

Eucalyptus, eucalypt

Eucalyptus

Myrtle family (Myrtaceae)

Post-Cook introductions

The genus *Eucalyptus* is probably the best known of all Hawaii's introduced forest trees. Recognition of the group is easy, but further identification is less simple, because of the very large number of species. This generic description is followed by a key, based mainly on bark and other vegetative characters. Thirteen species are described and illustrated in this compilation.

Eucalyptus contains about 500 species of trees, nearly all confined to Australia (there are a few in Indonesia to the Philippines). Among them are very large trees and the world's tallest hardwoods, up to 318 ft (97 m) in height. Because of their large size and rapid growth, many species of eucalyptus have been propagated widely in forest plantations through tropical and subtropical regions. Wood quality varies greatly within the genus.

The generic name from two Greek words meaning "well" and "covered" refers to the distinctive character of the flower, the lid (operculum). That part, usually conical and often thick, covers the flower in bud and apparently represents the calyx. (The corolla is lacking or united with calyx.) The cup-shaped or bell-shaped base (hypanthium) of the open flower bears around the rim numerous spreading threadlike white, yellow, and sometimes red stamens and encloses the pistil with inferior ovary mostly 3–5-celled and slender style. Flowers are borne mostly in stalked clusters (umbels) commonly at base of leaves.

The fruit is a seed capsule slightly enlarged from flower base, hard and woody, opening at top by as many pores as cells and often with as many projecting pointed teeth (valves). There are many tiny seeds including a larger number very small and nonfunctional.

The leaves vary in shape with age of plant, from juvenile, commonly opposite, stalkless and broad, to adult, alternate, stalked, and often narrow. Foliage commonly is aromatic or resinous, and trunks of some species yield a gum or resin.

Differences in bark character provide groupings of species useful in identification. The gums, or most common group, have smooth thin bark that peels off in patches or layers. The stringy-barks have thick fibrous

bark, while the iron-barks have thick hard furrowed bark that is often black. Bloodwoods have uniform scaly bark.

The 13 species of *Eucalyptus* in this handbook include the most widely tested and most successful in forest plantations in Hawaii. However, many other species have been introduced; Bryan and Walker (1966) listed 77, but the total count is now more than 90.

Several technical publications on this genus in Australia may be consulted for reference and further identification. Titles by the following authors are listed under Selected References: Hall et al. (1975) (contains key to most species listed); Blakely (1965), Johnston and Marryatt (1965), Kelly (1959), Maiden (1902–24; 1903–33) (source of three drawings reproduced here); Mueller (1879–84) (the classic 10-volume monograph and source of seven drawings reproduced here); Penfold and Willis (1961), Pryor (1976), Pryor and Johnson (1971).

Key to species of *Eucalyptus*

Bark on trunk mostly smooth and peeling in large pieces

Trunk smooth or becoming smooth

Bark bright green with pink or red brown blotches where recently peeled—

Bagras eucalyptus, *Eucalyptus deglupta*

Bark gray, dimpled; leaves with strong odor of lemon—

lemongum eucalyptus, *E. citriodora*

Trunk with some bark rough or peeling

Lower trunk short to first branches, crooked; basal bark thin, strips or plates of thin old bark peeling above

Old bark shed in long strips, partly persistent, smooth bark bluish gray, usually twisted grain in trunk; fruit top-shaped—bluegum eucalyptus, *E. globulus*

Old bark shed in plates, rarely persistent, smooth bark white and brown in patches; fruit with prominent valves raised and curved inward (see figure)—river-redgum eucalyptus, *E. camaldulensis*

Lower trunk long to first branches, straight; basal bark thick, rough, trunk smooth bluish or greenish gray above

Peeling bark often present in patches on upper trunk, “stocking” of rough bark often more than 10 ft (3 m) high on trunk; fruit with valves slightly curved inward whether flush or protruding; seedlings usually without lignotubers; juvenile leaves lance-shaped, wide at base—rosegum eucalyptus, *E. grandis*

Peeling bark rarely any patches on upper trunk, “stocking” of rough bark less than 8 ft (2.5 m) high; fruit with valves spreading or curved out whether flush or protruding; seedlings usually with lignotubers; juvenile leaves narrow, linear—saligna eucalyptus, *E. saligna*

Bark on trunk mostly rough and fissured

Rough bark absent from branches and sometimes upper trunk

Rough bark gray brown, finely fissured, stringy—blackbutt eucalyptus, *E. pilularis*

Rough bark brown, deeply and coarsely fissured, soft, breaking away in chunks—bangalay eucalyptus, *E. botryoides*

Rough bark persistent on both trunk and branches

Bark hard, difficult to depress with hand, containing hard gum deposits

Bark black or nearly so, trunk erect—red-ironbark eucalyptus, *E. sideroxylon*

Bark brown or gray brown, trunk crooked—gray-ironbark eucalyptus, *E. paniculata*

Bark soft, easily pressed in with hand

Bark long-fibered, pulling away in strings, stringy

Bark red on inner surface when pulled away—kinogum eucalyptus, *E. resinifera*

Bark yellow on inner surface when pulled away—tallowwood eucalyptus, *E. microcorys*

Bark short-fibered, pulling away in short chunks

Bark extremely soft and deeply fissured, spongy, reddish brown; leaves broader than most other eucalypts; fruit vase-shaped with stalk; flower bud with beaked lid (operculum)—robusta eucalyptus, *E. robusta*

Bark soft and less deeply fissured, pulled loose with difficulty, brown or gray brown; fruit cylindrical and stalkless; flower bud with blunt or rounded lid (operculum)—bangalay eucalyptus, *E. botryoides*