

## Eucalyptus maculata

spotted gum

Hook.f.

Myrtaceae

### LOCAL NAMES

English (spotted iron gum, Spotted gum); Trade name (spotted gum)

### BOTANIC DESCRIPTION

*Eucalyptus maculata* is an attractive, medium sized to very tall forest tree, usually attaining 35-45 m in height and 1-1.3 m dbh, with exceptionally large trees reaching 70 m and exceeding 3 m dbh. On poorer sites it may be 20-35 m in height and 0.7-1.2 m diameter. Distinctively straight trunk and a large crown, bark smooth, pale pink or blue-grey, thick, shed in patches which are usually elliptical, leaving straight depressions on the surface.

Juvenile leaves broad, heart-shaped, glossy discolourous green, first opposite then alternate on long stalks, ovate, some peltate, setose becoming glabrous. Adult leaves narrow and slightly glossy, alternate, stalked, lanceolate to narrowly lanceolate; lamina 12-21 cm long, 1-3 cm wide; lateral veins just visible, intramarginal vein up to 1 mm from margin; petiole angular, 15-25 mm long. Peduncle terete, 3-8 mm long; pedicels angular, 3-7 mm long. Buds ovoid; operculum hemispherical, apiculate, 4-5 mm long, 5-8 mm wide; hypanthium hemispherical, 5-8 mm long and wide.

The inflorescence comprises of terminal corymbose panicles of 3-flowered (rarely 7) umbels, peduncles more or less terete, 3-8 mm long, pedicels usually angular, 3-7 mm long, buds ovoid, 6-10 x 4-6 mm, opercula hemispherical, apiculate or rostrate.

Fruits pedicellate, ovoid or sometimes suburceolate, with a short neck, 10-14 mm long, 9-11 mm wide, woody, disc broad, descending; valves 3 or 4, deeply enclosed.

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

### BIOLOGY

The tree produces seeds every 5-8 years in natural stands but seeds freely in plantations. *E. maculata* buds mature for 10-11 months before flowering. Flowering has been observed throughout the year, although it generally occurs in October-January, with November being the main flowering month. Mature capsules begin to form 2 months after the start of flowering and remain unopened on the tree for 22-34 months. They persist in the crown for up to 8 months after their seed has been cast.



A tall tree cultivated in Nairobi (Ellis RP)



The spotted bark is distinctive with patches of grey, brown, pale yellow and white. Older bark is smooth and mainly greyish white. (Ellis RP)

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## ECOLOGY

The climate varies from temperate to subtropical and from humid coastal to dry inland. It naturally occurs in open-forest to tall open-forest formation on the east coast of Australia from the Victoria-New South Wales border to the Maryborough District in Queensland, extending up to 400 km inland. *E. maculata* occurs on hilly country, in almost pure stands on the lower slopes of valleys and on ridges where the soil is fairly fertile and not too dry and on upper slopes of northerly facing aspect.

## BIOPHYSICAL LIMITS

Altitude: 1 000-2 000 m

Mean annual temperature: 15-20 deg. C

Mean annual rainfall: 700-1 800 mm

Soil type: The tree grows best on moist, well-drained soils of moderately heavy texture. The parent material includes slates, shales and granites.

## DOCUMENTED SPECIES DISTRIBUTION

Native: Australia

Exotic: Brazil, Colombia, Comoros, Cote d'Ivoire, Cuba, Ethiopia, Ghana, India, Indonesia, Israel, Kenya, Madagascar, Malawi, Sierra Leone, South Africa, Swaziland, Tanzania, Turkey, Uruguay, Zambia



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.

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### **PRODUCTS**

Fodder: The flowers and/or flower buds of *E. maculata* contribute to the annual diet of *P. peregrinus* during winter.

Apiculture: In Australia, the tree is a major source of winter nectar, the honey is highly prized.

Fuel: The tree is an important fuelwood.

Timber: Heartwood is light brown to dark brown. Sapwood is pale, up to 8 cm wide. Texture is moderately coarse, with an interlocked grain. The frequent presence of wavy grain produces an attractive 'fiddleback' grain. The wood is slightly greasy and gum veins are common. It is hard, strong and tough and weighs 590-860 kg/cu. m, moderately durable and easy to work. It is widely used for structural purposes, poles, flooring, furniture, veneer, railway sleepers and tool handles.

Essential oil: The leaves yield an essential oil, the main component being 1,8-cineole. The yield of oil is 1.8-2.8% .

Poison: The leaves show insecticidal activity, an extract has been used against mosquito with the principal active ingredient p-menthane-3,8-diol.

Medicinal: The fruits of *E. maculata* show diuretic activity, a flavonoid derivative, naringenin has been isolated. The bark is astringent, 5,7-dihydroxy 4'-methoxy flavanone (isosakuranetin) and leucopelargonidin-3-O- alpha -L-rhamno-beta -D-glucopyranoside have been isolated from the stem bark. The presence of leucoanthocyanin in the bark is probably responsible for its astringency.

### **SERVICES**

Shade or shelter: The tree is planted as a windbreak and for shade.

Reclamation: The tree is used in afforestation.

Ornamental: This is a picturesque tree because of the spotted trunk. The combination of clean, mottled trunk with bark shed to ground level and the presence of only low ground vegetation, makes spotted gum stand some of the most scenically attractive forests in their native range.

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### **TREE MANAGEMENT**

*E. maculata* is a fire-resistant species and although young seedlings are sensitive to fire, well-established seedlings of lignotuberous origin are resistant. The tree grows fast and in South Africa, an average of 2-2.5 m/year has been recorded in the first few years. The tree coppices well.

### **GERMPLASM MANAGEMENT**

There are 110 000 seeds/kg. Seed storage behaviour is orthodox. Seeds can be maintained for several years in hermitic storage at 3 deg. C with 6-10 % moisture content.

### **PESTS AND DISEASES**

The powder post beetle, (*Lyctus brunneus*) attacks the sapwood. The fungus *Pseudophaeolus baudonis* attacks the roots, *Ramularia pitareka* attacks nursery stock in Australia. The bacterium, *Xanthomonas eucalypti* causes dieback. In South Africa, logs are attacked by the scolytid beetle, *Platypus externe-dentatus*, which forms kino pockets. The cellulolytic bacterium *Cellvibrio mixtus* degrades delignified *E. maculata*, initiating the decay in the S1 region of the fibre cell wall.

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### **FURTHER READING**

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### **SUGGESTED CITATION**

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