Guazuma ulmifolia

Lam.

Sterculiaceae

guazima firewood

LOCAL NAMES
Bengali (nipaltunth); English (bastard cedar,bay cedar,pigeon wood,West Indian elm); French (bois de hêtre,bois d'homme,bois d'orme); Portuguese (fruta-de-macaco,embira,mutamba,orme d'Amérique,pojó,bois d'orme); Spanish (guácima,coco,contamal,cualote,guazuma,cambá-acá,Guácima cimaronna,Guácima de caballo,bacedar,guácimo,iumanasi,kamba aka guasa,majagua de toro,papayillo,tablote,tapaculo); Tamil (rudrasam,tenbachai,thenmaram,tubakki); Trade name (guazima firewood)

BOTANIC DESCRIPTION
Guazuma ulmifolia grows to 30 m in height and 30-40 cm in diameter with a rounded crown. Young twigs covered with rust-brown or light grey star-shaped hairs. Bark grey or grey-brown becoming furrowed and rough or slightly shaggy.

Leaves alternate in 2 rows in flattened arrangement, ovate to lance-shaped, 6-13 cm long, 2.5-6 cm wide, long-pointed, finely saw-toothed, with 3 or sometimes 5 main veins from rounded or notched unequal-sided base, thin, nearly hairless or sometimes densely hairy, green upper surface, paler underneath; at night hanging vertically. Leaf stalks slender, 6-12 mm long, covered with tiny star-shaped hairs.

Flower clusters (panicles) branched, 2.5-5 cm long, at the base of leaves. Flowers many, short stalked, small, brownish-yellow, with 5 parts, about 1 cm long and half as broad, spreading, slightly fragrant. Calyx with 2-3 lobes, with rusty brown or light grey hairs, turned back, and then greenish; 5 yellow petals, each 2-forked; a yellowish stamen column with about 15 anthers surrounding the pistil, which has a hairy, light-green 5-celled ovary, style and 5 united stigmas.

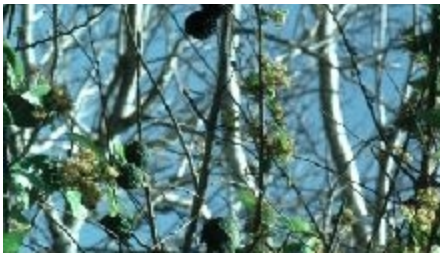
Fruit round to elliptical capsules, very warty, hard, black, 15-25 mm long, 5-celled, opening at tip or irregularly by pores. Seeds many, egg-shaped, 3 mm long, grey.

The specific epithet alludes to its elm-like leaves.

BIOLOGY
This species flowers all year long, especially from April to October. However, the best months for seed collection in Mexico's Yucatan Peninsula are April and May.

G. ulmifolia is one of the most common trees in agricultural areas in Latin America found in fields, secondary vegetation and fencelines. It typically forms a small tree with a compact rounded crown as here in coastal Oaxaca, Mexico. (Colin E. Hughes)

G. ulmifolia managed by pollarding in live fences, near Los Santos, Panama. (Colin E. Hughes)



Leaves of G. ulmifolia provide a highly palatable, moderately nutritious livestock fodder, being fed to goats in coastal Oaxaca, Mexico. (Colin E. Hughes)

Guazuma ulmifolia Lam.

guazima firewood Sterculiaceae

ECOLOGY
G. ulmifolia is widely adapted, growing in alluvial and clay soils, and in humid and dry climates. A pioneer species that grows best in full sunlight, it colonizes recently disturbed areas and is also found growing along stream banks and in pastures. It is a common species in secondary forest.

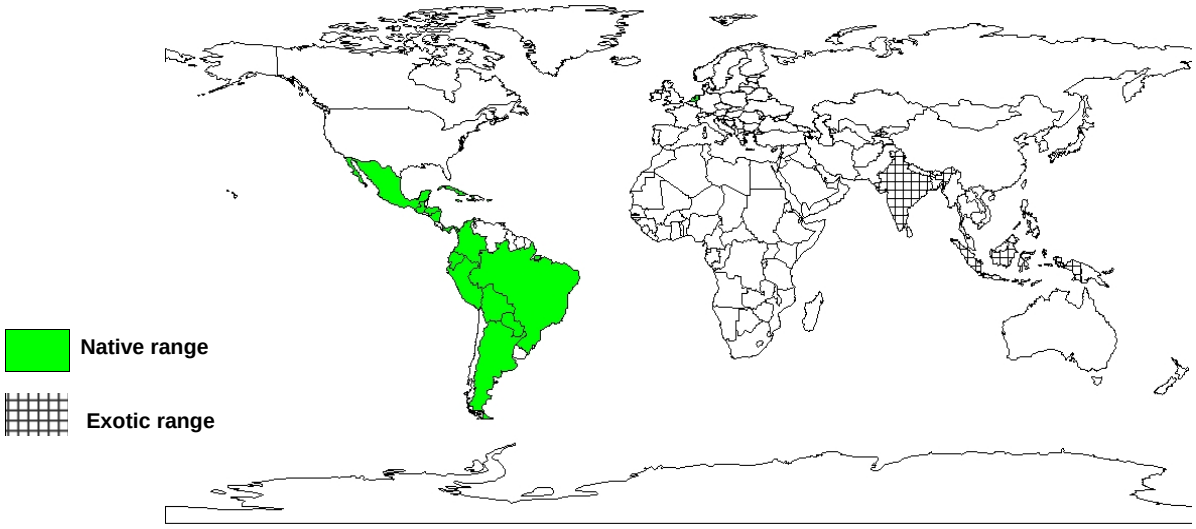
BIOPHYSICAL LIMITS
Altitude: 400-1200 m, Mean annual temperature: 24 deg. C, Mean annual rainfall: 600-1500 mm

Soil type: G. ulmifolia is widely adapted, growing in alluvial and clay soils.

DOCUMENTED SPECIES DISTRIBUTION

Native: Antigua and Barbuda, Argentina, Bahamas, Barbados, Bolivia, Brazil, Colombia, Cuba, Dominica, Dominican Republic, Ecuador, Grenada, Guadeloupe, Guatemala, Haiti, Honduras, Jamaica, Martinique, Mexico, Montserrat, Netherlands, Nicaragua, Panama, Paraguay, Peru, Puerto Rico, St Kitts and Nevis, St Lucia, St Vincent and the Grenadines, Trinidad and Tobago, Virgin Islands (US)

Exotic: India, Indonesia



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
Food: The seeds are edible, fresh or cooked.

Fodder: In dry areas throughout its native range, G. ulmifolia is an important source of fodder for livestock, particularly at the end of the dry season when pasture grasses are not available. Immature fruit and leaves are fed to horses and cattle, and fruits are fed to hogs. Farmers feed the leaves and fruit to cattle, usually during the dry season. Crude protein content of young leaves ranges from 16 to 23% and of stems 7 to 8%. In vitro dry matter digestibility for young leaves ranges from 56 to 58% and of stems 31 to 36%. Basal leaves contain 2.4% tannins (dry matter).

Apiculture: Honeybees forage on the flowers.

Fuel: G. ulmifolia can be used for firewood and charcoal.

Fibre: The tough, fibrous bark and young stems are used to make rope and twine.

Timber: The wood is used for posts, interior carpentry, light construction, boxes and crates, shoe horns and tool handles. The sapwood is light brown and the heartwood pinkish to brownish. The wood is easy to work, with a specific gravity of 550-570 kg/cubic m.

Medicine: An infusion of crushed seed soaked in water is used to treat diarrhoea, dysentery, colds, coughs and venereal diseases. It is also used as a diuretic and astringent.

SERVICES
Shade or shelter: Naturally regenerated trees are left scattered in pastures to provide shade.

TREE MANAGEMENT
Regular pruning can increase the fodder yield. In a study in Honduras, G. ulmifolia pruned 4 times in a year produced 10 kg/tree dry matter (leaves and young stems).

GERMPLASM MANAGEMENT
Seed storage behaviour is orthodox. There are 100 000-225 000 seeds/kg.

PESTS AND DISEASES
Phelyypera distigma is a common defoliating insect. Arsenura armida and Epitragus spp. are defoliators that occasionally cause problems. Automeris rubrescens, Hylesia lineata, Lirimiris truncata and Periphoba arcaei are defoliating insects that have been observed at least once. A stem borer, Aepytus spp., is an occasional problem.

FURTHER READNG

Anon. 1986. The useful plants of India. Publications & Information Directorate, CSIR, New Delhi, India.

Hong TD, Linington S, Ellis RH. 1996. Seed storage behaviour: a compendium. Handbooks for Genebanks: No. 4. IPGRI.

Jackson JK. 1994. Manual of Afforestation in Nepal. Forest Research and Survey Centre Kathmandu, Nepal. Vol 2.

Little EL, Wadsworth FH. 1964. Common trees of Puerto Rico and the Virgin Islands. Agricultural Handbook. No. 249. US Department of Agriculture. Washington DC.

Little EL. 1983. Common fuelwood crops. Communi-Tech Association, Morgantown, West Virginia.

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/)