Vochysia guatemalensis Donn. Sm.

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VOCHYSIACEAE (VOCHYSIA FAMILY)

Vochysia hondurensis Sprague, *V. guatemalensis* Standl., *V. hondurensis* Standl.

Barba chele, chanco blanco, corosillo, emeri, emery, flor de mayo, ira de agua, maca blanca, magnolia, mayo blanco, mecri, palo bayo, palo de agua, palo de chancho, palo de tecolote, robanchab, ruanchap, sangrillo, san juan, san juan blanco, san juan peludo, san juanillo, san pedrano, sayuc, sebo

Vochysia guatemalensis ranges naturally from Veracruz, Mexico, to Panama. The trees are frequently found in monospecific stands or in patches with *V. ferruginea* Mart. and *V. allenii* Standl. & L.O. Williams. The species has been associated with secondary vegetation (Flores 1993b), but in Costa Rica it grows in primary forests.

Vochysia guatemalensis is a fast-growing tree that can reach 40 m in height and 0.70 to 1 m d.b.h. It has a straight, smooth, cylindrical trunk without branches in the basal two-thirds and without buttresses. The gray bark is slightly scaly, and the crown is very dense with a round or depressed shape. During the dry season the tree is partially defoliated and smaller branches are pruned naturally. Leaves are simple, petiolated, stipulated, coriaceous, and four-whorled (sometimes three-whorled or opposite or decussate on branches producing inflorescences); the petiole is slender and canaliculate. The blade is obovate, symmetrical, with entire margin, obtuse to rounded apex, decurrent base and pinnate venation, with a strong dimensional variation that fluctuates between 9 to 15 cm long and 4 to 5 cm wide. *Vochysia guatemalensis* grows well in clay, acidic (pH 5.0 to 6.0) soils with a high concentration of iron and aluminum. The species grows from the lowlands to 1100 m in the humid and very humid forests of the coastal plains. Temperature varies from 24 to 30 °C; and annual rainfall, from 3000 to 5000 mm.

The wood of *V. guatemalensis* is light (specific gravity 0.35) but strong and has adequate dimensional stability and a moderate drying rate. It dries well and without defects. The wood is easy to machine and cut but develops a slight scrolling of the finish when brushed. The silica content is very high and affects the saws and cutting tools. The wood is very resistant to fungal decay or insect attack but rots easily if exposed to severe weather. If it lies on the ground, the wood decays rapidly. However, this wood is easy to impregnate with preservatives, reaching acceptable or complete penetration. The wood is used for boxes, cabinetwork, and pulp for papermaking. In Belize, the wood is exported to the United States where it is used to make veneer. *Vochysia guatemalensis* is also used to build canoes in the region of Izabal Lake, Guatemala (Flores 1993b).

Vochysia guatemalensis flowers March through June, with additional flowering in October and November and sometimes in February. The trees begin to flower and fruit at the age of 12 to 13 years. The yellow flowers are clustered in terminal or axillary panicles 10 to 20 cm in length with composite ramifications; they are hermaphrodite, zygomorphic, and fragrant. The yellow-brown fruit is a loculicidal, thick, obovate or oblong capsule, 4.8 to 5.8 cm in length, deeply trisulcate, angulose, and verrucose. The capsule is trilocular and contains two seeds per locule. Fruits ripen August through October, but a small crop of fruits ripen in March. The seeds are laterally compressed, winged, and anemochorous.

The fruits should be collected before dehiscence directly from the tree from seed-producing trees with a d.b.h. of 50 cm or more. They can be stored in the shade until they open, and the seeds can be removed manually. Seed abortion is uncommon and approximately 10 percent of the seeds are nonviable. In Costa Rica, fresh seeds (45 to 55 percent moisture) average 3,500 to 4,500 per kg, and dry seeds (8 to 10 percent moisture) average 7,000 to 8,000 per kg (Corea 1994). Viability lasts from 2 to 3 months if seeds are stored at 24 to 26 °C with good aeration. If the moisture content is reduced to 25 percent, seeds can maintain high viability (75 percent) for 4 to 6 months (Flores 1993b). When seeds are stored for 1 month at a low temperature (3 °C) and a high moisture content (32 percent) viability drops rapidly (to 9 percent).

Seeds do not require pregermination treatments and a

germination of 85 to 90 percent is obtained under greenhouse conditions. Germination is epigeal and the seedling is phanerocotylar. Under natural conditions, germination is rapid and begins in 8 to 9 days. Nevertheless, most seedlings die in the following month, primarily from ant predation (*Atta* spp.) but also from cricket and grasshopper attacks.

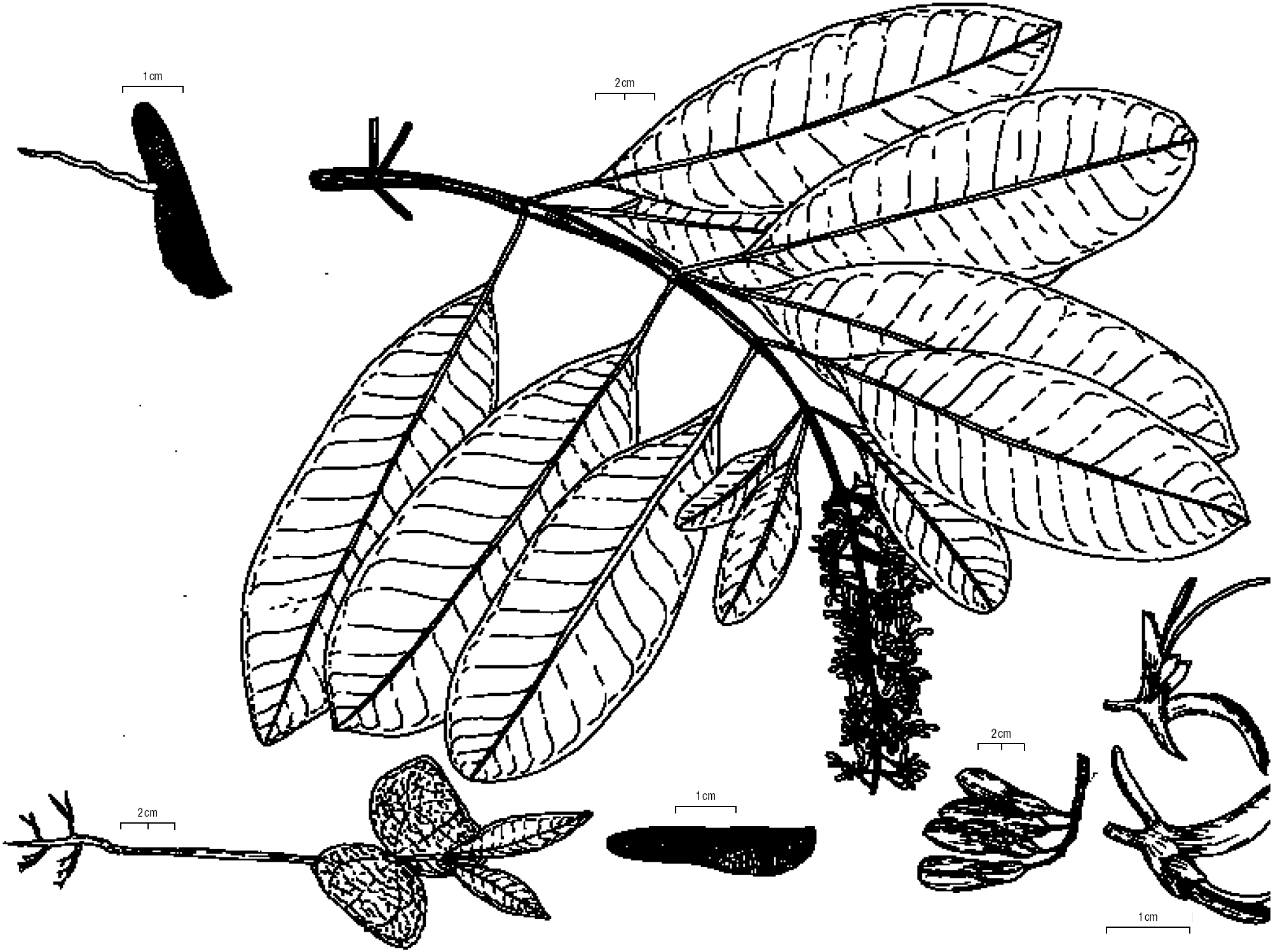
The seeds are planted in boxes full of damp sand. After germination, seedlings should be fertilized (soil or foliar fertilization) because they have high nutritional requirements. Seedlings must be transferred to bags before eophylls develop to reduce leaf withering. At 6 to 7 months the seedlings should be outplanted. Delay should be avoided because the roots grow quickly.

ADDITIONAL INFORMATION

The species is autocompatible and seems to be autogamous, but some nectarivorous insects extract nectar from the spur and pollinate some of the flowers. Many young fruits are eaten by birds and mammals, substantially reducing seed production.

Propagation by pseudografting twigs and naked root seedlings has not been successful (Flores 1993b). However, research continues and Corea (1994) believes using juvenile succulent cuttings for rooting will prove successful.

Chaverri and others (1997) found in a 5-year-old plantation of *V. guatemalensis* in Tabarcia, Costa Rica (premontane moist forest) that almost all of the trees had some insect damage, but in 80 percent the severity was less than 20 percent. The majority of the caterpillars were captured on young leaves, and the larvae were classified as belonging to eight species. Associated with them, six species of parasitoids or hyperparasitoids were detected.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