

## Enterolobium cyclocarpum

Mexican walnut

(Jacq.) Griseb.

Fabaceae - Mimosoideae

### LOCAL NAMES

Creole Patois (bwa tanis wouj); English (enterolobium, ear fruit, ear pod tree, Mexican walnut, guanacaste, pitchwood, elephant ear); French (bois tanniste rouge); Hawaiian (elephant ear); Spanish (algarrobo de orejos, oreja, dormilon, oreja de judio, orejon, framboyan extranjero); Trade name (Mexican walnut)

### BOTANIC DESCRIPTION

*Enterolobium cyclocarpum* is one of the largest trees in the dry forest formation, reaching up to 40 m in height and 3 m in diameter, with a huge, spreading crown. Older *E. cyclocarpum* trees develop small buttresses and produce large roots that run along the surface of the ground for 2-3 m. Sidewalks, roads, or foundations may be cracked or raised by *E. cyclocarpum* trees growing close by.

The bipinnate compound leaves of *E. cyclocarpum* have 5 opposite leaflets.

The small white flowers occur in compact, round heads.

Seeds contained in distinctive, thickened, contorted, indehiscent pods that resemble an ear in form; seed 20 x 15 mm, ovate, compressed, dull, reddish-brown, with 100% pleurogram, marked with a yellowish band on each face, punctiform apical hilum concealed or not by whitish funicle; adult trees produce about 2000 pods, each with 10-16 seeds.

### BIOLOGY

The small, white flowers are borne in clusters or heads at the base of the leaves. Flowering takes place in March and April during the regrowth of new leaves after the leafless dry season. There is no indication in the literature as to what age flowers 1st appear. Seed dissemination is mainly by cattle, horses and wild ungulates, attracted by the syrupy pulp of the fruits.



*E. cyclocarpum* tree, Las Juntas, Costa Rica. (David Boshier)



*E. cyclocarpum*, 2 year old progeny trial, CONSEFORH, Choluteca, Honduras. (David Boshier)



*E. cyclocarpum*, flower and ripe pods. (David Boshier)

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## ECOLOGY

Colonizing a wide range of habitats, *E. cyclocarpum* is a climax species in subtropical, dry forest zones, restricted to disturbed areas in wetter forest types. It is a dominant species in all the tree associations in which it is found. In Mexico, it is found in association with *Ficus mexicana*, *Sideroxylon capirit*, *Trichilia hirta*, *Ceiba pentandra*, and others. Dry seasons of 1-6 months are usual in most of its habitats.

## BIOPHYSICAL LIMITS

Altitude: 0-1200 m, Mean annual temperature: 23-28 deg. C, Mean annual rainfall: 750-2500 mm

Soil type: *E. cyclocarpum* tolerates alkaline, calcareous and even acidic soils. Medium-textured soils are probably best, but eroded Ultasols, deep moist clays, shallow sandy clays and porous limestone all allow good development.

## DOCUMENTED SPECIES DISTRIBUTION

Native: Brazil, Colombia, Guyana, Mexico, United States of America, Venezuela

Exotic: Costa Rica, Cuba, Dominican Republic, Haiti, Jamaica, Puerto Rico



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.

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### PRODUCTS

**Food:** Immature pods are cooked as a vegetable, or the seeds are toasted and ground.

**Fodder:** Large quantities of highly palatable and nutritious pods containing a sugary pulp are produced by the tree, and are consumed readily by livestock. The foliage is also palatable, though to a lesser extent than the pods.

**Fibre:** The wood of *E. cyclocarpum* has been found excellent for producing quality paper.

**Timber:** *E. cyclocarpum* heartwood is reddish-brown, coarse-textured and moderately durable. The wood is resistant to attack by dry-wood termites and *Lyctus*, and can be used in house construction as well as in interior elements, including panelling. The white sapwood is susceptible to insect attack. The wood may also be used for boat building, because of its durability in water.

**Tannin or dyestuff:** Tannin from the pods and bark is used in soap making.

**Medicine:** Bark extracts are used medicinally against colds and bronchitis.

### SERVICES

**Shade or shelter:** The wide-spreading canopy of *E. cyclocarpum* makes it an ideal shade tree for livestock in pasturelands and perennial crops such as coffee.

**Nitrogen fixing:** *E. cyclocarpum* is a nitrogen-fixing species.

**Ornamental:** A popular tree for roadsides and urban planting.

**Intercropping:** The ability of *E. cyclocarpum* to fix nitrogen and to sprout vigorously when coppiced point to its possible role as a hedgerow species in alley-cropping systems.

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### **TREE MANAGEMENT**

Spacing of 4 x 4 m with thinning on a rotation of 25-35 years is recommended. *E. cyclocarpum* is shade intolerant. The tree must receive adequate sunlight as a dominant or codominant from the sapling stage onwards. Careful weeding of the plantation is essential during the early years. Pruning can improve the length and form of the bole. It resprouts vigorously after coppicing or lopping. Little information is available, however, on its response to repeated cutting.

### **GERMPLASM MANAGEMENT**

Seed storage behaviour is orthodox; seeds tolerate desiccation to 10.7% mc. Seeds remain viable for several years under cool, dry conditions and can be easily stored under normal conditions. There are 900-1200 seeds/kg.

### **PESTS AND DISEASES**

*E. cyclocarpum* has no widespread or serious disease or pest problem. Parrots often prey on the green pods, and the gall-forming moth, *Asphondylia enterolobii*, may disrupt fruiting. Occasional attack by a fusarium fungus may cause the affected limbs to fall from mature trees.

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### **FURTHER READING**

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

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

### **SUGGESTED CITATION**

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