

Eucalyptus globulus ssp. globulus

blue gum

LOCAL NAMES

Amharic (nech bahir zaf); Creole Patois (kaliptis); English (turpentine gum, tasmanian blue gum eucalypt, Tasmanian blue gum, southern blue gum, fever tree, blue gum eucalyptus, blue gum); Japanese (yukari-no-ki); Spanish (eucalipto); Swahili (mkaratusi); Tigrigna (tsaeda-kelamitos); Trade name (blue gum)

BOTANIC DESCRIPTION

Eucalyptus globulus ssp. *globulus* is a large to very large evergreen tree, 40-55 (max. 60) m tall, with straight, massive trunk 0.6-2 m in diameter; narrow, irregular crown of large branches and drooping aromatic foliage; crown of open-grown trees broadly rounded or irregular with branches nearly to the ground; bark smoothish, mottled grey, brown, and greenish or bluish, peeling in long strips, at base becoming grey, rough and shaggy, thick and finely furrowed; root system deep and spreading.

Leaves alternate, drooping on flattened, yellowish leafstalks of 1.5-4 cm, narrowly lance shaped, 10-30 cm long, 2.5-5 cm wide, mostly curved or sickle shaped, long-pointed at tip, short-pointed at base, not toothed on edges, hairless, thick, leathery, with fine, straight veins and vein inside margin, shiny, dark green on both surfaces, aromatic with an odour like that of camphor when crushed.

Flowers 1 (rarely 2-3) at leaf base on very short, flattened stalk or none, more than 5 cm across the very numerous, spreading, white stamens about 12-15 mm long, with odour of camphor; buds top-shaped, 12-15 x 12-25 mm; base (hypanthium) 4 angled, very warty, whitish bloom, with 2 lids.

Fruits or seed capsules single at leaf base, broadly top-shaped or rounded, 1.5-5 x 2-2.5 cm, 4-angled, warty, with whitish, broad, thick, flat or convex disc and 3-5 slits; seeds many and irregularly elliptical, 2-3 mm long, dull black; many small, sterile seeds.

The genus *Eucalyptus* was described and named in 1788 by the French botanist l'Héritier. The flowers of the various *Eucalyptus* species are protected by an operculum, hence the generic name, which comes from the Greek words 'eu' (well), and 'calyptos' (covered).

BIOLOGY

It is evergreen, with 10-28 months for floral development; 1 triangular pollen grain with 3 apertures and 2 nuclei per grain; diaspores are wind dispersed; a hermaphroditic, dichogamous, self-incompatible, polyploid species.

Labill.

Myrtaceae



E. globulus is very widely cultivated and used for firewood and construction poles. It now dominates the landscape in many mid-to high elevation Andean valleys, here near Huaraz below the Cordillera Blanca in north-central Peru. (Colin E. Hughes)



Habit at Piiholo, Maui, Hawaii (Forest and Kim Starr)



Habit at Crater Road, Maui, Hawaii (Forest and Kim Starr)

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ECOLOGY

The species is adapted to subtropical climates with winter rainfall, such as the Mediterranean region, and to cool zones of tropical mountains, but it is not hardy in warm, temperate climates. The major successes of *E. globulus* ssp. *globulus* have been attained largely in mild, temperate climates and at high elevations in cool, tropical climates. The principal limiting soil factors are insufficient depth, poor drainage, salinity and the presence of a high content of assimilable carbonates. However, where climatic conditions are favourable, suitable performance is reported on shallow and sometimes stony soils, particularly if subsoiling is practised.

BIOPHYSICAL LIMITS

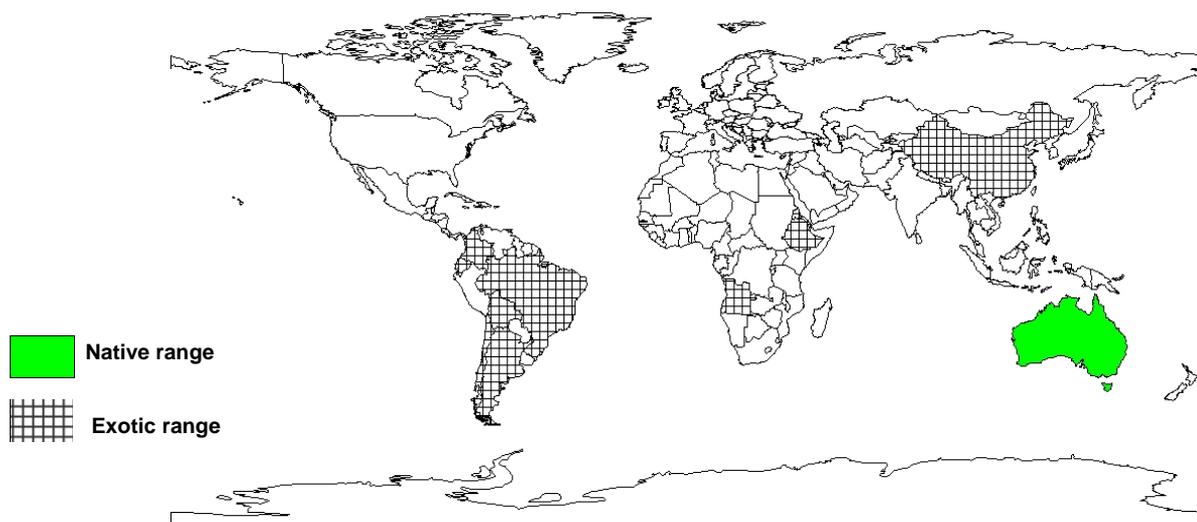
Altitude: 0-3 100 m, Mean annual temperature: 12-18 deg. C, Mean annual rainfall: 500-1 500 mm

Soil type: It does not occur naturally on strongly calcareous or strongly alkaline soils. Best development is on deep, sandy clay soils, but good growth is also attained on clay-loams and clay soils, providing they are well drained.

DOCUMENTED SPECIES DISTRIBUTION

Native: Australia

Exotic: Angola, Argentina, Bolivia, Brazil, Chile, China, Colombia, Ecuador, Eritrea, Ethiopia, French Guiana, Guyana, Haiti, India, Japan, Kenya, Lesotho, Mozambique, Namibia, New Zealand, Paraguay, Peru, South Africa, Spain, Surinam, Swaziland, Tanzania, Uganda, Uruguay, Venezuela, Zambia, Zimbabwe



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

Apiculture: The flowers are a source of nectar that provides good honey. In Portugal, honey farms thrive near many plantations of *E. globulus ssp. globulus*. Honey with a distinctive flavour like muscatel grapes.

Fuel: *E. globulus ssp. globulus* provides good firewood with an oven-dry calorific value of about 19 900 kJ/kg. It burns freely, leaves little ash and carbonizes easily for good charcoal.

Fibre: It is one of the better *Eucalyptus* species for papermaking and is widely used for pulp. In Spain, a good quality pulp, mostly bleached, is made from the sulphite, sulphate or bisulphite process. Important fibre products include fibreboard and particleboard.

Timber: The wood is very hard and strong, with medium texture. It seasons poorly, is difficult to work and nail but takes a high finish. It is used for light construction, plywood, utility poles, piles, tool handles and even railway sleepers. Some of the important wood products include parquet, cooperage, low-grade veneer, furniture and various types of sawn timber. The timber requires special care in sawing and drying because of high incidence of spiral grain.

Essential oil: The leaves are valuable for the extraction of eucalyptol, a commercially important eucalyptus oil. A yield of 2750 kg of leaves/ha can be expected. The oil content is 1% of the air-dry weight of the leaves, and the oil normally contains 62% cineole.

Medicine: The oils are used as an inhalant with steam and other preparations for relief of colds and influenza symptoms. Because of the refreshing odour of the oil and its efficiency in killing bacteria, it is also an antiseptic. It helps to treat lung infections, gastrointestinal ulcers and angina.

SERVICES

Erosion control: Its wide-spreading and dense root system is very useful in erosion control.

Shade or shelter: A valuable tree for windbreaks and shelterbelts.

Reclamation: *E. globulus ssp. globulus* has served well in land reclamation, including reclaiming swamps.

Ornamental: An attractive ornamental with large, dark green, glossy adult leaves, glaucous and bluish juvenile leaves and stems, and showy flowers and fruits.

Boundary or barrier or support: In its juvenile form, *E. globulus ssp. globulus* is seldom browsed by cattle, sheep or goats, which gives it an advantage over most other species where fencing is not practicable.

TREE MANAGEMENT

The species is easy to establish, is generally of good stem form, grows fast, closes canopy rapidly, coppices vigorously and is wind firm. Coppicing should be at a height of 10-20 cm above the ground; usually at least 3, and occasionally more coppice harvests are obtained. Growth and yield figures vary. In northwestern Spain, 1 fertilized plot is reported to produce 70 cubic m/ha per year. However, increments of 30 cubic m/ha per year are frequent, and of 20 cubic m/ha per year are average. The rotations used depend principally on the site and the desired product. *E. globulus* ssp. *globulus* is commonly grown on rather short rotations of 8-12 years or 10-15 years to produce pulpwood, fuelwood or posts. Undesirable shoots are cut back during the 1st 2 years after sprouting. Frosts are particularly damaging to seedlings and saplings of 1-2 years, but larger plants are moderately resistant to light frost.

GERMPLASM MANAGEMENT

Seed storage behaviour is orthodox; 4% germination following 10 years of open storage at room temperature. Viability is maintained for 4 years in hermetic storage at room temperature. Viability is lost within 3 years in hermetic storage at room temperature with 13 ± 2% mc. Hermetic storage at 4-6% mc and subzero temperatures is recommended. Viability can be maintained for several years in hermetic storage at 3 deg. C with 6-10% mc. Pollen may be stored at -16 deg. C for 1 year. There are approximately 70 000-100 000 seeds/kg.

PESTS AND DISEASES

One of the most serious pests of the species is a defoliator, the eucalyptus snout beetle, *Gonipterus scutellatus*, which has been imported from Australia and found damaging in both larval and adult stages in Kenya, Zimbabwe, South Africa, Uganda, New Zealand and South America. The wood boring beetle *Phoracantha semipunctata*, which caused severe damage to *E. globulus* ssp. *globulus* in South Africa, has also attacked young plantations of the tree in western Australia.

In Spain, *Pencillium* spp. and *Fusarium* spp. are important seed diseases, with the latter being highly destructive to stored seed. Damping-off, seedling blights such as *Botrytis cinerea*, and other nursery diseases have been problematic in many countries but fortunately can largely be controlled by proper phytosanitary techniques. Other diseases, such as diplodia cankers and armillariella root disease, have been detected in plantations in various countries. In India, the tree is susceptible to the 'pink disease' fungus, *Corticium salmonicolor*.

FURTHER READING

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SUGGESTED CITATION

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