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A new subspecies of *Acacia beckleri* (Leguminosae: Mimosoideae) from the Flinders Ranges, South Australia

M.C. O’Leary

State Herbarium of South Australia, Plant Biodiversity Centre
P.O. Box 2732, Kent Town, South Australia 5071
E-mail: oleary.martin@saugov.sa.gov.au

Abstract

A new subspecies of *Acacia beckleri* Tindale, *Acacia beckleri* subsp. *megasperica* O’Leary, is here recognised, described and illustrated. This new subspecies is restricted to the Flinders Ranges, South Australia.

Introduction

Several recent publications of *Acacia* for South Australia, Whibley (1986), Whibley and Symon (1992), and Maslin (2001a, 2001b,) have informally recognised a variant of *Acacia beckleri* Tindale from the Flinders Ranges with exceptionally large flower-heads and thick peduncles. This paper presents morphological characters that warrant the recognition of this taxon as a distinct subspecies.

Taxonomy

1. *Acacia beckleri* Tindale

in Hj. Eichler, Suppl. Black’s Fl. S. Austral. 173 (1965). — *Racosperma beckleri* (Tindale) Pedley, Bot. J. Linn. Soc. 92: 248 (1986). — **Type citation:** “Beckler s.n., Glen to the gorge Nothungbulla, Hodgkinson’s Basin, near the Barrier Range, splendid shrub 6 to 10ft. high, thickly foliaged, exhaling great fragrance, 15.VI.1861”. **Holotype:** MEL. **Isotypes:** MEL, NSW.

Acacia beckleri auct. non Tindale: Costermans, Native Trees Shrubs S.E. Austral. 317 (1981), partly; Elliot & Jones, Encycl. Austral. Pl. 2: 22 (1982), partly.

Acacia notabilis auct. non F.Muell.: Benth., Fl. Austral. 2: 365 (1864), as to N.S.W. specimen cited

Acacia gladiformis auct. non A.Cunn. ex Benth.: J.M.Black, Fl. S. Austral. 2: 280 (1924), fide Tindale, loc. cit.

Key to subspecies of *Acacia beckleri*

Peduncles 1–2 mm wide, (3–) 4–7 mm long (when dry), (50–) 54–67 flowers per head subsp. **beckleri**
Peduncles 2–4 mm wide, (1–) 2–4 (–5) mm long (when dry), (74–) 80–140 flowers per head . . . subsp. **megasperica**

Acacia beckleri subsp. *megasperica* O’Leary, subsp. nov.

Ab *Acacia beckleri* Tindale subsp. *beckleri peduncularis brevibus latis validis*, 2–4 mm latis, (1–) 2–4 (–5) mm longis in sicco, capitulis flosculum majoribus, (74–) 80–140 flosculibus per capitula, (9–) 10–15 (–17) mm in diametro in sicco.

Holotypus: Entrance to Wilpena Pound, Flinders Ranges, S.A., 20 August 1964, M.E.Phillips 87 (AD

96445299 ex CBG). **Isotypus:** CBG 006590 at CANB, n.v.

Shrub to 3 m high, often spreading, branching near ground level. *Branchlets* ± terete, obscurely ribbed, reddish-brown, often lightly pruinose, glabrous. *Stipules* broadly triangular to rounded, wrinkled, dark reddish brown, 1.1 mm wide, margins sparsely ciliolate. *Phyllodes* narrowly elliptic to narrowly oblanceolate or oblanceolate, (60–) 90–130 (–200) mm long, (5–) 8–20 (–24) mm wide, straight or falcate, often long-attenuated at the base, coriaceous, thick, green to dull-green, glabrous; *midrib* and *marginal nerves* prominent; *lateral nerves* obscure; *apices* acute or obtuse and often with a short oblique mucro; *glands* not prominent, 2–5 on upper margin of phyllode with lowermost at distal end of pulvinus. *Inflorescences* racemose, occasionally simple, raceme axes to 55 mm long, stout, minutely hairy, often sparsely so with age, commonly with 4–5 (–8) heads; *peduncles* (1–) 2–4 (–5) mm long, 2–4 mm wide, coarsely longitudinally sulcate when dry, densely and minutely hairy; *heads* globular, large, drying at anthesis to (9–) 10–15 (–17) mm diam., (74–) 80–140 flowered, deep yellow to golden, fragrant; *bracteole laminae* ± circular, thick, dark brown, densely white-hairy. *Flowers* 5-merous; *sepals* 2/3 united, 2 mm long; with dense white hairs on calyx lobes; *petals* 3 mm long, densely coated with white-transparent hairs at apices and along midrib. *Ovary* glabrous. *Pods* linear, to 120 mm long, 5–6 mm wide, firmly chartaceous to thinly coriaceous, lightly pruinose, glabrous. *Seeds* longitudinal in pods, oblong to elliptic, 4–5 mm long, slightly shiny, dark brown to black; *funicle* short; *aril* clavate. Fig. 1.

Illustrations. M.H. Simmons, *Acacias Austral.* 1: 163 (1981); W.R. Elliot & D.L. Jones, *Encycl. Austral. Pl.* 2: 22 (1982); D.J.E. Whibley, *Fl. S. Austral.* 2: 526 (1986) (flower head); D.J.E. Whibley & D.E. Symon, *Acacias S. Austral.* 159 (1992) (central flower head);

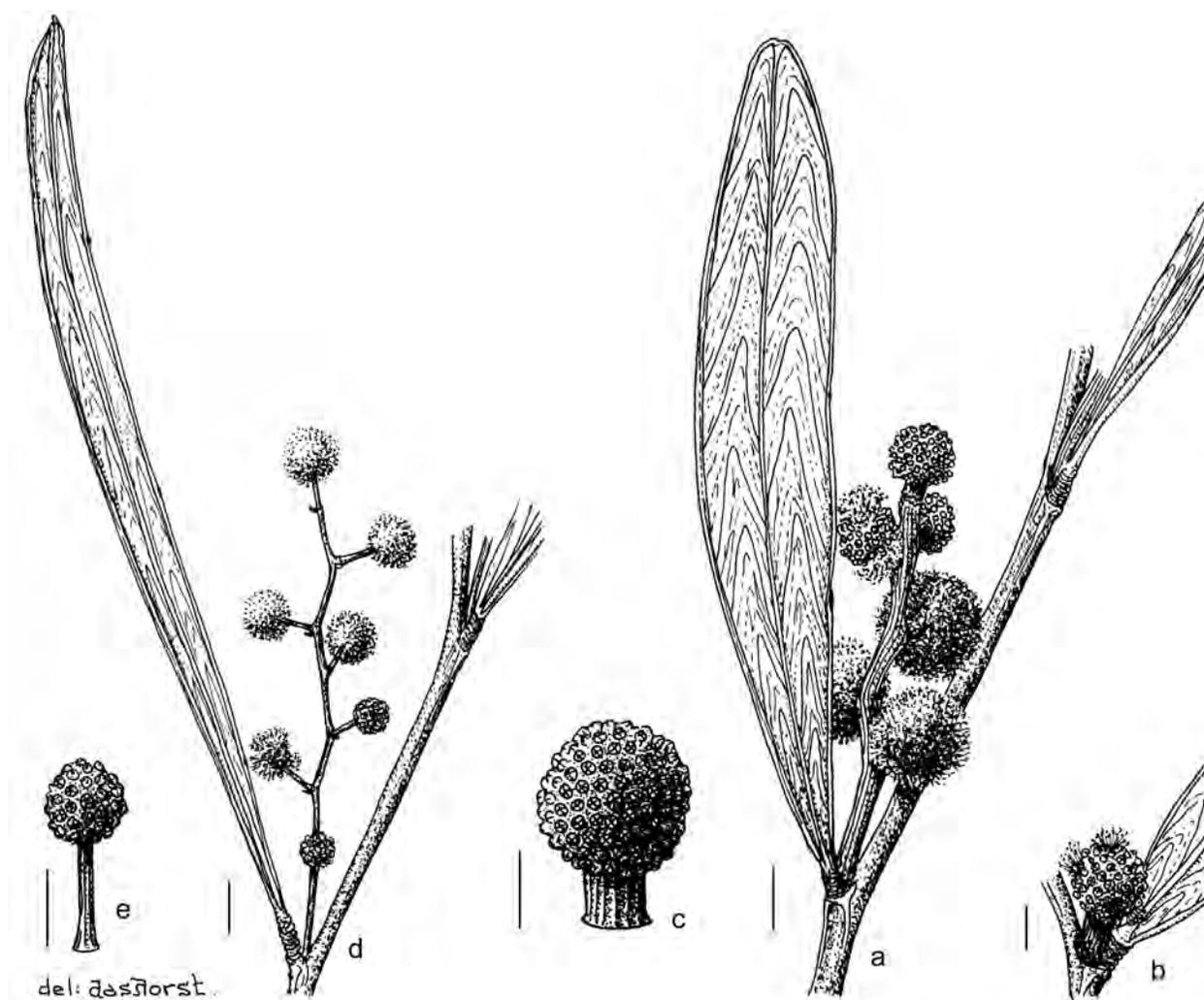


Fig. 1. Comparison of *Acacia beckleri* subsp. *megaspherica*, and *Acacia beckleri* subsp. *beckleri*. a–c *Acacia beckleri* subsp. *megaspherica*. a mature phyllode and flowering raceme; b simple flower in axil; c unopened inflorescence and stout peduncle. d–e *Acacia beckleri* subsp. *beckleri*. d mature phyllode and flowering raceme; e unopened inflorescence and peduncle. Scale: a, b, d 1 cm; c 4 mm; e 5 mm. a, c G.F.Gross s.n. (AD97822019); b P.Hornsby s.n. (AD97726206); c R.J.Bates 18792; e J.Scougal s.n. (AD97113112).

B.R. Maslin (coordinator), WATTLE (CD-ROM, 2001) (*Acacia beckleri*, central flower head in illustration from Acacias S. Austral.).

Distribution. *Acacia beckleri* subsp. *megaspherica* predominantly occurs as a series of distinct, uniform populations in the Flinders Ranges in South Australia, from the Gammon Ranges, to Mt Hack, Wilpena Pound then south to Black Rock and Waite Hill. It is relatively common over a 350 km area (north-south), though mostly restricted to ridgetops and rocky outcrops.

A. beckleri subsp. *beckleri* occurs on granite hills from near Streaky Bay on Eyre Peninsula, east through the Gawler Ranges, southern Flinders Ranges (Mooakra Tower and near Warren Gorge), the Olary Ranges to Broken Hill and the Barrier Range, and central western New South Wales (Manara Hills). Collections in NSW Herbarium from Dubbo and Cobar are annotated as possible naturalizations by P. Kodala and T. Tame. Several collections from Mount McKinlay in the northern

Flinders Ranges appear to be the typical subspecies, and may be part of a disjunct isolated population restricted to that peak. *A. beckleri* subsp. *megaspherica* has been collected some 10 km from this peak, and is likely to surround this population. Fig. 2.

Habitat. Occurs in rocky outcrops on hills and ranges. Associated species include *Callitris glaucophylla* Joy Thomps. & L.A.S.Johnson, *Eucalyptus flindersii* Boomsma, *Bursaria spinosa* Cav. subsp. *spinosa*, *Acacia aneura* F.Muell. ex Benth. var. *aneura*, *A. calamifolia* Sweet ex Lindl., *A. rivalis* J.M.Black, *A. tetragonophylla* F.Muell., *Eremophila alternifolia* R.Br., *E. serrulata* (A.Cunn. ex A.DC.) Druce, *Dodonaea lobulata* F.Muell. and *Triodia* spp.

Conservation status. *A. beckleri* subsp. *megaspherica* is relatively common though it should be noted that few young seedlings have been seen by the author. Plants observed are suspected to be browsed by euros

(*Macropus robustus* Gould), rock wallabies (*Petrogale xanthopus* Gray) and feral goats (*Capra hircus* Linnaeus), and ongoing monitoring and control of feral animals are recommended.

Flowering and fruiting period. Flowering has been recorded from May to September, and is likely to respond to rainfall events. Legumes with mature seeds have been collected from October to December.

Variation. Both subspecies of *A. beckleri* show a degree of phyllode variation. *A. beckleri* subsp. *beckleri* has narrowly elliptic phyllodes in western New South Wales and the Broken Hill area and east of the Flinders Ranges. West of the Flinders Ranges phyllodes tend to be wider, and narrowly oblanceolate to oblanceolate. Hairs on racemes and peduncles can be \pm golden on Eyre Peninsula. These characters are minor and variable and do not warrant any formal recognition.

Only minor variation appears to occur within the population of *A. beckleri* subsp. *megaspherica*. Phyllode size on specimens from some peaks in the northern Flinders Ranges such as Mount Serle can be smaller than normal (8 mm wide and 60 mm long), though these occur on branches with more typical sized phyllodes and may reflect low rainfall or the soil conditions of the area. Some specimens on the ranges near Kanyaka have rather narrow phyllodes (6 mm wide and 120mm long), and may possibly be hybrids with the typical subspecies which occur on hills some 30 km to the south.

Affinities. As noted by Maslin (2001a, b), *A. beckleri* appears to have some affinities with *A. ensifolia* Pedley, and *A. pruinocarpa* Tindale, which are readily recognised by their glabrous peduncles 1–4 cm long, golden-hairy bracteole laminae and sepal apices, broader pods (9–18mm) and transverse to oblique seeds with flat, linear funicles. *A. beckleri* can be confused with *A. notabilis* F.Muell., which is distinguished by its glabrous raceme axes and peduncles, grey-green to glaucous phyllodes with a single gland (0–3 mm above pulvinus), pods 8–13 mm wide and transverse seeds encircled by long funicles (funicle 1–2 mm long and not encircling seed in *A. beckleri*). It is also superficially similar to *A. gladiiformis* A.Cunn. ex Benth., and *A. toodulya* O'Leary, which are distinguished by their glabrous racemes and peduncles.

Utilisation. *A. beckleri* has been cultivated by native plant nurseries over many years for its showy flowers. Plants from the Flinders Ranges (described here as subsp. *megaspherica*) are particularly known for their very large flower-heads, and were illustrated in Simmons (1981) and Elliot and Jones (1982) before recognition in any formal flora.

Etymology. The Greek epithet *megaspherica* was chosen due to the large prominent flower-heads of this subspecies.

Common names. No unique common names have been recorded for *A. beckleri* subsp. *megaspherica*.

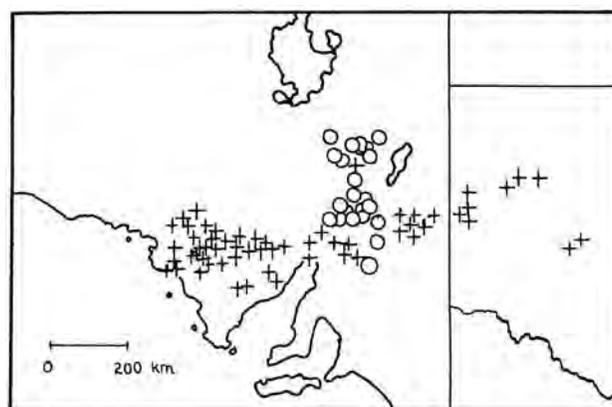


Fig. 2. Distribution map of *Acacia beckleri* subsp. *megaspherica* (circles) and *Acacia beckleri* subsp. *beckleri* (crosses).

Selected specimens examined. (ca 134 specimens total)

SOUTH AUSTRALIA: Peela Rocks, WNW of Kimba, *C.R.Alcock* 8990 (AD); The Gorge, 1 km E of Old Boolcoomata Station, *R.Bates* 18792 (AD); c. 1 km S of Black Rock Peak, *M.C.Catford* 18 (AD; A, AAU, AK *n.v.*); c. 8 km W of Mookra Siding, *M.C.Catford* 67 (AD); Wilpena Pound, 30 Nov. 1930, *J.B.Cleland* (AD); Summit of Mount Serle, *B.Crisp* 439 (AD; CANB, L *n.v.*); Western side of Yourambulla Peak, *N.N.Donner* 2595 (AD; AAU, B, NY *n.v.*); Gammon Ranges, Main Plateau, south-east of North Tusk, *Hj.Eichler* 12795 (AD; K, L *n.v.*); Wilpena Pound, 19 Aug. 1953, *G.F.Gross* (AD97822019); Black Hill, 10 km N of Holowilena HS, *T.Hall* 75 (AD); On eastern slopes of ridge, north of the Kanyacka Creek, just outside main gateway to Partacoona Station, 12 Jun. 1974, *P.Hornsby* (AD97726206); Mount Wallaby, ca. 3 km WNW of Kondoolka HS, *E.N.S.Jackson* 2071 (AD); Bimbowrie Station, *F.Jessup* 6605 (AD); Tcharkuldu, Pildappa Rock, *M.L.Kammerman* 7 (AD); Wilpena Pound, *R.H.Kuchel* 2814 (AD); Gammon Range, Ridge and hilltop east of Gammon Hill, *T.R.N.Loethian* 3684 (AD; COLO *n.v.*); Summit of Mount McKinlay, *T.R.N.Loethian* 3601 (AD; NSW *n.v.*); Plumbago, Ethundra, *M.Nobbs* 56 (AD); 1 km NE of Warren Gorge, *M.C.O'Leary* 1993 (AD); Ridgetop 2.5 km NE of Mount Hack summit, *M.C.O'Leary* 2011 (AD); Bumbumbe Springs, Koonamore, 23 Aug. 1930, *T.B.Paltridge* (AD95943027); The Dyke, 30 Aug. 1977, *A.Robinson* (AD97747572); Outalpa Station, *A.G.Spooner* 11721 (AD; NE *n.v.*); Carappee Hill Conservation Park, *A.G. Spooner* 15362 (AD); Upper slopes of Mount Serle, *D.E.Symon* 3992 (AD); Creepline, Wilpena, *D.E.Symon* 1361 (AD); Refuge Rock Holes, *D.J.E.Whibley* 2015 (AD); Uno Range, NW end near HS, *D.J.E.Whibley* 7895 (AD).

NEW SOUTH WALES: Manara Hills, NW of Ivanhoe, *D.F.Blaxell* 664 (NSW); Mootwingee, *P.E.Conrick* 1458 (AD; PERTH *n.v.*); Broken Hill, *Dr.MacGillivray* 8760 (AD); Purnamoota, c. 25 km N of Broken Hill, 31 Dec. 1920, *A.Morris* (AD95944069); Broken Hill, 12 Aug. 1949, *J.Scougal* (AD97113112).

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