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ONE NEW SPECIES AND TWO NEW SUBSPECIES OF *EUCALYPTUS* FROM SOUTHERN AUSTRALIA

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Abstract

A new species *Eucalyptus flindersii*, the grey mallee or mallee red gum, previously referred to *E. morrisii* R.T.Bak. in error, and two new subspecies, *E. viminalis* subsp. *cygnetensis* for the rough-barked manna gum incorrectly referred to *E. huberana* Naud., and *E. yumbarrana* subsp. *striata* from south of Lake Wyola in the Far West Zone of South Australia, are described.

***Eucalyptus flindersii* C.D. Boomsma, sp. nov.**

E. morrisii auct. non R.T. Bak.: Blakely. A Key to the Eucalypts (1st ed.) 129 (1934)? p.p.; Burbidge. Trans. Roy. Soc. S.Aust. 71: 145 (1947)? p.p.; Black. Flora of South Australia (2nd ed.) 631 (1952)? p.p.

Ab *E. morrisii* R.T. Baker differt trunco laevi griseo, raro cortice aspero ad basem, et foliis plantularum latioribus.

From *E. morrisii* R.T. Baker it differs by its smooth, grey trunk rarely with rough bark at the base and the broader seedling leaves.

Holotypus: South Australia, Mount Hack, Flinders Range (40 km SSE Leigh Creek) 10.ix.1969, R. Callen 38 (AD).

Isotypus: Woods and Forests Department.

Mallee or small tree to 5 m, smooth grey-barked trunk; *seedling leaves* opposite for 5-8 prs, broadly ovate to broadly ovate-lanceolate; *adult leaves* alternate, petiolate, lanceolate, grey-green, dull; *buds* in axillary clusters, rarely opposite, subsessile, 3-7 per cluster; *peduncle* robust, 5-7 mm long; *operculum* broadly conical, much longer than the cupular torus; *fruit* sessile or occasionally subsessile, obovoid, globose, rim narrow, disc broad and raised, valves 3-4, broad, exsert; *seeds* dark grey-brown to dark grey, with about 20 rows of shallow areolae and a bristle-like fringe. (Fig. 1.)

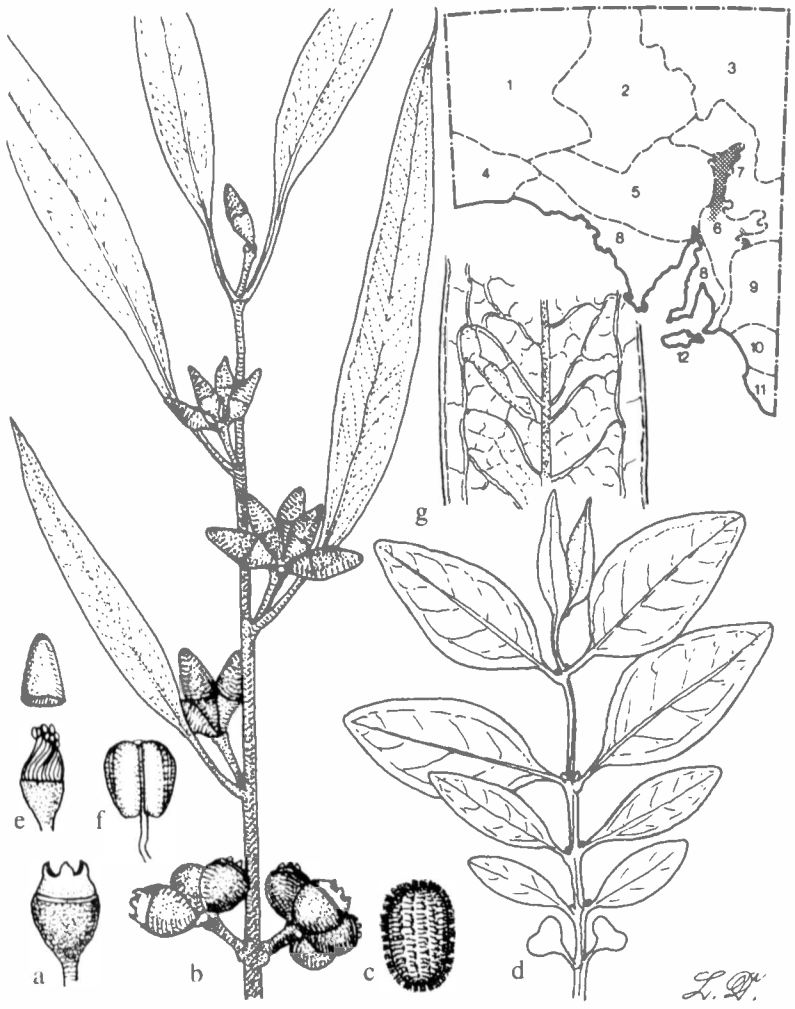
Distribution

It is apparently restricted to South Australia, being mainly distributed on slopes, and the summits of peaks in the North Flinders Range with rare outliers extending to the South Flinders Range as at Devil Peak, but more frequently at Spring Dam south of Yunta and Pualco Gorge. A related mallee which occurs in a similar rocky habitat at Mootwingie, western New South Wales, can scarcely prove acceptable as this species because it differs in having brown, not grey, seeds and lanceolate, not ovate (orbicular), advanced seedling leaves.

Discussion

This new species has for long been assigned to the related *E. morrisii* R.T.Bak. until it was pointed out by M.I.H. Brooker (pers. com 1973) and later by Hall and Brooker (1975), that the seedling leaves of *E. morrisii* are narrow-lanceolate in contrast with ovate-lanceolate in the grey mallee from the Flinders Ranges.

There are three other related taxa which grow in isolated rocky ranges in arid areas exhibiting divergence in seedling characters but similarities in adult material. These are *E. incurva* C. Boomsma from Mount Lindsay, Birks Gate Range, *E. gillennii* A.J. Ewart from Mount Gillen near Alice Springs and *E. morrisii* from the Cobar-Bourke area,



western New South Wales. Even though the taxa may ultimately be better treated as subspecies, it is considered that there will be less confusion in current nomenclature if the new taxon is treated similarly to the other three related taxa.

The name commemorates Captain Matthew Flinders, the navigator who observed a mountain range in the vicinity of Quorn in 1803 which has been subsequently named the Flinders Ranges.

Specimens examined

SOUTH AUSTRALIA: Flinders Ranges. Yankaninna Stn, *J. Johnson s.n.*, 21.ix.1966 (AD, Woods and Forests Department); Mount Serle, *D. Symon 3998*, 4.iii.1966 (ADW, K, NSW, Woods and Forests Department); Mount Serle, *D. Symon 3991*, 4.iii.1966 (ADW, NSW, Woods and Forests Department); Mount Serle, *D. Symon 3989*, 4.iii.1966 (ADW, NSW, Woods and Forests Department); Mount Serle, *D. Symon 3994*, 4.iii.1966 (ADW, K, NSW, Woods and Forests Department); Mount McKinley, *D. Symon 4019*, 4.iii.1966 (ADW, NSW, Woods and Forests Department); Mount Falkland, *P. Shooter s.n.*, 9.v.1976, (Woods and Forests Department); Wilpena Pound, *L.D. Williams 9309*, 1.v.1977 (AD); Mount Hack, *T.R.N. Lothian 5295*, 19.ix.1973 (AD); Mount Aleck, *G.R. Gross s.n.*, Dec. 1972 (AD); Illinawortina Pound, *R. Callen s.n.*, 8.x.1969 (AD); Arkapena, 6.5 km S.E. of H.S., *M.D. Crisp 859*, 1.ix.1974 (AD, FRI); Arcoona Creek near foot of North Tusk, *Hj. Eichler and G.F. Gross s.n.*, 20.ix.1956 (AD); Mount Patawurtia, *E.H. Ising 536*, 3.x.1918 (AD); Mount McKinlay, *T.R.N. Lothian 3603*, 17.ix.1965 (AD, NSW); Bibliando Stn, West Bore paddock, *M.D. Crisp 756*, 14.iv.1974 (AD); Pualco Gorge, *B.J. Warren 58*, 31.v.1969 (AD); Spring Dam, Yunta, *M.I.H. Brooker 3899*, 12.xii.1972 (AD, FRI); Mount Rowe, *J.B. Cleland s.n.*, 5.ix.1941 (AD); Gammon Hill, *K.D. Rohrlach 669*, 11.x.1959 (AD, K, P, L, BH, UC); Malkia Springs, *J.B. Cleland s.n.*, 27.v.1937 (AD).

Eucalyptus viminalis Labillardière subsp. *cygnetensis* C.D. Boomsma, subsp. nov.

E. huberana auctt. non Naudin: Blakely, A Key to the Eucalypts (1st ed.) 163 (1934); *E. viminalis* var *huberana*: Burbidge, Trans. Roy. Soc. S.Aust. 71: 147 (1947); Black, Flora of South Australia (2nd ed.) 627 (1952).

Arbor patens sylvatica, usque ad c. 20 m alta, *E. viminalis* subsp. *viminalis* differt umbellis alabastra tres plusve ferentibus et cortice aspero, in dimidio inferiore trunci persistenti, interdum in ramos maiores extenso.

Holotypus: South Australia, Kangaroo Island, Cygnet River, Hundred MacGillivray, Sec. 40; *R.C. Hagerstrom and C.D. Boomsma*, 10.xii.1979 (AD 98003287). (Fig. 2.)

Spreading tree to about 20 m high; rough bark persistent on the lower half of the trunk, sometimes extending onto the major branches. Umbels of seven buds, infrequently less, to as few as three.

Distribution

In South Australia it commonly occupies well-drained sites of friable soils mostly in cool regions receiving an annual rainfall ranging from 450-900 mm. It occurs in the Lower and Upper South East Zones, Mount Lofty Range, Eyre Peninsula at Mickera and Coffin Bay, and in valleys of alluvial soils on Kangaroo Island. Also occurs in SW Victoria.

At the lower limits of rainfall, it occurs as small inliers within open scrub or low woodland from near Bordertown, northwards to near Pinnaroo and Parrakie. Also occurs in similar adjacent areas in Victoria.

Fig. 1. *Eucalyptus flindersii* C.D. Boomsma. a, capsule, upper size range; b, branchlet; c, seed X 30; d, seedling at 90 days X 1/2; e, mature bud; f, anther X 30; g, portion of lamina X 3. (a, Mt Patawurtia, Flinders Ra., *E.H. Ising 576*; b,c,e,f,g, holotype, *R.A. Callen 38*; d, Wilpena Pound, ex cult. Adelaide Bot. Gard. S/R 1761.)

Fig. 2. *Eucalyptus viminalis* subsp. *cygnetensis* C.D. Boomsma. Photograph of holotype, *R. Hagerstrom and C.D. Boomsma s.n.*, 11.xii.1979 (AD 98003287).

Discussion

The rough-barked manna gum in South Australia and SW Victoria has long been associated with favourable sites for afforestation and intensive grazing so that considerable clearance of areas once occupied by it has proceeded to almost eliminate it from some districts. The selection of the Cygnet Valley as the type locality eliminates the possibility of contemporary hybridisation with species which have subglaucous or glaucous seedling or reversionary leaves. Further, the population is substantial and in surviving settlement operations to date, has demonstrated a reasonable likelihood of continued survival.

The conclusion of Banks (1972, p.20) on the identity of the type material of *E. huberana* Naud. as *E. benthamii* Maid. & Cambage or *E. benthamii* var. *dorrigoensis* Blakely or a hybrid was largely influenced by the ovate seedling leaves being described as "légèrement glaucescentes" [slightly glaucescent] in the type description (1891). Later, in 1956, an independent observation by A. Metro of contemporary collected material from the same tree and recorded by Banks (1972, p.18) noted "immature fruits slightly glaucous".

The absence of glaucous individuals in isolated occurrences in South Australia such as Kangaroo Island support Pryor's (1955) and Banks' (1972) assertions that *E. huberana* does not refer to the rough-barked manna gum. Additionally, the type description, Naudin (1891), refers to much broader seedling leaves of oval to oval-oblong shape compared with the usual narrowly elliptical to narrowly elliptical-lanceolate of *E. viminalis* subsp. *cygnetensis*. Therefore a new subspecies of *E. viminalis* is proposed and described.

It is well known, Boomsma (1948), that intergrades between the rough-barked manna gum and glaucescent or glaucous species, with broader seedling leaves, can occur. In the event that such an explanation is applicable to *E. huberana*, even further support is provided for the separate recognition of the non-glaucous, rough-barked manna gum. In conclusion, if *E. huberana* is synonymous with *E. benthamii* Maid. & Cambage (1914) or its var. *dorrigoensis* Blakely (1934), as suggested by Banks (1972, p. 19), it would be the earliest name and should be taken up.

Specimens examined

SOUTH AUSTRALIA: Upper and Lower South East Zones. Hd Penola, *D. Hunt* 705, 4.iii.1962 (AD); Marsh's Swamp, Hd Riddoch, *I.B. Wilson* 445, 19.ii.1966 (AD); Lake Hawdon Station, *R.M. Welbourn* 46, 13.vii.1963 (AD); Big Heath Conservation Park, *C.R. Alcock* 3042, 7.xi.1969 (AD); Fair View Conservation Park, *J.B. Cleland s.n.*, 2.v.1966 (AD); 3 km east of Struan, *I.B. Wilson* 562, 8.x.1966 (AD, NSW, CANB); 45 km south-west of Naracoorte, *D. Hunt* 673, 2.ii.1966 (AD); Tintinara, *T.R.N. Lothian s.n.*, 28.iii.1963 (AD); West of Bunn's Bore, *S. Barker s.n.*, 10.viii.1974 (Woods and Forests Department 1532); 26 km south of Geranium, *R. Isaacson* 5301, 24.vii.1975 (AD, FRI).

Mount Lofty Range. Devil's Elbow, *E.S. Booth* 3057, 15.v.1947 (AD); Mount Crawford, *R.L. Specht* 2207, 18.vi.1960 (AD); Mount Kitchener, *E.N.S. Jackson* 346, 30.vii.1961 (AD); Cox's Scrub, *B.C. Crisp* 55, 13.xii.1970 (AD); McLaren Vale, *R.F. Parsons* 106, 17.xii.1961 (AD).

Eyre Peninsula. Mickera Station, *J. Thomas s.n.*, 20.ii.1951 (Woods and Forest Department 1163); Mickera Station, *R. French s.n.*, 17.ii.1958 (Woods and Forests Department 1167); Mickera Station, *C. Boomsma s.n.*, 29.ix.1958 (Woods and Forests Department 1166); Mickera Station, *C. Boomsma s.n.*, 21.ix.1958 (Woods and Forests Department 1162); Kellidie Bay, *C. Boomsma s.n.*, 25.x.1973 (Woods and Forests Department 11712).

Kangaroo Island. Cygnet River, *C. Boomsma s.n.*, 19.iv.1948 (Woods and Forests Department 1160); Cygnet River, *C. Boomsma s.n.*, 22.xii.1963 (Woods and Forests Department 1161).

VICTORIA: 25 km south of Kiata, Little Desert, *G.C. Cornwall* 323, 24.v.1979 (Woods and Forests Department).



Fig. 3. *Eucalyptus yumbarrana* subsp. *striata* C.D. Boomsma. a, mature bud with operculum removed; b, branchlet; c, fruits; d, anther X 30. (Holotype, T. Dennis 182.)

***Eucalyptus yumbarrana* subsp. *striata* C.D. Boomsma, subsp. nov.**

Ab *E. yumbarrana* subsp. *yumbarrana* differt alabastris ramulisque glaucis et operculis alabastrorum non-deformium costatis usque leviter striatis, toris non-profunde sculptis.

Holotypus: South Australia, 50 km south-west of Lake Wyola, T. Dennis 182, 16.viii.1979 (AD).

Isotypus: Woods and Forests Department.

It differs from subsp. *yumbarrana* in having strongly glaucous buds and branchlets; opercula faintly striated to distinctly costate, the torus less so. (Fig. 3.)

Distribution

So far it has been observed only in the Far West Zone of South Australia, in a single region south of Lake Wyola, where it is not uncommon in swales of deep, red-brown loamy sand in open scrub in association with *Eucalyptus socialis* F. Muell. ex Miq. (NW form), *Eucalyptus striatocalyx* W.V. Fitz. and the ubiquitous mulga, *Acacia aneura* Benth.

Discussion

This subspecies appears to be the second observed taxon in the *Oleosae* with surface ornamentation to the buds. So far it has been collected sparingly, but field observation by T. Dennis (pers. com.) suggests that it is not uncommon in the region south-west of Lake Wyola.

Specimens examined

SOUTH AUSTRALIA: Far West Zone, 75 km S.W. Lake Wyola, T. Dennis 183, 16.viii.1979 (AD, Woods and Forests Department); 78 km S.W. Lake Wyola, T. Dennis 184, 16.viii.1979 (AD); James (SW of Lake Wyola), J. Johnson and S. Reid 1, 8.vi.1970 (AD, Woods and Forests Department).

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