

# *Eucalyptus socialis* subsp. *socialis*

## Red mallee

### Classification

Eucalyptus | Symphyomyrtus | Bisectae | Destitutae | Subulatae | Decussatae

### Nomenclature

**Eucalyptus socialis** F. Muell. Ex Miq., *Ned. Kruidk. Arch.* 4: 132 (1856) subsp. **socialis**.



T: South Australia: Pine Forest, Gawler Town [sic], Jan. 1849, *Dr. Behr*; lecto: MEL; isolecto: NSW *vide* L.A.S.Johnson & K.D.Hill, *Telopea* 8: 192 (1999).

*Eucalyptus turbinata* Behr et F.Muell. Ex Miq., *Ned. Kruidk. Arch.* 4: 137 (1856). T: South Australia: Salt's Creek [sic], *H.Behr.*; holotype: MEL; iso: K, (apparently a mixed collection of *E. oleosa* and *E. socialis*) *vide* L.A.S.Johnson & K.D.Hill, *Telopea* 8(2) 178 (1999).

*Eucalyptus eucentrica* L.A.S.Johnson & K.D.Hill, *Telopea* 4: 328 (1991); *E. socialis* subsp. *eucentrica* (L.A.S.Johnson & K.D.Hill) Nicolle, *Australian Systematic Botany* 18: 502 (2005). T: Northern Territory: 39.4 km N of Erldunda on Stuart Highway, (24° 52'S 133° 11'E), 10 July 1984, *K.D.Hill 858*, *L.A.S.Johnson & D.Benson*; holotype: NSW; iso: BRI, CANB, DNA.

### Description

**Mallee** to 10 m tall. Forming a lignotuber.

**Bark** smooth throughout or with persistent fibrous, flaky bark on lower trunks; smooth bark white to light grey or pale coppery brown, often with ribbons of decorticated bark in the upper branches.

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

**Juvenile growth (coppice or field seedlings to 50 cm):** stem usually square in cross-section, usually non-glaucous (rarely glaucous); juvenile leaves sessile to shortly petiolate, some slightly decurrent, opposite for few to many pairs becoming sub-opposite then alternate (sometimes reverting for a few nodes), ovate to lanceolate or elliptical, 4–8 cm long, 1.8–4.2 cm wide, usually dull green to grey-green or rarely glaucous.

**Adult leaves** alternate, petiole 1–3 cm long; blade lanceolate, 5–14 cm long, (0.8)1–2.2(2.5) cm wide, base usually tapering to petiole, concolorous, dull green or grey-green, side-veins at an acute or wider angle to midrib, densely reticulate, intramarginal vein parallel to and just within margin, oil glands island and intersectional.

**Inflorescence** axillary unbranched, peduncles 0.4–2.3 cm long, buds usually 9 to 13, rarely 7, pedicellate, pedicels 0.3–0.8 cm long. **Mature buds** ovoid to fusiform (0.8–1.7 cm long, 0.3–0.5(0.7) cm wide), green to creamy or rarely glaucous, scar present, operculum conical to beaked or horn-shaped (0.5–1.2 cm long), stamens inflexed to irregularly flexed, anthers adnate or weakly versatile, globoid, dehiscing by broad lateral pores, style long, stigma tapered, locules 3 or 4, the placentae each with 4 vertical ovule rows. Flowers white to pale yellow.

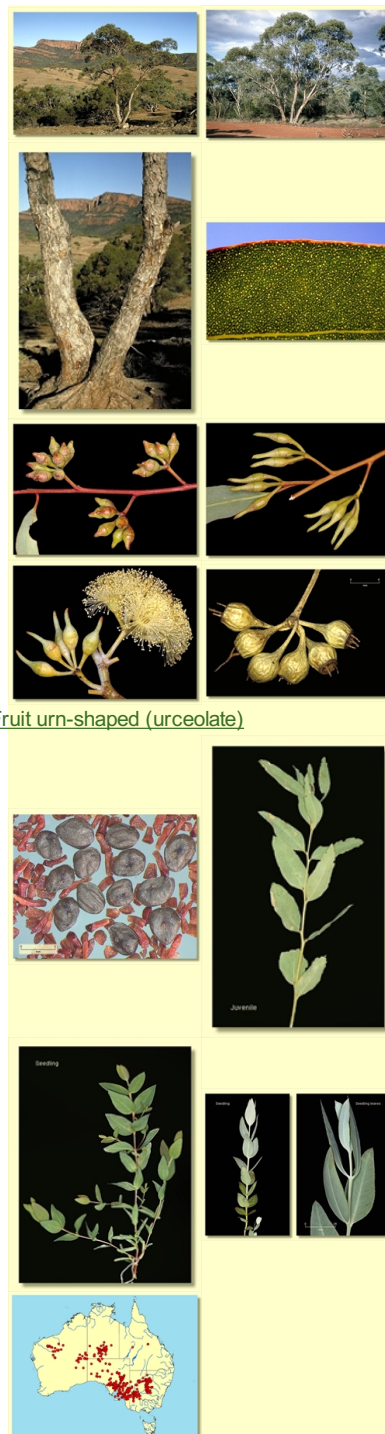
**Fruit** pedicellate, pedicels 0.2–0.8 cm long, slightly urceolate to truncate-globose, 0.4–0.9 cm long, 0.4–0.8 cm wide, disc descending, valves 3 or 4, enclosed but surmounted with prominently exerted but easily broken style remnants.

**Seeds** grey to reddish brown or brown, 1.5–2 mm long, ovoid or flattened-ovoid, dorsal surface smooth, sometimes furrowed, hilum ventral.

**Cultivated seedlings (measured at node 10):** cotyledons Y-shaped (bisected); stems square in cross-section, sometimes glaucous; leaves opposite, sessile, cordate to ovate, 1.3–6.5 cm long, 0.8–3 cm wide, base rounded to tapering, dull grey-green to green or sometimes glaucous.

### Flowering Time

Flowering has been recorded in January, February, May, June, July, August, September, October, November and December.



Fruit urn-shaped (urceolate)

## Notes

*Eucalyptus socialis* is a species of mallee widespread in mallee-lands in southern Australia, also in the Great Victoria Desert and in numerous other desert sites north-west to the Pilbara of Western Australia, north and north-east to Central Australia and, disjunctly, in central Queensland. The stems are rough-barked or smooth, the buds are prominently beaked and seedling leaves are sessile and opposite on the square stem.

*Eucalyptus socialis* 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. socialis* is part of the large taxonomic series *Subulatae* which is further characterised by globose more or less basifixed anthers, grey smooth seeds with shallow longitudinal furrows, and fruit with fragile, prominently exerted style remnants. Series *Subulatae* is divided principally into four subseries based on the juvenile leaves: one subseries with spiral, crowded seedling leaf arrangement (subseries *Spirales*), another with decussate and decurrent seedling leaves (subseries *Decurrentes*), a third with decussate non-decurrent seedling leaves (subseries *Decussatae*), and a fourth with disjunct, petiolate seedling leaves (subseries *Oleaginae*).

*Eucalyptus socialis* is part of subseries *Decussatae* along with the following 7 species: *E. aspersa*, *E. dolichocera*, *E. gillii*, *E. vokesensis*, *E. wyolensis*, *E. yalatensis* and *E. yumbarrana*. Excepting for *E. aspersa* and *E. dolichocera*, the geographical range of *E. socialis* overlaps with that of the other species and often can be found growing quite nearby any of them.

*E. socialis* is most closely related to *E. gillii*, a species occurring in the northern Flinders Ranges of South Australia extending east into the Fowlers Gap area of New South Wales. *E. gillii* is considered by some botanists as a neotenus variant of *E. socialis*, differing from it by its crown of glaucous, sessile, cordate to ovate, juvenile leaves. *E. yalatensis* occurs within the southern range of *E. socialis*, crossing the Nullarbor Plain from Balladonia and Toolinna in Western Australia to the Eyre Peninsula and, disjunctly, Taillem Bend in South Australia, and differs from *E. socialis* its low spreading habit, small buds with a pointy operculum (no beak), small obconical fruit and in never being glaucous. *E. yumbarrana*, a South Australian endemic species related to and occurring within the range of *E. socialis* in the desert country north-west of Ceduna, differs in having thicker glossy adult leaves, buds with the operculum slightly wider than the hypanthium at the join and slightly larger fruit.

In the area of the Great Victoria Desert north-west of Ooldea two species closely related to *E. socialis* occur, *E. vokesensis* and *E. wyolensis*. Both are heavily glaucous on the new branchlets, buds and fruit. *E. vokesensis* has petiolate adult leaves forming the crown whilst *E. wyolensis* has a crown of sessile opposite large juvenile leaves; both species have buds larger than those of typical *E. socialis*.

The remaining two species in subseries *Decussates*, *E. aspersa* and *E. dolichocera*, are found immediately east and northeast of Perth, Western Australia. *E. aspersa* is a mallee occurring sporadically as understory in Jarrah forests in the Darling Range and differs from *E. socialis* in having smaller leaves, buds and fruit and in being non-glaucous. *E. dolichocera* occurs in the wheatbelt and is a large mallee with obvious rough bark, pendulous bud clusters, buds with prominently beaked operculum and is never glaucous.

*Eucalyptus socialis* has three subspecies:

### ***E. socialis* subsp. *socialis***

Very widespread, in New South Wales, Victoria, South Australia, extending to the Pilbara in Western Australia and to Central Australia, and, disjunctly, in central Queensland (sporadically from west of Winton and Longreach to north-east of Aramac). Subsp. *socialis* may be glaucous or not so, but always has dull leaves. Distinguished from subsp. *viridans* by these dull green adult leaves and from subsp. *victoriensis* by its smaller buds and fruit.

### ***E. socialis* subsp. *victoriensis***

A mallee from the southern part of the Great Victoria Desert, extending from Forrest Lakes in Western Australia near the border with South Australia, south-east to the Gawler Ranges and north-western Eyre Peninsula, particularly on dune crests or in swales between dunes. It has large buds with the operculum slightly wider than the hypanthium at the join, large fruit (0.7–1 cm wide) and has coarse, usually dull, rarely slightly glossy, adult leaves.

### ***E. socialis* subsp. *viridans***

It occurs in South Australia from the eastern side of the Eyre Peninsula through the Yorke Peninsula to the southern Murray Mallee, possibly extending into the western parts of Victoria. It is distinguished from subsp. *socialis* and subsp. *victoriensis* by its glossy adult leaves. It has been confused with *E. peninsularis*, a distantly related species endemic to the Eyre Peninsula, which can be easily identified by its decurrent juvenile leaves, pendulous prominently beaked buds and strongly urn-shaped fruit. In the absence of buds and juvenile leaves specimens of subsp. *viridans* have been misidentified as *E. oleosa* subsp. *oleosa*.

The taxonomy of *E. socialis* and related species is somewhat complex, not least due to the remote occurrences of some forms. The name *E. eucentrica* was published in 1991 by L.A.S. Johnson & K.D. Hill to account for plants occurring in the Great Victoria Desert, the Pilbara, Central Australia and Queensland, that had coarser leaves, larger buds that were often glaucous and yellow flowers, compared with more typical *E. socialis*. Relatively large-leaved *E. eucentrica* was regarded by Johnson & Hill as smaller than the non-glaucous glossy leaved *E. yumbarrana*. Nicolle (2005) re-classified *E. eucentrica* at subspecies level i.e. *E. socialis* subsp. *eucentrica*, differing from subsp. *socialis* by the glaucous branchlets and buds and the creamy yellow flowers. Nicolle also regards the subsp. *eucentrica* as occurring from the

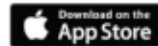
Pilbara east to the Simpson Desert and disjunctly in central Queensland, but occurring in South Australia only in the far-north-west, not in the Great Victoria Desert. Observations in the field and herbarium by the authors of EUCLID show that the variation in glaucescence is pronounced with non-glaucous and glaucous plants with similar sized leaves and buds growing side by side in some areas; degrees of glaucescence from none to slight to pronounced also occur within populations. For this reason we include Nicolle's subsp. *eucentrica* in subsp. *socialis*. Bud dimensions also suggest subsp. *eucentrica* is better placed in subsp. *socialis* than in subsp. *victoriensis*.

### Origin of Name

*Eucalyptus socialis*: Latin *socialis*, friendly, referring to its occurrence with several other species.

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