

## *Eucalyptus calycogona* subsp. *calycogona*

### Square-fruited mallee

#### Classification

Eucalyptus | Symphyomyrtus | Bisectae | Destitutae | Heterostemones

#### Nomenclature

***Eucalyptus calycogona*** Turcz., *Bull. Cl. Phy.-Math. Acad. Sci. Saint-Pétersburg* 10: 338 (1852) subsp. ***calycogona***.

T: Swan R. Colony, W.A., 1849, *J.Drummond* 5: 184; holo: KW; iso: BM, FI, K, MEL, PERTH, W.

#### Description

**Mallee** to 5 m tall, rarely a small tree. Forming a lignotuber.

**Bark** smooth throughout, cream, grey, grey-brown or pink-coppery, sometimes powdery, sometimes with ribbons of decorticated bark in the upper branches.

**Branchlets** lacking oil glands in the pith; non-glaucous.

**Juvenile growth (coppice or field seedlings to 50 cm):** stems rounded in cross-section, smooth or slightly warty; juvenile leaves shortly petiolate, opposite and slightly discolorous for 7–8 nodes, becoming alternate, petiolate, lanceolate to oblong, 1.8–6 cm long, 0.6–2 cm wide, dull, grey-green.

**Adult leaves** alternate, petiole 0.5–1.7 cm long; blade narrowly lanceolate, 5–10 cm long, 0.7–2 cm wide, base tapering to petiole, concolorous, glossy, green, side-veins very acute, usually sparsely reticulate, intramarginal vein parallel to and well removed from margin, oil glands large, mostly island.

**Inflorescence** axillary unbranched, peduncles 0.5–1 cm long, buds 7 per umbel, pedicels 0.2–0.7 cm long. **Mature buds** oblong and square in cross-section (0.7–1.3 cm long, 0.3–0.5 cm wide), green to yellow or reddish, smooth, with 4 longitudinal ribs/angles, scar present (outer operculum shed early), operculum conical to rounded to pyramidal (0.25–0.4 cm long), stamens all inflexed with the longer outer filaments also flexed tangentially in bud, the outer stamens lacking anthers (staminodes), the shorter inner stamens with anthers sub-versatile, more or less basifixed, oblong to reniform, dehiscent by subterminal pores, style long, stigma blunt or conical, locules 3 or 4, the placentae each with 4 clear vertical ovule rows. Flowers white, or pink (rarely).

**Fruit** pedicellate (pedicels 0.1–0.6 cm long), square in cross-section and cylindrical, barrel-shaped or urceolate, 0.7–1.5 cm long, 0.4–0.8 cm wide, with 4 longitudinal ribs, disc descending, valves 3 or 4, enclosed.

**Seeds** red-brown, 1–2 mm long, ovoid to flattened-ovoid, often pointed at one end, dorsal surface smooth, hilum ventral.

**Cultivated seedlings (measured at node 10):** cotyledons Y-shaped (bisected); stems square to rounded in cross-section, occasionally warty; leaves shortly petiolate, opposite for 6 to 9 nodes then alternate, narrowly elliptic to lanceolate, 1.8–4.5 cm long, 0.4–2.5 cm wide, dull, green to grey-green.

#### Flowering Time

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

#### Notes

*Eucalyptus calycogona* is a mallee species widespread in the mallee scrubs of southern Australia from the southern wheatbelt of Western Australia, through southern South Australia, north-western Victoria and just crossing the Murray River into New South Wales; usually on loamy rather than sandy soils. It is notable among the mallees for the buds and fruit, which are square in cross-section with 4 prominent ribs/angles and are longer than wide. Leaves are glossy green except in subsp. *miracula* which is conspicuously waxy.

*Eucalyptus calycogona* belongs in *Eucalyptus* subgenus *Symphyomyrtus* section *Bisectae* subsection *Destitutae* because buds have two opercula the outer of which sheds early, cotyledons are Y-shaped and branchlets lack oil glands in the pith. Within this subsection *E.*



*calycogona* is one of seven closely related species that form series *Heterostemones*, the other species being *E. quadrans*, *E. prolixa*, *E. gracilis*, *E. yilgarnensis*, *E. brevipes* and *E. celastroides*. This group is characterised by the barren outer stamens that are conspicuously twisted and spreading in flower and the much shorter fertile inner stamens that are held more erect in flower. The species in this group also have narrow fruit with a descending disc and enclosed valves while the leaves have side-veins very acute at the base of the lamina and usually sparse reticulation.

In series *Heterostemones* *E. calycogona*, *E. quadrans* and *E. prolixa* have buds and fruit distinctly square in cross-section and differ from *E. gracilis*, *E. yilgarnensis* and *E. brevipes*, which have buds and fruit rounded in cross-section. *E. celastroides* has slightly angled buds but generally rounded fruit.

*E. calycogona* has longer, narrower buds and fruit than *E. quadrans*. Both are mallee species whereas *E. prolixa* is a tree (mallet) with fruit often longer than *E. calycogona*.

There are four subspecies:

#### ***E. calycogona* subsp. *calycogona***

Smooth-barked with buds, fruit and adult leaves smaller than those of subsp. *spaffordii*. It is similar to subsp. *miraculum* but is never white-waxy. Found in the southern and central wheatbelt areas of Western Australia from Wandering and Doodlakine east and south-east to Lake Grace and Esperance, extending through the southern edge of the goldfields almost to Balladonia and south to the Mt Ragged area. In South Australia it occurs on the northern and central Eyre Peninsula, northern Yorke Peninsula and eastern Fleurieu Peninsula.

It is also scattered through the Murray Mallee areas from South Australia into the Wimmera and mallee areas of Victoria as far east as about Bort, areas where subsp. *trachybasis* is much more common.

#### ***E. calycogona* subsp. *miraculum***

Smooth-barked mallees with consistently glaucous branchlets, and glaucous crown leaves, buds and young fruit. Juvenile growth is also at least slightly glaucous on the new tips and stems. In other respects it matches subsp. *calycogona*. Confined to the area south-west of Marvel Loch in Western Australia extending west to Dulyalbin and Muntadgin. It was first collected by George Chippendale in 1968 but only recently described.

#### ***E. calycogona* subsp. *spaffordii***

Smooth-barked mallees with buds and fruits usually somewhat larger than the other subspecies and strongly 'square' such that the corners are slightly winged. Restricted to the central Eyre Peninsula of South Australia around Cummins and in the Koppio Hills, south of the distribution of subsp. *calycogona*.

#### ***E. calycogona* subsp. *trachybasis***

Differs from subsp. *calycogona* only in the presence of rough box-type to tessellated bark on lower trunk. This is the common form of the species in mallee areas of Victoria and the Murray Mallee of South Australia, and the only form found in New South Wales where restricted to the area around Koraleigh, north-east of Swan Hill. Young plants regenerating from lignotubers may flower before rough bark develops and are indistinguishable from subsp. *calycogona* at this stage.

### Origin of Name

*Eucalyptus calycogona*: Greek *kalyx*, calyx and *-gonia*, angled, referring to the four-sided buds and fruits.

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