMMON NAMES: English: Azanza, Tree hibiscus, Snot apple; **Kamba:** Mutoo, Matoo (fruit); **Mbeere:** Mutoo; **Swahili:** Muwatata, Mtobo, Nduwe.

DESCRIPTION: A semi-deciduous shrubby tree, 3–10 m, with a leafy rounded crown. BARK: Dark brown, rough, branchlets with woolly hairs. LEAVES: **Distinctively rounded, up to 20 x 20 cm, usually 8 x 12 cm, on long stalks up to 13 cm, 3–5 lobes,** rough brown hairs above, soft below. FLOWERS: Showy, **yellow with a purple-brown centre,** petals overlap and do not open. FRUIT: **Rounded and woody, 2–8 cm wide,** yellow to brown-green when mature, opens into 4–5 sections. Sweet and edible, contains 15–30 light brown woolly seeds.

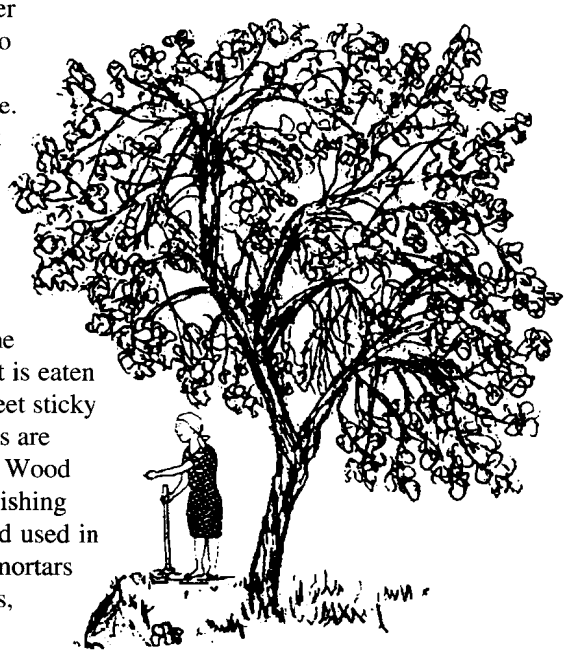
ECOLOGY: A species of eastern and southern Africa from Sudan south to South Africa. In Kenya, a common shrub in southern districts of Eastern Province and also eastern parts of Central Province in wooded grassland and open bushland. Very common in Machakos and Kitui Districts in open bushland and woodland. Common also in *Combretum–Terminalia* bushland, 500–1,500 m. Thrives in sandy or red clay with rainfall 600–800 mm. Agroclimatic Zones III–V. Flowers in November–December in Kitui; young fruits in May in Machakos and Kitui.

USES: Firewood, furniture, poles, tool handles, utensils, yokes for oxen, carvings, food (edible fruit), medicine (roots and leaves), fodder, bee forage, shade, ornamental, mulch, green manure, fibre (inner bark).

PROPAGATION: Seedlings, truncheons (large woody cuttings at least 80 mm in diameter). Produces root suckers.

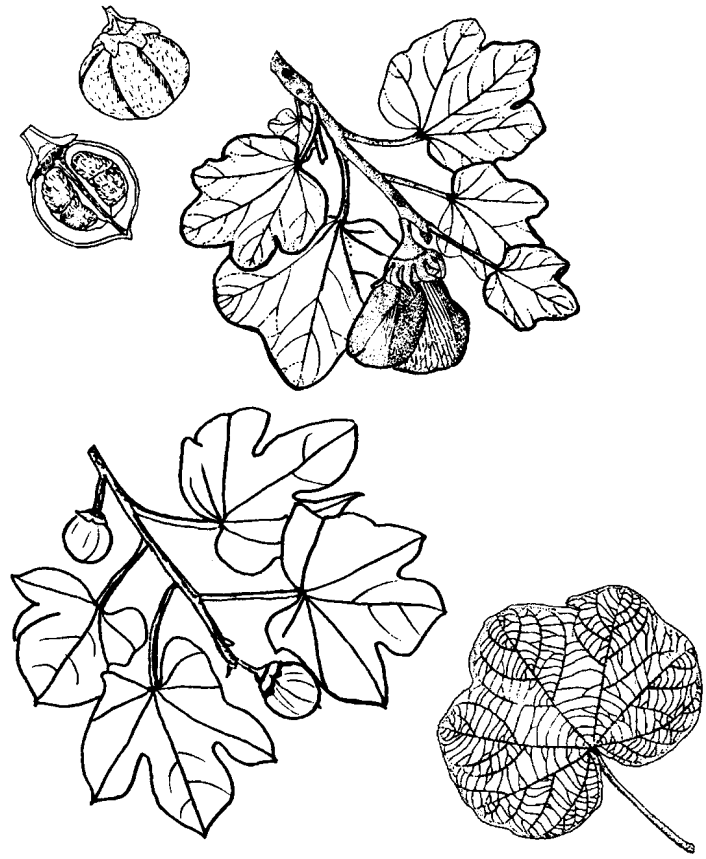
SEED: About 4,000 seeds per kg.
treatment: Not necessary.
storage: Dry seeds store well at cool temperatures.

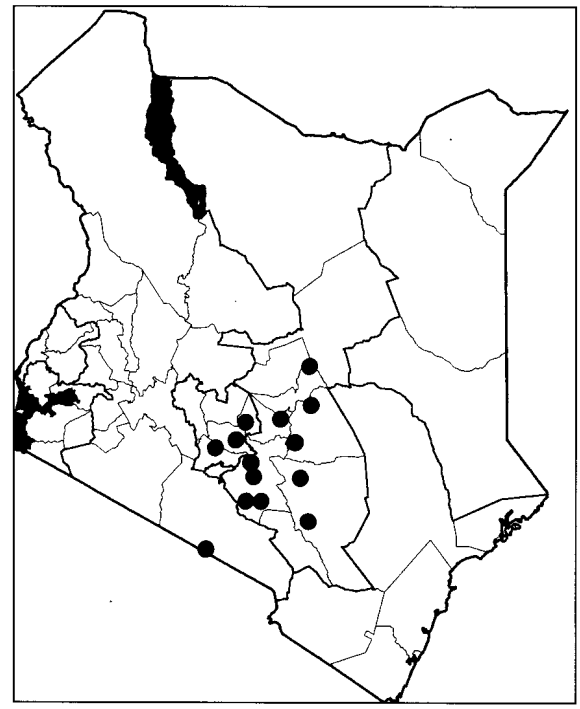
MANAGEMENT: Fairly fast growing (up to 60 cm per year in warm areas); pruning, coppicing. Planted in cropland as well as near homes as an ornamental. Not shade tolerant. Prune lower branches to give it a good shape. Using root suckers is the easiest way to multiply the plant.



REMARKS: The whole fruit is eaten for the sweet sticky flesh; seeds are discarded. Wood strong, finishing smooth and used in carvings, mortars and pestles, wooden spoons, yokes, handles for axes and in the construction of traditional tables. The centre poles in huts are usually of this tree (Kitui). The heartwood is said to be very hard and resistant to attack by termites and other insects. Host of cotton stainers and other bugs, therefore not to be grown in cotton-producing areas.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Beentje, 1994; Mbuya et al., 1994; Noad and Birnie, 1989; Palgrave and Palgrave, 2002; Storrs, 1979.





Thevetia peruviana

Apocynaceae

Central and South America

COMMON NAMES: **English:** Yellow oleander, Peruvian thevetia; **Luo:** Cha mama.

DESCRIPTION: A multi-stemmed shrub or shady tree to 4 m. LEAVES: **Shiny, narrow, in spirals** around the stem, about 10 cm long. FLOWERS: **Yellow, white or salmon, in narrow trumpets, petals twisted in bud,** to 6 cm long, the green base extending to the trumpet edge. FRUIT: Fleshy, 4-angled to rounded, about 3 cm across, stalked, with a flat triangular nut inside.

ECOLOGY: A bush or small tree, it is widely planted in the tropics as an attractive hedge or ornamental bush. It tolerates most soils but prefers sandy ones. Commonly used as a hedge in many areas of Kenya. Agroclimatic Zones III–V.

USES: Medicine (seed), shade, ornamental, soil conservation, live fence.

PROPAGATION: Seedlings, cuttings.

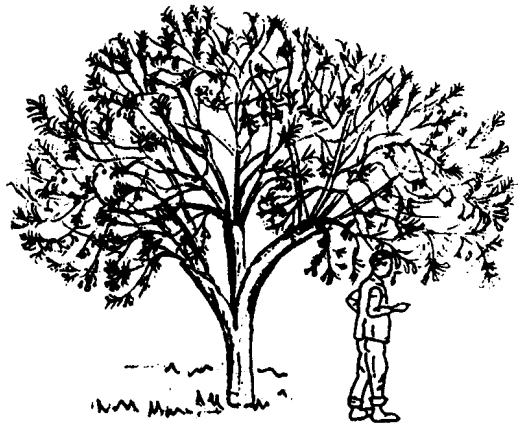
SEED: About 300 seeds per kg; good germination rate of 80%.
treatment: Not necessary.
storage: Seed can be stored for up to 3 months.

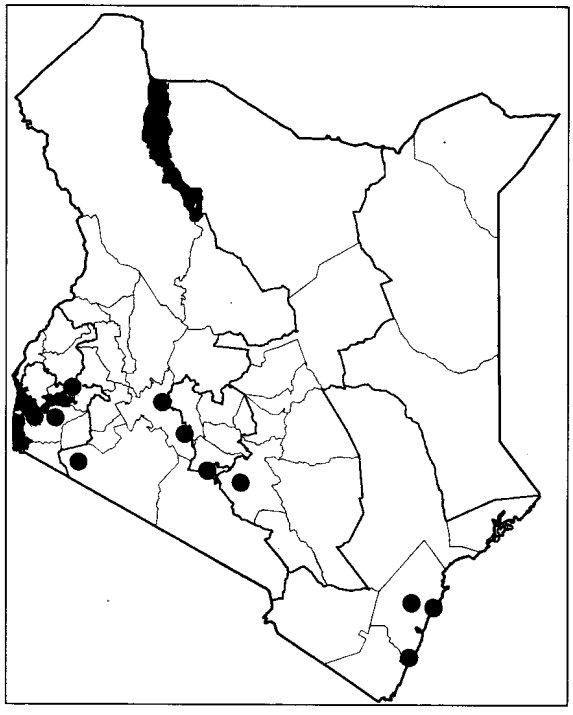
MANAGEMENT: Fast growing; prune about 1 month before the rains to induce flowering. Trim if grown as a fence.

REMARKS: Commonly used as a hedge in Nyanza, Kitui, Taveta and coastal lowlands. The species has become a weed in the Tana River area. All parts of this shrub are poisonous and it is not touched as fodder even by goats. Take care with children! A drug used in the treatment of congestive heart failure is extracted from the nuts, and thevetin, obtained from the bark, has been used for production of a powerful antipyretic. These medicinal properties have been commercially explored in, for example, the USA. As the plant is very poisonous, however, any use for these medicinal properties should be based on sufficient experience and knowledge.

Another species, *T. thevetioides*, is a tree to 8 m with larger yellow flowers to 12 cm across, fruit to 6 cm, rounded on a long stalk. It is cultivated as an ornamental from the coast to the highlands and is common in Nairobi.

FURTHER READING: Dharani, 2002; Katende et al., 1995; Lötschert and Beese, 1983; Mbuya et al., 1994; Noad and Birnie, 1989.





Thylachium thomasii

Capparidaceae

Indigenous

COMMON NAMES: **Boran:** Qadu; **Chonyi:** Muizu wa arisa, Mutunguru; **Digo:** Mzuwari; **Giriama:** Mutunguru, Muizu wa arisa; **Kamba:** Kitungulu; **Kambe:** Muizu wa arisa, Mutunguru; **Malakote:** Quqube; **Orma:** Dika; **Pokomo:** Mukumbe; **Somali:** Ohia; **Swahili:** Muizu wa kirisa; **Taita:** Mtunguru; **Wardei:** Ohia dameerod, Qalangal.

DESCRIPTION: An evergreen shrub or small tree to 5 m high with a **dense, usually dark green rounded crown**. BARK: Grey, rough. LEAVES: **Simple**, broadly ovate or **almost round, dark green**, rather **fleshy**, surface rough, margins thickened. FLOWERS: White (due to long **dense white stamens**) and green (the rest), borne in terminal clusters that are held at the same level. FRUIT: **Ridged lengthwise**, oval, usually short to 3 cm, occasionally up to 5 cm, usually borne on long curved stalks.

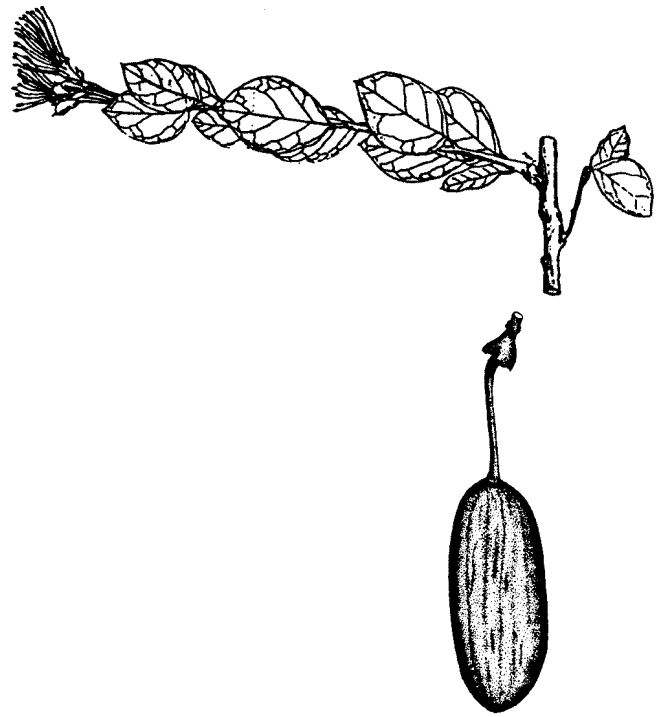
ECOLOGY: Found in southern Somalia and Kenya in the northern and coastal areas as well as adjoining regions. Common in Tsavo East National Park and at both south and north coast; also found in Kitui. Usually occurs near depressions with seasonal water, but also in forest, bushland and open woodland, mainly in sandy and red clay loam, 0–1,300 m. Agroclimatic Zones III–IV. Flowers continuously at the coast.

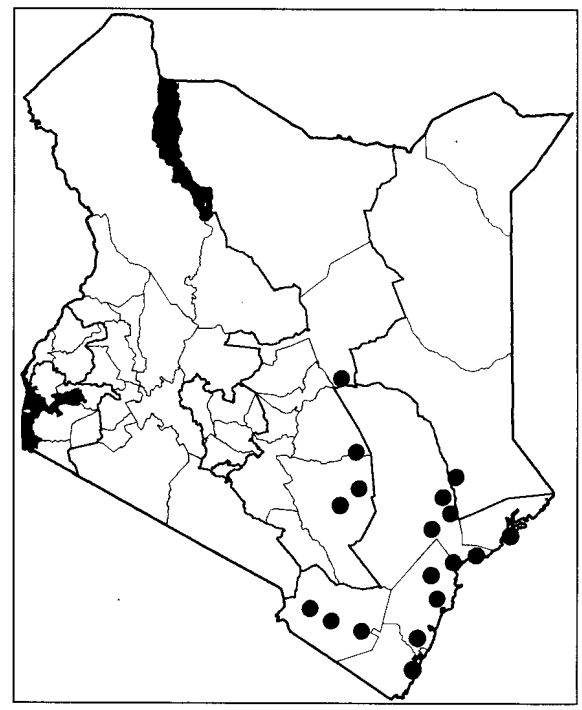
USES: Food (edible tuberous root, fruit), medicine, shade.

PROPAGATION: Seedlings.

REMARKS: Roots of this species may be poisonous if prepared in the wrong way. The right knowledge for its preparation is necessary. Tubers are mainly eaten during famine. Both people and birds like the fruit. A related species with more or less similar distribution in Kenya is *T. africanum* (**Boran:** Qadu; **Samburu:** Sangaretei; **Swahili:** Mtunguru; **Taita:** Mtunguru). This species usually has 3 leaflets, occasionally 2 or 1. Leaflets are rather long and narrow. Fruit to 6 cm, ribbed lengthwise. A good shade tree. Roots are used as in *T. thomasii*.

FURTHER READING: Beentje, 1994; Blundell, 1987; Maundu et al., 1999.





Tipuana tipu

Fabaceae (Papilionaceae)

Bolivia, Brazil

COMMON NAMES: **English:** Pride of Bolivia, Tipu tree.

DESCRIPTION: A large, spreading, semi-deciduous shade tree to 20 m, but occasionally to 30 m, with a light spreading crown. BARK: Red-brown trunk, fissured and flaking with age, bark on the branches grey and cracked; sap from cut branches red and sticky. LEAVES: Compound, **alternate leaflets** light green, each **narrowly oblong to 5 cm, tip round,** often notched, on a short stalk. FLOWERS: Very many in long, **loose sprays**, each with **wavy yellow-orange petals.** FRUIT: Unusual for legume family, the only genus with **single-seeded, flat winged fruit,** yellow-green at first, looking like blossoms, later grey-brown, fibrous, staying on the tree for a long time.

ECOLOGY: An attractive flowering tree whose natural range is Brazil and the mountain forests of Bolivia. Now widely planted from the Mediterranean to the tropics, USA and Australia. It is drought resistant, tolerating a wide variety of soils, including black cotton. In Kenya, it will grow at altitudes from 1,200 to 2,200 m. Agroclimatic Zones III–IV.

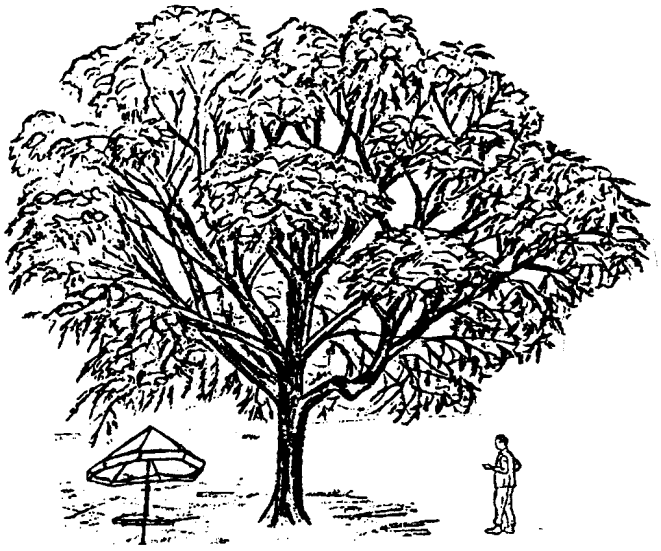
USES: Firewood, charcoal, timber, poles, bee forage, shade, ornamental, nitrogen-fixing, soil improvement.

PROPAGATION: Seedlings (sow seed in pots), wildings, direct sowing at site.

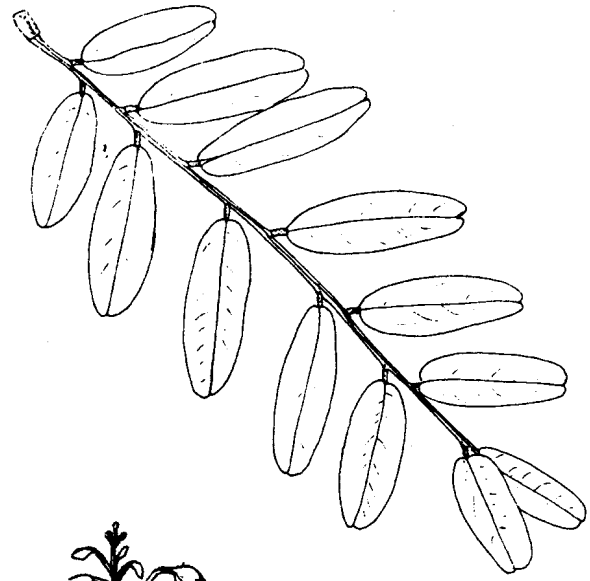
SEED: Seed has good germination rate, often at least 90%; 1,600–2,700 seeds per kg.
treatment: Remove the wing and soak in cold water for 24 hours.
storage: Seed can be stored for up to 3 months at room temperature.

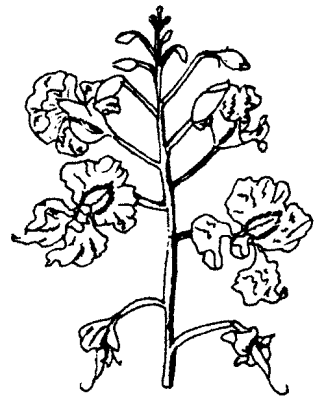
MANAGEMENT: Fast growing; pollarding, lopping, coppicing.

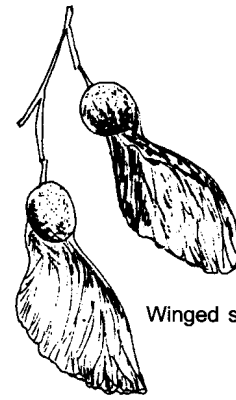
REMARKS: The tree is shallow rooted and so it should not be planted too close to buildings as it is likely to be blown over. In Argentina the timber is highly regarded for furniture and cabinet work. It is finely striped, light coloured and finishes with a high polish. It is not resistant to decay and insects but is well suited for various interior work.



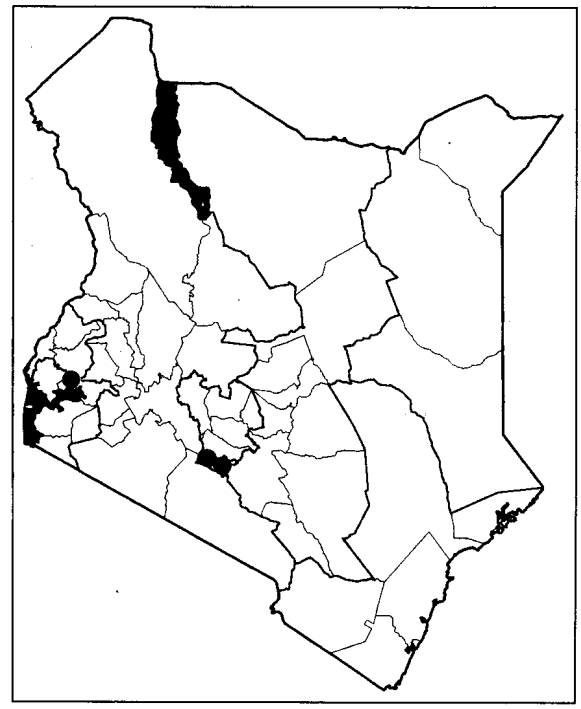
FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Beentje, 1994; Dharani, 2002; Katende et al., 1995; Mbuya et al., 1994; National Academy of Sciences, 1979; Noad and Birnie, 1989.







Winged seed



Tithonia diversifolia

Compositae (Asteraceae)

Central America

COMMON NAMES: **Embu:** Kirurite; **English:** Mexican sunflower, Tithonia; **Kamba:** Ilaa, Mulaa; **Kikuyu:** Maruru; **Kisii:** Amaua amaroro; **Luhya:** Maua amalulu; **Luhya (Bukusu):** Kamaua, Kiming'ulie; **Luo:** Maua makech, Akech, Maua madongo, Mauwa; **Teso:** Emaua.

DESCRIPTION: A woody herb or climbing shrub **1–3 m.** LEAVES: Opposite or alternate along most of the stem, 3–5 lobed (upper leaves usually unlobed), margin toothed, 5–17 x 3–12 cm, with a pointed tip. Leaves with **many hairs on the lower side giving them a grey appearance**. Leaf veins parallel. FLOWERS: Yellow, on terminal heads. **Similar to the well-known sunflower but smaller.** The **flower disc is about 3 cm in diameter** and has yellow petals 4–6 cm long. Each mature stem may bear several flowers at the top of the branches. FRUIT: The lightweight seed can easily be dispersed by wind, water and animals.

ECOLOGY: Introduced from its area of origin in Central America to many other parts of the world. In Kenya, it is found in Western and Central Provinces as well as in coastal areas and parts of Rift Valley; 550–1,950 m. Initially introduced as an ornamental garden plant, but escaped and now grows in hedges, along roads and on other disturbed ground. Agroclimatic Zones II–IV. Flowers and seeds throughout the year.

USES: Fodder (leaves for cattle and goats during the dry season), medicine (leaves), ornamental, live fence, boundary marking, mulch, soil improvement.

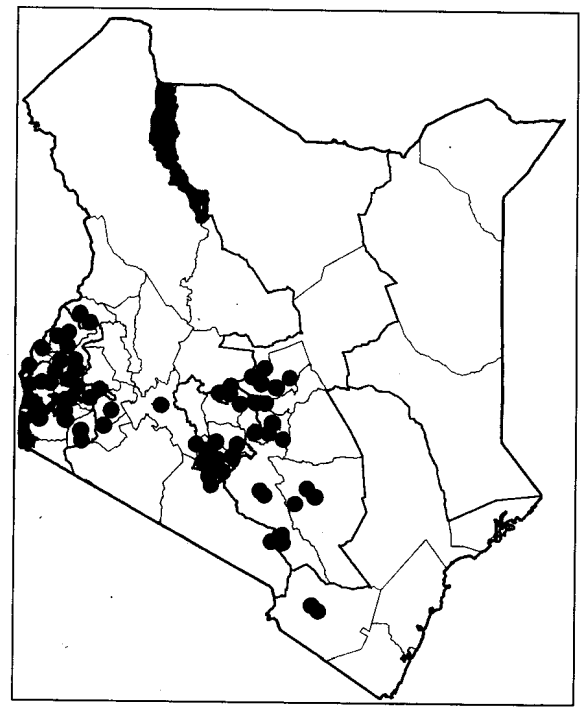
PROPAGATION: Cuttings, wildings, seedlings, direct sowing at site. For direct sowing, care should be taken so that the tiny seeds are not washed away. The best method is to make a furrow for the seeds and then cover them lightly with sandy soil and finally apply mulch to protect soil and retain moisture. Cuttings (20–30 cm long) from mature wood can also be used.

SEED: There is rarely any need to raise seedlings in a nursery. It is cheaper to use wildings, cuttings or direct sowing; a prolific seeder.
treatment: None.
storage: Seeds can be stored for long periods.

MANAGEMENT: *Tithonia* has been tried extensively in research as a plant for green manure with encouraging results. It is recommended to harvest leaves and soft twigs, chop them into pieces, spread them on the soil and either leave them to decompose on the soil surface or incorporate them into the soil. Wait at least a week after application before crops are planted. Maize and other seed may not germinate well if planted immediately. The leafy biomass contains good amounts of several nutrients (notably phosphorus), and application has resulted in a significantly higher yield (usually doubled) as compared with controls without application. The impact on bean yields is even more significant. A constraint to implementation is that collecting and spreading the required amounts of biomass is labour demanding. The plant coppices.

REMARKS: Scientists recommend increased use of *Tithonia* as green manure with or without addition of inorganic sources of phosphorus (TSP, DAP or rock phosphate). The plan is invasive, hence a potential weed.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Backes and Ahenda, 1998; Beentje, 1994; Blundell, 1987; Kokwaro, 1993.



Toona ciliata

Meliaceae

Tropical Asia, Southern China, Himalayas

COMMON NAMES: **English:** Toon tree.

DESCRIPTION: A semi-evergreen tree, usually 10 m but may reach 21 m, with **large branches** to a spreading crown. BARK: Grey-brown, rough and cracking into squares. LEAVES: Compound, very long, up to 90 cm, with 10–14 pairs of leaflets, narrow leaflets up to 15 cm long, **often unequal-sided,** tapering to a fine tip, smell of onions when crushed. FLOWERS: Very small, white, **bell-shaped, in inconspicuous sprays.** FRUIT: **Brown capsules, split open into dark brown star shapes** releasing small winged seeds.

ECOLOGY: Toon originates from tropical Asia. In Kenya, it grows on a variety of sites, but it prefers well-drained soils. It is competitive with other trees as well as with crops. Sets seeds easily and is naturalized, 0–1,800 m. Agroclimatic Zones III–IV.

USES: Firewood, charcoal, timber (joinery, light construction, boxes, carts), furniture, flooring, veneer, boat building, medicine (bark, leaves), shade, ornamental, windbreak, dye (flowers), insect repellent (bark extract).

PROPAGATION: Direct sowing at site, wildings, seedlings. Produces root suckers if roots are disturbed.

SEED: Toon is a prolific seeder. In season, the seeds lie on the ground like termite wings and are easy to collect. No. of seeds per kg 300,000–380,000; germination rate 40–80%.

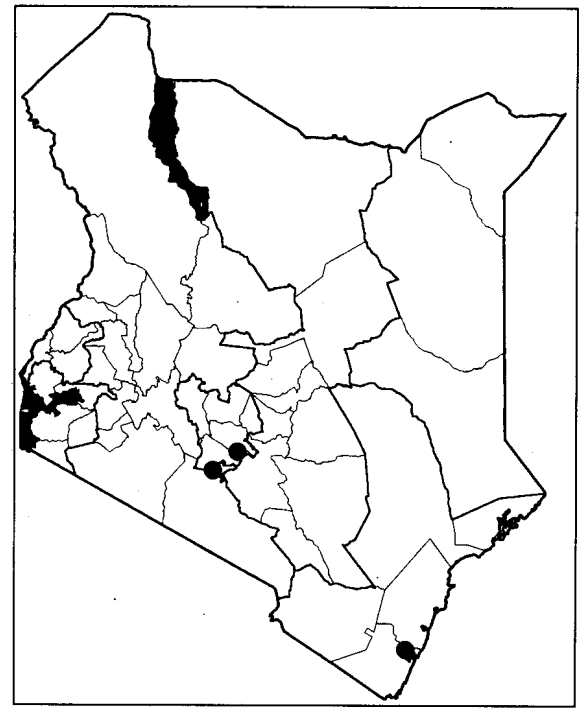
treatment: Not necessary, but must sow seed with wing up.

storage: Seed can be stored in airtight containers if kept cool, but lose viability within 3 months at room temperature. Best to use fresh seed.

MANAGEMENT: Fast growing; coppicing, pollarding.

REMARKS: The plant is very aggressive and invasive and is not suitable for planting in gardens or near food crops because of its shallow and aggressive root system. The red wood is soft, light and moderately durable. The tree can withstand drought if well established.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Katende et al., 1995; Noad and Birnie, 1989; Palgrave and Palgrave, 2002; Storrs, 1979.



Trema orientalis (*T. guineensis*)

Ulmaceae

Asia

COMMON NAMES: **Digo:** Mbonobono; **English:** Charcoal tree, Gunpowder tree; **Giriama:** Mzunguzungu, Mutsugutsugu; **Embu:** Mubebu; **Kikuyu:** Muhethu; **Kipsigis:** Poponet; **Kisii:** Omonyia; **Luhya:** Musakala; **Luhya (Bukusu):** Kumuniopo; **Maasai:** Olawoshai; **Meru:** Muethu; **Pokomo:** Mhahe, Mbarabara; **Samburu:** Lnyalikoi, Lositet; **Sanya:** Magugu; **Swahili:** Mpesi; **Taita:** Mwensu; **Taveta:** Mbaranyungu.

DESCRIPTION: A shrub or much-branched tree to 12 m. BARK: Light grey, smooth, branchlets hairy. LEAVES: **Alternate along drooping branchlets,** to 14 cm long, rough and dull above, **hairy below**, the **edge finely toothed** all round, the **blade unequal-sided.** FLOWERS: Small, yellow-green, separate male and female flowers. FRUIT: **Small, round and fleshy, black when ripe, 4–6 mm,** containing one black seed in green flesh.

ECOLOGY: *Trema orientalis* has a pan-tropical distribution but is believed to have originated in Asia, where it is widely distributed from the western Himalayas to the Pacific, extending into China, southern Japan and to Queensland, Australia. In Africa, from Senegal and Sudan to the Cape in higher-rainfall areas, up to 2,200 m. Found in riverine forest or forest margins as a pioneer that quickly invades clearings and disturbed well-drained soils. Widespread in Kenya from the coast to Lakes Turkana and Victoria but not in the north-eastern part of the country. It is a common plant around Nairobi. Birds are very fond of the fruit and disperse the fleshy drupes. Regenerates profusely through its numerous seeds and is a common colonizer of disturbed rainforest. Agroclimatic Zones II–IV. Flowers and fruits year round.

USES: Firewood, charcoal, poles, posts, medicine (bark, leaves), fodder (leaves, fruit), bee forage, shade, ornamental, mulch, soil conservation, insect repellent, tannin, dye, veterinary medicine.

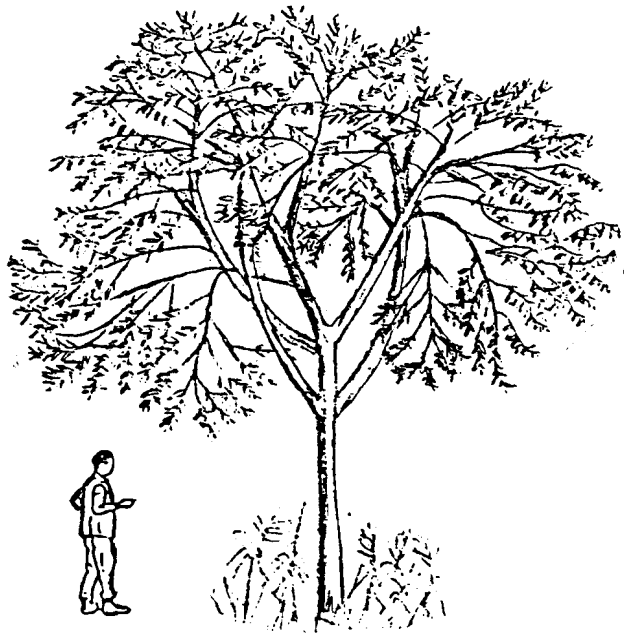
PROPAGATION: Seedlings, cuttings.

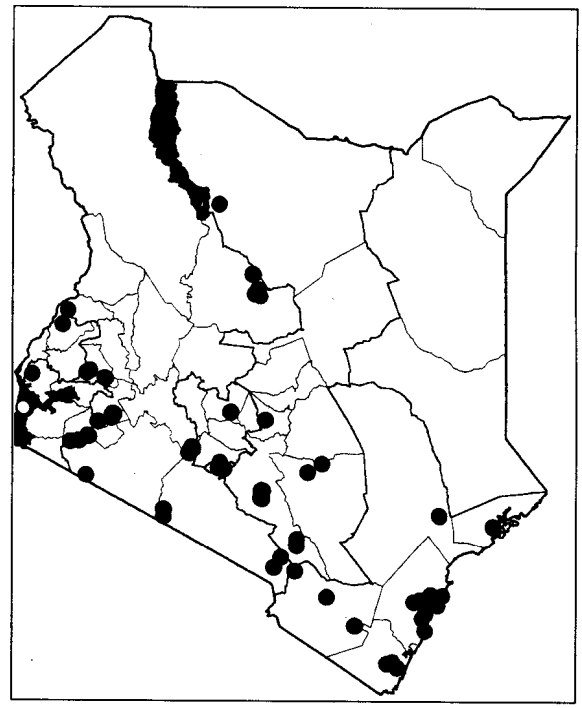
SEED: About 370,000 seeds per kg; germination rate 30–75%; 70% of seeds may germinate within 10–30 days. **treatment:** Not necessary. **storage:** Viability can be maintained for 6 months in airtight containers at room temperature.

MANAGEMENT: Very fast growing. May attain 1 m within 6 weeks of germination; coppicing.

REMARKS: A host tree for many butterflies. The timber is soft and of poor quality. It does not compete with crops. Both bark and leaves contain a saponin, a tannin and sugar and have been used for de-worming and as cough medicine.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Backes and Ahenda, 1998; Beentje, 1994; Dharani, 2002; Katende et al., 1995; Kokwaro, 1993; Mbuya et al., 1994; National Academy of Sciences, 1980; Noad and Birnie, 1989; Palgrave and Palgrave, 2002; Sommerlatte and Sommerlatte, 1990; Storrs, 1979.





Trichilia emetica (*T. roka*)

Meliaceae

Indigenous

STANDARD/TRADE NAME: Trichilia.

COMMON NAMES: **Boran:** Anona; **Digo:** Munwa madzi; **English:** Cape mahogany; **Giriama:** Munwa madzi, Mgalana; **Kamba:** Mutuluku, Musambo; **Kikuyu:** Mururi; **Luhya:** Munyama, Musinzi, Irojo; **Luo:** Ochond athuth, Ochond rateng'; **Malakote:** Mufaate; **Marakwet:** Kurteswa; **Meru:** Mutuati; **Orma:** Soke; **Pokot:** Korteswa; **Samburu:** Ilberi; **Swahili:** Muwamaji, Mtimai; **Tharaka:** Mutuati; **Turkana:** Ekuyen.

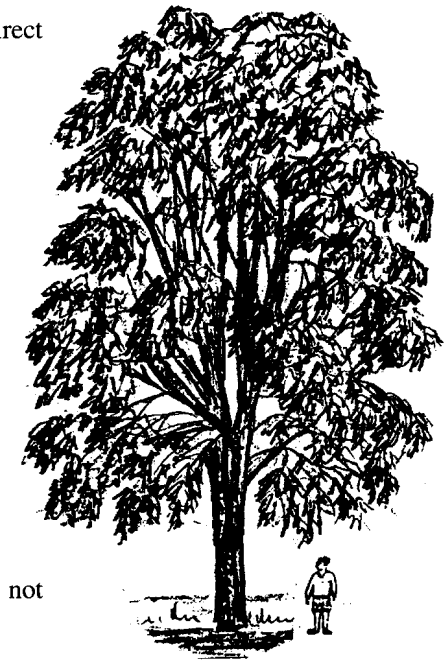
DESCRIPTION: An evergreen tree, 15–30 m, with **dark hanging foliage**, pyramid-shaped when young, later the **crown is rounded and heavy**, the trunk rather smooth. BARK: Grey–red-brown, finely grooved, later rough, scaling to show green underbark. LEAVES: Compound, **stalks and shoots softly hairy,** 4–5 pairs of leaflets, thick and shiny, **leaflets increasing in size up to the largest central leaflet,** which may be up to 16 cm long, **the midrib below continues into an unusual hairy tip.** Leaves brownish green to pale brown, 11–18 pairs of veins below are close together. FLOWERS: Inconspicuous fragrant clusters, cream-green, 5 thick petals around a hairy centre of stamens. FRUIT: Round, **red-brown hairy capsules to 3 cm across, dry and split** into 3–4 parts. **A clear neck to 1 cm long** connects the capsule to the fruit stalk. Up to 6 shiny black seeds hang out of the open capsules, each one almost covered by a soft orange-red aril.

ECOLOGY: An important tree of high forest throughout tropical Africa and also found in riverine savanna. Widespread, often by rivers, in Uganda, Kenya, Ethiopia, Tanzania, south to South Africa, 0–1,450 m. Prefers well-drained, rich soil and high groundwater. There is also a smaller savanna form with corky grey bark. Agroclimatic Zones II–V (riverine in dry areas).

USES: Firewood, furniture, poles, posts, tool handles, carvings, boat building, medicine (bark and roots), fodder, bee forage, shade, ornamental, soil conservation, windbreak, veterinary medicine, oil (seeds), soap (leaves).

PROPAGATION: Seedlings, direct sowing at site, wildings, cuttings from 1-year-old coppice shoots. Also produces root suckers.

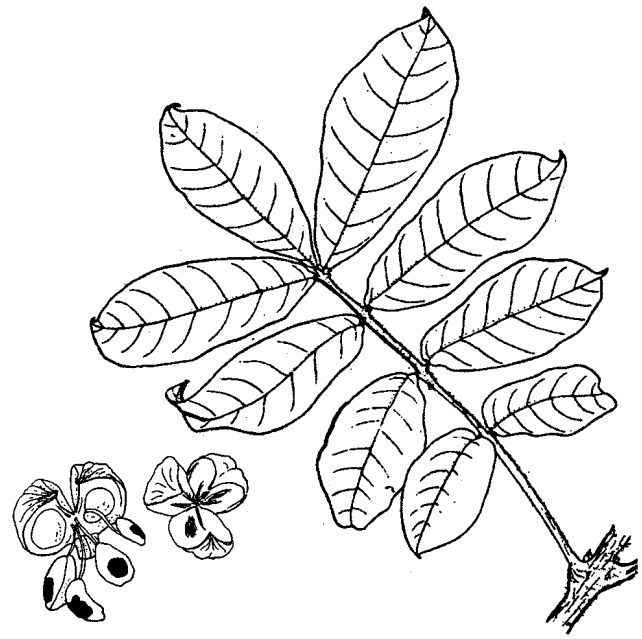
SEED: Collect capsules when they start opening, dry in the shade, shake out the seed. About 300 seeds per kg.
treatment: Remove the soft orange-red aril by maceration in water, then sow fresh seed for best results.
storage: Seeds lose viability quickly (recalcitrant) and should not be dried or stored.

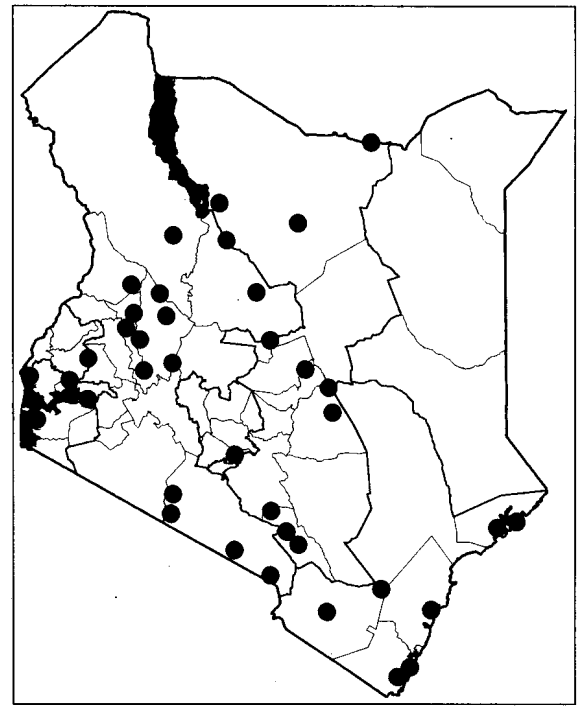


MANAGEMENT: Fairly fast growing; pruning, pollarding, coppicing.

REMARKS: Seeds are extremely poisonous. The tree is highly regarded in central Kenya. Leaves have some soapy properties. The pink–grey–brown wood is light and used for furniture but it is very susceptible to insect attack. The seeds are crushed to produce an oil that is applied to beehives to prevent attack from wood borers and ants. The same oil is used by the Tharaka as a skin moisturizer. Beehives are often hung in the canopy of this tree, producing high-quality honey.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Albrecht, 1993; Beentje, 1994; Bein et al., 1996; Bekele-Tesemma et al., 1993; Blundell, 1987; Dharani, 2002; ITDG and IIRR, 1996; Kokwaro, 1993; Mbuya et al., 1994; Noad and Birnie, 1989; Palgrave and Palgrave, 2002; Ruffo et al., 2002; Storrs, 1979; van Wyk, 1993.





Uvaria acuminata

Annonaceae

Indigenous

COMMON NAMES: **Boni:** Tomur, Tumorr; **Digo:** Mumbweni, Mudzala; **Duruma:** Mdzala; **Giriama:** Murori, Virori (fruit); **Kamba:** Mukukuma, Ngukuma (fruit); **Sanya:** Shiyole; **Somali:** Cirmaan booy; **Swahili:** Mwacha, Mgweni, Mganda simba.

DESCRIPTION: A **liana or shrub**, to 5 m, with spreading slender flexible branches. BARK: Dark brown, smooth. LEAVES: To 8 cm long, widest in the middle or towards the tip, **base rounded to slightly heart-shaped**, tip usually pointed, sparingly hairy to densely **hairy beneath**. FLOWERS: **Pale yellow, solitary or in 2s**, positioned at branch tips or on the sides above or opposite leaves. Petals 6 (1.3 cm long); 3 sepals covering flower in bud. FRUIT: Split into several **rounded or ovoid units** (monocarps) that form a cluster of up to 15, each monocarp **to 1.6 cm long**, rough skinned, greenish brown, yellow when ripe, constricted between the seeds where multiple. Seeds shiny brown, 1–4 per monocarp but **usually 1**.

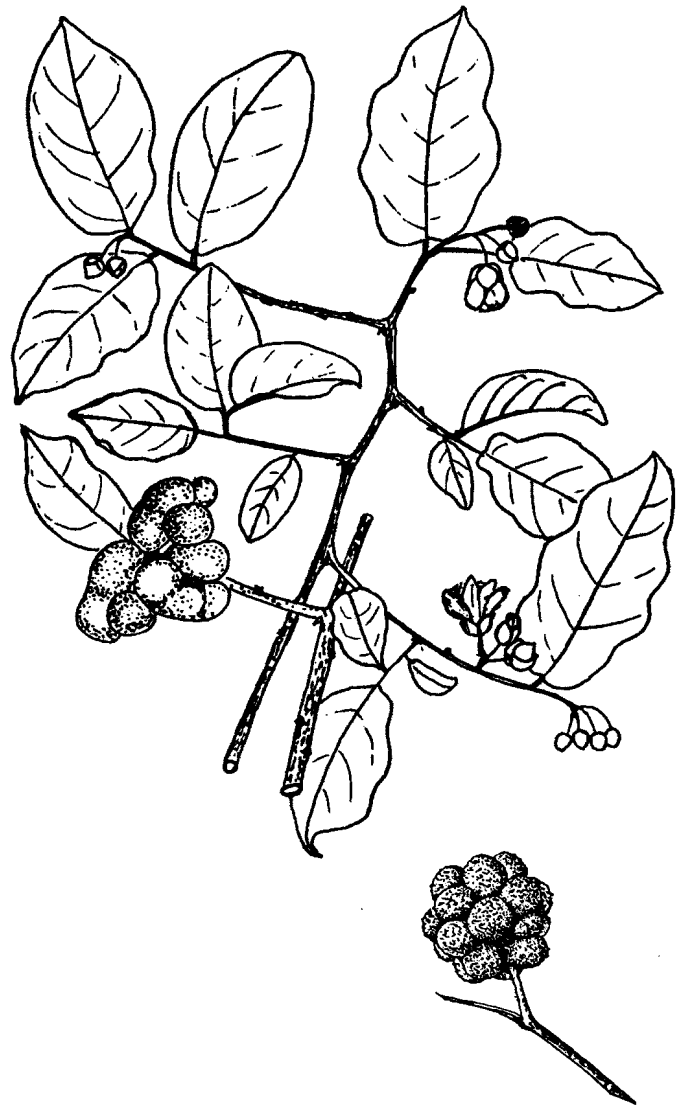
ECOLOGY: It is found in Kenya, eastern and southern parts of Tanzania, including Pemba and Zanzibar, Mozambique and Madagascar. In Kenya, found in Kitui, but mainly in the coastal region, e.g. Lamu, Malindi, Kilifi, Kwale and Taita-Taveta in bushland, 0–1,400 m. Common in sandy soils, especially red sand. The species is locally common in some areas. Agroclimatic Zones II–III. Flowers in December–January and fruits in May-June at the coast; in July in Kitui.

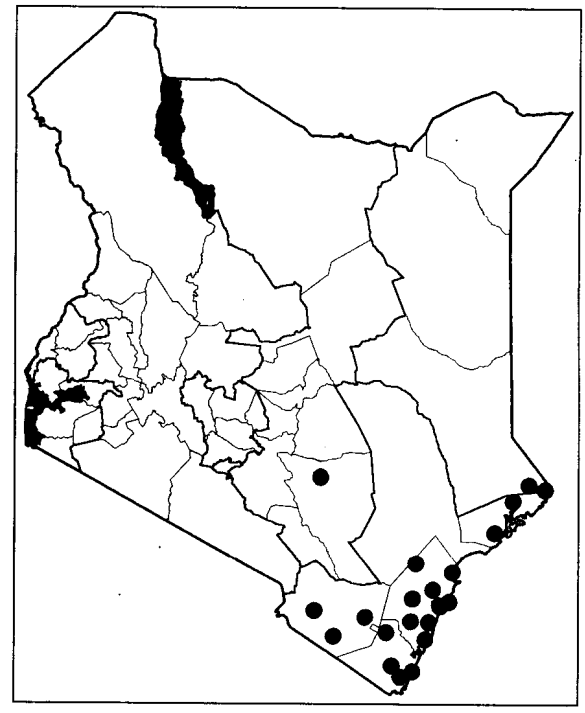
USES: Edible fruits, medicine (roots), twigs for building traditional houses, bows, walking sticks, tool handles, bee forage, live fence, ornamental.

PROPAGATION: Seedlings, cuttings, wildings.

REMARKS: The edible portion of the fruit is small but sweet. It is sucked and the seeds discarded. The branches are used for weaving large baskets and traps. This shrub has potential as a hedge and ornamental plant. The genus *Uvaria* has about 8 species in Kenya. Most of them have sweet edible flesh surrounding the seeds. Besides *U. acuminata*, other important ones are *U. denhardtiana, U. kirkii, U. leptocladon, U. lucida* and *U. scheffleri* (the latter two being treated separately). *U. denhardtiana* (**Bajun:** Kilua, Murukatwa; **Boni:** Halas), is a similar coastal shrub with edible fruits. Leaves are less hairy, often hairless. Monocarps are up to 1.2 cm long and 1–2 seeded with relatively long stalks that may be longer than the monocarps. It is also found in coastal bushland, especially in sand dunes.

FURTHER READING: Beentje, 1994; Maundu et al., 1999; Palgrave and Palgrave, 2002; Ruffo et al., 2002.





Uvaria lucida

Annonaceae

Indigenous

COMMON NAMES: **Boni:** Halas; **Digo:** Mungweni; **Giriama:** Mudzala, Madzala (fruit), Mudzala dowe; **Sanya:** Shilolekorm; **Swahili:** Mganda simba.

DESCRIPTION: A **liana or erect shrub**, 1–7 m, branches slender and **flexible**. BARK: Dark brown, smooth. LEAVES: To 10 cm long, widest in the middle or towards the tip, base rounded, tip pointed or blunt, **hairy beneath**, glossy above, **stalk rusty hairy** and channelled above. FLOWERS: **Yellow-green, solitary or in 2s or 3s**, terminal or on the sides opposite leaves or above them. Petals 6, to 2 cm long. **Calyx cup-like**, splitting into 3 as the flower opens. FRUIT: Split into several finger-like rounded or elongate units (monocarps), each to 3 cm long, **rusty brown**, constricted between the seeds, which are usually 3–6 per 'finger' but may be as many as 12.

ECOLOGY: Distributed from Kenya, through eastern parts of Tanzania to southern Africa. In Kenya, found in the wetter parts of the country, but mainly in the coastal region such as Marafa in Malindi District, Arabuko-Sokoke (Kilifi), Mbololo (Taita-Taveta) and Lamu and Kwale Districts; 0–1,800 m. Grows at forest margins, in riverine forests, *Brachystegia* woodland and coastal bushland. Agroclimatic Zone III.

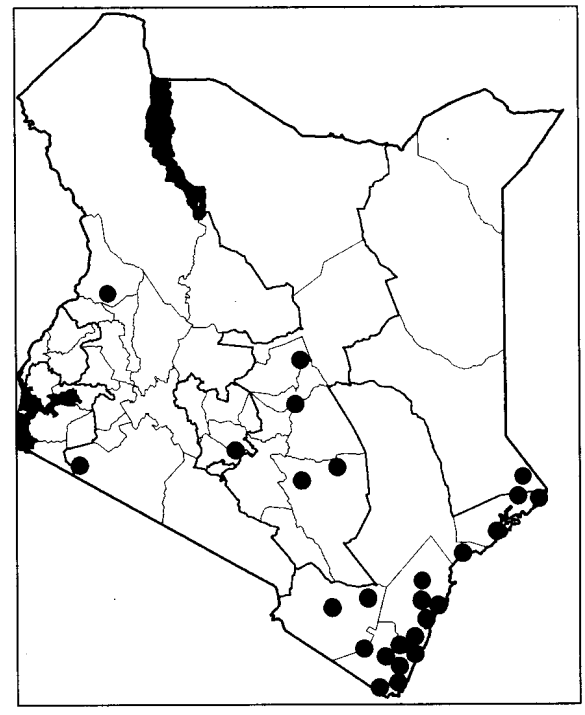
USES: Edible fruits, medicine (leaves), live fence, twigs for building.

PROPAGATION: Seedlings, cuttings, wildings.

REMARKS: The description given here is that of subsp. *lucida*. *U. lucida* subsp. *virens* occurs in southern Africa; its roots are reportedly poisonous.

A closely related species, *U. leptocladon* (**Malakote:** Mosholole; **Orma:** Sholole; **Pokot:** Mulksion; **Somali:** Sholole), is a shrub found in drier forests and bushland from the coast to western Kenya. Leaves are pale and softly hairy beneath to almost hairless in some inland plants. Flowers are small, with petals up to 1.4 cm long. Fruit monocarps are round to ovoid and up to 2 cm long, containing up to 9 seeds each. The species is medicinal. *U. kirkii* (**Swahili:** Mcho, Mchofu, Msofu) is a coastal species found in grassland, riverine vegetation, *Brachystegia* woodland and doum palm (*Hyphaene*) grassland. It is more common in the drier north coast, especially Malindi to Lamu. The species is distributed in coastal areas from Kenya, Tanzania, including Pemba and Zanzibar, to Mozambique. Leaves up to 12 cm long and sparsely hairy beneath. Flowers relatively large with **petals up to 4.5 cm long**, the largest of all Kenyan *Uvaria* species. Fruit monocarps oblong with a rough **warty surface** and up to 2.5 cm long with up to 8 seeds. Fruits of this species are also edible. Wood is used for tool handles, and roots are a source of black dye. Flowers provide bee forage. Like many *Uvaria* species, this plant has potential as a hedge and ornamental plant.

FURTHER READING: Beentje, 1994; Maundu et al., 1999; Palgrave and Palgrave, 2002; Ruffo et al., 2002.



Uvaria scheffleri

Annonaceae

Indigenous

COMMON NAMES: **Chonyi:** Mudzaladowe; **Giriama:** Mdzaladowe, Mudzaladowe; **Kamba:** Mukukuma, Ngukuma (fruit), Kilali; **Kambe:** Mudzaladowe; **Keiyo:** Tamangesyat, Tamanges, Tamangesig; **Marakwet:** Malkach, Tomolokwo, Tamalak (plural), Malkatwa; **Pokot:** Tamrenwo, Mikisia, Mulakech; **Somali:** Mareer booy; **Tugen:** Tamingetwo.

DESCRIPTION: A **scrambling** shrub or liana to 5 m or more with long shoots, rarely standing on its own. Stems long, narrow, with short branches at right angles, young shoots extending out of the main bush. BARK: Dark brown on old bark, purplish black on branches. LEAVES: Long, narrow and **glossy without hairs**. FLOWERS: **Borne singly** opposite leaf; bud dull green or brown, golden yellow to cream or yellow. FRUIT: Divided into **finger-like units** (carpels), each to 5 cm long, green, ripening to bright yellow to orange-red. Seeds **shiny brown**, usually **compressed on one side**.

ECOLOGY: Found only in Kenya and northern Tanzania. In Kenya, e.g. in Karura Forest, Kibwezi, Namanga, Sigor, Ong'ata Rongai, Thui Hill (Makueni), Kitui Hills, Kerio Valley on rocky hillsides, bushland, thickets and at forest edges, where it is usually found climbing on other plants. Soils range from red clay to rocky, 900–1,800 m. Agroclimatic Zone III. Fruits all year round, more in August–September (Nairobi, Makueni, Kajiado) and less in February–March.

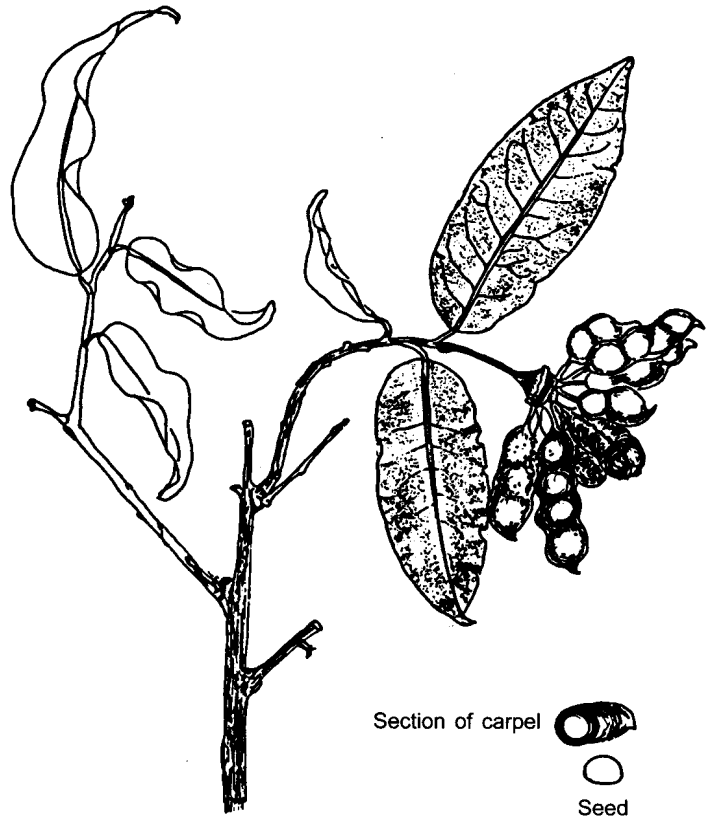
USES: Edible fruits, medicine, ornamental, material for weaving granaries (branches).

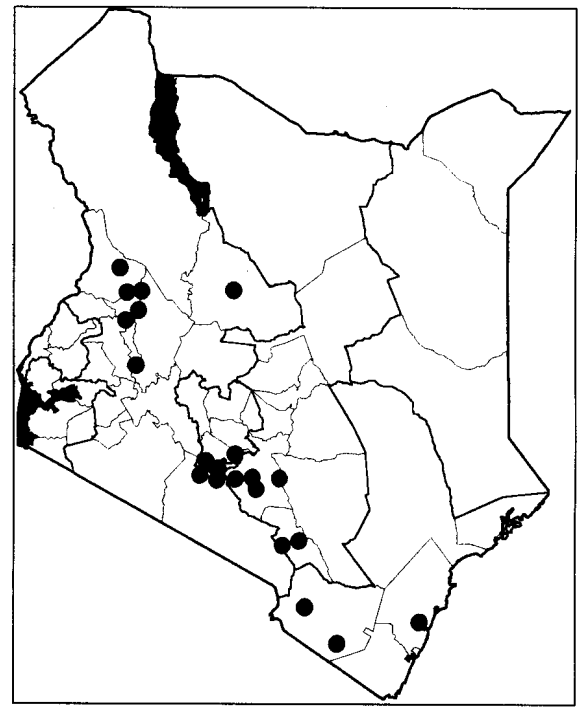
PROPAGATION: Seedlings.

MANAGEMENT: May be planted near fences and hedges to provide support; otherwise staking necessary.

REMARKS: Ripe fruits are edible, sweet and tasty. The seeds, which are enclosed in pulp, are sucked clean then discarded. The soft outer skin may also be eaten. Occasionally, a few of the seeds may be attacked by insect larvae (Kibwezi). A medicinal plant among the Kamba. Narrow stems flexible, used for weaving round structures like grain stores. Smoke from stem wood used for smoking milk gourds (Kamba). May be planted as an ornamental.

FURTHER READING: Beentje, 1994; Kokwaro, 1993; Maundu et al., 1999.





Vangueria apiculata

Rubiaceae

Indigenous

COMMON NAMES: **Boran:** Buruuri; **Digo:** Muvuma; **Kamba:** Mukomoa; **Kikuyu:** Mubiru; **Kipsigis:** Kimolwet; **Kisii:** Omokomoni, Ekomoni; **Luhya:** Shikomoli; **Luhya (Bukusu):** Kumukomosi kumusecha; **Luo:** Anyuka; **Maasai:** Olgumi, Ilgum (plural), Engumi eker; **Pokot:** Toperpirwo, Taparper; **Samburu:** Ikoromosyieoi; **Turkana:** Emaler.

DESCRIPTION: A deciduous shrub or small tree to 6 m. BARK: Smooth grey-brown. LEAVES: **Thin and papery (no hairs),** more or less oval, **the tip pointed, about 13 cm x 6 cm with 7–11 main veins** each side of the midrib, vein network clear below, stalk only 0.7 cm, stipules at nodes quite thin, 0.8 cm long. FLOWERS: Beside leaves, **green–white–yellow in much-branched bunches,** tiny, tubular. FRUIT: Green, becoming yellow-brown, **rounded 17–22 mm long,** edible.

ECOLOGY: A widespread species in evergreen forests, near water or in bushland from Ethiopia to Zimbabwe. In Kenya, e.g. at Chepararia (West Pokot), Loima Hills (Turkana), Homa Bay and Kisii in evergreen forest, riverine and wetland forests or in bushland or thickets, often on termite mounds and rocky outcrops, 900–2,500 m. Agroclimatic Zones III–IV. Fruits in July–August in West Pokot. Flowers in April–May and in October and fruits in July–September and November–December in Bungoma.

USES: Firewood, ornamental, shade, withies (for houses), utensils, edible fruit.

PROPAGATION: Direct sowing at site, wildings, seedlings.

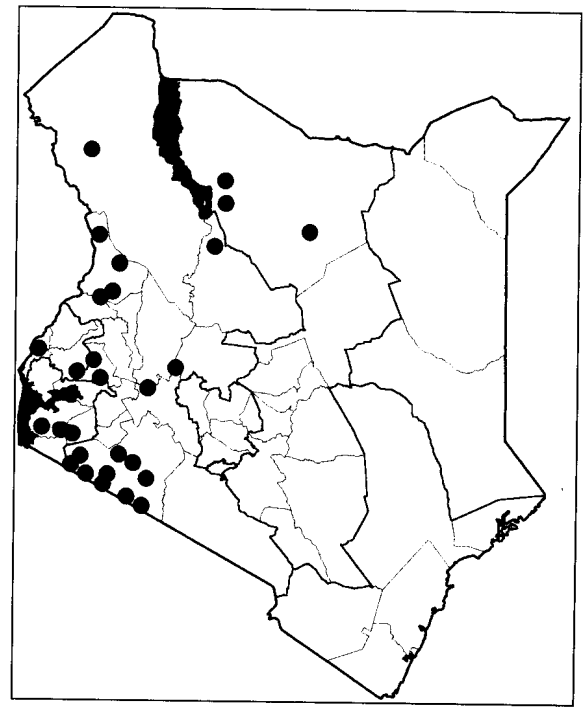
SEED: Seed can be obtained after eating the fruit or collected where the fruits have fallen on the ground. **treatment:** If fruits are collected they must be crushed and the seeds separated and cleaned from the pulp. **storage:** Sow immediately after seeds are extracted from the fruit.

MANAGEMENT: Coppicing, pollarding.

REMARKS: This species has a bushy habit and therefore needs regular pruning. Intercrop with other fruit trees in cropland or plant as a backyard fruit tree. The glossy leaves make it a potential ornamental plant.

A related species is *V. volkensii* (syn. *V. linearisepala*) (**Kamba:** Mukomoa; **Keiyo:** Komoluet; **Kikuyu:** Mubiru, Mubiru ng'ombe; **Kipsigis:** Kimolwet, Kimolwet ne ming'in; **Luo:** Anyuka; **Maasai:** Olgumi; **Marakwet:** Komohro, Tabirirwo, Tabirir (plural); **Mbeere:** Mukomboiru (Nthawa), Mubiruiaru (Mavuria, Embu); **Meru:** Muiru; **Ogiek:** Muluet, Maldai; **Pokot:** Tapirpirwa; **Samburu:** Ngururusia, Ngururusi, Lgumi, Lmuldai (Mathew's Range); **Taveta:** Mdaria). This is a tree to 6 m high, often with arching branches at maturity. Leaves are velvety hairy. Flowers are pale greenish yellow, often with hairs on the throat of the corolla tube. The fruit is round, up to 3 cm in diameter, green turning brown on drying. This species is found in Ethiopia and Sudan south to Rwanda and the Democratic Republic of Congo. In Kenya it is found from Moyale and Mathew's Range in the north southwards to Taita-Taveta and west to western Kenya. It occurs at evergreen forest margins, particularly with *Juniperus* and *Podocarpus*, in riverine forests and thickets and bushland. It is often found in rocky places and on termite mounds, 900–2,500 m. The fruit is sweet with an acid taste. The wood is hard and used for constructing small structures. Leaves are eaten by goats. It can be grown easily from seeds. Agroclimatic Zones II–IV. Flowers in March–April in Taita-Taveta, Machakos, Trans Nzoia and Kericho and fruits appear in August–September. Fruits in October in Kakamega and in December in Laikipia.

FURTHER READING: Backes and Ahenda, 1998; Beentje, 1994; Katende et al., 1995, 1999; Kokwaro, 1993; Maundu et al., 1999; Palgrave and Palgrave, 2002; Ruffo et al., 2002.



Vangueria infausta (V. rotundata, V. tomentosa) Rubiaceae

Indigenous

COMMON NAMES: **Digo:** Mviru; **English:** False medlar, Wild medlar; **Giriama:** Mviru, Muviru, Maviru (fruit); **Kamba:** Mukomoa, Muteleli; **Keiyo:** Kimolwet; **Kipsigis:** Kimolwet, Kimolonik; **Kisii:** Omokomoni; **Luhya:** Shikomoli; **Luhya (Bukusu):** Kumukhomosi; **Luhya (Maragoli):** Mukhomoli; **Luo:** Anyuka (Homa Bay), Apindi (Siaya); **Maasai:** Olgumi, Engumi etari (Loita); **Mbeere:** Mbiruiru, Mukomora; **Meru:** Mubiru; **Nandi:** Kimolwet; **Pokot:** Komolwo, Komol (plural); **Samburu:** Ikoromosyoi, Ikoromosien; **Sanya:** Bombo; **Swahili:** Mviru; **Taita:** Mboghombogho; **Tugen:** Komolwet (plant), Komolik (fruit); **Turkana:** Emaler.

DESCRIPTION: A deciduous hairy shrub or shapeless tree to 8 m, with a short trunk and hanging branchlets. BARK: Pale grey-brown, peeling in untidy flakes, **branchlets hairy.** LEAVES: Dull green, broadly oval, to 30 cm, but generally much smaller, **both surfaces velvety hairy,** base rounded, veins conspicuous below; **midribs, stalks and shoots covered with hairs** that may dry yellow or rust coloured, stipules long between young leaves. FLOWERS: Small, **densely hairy,** in crowded, **branched heads** to 3 cm long, petals yellow-green, falling early to leave 5 triangular sepals, less than 2 mm long, on the young green fruit; buds pointed, hairy. FRUIT: Rounded, green, **glossy, about 4 cm across,** hanging below the leaves, soft brown edible pulp inside when ripe. The fruit bears **a star-shaped scar** from the remains of the calyx, which helps recognition. Dry fruit brown, grooved like a pumpkin.

ECOLOGY: The species is widely distributed in wooded grassland, often in rocky or sandy places, at low to fairly high altitudes from Ethiopia and Central Africa to South Africa. In Kenya, occurs from the coast to the slopes of Mt Elgon. It is common in Kibwezi, Machakos and around Nairobi. The species occurs in a wide range of habitats, in bushland, especially along streams, dry forests, fringing forest, woodland, grassland with scattered trees and rocky bushland, 0–2,450 m. Does well in open as well as partially shaded areas, especially under acacias. Prefers well-drained soils, but can be found in places that are briefly waterlogged during the rainy season. Agroclimatic Zones III–V. Flowers usually produced just before or during the rainy season in April–May in central and eastern Kenya and in August–October in the western parts.

USES: FIREWOOD, POLES (FOR HOUSES), TOOL HANDLES, FARM implements (digging tools), utensils (stirrers), edible fruit and seed kernel, medicine (leaves, roots), fodder (leaves browsed by goats), shade, ornamental.

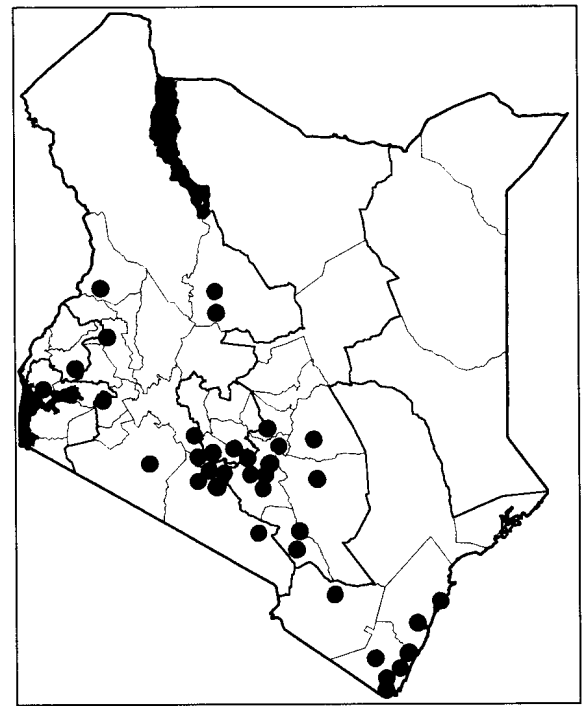
PROPAGATION: Seedlings. Produces root suckers.

SEED: About 500 seed per kg. Hard seed coat, hence scarification may enhance germination. Germination is good; takes 3–4 weeks or even longer.
treatment: Not necessary, but soaking in cold water overnight may speed up germination.
storage: Sow immediately after collection.

MANAGEMENT: Coppicing.

REMARKS: A fairly fast-growing fruit tree. Healthy plants may fruit in about 3 years. Fruits much relished. Pulp added to milk or water to make porridge (Maasai). The fruit can also be dried and then stored. Kept in farmlands in many places for its fruits and as a shade tree.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Beentje, 1994; Kokwaro, 1993; Maundu et al., 1999; Mbuya et al., 1994; Noad and Birnie, 1989; Palgrave and Palgrave, 2002; Ruffo et al., 2002; van Wyk, 1993.



Vangueria madagascariensis (V. acutiloba) Rubiaceae

Indigenous

COMMON NAMES: **Boran:** Buriri (Moyale); **English:** Common wild medlar; **Kamba:** Ngomoa (fruit), Mukomoa, Kikomoa; **Kikuyu:** Mubiru, Mbiru (fruit); **Kipsigis:** Kimolonik, Kimolwet; **Kisii:** Omokomoni, Enkomoni (fruit), Chinkomoni (fruit); **Luhya (Bukusu):** Kumukomosi kumukhasi; **Luhya (Maragoli):** Mukhomoli; **Luo:** Anyuka, Apindi; **Maasai:** Olgumi; **Marakwet:** Komolwo, Komol (plural); **Mbeere:** Mubiru; **Meru:** Mubiru; **Ogiek:** Muluet; **Pokot:** Komolwo; **Rendille:** Irigormosso; **Samburu:** Lkormosiyoi, Lkoromosien; **Swahili:** Mviru; **Taveta:** Mdaria; **Tugen:** Komolik (fruit), Komolwo (plant).

DESCRIPTION: Usually a multi-stemmed deciduous shrub 4–6 m high, occasionally a tree to 10 m. BARK: Pale to dark grey, fairly smooth, becoming scaly when old. LEAVES: Clustered at the end of branches, **large, glossy green, broadly oval to 20 cm,** usually smaller, opposite, the margin wavy, veins clear below; older leaves are almost hairless. **Leafy stipules on young shoots.** FLOWERS: Small, few in **hairy stalked heads, petals green-yellow,** lobes of tubular corolla about 4 mm, 5 lobes of the tubular calyx less than 2 mm long. FRUIT: **Green,** rounded, **to 4.5 cm** across, **often in bunches** of a few, **turning brown and edible when ripe,** containing 4–5 hard seeds. Each seed 1.5 cm long.

ECOLOGY: Widespread in subhumid to semi-arid parts of Africa from West through Central to eastern Africa and south to South Africa. In Kenya, widely distributed in bushland, at forest margins, in riverine vegetation and areas with high groundwater, 0–2,400 m. Sometimes on rocky outcrops and termite mounds. Cultivated for its fruit in many tropical regions. Agroclimatic Zones II–V. Fruits in April-May in Kitui, Kiambu and Narok, and in August–September in Baringo, Kiambu and West Pokot.

USES: Firewood, rafters and withies (twigs) for construction, poles, tool handles, carvings, edible fruit, medicine (roots and bark), bee forage, shade, ornamental, spring traps.

PROPAGATION: Seedlings.

SEED: Hard seed coat. About 500–600 seeds per kg. The ripe fruit is persistent and should be picked directly from the tree. Seeds germinate well but sporadically over a period of up to 6 weeks.

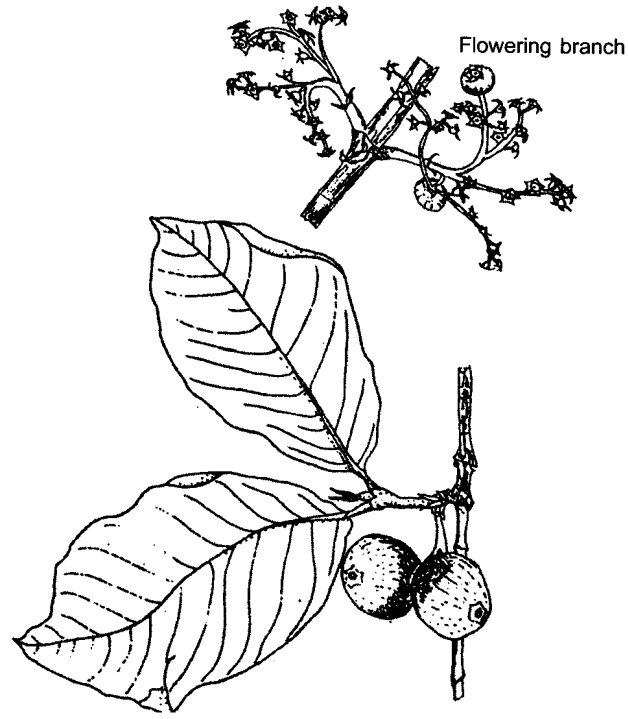
treatment: Not necessary, but soaking in cold water may hasten germination.

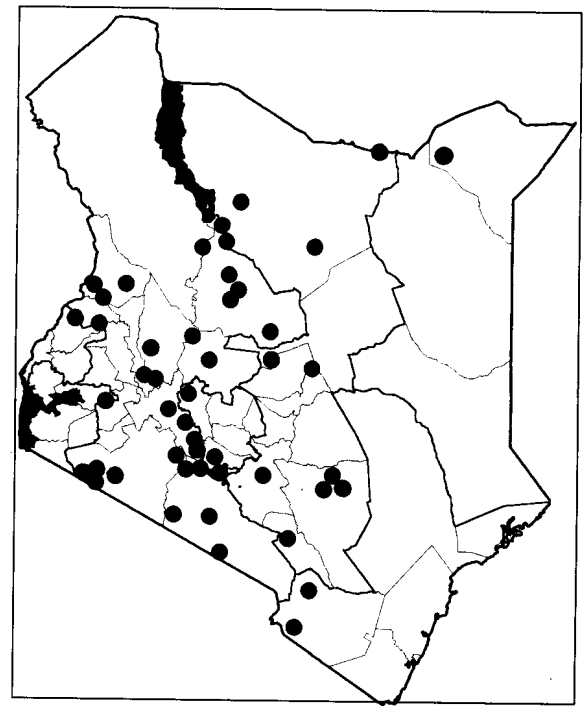
storage: Sow immediately after collection.

MANAGEMENT: Coppicing; weed young trees.

REMARKS: Trees are left when land is cleared for cultivation as the fruits have commercial value. This is a popular fruit, but the skin is tough. It is removed and the pulp-covered seeds sucked. The pulp has a sweet–acid taste. Seeds are discarded. Fruits eaten by elephants.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Backes and Ahenda, 1998; Beentje, 1994; Bein et al., 1996; Katende et al., 1995, 1999; Maundu et al., 1999; Mbuya et al., 1994; Noad and Birnie, 1989; Ruffo et al., 2002; Verheij and Coronel, 1991.





Vepris nobilis (Teclea nobilis)

Rutaceae

Indigenous

COMMON NAMES: Kikuyu: Munderendu; **Kipsigis:** Kuriot; **Luhya:** Mutavo; **Luhya (Bukusu):** Kumutare; **Luo:** Odar (Siaya), Ondati (Migori), Midat, Achacho, Mid; **Maasai:** Olgelai; **Meru:** Muteratu; **Nandi:** Keriondet; **Ogiek:** Koriot; **Samburu:** L'gilai; **Tugen:** Kurionde.

DESCRIPTION: An evergreen shrub or tree 2–12 m, or taller in rainforest, with a crooked trunk and dark, spreading crown. BARK: Smooth, grey, with ring marks. LEAVES: Compound, **3 leaflets** on stalks to 6 cm, leaflets **dark shiny green,** 5–15 cm long, **tapering to the tip, edge wavy,** midrib stands out below, leaf stalks and branchlets **without hairs**. FLOWERS: Very small, **cream-yellow, fragrant,** in loose sprays to 12 cm. FRUIT: **Orange-red and smooth,** becoming wrinkled, very many on a branched stalk to 20 cm, each ovoid, pointed, 5–6 mm, containing one seed.

ECOLOGY: One of the largest trees in this genus, widely distributed in wet highland forests from Ethiopia to South Africa. Widely distributed in Kenya in wet highland forests, particularly in western Kenya, often with *Podocarpus* and *Juniperus,* but nowhere common. Found also in bushland and savanna, Nakuru, Baringo; 900–2,600 m. Agroclimatic Zones III. Flowers in January–March and fruits in March–July in Bungoma.

USES: Firewood, charcoal, timber, poles, posts, tool handles, spear shafts, bows, clubs, walking sticks, medicine (leaves, roots), veterinary medicine.

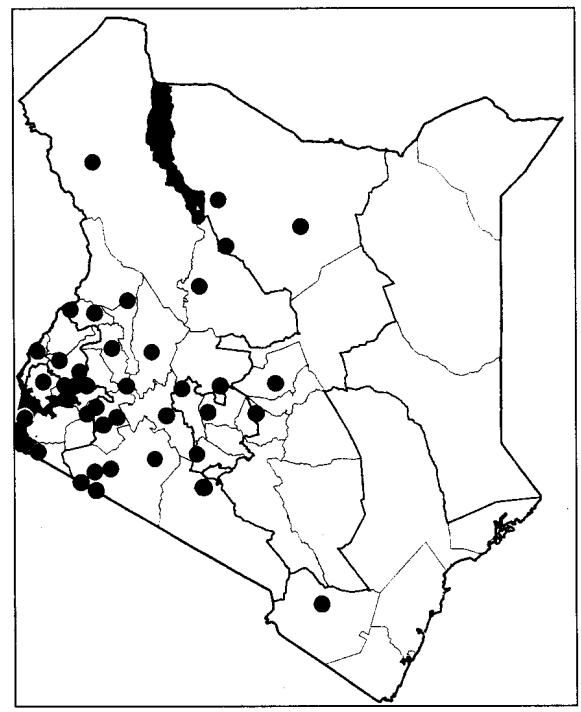
PROPAGATION: Seedlings, wildings.

SEED: Not a prolific seeder; about 20,000 seeds per kg. Low germination rate.
treatment: Not necessary.

MANAGEMENT: Moderate- to slow-growing; pruning, pollarding.

REMARKS: The wood is tough and pale, valued for its strength and durability. The tree can be grown in stands for timber and fuel.

A related species, *V. simplicifolia* (**Boran:** Nfike; **Digo:** Ndimu wa takani; **Kamba:** Mutuiu; **Kikuyu:** Munderendu; **Maasai:** Olgelai; **Samburu:** Ngela) has simple leaves to 15 cm, side veins parallel and clear above, leaf stalk grooved and jointed, over 1 cm, the fruit round, orange-red, attracting birds and monkeys. It is widespread in dry forest and woodland, usually riverine, 0–2,300 m. Agroclimatic Zones III. *V. simplicifolia* has been reported to be poisonous. Its wood is hard and durable; the uses are similar to that of *V. nobilis*.



FURTHER READING: Backes and Ahenda, 1998; Beentje, 1994; Bein et al., 1996; Bekele-Tesemma et al., 1993; Dharani, 2002; ITDG and IIRR, 1996; Katende et al., 1995; Kokwaro, 1993; Mbuya et al., 1994; Noad and Birnie, 1989; Palgrave and Palgrave, 2002; Sommerlatte and Sommerlatte, 1990.

Vernonia amygdalina

Asteraceae (Compositae)

Indigenous

COMMON NAMES: **English:** Bitter leaf; **Kisii:** Omororia; **Luhya:** Musuritsa, Omulusya; **Luhya (Bukusu):** Kumwilulusia, Kumululusia; **Luo:** Olusia, Olulusia; **Nandi:** Cheburiandet; **Sabaot:** Cheburiundet.

DESCRIPTION: A shrub to 3 m, sometimes a small tree to 10 m with a wide bole and brittle branches. Young stems hairy. BARK: Pale grey, flaking later. LEAVES: **Alternate and oval, 10–20 cm long, widest in the middle, tapering both ends,** dark green above, almost hairless, but often with soft pale hairs below, edge usually entire but may be widely toothed. FLOWERS: Tiny, green–white–pink, in small heads, 6 mm across, less than 1 cm long. Very many heads together on **a widely branched stalk, flattened and up to 30 cm across,** sweet scented in the evening. FRUIT: Tiny seeds (achenes) with stiff white hairs.

ECOLOGY: Widely distributed throughout tropical Africa, in humid and subhumid areas. Found in wooded grassland and at forest edges. Often cultivated in West Africa for its leaves. In Kenya, locally common in western Kenya in disturbed areas and abandoned cultivation, where it may form thickets. Also common at forest edges and often left as dispersed trees in pasture land. It is found on light shallow soils, 1,300–2,300 m. Agroclimatic Zones I–III. Flowers in December–March and fruits in March–April in Bungoma.

USES: Firewood, edible leaves (leafy vegetable), medicine (bark, roots, leaves), ornamental, soil conservation, live fence, toothbrushes, stakes (branches), veterinary medicine.

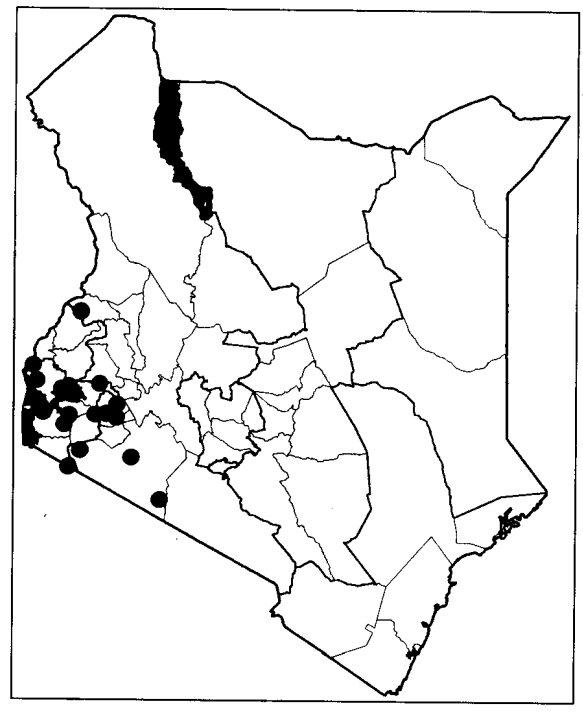
PROPAGATION: Seedlings, cuttings.

SEED: Dry mature flower heads are harvested, dried in the sun, crushed and seeds cleaned by winnowing. About 850,000 seeds per kg. Low germination rate.
treatment: Not required.
storage: May be stored for a short time.

MANAGEMENT: Medium- to fast-growing; coppicing.

REMARKS: The branches resist termite attack, making them useful for fences, support for earth works and stakes. A very important plant in Central and West Africa, where it is cultivated for its use as a vegetable. Over 40 other species of *Vernonia* are known to exist in Kenya. Many of them are, however, annuals or woody herbs. A notable species is *V. myriantha*, a large forest-edge shrub or small tree occurring mainly in western Kenya with large stalkless leaves and large terminal bunches of white to mauve flowers.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Backes and Ahenda, 1998; Beentje, 1994; Bein et al., 1996; Bekele-Tesemma et al., 1993; Fichtl and Adi, 1994; ITDG and IIRR, 1996; Katende et al., 1995, 1999; Kokwaro, 1993; Maundu et al., 1999; Palgrave and Palgrave, 2002.



Vitex doniana Verbenaceae

Indigenous

Standard/Trade name: Black plum, Vitex.

COMMON NAMES: Chonyi: Fudu (fruit); **English:** Black plum; **Kambe:** Fudu (fruit); **Kikuyu:** Muhuru; **Kipsigis:** Mulkelwet; **Kisii:** Mutahuru; **Luhya (Bukusu):** Kumufutu, Chifutu (fruit); **Luhya:** Muholu, Kumufutu, Omufutu; **Luhya (Tachoni):** Chifutu (fruit), Omufutu, Yifutu (fruit); **Luo:** Oyuelo, Jwelu, Kalemba; **Mbeere:** Muburu; **Pokot:** Tirkirwa; **Sabaot:** Bulgelwa, Pulgelwet; **Swahili:** Mfudu; **Teso:** Ewelo, Ekarukwei.

DESCRIPTION: A semi-deciduous tree to 14 m with a **heavy rounded crown** and a clear bole. BARK: Pale brown or grey-white, with long fissures and scales. LEAVES: Opposite and compound, digitate (like fingers), **leathery, hairless** and shiny, each leaflet widest towards the tip and stalked; terminal leaflet to 15 cm long, tip rounded or sharp, lower leaflets smaller. FLOWERS: Fragrant, in long-stalked bunches to 9 cm, **cream to white with one hairy mauve lobe**; the calyx enlarging to a hairy cup around the fruit. FRUIT: **Oblong to 3 cm,** green, marked with white dots, **black when ripe,** edible starchy black pulp around a single hard stone. Often dispersed by monkeys and baboons.

ECOLOGY: A semi-deciduous tree found in the more humid areas of tropical Africa, including the Comoro Islands, Sudan and Ethiopia, and widespread in eastern Africa south to South Africa. In Kenya, found mainly in the western parts of the country but also in central Kenya and on the south coast, where it is rare. A tree of wooded grassland, coastal woodlands and forest edges, mostly 1,200–1,950 m. Occurs on a variety of soils, but usually on alluvial ones. Agroclimatic Zones I–III. Fruits in July–August and in December–February in Bungoma.

USES: Firewood, charcoal, timber, poles, carvings, edible fruit, medicine (fruits, young leaves, roots), fodder (leaves, fruits, seed), bee forage, shade, mulch, boundary marking, dye.

PROPAGATION: Seedlings, direct sowing at site, wildings, root suckers.

SEED: 1,000–1,100 stones per kg. Each stone has 1–4 seeds (multi-germ).

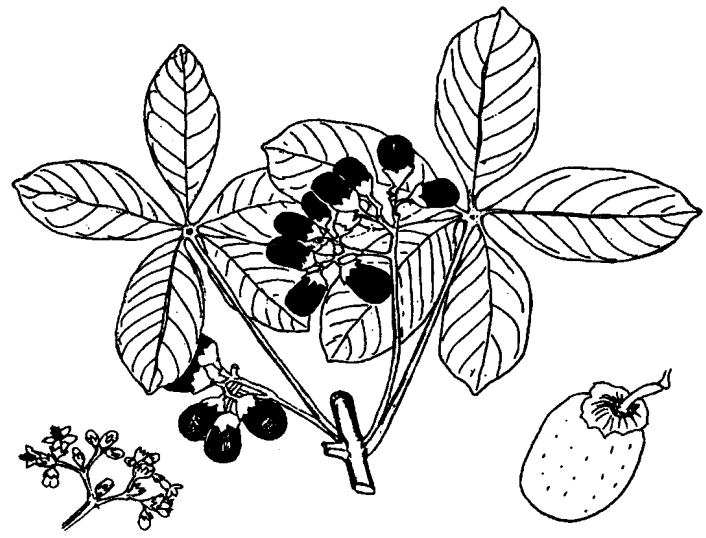
treatment: Remove fleshy part of the fruit and immerse stone in warm but not hot water, allow to cool and soak for 24 hours. Without treatment, seeds germinate after a long time.

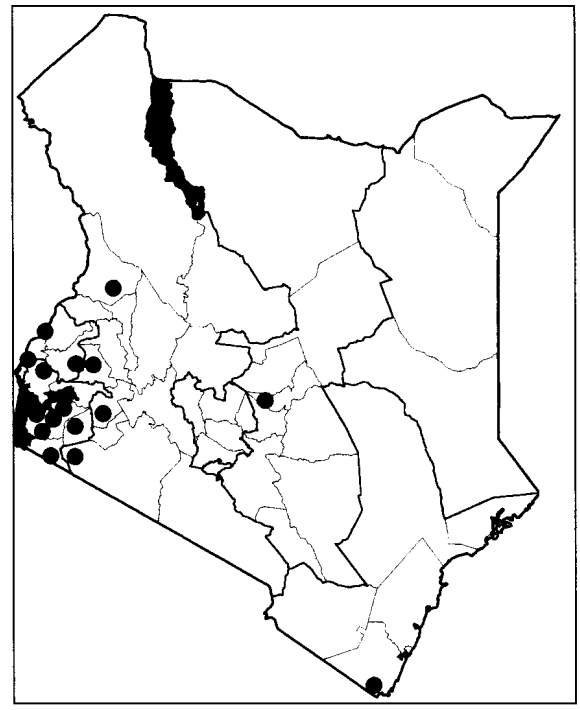
storage: Sow fresh seed for best germination.

MANAGEMENT: Medium growth rate; pruning. Several seedlings may germinate from one stone. Can be separated and pricked out.

REMARKS: The ripe black fruit is eaten raw and has a sweet taste. The timber is yellowish white with an even grain, easy to work and fairly durable. Fruits are among the best of all the edible *Vitex* species and are often sold. Cultivation of the tree should be encouraged.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Backes and Ahenda, 1998; Beentje, 1994; Bekele-Tesemma et al., 1993; Katende et al., 1995, 1999; Kokwaro, 1993; Maundu et al., 1999; Mbuya et al., 1994; Palgrave and Palgrave, 2002; Ruffo et al., 2002; Sommerlatte and Sommerlatte, 1990; Storrs, 1979; von Maydell, 1990.





Vitex keniensis

Verbenaceae

Indigenous

STANDARD/TRADE NAME: Meru oak, Kenya oak.

COMMON NAMES: English: Meru oak; **Kikuyu:** Muhuru; **Meru:** Muuru.

DESCRIPTION: A **tall deciduous tree to** 35 m with a heavy rounded crown and **a clear, straight bole.** BARK: Grey to pale brown with narrow vertical fissures, dark brown with age. LEAVES: Compound, digitate (like fingers), with 5 leaflets, up to 25 cm long on a long hairy stalk. Leaflets widest at the middle and often unequal at the base; light green and sandpapery above, pale green and densely **hairy beneath**, largest leaflet to 21 cm long. FLOWERS: Small, to 8 mm long, borne on loose, branched side heads, to 18 cm long, creamy white, each flower with one large prominent mauve petal. FRUIT: Nearly rounded, about 1.5 cm long, **black** when ripe, the hairy calyx remaining. Each fruit with one stone. Black ripe fruits fall to the ground.

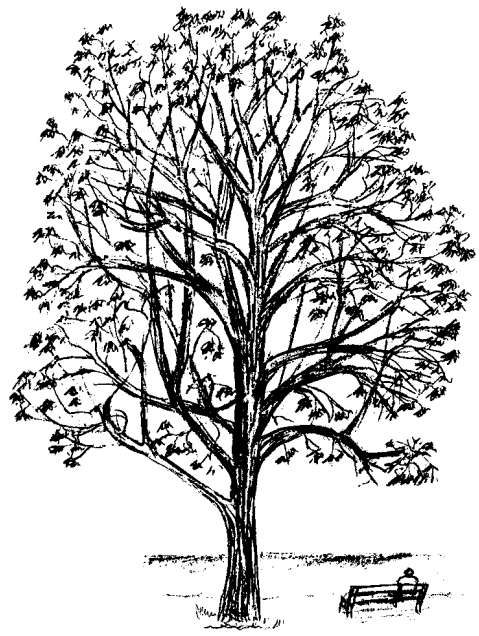
ECOLOGY: A Kenyan tree occurring in a restricted range from 1,300 to 2,100 m on the eastern slopes of Mt Kenya (Meru) and possibly in Ngangao forest, Taita. Prefers deep red to sandy-loam soils. Agroclimatic Zones II–III. Fruits in October around Mt Kenya. Flowers in December and January in Nairobi.

USES: Firewood, timber (high quality), poles, furniture, veneer, panelling, edible fruit, ornamental, windbreak, shade.

PROPAGATION: Seedlings, wildings.

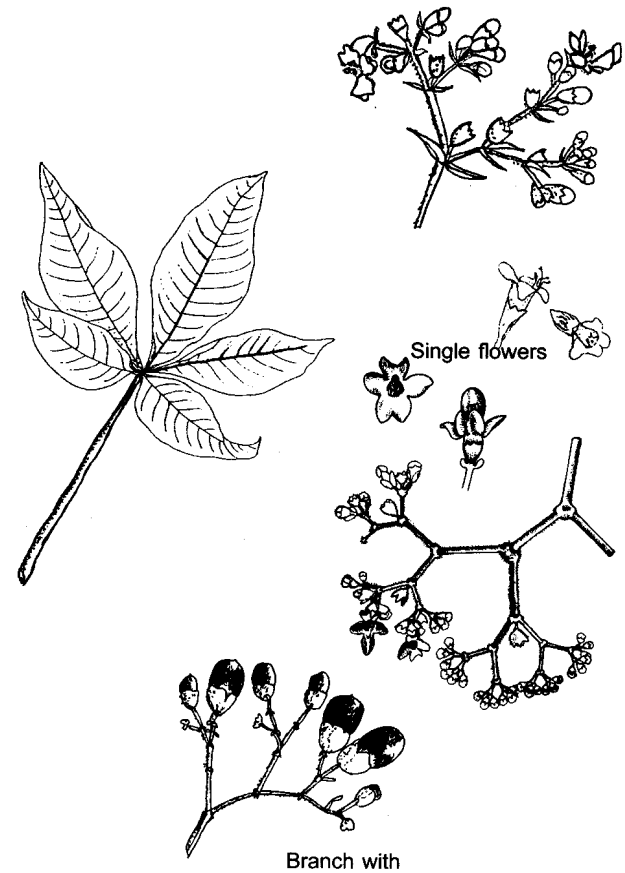
SEED: The tree produces plenty of seed. Germination rate about 50%. About 2,500 stones per kg. Each fruit has one large stone, which bears 1–4 seeds (multi-germ).
treatment: Not necessary, but soaking in cold water improves germination.
storage: Preferable to use fresh seed.

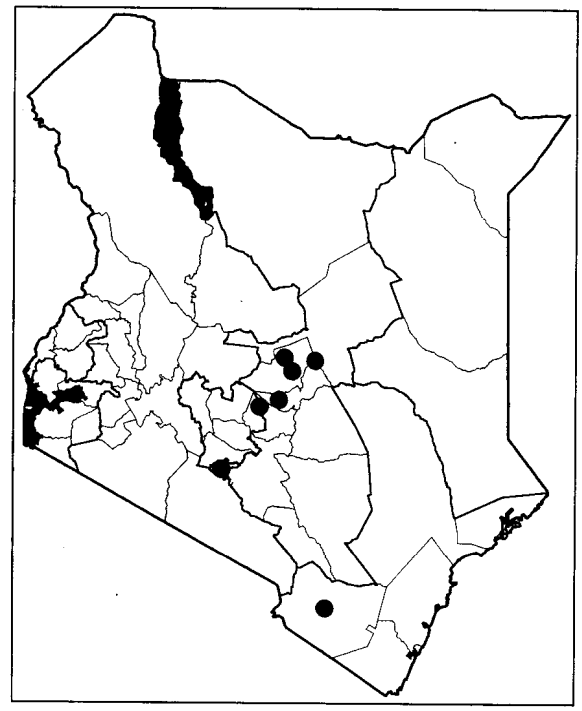
MANAGEMENT: Prune to get a clear bole. Several seedlings may germinate from one stone. Can be separated and pricked out. Coppicing.



REMARKS: The tree has become rare due to over-exploitation; planting should be encouraged. The timber is hard and durable, pale yellow to light brown with darker heartwood and a wavy grain. The fruits are eaten only in emergency; not as good as those of *V. doniana.*

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Albrecht, 1993; Beentje, 1994; Dharani, 2002; Mbuya et al., 1994; Noad and Birnie, 1989.





Vitex mombassae

Verbenaceae

Indigenous

COMMON NAMES: **Boni:** Mkalijote, Mogalishat; **Chonyi:** Mfudu madzi, Fudu (fruit); **Digo:** Mfudu madzi; **Sanya:** Mkufu; **Somali:** Marfis; **Swahili:** Mfudu maji.

DESCRIPTION: A small deciduous tree or shrub, usually 3–6 m, occasionally to 10 m. BARK: Light grey, fissured longitudinally. Younger stems rusty hairy. LEAVES: Opposite, each with 3–5 leaflets, usually 5, terminal leaflet 4–12 cm. Leaflets widest at the middle or towards the tip, **usually without a stalk**. Softly hairy, more so beneath, where it is rusty hairy. **Leaf buds with short brown hairs.** FLOWERS: Few on side-branched flowering heads, white or pale blue to mauve, small to 8–14 mm, each with 5 unequal lobes, middle lower lobe largest and mauve. Borne in dense heads with a long, common stalk arising beside leaves. FRUIT: Usually in bunches, each nearly round, to 3 cm long, green, turning **brownish black to black** and soft skinned on ripening, **clasped by green calyx lobes that enlarge on fruit.** Fruit has one large hard stone.

ECOLOGY: Found in the Democratic Republic of Congo and Kenya south to South Africa. In Kenya, limited to Mombasa, Shimba Hills, Gazi and elsewhere at the coast in bushland and wooded grassland, 0–450 m. Prefers well-aerated soils, usually in sandy soils. Rainfall 850–1,000 mm. Agroclimatic Zones II–IV. Flowers in March and September–October in Kwale and Kilifi.

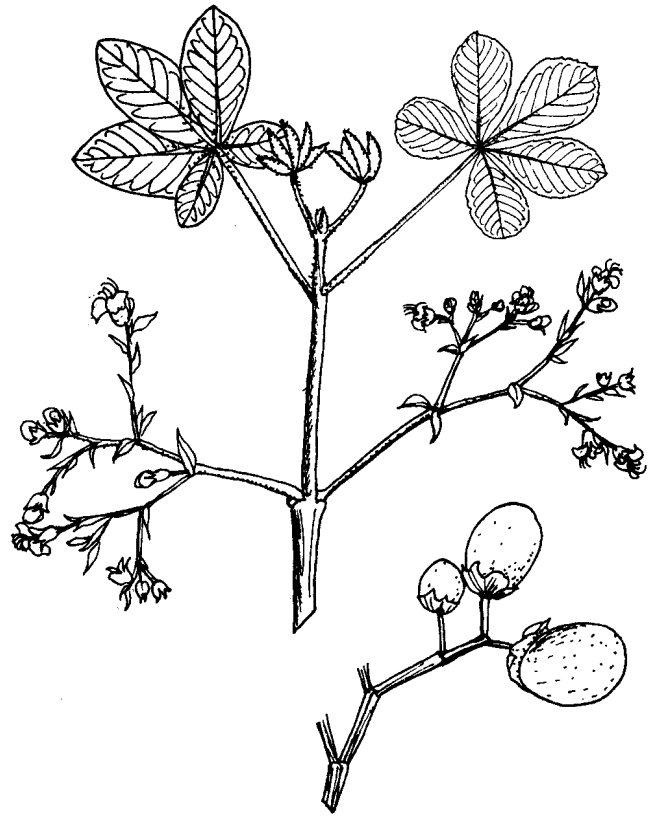
USES: Firewood, poles, tool handles, utensils (wooden spoons), pestles, edible fruit, shade, ornamental, bee forage.

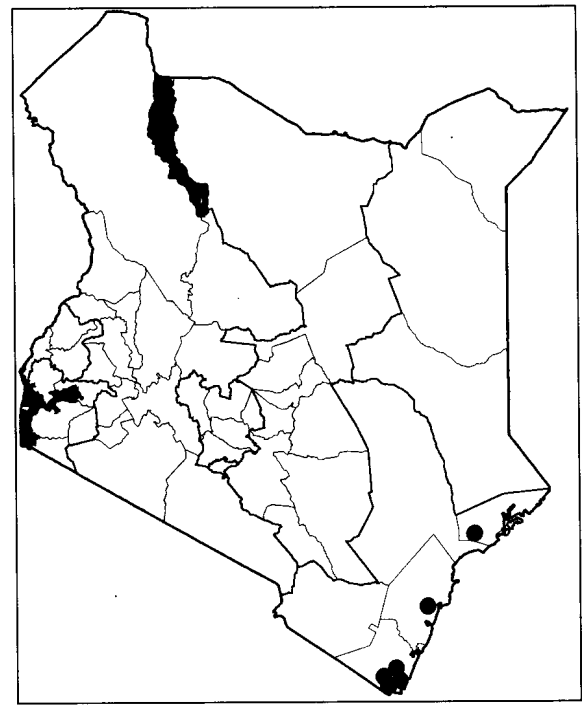
PROPAGATION: Seedlings.

SEED: Each stone has 1–4 seeds (multi-germ).
treatment: Not necessary, but soaking in cold water improves germination.
storage: Preferable to use fresh seed.

REMARKS: The tree may be common locally. Fruits are more watery than those of *V. payos*, hence the local names. They are said to be sold in central and southern Tanzania. This species is closely allied to *V. ferruginea* (**Boni:** Mkalijote, Mogalishat; **Chonyi:** Mfudu madzi, Fudu madzi (fruit); **Digo:** Mfudu; **Giriama:** Mfudu madzi; **Sanya:** Muki ku'faa; **Somali:** Marfis; **Swahili:** Mgegi), a small deciduous shrub or tree of coastal bushland. In *V. ferruginea* leaflets are hairless or velvety rusty hairy below. The fruit is up to 3.5 cm long, green, turning brownish black on ripening. It is also edible. Fruits found from December to January. The wood of the two species is popular for making household utensils.

FURTHER READING: Beentje, 1994; Maundu et al., 1999; Palgrave and Palgrave, 2002; Ruffo et al., 2002; Storrs, 1979.





Vitex payos

Verbenaceae

Indigenous

COMMON NAMES: **Chonyi:** Mfudu unga, Fudu unga (fruit); **Digo:** Mfudu; **Embu:** Muburu, Mburu (fruit); **English:** Black plum; **Giriama:** Mfudu; **Kamba:** Kimuu, Muu (fruit); **Kambe:** Mfudu unga, Fudu unga (fruit); **Mbeere:** Muburu; **Meru:** Muuru; **Swahili:** Mfudu, Mfufu.

DESCRIPTION: A small deciduous tree to 8 m high with a low, sparsely branched, rounded crown and square branchlets. BARK: Grey-brown, **deeply fissured**. Younger stems with a rusty, woolly bark. LEAVES: Opposite, each with **5 leaflets**, occasionally 3, terminal leaflet 7–20 cm. Leaflets usually widest towards the tip, occasionally without a stalk but the larger leaflets sometimes with a winged stalk, roughly hairy above, softly hairy beneath. **Young leaflets densely hairy**, especially beneath. FLOWERS: Small, to 6 mm, with 5 unequal-lobed, middle lower lobe largest. Borne in dense heads with a long common stalk arising beside leaves, white, pale blue or mauve, fragrant. FRUIT: Usually in bunches, each shortly cylindrical, to 2.5 cm, **clasped by a persistent calyx cup**, green, **dotted with lenticels**, turning **brownish black to black** and soft skinned on ripening. Stone hard, grooved.

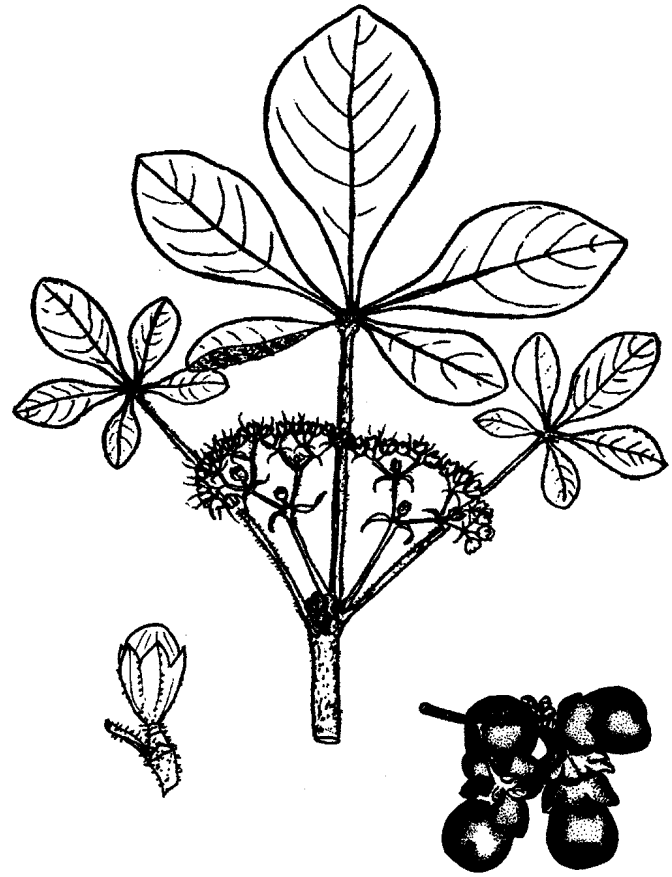
ECOLOGY: Found in Kenya, Tanzania, Zimbabwe, Mozambique and Malawi. In Kenya, it grows, for example, in Kitui, Embu, Machakos, Kilifi and Kwale in hot, low and semi-arid areas, in wooded grassland, 0–1,600 m. Prefers well-aerated soils, often in sandy soils, less often red and rocky ones. Associated with steep rocky areas. May flower when leafless and may produce profusely. Rainfall: 650–850 mm. Agroclimatic Zones III–IV. Flowers in November–December in Machakos, Makueni and Embu, in March and September–October in Kwale and Kilifi. Fruits in April–June in Kitui, Makueni and Embu.

USES: Firewood, poles, tool handles, utensils (wooden spoons), edible fruit, shade, ornamental.

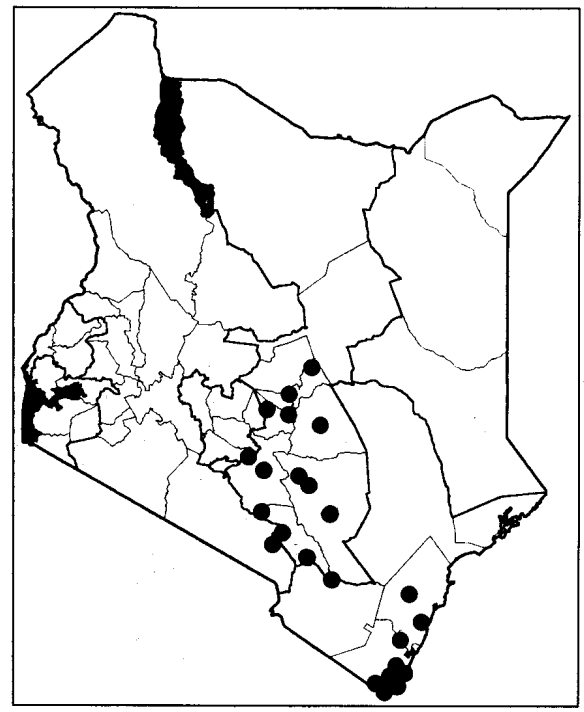
PROPAGATION: Seedlings. The seeds do not germinate easily and wildings are difficult to find.

REMARKS: The ripe fruit has a black pulp that is mealy, sweet and edible. The fruit is sold in some markets in Eastern Province such as in Kitui, Mutomo and Ishiara. Ripening is accelerated by covering mature green fruits in ash (Kamba). Dry stems are very hard, but snap under tension. Straight trunks used for poles. The tree may be common locally and is very attractive when in full bloom. A related species, *V. fischeri* (**Kuria:** Omuhuruhuru; **Luhya (Bukusu):** Kumufutumbwe; **Luhya:** Mufutumwe; **Luo:** Jwelu), also has edible, purplish black fruits but they are smaller, to 12 mm. This tree, to 15 m, occurs only in western Kenya, e.g. in Nyanza, Western Province and around Mt Elgon. The 5 leaflets are densely hairy below. The wood of the two species is popular for making household utensils.

FURTHER READING: Backes and Ahenda, 1998 (*V. fischeri*); Beentje, 1994; Maundu et al., 1999; Palgrave and Palgrave, 2002; Ruffo et al., 2002; Storrs, 1979.



Ripe fruit



Warburgia ugandensis Canellaceae

Indigenous

STANDARD/TRADE NAME: East African greenheart.

COMMON NAMES: **English:** East African greenheart; **Kikuyu:** Muthiga, Muthaiga; **Kipsigis:** Moissot, Sogoet, Soke; **Kisii:** Omenyakige; **Luhya:** Abaki, Apacha, Apachi; **Luhya (Bukusu):** Kumusikhu; **Luo:** Abaki, Soko; **Maasai:** Osokonoi, Osogonoi; **Marakwet:** Sekwan; **Meru:** Musunui; **Nandi:** Soget; **Ogiek:** Marut; **Tugen:** Sorget, Soke.

DESCRIPTION: An evergreen tree to 25 m with a dense leafy rounded canopy. BARK: **Rough** brown-black, cracked into rectangular scales. LEAVES: **Shiny dark green** above, midrib very clear below, **edge wavy,** to 10 cm long. FLOWERS: Inconspicuous, green to cream. FRUIT: Round to egg-shaped, **to 5 cm long**, on short stalks, green, turning to **purple on ripening,** surface white and waxy. Several flat, heart-shaped seeds inside a pulp.

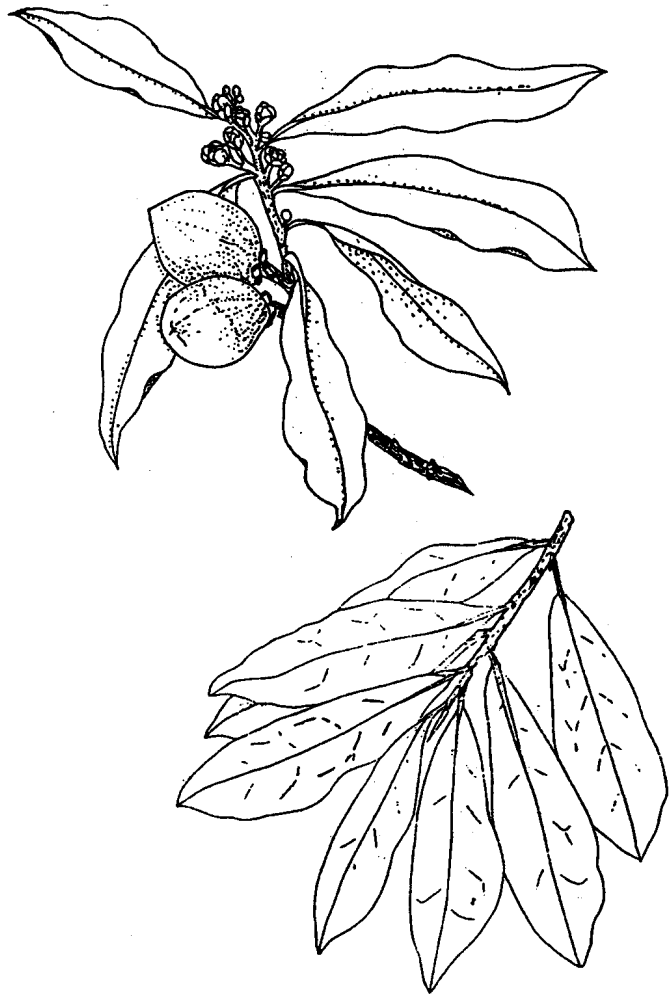
ECOLOGY: The natural range includes Democratic Republic of Congo, Ethiopia, Kenya, Malawi, Tanzania, Uganda and south to South Africa. Widely distributed in lower montane rainforest and drier highland forest areas. Also found in riverine forest and *Acacia xanthophloea* woodland, 1,600–2,400 m. Common around Nairobi, in Maasai Mara, Londiani, Kitale, Sotik, Kericho, Tugen Hills and south-west of Mt Kenya. Agroclimatic Zone III.

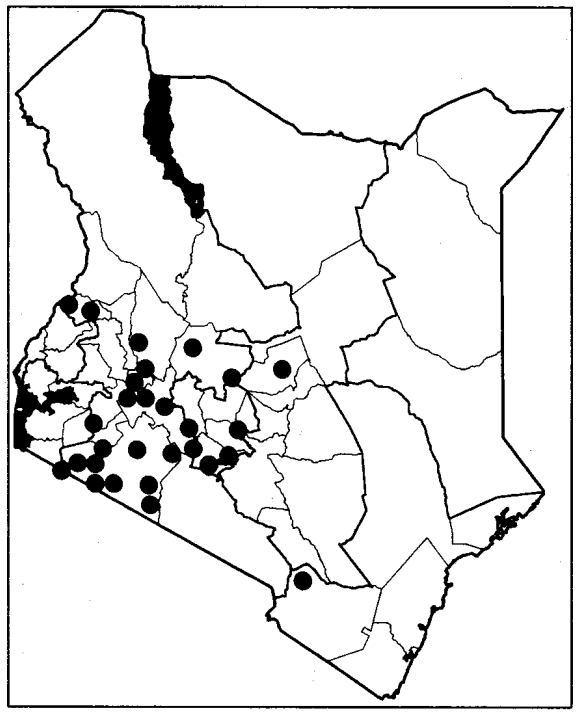
USES: Firewood, timber, furniture, tools, seasoning (leaves in curries), soup (roots), edible fruit, medicine (bark and roots), toothbrushes, shade, ornamental, mulch, resin, veterinary medicine, insecticide.

PROPAGATION: Seedlings, direct sowing at site, wildings, cuttings.

SEED: About 10,500 seeds per kg. Timing of seed collection is important since fruit that has fallen to the ground rot easily. The ripe fruit is collected from the tree or shaken off the branches and collected from the ground.
treatment: Extract and sow seeds fresh for best results. Germination may be within 15 days. Germination rate good, usually over 70%.

storage: Seed cannot be stored (recalcitrant), but storage life can be prolonged a little by mixing with moist sawdust.





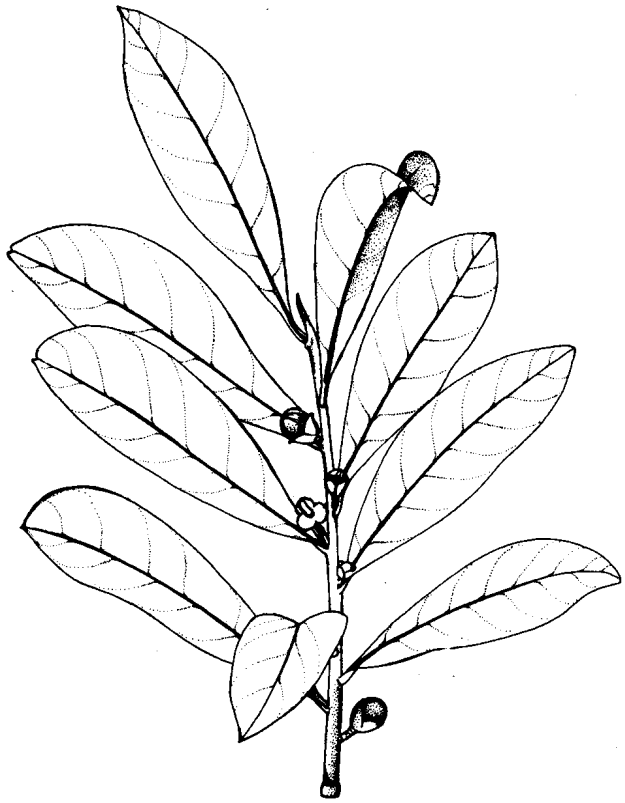
Warburgia ugandensis (cont)

MANAGEMENT: Fairly fast growing in the right conditions; coppicing.

REMARKS: After seasoning the heartwood develops a slight greenish colour, which fades with exposure to light. The wood, though hard and heavy, rots quickly and does not resist termites. It has a high content of oil. This is one of the leading medicinal plants, now under extreme pressure from prospectors of herbal medicine. The leaves and twigs of the tree have a peppery taste. The heartwood contains chemical compounds that discourage armyworms from feeding. The resin is used as glue.

A related species, *W. stuhlmannii* (**Swahili:** Mkaa), is a rare tree of dry coastal forests and wooded grassland. It may grow to 24 m. The fruit and flowers are smaller. The plant is also used for medicine. This species is endemic to parts of Tanzania and the Kenyan coast, e.g. Kaembeni-Dida in Kilifi District, and also near Kinango in Kwale District. *W. salutaris* occurs in southern Africa.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Albrecht, 1993; Backes and Ahenda, 1998; Beentje, 1994; Bekele-Tesemma et al., 1993; Dharani, 2002; ITDG and IIRR, 1996; Katende et al., 1995; Kokwaro, 1993; Mbuya et al., 1994; Noad and Birnie, 1989.



Ximenia americana

Olacaceae

Indigenous

COMMON NAMES: **Bajun:** Mchundakula; **Boran:** Uda, Odda, Dabobes; **Chonyi:** Mtundukula; **Digo:** Mtundukula; **English:** False sandalwood, Sour plum, Tallow nut; **Giriama:** Mtundukula, Tundukula (fruit); **Ilchamus:** Lama; **Kamba:** Mutula, Ndula (fruit); **Kambe:** Mtundukula; **Kikuyu:** Mutura; **Luhya:** Muruli; **Luhya (Bukusu):** Kumutuli; **Luo:** Olemo (red fruit), Olemb ochok (yellow fruit); **Maasai:** Olamai, Engamai, Ilama (plural); **Malakote:** Huda hudo; **Marakwet:** Kunyat, Kunyotwo (plural); **Mbeere:** Mutuura; **Meru:** Muthoroma, Ndoroma (fruit); **Orma:** Huda hudo; **Pokot:** Kinyotwo, Kinyat (plural); **Sabaot:** Mutoywo, Uluteywa; **Samburu:** Lamai; **Sanya:** Hudahuda; **Somali:** Murcud, Mandurcet; **Swahili:** Mtundukula, Mpingi; **Taita:** Mtundukula, Ndundukula (fruit), Mtagashiko; **Teso:** Olimu, Elamai; **Tharaka:** Muroroma; **Turkana:** Elamai.

DESCRIPTION: A spreading, **usually spiny shrub**, occasionally scrambling, or a small tree, to 4 m high (but sometimes to 7 m in var. *caffra*). Spines to 1 cm, thin and straight, leaves and branches with or without hairs. BARK: Brown-black and scaly. LEAVES: Alternate, simple, **often in tufts on short shoots**, oblong, to 6 cm long, blue-green (var. *americana*) to yellow-green, hairless to softly hairy, tip round or notched. FLOWERS: Very fragrant, small green-white in small branched clusters with a common stalk. FRUIT: Oval to 3 cm, shiny, **thin skinned,** light green, turning **yellow, orange or pink-red** on ripening. **Flesh sour** but refreshing. One large yellow-brown seed with up to 60% oil.

ECOLOGY: A species with a pan-tropical distribution found in tropical America, Africa and Asia. Common throughout the African savanna. In Kenya, found from the coast to Nyanza, Rift Valley and northern areas in open sandy woodland (Coast), stony slopes (Rift Valley) and scattered thorn bush in semi-arid zones, 0–2,000 m. Agroclimatic Zones IV–V. Flowers in October–February and fruits in December–February in Bungoma. At the coast, seeds are collected in July–August.

USES: Firewood, rafters, poles, beams, tool handles, utensils, edible fruit, medicine (fruits, leaves, roots), fodder (leaves in the dry season), bee forage, ornamental, shade, tannin (bark, roots), dye (bark, roots), live fence, oil (seed, heartwood), veterinary medicine; fruits are oily and, threaded onto sticks, are used as candles.

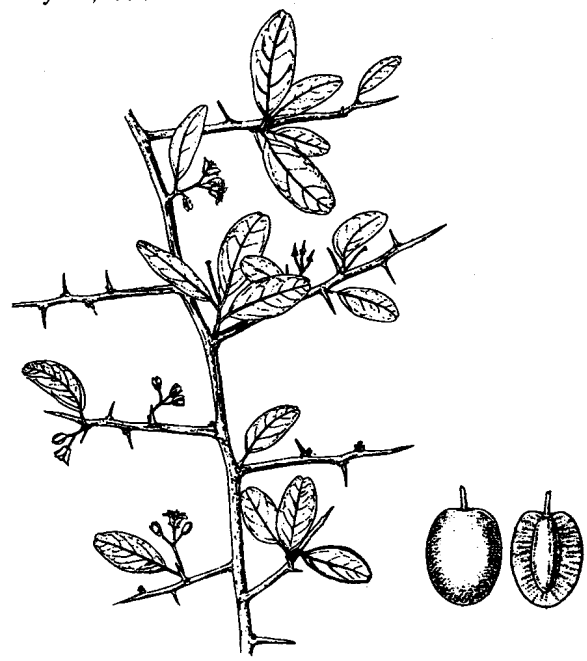
PROPAGATION: Seedlings.

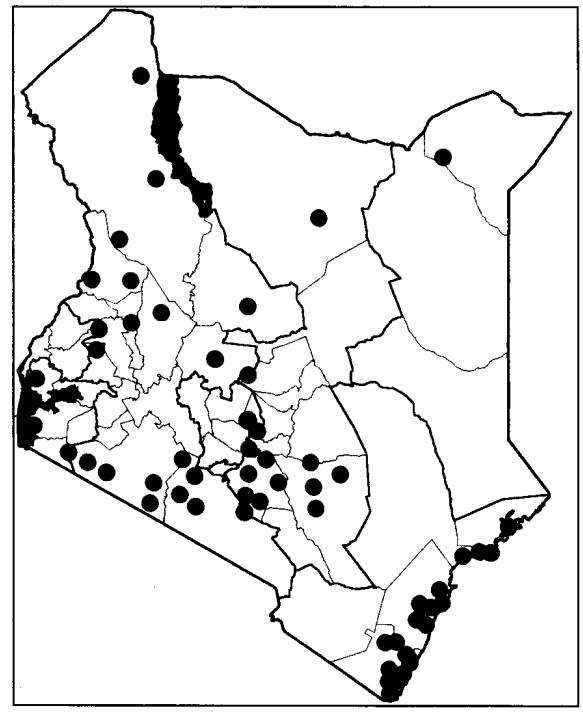
SEED: About 1,400 seeds per kg; 50–60% germination.
treatment: Not necessary.
storage: Seed cannot be stored for long periods. Sow fresh seed for good germination (recalcitrant seed).

MANAGEMENT: Slow growing; pruning, coppicing. Trim if grown as a fence.

REMARKS: This is a very variable species. Variation is more marked in hairiness and shape of leaves, fruit colour and thorniness. Two varieties are, however, recognized in eastern Africa: var. *americana* tends to be more shrubby and has less hairy leaves and young branches than var. *caffra*. It is mainly found at the coast, northern Rift Valley and around the Lake Victoria region. Fruits tend to be orange when ripe. Var. *caffra* is more widely distributed. Leaves and young twigs are more hairy, velvety in some types, and fruits tend to be yellow when ripe. The taxonomy of this species is, however, still unclear. A useful tree for arid and semi-arid areas. The oil from the kernels is suitable for soap and lubrication, and has also been used as body and hair oil and for softening leather (Pokot). The oil is strongly purgative. The wood is heavy, hard and very durable. Leaves contain sambunigrine, a biocide that kills the snail vectors of schistosomiasis.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Backes and A*henda*, 1998; Beentje, 1994; Bein et al., 1996; Bekele-Tesemma et al., 1993; Fichtl and Adi, 1994; Katende et al., 1995, 1999; Kokwaro, 1993; Maundu et al., 1999; Mbuya et al., 1994; Palgrave and Palgrave, 2002; Ruffo et al., 2002; Storrs, 1979; Verheij and Coronel, 1991; von Maydell, 1990.

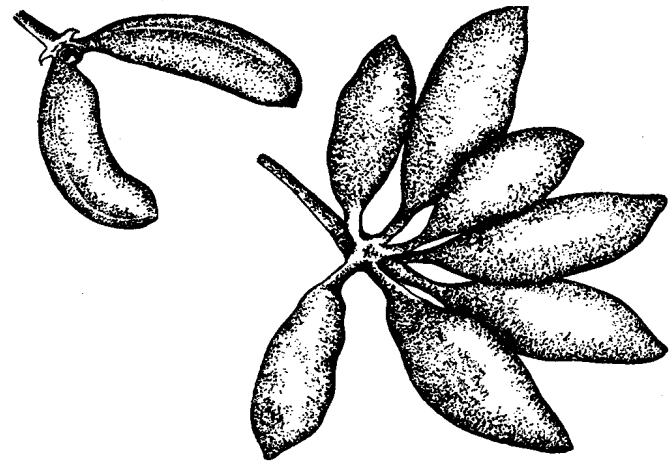


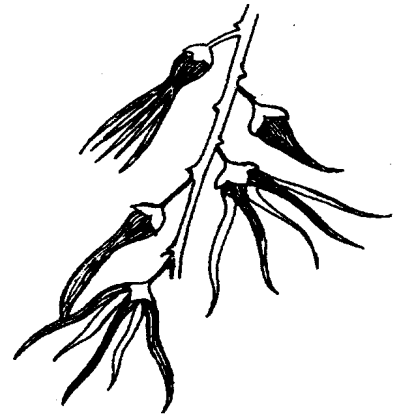


Xylopia parviflora

Annonaceae

Indigenous





COMMON NAMES: **Digo:** Mchiza tsaka; **Giriama:** Mbarawa, Mukuna mbawa; **Sanya:** Muki barawa.

DESCRIPTION: A **tree up to 24 m,** often with a slightly **buttressed trunk**. BARK: Smooth, grey. LEAVES: Widest in the middle, narrow, with **evenly distributed hairs** on the leaf. FLOWERS: Yellow-green, borne on sides of branches, **singly or in a cluster of few**. Sepals 3, petals in 2 whorls of 3 each. FRUIT: Divided into several units (**monocarps**), each red or green and cylindrical, to 4 cm, often shorter.

ECOLOGY: Found from Sierra Leone in West Africa, through Central Africa to Sudan and Kenya and south to Angola and South Africa. Mainly a dry evergreen or semi-deciduous forest species growing on coral rag and sandy soils in coastal Kenya; 0–250 m. Agroclimatic Zones III–IV.

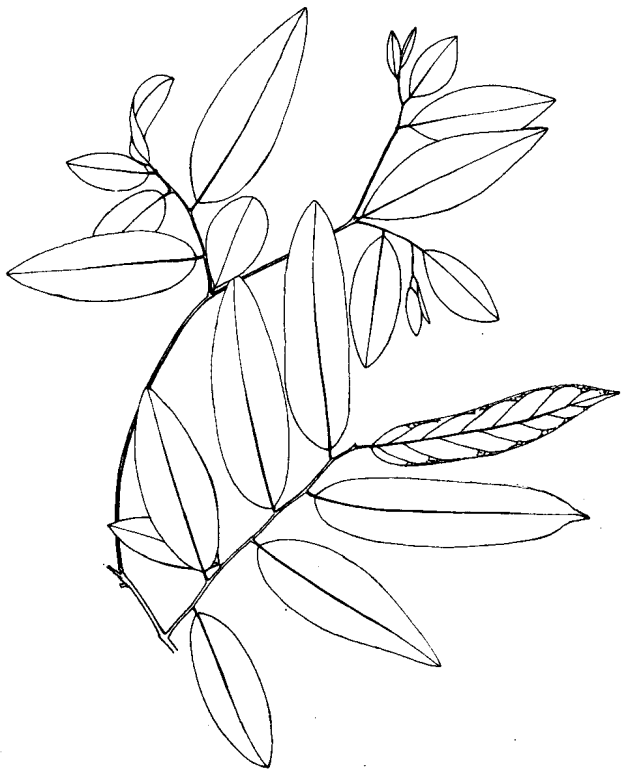
USES: Firewood, timber, poles (house construction), medicine (leaves and roots).

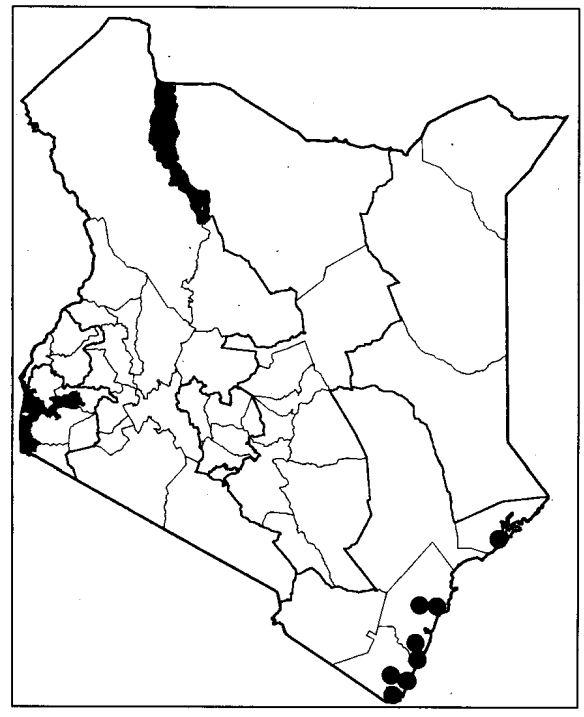
PROPAGATION: Seedlings. Produces root suckers.

REMARKS: Caterpillars feed on the leaves. Like many other related species in this family, the fruit develops into a cluster of free, often many-seeded, pod-like arms, 'monocarps'.

The related *X. aethiopica* (Guinea or Ethiopian pepper) is a tree to 30 m high with a clean bole and smooth grey-to-brown bark. Fruit monocarps are up to 6 cm long. The species occurs in West Africa east to Ethiopia and eastern Africa but is rare in Kenya. In West Africa it is an important source of medicine and is often protected. It is said to have antimalarial activity.

FURTHER READING: Beentje, 1994; Palgrave and Palgrave, 2002.





Zanthoxylum chalybeum (Fagara chalybea) Rutaceae

Indigenous

COMMON NAMES: **Boran:** Gadda; **Chonyi:** Mdungu; **Digo:** Mdungu, Mudhungu; **Embu:** Mugucua; **English:** Knobwood; **Gabra:** Gaddaa; **Giriama:** Mudhungu, Mjafari; **Ilchamus:** Loisuki, Lousukui; **Kamba:** Mukenea, Mukanu (Kitui); **Kambe:** Mdungu; **Kipsigis:** Sagawaita; **Luo:** Roko; **Maasai:** Oloisuki, Oloisugi; **Marakwet:** Songoiywa, Songorurwa; **Mbeere:** Mugucwa, Mukenenga, Muruguci; **Meru:** Mugucua; **Pokot:** Songowo, Songoogh (plural); **Samburu:** Loisugi, Loisuki; **Sanya:** Gadhayu korm; **Swahili:** Mjafari; **Teso:** Eusuk; **Tharaka:** Muguuchwa; **Tugen:** Kokian, Kokiin (plural); **Turkana:** Eusugu.

DESCRIPTION: A spiny deciduous shrub or tree to 8 m, the crown rounded but open. The bole has characteristic **large, conical, woody knobs with sharp prickles at their tips. Branches with single dark-red recurved spines to 2 cm long.** BARK: Pale grey, fissured or with ridges. LEAVES: Compound, a **strong lemon smell if crushed, the leaf stalk with hooked prickles below,** 6–9 pairs of shiny leaflets. FLOWERS: Yellow-green, in short heads below leaves on new branchlets. Male and female flowers on different trees. FRUIT: **Red–brown–purple,** like berries, open to release **shiny black seeds.**

ECOLOGY: Widespread in West Africa from Senegal, Nigeria and Cameroon to eastern Africa and south to Angola and Zambia. Found in most parts of Kenya in dry woodland, bushland or grassland, often on termite mounds and in rocky areas, on the coast and also in dry forest and closed thicket near the sea, 0–1,500 m. Agroclimatic Zone V.

USES: Firewood, charcoal, timber, furniture, poles (construction), carvings, drink (dried leaves used as tea leaves), flavouring (stem pieces for soup), fragrance (crushed seed in a mix with oil), medicine (leaves, bark and roots), fodder (leaves and fruit), toothbrushes, veterinary medicine, seeds used as beads in traditional garments.

PROPAGATION: Seedlings, wildings, root suckers, root cuttings.

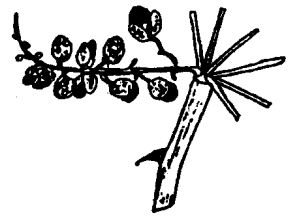
SEED: About 30,000 seeds per kg; germination 70–80%.
treatment: Not necessary.
storage: Sow immediately after collection.

MANAGEMENT: Pruning, coppicing, pollarding.

REMARKS: The wood produces excellent charcoal. Before charcoal was introduced to Tharaka, the woody knobs on the bole were burned to produce an intense heat used for smelting metal. A related species, *Z. holtzianum* (**Swahili:** Mjafari), grows with this species all along the coast into Somalia and can grow on coral, 0–230 m. It is very similar but smaller, sometimes a climber, the leaf stalk without prickles, the small fruit scarlet and dotted with glands. It is used for carving and for medicine. Crushed leaves smell of aniseed or betel nut. *Zanthoxylum* is a tropical and subtropical genus of both the Old and New Worlds, including Australia, and the species are well-known medicinal and timber plants. The fruits of some species are used as condiments, and chewing sticks from roots of some species are known to have antimicrobial activity and are useful against oral micro-organisms.

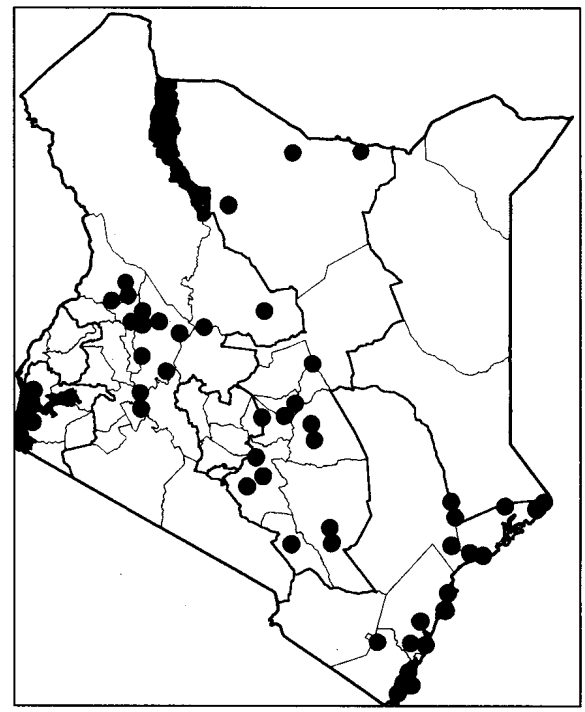
FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Beentje, 1994; ITDG and IIRR, 1996; Katende et al., 1995, 1999; Kokwaro, 1993; Maundu et al., 1999; Mbuya et al., 1994; Palgrave and Palgrave, 2002; Ruffo et al., 2002; Storrs, 1979.

Fruit with released seed



Fruiting branch

Conical knobs on trunk



Zanthoxylum gilletii (Fagara macrophylla) Rutaceae

Indigenous

STANDARD/TRADE NAME: African satinwood.

COMMON NAMES: **English:** East African satinwood; **Kikuyu:** Muchagatha; **Kipsigis:** Sagawoita; **Luhya:** Shikhuma; **Luhya (Bukusu):** Kumusikhu; **Luo:** Sogo maitha; **Nandi:** Sagawoita; **Ogiek:** Kikomit.

DESCRIPTION: A deciduous forest tree 10–30 m with a **straight trunk** and clear bole up to 15 m, diameter 30–90 cm, crown spreading. **Young stems armed with straight or recurved spines.** BARK: Smooth, grey, with **spiny woody cones,** 1–3 cm, often inconspicuous on old trees. LEAVES: In terminal clusters, leaf stalks and branchlets with prickles to 1 cm, 6–13 pairs of stiff leaflets plus one terminal one, **large, 14–30 cm long, the tip suddenly pointed, base one-sided or rounded,** gland dots numerous but small, sometimes a few prickles on the midrib, leaf edge smooth, occasionally round-toothed. FLOWERS: Cream-white, male and female, small, in **terminal pyramid clusters 20–30 cm long.** FRUIT: Rounded and red, 4–6 mm, with **one shiny black oily seed** tasting like peppermint.

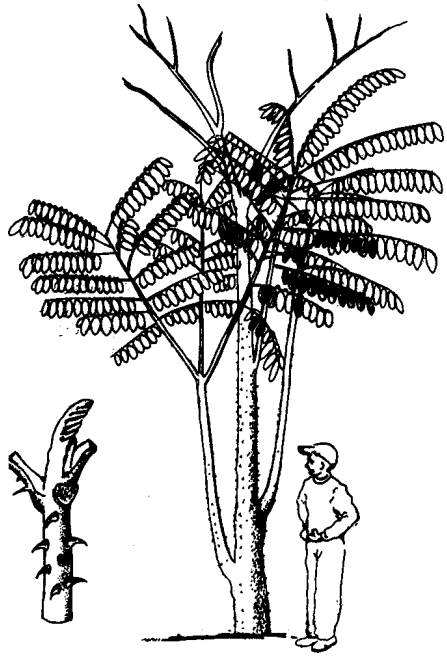
ECOLOGY: A large rainforest tree occurring from West Africa into Sudan, and throughout eastern Africa south to Angola and Zimbabwe, where it has been used in the timber trade. Mainly found in western Kenya. Unlike *Z. usambarense*, this species is confined to moist forests at 1,500–2,300 m. Agroclimatic Zone II.

USES: Firewood, charcoal, timber (heavy construction), furniture, boat building, medicine (bark).

PROPAGATION: Seedlings, wildings.

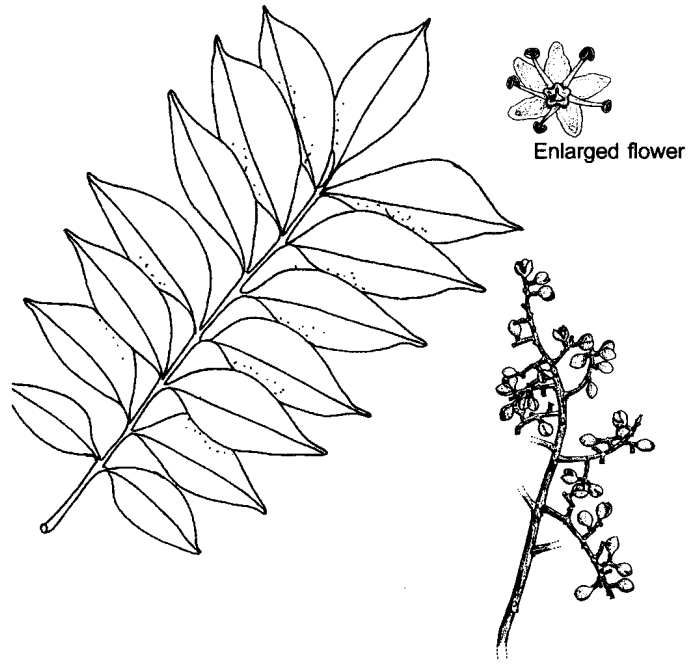
SEED: Pick the red-brown fruit from the tree before the capsules open and dry in the sun for 1–2 days, then shake out the seed. But the seed should not stay exposed to the sun.
treatment: Not necessary.
storage: Seed can be stored up to 2 months. Susceptible to insect attack, so add ash.

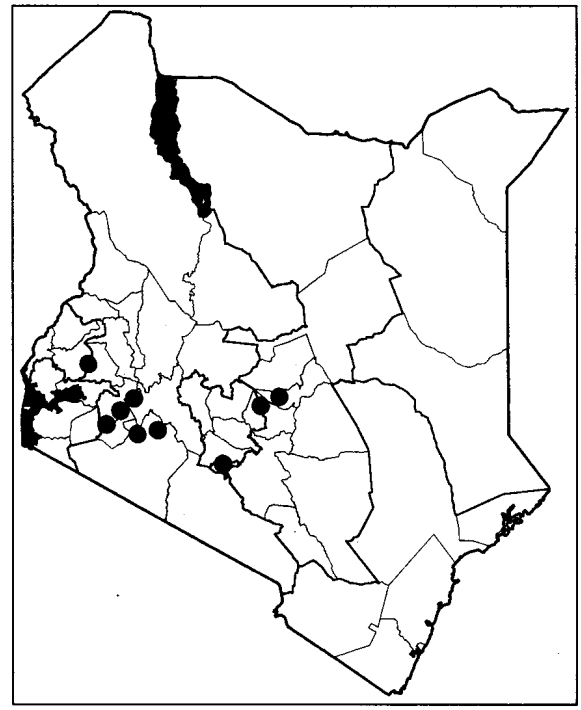
MANAGEMENT: Fairly fast growing.



REMARKS: A timber tree widely planted in the highlands. The timber is heavy, yellow-white, sweet scented, tough and easily worked. Durable in the ground. The trade name 'satinwood' comes from the bright shiny appearance of the polished wood. The bark is used to treat cough. Several other less commonly used *Zanthoxylum* species are found in Kenya. The most notable of these are *Z. mildbraedii* (**Luhya:** Simbari), a tree to 30 m found in Kakamega Forest, and *Z. rubescens* (**Luhya:** Shungoma, Shigulutsu), a tree to 10 m also found in Kakamega Forest. All are aromatic and have spiny cones on the bark and fruits that are similar to one another.

FURTHER READING: Albrecht, 1993; Beentje, 1994; Dharani, 2002; Katende et al., 1995; Kokwaro, 1993; Noad and Birnie, 1989; Palgrave and Palgrave, 2002; Sommerlatte and Sommerlatte, 1990.





Zanthoxylum usambarense (*Fagara usambarensis*) Rutaceae

Indigenous

COMMON NAMES: **Kamba:** Muvuu, Mulasi, Muvulu; **Kikuyu:** Muguchwa, Muheheti (Nyeri); **Kipsigis:** Sagawaita; **Luo:** Roko; **Maasai:** Oloisugi; **Meru:** Mugucua; **Samburu:** Loisugi.

DESCRIPTION: A much-branched shrub or tree, usually 5–8 m high, occasionally up to 14 m, often multi-stemmed and rather straggling, with a **spreading crown and drooping branches.** BARK: Greyish brown, **deeply fissured** branchlets with straight or slightly upcurved dark red prickles. LEAVES: Compound, to 24 cm long, with 5–17 leaflets; leaflets very variable, generally oval, up to 5 cm long, with **translucent gland dots** (seen when looked at against the sun), **margin toothed, midrib and stalks dark red** and thorny, very strongly aromatic when crushed, hot to taste. FLOWERS: Cream, small, in much-branched terminal heads 10–15 cm long. FRUITS: Paired, about 1 cm across, round, sharply tipped, red, breaking open to release **shiny blue-black seeds.**

ECOLOGY: Occurs in Tanzania, Rwanda, Ethiopia and Kenya. In Kenya, found in highland zones, especially in dry forest or its remnants such as secondary bushland or bushed grassland. Found, e.g. in Nairobi (Karen), Narok (Loita), Kiambu, Kericho and Samburu, 1,400–2,500 m. Common at about 2,000 m. Agroclimatic Zones III–IV. Flowers in June and fruits in October in Narok and Kajiado.

USES: Timber (house construction), furniture, bows, medicine (bark, leaves and root), live fence, toothbrushes (twigs).

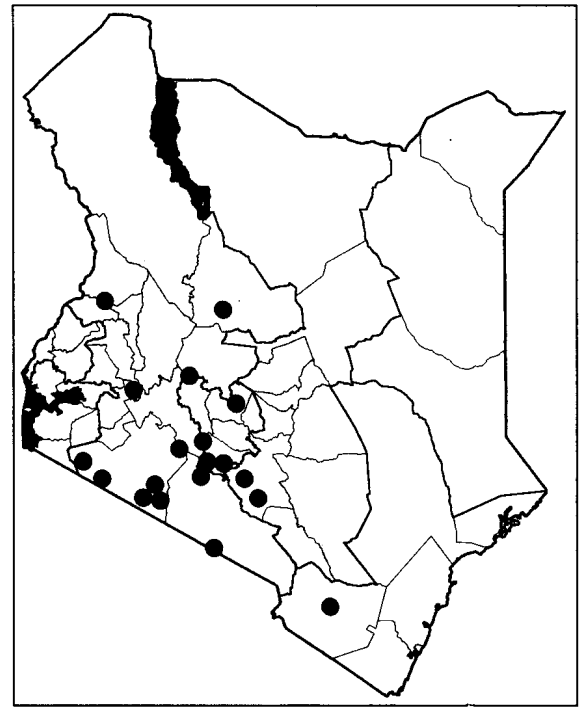
PROPAGATION: Seedlings.

SEED: Seeds should be sown immediately.
treatment: Not required.
storage: Use fresh seed.

MANAGEMENT: Prune and guide branches to control growth.

REMARKS: Twigs used as toothbrushes but have a hot taste. Leaves are usually smaller and less scented than those of *Z. chalybeum*.

FURTHER READING: Beentje, 1994; Kokwaro, 1993; Maundu et al., 1999; Noad and Birnie, 1989.



Ziziphus abyssinica

Rhamnaceae

Indigenous

COMMON NAMES: **English:** Abyssinian jujube, Catch thorn; **Gabra:** K'urk'uura; **Kamba:** Muae, Kitolosuu (Kitui); **Luhya (Bukusu):** Kumwikalangwe, Kumukomboti; **Luo:** Lang'o; **Mbeere:** Mugagu; **Meru:** Thilarii; **Pokot:** Tirak (plural), Ngowin; **Sabaot:** Katagi; **Teso:** Ekodokodoi; **Turkana:** Esilant, Esilang'.

DESCRIPTION: A thorny semi-evergreen shrub or small tree, 3–6 m high, the trunk usually straight and single, the branches drooping down to form a rounded crown. BARK: Grey-black, deeply grooved: Branchlets zigzag, hairy; with **single or paired dark brown thorns to 2 cm long,** in a pair, **one straight, one curved back.** LEAVES: Markedly alternate along the stems, oval, leathery, variable in length, 5–8 cm, **the leaf base unequal, shiny green above, hairy orange–yellow–grey below,** 3–5 clear veins, edge finely toothed, stalk short and hairy. FLOWERS: **Green-yellow, in small star-like heads,** 1–2 cm, stalks 1 cm, beside leaves. They have an unpleasant sharp smell. FRUIT: **Rounded, 2–3 cm,** smooth, **ripening to shiny red-brown, 1–3 seeds** inside, the inner stone surrounded by sweet edible flesh.

ECOLOGY: A common African tree of medium to low altitudes from Senegal to Ethiopia and south to South Africa. It grows throughout eastern Africa. Widespread in Kenya in wooded grassland, bushed grassland and along rivers. Very common between Nairobi and Thika. Found in well-drained soils, e.g. sandy, 400–2,000 m. Agroclimatic Zones III–IV. Fruits in June in Kitui; August–October in Bungoma, Kiambu, Machakos and Moyale; and December–January in Kisumu and West Pokot. Flowers in January–February in Kiambu and Kitui; May–June in Meru and Turkana; in July in West Pokot and Narok; and March–May in Bungoma.

USES: Firewood, charcoal, timber (construction, interior work), furniture, poles, carvings, utensils (pestles, yokes), edible fruit pulp, medicine (roots, leaves, ash from burned leaves), fodder (leaves for camels and goats), bee forage, shade, dye (bark), fibre (bark), live fence, ceremonial (leaves used by the Digo to wash corpses).

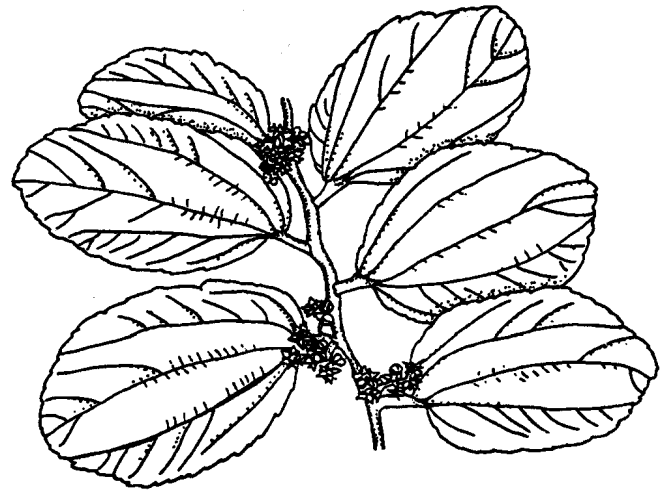
PROPAGATION: Seedlings, direct sowing at site.

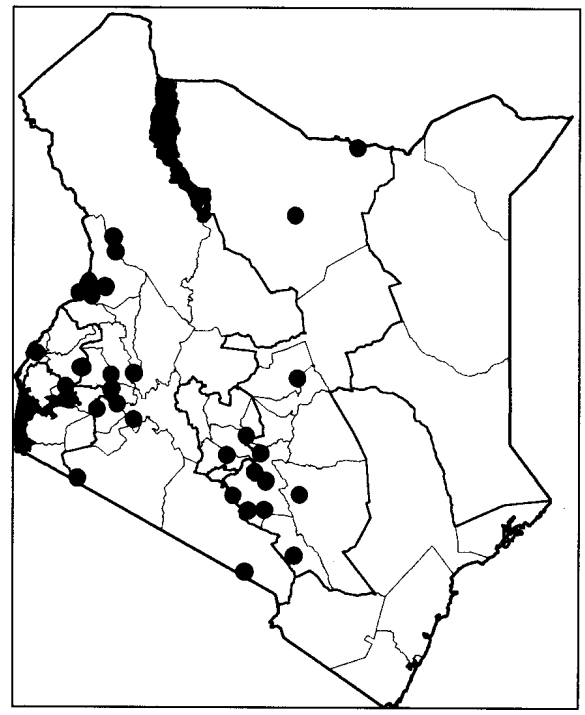
SEED: Collect fruits, remove pulp and dry. About 1,700 stones per kg. Each stone contains 1–3 seeds (multigerm). **treatment:** Crack the hard cover carefully or soak in cold water for 24 hours before sowing. **storage:** Uncracked stones can be stored for long periods.

MANAGEMENT: Pruning.

REMARKS: The rather dry cream pulp and the outer skin are edible. The pulp has a sweet, slightly bitter taste, but the edible portion is rather small. The timber is heavy, hard and resistant to termites and borers. The spiny branches make this plant useful as a protective live fence. The bark yields a cinnamon-coloured dye.

Z. pubescens (**Giriama:** Mgugune; **Pokomo:** Mwaragidthe) is a shrub or tree to 12 m which, unlike other species in the genus, is without spines. Fruits are small, to 1 cm. Leaves have a narrow tip and toothed edge and are thinly hairy below. It occurs mainly in Kenya's coastal areas, including lower parts of Tana

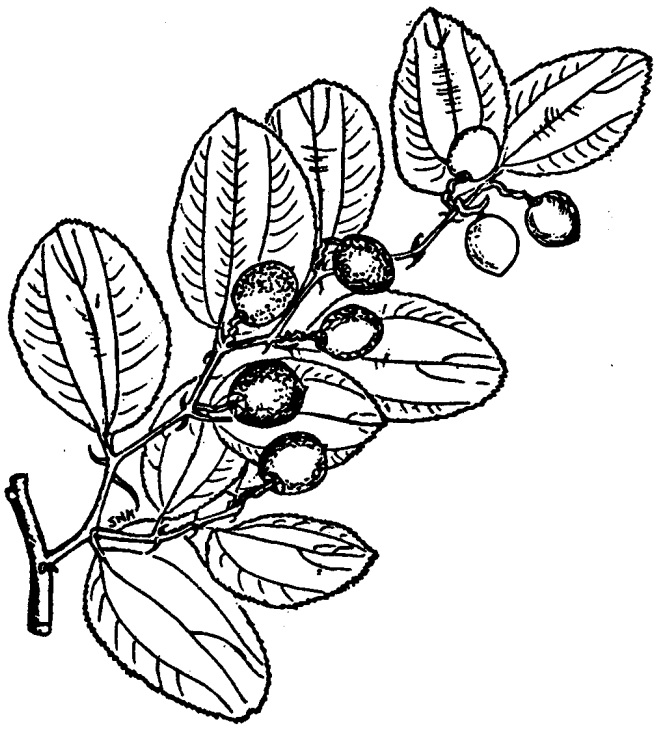




Ziziphus abyssinica (cont)

River, and scarcely at all in the western part of the country. It is found in riverine and swamp forests and in bushland below 1,400 m. The fruit is edible and the stems are used for firewood. The wood is heavy, good for charcoal and used for handles by the Pokomo.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Backes and Ahenda, 1998; Beentje, 1994; Bein et al., 1996; Katende et al., 1995, 1999; Kokwaro, 1993; Maundu et al., 1999; Noad and Birnie, 1989; Palgrave and Palgrave, 2002; Sommerlatte and Sommerlatte, 1990; Ruffo et al., 2002; Storrs, 1979.



Ziziphus mauritiana Rhamnaceae

North Africa, Asia

COMMON NAMES: **Boran:** Quaqura, Kurkuurah; **Chonyi:** Mukunazi, Kunazi (fruit); **Daasanach:** Gabite, Gaba; **Digo:** Mukunazi; **English:** Jujube; **Giriama:** Mukunazi, Kunazi (fruit); **Ilchamus:** Lmampaai; **Kambe:** Mukunazi, Kunazi (fruit); **Maasai:** Oloilalei; **Marakwet:** Tilomwo, Tilam (plural); **Pokot:** Tlomwo, Tilomwo, Tilam (plural); **Rendille:** Gab; **Sabaot:** Katagi; **Samburu:** Ilerendei; **Sanya:** Kunazi (fruit), Mukunazi; **Somali:** Gup, Gob, Goob; **Swahili:** Mkunazi, Mukhalita; **Teso:** Esilang; **Tugen:** Chepkomonit, Tilomwo; **Turkana:** Ekalale, Ngakalalio (fruit).

DESCRIPTION: A much-branched **spiny shrub or tree,** to 10 m. Crown rounded, branches drooping, branchlets zigzag and young ones hairy; spines paired, one straight, the other recurved. BARK: Silvery to grey-black in older parts. LEAVES: Markedly alternate along the stem, small and oval, to 8 cm, leaf bases **rounded and equal**, shiny yellow-green above, **white and soft hairy below,** 3 veins from the base. FLOWERS: Small yellow-green, on hairy stalks, in clusters by the leaves, giving a sharp sweet smell. FRUIT: **Rounded, 1–2 cm, shiny yellow then red-brown,** edible pulp surrounding a large stone.

ECOLOGY: Widespread in Africa, especially in the north, also the Mediterranean to India, and cultivated in other tropical and subtropical parts of the world. Probably introduced in southern Africa. A tree that does very well in extremely dry areas, e.g. in West Pokot, Baringo and Turkana, but also found in humid areas at the coast. Grown as an ornamental at medium altitudes such as in Nairobi; 0–1,800 m. It does best in areas with a high water table. Agroclimatic Zones III–VII.

USES: Firewood, charcoal, timber, furniture (beds), poles, tool handles, carvings, boat building (dhow ribs), bows and arrows, edible fruit, medicine (roots, leaves, fruits, bark), fodder (leaves and fruit), bee forage, shade, soil conservation, windbreak, tannin, dye, live fence, gum, fire making by friction, veterinary medicine.

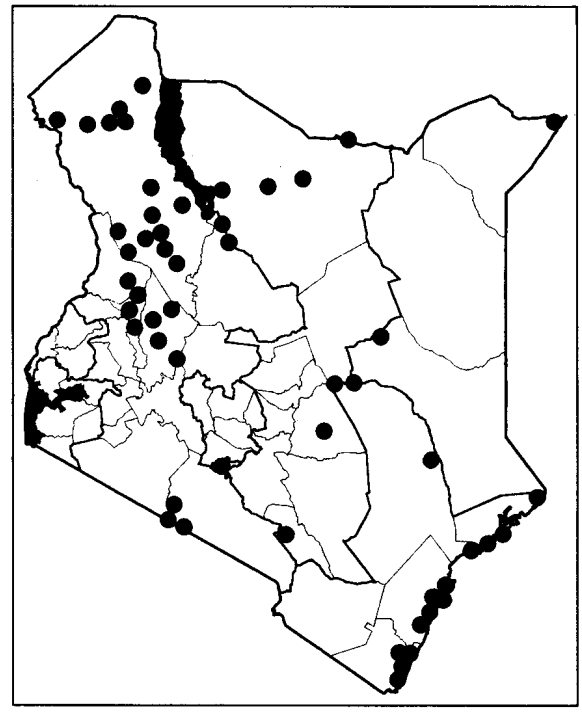
PROPAGATION: Seedlings, direct sowing at site, cuttings. Produces root suckers.

SEED: Germination rates low, unless the hard cover is cracked prior to sowing; 2,000–3,300 stones per kg. Each stone contains 2–3 seeds (multi-germ). **treatment:** Carefully crack hard cover.

MANAGEMENT: Fast growing; coppicing, lopping, pollarding, pruning.

REMARKS: A very important tree for drylands because of its many uses. Fruits often dried like dates and eaten by pastoralists when herding their animals. Many parasites attack the leaves and fruits. Large-fruited varieties have been developed in India and the Middle East. Can be grafted on wild plants.

FURTHER READING: http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm; Beentje, 1994; Bekele-Tesemma et al., 1993; Dharani, 2002; Jensen, 1999; Katende et al., 1999; Kokwaro, 1993; Maundu et al., 1999; Mbuya et al., 1994; National Academy of Sciences, 1980, 1983; Noad and Birnie, 1989; Palgrave and Palgrave, 2002; Ruffo et al., 2002; Verheij and Coronel, 1991; von Maydell, 1990.



PART III

Summary of uses

Families and species

Summary of uses

	Wood								Food							Fodder		Environmental							Other uses															
	Firewood	Charcoal	Timber/Furniture/Construction	Poles/ Posts	Beehives	Tools/Tool handles/Shafts	Carvings/Utensils/Walking stick/Bow/Arrow	Farm implements	Edible fruit/nut/seed	Vegetable/edible leaves/edible roots	Seasoning/Flavouring	Drink/Soup	Edible oil/gum/inner bark	Jam/Syrup	Medicine	Fodder	Bee forage	Shade	Ornamental/Avenue tree	Mulch	Nitrogen fixation	Soil conservation/soil improvement	River bank/sand stabilization	Windbreak	Fibre/Weaving/Rope	Thatch/Roofing/Mats/ Baskets	Resin/Gum/Glue/Latex	Tannin/Dye	Live fence/Dead fence	Ceremonial	Toothbrushes	Boundary marking	Veterinary medicine	Toxin/Insecticide/Repellent	Cosmetic/Soap/Perfume/Oil	Brooms
Acacia abyssinica	x	x		x											x	x	x	x	x		x																	
Acacia brevispica	x														x	x	x												x				x					
Acacia drepanolobium	x	x											x		x	x	x												x				x					
Acacia elatior	x	x	x	x			x								x	x	x	x			x		x						x									
Acacia gerrardii	x	x	x	x			x						x		x	x	x	x			x																	
Acacia kirkii	x	x													x	x		x											x									
Acacia lahai	x	x	x	x									x				x	x			x							x										
Acacia mearnsii	x	x		x		x									x		x		x					x	x		x	x										
Acacia mellifera	x	x	x			x	x						x		x	x	x				x	x							x				x					
Acacia nilotica	x	x		x		x	x					x			x	x	x	x			x	x	x	x			x	x	x		x		x					
Acacia paolii	x												x		x	x	x												x									
Acacia polyacantha	x	x	x			x		x					x		x	x	x		x		x	x																
Acacia senegal	x	x		x		x							x		x	x	x					x	x		x								x					
Acacia seyal	x	x		x								x	x		x	x	x				x			x		x	x	x										
Acacia tortilis	x	x	x	x					x				x		x	x	x	x	x		x	x	x		x		x	x	x				x					
Acacia xanthophloea	x	x	x	x									x		x	x	x		x		x		x						x									
Acokanthera oppositifolia									x									x	x										x									
Acokanthera schimperi						x			x									x	x														x	x				
Acrocarpus fraxinifolius	x		x		x												x	x	x	x	x			x														
Adansonia digitata									x	x	x				x	x	x		x	x					x	x	x	x					x					
Adenanthera pavonina	x		x							x							x	x	x									x									
Adenium obesum															x	x	x		x										x				x	x				

Summary of uses (cont)

	Wood								Food							Fodder		Environmental							Other uses											
	Firewood	Charcoal	Timber/Furniture/Construction	Poles/	Posts Beehives	Tools/Tool handles/Shafts	Carvings/Utensils/Walking stick/Bow/Arrow	Farm implements	Edible fruit/nut/seed	Vegetable/edible leaves/edible roots	Seasoning/Flavouring	Drink/Soup	Edible oil/gum/inner bark	Jam/Syrup	Medicine	Fodder	Bee forage	Shade	Ornamental/Avenue tree	Mulch	Nitrogen fixation	Soil conservation/soil improvement	River bank/sand stabilization	Windbreak	Fibre/Weaving/Rope	Thatch/Roofing/Mats/	Baskets Resin/Gum/Glue/Latex	Tannin/Dye	Live fence/Dead fence	Ceremonial	Toothbrushes	Boundary marking	Veterinary medicine	Toxin/Insecticide/Repellent	Cosmetic/Soap/Perfume/Oil	Brooms
Afzelia quanzensis			x	x											x			x	x																	
Albizia amara	x	x	x	x				x			x		x		x	x	x		x		x	x					x	x	x						x	
Albizia anthelmintica	x		x												x	x	x	x			x							x				x				
Albizia coriaria	x	x	x	x							x				x	x	x	x	x		x							x				x				
Albizia glaberrima	x	x	x													x		x			x										x					
Antiaris toxicaria			x												x	x																				
Antidesma venosum	x					x			x						x		x	x	x																	
Apodytes dimidiata	x	x	x			x									x		x		x									x								
Araucaria cunninghamii			x																x										x							
Areca catechu									x						x							x						x								
Artocarpus heterophyllus	x	x	x						x						x	x		x									x									
Arundinaria alpina			x	x			x			x						x			x			x				x			x							
Averrhoa bilimbi									x		x								x			x														
Avicennia maritima	x	x		x	x										x	x							x													
Azadirachta indica	x	x	x	x			x								x	x	x	x	x			x		x									x	x	x	
Balanites aegyptiaca	x	x	x	x		x	x		x	x			x		x	x	x	x		x				x			x		x	x				x		
Balanites glabra							x		x							x		x				x							x							
Balanites rotundifolia	x	x		x		x	x		x						x	x	x	x				x							x				x			
Balanites wilsoniana	x	x	x	x		x	x		x				x			x	x																			
Bauhinia variegata	x		x			x		x		x						x		x	x			x					x	x							
Berchemia discolor	x	x	x	x		x	x		x		x	x			x	x	x	x	x					x			x	x							
Bersama abyssinica	x	x	x		x		x								x		x	x	x	x								x							

	Wood								Food							Fodder		Environmental							Other uses											
	Firewood	Charcoal	Timber/Furniture/Construction	Poles/ Posts Beehives		Tools/Tool handles/Shafts	Carvings/Utensils/Walking stick/Bow/Arrow	Farm implements	Edible fruit/nut/seed	Vegetable/edible leaves/edible roots	Seasoning/Flavouring	Drink/Soup	Edible oil/gum/inner bark	Jam/Syrup	Medicine	Fodder	Bee forage	Shade	Ornamental/Avenue tree	Mulch	Nitrogen fixation	Soil conservation/soil improvement	River bank/sand stabilization	Windbreak	Fibre/Weaving/Rope	Thatch/Roofing/Mats/	Baskets Resin/Gum/Glue/Latex	Tannin/Dye	Live fence/Dead fence	Ceremonial	Toothbrushes	Boundary marking	Veterinary medicine	Toxin/Insecticide/Repellent	Cosmetic/Soap/Perfume/Oil	Brooms
Blighia unijugata	x	x	x	x								x			x			x																
Bombax rhodognaphalon			x				x		x				x		x			x	x				x		x					x				
Borassus aethiopum			x	x		x			x	x	x	x							x					x	x		x						x	
Boscia coriacea	x		x				x		x						x	x	x	x											x		x			
Boswellia microphylla	x											x														x	x							
Boswellia neglecta	x		x				x					x	x		x	x										x	x		x			x		
Brachylaena huillensis	x	x	x	x			x												x														x	
Brachystegia spiciformis	x	x	x	x											x	x		x			x						x							
Bridelia micrantha	x	x	x	x		x	x		x						x	x	x	x		x			x				x							
Bruguiera gymnorrhiza	x	x	x	x													x						x				x							
Buddleia polystachya	x	x	x												x	x	x		x									x						x	
Cadaba farinosa	x									x	x				x	x														x		x			
Caesalpinia decapetala																	x		x	x	x							x							
Caesalpinia volkensii															x	x												x	x						
Cajanus cajan	x								x							x	x				x	x													
Calliandra calothyrsus	x			x												x	x	x	x		x	x		x											
Callistemon citrinus	x	x													x		x		x					x											
Calodendrum capense	x	x	x	x		x		x									x	x	x	x				x											
Capparis tomentosa	x														x													x							
Carissa spinarum									x	x	x				x	x	x		x								x	x				x			
Casaeria battiscombei			x																																
Casimiroa edulis	x								x								x						x												

Summary of uses (cont)

	Wood								Food							Fodder		Environmental							Other uses													
	Firewood	Charcoal	Timber/Furniture/Construction	Poles/	Posts Beehives	Tools/Tool handles/Shafts	Carvings/Utensils/Walking stick/Bow/Arrow	Farm implements	Edible fruit/nut/seed	Vegetable/edible leaves/edible roots	Seasoning/Flavouring	Drink/Soup	Edible oil/gum/inner bark	Jam/Syrup	Medicine	Fodder	Bee forage	Shade	Ornamental/Avenue tree	Mulch	Nitrogen fixation	Soil conservation/soil improvement	River bank/sand stabilization	Windbreak	Fibre/Weaving/Rope	Thatch/Roofing/Mats/	Baskets Resin/Gum/Glue/Latex	Tannin/Dye	Live fence/Dead fence	Ceremonial	Toothbrushes	Boundary marking	Veterinary medicine	Toxin/Insecticide/Repellent	Cosmetic/Soap/Perfume/Oil	Brooms
Cassia abbreviata	x		x	x											x				x										x		x						
Cassipourea malosana	x		x		x							x			x		x																			
Casuarina cunninghamiana	x	x	x	x												x		x	x	x	x	x	x	x													
Casuarina equisetifolia	x	x	x	x		x										x		x	x	x	x	x	x	x				x									
Ceiba insignis																		x	x						x												
Ceiba pentandra	x		x						x						x	x	x	x	x			x			x										x		
Celtis africana	x	x	x			x		x								x		x																			
Clausena anisata	x	x		x								x			x		x						x								x				x		
Clerodendrum myricoides															x		x		x											x							
Cocos nucifera	x	x	x	x			x		x			x	x					x	x						x	x											
Combretum aculeatum	x								x						x	x	x								x				x					x		x
Combretum collinum	x	x		x											x		x	x											x							
Combretum molle	x	x	x	x		x									x		x			x		x											x				
Combretum schumannii	x	x	x	x		x	x								x		x			x		x															
Commiphora africana	x						x	x	x			x	x		x	x			x								x		x	x	x			x			
Commiphora eminii	x		x				x								x	x		x				x							x			x				
Commiphora myrrha	x						x		x						x	x		x									x		x				x		x	
Commiphora rostrata						x				x	x	x			x	x											x		x		x					
Conocarpus lancifolius	x	x	x	x			x									x	x	x	x	x		x	x	x												
Cordeauxia edulis	x								x							x	x			x	x	x						x	x						x	
Cordia africana	x		x		x		x		x						x	x	x	x	x	x		x			x		x					x				
Cornus volkensii	x		x																																	

	Wood								Food							Fodder		Environmental							Other uses													
	Firewood	Charcoal	Timber/Furniture/Construction	Poles/	Posts Beehives	Tools/Tool handles/Shafts	Carvings/Utensils/Walking stick/Bow/Arrow	Farm implements	Edible fruit/nut/seed	Vegetable/edible leaves/edible roots	Seasoning/Flavouring	Drink/Soup	Edible oil/gum/inner bark	Jam/Syrup	Medicine	Fodder	Bee forage	Shade	Ornamental/Avenue tree	Mulch	Nitrogen fixation	Soil conservation/soil improvement	River bank/sand stabilization	Windbreak	Fibre/Weaving/Rope	Thatch/Roofing/Mats/	Baskets Resin/Gum/Glue/Latex	Tannin/Dye	Live fence/Dead fence	Ceremonial	Toothbrushes	Boundary marking	Veterinary medicine	Toxin/Insecticide/Repellent	Cosmetic/Soap/Perfume/Oil	Brooms
Cordia monoica	x	x	x	x	x	x	x		x						x	x	x	x							x				x			x				
Cordia sinensis	x		x	x		x	x		x			x	x		x	x	x								x		x			x		x				
Cordyla africana			x	x		x	x		x									x																		
Craibia brownii			x				x		x						x																					
Crateva adansonii	x	x					x	x	x	x					x	x	x		x							x										
Crotalaria agatiflora																				x	x				x			x	x							
Croton macrostachyus	x	x	x	x		x									x	x	x			x		x								x		x				
Croton megalocarpus	x	x	x	x											x		x	x	x	x									x		x	x				
Cupressus lusitanica	x		x	x														x	x					x					x		x	x				x
Cussonia holstii			x		x	x	x								x	x	x	x											x							
Cynometra webberi	x	x	x	x			x										x	x																		
Cyphomandra betacea									x	x				x			x																			
Dalbergia melanoxylon	x	x	x	x			x								x	x	x			x	x															
Delonix elata			x	x	x	x	x	x	x						x	x	x	x	x									x			x					
Delonix regia	x																x	x	x																	
Dialium orientale	x	x		x		x	x		x		x	x																								
Dicrostachys cinerea	x					x										x	x		x		x	x								x						
Diospyros abyssinica	x	x	x	x		x	x	x										x																		
Diospyros mespiliformis	x	x	x				x		x			x			x		x	x	x																	
Diospyros scabra	x		x					x	x						x	x	x	x																		
Dobera glabra	x		x				x		x				x		x	x		x														x				
Dodonaea viscosa	x			x		x									x		x		x				x					x		x						

Summary of uses (cont)

	Wood								Food							Fodder		Environmental							Other uses											
	Firewood	Charcoal	Timber/Furniture/Construction	Poles/ Posts	Beehives	Tools/Tool handles/Shafts	Carvings/Utensils/Walking stick/Bow/Arrow	Farm implements	Edible fruit/nut/seed	Vegetable/edible leaves/edible roots	Seasoning/Flavouring	Drink/Soup	Edible oil/gum/inner bark	Jam/Syrup	Medicine	Fodder	Bee forage	Shade	Ornamental/Avenue tree	Mulch	Nitrogen fixation	Soil conservation/soil improvement	River bank/sand stabilization	Windbreak	Fibre/Weaving/Rope	Thatch/Roofing/Mats/ Baskets	Resin/Gum/Glue/Latex	Tannin/Dye	Live fence/Dead fence	Ceremonial	Toothbrushes	Boundary marking	Veterinary medicine	Toxin/Insecticide/Repellent	Cosmetic/Soap/Perfume/Oil	Brooms
Dombeya rotundifolia	x		x	x		x	x					x			x	x	x	x	x	x		x			x										
Dombeya torrida	x	x	x	x		x	x								x		x	x		x					x										
Dovyalis abyssinica									x		x	x		x	x	x	x												x						
Dovyalis caffra									x					x					x										x						
Dovyalis macrocalyx									x						x				x										x						
Dracaena steudneri				x											x		x	x	x											x					
Ehretia cymosa	x	x		x		x									x		x		x																
Ekebergia capensis	x	x	x	x		x									x		x	x	x					x												
Elaeodendron buchananii	x	x	x												x			x		x		x											x			
Embelia schimperi	x									x					x	x																			
Encephalartos hildebrandtii										x									x							x				x					
Ensete ventricosum															x	x		x	x						x	x		x							
Entada abyssinica	x														x		x	x	x	x	x									x					
Eriobotrya japonica	x	x		x			x		x					x			x	x	x	x				x											
Erythrina abyssinica	x		x		x		x								x		x		x	x	x	x								x			x		
Erythrina burtii			x				x											x			x														
Erythrina melanacantha			x				x									x		x	x		x														
Eucalyptus camaldulensis	x	x	x	x													x	x	x					x				x						x	
Eucalyptus globulus	x	x	x	x											x		x							x										x	
Eucalyptus saligna	x	x	x	x											x		x	x						x								x			
Euclea divinorum	x		x			x	x		x			x			x	x	x	x										x		x	x		x		
Euphorbia candelabrum	x		x		x		x								x		x	x									x		x	x			x		

Summary of uses (cont)

	Wood								Food							Fodder		Environmental							Other uses											
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Euphorbia tirucalli	x														x	x	x	x									x			x					
Fagaropsis angolensis	x		x																																
Faidherbia albida	x	x	x	x			x		x		x				x	x		x		x	x	x		x	x			x							
Faurea saligna	x	x	x	x											x		x		x	x				x				x		x					
Ficus benjamina	x																	x	x																
Ficus sur	x		x		x		x		x						x	x	x	x									x			x					
Ficus sycomorus	x		x		x		x		x				x		x	x		x	x	x		x	x		x		x			x		x			
Ficus thonningii	x								x						x	x		x	x	x					x	x	x	x	x	x					
Filicium decipiens	x						x											x	x																
Flacourtia indica	x	xx	x	x		x	x	x	x					x	x	x	x												x						
Flueggea virosa	x	x					x		x						x	x												x		x					
Fraxinus pennsylvanica	x		x	x											x	x	x	x	x					x											
Garcinia livingstonei	x			x		x	x		x						x	x		x	x			x						x							
Gardenia volkensii							x								x			x	x											x					
Gliricidia sepium	x	x		x		x		x								x	x	x	x	x	x	x		x					x						
Gmelina arborea	x	x	x	x		x										x	x	x	x					x											
Grevillea robusta	x	x	x	x												x	x	x	x	x		x		x											
Grewia bicolor	x			x		x	x		x						x	x		x							x										
Grewia plagiophylla				x		x			x						x			x	x						x					x					
Grewia tembensis	x						x		x						x	x													x						
Grewia tenax	x					x	x	x	x						x	x	x								x		x				x				
Grewia villosa	x			x		x	x		x						x	x		x							x						x				

Summary of uses (cont)

	Wood								Food							Fodder		Environmental							Other uses															
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Hagenia abyssinica	x	x	x	x			x								x		x		x	x		x										x						
Hakea salicifolia																		x	x			x		x					x									
Harrisonia abyssinica															x		x		x										x				x					
Harungana madagascariensis	x	x	x	x		x	x		x						x		x											x						x				
Hymenaea verrucosa	x	x	x						x																		x						x					
Hyphaene compressa	x		x	x	x				x			x						x					x		x			x										x
Ilex mitis	x	x	x			x		x							x																							
Jacaranda mimosifolia	x			x			x										x	x	x					x														
Jatropha curcas															x				x										x		x							
Juniperus procera	x	x	x	x	x										x			x	x					x						x			x					
Kedrostis pseudogijef									x	x					x										x	x												
Kigelia africana	x	x	x	x	x		x					x			x	x	x	x	x					x						x			x					
Landolphia buchananii									x						x	x									x	x	x											
Landolphia kirkii									x						x			x									x	x										
Lannea alata	x								x						x	x									x													
Lannea fulva	x	x		x					x						x			x	x																			
Lannea rivae									x				x		x			x							x				x		x							
Lannea schimperi	x	x	x	x		x	x		x			x			x			x		x										x							
Lannea schweinfurthii	x	x	x		x	x	x		x			x			x	x	x	x							x	x		x	x									
Lannea triphylla			x						x			x	x		x	x									x				x		x							
Lawsonia inermis	x			x		x	x	x					x		x	x	x						x			x		x	x						x		
Lecaniodiscus fraxinifolius	x	x		x		x	x		x						x		x	x								x											

Summary of uses (cont)

	Wood								Food							Fodder		Environmental							Other uses																
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Lepisanthes senegalensis	x	x	x	x		x	x		x						x			x															x							
Leptadenia hastata										x					x	x																x								
Leucaena diversifolia	x															x	x			x	x	x						x												
Leucaena leucocephala	x														x	x	x	x		x	x	x		x				x												
Lippia kituiensis	x					x	x		x			x			x		x		x														x							
Macadamia integrifolia		x	x						x								x	x	x					x																
Macaranga kilimandscharica	x	x	x	x											x							x																			
Maerua decumbens									x						x	x	x																x							
Maesopsis eminii	x		x	x											x	x		x	x																					
Mangifera indica	x		x				x		x			x				x	x	x	x	x		x	x	x			x						x							
Manihot glaziovii																x		x	x			x																		
Manilkara mochisia	x	x	x	x		x	x		x						x		x	x																						
Manilkara sansibarensis	x		x			x	x		x						x			x									x												
Manilkara sulcata	x		x				x		x						x																								
Margaritaria discoidea	x	x	x	x											x																									
Markhamia lutea	x	x	x	x		x	x								x		x	x	x	x		x		x						x		x							
Maytenus senegalensis	x	x		x		x	x								x	x	x		x										x					x					
Melia azedarach			x	x		x									x		x	x	x																				
Melia volkensii	x		x												x	x	x	x		x		x																		
Meyna tetraphylla									x						x														x				x							
Milicia excelsa	x	x	x	x		x									x	x	x	x	x	x		x								x										
Millettia dura				x		x										x		x	x	x		x																		

Summary of uses (cont)

	Wood							Food							Fodder		Environmental						Other uses									
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Mimusops kummel	x	x	x	x		x	x		x			x			x			x						x										
Mimusops obtusifolia	x	x	x	x		x			x						x																				
Mkilua fragrans	x			x											x														x				x	
Mondia whytei															x														x						
Monodora grandidieri							x		x						x																				
Moringa oleifera									x	x	x				x	x	x	x						x				x						x	
Moringa stenopetala	x								x	x					x			x	x																
Morus alba	x								x	x						x	x	x	x					x				x							
Myrianthus holstii	x						x		x							x		x		x									x						
Myrsine africana									x						x				x												x				
Newtonia buchananii	x		x													x			x	x	x														
Newtonia hildebrandtii	x	x		x			x								x																				
Nuxia congesta	x	x													x		x											x							
Ocotea usambarensis	x	x	x	x											x																				
Olea capensis	x	x	x			x									x		x											x							
Olea europaea	x	x	x	x			x		x		x	x			x		x	x	x					x				x	x						
Oncoba spinosa	x		x						x						x				x																
Opilia campestris									x							x			x										x						
Ormocarpum kirkii	x						x								x	x			x																
Osyris lanceolata	x		x	x			x		x			x			x				x			x			x										
Oxystigma msoo	x		x																																
Ozoroa insignis	x	x	x				x								x			x						x			x								

Summary of uses (cont)

	Wood								Food							Fodder		Environmental							Other uses													
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Pandanus kirkii															x				x					x	x												
Pappea capensis	x	x	x	x		x	x	x	x			x			x	x	x	x	x									x								
Parinari curatellifolia	x	x	x	x					x						x		x	x										x						x	
Parkia filicoidea	x				x		x		x							x	x											x								
Parkinsonia aculeata	x	x													x	x	x	x	x	x		x	x	x					x							
Pavetta crassipes															x	x	x																			
Persea americana			x						x								x	x																	x	
Phoenix dactylifera			x	x			x		x			x			x	x		x	x					x		x										
Phoenix reclinata	x		x						x			x					x		x				x			x			x							
Piliostigma thonningii	x	x		x					x	x			x		x	x	x	x	x	x		x			x			x	x						x	
Pinus patula	x		x	x														x	x								x									
Pistacia aethiopica	x			x		x						x	x		x		x		x											x						
Pithecellobium dulce	x			x					x			x				x	x	x				x	x	x				x	x						x	
Plectranthus barbatus															x				x										x						x	
Podocarpus falcatus	x		x	x											x			x	x																	
Podocarpus latifolius	x		x	x											x			x	x																	
Polyscias fulva	x		x		x		x								x		x			x																
Populus ilicifolia	x			x	x		x									x			x				x													
Pouteria adolfi-friedericii	x	x	x										x					x																		
Premna resinosa	x					x	x		x						x	x	x																				
Prosopis chilensis	x	x	x	x					x	x						x	x	x				x					x	x	x							
Prosopis juliflora	x	x	x	x			x		x	x					x	x	x	x			x	x	x	x					x							

Summary of uses (cont)

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Prunus africana	x	x	x	x			x								x		x	x	x	x				x								x			
Psidium guajava	x					x			x			x		x	x	x	x	x	x			x						x	x		x				
Raphia farinifera													x												x	x									
Rauvolfia caffra	x		x		x		x								x		x	x	x																
Rhamnus staddo	x					x					x				x																	x			
Rhizophora mucronata	x	x	x	x											x											x									
Rhoicissus tridentata									x						x										x				x						
Rhus natalensis	x	x	x						x						x	x		x	x																
Rhus tenuinervis	x	x							x						x	x		x									x			x					
Rhus vulgaris	x			x		x		x	x						x	x			x	x							x			x		x			
Ricinus communis															x							x	x				x					x		x	
Rubus apetalus									x						x				x										x						
Rubus volkensii									x																				x						
Saba comorensis									x						x				x							x	x								
Salvadora persica									x						x	x	x	x				x	x								x				
Sapium ellipticum	x	x	x			x		x							x	x		x	x																
Schinus molle	x	x									x				x		x	x	x			x				x	x						x		
Schrebera alata	x	x													x				x																
Sclerocarya birrea	x	x	x	x	x		x		x			x	x		x	x	x	x		x					x			x							
Scutia myrtina									x						x	x		x																	
Senna siamea	x	x	x	x											x		x	x	x	x		x		x				x							
Senna singueana															x													x							

	Wood								Food							Fodder		Environmental							Other uses																
	Firewood	Charcoal	Timber/Furniture/Construction	Poles/ Posts Beehives		Tools/Tool handles/Shafts	Carvings/Utensils/Walking stick/Bow/Arrow	Farm implements	Edible fruit/nut/seed	Vegetable/edible leaves/edible roots	Seasoning/Flavouring	Drink/Soup	Edible oil/gum/inner bark	Jam/Syrup	Medicine	Fodder	Bee forage	Shade	Ornamental/Avenue tree	Mulch	Nitrogen fixation	Soil conservation/soil improvement	River bank/sand stabilization	Windbreak	Fibre/Weaving/Rope	Thatch/Roofing/Mats/ Baskets	Resin/Gum/Glue/Latex	Tannin/Dye	Live fence/Dead fence	Ceremonial	Toothbrushes	Boundary marking	Veterinary medicine	Toxin/Insecticide/Repellent	Cosmetic/Soap/Perfume/Oil	Brooms
Senna spectabilis	x	x		x		x											x	x	x	x																			
Sesbania bispinosa	x			x											x	x		x		x	x	x		x	x		x												
Sesbania sesban	x			x											x	x		x			x	x			x							x		x					
Sideroxylon inerme			x	x					x																														
Solanecio mannii	x														x	x			x										x			x							
Sorindeia madagascariensis	x								x																														
Spathodea campanulata	x	x					x								x		x	x	x	x				x															
Spirostachys venenifera			x	x		x	x								x																								
Spondias cytherea			x						x	x					x	x		x	x										x										
Sterculia africana			x														x		x					x	x	x													
Sterculia appendiculata			x				x		x						x			x	x						x	x													
Stereospermum kunthianum	x	x		x		x									x		x		x																				
Strombosia scheffleri	x	x	x				x											x																					
Strychnos henningsii				x		x						x			x														x										
Strychnos mitis	x	x	x	x														x	x																				
Strychnos spinosa	x	x	x						x						x	x		x	x															x					
Synsepalum brevipes	x	x	x	x			x		x									x		x																			
Syzygium cordatum	x	x	x		x				x			x			x	x	x	x	x				x					x						x					
Syzygium cuminii	x	x	x	x		x			x						x	x	x	x	x				x	x				x											
Syzygium guineense	x	x	x	x		x			x						x		x											x											
Tamarindus indica	x	x	x	x			x		x		x	x			x	x	x	x	x	x	x							x					x						
Tamarix nilotica	x			x		x												x	x	x			x	x														

Summary of uses (cont)

	Wood							Food							Fodder		Environmental						Other uses							
	Firewood	Charcoal	Timber/Furniture/Construction	Poles/	Posts Beehives	Tools/Tool handles/Shafts	Carvings/Utensils/Walking stick/Bow/Arrow	Farm implements	Edible fruit/nut/seed	Vegetable/edible leaves/edible roots	Seasoning/Flavouring	Drink/Soup	Edible oil/gum/inner bark	Jam/Syrup	Medicine	Fodder	Bee forage	Shade	Ornamental/Avenue tree	Mulch	Nitrogen fixation	Soil conservation/soil improvement	River bank/sand stabilization	Windbreak	Fibre/Weaving/Rope	Thatch/Roofing/Mats/	Baskets Resin/Gum/Glue/Latex	Tannin/Dye	Live fence/Dead fence	Ceremonial	Toothbrushes	Boundary marking	Veterinary medicine	Toxin/Insecticide/Repellent	Cosmetic/Soap/Perfume/Oil	Brooms
Terminalia brownii	x	x	x	x	x	x	x	x							x	x		x	x	x		x									x			
Terminalia catappa			x						x						x			x	x			x	x				x							
Terminalia mantaly																		x	x															
Terminalia mollis	x	x	x	x		x	x								x					x		x							x					
Terminalia orbicularis	x		x				x								x				x								x							
Terminalia prunioides	x	x	x	x		x									x	x				x														
Terminalia spinosa	x	x	x	x			x								x	x																		
Tetradenia riparia										x																								
Thespesia danis	x			x		x	x		x						x			x	x															
Thespesia garckeana	x		x	x		x	x	x	x						x	x		x	x	x					x									
Thevetia peruviana															x			x	x															
Thylachium thomasii									x	x					x			x																
Tipuana tipu	x	x	x	x												x		x	x	x														
Tithonia diversifolia															x	x			x	x									x					
Toona ciliata	x	x	x												x			x	x				x				x							
Trema orientalis	x	x		x											x	x		x	x	x										x	x			
Trichilia emetica	x		x	x		x	x								x	x		x	x			x							x					
Uvaria acuminata						x	x		x						x				x															
Uvaria lucida									x						x											x								
Uvaria scheffleri									x						x				x															
Vangueria apiculata	x						x		x									x	x															
Vangueria infausta	x			x		x	x	x	x						x	x		x	x															•

Summary of uses (cont)

	Wood								Food							Fodder		Environmental							Other uses										
	Firewood	Charcoal	Timber/Furniture/Construction	Poles/ Posts Beehives		Tools/Tool handles/Shafts	Carvings/Utensils/Walking stick/Bow/Arrow	Farm implements	Edible fruit/nut/seed	Vegetable/edible leaves/edible roots	Seasoning/Flavouring	Drink/Soup	Edible oil/gum/inner bark	Jam/Syrup	Medicine	Fodder	Bee forage	Shade	Ornamental/Avenue tree	Mulch	Nitrogen fixation	Soil conservation/soil improvement	River bank/sand stabilization	Windbreak	Fibre/Weaving/Rope	Thatch/Roofing/Mats/ Baskets	Resin/Gum/Glue/Latex	Tannin/Dye	Live fence/Dead fence	Ceremonial	Toothbrushes	Boundary marking	Veterinary medicine	Toxin/Insecticide/Repellent	Cosmetic/Soap/Perfume/Oil	Brooms
Vangueria madagascariensis	x			x		x	x		x						x		x	x	x															
Vepris nobilis	x	x	x	x		x	x								x																x			
Vernonia amygdalina	x									x					x				x			x						x		x		x		
Vitex doniana	x	x	x	x			x		x						x	x	x	x		x								x				x			
Vitex keniensis	x		x	x					x									x	x					x											
Vitex mombassae	x			x		x	x		x								x	x	x																
Vitex payos	x			x		x	x		x									x	x																
Warburgia ugandensis	x		x			x			x		x	x			x			x	x	x						x					x	x			
Ximenia americana	x		x	x		x	x		x						x	x	x	x	x								x	x				x		x	
Xylopia parviflora	x		x	x											x																				
Zanthoxylum chalybeum	x	x	x	x			x				x	x			x	x																x			
Zanthoxylum gilletii	x	x	x												x																				
Zanthoxylum usambarense			x				x								x																				
Ziziphus abyssinica	x	x	x	x			x		x						x	x	x	x							x			x	x	x					
Ziziphus mauritiana	x	x	x	x		x	x		x						x	x	x	x				x		x			x	x	x				x			
Ziziphus mucronata	x	x		x		x	x		x			x			x	x	x	x	x										x						

List of families and species

Main entries in ***bold italic***
Synonyms in *italic* but not bold
Species mentioned under 'Remarks' in normal type

Acanthaceae

Justicia odora

Anacardiaceae

Anacardium occidentale
Heeria reticulata, syn. of ***Ozoroa insignis* subsp. *reticulata***
Lannea alata
Lannea floccosa, syn. of ***Lannea rivae***
Lannea fulva
Lannea rivae
Lannea schimperi
Lannea schweinfurthii
Lannea triphylla
Mangifera indica
Mangifera odorata
Ozoroa insignis* subsp. *reticulata
Ozoroa obovata
Pistacia aethiopica
Pistacia vera
Rhus natalensis
Rhus ruspolii
Rhus tenuinervis
Rhus vulgaris
Schinus molle
Sclerocarya birrea
Sclerocarya birrea subsp. birrea
Sclerocarya birrea subsp. caffra
Sclerocarya caffra, syn. of ***Sclerocarya birrea***
Sorindeia madagascariensis
Spondias cytherea
Spondias dulcis, syn. of ***Spondias cytherea***

Annonaceae

Annona chrysophylla, syn. of ***Annona senegalensis* subsp. *senegalensis***
Annona cherimola
Annona muricata
Annona senegalensis* subsp. *senegalensis
Annona squamosa
Cananga odorata
Mkilua fragrans
Monodora grandidieri
Monodora myristica
Polyalthia longifolia
Uvaria acuminatan
Uvaria denhardtiana
Uvaria kirkii
Uvaria leptocladon
Uvaria lucida
Uvaria lucida subsp. lucida
Uvaria scheffleri
Xylopia aethiopica
Xylopia parviflora

Apocynaceae

Acokanthera friesiorum, syn. of ***Acokanthera schimperi***
Acokanthera longifolia, syn. of ***Acokanthera oppositifolia***
Acokanthera oppositifolia
Acokanthera schimperi
Adenium obesum
Carissa bispinosa subsp. bispinosa
Carissa edulis, syn. of ***Carissa spinarum***
Carissa spinarum
Carissa tetramera
Landolphia buchananii
Landolphia kirkii
Rauvolfia caffra
Rauvolfia mannii
Rauvolfia mombasiana
Saba comorensis
Saba florida, syn. of ***Saba comorensis***
Thevetia peruviana
Thevetia thevetioides

Aquifoliaceae

Ilex mitis

Araliaceae

Cussonia arborea
Cussonia holstii
Cussonia spicata
Cussonia zimmermannii
Polyscias fulva
Polyscias kikuyuensis
Polyscias stuhlmannii *var.* stuhlmannii

Araucariaceae

Araucaria araucana
Araucaria bidwillii
Araucaria cunninghamii
Araucaria heterophylla

Arecaceae

Areca catechu
Borassus aethiopum
Cocos nucifera
Hyphaene compressa
Hyphaene coriacea
Phoenix dactylifera
Phoenix reclinata
Phoenix theophrasti
Raphia farinifera

Asclepiadaceae

Leptadenia hastata
Mondia whytei
Pentarrhinum insipidum

Asteraceae

Brachylaena huillensis
Brachylaena hutchinsii, syn. of ***Brachylaena huillensis***
Crassocephalum mannii, syn. of ***Solanecio mannii***
Solanecio mannii
Tithonia diversifolia
Vernonia amygdalina
Vernonia myriantha

Balanitaceae

Balanites aegyptiaca
Balanites glabra
Balanites orbicularis, syn. of ***Balanites rotundifolia***
Balanites pedicellaris
Balanites rotundifolia
Balanites wilsoniana

Bignoniaceae

Jacaranda mimosifolia
Kigelia aethiopum, syn. of ***Kigelia africana***
Kigelia africana
Kigelia pinnata, syn. of ***Kigelia africana***
Markhamia hildebrandtii, syn. of ***Markhamia lutea***
Markhamia lutea
Markhamia platycalyx, syn. of ***Markhamia lutea***
Markhamia zanzibarica
Spathodea campanulata
Spathodea nilotica, syn. of ***Spathodea campanulata***
Stereospermum kunthianum

Bombacaceae

Adansonia digitata
Adansonia gregorii
Bombax rhodognaphalon
Ceiba pentandra
Ceiba speciosa
Chorisia speciosa, syn. of ***Ceiba speciosa***

Boraginaceae

Cordia gharaf, syn. of ***Cordia sinensis***
Cordia rothii, syn. of ***Cordia sinensis***
Cordia abyssinica, syn. of ***Cordia africana***
Cordia africana
Cordia monoica
Cordia ovalis, syn. of ***Cordia monoica***
Cordia sinensis
Ehretia amoena
Ehretia bakeri
Ehretia cymosa

Buddlejaceae

Nuxia congesta
Nuxia floribunda
Nuxia oppositifolia

Burseraceae

Boswellia carteri
Boswellia frereana
Boswellia hildebrandtii, syn. of ***Boswellia neglecta***
Boswellia microphylla
Boswellia microphylla
Boswellia neglecta
Boswellia papyrifera
Boswellia rivae
Commiphora africana
Commiphora coriacea, syn. of ***Commiphora myrrha***
Commiphora eminii subsp. trifoliolata
Commiphora eminii* subsp. *zimmermannii
Commiphora myrrha
Commiphora rostrata *var.* reflexa
Commiphora rostrata *var.* rostrata
Commiphora rostrata
Commiphora zimmermannii, syn. of ***Commiphora eminii* subsp. *zimmermannii***

Canellaceae

Warburgia stuhlmannii
Warburgia ugandensis

Capparaceae

Crateva adansonii
Thylachium africanum
Thylachium thomasii

Capparidaceae

Boscia angustifolia
Boscia coriacea
Boscia salicifolia
Cadaba farinosa
Cadaba glandulosa
Cadaba ruspolii
Capparis fascicularis
Capparis sepiaria
Capparis tomentosa
Maerua decumbens
Maerua edulis, syn. of ***Maerua decumbens***
Maerua subcordata, syn. of ***Maerua decumbens***

Casuarinaceae

Casuarina cunninghamiana
Casuarina equisetifolia

Cecropiaceae

Myrianthus holstii

Celastraceae

Elaeodendron buchananii
Elaeodendron schweinfurthianum
Maytenus senegalensis

Chenopodiaceae

Salsola dendroides
Suaeda monoica

Chrysobalanaceae

Hirtella zanzibarica
Parinari curatellifolia subsp. curatellifolia
Parinari curatellifolia subsp. mobola
Parinari curatellifolia

Combretaceae

Combretum aculeatum
Combretum collinum
Combretum molle
Combretum schumannii
Conocarpus lancifolius
Lumnitzera racemosa
Terminalia brevipes
Terminalia brownii
Terminalia catappa
Terminalia kilimandscharica
Terminalia mantaly
Terminalia mollis
Terminalia orbicularis
Terminalia polycarpa
Terminalia prunioides
Terminalia sambesiaca
Terminalia spinosa

Cornaceae

Afrocrania volkensii, syn. of ***Cornus volkensii***
Cornus volkensii

Cucurbitaceae

Kedrostis gijef
Kedrostis pseudogijef

Cupressaceae

Cupressus lusitanica
Juniperus procera

Dracaenaceae

Dracaena afromontana
Dracaena ellenbeckiana
Dracaena fragrans
Dracaena laxissima
Dracaena steudneri

Ebenaceae

Diospyros abyssinica
Diospyros consolatae
Diospyros cornii
Diospyros mespiliformis
Diospyros scabra
Diospyros squarrosa
Diospyros wajirensis
Euclea divinorum
Euclea natalensis
Euclea racemosa subsp. schimperi
Euclea schimperi

Euphorbiaceae

Antidesma venosum
Bridelia cathartica
Bridelia micrantha
Bridelia scleuroneura
Bridelia taitensis
Croton macrostachyus
Croton megalocarpus
Euphorbia candelabrum
Euphorbia tirucalli
Flueggea virosa
Jatropha curcas
Macaranga kilimandscharica
Manihot esculenta
Manihot glaziovii
Margaritaria discoidea
Phyllanthus discoideus, syn. of ***Margaritaria discoidea***
Ricinus communis
Sapium ellipticum
Securinega virosa, syn. of ***Flueggea virosa***

Fabaceae

Acacia seyal *var.* fistula
Acacia abyssinica* subsp. *calophylla
Acacia albida ***Faidherbia albida***
Acacia brevispica* subsp. *brevispica
Acacia drepanolobium
Acacia elatior
Acacia gerrardii
Acacia hockii
Acacia kirkii
Acacia lahai
Acacia mearnsii
Acacia mellifera
Acacia nilotica
Acacia paolii
Acacia polyacantha* subsp. *campylacantha
Acacia senegal
Acacia seyal *var.* seyal
Acacia seyal
Acacia tortilis subsp. raddiana
Acacia tortilis subsp. spirocarpa
Acacia tortilis
Acacia xanthophloea
Acrocarpus fraxinifolius
Adenanthera pavonina
Afzelia quanzensis
Albizia amara subsp. amara
Albizia amara subsp. sericocephala
Albizia amara
Albizia anthelmintica
Albizia coriaria
Albizia glaberrima
Albizia gummifera *var.* gummifera
Albizia gummifera
Albizia lebbeck
Albizia saman
Albizia versicolor
Bauhinia purpurea

Bauhinia thonningii, syn. of ***Piliostigma thonningii***
Bauhinia variegata
Brachystegia spiciformis
Caesalpinia bonduc
Caesalpinia decapetala
Caesalpinia trothae
Caesalpinia volkensii
Cajanus cajan
Calliandra calothyrsus
Calliandra gilbertii
Cassia abbreviata subsp. beareana
Cassia abbreviata subsp. kaessneri
Cassia abbreviata
Cassia afrofistula
Cassia siamea, syn. of ***Senna siamea***
Cassia singueana, syn. of ***Senna singueana***
Cassia spectabilis, syn. of ***Senna spectabilis***
Cordeauxia edulis
Cordyla africana
Craibia brevicaudata
Craibia brownii
Crotalaria agatiflora
Crotalaria axillaris
Crotalaria goodiiformis
Crotalaria ochroleuca
Cynometra lukei
Cynometra suaheliensis
Cynometra webberi
Dalbergia lactea
Dalbergia melanoxylon
Delonix baccal
Delonix elata
Delonix regia
Dialium holtzii
Dialium orientale
Dicrostachys cinerea subsp. africana
Dicrostachys cinerea subsp. forbesii
Dicrostachys cinerea subsp. keniensis
Dicrostachys cinerea subsp. nyassana
Dicrostachys cinerea subsp. wajirensis
Dicrostachys cinerea
Entada abyssinica
Entada leptostachya
Entada rheedii
Erythrina abyssinica
Erythrina burtii
Erythrina excelsa
Erythrina melanacantha
Erythrina melanacantha
Erythrina sacleuxii
Erythrophleum suaveolens
Faidherbia albida
Gliricidia sepium
Gigasiphon macrosiphon
Hymenaea verrucosa
Julbernardia magnistipulata
Leucaena diversifolia
Leucaena glauca, syn. of ***Leucaena leucocephala***
Leucaena latisiliqua, syn. of ***Leucaena leucocephala***
Leucaena leucocephala
Millettia dura
Millettia usaramensis
Newtonia buchananii
Newtonia erlangeri
Newtonia hildebrandtii
Newtonia paucijuga
Ormocarpum kirkii
Ormorcarpum keniense
Ormorcarpum trachycarpum
Ormorcarpum trichocarpum
Oxystigma msoo
Paramacrolobium coeruleum
Parkia filicoidea
Parkinsonia aculeata
Parkinsonia anacantha
Parkinsonia scioana
Piliostigma thonningii
Pithecellobium dulce
Prosopis chilensis
Prosopis juliflora
Racosperma mearnsii, syn. of ***Acacia mearnsii***
Samanea saman ***Albizia saman***
Scorodophloeus fischeri
Senna siamea
Senna singueana
Senna spectabilis
Sesbania aculeata, syn. of ***Sesbania bispinosa***
Sesbania aegyptiaca, syn. of ***Sesbania sesban***
Sesbania bispinosa
Sesbania sesban
Tamarindus indica
Tipuana tipu
Trachylobium verrucosum, syn. of ***Hymenaea verrucosa***

Flacourtiaceae

Casaeria battiscombei
Casaeria gladiiformis
Dovyalis abyssinica
Dovyalis caffra
Dovyalis macrocalyx
Flacourtia indica
Oncoba routledgei
Oncoba spinosa

Guttiferae

Garcinia buchananii
Garcinia livingstonei
Garcinia mangostana
Garcinia volkensii
Harungana madagascariensis

Icacinaceae

Apodytes dimidiata

Labiatae

Plectranthus barbatus
Tetradenia riparia

Lauraceae

Ocotea kenyensis
Ocotea usambarensis
Persea americana

Loganiaceae

Buddleia polystachya
Buddleia polystachya
Buddleia pulchella
Strychnos henningsii
Strychnos innocua
Strychnos madagascariensis
Strychnos mitis
Strychnos spinosa
Strychnos usambarensis

Lythraceae

Lawsonia inermis

Malvaceae

Azanza garckeana, syn. of ***Thespesia garckeana***
Thespesia danis
Thespesia garckeana
Thespesia populnea

Meliaceae

Azadirachta indica
Ekebergia capensis
Entandophragma
Melia azedarach
Melia volkensii
Toona ciliata
Trema roka, syn. of ***Trichilia emetica***
Trichilia emetica
Xylocarpus granatum
Xylocarpus moluccensis

Melianthaceae

Bersama abyssinica

Moraceae

Antiaris toxicaria
Artocarpus altilis
Artocarpus heterophyllus
Chlorophora excelsa, syn. of ***Milicia excelsa***
Ficus benjamina
Ficus bussei
Ficus capensis, syn. of ***Ficus sur***
Ficus dekdekana, syn. of ***Ficus thonningii***
Ficus glumosa
Ficus ingens
Ficus natalensis
Ficus sur
Ficus sycomorus
Ficus thonningii
Ficus vallis-choudae
Milicia excelsa
Milicia regia
Morus alba
Morus nigra

Moringaceae

Moringa oleifera
Moringa stenopetala

Musaceae

Ensete edule, syn. of ***Ensete ventricosum***
Ensete ventricosum

Myrsinaceae

Embelia schimperi
Myrsine africana
Myrsine melanophloeos

Myrtaceae

Callistemon citrinus
Callistemon linearis
Callistemon salignus
Callistemon viminalis
Eucalyptus camaldulensis
Eucalyptus globulus
Eucalyptus grandis
Eucalyptus rostrata, syn. of ***Eucalyptus camaldulensis***
Eucalyptus saligna
Psidium guajava
Syzygium cordatum
Syzygium cumini
Syzygium guineense

Olacaceae

Strombosia scheffleri
Ximenia americana *var.* americana
Ximenia americana *var.* caffra
Ximenia americana

Oleaceae

Fraxinus pennsylvanica
Olea africana, syn. of ***Olea europaea* subsp. *cuspidata***
Olea capensis subsp. hochstetteri
Olea capensis* subsp. *macrocarpa
Olea capensis subsp. welwitschii
Olea europaea* subsp. *cuspidata
Olea europaea
Olea hochstetteri, syn. of ***Olea capensis* subsp. *macrocarpa***
Schrebera alata

Opiliaceae

Opilia amentacea
Opilia campestris* var. *campestris

Oxalidaceae

Averrhoa bilimbi
Averrhoa carambola

Pandanaceae

Pandanus kirkii
Pandanus rabaiensis

Pinaceae

Pinus patula

Poaceae

Arundinaria alpina
Bambusa vulgaris
Oreobambos buchwaldii
Oxytenanthera abyssinica

Podocarpaceae

Podocarpus falcatus
Podocarpus gracilior, syn. of ***Podocarpus falcatus***
Podocarpus latifolius
Podocarpus milanjianus, syn. of ***Podocarpus latifolius***

Proteaceae

Faurea rochetiana
Faurea saligna
Grevillea robusta
Hakea salicifolia
Hakea saligna, syn. of ***Hakea salicifolia***
Macadamia integrifolia
Macadamia ternifolia
Macadamia tetraphylla

Rhamnaceae

Berchemia discolor
Maesopsis eminii
Rhamnus prinoides
Rhamnus staddo
Scutia myrtina
Sideroxylon diospyroides, syn. of ***Sideroxylon inerme***
Sideroxylon inerme
Spirostachys africana
Spirostachys venenifera
Ziziphus abyssinica
Ziziphus mauritiana
Ziziphus mucronata
Ziziphus pubescens

Rhizophoraceae

Bruguiera gymnorrhiza
Cassipourea celastroides
Cassipourea euryoides
Cassipourea gummiflua
Cassipourea malosana
Cassipourea ruwensorensis
Ceriops tagal
Rhizophora mucronata

Rosaceae

Eriobotrya japonica
Hagenia abyssinica
Prunus africana
Prunus armeniaca
Rubus niveus
Rubus adolfi-friedericii, syn. of ***Rubus apetalus***
Rubus apetalus
Rubus pinnatus
Rubus rigidus, syn. of ***Rubus apetalus***
Rubus scheffleri
Rubus volkensii

Rubiaceae

Canthium glaucum
Gardenia fiorii
Gardenia posoquerioides
Gardenia ternifolia
Gardenia transvenulosa
Gardenia volkensii
Meyna tetraphylla
Pavetta abyssinica
Pavetta crassipes
Pavetta gardeniifolia
Pavetta oliverana
Vangueria acutiloba, syn. of ***Vangueria madagascariensis***
Vangueria apiculata
Vangueria infausta
Vangueria madagascariensis
Vangueria rotundat, syn. of ***Vangueria infausta***
Vangueria tomentosa, syn. of ***Vangueria infausta***
Vangueria volkensii

Rutaceae

Calodendrum capense
Casimiroa edulis
Clausena anisata
Fagara chalybea, syn. of ***Zanthoxylum chalybeum***
Fagara macrophylla, syn. of ***Zanthoxylum gilletii***
Fagara usambarensis, syn. of ***Zanthoxylum usambarense***
Fagaropsis angolensis
Fagaropsis hildebrandtii
Harrisonia abyssinica
Teclea nobilis ***Vepris nobilis***
Vepris nobilis
Vepris simplicifolia
Zanthoxylum chalybeum
Zanthoxylum gilletii
Zanthoxylum holtzianum
Zanthoxylum mildbraedii
Zanthoxylum rubescens
Zanthoxylum usambarense

Salicaceae

Populus ilicifolia

Salvadoraceae

Dobera glabra
Dobera loranthifolia
Salvadora persica

Santalaceae

Osyris lanceolata

Sapindaceae

Allophyllus africanus
Allophylus rubifolius
Blighia unijugata
Dodonaea angustifolia, syn. of ***Dodonaea viscosa***
Dodonaea viscosa
Dodonaea viscosa *var.* angustifolia
Dodonaea viscosa *var.* viscosa
Filicium decipiens
Lecaniodiscus fraxinifolius
Lepisanthes senegalensis
Pappea capensis

Sapotaceae

Aningeria adolfi-friedericii, syn. of ***Pouteria adolfi-friedericii***
Manilkara butugi
Manilkara discolor
Manilkara mochisia
Manilkara sansibarensis
Manilkara sulcata
Mimusops bagshawei
Mimusops fruticosa, syn. of ***Mimusops obtusifolia***
Mimusops kummel
Mimusops obtusifolia
Mimusops somalensis
Pachystela brevipes, syn. of ***Synsepalum brevipes***
Pouteria adolfi-friedericii
Pouteria adolfi-friedericii subsp. adolfi-friedericii
Pouteria adolfi-friedericii subsp. keniensis
Pouteria adolfi-friedericii subsp. usambarensis
Synsepalum brevipes
Synsepalum msolo

Solanaceae

Cyphomandra betacea

Sonneratiaceae

Sonneratia alba

Sterculiaceae

Dombeya burgessiae
Dombeya goetzenii, syn. of ***Dombeya torrida***
Dombeya kirkii
Dombeya rotundifolia
Dombeya taylorii
Dombeya torrida
Sterculia africana
Sterculia appendiculata

Tamaricaceae

Tamarix aphylla
Tamarix nilotica

Tiliaceae

Grewia bicolor
Grewia mollis
Grewia plagiophylla
Grewia similis
Grewia tembensis
Grewia tenax
Grewia villosa

Ulmaceae

Celtis africana
Celtis gomphophylla
Celtis mildbraedii
Celtis philippensis
Trema guineensis, syn. of ***Trema orientalis***
Trema orientalis

Verbenaceae

Avicennia marina
Clerodendrum eriophyllum
Clerodendrum johnstonii
Clerodendrum myricoides
Clerodendrum rotundifolium
Gmelina arborea
Lippia carviodora
Lippia javanica
Lippia kituiensis
Lippia ukambensis, syn. of ***Lippia kituiensis***
Premna angolensis
Premna chrysoclada
Premna maxima
Premna resinosa
Rotheca myricoides, syn. of ***Clerodendrum myricoides***
Vitex doniana
Vitex ferruginea
Vitex fischeri
Vitex keniensis
Vitex mombassae
Vitex payos

Vitaceae

Rhoicissus revoilii
Rhoicissus tridentata

Zamiaceae

Encephalartos bubalinus
Encephalartos hildebrandtii
Encephalartos kisambo
Encephalartos powysorum
Encephalartos tengulaneus

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APPENDIX

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Gede, 18–20 March 2002

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Acronyms

CFCU	Coastal Forest Conservation Unit
ICRAF	World Agroforestry Centre
KEFRI	Kenya Forestry Research Centre
KENRIK	Kenya Resosurce Centre for Indigenous Knowledge

Species index

Main entries in **bold**
Synonyms in *italic*
Species mentioned under 'Remarks' in normal type

Facilitators' manual for communication skills workshops
Pamela Baxter. 1996. TH No. 13. ISBN 9966-896-25-2

Water harvesting: an illustrative manual for development of microcatchment techniques for crop production in dry areas
Mwangi T. Hai. 1998. TH No. 16. ISBN 9966-896-33-3

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Thomas Raussen (ed.). 1997. TH No. 15. ISBN 9966-896-32-5

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Joseph A. Banda, Penias Banda and Bo Tengnäs. 1997. TH No. 14. ISBN 9966-896-31-7

Facilitators' manual for communication skills workshops
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Useful trees and shrubs in Eritrea: identification, propagation and management for agricultural and pastoral communities
Estifanos Bein, B. Habte, A. Jaber, Ann Birnie and Bo Tengnäs. 1996. TH No. 12. ISBN 9966-896-24-4

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Azene Bekele-Tessema, Ann Birnie and Bo Tengnäs. 1993. TH No. 5. ISBN 9966-896-15-5

Guidelines on agroforestry extension planning in Kenya
Bo Tengnäs. 1993. TH No. 3. ISBN 9966-896-11-2

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ISBN 9966-896-70-8

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