

# *Eucalyptus kochii* subsp. *kochii*

## Oil mallee

### Classification

Eucalyptus | Symphyomyrtus | Bisectae | Destitutae | Subulatae | Oleaginae

### Nomenclature

***Eucalyptus kochii*** Maiden & Blakely, *Crit. Revis. Eucalyptus* 8: 41 (1929) subsp. ***kochii***.

T: Western Australia: Watheroo Rabbit Fence, c. 60 miles E of Watheroo, *M.Koch 1608*, Sep. 1905; lecto: NSW *fide* L.A.S.Johnson & K.D.Hill, *Teloepa* 8 (2) 189 (1999).

*E. oleosa* var. *kochii* (Maiden & Blakely) C.A.Gardner, *J. Roy. Soc. Western Australia* 34: 78 (1950). T: Western Australia: Rabbit-proof fence, 25 miles [40 kms] E from Dalwallinu, *C.A.Gardner 8524*; holotype: PERTH *fide* L.A.S.Johnson & K.D.Hill, *Teloepa* 8: 189 (1999).

### Description

**Mallee** to 8 m tall or rarely a taller tree. Forming a lignotuber.

**Bark** usually rough over most of the stems, flaky fibrous, sometimes fissured, usually firmly held, light grey to brown, smooth bark above grey over salmon-pink.

**Branchlets** lacking oil glands in the pith.

**Juvenile growth (coppice or field seedlings to 50 cm):** not seen.

**Adult leaves** alternate, petiole 0.5–1.2 cm long, linear to narrowly lanceolate, 5.5–11.5 cm long; blade 0.5–1.3 cm wide, base tapering to petiole, concolorous, dull to slightly glossy, green, side-veins at an acute or wider angle to midrib, densely to very densely reticulate, intramarginal vein parallel to and just within margin, oil glands numerous and mostly intersectional.

**Inflorescence** axillary unbranched, peduncles 0.4–1 cm long, buds 9 to ?15 per umbel, pedicellate, pedicels 0.1–0.4 cm long. **Mature buds** broadly fusiform (0.7–1 cm long, 0.3–0.4 cm wide), scar present, operculum conical to horn-shaped (0.3–0.5 cm long), stamens irregularly flexed, anthers adnate to weakly versatile, basifixed, globose, dehiscent by lateral pores, style long, stigma tapered, locules 3 or 4, the placentae each with 4 vertical ovule rows. Flowers white.

**Fruit** pedicellate, pedicels 0.1–0.4 cm long, urceolate to truncate-globose, 0.6–0.8 cm long, 0.5–0.7 cm wide, disc descending, valves 3 or 4, valve tips strongly exerted due to fragile style remnants.

**Seeds** light brown to grey, 1–1.5 mm long, ovoid or flattened-ovoid, occasionally with shallow longitudinal furrows on otherwise smooth dorsal surface, hilum ventral.

**Cultivated seedlings (measured at node 10):** cotyledons Y-shaped (bisected); stems square to round in cross-section; sometimes slightly warty, leaves opposite, sessile to very shortly petiolate and linear for the first 2 or 3 nodes then alternate, shortly petiolate and becoming linear to narrowly elliptical to narrowly lanceolate further up the stem, 4.5–9 cm long, 0.5–1.4 cm wide, dull grey-green.

### Flowering Time

Flowering has been recorded in January.

### Notes

*Eucalyptus kochii* is a mallee species widespread in south-western Western Australia from near Naremben, north to almost Kalbarri, then extending eastwards into the Sandstone–Menziess–Yellowdine area. The bark is rough to the small branches and firm on most of the stems. The juvenile leaves are relatively narrow, the peduncles and pedicels are relatively short and the fruit normally slightly urceolate to barrel-shaped.

*Eucalyptus kochii* belongs in *Eucalyptus* subgenus *Symphyomyrtus* section *Bisectae* subsection *Destitutae* because buds have two opercula, cotyledons are Y-shaped and branchlets lack oil glands in the pith. Within this subsection *E. kochii* is part of a large taxonomic series *Subulatae* further characterised by globose basifixed anthers, grey smooth seeds with shallow longitudinal furrows, and fruit with persistent exerted style remnants. Series *Subulatae* is divided principally into four subseries based on the juvenile leaves, one with spiral, crowded seedling phyllotaxis (subseries *Spirales*), another with decussate and decurrent seedling leaves (subseries *Decurrentes*), another with decussate non-decurrent seedling leaves (subseries *Decussatae*), and a fourth to which *E. kochii* belongs with disjunct, petiolate



seedling leaves (subseries *Oleaginae*).

Within the group, *E. kochii* is probably closest to *E. longissima*. *E. longissima* can be distinguished by its often large stature, the small globose fruit and the long slender peduncles and pedicels. *E. ultima* and *E. eremicola*, the other members of the subseries *Oleaginae*, are either smooth-barked or have a small amount of rough bark at the base of the trunks; *E. kochii* is fully rough-barked.

There are five subspecies:

**E. kochii** subsp. **kochii**

Occurring in the northern wheatbelt only, restricted to the area north of Dowerin towards Perenjori and west towards Watheroo. It is distinguished from subsp. *plenissima* and subsp. *amaryssia* by the conical opercula (rounded in subsp. *plenissima* and subsp. *amaryssia*) and the very high oil content of the leaves. It is distinguished from subsp. *borealis* and subsp. *yellowdinensis* by the duller adult leaves (usually very glossy in subsp. *borealis* and subsp. *yellowdinensis*).

**E. kochii** subsp. **amaryssia**

Of scattered occurrence in the northern goldfields south from Meekatharra to the Die Hardy Range – Mt Jackson area, as far east as the Menzies area and west to the Pindar area. Very closely related to subsp. *plenissima*, with both possessing rounded opercula. It differs by having very glossy adult leaves.

**E. kochii** subsp. **borealis**

Occurring from Kalbarri National Park to just south of Morawa. Distinguished within the group by its slightly broader, very glossy adult leaves and by its conical opercula.

**E. kochii** subsp. **plenissima**

A mallee occurring in the central wheatbelt, extending into the drier country further east. It is easily distinguished from subsp. *kochii*, subsp. *borealis* and subsp. *yellowdinensis* by the hemispherical opercula. It is very close to subsp. *amaryssia*, with both possessing round opercula. Subsp. *amaryssia* differs by having very glossy adult leaves. On distillation and analysis the leaves are found to be very low in essential oils.

**E. kochii** subsp. **yellowdinensis**

Of scattered occurrence in the Bodallin to Boorabin area and possibly further south into the Bremer Range area. Like subsp. *borealis*, the adult leaves are glossy and the buds have sharply conical opercula. Subspecies *yellowdinensis* is distinguished by having narrower adult leaves, usually narrower than 0.9 cm.

## Origin of Name

*Eucalyptus kochii*: after Max Koch (1854–1925). Max Koch was a farmer and sawmiller from Western Australia. He was highly regarded by botanists of his time for his plant and seed collections.

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