Acacia Miscellany 7. *Acacia sulcata* and related taxa (Leguminosae: Mimosoideae) in Western Australia

R.S. Cowan and B.R. Maslin

Western Australian Herbarium, Department of Conservation and Land Management,
PO 104, Como, Western Australia 6152

Abstract

Cowan, R.S. and B.R. Maslin. *Acacia* Miscellany 7. *Acacia sulcata* and related taxa (Leguminosae: Mimosoideae) in Western Australia. Nuytsia 9(1): 69-78 (1993). A key is presented to the nine taxa of the informal "*A. sulcata* group", followed by a review of *A. sulcata* R. Br., including the description of a new variety *A. sulcata* var. *planoconvexa* Cowan & Maslin; in addition, a new variety of *A. brachyphylla* Benth. is described (var. *recurvata* Cowan & Maslin) and a new species, *A. octonervia* Cowan & Maslin. In addition, *A. nitidula* Benth. and *A. sulcata* var. *platyphylla* Maiden & Blakely have been lectotypified.

Introduction

Acacia sulcata R. Br. is a highly variable species comprising three varieties separated largely by details of phyllode dimensions, shape and nervature. The related taxa are less well-known but appear to be more constant morphologically: *A. brachyphylla* Benth. var. *brachyphylla, A. brachyphylla* Benth. var. *recurvata* Cowan & Maslin var. nov., *A. dura* Benth., *A. nitidula* Benth., *A. octonervia* Cowan & Maslin sp. nov. and *A. tetanophylla* Maslin. These taxa comprise the informal "*A. sulcata* group" which is characterised by small, narrow, flat to terete, linear to oblanceolate, mucronate to pungent, 6-8-nerved phyllodes, small globular heads of flowers on mostly binate peduncles subtended by cucullate basal peduncular bracts, pentamerous flowers with the sepals free or partially united and small undulate pods enclosing seeds that are mottled in most of the taxa. *Acacia prismifolia* E. Pritzel is not included in the "group", largely because it has 4-nerved phyllodes that are more or less triangular in section but it is probably related.

All measurements in the following account are from dried material unless specifically stated otherwise. Only the taxa that are numbered in the key are discussed or described.

Key to the taxa of the "*A. sulcata* group"

1. Phyllodes sharply pungent with needle-like points that readily pierce the skin ..... *A. tetanophylla*
1. Phyllodes innocuous or with a hard mucro; seeds commonly mottled browns or greys
2. Phyllodes hairy on nerves, rarely only papillose; branchlets villose-tomentose or pilose
3. Phyllodes commonly 5-7 mm long, mucronulate, 6-8-nerved; gland in basal half of phyllode on midrib; pods hairy ..... 1a. *A. brachyphylla* var. *brachyphylla*
3. Phyllodes 8-10 mm long, recurved-mucronulate, 6-nerved; gland basal or absent; pods glabrous or subglabrous and glabrescent ..... 1b. *A. brachyphylla* var. *recurvata*
2. Phyllodes glabrous; branchlets glabrous, sparingly appressed-puberulous or infrequently pilose
4. Phyllodes narrowly oblanceolate, compressed to flat
5. Phyllodes flat with 1 or 2 nerves per face, adaxial margin with two nerves coalescing above gland near middle of phyllode; peduncles 7-11 mm long; heads 20-flowered; pods undulate, 4-4.5 mm wide; seeds dull, obscurely mottled, the aril subterminal ..... 2. *A. nitidula*
5. Phyllodes compressed to flat with 2 nerves per face, the gland borne on adaxial nerve; peduncles 3-8 mm long; heads 6-16-flowered; pods ± constricted between seeds, scarcely undulate, 3 mm wide; seeds shiny, tan, the aril extending along one side ..... *A. dura*
4. Phyllodes ± terete to compressed
6. Phyllodes 8-nerved; stipules persistent, narrowly triangular; seeds not mottled ..... 3. *A. octonervia*
6. Phyllodes 6- or 7-nerved; stipules deciduous to persistent, triangular to setaceous; seeds mottled
7. Phyllodes commonly 18-25 mm long; peduncles 8-15 mm long ..... 4a. *A. sulcata* var. *sulcata*
7. Phyllodes 5-16 mm long; peduncles 4-10 mm long
8. Nerves strongly raised, phyllode apex recurved-mucronate ..... 1b. *A. brachyphylla* var. *recurvata*
8. Nerves not strongly raised, often obscured in drying, or not evident on adaxial surface
9. Phyllodes green, not glaucous, terete or compressed; gland near junction of 2 adaxial nerves; pods not pruinose ..... 4b. *A. sulcata* var. *platyphylla*
9. Phyllodes commonly glaucous, plano-convex, upper surface nearly flat and without obvious nerves, lower with 3 prominent nerves; gland near middle of phyllode or absent; pods pruinose ..... 4c. *A. sulcata* var. *planoconvexa*

1. A. brachyphylla Benth., Linnaea 26: 615 (1855)

Type: South-western Australia, *J. Drummond* 37 (holo: K; iso: NSW, PERTH-fragments ex K and NSW).

Subshrubs 0.2-0.3 m tall. *Branchlets* terete, pilose to villose-tomentose, old ones roughened by persistent, raised phyllode-scars. *Stipules* persistent, narrowly triangular to subulate, to 1.5 mm long, glabrous. *Phyllodes* terete to compressed with a straight or recurved apex, 3-12 mm long, ± 1 mm wide, ascending to erect, villose on 6-8 strongly raised nerves, sometimes hairs reduced to papillae, rarely glabrous; apex obtuse and apiculate to mucronate; pulvinus 0.25-0.5 mm long; gland located from near apex of pulvinus to near phyllode-apex. *Peduncles* 1 or 2 per axil, 4-10 mm long, villosulose or glabrous; basal peduncular bract caducous, cucullate, rostrate, glabrous or glabrescent, 2-3 mm long. *Flower-heads* globular, golden, 3-4 mm diam., 8-12-flowered; bracteoles spathulate, acuminate, puberulous and ciliolate. *Flowers* 5-merous. *Sepals* 1/3 length of petals, irregularly 1/4-1/2-united, oblanceolate, ciliate. *Petals* free, glabrous, acute. *Ovary* glabrous. *Pods* linear, raised over but not constricted between seeds, 10-50 mm long, 1.5-4.5 mm wide, thin-coriaceous to firm-chartaceous, undulate, smooth, pilose, but sometimes glabrescent or glabrous. *Seeds* longitudinal, broadly ovate, tapered toward apex, 2-2.5 mm long, 1.5-2 mm wide, 1.3 mm thick, strongly umbonate, subnitid, mottled dark-brown on paler grey-brown, the pleurogram minute, U-shaped, the aril subterminal.

Distribution. Occurs in south-western Western Australia from near Tammin south-east to near Jerramungup. It is related to *A. sulcata* which has more or less free sepals and glabrous phyllodes; it is also similar to *A. prismifolia* which has 4-nerved phyllodes that are about triangular in section and its calyx is united almost to the apex.

Typification. Bentham cited only *Drummond* 37 in the protologue but the Kew specimen has only old peduncles without flowers; the pod fragment and immature seed in the packet cannot be this taxon. A second Drummond collection at K without number but with the author's annotation bears young fruits and old flowers from among the phyllodes; it may have been the source of data for the parts of the description concerned with the fruits; it is, however, referrable to *A. sulcata* var. *platyphylla*. Even though two different collections were probably involved in the protologue, only one was cited and it is viewed as the holotype.

1a. A. brachyphylla var. **brachyphylla**

Phyllodes 3-12 mm long but most commonly 5-7 mm, 6-8-nerved; apex not recurved, apiculate to mucronulate; gland in basal half of phyllode on mid-nerve. *Pods* 20-50 mm long, 3-4.5 mm wide, pilose, but sometimes partly glabrescent.

Other specimens examined. WESTERN AUSTRALIA: Kulin, *A.M. Ashby* 148 (PERTH); Brookton-Corrigin, Oct. 1965, *A. Beck s.n.* (PERTH); 4 mi. [6.4 km] W of Lake King, *K. Newbey* 2635 (PERTH); 29 mi. [46.7 km] E of Billericay, *K. Newbey* 3231 (PERTH); 10.5 km N of Bungalla turn-off [near Tammin] from Great Northern Highway, *M.D. Tindale* 3715 (AD, BRI, CANB, CBG, K, MEL, NSW, PERTH, US).

Distribution. South-west Western Australia from near Tammin south-east to near Lake King.

Habitat. Grows in sandy loam and gravel, commonly in mallee.

Flowering and fruiting periods. Flowering specimens have been collected from August to October. No information is available on fruiting period.

1b. A. brachyphylla var. **recurvata** Cowan & Maslin, var. nov.

A var. *brachyphylla* phyllodiis ad apicem recurvo-mucronatis, 8-10 mm longis, 6-nervatis, glandi basali vel nulla differt.

Typus: 10 mi. [16 km] E. of Jerramungup, Western Australia, 28 July 1963, *K. Newbey* 785 (holo: PERTH; iso: PERTH).

Branchlets pilose to villose. *Phyllodes* linear, 8-10 mm long, ascending, villosulose or only papillose on 6 distant, raised nerves; tip recurved to sub-uncinate and strongly mucronate; gland near-basal or not evident. *Peduncles* 6-8 mm long, glabrous. *Sepals* basally united. *Pods* 10-20 mm long, 1.5-3 mm wide, glabrous or subglabrous and glabrescent, pruinose.

Other specimens examined. WESTERN AUSTRALIA: Highbury State Forest, Newman Block (Veg. Site 17), *K.J. Atkins* 89008 (PERTH); 11 miles [17.6 km] N of Pingrup, *K. Newbey* 1014 (PERTH); 6 miles [9.6 km] SE of Kukerin, *K. Newbey* 1362 (PERTH); 4 km N of Calyerup Rock, *K. Newbey* 4231 (PERTH); 1 mile [1.6 km] E of Nyabing, *K. Newbey s.n.* (PERTH 00898333 and 00690864); c. 20 km E of Jerramungup near road to Ravensthorpe, *M.H. Simmons* 653 (PERTH).

Distribution. South-western Western Australia from near Kukerin south-east to near Jerramungup. This variety is more southerly in its distribution than the typical variety.

Habitat. Grows on often gravelly loam and sand in scrub.

Flowering and fruiting periods. Flowering specimens have been collected in June, July, September and October. No information is available on fruiting period.

Affinity. Variety *recurvata* is quite similar to var. *brachyphylla* by virtue of its pubescent phyllodes and basally united calyx, but var. *recurvata* is easily separable by the somewhat longer phyllodes with recurved tip and glabrous pods.

Conservation status. Poorly known, CALM Priority 3.

Etymology. The varietal epithet is from *recurvatus*, Latin for recurved, in reference to the apex of the phyllodes.

2. Acacia nitidula Benth., Fl. Austral. 2: 381 (1864)

Lectotype (here selected): Cape Arid, Western Australia, *G. Maxwell s.n.* (K; iso: NSW, PERTH-fragment ex K). *Paralectotypes:* (1) Swan River, Western Australia, *J. Drummond* 128 (K, PERTH-fragment ex K: not *A. nitidula*, see discussion below); (2): Goose Island Bay, Western Australia, *R. Brown s.n.* (not seen).

Bentham (1864) included three collections in his protologue, the Maxwell one, Drummond 3: 128, and a R. Brown collection from Goose Island Bay. The first of these most faithfully represents Bentham's concept, as well as preserving current usage, and we have chosen it as lectotype; the second represents an unrecognised taxon related to *A. sclerophylla*; we have not seen the R. Brown collection but it is from very near the type locality and probably represents *A. nitidula, sensu lectotypico.* An unnumbered Drummond collection at K on which Bentham had written "A. nitidula var.", but later erased the varietal designation, represents another species altogether, *A. trinalis* Cowan & Maslin; it is of no type significance.

Acacia nitidula is nearest *A. dura* which has longer phyllodes in relation to their width and different pods and seeds. Of the varieties of *A. sulcata, A. nitidula* is perhaps nearest the compressed-phyllode element of *A. sulcata* var. *platyphylla*. The two taxa differ in phyllode width and shape: those of *A. nitidula* are flat, oblanceolate to narrowly oblanceolate and usually 3-5 mm wide; those of var. *platyphylla* are terete to somewhat compressed and much narrower. The terete, strongly sulcate phyllodes of *A. sulcata* var. *sulcata* readily separate it from *A. nitidula.*

3. Acacia octonervia Cowan & Maslin, sp. nov.

Ab *A. sulcata* phyllodiis 8-nervatis, teretibus, micro-papillosis, stipulis anguste triangularibus persistentibus, capitulis globularibus diluto-luteis, 20-floribus, perianthio glabro, gynoecio glabro differt.

Typus: Fitzgerald River National Park, Whoogarup Range, Western Australia, 7 Oct 1975, *B.R. Maslin* 3878 (holo: PERTH; iso: BRI, CANB, K, MEL, NSW, NY).

Spreading *shrubs* 0.1-0.5 m, rarely to 1 m, tall. *Bark* light grey on stem-bases. *Branchlets* brownish-red, glabrous, sometimes nitid. *Stipules* persistent, narrowly triangular, 1.5-2 mm long, 0.5 mm wide at base, acute, glabrous. *Phyllodes* terete, (10-12)15-20(50) mm long, 1-1.5 mm wide, rigid, erect, straight or only slightly arcuate, dark green; apex obtuse and mucronulate; nerves 8, conspicuous; stomata raised as micro-papillae; gland inconspicuous, 1/4-1/2 length of phyllode from base at junction of two adaxial nerves. *Peduncles* solitary or more often binate in axils, 7-12 mm long, glabrous; basal peduncular bracts cucullate, deciduous to persistent. *Flower-heads* globular, pale yellow, 3-4 mm diam., 20-flowered. *Flowers* 5-merous, glabrous. *Sepals* free, spathulate-oblanceolate, half the length of the corolla. *Petals* free, elliptic, acute. Gynoecium glabrous. *Pods* narrowly oblong, undulate, 20-25 mm long, 3 mm wide, somewhat nitid, glabrous. *Seeds* longitudinal, ovate, somewhat compressed, 2-2.5 mm long, 1.5 mm wide, subnitid, brown, the aril subterminal and white.

Other specimens examined. WESTERN AUSTRALIA: SE of Ravensthorpe, *K.L. Bradby* 81 (PERTH); 29.75 km E of Muckinwobert Rock, *M.A. Burgman & S. McNee* 2110(PERTH); 28.5 km E of Muckinwobert Rock, *M.A. Burgman* 4008 (PERTH); approx. 47 km N of mouth of Oldfield River, *Hj. Eichler* 20404 (PERTH); Thumb Peak Range, *A.S. George* 7163 (PERTH); junction of Melaleuca and Rawlinson Rds,33° 30'S, 120° 43'E, *G.J. Keighery* 3700 (PERTH); Bandelup Creek, *F. Lullfitz* 5492 (PERTH); base of Thumb Peak, Fitzgerald River National Park, *B.R. Maslin* 5552 (BM, PERTH), *K. Newbey* 2730 (PERTH) and *R.D. Royce* 9251 (PERTH); 36 km SSE of Ongerup, *K. Newbey* 9518 (MELU, PERTH); Monjilup Rd, 3.2 km N of Toompup South Road [c. 13 km W of Boxwood Hill], *M. Simmons* 602 (PERTH); E of Middamidjup Road at intersection 51 km from Newdegate and 51 km from Ravensthorpe, *J. & M. Simmons* 1353 (PERTH); 36 km SSE of Ongerup, *N. Stevens* KRN9518-1 (MELU, PERTH).

Distribution. Known from only a few scattered localities between the Fitzgerald and Young Rivers in the Ravensthorpe region of Western Australia. Two collections occur outside this area, near Boxwood Hill, c. 100 km west-south-west of the Fitzgerald River.

Habitat. Grows in rocky sand or loam and sandy clay in open mallee shrubland, dense low heath and dwarf scrub.

Flowering and fruiting periods. Main flush of flowering occurs from August to October; single flowering collections have been recorded in December and January. Pods with mature seeds collected in December.

Affinities. While clearly related to the *A. sulcata* complex, the new species differs in having 8-nerved phyllodes, persistent narrow-triangular stipules, and pale yellow, 20-flowered heads and non-mottled seeds. In common with *A. sulcata* it has cucullate peduncle bracts, and 5-merous flowers with free perianth parts. Of the varieties of *A. sulcata*, the new species is most similar, at least superficially, to var. *sulcata*.

Conservation status. Poorly known, CALM Priority 3.

Etymology. The specific epithet is derived from two Latin words, *octo* for eight, and *nervius* for nerved, an allusion to the number of nerves evident in the phyllodes.

4. Acacia sulcata R. Br. in W.T. Aiton, Hort. Kew. ed. 2, 5: 460 (1813)

Lectotype (flowering specimen): Princess Royal Harbour, King George Sound, Western Australia, Dec. 1801, *R. Brown,* Iter Austral. [Britten no.] 4302 (BM), *fide* Maslin & Cowan (in press). *Paralectotypes* (fruiting specimens): BM; ? *paralectotypes:* E, K.

Spreading, often prostrate *shrubs* 0.2-2 m tall, rarely 3 m. *Branchlets* glabrous, appressed puberulous, tomentulose or pilosulose, sometimes pruinose apically. *Stipules* deciduous to persistent, setacous. *Phyllodes* linear to narrowly oblanceolate, 5-25 mm long, 1-2 mm wide, terete to depressed or compressed, usually strongly angled in drying, rigid, patent to erect, straight to shallowly arcuate, glabrous or pubescent on nerves; apex obtuse to acute, mostly mucronulate or uncinate-mucronulate; 6- or 7-nerved; gland inconspicuous, at junction of adaxial nerves or on undivided midnerve, sometimes not evident. *Peduncles* 1 or 2 per axil, 4-15 mm long, glabrous, appressed puberulous or puberulous; basal peduncular bract cucullate, caducous to deciduous. *Flower-heads* globular, bright golden, 10-15-flowered. *Flowers* 5-merous; sepals free or irregularly united basally. *Pods* linear, undulate, to 3.5 cm long, 2-4 mm wide, thin-coriaceous to chartaceous, glabrous, sometimes pruinose. *Seeds* longitudinal, widely elliptic to ovate, 1.5-3 mm long, 0.8-2 mm wide, subnitid, commonly mottled with shades of grey and black or brown, the aril minute, subterminal and white.

Variation. This is a highly variable species which is broadly circumscribed here with three varieties being recognised; future studies may demonstrate the need for further revision. Ovary pubescence and gland position in relation to phyllode-nervature and the depression/compression of the phyllodes are some of the characteristics that deserve further attention; field observations of phyllode form are especially needed, for drying often obscures the true form. The typical variety has more or less terete phyllodes; var. *platyphylla* has two phyllode forms, compressed and terete, although the distinctions between these cannot be precisely demarked in some collections; and var. *planoconvexa* has phyllodes

essentially flat on the adaxial surface but rounded on the abaxial one. The adaxial nervature of the phyllodes varies widely with respect to the point at which the two nerves coalesce and in vars. *sulcata* and *planoconvexa* they are more or less submerged and obscure.

Separation of *A. sulcata* from *A. nitidula* is arbitrary and is based on the longer, much wider, flat phyllodes of the latter.

4a. A. sulcata R. Br. var. **sulcata**

Branchlets mostly glabrous, rarely appressed puberulous and glabrescent. *Stipules* persistent. *Phyllodes* more or less terete, linear, acute, mucronulate, mostly (15)18-25 mm long, somewhat incurved, glabrous, 6-nerved; gland about 1/3 from phyllode-base on adaxial midnerve. *Peduncles* commonly 8-15 mm long, glabrous. *Sepals* free. *Pods* 20-35 mm long, 2-4 mm wide, thinly coriaceous. *Seeds* 1.5-2 mm long, 0.8-1 mm wide.

Other specimens examined. WESTERN AUSTRALIA: Mount Adelaide, Albany, *A.M. Ashby* 4600 (DNA, E, NY, PERTH), 4602 (CANB, PERTH) and *H. Sanderson s.n.* (PERTH 00661546); Mount Clarence, *R. J. Cumming* 926 (PERTH); Cape Riche, *R. J. Cumming* 1025 (PERTH) and *C. A. Gardner s.n.* (PERTH 00660507); Mount Melville, *L. Diels* 3490 (PERTH) and *B.R. Maslin* 1070 (PERTH); S end of Two Peoples Bay on road to Little Beach, *D.J. Edinger* 228 (PERTH); Pallinup River near Albany-Jerramungup road, *A.R. Fairall* 2265 (PERTH); Warriup Hills, *C.A. Gardner s.n.* (PERTH 00693979); Willyung Hill, *A.S. George* 9488 (PERTH, TLF) and *G.J. Keighery* 5721 (PERTH); King George's Sound, *B.T. Goadby* B.2525 (PERTH) and *W.H. Harvey s.n.* (PERTH 00661996); South Sister, 3 km N of Manypeaks town, G. J. Keighery 8130 (PERTH); Mount Barker, *A. Lea s.n.* (PERTH 00661570); Boat Harbour, *K. Newbey* 817 (PERTH); 9 mi. [14.5 km] SE of Jerramungup, K. Newbey 1297 (PERTH); Mount Manypeaks area, *S.P. Pfeiffer* 24 (PERTH); Two People's Bay, *W. Rogerson* 264 (PERTH).

Distribution. Of the three varieties, the typical one is the most restricted; it is confined to coastal and near-coastal sites (inland as far as near Jerramungup) from Albany (Mounts Adelaide and Clarence) and Willyung Hill (10 km north of Albany) east to Pallinup River (c. 100 km east of Albany), south-west Western Australia.

Habitat. Grows mostly on hills and mountains in low to tall scrub on grey or white sand in association with granite, sometimes in peaty, sandy clay over granite.

Flowering and fruiting periods. Flowering June-November (one collection recorded January-February). Mature pods and seeds collected in January.

Affinities. Variety *sulcata* differs from the other varieties by its relatively long phyllodes and peduncles.

4b. A. sulcata var. **platyphylla** Maiden and Blakely, J. & Proc. Roy. Soc. Western Australia 13: 3 (1928)

Lectotype (here selected): Israelite Bay, Western Australia, 1893, *Miss [S.T.] Brooks* (NSW 216916, upper left-hand, flowering specimen; iso: M, PERTH-fragment ex NSW). *Paralectotypes:* Israelite Bay, *Miss [S.T.] Brooks*, remaining five branchlets on lectotype sheet (NSW).

? *A. sulcata* var. *hirsuta* Maiden & Blakely, J. & Proc. Roy. Soc. Western Australia 13: 3, pl. 1, figs. 8-12 (1928). *Type.* Israelite Bay, Western Australia, Sept. 1915, *J.P. Brooks* (holo: NSW 216926).

Branchlets glabrous, pilosulose or appressed puberulous. *Stipules* persistent. *Phyllodes* terete to compressed, narrowly oblanceolate, obtuse, sometimes mucronulate, commonly 8-16 mm long, ascending, glabrous, more or less shiny, dark green, 6- or 7-nerved; gland 1/3-2/3 distance from phyllode-base (when present) at junction of 2 adaxial nerves. *Peduncles* mostly 4-8 mm long, glabrous to appressed puberulous to rarely pilosulose; basal peduncular bract deciduous. *Legume* 22-30 mm long, 2.5-3.5 mm wide, chartaceous, not pruinose. *Seeds* 2.5-3 mm long, 1.5-2 mm wide, the aril subterminal.

Selected specimens examined. WESTERN AUSTRALIA: 9 mi. [14.4 km] SW of Mt Ragged, *T.E.H. Aplin* 4297(DNA, NT, PERTH, W); 2.6 mi. [4 km] from Bilbarin turn-off on Quairading-Corrigin road, *I.B. Armitage* 460 (PERTH); Borden, *A.M. Ashby* 4649 (CANB, PERTH); 10 mi. [16 km] E of Mount Walker, *J.S. Beard* 5917 (PERTH); Ravensthorpe Ranges, *E.M. Bennett* 2355 (MO, NY, PERTH); 5 mi. [8 km] NW of Point Culver, *M.G. Brooker* 3685 (PERTH); 22 km SW of Mt Beaumont, *M.A. Burgman* 1711 and *S. McNee* (PERTH); near Stirling Range Caravan Park, *R.J. Cumming* 793 (PERTH); 21 km S of Cocklebiddy, *A.S. George* 11858 (CANB, PERTH); 14 km N of Eyre, *S.D. Hopper* 3111 (PERTH); about 4 mi. [6.4 km] S of Kulin, *B.R. Maslin* 524 (PERTH); 1.2 mi. [1.9 km] W of Nyabing on road to Katanning, *B.R. Maslin* 795 (MEL, NSW, PERTH); between Hamersley River and East Mount Barren, *B.R. Maslin* 813 (MEL, PERTH); 2.5 km N of Salmon Gums towards Norseman, *B.R. Maslin* 2451 (PERTH); Cape Riche, *B.R. Maslin* 2627 (PERTH); 3 km S of Ravensthorpe towards Hopetoun, *B.R. Maslin* 2651 (CANB, K, MEL, PERTH); 4.5 km NW of Wongan Hills township on road to Piawaning, *B.R. Maslin* 5365 (PERTH); 7 mi. [11.2 km] N of Bendering, *K. Newbey* 3238 (MEL, NSW, PERTH); 20 km NE of Jerramungup, *K. Newbey* 4390 (CANB, K, MEL, MO, NSW, NY, PERTH); 5.5 km S of Peak Charles, *K. Newbey* 6427 (PERTH); 6.4 km S of Newdegate on Lake Magenta road, *M.H. Simmons* 1341 (PERTH); intersection of Kulin-Wickepin road, 48.3 km to Pinjaring and 48.3 km to Harrismith, *M.D. Tindale* 3747 (B, CANB, K, P, PERTH, RSA); 8 mi. [12.8 km] SW of Mt Ragged, *P.G. Wilson* 10069 (K, PERTH).

Distribution. Variety *platyphylla* is by far the most widespread of the three varieties; it occurs in scattered localities from near Corrigin and Mt Walker south to near Borden and east to Israelite Bay, south-west Western Australia. Two near-coastal outliers occur to the east of Israelite Bay, the first near Pt Culver (c. 150 km east) and the second between Eyre and Cocklebiddy (c. 300 km east). A third collection occurs north of the main distribution near the Wongan Hills, c. 175 km north-north-east of Corrigin; it is unusual, apart from its distribution, in having densely pilosulose branchlet tips, although plants with such pubescent branchlets also occur sporadically farther south. Variety *platyphylla* occurs sympatrically with var. *sulcata* at Cape Riche and with var. *planoconvexa* at Tutanning Reserve.

Habitat. Shrubland in association with *Eucalyptus redunca, E. platypus, E. occidentalis, Melaleuca uncinata, et al.,* frequently on rocky hills or granite outcrops in sand, often over or with varying clay fractions, or in sandy loam, sometimes with ironstone gravel.

Flowering and fruiting periods. Flowers have been collected in July-October (one collection in December), mature pods in December.

Typification. The type is from Israelite Bay, collected by Miss S. T. Brooks in 1893 and it represents the compressed-phyllode element of this variety. The NSW sheet bears six branchlets, only one of which is flowering; we have designated this specimen as lectotype, the others as paralectotypes. The fruiting specimens must have been collected at a different time and we conclude that at least two

separate collections are involved on the type sheet. At the same locality J. P. Brooks collected material on which Maiden and Blakely based var. *hirsuta*. This entity was described as differing from the typical variety "in its small phyllodes, long peduncles and in the vestiture". The holotype has a few attached, very young phyllodes, as well as some loose flower-heads in an envelope, but the branchlets are only sparingly appressed-puberulous, rather than hirsute. The authors of the variety may have mistaken some of the mould which is evident on parts of some branchlets for pubescence. The type collection of var. *hirsuta* is in very poor condition and appears only to represent one aspect of var. *platyphylla* with which we provisionally synonomise var. *hirsuta*.

4c. Acacia sulcata var. **planoconvexa** Cowan & Maslin, var. nov.

A var. *platyphylla* et *sulcata* phyllodiis 5-12 mm longis, vulgo glaucis et aliquando etiam pruinosis, plano-convexis, faciebus adaxialibus subplanis et enervatis, abaxialibus cum 3 nerviis elevatibus, legumine pruinoso differt.

Typus: 11 mi. [17.6 km] SE of Ongerup, Western Australia, 17 May 1964, *K. Newbey* 1268(holo: PERTH).

Branchlets glabrous or infrequently pilosulose, often pruinose apically. *Phyllodes* linear, plano-convex, adaxial surface nearly flat and nerveless, 5-12 mm long, commonly glaucous to subglaucous and sometimes also more or less pruinose, 6-nerved, adaxial nerve indistinct, 3 abaxial ones prominent; gland near middle of phyllode, often absent or obscure. *Peduncles* mostly 5-8 mm long, glabrous; heads in masses. *Pods* 25-30 mm long, 3-4 mm wide, pruinose. *Seeds* ovate, 2 mm long, 1.5 mm wide.

Selected specimens examined. WESTERN AUSTRALIA: Cape Riche, *R.J. Cumming* 1026A (PERTH); 19 mi. [30.5 km] E of Brookton towards Corrigin, *R. J. Cumming* 1037 (PERTH); 19 mi. [30.5 km] N of Esperance, *H. Demarz* 3635 (PERTH); Tuttaning Reserve, SE of Pingelly, *A.S. George* 9505 (PERTH); W of lower Fitzgerald River, Reserve 24048, *A.S. George* 9963 (PERTH); Pt Ann, *A.S. George* 10049 (PERTH); South Stirlings, *R. Glencross* 332/62 (PERTH); Salt River Road at turn-off of track to Camel Lake, c. 5 km N of The Abbey, *E.N.S. Jackson* 3347 (PERTH); 16 km S of Jerramungup towards Albany, *B.R. Maslin* 2590 (CANB, PERTH); Yornaning Reserve, c. 19 km due E of Yornaning Siding, *B.G. Muir* 484 (PERTH); 11 mi. [17.6 km] SE of Ongerup, *K. Newbey* 1268D (PERTH); 18 km SE of Jerramungup, *K. Newbey* 4301 (PERTH); c. 20 mi. [32 km] E of Albany toward Jerramungup, *S. Paust* 485 (PERTH); 20-25 mi. [32-40 km] W of Ravensthorpe, *S. Paust* 705 (PERTH); 4 mi. [6.4 km] W of Nyabing, *R.D. Royce* 6711 (PERTH); Kojonup, 15 Aug. 1969, *M. Wittwer s.n.* (PERTH 00690767).

Distribution. South-west Western Australia from near Brookton south through Kojonup and Nyabing to near Albany, then east to near Ravensthorpe. One collection from near Esperance (*H. Demarz* 3635) is c. 150 km east of Ravensthorpe.

Habitat. Found in low, dense scrub and open shrubland in sandy or stony loam, sandy gravel and white sand.

Flowering and fruiting periods. Flowers July to September. Pods with mature seeds have been collected in December and January.

Etymology. The name refers to the shape of the phyllodes in transverse section, from two Latin words in combination, *planus* for flat, and *convexus* for convex.

Acknowledgements

The technical assistance of Suzanne Curry in the early stages of the preparation of this paper and in later phases by Diana Corbyn and Karina Knight is most gratefully acknowledged. The research, including employing the technical assistants, was made possible by the financial support of Australian Biological Resources Study grants.

References

Bentham, G. (1864). "Flora Australiensis" Vol. 2. (Reeve & Co.: London.)

Maslin, B.R. & Cowan, R.S. (in press). Robert Brown, the typification of his new *Acacia* names in edition 2 of Aiton's "Hortus Kewensis".