

## Erythrina variegata

L.

Fabaceae - Papilionoideae

### LOCAL NAMES

Burmese (penglay-kathit); English (Indian coral tree,tiger's clow,variegated coral tree); Filipino (andorogat (Bikol)); French (arbre au corail,arbre immortel); Hindi (haliwara,mandar,murukku,panarve,phandra,maidal); Indonesian (thong baan,dede bineh,dadap ayam (Javanese)); Lao (Sino-Tibetan) (th'ong banz); Malay (dedap,cengkering); Thai (thong laang laai,thong phueak (northern)); Vietnamese (h[af]l d[oof]ng b[if] (Annamas)

### BOTANIC DESCRIPTION

Deciduous tree, 3-27 m tall with fluted bole and much branched crown; trunk and branches thick and sappy, armed with large, scattered prickles; bark grey or grey-green, furrowed; young shoots stellate pubescent at first, later glabrous; flowering branches often leafless; in cultivation tree often unarmed.

Leaves alternate, trifoliolate; stipules lanceolate, 1-1.5 cm long, caducous; petiole 2-28 cm long, unarmed; rachis 10-12 cm long; petiolule up to 1.5 cm long, at base with globose glandular stipules; leaflets ovate to broadly rhomboid, usually wider than long, 4-25 cm x 5-30 cm, terminal one largest, base rounded or slightly cordate, apex acuminate, entire or sometimes shallowly lobed, thinly coriaceous, green or sometimes strikingly variegated light green and yellow, glabrescent.

Inflorescence an axillary, dense raceme 10-40 cm long, ferruginous tomentose, lateral near the top of branchlets; peduncle 7-25 cm long; pedicel up to 1.5 cm long; flowers in groups of 3 scattered along the rachis, large, bright red (occasionally white); calyx eventually deeply spathaceous, 2-4 cm long, glabrescent, red; standard ovate-elliptical, 5-8 cm x 2.5-3.5 cm, more than twice as long as wide, shortly clawed, longitudinally conduplicate, recurved, bright red without white veins; wings and keel subequal, 1.5-2.5 cm long, red; stamens 10, monadelphous, 5-7 cm long, vexillar stamen basally connate with the tube for 1 cm, red; pistil with pubescent ovary and glabrous style.

Pod sausage-shaped or long cylindrical, 10-45 cm x 2-3 cm, 1-13-seeded, slightly constricted between the seeds, glabrescent, distinctly veined and exocarp bursting irregularly, indehiscent.

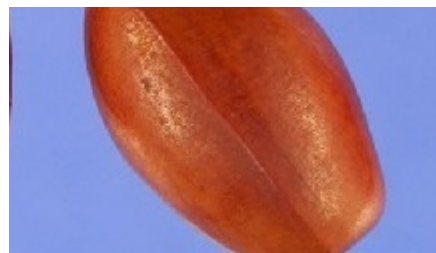
Seed ellipsoid to reniform, 6-20 mm x 5-12 mm, smooth, glossy black, purplish or purplish red-brown.

*E. variegata* has the typical 'bird flowers' of *Erythrina* spp.: scentless, strong and elastic to withstand birds hopping about and poking into the flowers. The flowers in the drooping inflorescences are upturned, which prevents the copious nectar from running out. The flowers remain open for 2-3 days, but stop secreting nectar after the morning of the first day.

Forms with variegated leaves have been classified as botanical varieties; subclassification of the species, however, seems most appropriate at the cultivar level. A cultivar with a columnar habit has been selected. It possibly originated in New Caledonia, from where it spread to other tropical and warm temperate areas, including Hawaii and Florida. It was released in the United States in 1985 as cv. Tropic Coral.

### BIOLOGY

In India old leaves are shed in early autumn, and the tree remains leafless until after flowering during April-May or between January-March. *E. variegata* is pollinated by birds, and the pods mature from May-July or up to November, green turning black upon ripening. The seeds float and are dispersed naturally by ocean currents.



seeds (Steve Hurst @ USDA-NRCS PLANTS Database)

**ECOLOGY**

*E. variegata* is a native of coastal forest communities, from East Africa, through Southeast to Australia..

**BIOPHYSICAL LIMITS**

Altitude: Up to 1900 m

Mean annual rainfall: 1200-2500 mm

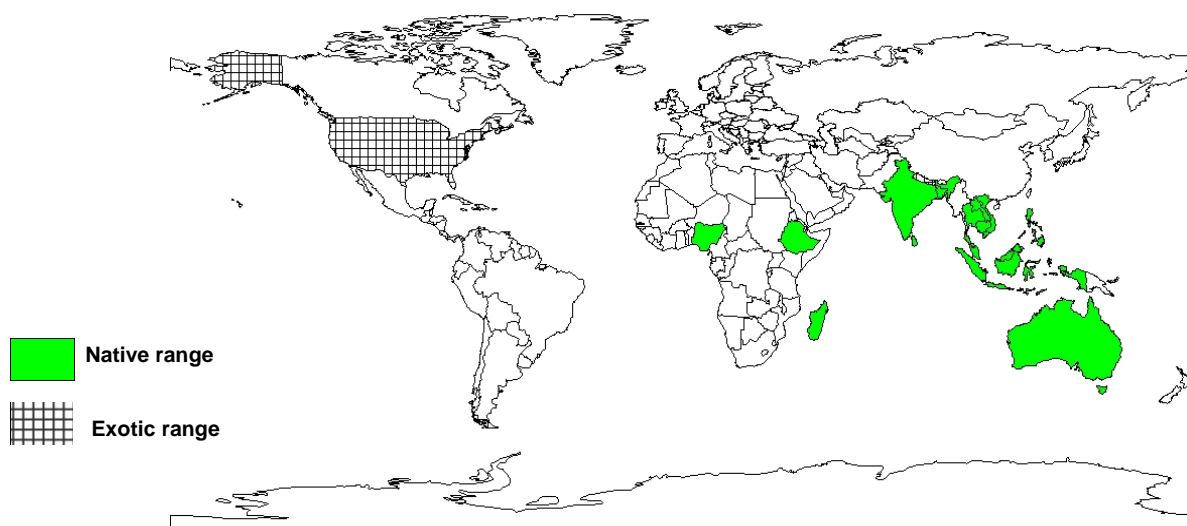
Mean annual temperature: 20-32 deg. C

Soil type: *E. variegata* grows on a variety of soils from sandy loam to gravels. It tolerates seasonally waterlogged soils, and is also often found on saline, tropical, clayey and coral limestone soils.

**DOCUMENTED SPECIES DISTRIBUTION**

Native: Australia, Bangladesh, Brunei, Cambodia, Ethiopia, Fiji, Guam, India, Indonesia, Laos, Madagascar, Malaysia, Myanmar, Nigeria, Papua New Guinea, Philippines, Solomon Islands, Sri Lanka, Taiwan, Province of China, Thailand, Vietnam

Exotic: Nepal, US



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.

**PRODUCTS**

Fodder: The leaves to a limited extent are used as fodder.

Fibre: The wood has been tested as a source of pulp for the paper industry. The fiber is acceptable for pulping, having good length, high flexibility and slenderness ratio and low Rankel's ratio.

Medicine: The leaves and bark are widely used as cures in many South-East Asian countries. The bark is used as an antipyretic in Burma (Myanmar), in decoction to treat liver problems in China and intermittent fever in Indonesia. A decoction of the bark and leaves is used to treat dysentery in Indonesia; sweetened, it is considered a good expectorant. A decoction of the leaves may also be used to treat mastitis. The bark has also been used to treat rheumatism and to relieve asthma and coughs. The roots and leaves are often employed to alleviate fever in the Philippines. Crushed seeds are used to treat cancer and abscesses in Indo-China, and are boiled in a little water as a remedy for snake bites in Malaysia. In India, the root and bark are called 'paribhadra', one of the reputed drugs of Ayurvedic medicine.

Timber: The wood is white and soft, spongy, fibrous and darker towards the centre. Growth rings are visible. The density of the wood is 300 kg/m cubic. In New Britain, the wood is used for spears and shields. The light, spongy wood is used in Cambodia as floats for fishing-nets.

Essential oils: In New Britain, blackened dried leaves are worn for their scent.

**SERVICES**

Boundary or barrier or support: In India, Malaysia and Indonesia *E. variegata* is used as live support for betel (*Piper betle* L.), black pepper (*Piper nigrum* L.), vanilla (*Vanilla planifolia* H.C. Andrews) and yam (*Dioscorea* spp.) vines. A columnar cultivar is planted in hedges as a wind break.

Ornamental: As an ornamental tree, the leaves of the variegated forms and the flowers being very showy.

Shade or shelter: In southern India, it is occasionally grown as a shade tree for cocoa and coffee; in Java it is not recommended for this purpose as it is leafless for up to a few months per year.

Soil improver: The leaves are used as green manure.

*E. variegata* forms root nodules and fixes atmospheric nitrogen with Bradyrhizobium bacteria.

**TREE MANAGEMENT**

Plantation: In India, a spacing of 8-10 m is used when planting *E. variegata* for shade in coffee plantations; spacing of live stakes for betel and pepper is 2-3 m x 2 m.

Husbandry: *E. variegata* can live to about 100 years. Unpruned trees may attain a height of 15-20 m in 8-10 years. Subsequently, the growth rate slows down, but the main stem continues to increase in diameter. In general, rooting is superficial, with most roots in the upper 30 cm of the soil; older trees, however, root deeper. When trees are used to support vines, side branches are lopped at interval of 6-8 weeks, the foliage being used as green manure or fodder. When planted for shade, lower branches are removed immediately after establishment and only a few high branches are allowed to grow. Subsequently, the trees are pollarded once per year in the middle of the rainy season. In India, trees used as support for betel vines yield 15-50 kg fodder per year; shade trees in coffee plantations produce about 100 kg fodder and 25-40 kg wood per year.

**GERMPLASM MANAGEMENT****PESTS AND DISEASES**

Diseases: In Hawaii the trees are attacked by powdery mildew (*Oidium* sp.).

Pests: In Hawaii the trees are attacked by Chinese rose beetle (*Adoretus sinicus*), mealy bugs (*Phenacoccus* spp.) mites (*Tetranychus cinnabarinus* and *Polyphagotarsonemus latus*). Like other *Erythrina* spp., it is a potential host of the fruit-piercing moth (*Othreis fullonia*), the hibiscus snow scale (*Pinnaspis strachani*), and the carob moth (*Ectomyelois ceratoniae*) as well as of their predators. In India, larvae of the beetle *Raphipodus* damage the roots.

**FURTHER READING**

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**SUGGESTED CITATION**

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