

More about Red Gums and other associated groups

Notes

Red gums are widespread across most parts of Australia, from the deep fertile soils of the wetter coastal areas, to the poorer soils and rocky terrain on the tops of some of the high mountains, to the drier sandy soils of the inland. The most famous of all is the River red gum, *Eucalyptus camaldulensis*. It can be found growing along most drainage channels and river banks throughout the continent.

Red gums are usually fairly easy to recognise as a group, often having smooth bark that is mottled in shades of grey to white to cream to pink due to different stages of weathering. Sometimes the bark develops a dull granular texture similar to the related Grey gums. A few Red gum species have rough bark (*E. Morrisii*, *E. Chloroclada*, *E. Terrica*, *E. Exserta*, *E. Brassiana*, *E. Lockyeri*, *E. Rudis*). The adult leaves in most species are concolorous, with moderate to dense reticulation and island oil glands. The buds in many species have opercula that are relatively long and acute, with ovule row numbers six or eight, often with a gap to the placenta between the inner rows. The fruit are mostly with ascending discs and prominently exerted valves and the stems of seedlings or young juveniles are normally square in cross-section.

The groups and species are here arranged according to "A New Classification of the Genus *Eucalyptus* L'Her.", Brooker (2000). Some of the subseries listed here may be distinct enough to be recognised at a higher level (see notes below). Note that section *Platyspermae* is not a group of red gum species but differs strongly from them in seed characteristics as outlined by Brooker & Slee (1994); it is included here only because historically the species in section *Platyspermae* have been classified as red gums (e.g. Blakely (1934), Blake (1953)). The groups and species are diagnosed by the following:

Section *Liberivalvae* - bark smooth, often granular in texture; leaf venation moderate to dense, oil glands island (sometimes sparse or absent); fruit with annular disc free from ovary roof; seed red-brown to brown, cuboid to obliquely pyramidal, hilum terminal.

Eucalyptus seeana — adult leaves green, narrow lanceolate to lanceolate, normally narrower than 2 cm; buds not glaucous, operculum relatively long, 0.7–1.2 cm in length; juvenile leaves narrowly lanceolate.

Eucalyptus interstans — adult leaves green, lanceolate, normally narrower than 3 cm, buds not glaucous; operculum relatively long, 0.8–1.1 cm in length; juvenile leaves broadly lanceolate to ovate.

Eucalyptus prava — normally a small poorly formed tree; newly exposed bark often red or orange; adult leaves blue-grey to glaucous, lanceolate to broadly lanceolate; buds usually glaucous, operculum relatively long, 0.7–1.1 cm in length; juvenile leaves ovate.

Eucalyptus bancroftii — often a small poorly formed tree; adult leaves broadly lanceolate, normally wider than 3 cm; buds not glaucous, operculum relatively long, 0.7–1.5 cm in length; juvenile leaves broadly lanceolate to ovate.

Eucalyptus parramattensis* subsp. *parramattensis — adult leaves glossy green, lanceolate; buds not glaucous, operculum conical and relatively short, 0.3–0.7 cm in length; juvenile leaves lanceolate.

Eucalyptus parramattensis* subsp. *decadens — adult leaves glossy green, lanceolate, buds not glaucous; operculum conical, 0.6–0.8 cm in length; juvenile leaves lanceolate.

Eucalyptus parramattensis* var. *sphaerocalyx — adult leaves glossy green, lanceolate; buds not glaucous, operculum round and relatively short, 0.2–0.4 cm in length; juvenile lanceolate.

Section *Exsertaria* — fruit with disc united to the ovary roof.

Series *Erythroxyton* — bark mostly smooth (*E. chloroclada* and *E. terrica* rough-barked); leaf venation moderate to dense, oil glands island (sometimes sparse or absent); stamens mostly erect; seed single-coated, cuboid to obliquely pyramidal, hilum terminal.

Eucalyptus tereticornis (with 4 subspecies) — well-formed trees, normally smooth-barked (sometimes with accumulated rough slabs of bark at the base); buds and fruit not glaucous; juvenile leaves ovate except in subsp. *rotunda* which has orbicular juvenile leaves. Operculum relatively long and narrow and basally dilated in subsp. *tereticornis*, shorter and conical in subspp. *mediana* and *basaltica*, rounded to pointed in subsp. *rotunda*; fruit 0.4–0.8 cm wide.

Eucalyptus blakelyi — a well-formed tree; normally smooth-barked (sometimes with accumulated rough bark at the base); buds and fruit glaucous or non-glaucous; juvenile leaves ovate, glaucous or not; operculum commonly long and narrow but on occasional trees much shorter, 0.5–1.1 cm long; fruit 0.4–0.8 cm wide.

Eucalyptus kabiana — a mallee or rarely a small tree; normally smooth-barked; buds and fruit not glaucous; operculum relatively long and narrow, 0.7–0.9 cm long; fruit 0.5–0.7 cm wide; juvenile leaves lanceolate, 2–3 cm wide.

Eucalyptus glaucina — a well-formed tree; normally smooth-barked; buds glaucous, operculum 0.5–1 cm long; fruit 0.6–1 cm wide; seedling leaves orbicular to ovate, 4.5–8 cm wide.

Eucalyptus amplifolia* subsp. *amplifolia — a well-formed tree; normally smooth-barked; buds and fruit not glaucous, pedicellate; operculum 0.5–0.9 cm long; fruit 0.4–0.6 cm wide; seedling leaves glossy green, deltoid to orbicular to ovate, held for many nodes in a horizontal plane, 5–8(10) cm wide (juvenile leaves in the field to 18 cm wide).

Eucalyptus amplifolia* subsp. *sessiliflora — a well-formed tree; normally smooth-barked; buds and fruit not glaucous, sessile; operculum 0.6–0.9 cm long; fruit 0.5–0.6 cm wide; seedling leaves glossy green, deltoid to orbicular to ovate, held for many nodes in a horizontal plane, 4–8(10) cm wide.

Eucalyptus nandewarica — poorly formed tree or mallee; usually smooth-barked; buds and fruit small, not glaucous; operculum 0.5–0.6 cm long; fruit 0.5(0.6) cm wide; seedling leaves broadly lanceolate, 3–5 cm wide.

Eucalyptus dwyeri — small tree or rarely a mallee; usually smooth-barked; buds and fruit small (slightly larger than *E. nandewarica*), not glaucous; operculum 0.5–0.8 cm long; fruit (0.5)0.6–0.8 cm wide; seedling leaves lanceolate, 1–2.6 cm wide.

Eucalyptus dealbata — small tree; usually smooth-barked; buds and fruit normally distinctly glaucous; operculum 0.4–0.8 cm long; fruit 0.5–0.7 cm wide; seedling leaves orbicular to ovate, 3.3–6.5 cm wide.

Eucalyptus vicina — small tree or mallee; usually smooth-barked; buds and fruit not glaucous; operculum 0.4–0.7 cm long; fruit 0.4–0.8 cm wide; seedling leaves ovate, 2.5–5 cm wide.

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Eucalyptus flindersii — mallee or rarely a small tree; usually smooth-barked; buds and fruit not glaucous; operculum (0.4)0.5–0.7 cm long, umbels normally three-flowered; fruit 0.4–1 cm wide; seedling leaves ovate to deltoid, 3.5–8 cm wide.

Eucalyptus gillenii — mallee; smooth-barked; buds and fruit not glaucous; operculum 0.5–0.9(1.2) cm long; umbels normally seven-flowered; fruit 0.6–1.2 cm wide; juvenile leaves lanceolate to broadly lanceolate, (0.8)1.5–3(3.5) cm wide.

Eucalyptus nudicaulis — mallee; smooth-barked; buds and fruit not glaucous; operculum 0.7–1 cm long; umbels normally seven-flowered; fruit 0.6–1 cm wide; juvenile leaves narrowly lanceolate, 0.8–2 cm wide.

Eucalyptus infera — mallee; smooth-barked; buds and fruit not glaucous; operculum 0.8–1.1 cm long; fruit 0.4–0.8 cm wide; seedling leaves ovate, 4–7 cm wide, often with shallow crenulations on the margins.

Eucalyptus chloroclada — tree; normally with thin, rough, orange-brown to brown, fibrous bark over part or all of the trunk; buds and fruit not glaucous; operculum 0.5–0.9 cm long; fruit with a flattish disc; seedling leaves ovate, 2–5 cm wide.

Eucalyptus terrica — tree; normally with thin, rough, orange-brown to brown, fibrous bark over part or all of the trunk; buds and fruit not glaucous; operculum 0.4–0.6 cm long; seedling leaves normally lanceolate, 1–3.8 cm wide.

Series *Rostratae* - bark smooth; leaf venation moderate to dense, oil glands island (sometimes sparse or absent); stamens erect or variously inflexed; seed cuboid to pyramidal, yellow to yellow-brown with double seed coat, hilum terminal. It is important to look at mature flower buds to accurately identify to subspecies, although geography is in most areas (but not all) a good secondary guide.

Eucalyptus camaldulensis* subsp. *camaldulensis — tree; normally smooth-barked or sometimes with accumulated rough bark at base; adult leaves dull or glossy, green to grey-green; operculum beaked, stamens inflexed in bud, ovules in 6 vertical rows; seedling leaves lanceolate, not waxy.

Eucalyptus camaldulensis* subsp. *acuta — tree; smooth-barked or with some rough bark at base; adult leaves dull, green to blue-green; operculum acutely conical, stamens erect in bud, ovules in 6 vertical rows; seedling leaves broadly lanceolate with obvious wax on stems at least.

Eucalyptus camaldulensis* subsp. *arida — tree; smooth-barked; adult leaves dull, usually bluish green; operculum obtuse to rounded, sometimes mucronate, stamens erect in bud, ovules in 6 vertical rows; seedling leaves ovate to broadly lanceolate, obviously waxy.

Eucalyptus camaldulensis* subsp. *minima — tree; smooth-barked or with flaky bark at base of trunk; adult leaves dull, blue-green to blue-grey; operculum acutely, short, stamens inflexed or erect in bud, ovules usually in 4 vertical rows (sometimes a fifth partial row present); seedling leaves ovate to broadly lanceolate, obviously waxy.

Eucalyptus camaldulensis* subsp. *obtusata — tree; smooth-barked; adult leaves dull or slightly glossy, green; operculum obtuse to

rounded, sometimes mucronate, stamens erect in bud, ovules in 6 vertical rows; seedling leaves lanceolate to broadly so, with obvious wax on stems.

Eucalyptus camaldulensis* subsp. *refulgens — tree; smooth-barked; adult leaves very glossy, green; operculum obtusely conical to rounded, stamens erect in bud, ovules in 6 vertical rows; seedling leaves lanceolate to broadly so, with obvious wax on stems

Eucalyptus camaldulensis* subsp. *simulata — tree; smooth-barked or with flaky bark at base of trunk; adult leaves dull or glossy, green; operculum horn-shaped, very long and narrow, stamens erect in bud, ovules in 6 vertical rows; seedling leaves ovate to lanceolate, with obvious wax on stems.

Series *Singulares* — bark commonly rough; leaf venation moderate to dense, oil glands island; stamens irregularly inflexed; seed cuboid to obliquely pyramidal, mostly brown with a single seedcoat (sometimes yellow or straw coloured with a double seedcoat), hilum terminal.

Eucalyptus rudis* subsp. *cratyantha — tree; normally rough-barked (rarely smooth-barked); fruit 1.1–1.4 cm wide; seedling leaves ovate to deltoid, 4.5–8.5 cm wide.

Eucalyptus rudis* subsp. *rudis — tree; normally rough-barked (rarely smooth-barked); fruit 0.7–1 cm wide; seedling leaves ovate to deltoid, 4.5–8.5 cm wide.

Series *Phaeoxylon* — bark rough; leaf venation mostly moderate, oil glands island; stamens mostly erect; seed cuboid to obliquely pyramidal, brown to black with single seedcoat hilum terminal.

Eucalyptus brassiana — tree; trunk wholly or partly rough-barked, larger branches smooth-barked; adult leaves green; umbels seven-flowered; fruit relatively large, 0.7–1.2 cm wide with a steeply ascending disc; juvenile leaves ovate to lanceolate, (3)4–7 cm wide.

Eucalyptus lockyeri* subsp. *lockyeri — small tree; normally rough-barked over entire trunk, large branches smooth-barked; adult leaves normally glaucous to blue-grey; umbels seven-flowered, buds glaucous; fruit 0.6–1(1.2) cm wide; juvenile leaves ovate to lanceolate, 3.5–5.5 cm wide.

Eucalyptus lockyeri* subsp. *exuta — small tree; partly rough-barked, upper trunk and large branches smooth-barked; adult leaves green; umbels seven-flowered; fruit 0.6–0.8 cm wide with a ± flat disc; juvenile leaves lanceolate, 0.9–1.3(1.6) cm wide.

Eucalyptus ammophila — mallee; normally rough-barked to the base of the branches; adult leaves green to grey-green; umbels 7(11)-flowered; fruit 0.6–0.9 cm wide; juvenile leaves ovate to lanceolate, 2.2–3.6 cm wide.

Eucalyptus exserta — tree or mallee; normally rough-barked to the small branches; adult leaves green to grey-green; umbels seven-flowered; fruit 0.4–0.8 cm wide; juvenile leaves linear to narrowly lanceolate, 0.3–1.3 cm wide.

Eucalyptus morrisii — tree or mallee; rough-barked to the small branches on larger trees, lesser amount of rough bark on smaller individuals with the branches sometimes smooth-barked; adult leaves grey-green; umbels commonly three-flowered (rarely seven-flowered); fruit 0.7–1.1 cm wide; juvenile leaves linear to narrowly lanceolate 0.5–1.2 cm wide.

Series *Connexentes* — Bark smooth; leaf venation dense, oil glands island and intersectional; stamens inflexed; fruit with an annular disc; seed flattened-ovoid to obliquely pyramidal, toothed, hilum ventral. (Because the fruit have an annular disc and the bark is often granular in texture, this group maybe better placed in Section *Liberivalvae* or a new Section.)

Eucalyptus hallii — tree; smooth bark often granular in texture; adult leaf width 2–3.5 cm; umbel peduncle 0.3–1 cm long; fruit obconical, 0.6–0.8 cm wide.

Eucalyptus broviniensis — tree; smooth bark often granular in texture; adult leaf width 2.5–4.5 cm wide; umbel peduncle 0.8–2.2 cm long; fruit obconical, 0.7–1 cm wide.

Series *Subexsertae* — Bark smooth; leaf venation dense to very dense, oil glands intersectional or absent; fruit with an annular disc.

Sub-series *Applanatae* — smooth bark often powdery and not granular in texture; seed flattened, more or less ovoid in shape, toothed; buds round in shape. (Because the fruit have an annular disc and the seed are flattened-ovoid with more or less ventral hilum, this group may be better placed in a new Section.)

Eucalyptus alba* var. *australasica — tree; mature crown leaves petiolate, concolorous, lanceolate to rarely ovate; buds pedicellate; fruit 0.5–0.8 cm wide; juvenile leaves ovate.

Eucalyptus bigalerita — tree; mature crown leaves petiolate, concolorous, orbicular to deltoid to cordate; buds sessile to shortly pedicellate; fruit 0.8–1.2 cm wide; juvenile leaves deltoid to cordate.

Eucalyptus platyphylla — tree; mature crown leaves petiolate, concolorous, orbicular to deltoid to cordate (rarely ovate to broadly lanceolate); buds sessile to shortly pedicellate; fruit 0.6–1 cm wide; juvenile leaves deltoid to cordate.

Eucalyptus tintinnans — tree; mature crown leaves petiolate, concolorous, orbicular to deltoid (rarely cordate to ovate); buds sessile to shortly pedicellate; fruit 0.5–0.6 cm wide.

Eucalyptus apodophylla — small tree; mature crown leaves normally sessile (rarely shortly petiolate), discolorous (rarely concolorous), elliptical, ovate to broadly lanceolate; buds sessile to shortly pedicellate; fruit 0.4–0.6(0.8) cm wide; juvenile leaves glaucous, ovate to elliptical.

Eucalyptus houseana — tree; mature crown leaves petiolate, concolorous, lanceolate to falcate; buds sessile to shortly pedicellate; fruit 0.4–0.5(0.6) cm wide; juvenile leaves ovate to elliptical.

Sub-series *Pyramidales* — seed obliquely pyramidal in shape, toothed; buds ovoid to obovoid in shape. (Because the fruit have an annular disc and the seed are obliquely pyramidal with a more or less terminal hilum, this group may be better placed in a new Section.)

Eucalyptus mooreana — small tree or mallee; mature crown leaves opposite, sessile, elliptical to ovate to orbicular to cordate (rarely lanceolate), dull green to grey-green to glaucous; umbels 7-flowered, buds sessile to shortly pedicellate, glaucous; fruit 0.6–0.9 cm wide; juvenile leaves orbicular to ovate to elliptical to cordate.

Eucalyptus pantoleuca — small tree; mature crown leaves opposite, petiolate, ovate to orbicular to deltoid, dull and glaucous; umbels 3-flowered, sessile to shortly pedicellate, glaucous; fruit 1.5–2.4 cm wide; juvenile leaves orbicular to deltoid.

Eucalyptus herbertiana — small tree or mallee; mature crown leaves alternate, lanceolate to falcate, dull green to grey-green; umbels normally 7-flowered (rarely 3-flowered), buds sessile to shortly pedicellate; fruit 0.4–0.6 cm wide; juvenile leaves ovate.

Eucalyptus cupularis — small tree; mature crown leaves alternate, lanceolate to falcate, dull green to grey-green; umbels 7-flowered, buds normally sessile, glaucous; fruit 0.7–1.2 cm wide; juvenile leaves ovate.

Eucalyptus glomericassis — small tree; mature crown leaves alternate, lanceolate to falcate, glossy green; umbels 7-flowered, buds normally pedicellate; fruit 0.6–0.9 cm wide; juvenile leaves ovate.

Eucalyptus gregoriensis — small tree or mallee; mature crown leaves alternate, narrowly lanceolate to lanceolate to falcate, dull green to grey-green to glaucous; umbels normally 3-flowered (rarely 7-flowered), buds sessile; fruit 0.5–0.6 cm wide; juvenile leaves ovate to lanceolate.

Section *Platysperma* — Bark smooth; leaf venation very dense, oil glands usually absent; seed flattened-ovoid in shape, margin not toothed, hilum ventral (this group of tropical eucalypts was formerly erroneously classified as species of red gum).

Eucalyptus rupestris — small tree; adult leaves elliptical to ovate to broadly lanceolate, dull green; fruit (0.2)0.3–0.4 cm wide, disc narrow, descending, valves near the rim of the fruit or slightly exerted.

Eucalyptus kenneallyi — small tree; adult leaves narrowly lanceolate, dull green to grey-green; fruit 0.3–0.35 cm wide, disc narrow, descending, valves enclosed.

Eucalyptus umbrawarrensii — tree; adult leaves narrowly lanceolate, glossy green; fruit 0.3–0.4 cm wide, disc narrow, descending, valves near the rim of the fruit or slightly exerted.

Eucalyptus leucophloia* subsp. *europa — small tree or mallee; adult leaves lanceolate to ovate, dull green to grey-green to blue-grey to glaucous; fruit 0.4–0.6 cm wide, disc narrow, descending, valves prominently exerted.

Eucalyptus leucophloia* subsp. *leucophloia — small tree; adult leaves lanceolate to ovate, dull green to grey-green to blue-grey to glaucous; fruit 0.4–0.6 cm wide, disc narrow, descending, valves enclosed or near the rim.

Eucalyptus confluens — tree; adult leaves lanceolate to rarely falcate, glossy green; fruit 0.6–0.7 cm wide, disc broad, level to slightly ascending, valves slightly exerted or near the rim.

Eucalyptus brevifolia — tree or rarely mallee; adult leaves lanceolate to broadly lanceolate to ovate, dull blue-grey to glaucous; fruit 0.6–0.9 cm wide; disc broad, level to slightly ascending, valves slightly exerted or near the rim.

Eucalyptus ordiana — tree or mallee; adult leaves broadly lanceolate to 8 cm wide, dull grey-green to glaucous; fruit 0.5–0.7 cm wide, disc ascending, valves at rim level or slightly exerted.

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