Newtonia buchananii

(Baker) Gilbert & Boutique

Fabaceae - Mimosoideae

mufomoti

LOCAL NAMES
English (newtonia,forest newtonia); Luganda (mpewere); Swahili (mnyasa); Trade name (mufomoti)

BOTANIC DESCRIPTION
Newtonia buchananii is a tall deciduous tree 10-40 m high, with a rather flat crown. The tree trunk is often short but can be extremely high in forest valleys, with strongly fluted buttresses. Bark is smooth and light grey. Branchlets with rust-brown hairs.

Leaves bipinnate, leaflets numerous (24-)38-67 pairs, linear or falcate 2-9 mm long, tiny and light green when young. Leaf rachis with a stipitate tiny gland between each pinna-pair.

Inflorescences in erect cream spikes fading to brown, 3-18 cm long. Flowers sessile or nearly so, anthers with an apical gland that soon falls off, ovary densely pilose outside.

Pods brown, 1.3-2.5 cm, thin 15-30 cm long, splitting open on one side. Seeds lying longitudinally in the pod, seeds flat, distinctive red-brown, to 4-7 cm long, 1-2 cm wide, surrounded by a membranous wing.

The generic and specific epithets are honorary for Sir Isaac Newton, the famous English scientist, and Buchanan, a botanical collector and Vice Consul in Malawi from 1877-1890.

Common tree of Ngangao forest, Taita Hills. (Gerard D. Hertel, West Chester University, www.forestryimages.org)

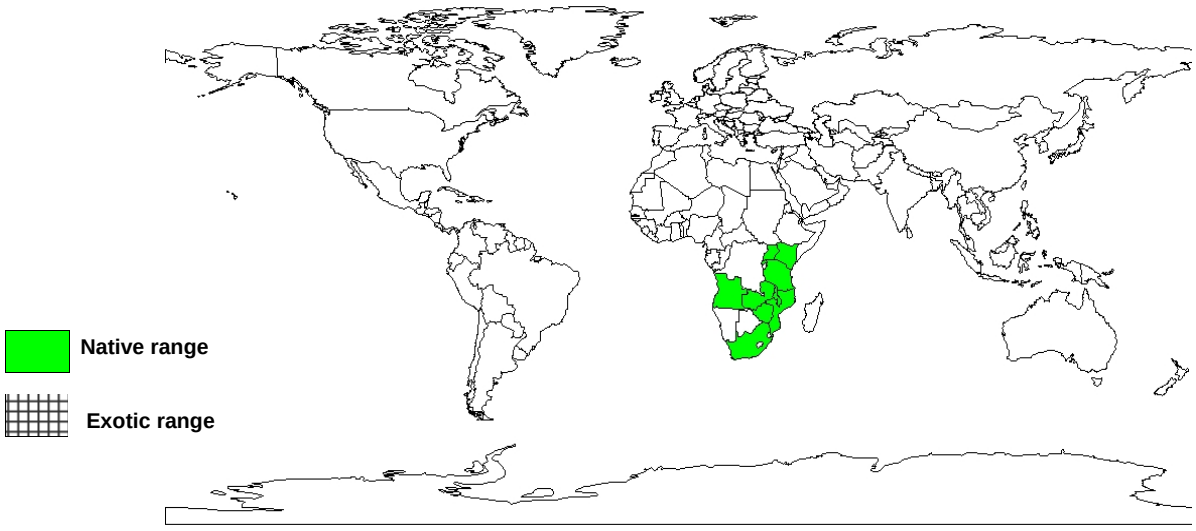
ECOLOGY
N. buchananii is common in lowland and upland rain forest, usually near streams, ground water, or as a component of riverine, mist or swamp forest.

BIOPHYSICAL LIMITS
Altitude: 600-2 100 m, Mean annual rainfall: 1100-3000 mm, Mean annual temperature: 17-27 deg.C

DOCUMENTED SPECIES DISTRIBUTION

Native: Angola, Democratic Republic of Congo, Kenya, Malawi, Mozambique, Rwanda, South Africa, Tanzania, Uganda, Zambia, Zimbabwe

Exotic:



The map above shows countries where the species has been planted. It does neither suggest that the species can be planted in every ecological zone within that country, nor that the species can not be planted in other countries than those depicted. Since some tree species are invasive, you need to follow biosafety procedures that apply to your planting site.

PRODUCTS
Fodder: The foliage and pods are eaten by livestock and can be gathered as fodder.

Apiculture: N. buchananii is a good source of nectar and pollen for bees.

Fuel: A good source of quality firewood.

Timber: The brown to red-brown hardwood is durable in water and thus a favourite for boat/ canoe building. Poles from the tree are used in house construction.

Gum or resin: A yellow-brown resin exudes from the bark when cut.

SERVICES
Erosion control: The tree protects riverine soil from erosion.

Shade or shelter: The tree's crown gives light shade.

Soil improver: The leaves are used in agriculture as mulch.

Ornamental: N. buchananii has a graceful form, flat topped and tall, making an ideal choice for gardens, parks and homes.

Boundary or barrier or support: Poles are used for fencing.

Intercropping: N. buchananii's crown gives light shade, which may not injuriously affect other crops in agroforestry systems.

TREE MANAGEMENT
N. buchananii is a fairly fast growing tree once established, but needs care during the establishment phase.

GERMPLASM MANAGEMENT
Germination percentage rates are up to 90% in 20-30 days. There are 3 000-13 000 seeds/ kg. No pretreatment is necessary. However the seeds remain viable for only a few weeks at room temperature storage. Pods should be collected from the tree crown immediately they turn brown, then dried before seed extraction. Direct sowing does not appear to be a suitable method for regenerating N. buchananii: survival (26%) and growth were slow in trials at Amani, Tanzania.

FURTHER READNG

Brenan JPM. 1959. Leguminosae (I) subfamily Caesalpinioideae. In: Flora of Tropical East Africa. Crown Agents, London.

Katende AB et al. 1995. Useful trees and shrubs for Uganda. Identification, Propagation and Management for Agricultural and Pastoral Communities. Regional Soil Conservation Unit (RSCU), Swedish International Development Authority (SIDA).

Mugasha AG. 1978. Direct sowing of Beilschmiedia kweo (Mildbr.) Robyns & Wilczek, Cephalosphaera usambarensis Warb. and Newtonia buchananii (Baker) Gilbert & Boutique at Amani and Kwamkoro, Tanzania. Tanzania Silviculture Technical Note, No. 40, 11 pp.

SUGGESTED CITATION

Orwa C, Mutua A , Kindt R , Jamnadass R, Simons A. 2009. Agroforestree Database:a tree reference and selection guide version 4.0 (http://www.worldagroforestry.org/af/treedb/)