

LOCAL NAMES

Creole (frijolillo,bwa kabrit,cabrit,fainilo,manger); English (yellow candlewood,senna tree); French (bois cabrit,casse marron,casse à bâton); Spanish (palo de burro,palo de chivo,sopaipo extranjero,vela muerto,bruscon,frijolillo)

BOTANIC DESCRIPTION

In its native range, *Senna atomaria* is a small shrub or small tree to about 10m in height, with a straight but sometimes multiple grey-barked stems and a light crown.

The leaves are usually 10-20 cm long, dark green, with 2-3 pairs of ovate leaflets.

The flowers are bright yellow.

Pods indehiscent, 20- 35cm long, narrow, and green turning black when ripe.

BIOLOGY

The tree flowers in January to March and the fruits take almost a year to ripen. The seed is ready for collection the following February to March. The pods often persist on the tree for several months.

ECOLOGY

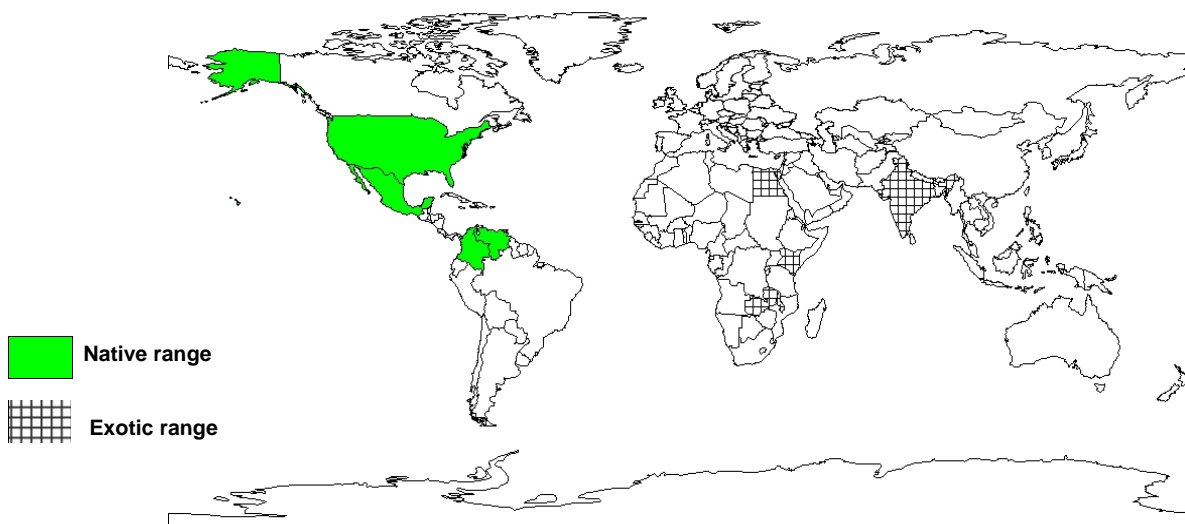
The species occurs from close to sea level to up to 2 000 m, on the Pacific slopes in Mexico, the Pacific lowlands of Mexico and central America in seasonally dry climates with a 5-7 dry month period. The species is abundant and appears unthreatened in its natural environment. Prefers dry rocky slopes and many parts of the central American lowlands. Usually associated with *Chrysophyllum oliviforme* and *Prosopis juliflora* which are common in the subtropical dry forest and degraded moist forest sites.

BIOPHYSICAL LIMITS

Altitude: 0-2 000 m
Mean annual temperature:
Mean annual rainfall: 500-1 200 mm
Soil type: *S. atomaria* tolerated saline soils in test trials.

DOCUMENTED SPECIES DISTRIBUTION

Native: Colombia, Mexico, US, Venezuela
Exotic: Egypt, Haiti, Honduras, India, Kenya, Malawi, Zambia



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 strong smelling leaves were browsed by animals during field trials in Malawi, *S. atomaria* has high potential as a fodder source, however some reports indicate stock poisoning, hair loss in mules and horses, after ingestion of the pods.

Fuel: Suitable because of its vigorous regrowth and biomass production. Has a heat of combustion of 19 megajoules /kg.

Timber: It is a high wood biomass producer, yielding a sapwood yellow in colour, and a darkbrown hard heartwood. The wood has a specific gravity between 0.57 and 0.85.

Medicine: Used in treating cases of skin itch, massaging with crushed leaves, for skin discolouration and insect bites the macerated leaf decoction is applied on the affected area.

SERVICES

Erosion control: The plant can be used in soil conservation initiatives.

Shade or shelter: Can provide light shade in homesteads or pastureland.

Nitrogen fixing: Apparently the *Senna* species do not fix nitrogen, but have the ability to form vesicular arbuscular mycorrhiza.

Soil improver: The leaf fall especially during the dry, or leaf shedding season on decomposition enhances soil fertility.

Ornamental: Can serve well as an ornamental.

Boundary or barrier or support: Has potential use in provision of fencing posts and a boundary tree.

Other services

Though a relatively new species, *S. atomaria* has considerable potential for agroforestry use on irrigated land. In agroforestry trials it has given impressive survival and growth results in a number of pantropical trials.

TREE MANAGEMENT

Trials in Somalia report satisfactory plantation establishment of *S. atomaria* without irrigation. Good growth rates (sufficient for fuelwood production) were found on sandy rainfed sites with *S. atomaria*. Pollarding and coppicing seem not to adversely affect this plant.

GERMPLASM MANAGEMENT

This plant seeds precociously yielding about 36,000 seeds /kg. The indehiscent pods are crushed to extract seeds. Manual scarification appears to be the most appropriate pretreatment in this species, further alternatives are being explored, the use of sulfuric acid being one of the tested options. *S. atomaria* would require at least 3 months in the nursery to attain the current recommended 20 cm height for field planting of nursery stock in southern Africa.

FURTHER READING

Bowen MR. et al. 1989. Field trials 1987-1989. British Forestry Project Somalia and National Range Agency, Working-Paper, National Range Agency British Forestry Project Somalia, No. 12, 30 pp.

Mikkola L and Jama AM. 1991. Early results from five species trials in Somalia, Research Note, Forest-Department, National Range Agency, Somalia, No. 1, ii, 28 pp

Mzoma RN. 1990. Evaluation of multipurpose trees for Social forestry. *International Tree Crop Journal*. 6 (2&3):151-172.

Ngulube MR. 1989. Seed germination, seedling growth and biomass production of eight Central-American multipurpose trees under nursery conditions in Zomba, Malawi. *Forest Ecology and Management*. 27(1): 21-27.

Stewart JL. et al. 1992. Wood Biomass estimation of Central American dry zone species. Oxford Forestry Institute, University of Oxford.

Timyan J. 1996. Bwa Yo: important trees of Haiti. South-East Consortium for International Development. Washington D.C.

SUGGESTED CITATION

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