Albizia procera (Roxb.) Benth.

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FABACEAE (BEAN FAMILY)

Acacia procera Willd., *Mimosa elata* Roxb., *Mimosa procera* Willd. (Benthall 1933, Gamble 1922)

Acacia blanca, albizia, tall albizia, white siris (Little and Wadsworth 1964)

Albizia procera is native to moist deciduous and semievergreen hill forests, swamp forests, and lowland savanna woodlands in Asia from northern India through southeast Asia to the Philippines, Indonesia, Melanesia, and northern Australia (Nielsen 1979, Parrotta 1988b, Venkataramany 1968). It was introduced as an ornamental and fuelwood species into the U.S. Virgin Islands at least 100 years ago and into Puerto Rico in 1924 (Little and Wadsworth 1964). It has naturalized in Puerto Rico, where it is an aggressive colonizer of abandoned farmlands, pastures, roadsides, and other highly disturbed, moist sites at elevations below 600 m where annual rainfall exceeds 800 mm (Parrotta 1988b). It is occasionally planted in southern Florida (Little and Wadsworth 1964).

Albizia procera is a fast-growing deciduous tree that generally reaches 10 to 20 m in height and 30 to 6o cm d.b.h. and has a straight to somewhat curved stem, smoothish light brown to light greenish gray bark, and a spreading thin crown (Little and Wadsworth 1964, Troup 1921). Depending on site conditions, annual height growth ranges from 1 to 2 m and annual diameter growth from 1.5 to 2 cm during the first 15 years (Parrotta 1988b, Venkataramany 1968). In natural forests in northern India, the species can reach 36 m in height and 90 cm d.b.h. (Troup 1921). It grows best on very moist, alluvial sites of well-drained loams or clays but can tolerate shallow, dry, stony, and sandy soils (National Research Council 1979, Troup 1921, Venkataramany 1968). The tree grows well in tropical and subtropical environments with an annual rainfall between 1000 and 5000 mm and elevations from sea level to about 900 m. Relatively drought resistant, *A. procera* is susceptible to frost (Troup 1921).

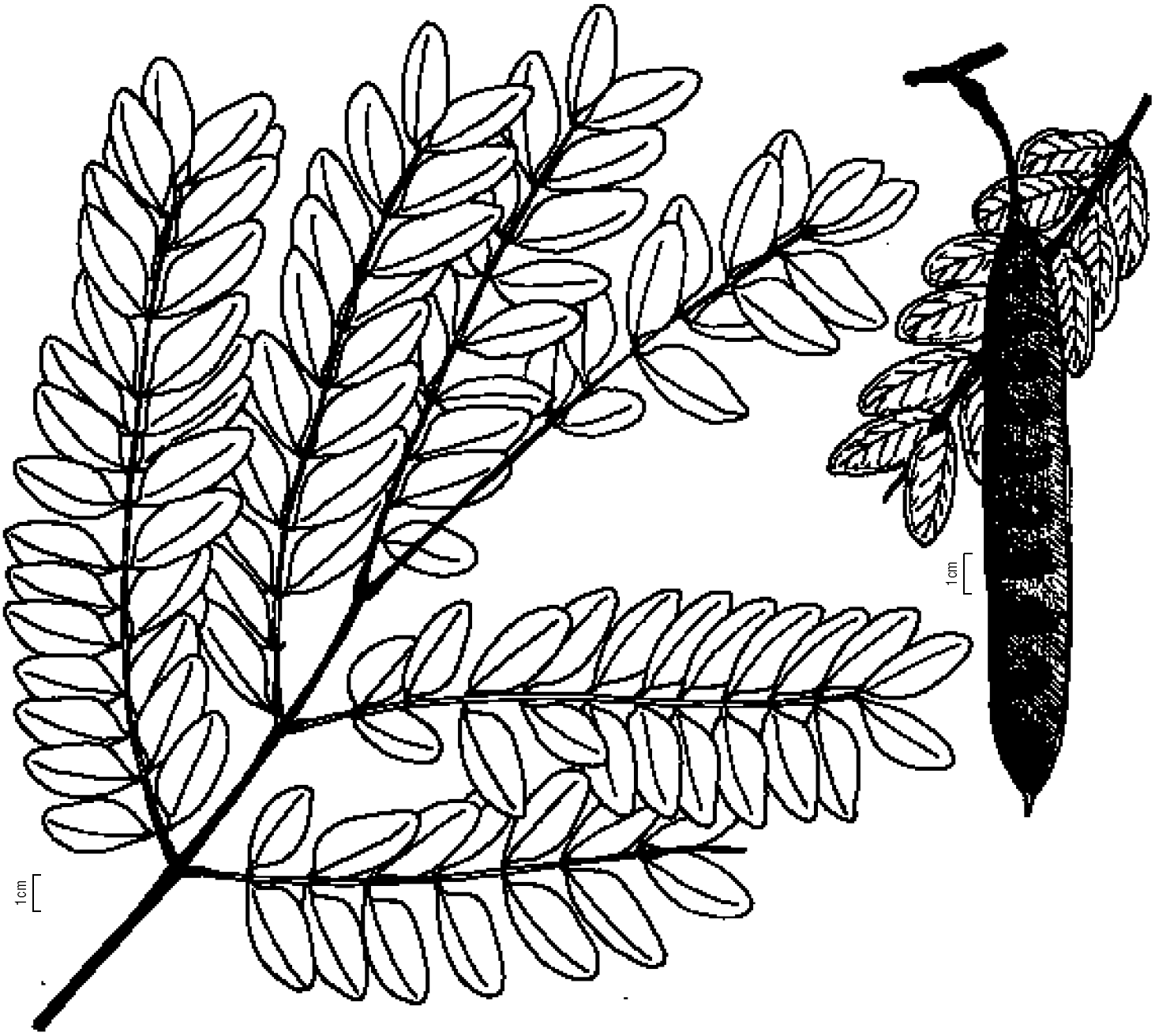
Albizia procera is considered a useful timber species in its native Asian range, where it is used for a variety of purposes. The soft sapwood is whitish to light yellow and of little value; the light brown to light chocolate-brown heartwood is moderately hard (specific gravity: 0.6 to 0.9), straight-grained, strong, durable, and resistant to attack by dry-wood termites (Little and Wadsworth 1964, Venkataramany 1968). It is difficult to saw because the grain is broadly interlocked, though with care it works to a smooth surface and polishes well (Brown 1978). The cut bark yields a reddish brown gum that is used as a substitute for gum arabic obtained from *Acacia senegal* Willd. (Farooqi and Kapoor 1968). Its leaves are valued as livestock fodder (George and Kohli 1957) and are also used in traditional Indian medicine (Chopra and others 1956, Kirtikar and others 1935). The bark is reported to be a strong poison, and the leaves are known to have insecticidal and piscicidal properties (Benthall 1933, Chopra and others 1941). In its native range, *A. procera* is sometimes planted as a shade tree in tea gardens (Parrotta 1988b; Skoupy and Vaclav 1976) and used for afforestation of degraded lands (Venkataramany 1968).

Flowering generally occurs during the rainy season; in Puerto Rico this season is between August and October. In Puerto Rico, flowering begins at 3 to 4 years of age, when trees reach a height of approximately 4 m (Francis 1998). The distinctly fragrant (suggesting molasses) flowers form whitish globose heads 20 to 24 mm in diameter, borne on racemes 8 to 25 cm long near the ends of twigs (Little and Wadsworth 1964). The fruits are flattened pods 10 to 20 cm long and 1.8 to 2.5 cm broad, changing from green to deep red or reddish brown on maturity; each contains 6 to 12 seeds. The fruits ripen 6 to 9 months after flowering, during the dry season, and usually remain on the tree until the whole twig bearing the pods is shed. The seeds are small, approximately 5 by 6 mm, flat, elliptical to nearly orbicular, with a hard, smooth, greenish-brown, leathery testa. They are released from the mature, dehiscent pods while still attached to the tree or from wind-blown pods that split open or decompose. The seeds are less subject to insect predation than those of *A. lebbeck* (Parrotta 1988a, 1988b).

The mature pods may be collected from the ground beneath parent trees or clipped from branches with pruning poles. The seeds are readily extracted by splitting or crushing the pods by hand and separating them by winnowing. Seeds average 17,600 to 25,300 per kg (Francis and Rodríguez 1993, Troup 1921). They can be stored for several years in sealed containers at room temperature with only moderate reduction in percentage viability (Troup 1921, Venkataramany 1968). In India, seeds stored in this way for 15 years showed 20-percent germination (Venkataramany 1968).

Seeds may be sowed without pregermination treatment, although placing the seeds in boiling water for 1 minute, followed by soaking them in cool water for 24 hours, increases germination rate and uniformity. Germination of freshly extracted seeds collected from various locations in India ranged from 50 to 95 percent (Venkataramany 1968). Mechanical scarification of fresh seeds is also very effective, yielding 99-percent germination in one test conducted in Puerto Rico (Francis and Rodríguez 1993).

Germination is epigeal, and occurs from 2 to 21 days after sowing, provided soil moisture is sufficient (Troup 1921). Germination and early seedling development is best if seeds are sowed just below the soil surface in a loose, moist medium under full sun or light shade (Troup 1921, Venkataramany 1968). Vigorous seedlings produce a long, stout taproot, and lateral roots soon form *Rhizobium* nodules if nursery soils naturally contain or are inoculated with appropriate strains of these beneficial nitrogen-fixing bacteria (Parrotta 1988b). In the nursery, seedlings reach plantable size (20 to 30 cm) within 2 to 3 months. Seedlings are capable of withstanding moderate suppression, but growth rates are usually very slow until seedlings overtop competing vegetation. In plantations established on grass-dominated sites, weeding is recommended during the first 2 years.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