

Robusta eucalyptus

Eucalyptus robusta Sm.

Myrtle family (Myrtaceae)

Post-Cook introduction

The most commonly planted tree species and most common eucalypt in Hawaii. Recognized by the thick, soft reddish brown bark, the relatively broad lanceshaped leaves $1\frac{1}{4}$ – $2\frac{1}{2}$ inches (3–6 cm) wide, the large flowers about $1\frac{1}{4}$ inches (3 cm) across, the many spreading stamens, and the large bell-shaped seed capsules.

A moderately large tree 80–160 ft (24–48 m) high. Trunk relatively large, 3–4 ft (0.9–1.2 m) in diameter, straight and one-half to two-thirds the height of tree. Crown relatively dense, narrow to spreading, with long irregular branches. Bark reddish brown in wet sites, grayish brown where dry, very thick, deeply furrowed into long scaly ridges, fibrous and very soft, persistent. Inner bark whitish, fibrous, slightly bitter. Twigs stout, angled, yellowish green, becoming reddish brown.

Leaves alternate, with yellowish or pinkish tinged leaf stalks of $\frac{1}{2}$ –1 inch (13–25 mm). Blades broadly lanceshaped, 4–8 inches (10–20 cm) long and $1\frac{1}{4}$ – $2\frac{1}{2}$ inches (3–6 cm) wide, long-pointed at apex, base shortpointed and often with sides unequal, thick, shiny or dull dark green above, dull light green beneath, with fine regular almost parallel side veins and vein at margin. Juvenile leaves opposite for 3–4 pairs, then alternate, lance-shaped or narrowly ovate, 3–5 inches (7.5–13 cm) long and 2 – $2\frac{1}{2}$ inches (5–6 cm) wide, light green, thick.

Flower clusters (umbels) at leaf base, to $2\frac{1}{2}$ inches (6 cm) long including flattened stalk of $\frac{3}{4}$ – $1\frac{1}{4}$ inches (2–3 cm). Flowers 5–10, short-stalked, $1\frac{1}{4}$ inches (3 cm) across the many spreading white or cream-colored stamens. Buds $\frac{1}{2}$ – $\frac{3}{4}$ inch (13–19 mm) long and $\frac{3}{8}$ inch (10 mm) wide, with long conical or bell-shaped base and long narrow conical pointed lid.

Seed capsules stalked, bell-shaped or cylindrical, $\frac{1}{2}$ – $\frac{3}{4}$ inch (13–19 mm) long and $\frac{3}{8}$ – $\frac{1}{2}$ inch (10–13 mm) wide, with flattened or sunken disk and 3–4 shortpointed valves not protruding.

Because robusta eucalyptus is Hawaii's most plentiful exotic timber species, its wood properties have been studied intensively. Sapwood is pale brown and heartwood reddish brown, pale when fresh and darkening to a rich mahogany color on exposure. Grain is interlocked

and produces a ribbon figure on quarter-sawn faces. Texture is coarse. Moderately heavy (sp. gr. 0.6) but quite variable in density, as in other eucalypts. Wood from the interior of logs is often lightweight (sp. gr. 0.35), while that near the log surface may be heavy (sp. gr. 0.8). The wood compares with white oak (*Quercus alba* L.) in most strength properties but is unstable and shrinks and swells markedly with humidity changes.

It is a difficult and expensive wood to process in sawmilling, as are most eucalypts, because of a peculiarity called growth stress. Growth stresses are longitudinal forces in logs that cause log ends to split open, interior wood near the pith to be crushed into the brittleheart with numerous compression failures, and logs and boards to spring, crook, split, and jam when being sawed. Robusta eucalyptus and saligna eucalyptus grown in Hawaii have severe growth stress.

The wood can be seasoned with little degrade if done with care. It is resistant to decay and termites, more so than western redcedar, but less so than redwood. About 1 million board feet of lumber have been produced each year in Hawaii (none currently) and the wood has been used for many purposes including house siding, framing, and flooring. It has been used in furniture mostly for upholstered frames but is attractive as finish as well. It has performed well as boat framing and conveyor slats used in sugar mills. It has also been used extensively in pallets and irrigation canal stakes. It has also been chipped and sent to Japan for kraft pulp manufacture.

Robusta eucalyptus is the most commonly planted tree in Hawaii. Although it is not currently planted, having been replaced by *E. saligna* as the preferred species, it has a demonstrated ability to thrive on almost any site with a 500–3500 ft (152–1067 m) altitude that has more than 40 inches (1016 mm) rainfall. The Division of Forestry planted more than 2.3 million trees before 1960, and nearly equal numbers were planted by private landowners. On the islands of Hawaii and Maui, there are more than 150 million board feet of sawtimber. The trees may be seen in many places, such as along the road to Koloa, Kauai. The stand near the Nuuanu Pali, Oahu, was planted about 1900. The 1300-acre (526-ha) stand at Opana, Maui, is said to be the world's largest single block of robusta eucalyptus. There are stands along the highways near Honokaa, Hawaii, and the nearby windbreaks from Mud Lane to Waimea. Recorded from Niihau.

Apparently, this is the best adapted of more than 30 species of *Eucalyptus* that have been tested for forestry



Robusta eucalyptus
Eucalyptus robusta Sm.
Twig with flowers and fruits, 1 X (Mueller).

in Puerto Rico. It is also planted in Florida. As a street tree in California, this species has suffered from broken tops in strong winds. In Hawaii, it withstands continuous battering by trade winds quite well and is an important windbreak tree.

Suitable for shade and ornament and also a honey plant.

Special areas

Wahiawa, Aiea, Kalopa, Tantalus, Pepeekeo

Champion

Height 97 ft (29.6 m), c.b.h. 16.6 ft (5.1 m), spread 72 ft (21.9 m). Kaupakuea, Hilo, Hawaii (1968).

Range

Southeastern Australia in a very narrow coastal strip from sea level to a few hundred feet (about 100 m) altitude; it is frost free or nearly so. Grows mainly in coastal swamps and on edges of saltwater estuaries, usually scattered or in narrow belts. Summer rainfall climate. Extensively planted worldwide in tropics.

Other common names

swamp-mahogany eucalyptus (Hawaii); swamp-mahogany, swamp messmate (Australia); beakpod eucalyptus

Botanical synonym

Eucalyptus multiflora Poir.