

**Acacia miscellany 17. Miscellaneous new taxa and lectotypifications in
Western Australian *Acacia*, mostly section *Plurinerves*
(Leguminosae: Mimosoideae)**

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Abstract

Cowan, R.S. and Maslin, B.R. *Acacia miscellany 17. Miscellaneous new taxa and lectotypifications in Western Australian *Acacia*, mostly section *Plurinerves* (Leguminosae: Mimosoideae). *Nuytsia* 12(3): 413–452 (1999). Fourteen new species of *Acacia* are described. *Acacia diaphana* R.S. Cowan & Maslin is in sect. *Phyllodineae*. The remainder belong to sect. *Plurinerves*: *A. auratiflora* R.S. Cowan & Maslin, *A. auripila* R.S. Cowan & Maslin, *A. balsamea* R.S. Cowan & Maslin, *A. crenulata* R.S. Cowan & Maslin, *A. gemina* R.S. Cowan & Maslin, *A. pelophila* R.S. Cowan & Maslin, *A. pinguiculosa* R.S. Cowan & Maslin (including subsp. *teretifolia* R.S. Cowan & Maslin), *A. recurvata* R.S. Cowan & Maslin, *A. trinalis* R.S. Cowan & Maslin, *A. resinosa* R.S. Cowan & Maslin, *A. trulliformis* R.S. Cowan & Maslin, *A. vittata* R.S. Cowan & Maslin and *A. wilsonii* R.S. Cowan & Maslin. Three species containing new infraspecific taxa are re-described – *A. heteroclita* Meisner (including subsp. *valida* R.S. Cowan & Maslin), *A. sclerophylla* Lindley (including var. *pilosa* R.S. Cowan & Maslin) and *A. subflexuosa* Maiden (including subsp. *capillata* R.S. Cowan & Maslin). Notes on the morphology and on typification of *A. cyclops* A. Cunn. ex Don, *A. leptoneura* Benth. and *A. rigens* A. Cunn. ex Don are presented, as well as lectotypifications of *A. oswaldii* F. Muell. and *A. triptycha* F. Muell. ex Benth. *Acacia sessiliceps* F. Muell. is treated as conspecific with *A. oswaldii*.*

Introduction

This paper continues the series of '*Acacia miscellany*' to validate new taxa and record lectotypifications in advance of their publication in the treatment of *Acacia* Mill. (Leguminosae: Mimosoideae) in "Flora of Australia".

In reviewing for the "Flora" any sizeable Australian plant group, it is inevitable that one accumulates a number of novelties as well as notes on earlier described taxa. Those included in this paper are truly a miscellany, for they have their affinities with a wide range of species-groups; most are in section *Plurinerves* (Benth.) C. Moore & Betche, but one – *A. diaphana* – is in section *Phyllodineae* DC. Most of the new taxa are from the wattle-rich south-western region of Western Australia; some others are transcontinental in distribution.

Methods

Most measurements are from dried herbarium specimens which are also the prime source of data on habitat, distribution and phenology, as well as bark morphology and flower colour. Head diameter is measured, as indicated in the descriptions, from fresh, dried or reconstituted material; it includes the stamens. As we use the term 'pungent' it refers to a phyllode apex that is drawn-out into a hard, spine-like tip; 'sharply pungent' refers to one that readily pierces the skin when touched and 'coarsely pungent' to one that is less sharp.

Our approach to typification is discussed elsewhere (Maslin & Cowan 1994b). The taxa are arranged in alphabetical order.

Descriptions

Acacia auratiflora R.S. Cowan & Maslin, *sp. nov.*

Frutex densus 0.3–1 m altus. Ramuli teretes, resinosi, antrorse et minute appresso-puberuli. Stipulae 1–2 mm longae, persistentes. Phyllodia anguste oblongo-elliptica, acuta ad obtuse mucronata, 20–40 mm longa, 3–7 mm lata, coriacea, glabra vel interdum marginibus appresso-hirsutis; nervi longitudinales plerumque 3, nervis secundariis anastomosantibus; glans in margine adaxiali 2–4 mm supra pulvinum inserta. Inflorescentia racemus reductus 1-capitatus; axis c. 1 mm longa; pedunculi 1–2 mm longi, aureo-puberuli. Capitula globularia, floribus 30–42. Flores 5-meri; sepala unita, pilosulosa; petala appresso-hirsuta. Legumen (juvene) pilosum vel villosum. Semina non visa.

Typus: between Lake Grace and Newdegate [precise locality withheld for conservation reasons], Western Australia, 28 August 1973, *M.D. Tindale* 3759 (*holo:* PERTH00192902; *iso:* K, CANB, NSW, US).

Dense, spreading *shrub* 0.3–1 m tall, 0.6–2 m diam. *New shoots* resinous. *Branchlets* terete except slightly angular extremities, resinous but not viscid, sparsely to moderately antrorsely appressed-puberulous, the hairs minute (sometimes difficult to see) and white or pale golden. *Stipules* 1–2 mm long, narrowly triangular to lanceolate-triangular, glabrous, persistent. *Phyllodes* narrowly oblong-elliptic, 20–40 mm long, 3–7 mm wide, coriaceous, patent to ascending, straight but often slightly up-curved at the narrowed base, pale green, glabrous or sometimes sparsely appressed-hairy on margins; main *longitudinal nerves* about 3, generally obscured by the secondary nerves which anastomose longitudinally to form an open reticulum, the veins often mealy-resinous; *apex* acute to obtuse-mucronate; *pulvinus* indistinct, 0.5–1 mm long. *Gland* 1, on upper margin of phyllode (1)2–4(5) mm above pulvinus, not prominent but sometimes with an obvious rim. *Inflorescence* a rudimentary 1-headed raceme; axis c. 1 mm long, terminated by a resin-coated vegetative bud at anthesis; *peduncles* 1–2 mm long, often obscured by the anthers at anthesis, densely golden-puberulous; *basal peduncular bracts* persistent, ovate, acute, thick, 1.5–2 mm long, glabrous. *Heads* globular, golden, 5–7 mm diam. at anthesis, 30–42-flowered; *bracteoles* spatulate, subappressed golden-pilosulose adaxially. *Flowers* 5-merous; *sepals* 2/3 as long as petals, united to below middle or almost to apex, oblong to oblanceolate-oblong, subappressed golden-pilosulose; *petals* oblanceolate, free but coherent in midsection, subappressed golden-hairy. *Ovary* papillose-puberulous. *Pods* (young) densely pilose/villous, the hairs light golden. *Seeds* not seen.

Other specimens examined. WESTERN AUSTRALIA, all between Lake Grace and Newdegate [precise localities withheld for conservation reasons]: *B. Dell* 164 (PERTH); *B.R. Maslin* 3430 (PERTH); *D. Papenfus* DP 125 (PERTH); *M.D. Tindale* 3758 (CANB, NSW, PERTH); *P.G. Wilson* 7169 (NY, PERTH).

Distribution. Restricted to the Lake Grace–Newdegate area, south-west Western Australia.

Habitat. Grows in sand, clay or loamy clay in open scrub in depressions.

Phenology. Most collections made in mid- to late-August when the flowering season was well advanced, but old flowers with very young fruits have been found as late as October; mature fruits not seen.

Conservation status. CALM Conservation Codes for Western Australian Flora: Declared Rare.

Etymology. The name is chosen to draw attention to the golden flowers – the colour of both the flower parts and the indumentum on them – from the Latin *auratus* (golden), and *flos* (a flower).

Affinities. *Acacia auratiflora* is part of the 'A. *flavipila* alliance' (Cowan & Maslin 1990), closely related to *A. cassicula* R.S. Cowan & Maslin which can be distinguished by its shorter phyllodes (mostly 15–20 mm long), 20–30-flowered heads on glabrous peduncles 3–5 mm long, and glabrous petals and pods. It is also related to *A. lanei* R.S. Cowan & Maslin which is recognized by its essentially non-anastomosing phyllode nerves, longer peduncles (3–5 mm), free sepals and glabrous pods.

Acacia auripila R.S. Cowan & Maslin, *sp. nov.*

Frutex rotundatus vel arbor fruticosa ad 3 m alta, cortice griseo, fissurato, ramulis glabrescentibus. Phyllodia teretia ad subteretia, acuta ad obtusa, 8–12(15) cm longa, 1–1.5 mm diam., erecta, leviter curvata, initio sericea sed glabrescens, nervis numerosis, arcte parallelis, leviter elevatis. Inflorescentia racema 1–4-capitata; axis c. 0.5–8 mm longus, puberulus; pedunculi 4–8 mm longi, appresso-puberuli; capitula globularia, 4.5–5 mm diametro, 35–40-floribus. Flores pentameri. Sepala petalis 3/4 breviora, discreta, lineari-spathulata, aureo-puberula. Legumen lineare, valde constrictum inter semina et elevatum supra semina, c. 6.5 cm longum, 5–5.5 mm latum, rectum, appresso-puberulum. Semina non visa.

Typus: Rudall River district, c. 500 km south of Broome, Western Australia, 17 August 1971, *P.G. Wilson* 10614 (*holo:* PERTH 00148466; *iso:* CANB, K, NY).

Rounded shrubby *tree* c. 3 m tall; crown dense, silvery green. *Bark* grey, fissured on trunks, smooth on branches. *Branchlets* terete, finely ribbed, silvery sericeous towards apices, glabrous with age. *Stipules* early caducous. *Phyllodes* terete to subterete, 8–12(15) cm long, 1–1.5 mm diam., coriaceous, erect, straight to shallowly incurved, sericeous when young, glabrous or some hairs persisting between nerves, silvery-green; *longitudinal nerves* numerous, fine, close together; *apex* obtuse to acute, innocuous to coarsely pungent; *pulvinus* c. 1 mm long. *Gland* small, slit-like, situated on upper surface of phyllode 1–2 mm above pulvinus. *Inflorescence* a 1–4-headed raceme; *raceme axis* 0.5–8 mm long, white or pale yellow appressed-puberulous, sometimes terminated by vegetative bud; *peduncles* 4–8 mm long, white or pale yellow appressed-puberulous; *basal peduncular bracts* cucullate, caducous. *Heads* globular, 4.5–5 mm diam., 35–40-flowered; *bracteoles* spatulate, golden-puberulous,

the blade widely elliptic or elliptic and acute. *Flowers* 5-merous; *sepals* 3/4 petal length, free, narrowly spatulate, golden appressed-puberulous, especially apically; *petals* narrowly oblanceolate, apically golden-puberulous. *Ovary* densely appressed-puberulous, the hairs silvery to golden. *Pod* (old valves) \pm moniliform, c. 6.5 cm long, 5–5.5 mm wide, straight, firmly chartaceous, glabrous throughout or sericeous at constrictions. *Seeds* not seen.

Other specimens examined. WESTERN AUSTRALIA: Rudall River region, 22°32'S, 122°09'E, R.P. Hart 562 (PERTH); Rudall River Region, 22°32'S, 122°09'E, R.P. Hart s.n. (PERTH 01 107801); upper Rudall River area, 22°30'S, 122°15'E, B.R. Maslin 2101 (BRI, NSW, NT, PERTH); upper Rudall River area, 22°30'S, 122°15'E, B.R. Maslin 2174 (PERTH).

Distribution. Restricted to a small area in the Rudall River National Park (c. 200–300 km east-north-east of Newman), north-western Western Australia.

Habitat. Grows in dry quartzitic gravel on slopes and in gullies in *Triodia* communities.

Phenology. Very few collections from a remote region, so the data are incomplete. Flowering collections have been made in June and August; by early September most flowers have given way to very small, developing pods. The fruiting period is unknown.

Conservation status. CALM Conservation Codes for Western Australian Flora: Priority Two.

Etymology. The specific name, from the Latin *aureus* (golden) and *pilus* (hair), refers to the golden indumentum on the perianth.

Common name. Rudall River Myall.

Affinities. *Acacia auripila* is one of a group of species commonly referred to informally as the myalls, which are arid zone acacias characterized by their bushy shrub or tree habit, globular heads arranged in short axillary racemes and finely multistriate phyllodes. Although many myalls grow in calcareous substrates, *A. auripila* grows in dry, quartzitic, rocky soil.

Maslin & Hopper (1982) illustrated their discussion of the phylogeography of arid zone acacias, and their Figure 6c includes *A. auripila* [as *Acacia* sp. (1)] and its relatives, *Acacia sibilans* Maslin [as *Acacia* sp. (3)], an undescribed and perhaps not distinct pair of populations related to *A. papyrocarpa* [as *Acacia* sp. (2)], *A. papyrocarpa* Benth. and *A. loderi* Maiden. *Acacia auripila* is distinguished from these more southerly near-relatives by a combination of its 35–40-flowered heads (20–30-flowered in the other species), \pm moniliform, narrow pods and its terete to subterete phyllodes. The new species appears most closely related to *A. sibilans* which has wider and seemingly much longer pods (to 20 cm long, 7–10 mm wide), fewer-flowered heads, white or very pale yellow, appressed-puberulous petals, and more sinuous phyllodes which are commonly longer (10–18 cm). While these may not seem very convincing differences, species in the myall group are finely graded, as pointed out by Pedley (1986) in his paper on *A. maconochieana*. Many species in this group can be difficult to recognise from herbarium material but have distinctive facies in the field. The inadequacy of collections (especially fruiting material) makes it difficult to assess accurately the taxonomic status of *A. auripila*.

Maslin (1981) treated the collections of *A. auripila* as *A. aff. rigens*. While it possibly has some relationships with *A. rigens* A. Cunn. ex Don, that species is readily distinguished by its yellow-ribbed

branchlets, non-racemose inflorescences, partly united sepals, glabrous petals and much narrower pods (2–3 mm wide).

Acacia balsamea R.S. Cowan & Maslin, *sp. nov.*

Frutex rotundatus vel infundibuliformis, 1–2.5 m altus. Cortex pallide vel fuscate griseus, versus basem subtiliter fissuratus. Ramuli teretes, versus apicem c. 4 costis resinosis, inter costas appresso-puberuli. Stipulae triangulares, minutae, persistentes. Phyllodia teretia ad compressa, raro linearia, ad apicem curvata ad subuncinata; lamina 8–13 cm longa, 1–1.2 mm diam. (forma teretia) ad 3 mm lata (forma linearia), ± rigida, erecta, recta vel leviter incurvata, resinosa, nervis c. 16, leviter elevatis, inter nervos appresso-puberula; glans minuta, 0.5–1 mm supra pulvinum inserta. Pedunculi 9–10 mm longi, 1 vel 2 in quoque axilla, appresso-puberuli, pedunculorum bracteis basalibus ovatis, concavis, ciliolatis. Capitula obloidea, 5–8 mm longa et 4 mm diam., 21-floribus, bracteolis subpeltatis. Flores 5-meri. Sepala discreta, spathulata, puberula, ciliolata. Petala 1/3-connata. Legumen (immature) moniliforme, 6–12 cm longum, 3–4 mm diametro, pendulum, rectum, crassum, lignosum, glabrum, nervis numerosis elevatis parallelis ornatum. Semina (submatura) longitudinalia, ellipsoideo-linearialia, 5 mm longa, 1.5 mm lata, obscure brunnea, arillo terminali.

Typus: Mount William Lambert, east from Wiluna on Gunbarrel Highway, Gibson Desert, Western Australia, 8 September 1984, *B.R. Maslin* 5646 (*holo*: PERTH 00166650; *iso*: CANB, K).

Bushy, rounded or obconic *shrub* 1–2.5 m tall, c. 4-branched at ground level, the phyllodes concentrated towards ends of branchlets. *Bark* medium- to dark-grey and longitudinally fissured toward base of main trunks, smooth and often a lighter grey on upper branches and branchlets. *Branchlets* terete, with yellow resinous ribs at extremities, sericeous between ribs, glabrous with age. *Stipules* triangular, minute, persistent. *Phyllodes* terete, occasionally flat and linear, 8–13 cm long, 1–1.2 mm diam. when terete, to 3 mm wide when flat, erect, not rigid, straight to shallowly incurved or sometimes shallowly sinuous, mid-green when fresh, drying ± khaki green, aromatic (smelling of Friars Balsam, especially when crushed), sparsely appressed-hairy between nerves (superficially appearing ± glabrous); *longitudinal nerves* c. 16, ± close, slightly raised (just visible to unaided eye) and resinous; *apex* curved to subuncinate; *pulvinus* 1 mm or less long, yellow. *Gland* not prominent, on upper surface of phyllode 0.5–1 mm above pulvinus, small. *Inflorescences* simple, 1 or 2 per axil; *peduncles* 5–10 mm long, glabrous or sericeous; *basal peduncular bracts* ovate, concave, ciliolate. *Heads* subglobular to obloid, 5–8 mm long, 4 mm diam., c. 21-flowered; *bracteoles* subpeltate, ciliolate. *Flowers* 5-merous; *sepals* less than half petal length, free or slightly united at base, spathulate, puberulous, ciliolate; *petals* 1/3-united. *Pod* (submature) ± moniliform, 6–12(16) cm long, 3–4 mm diam., pendulous, thick, coriaceous to sub-woody, straight to shallowly curved, striate with longitudinal nerves (nerves most evident when dry), glabrous, resinous. *Seeds* (immature) longitudinal, ellipsoid-cylindrical, 5 mm long, 1.5 mm wide, dull brown; *pleurogram* linear-U-shaped; *areole* small; aril terminal, more than half as long as seed.

Other specimens examined. WESTERNAUSTRALIA: Paterson Range area, 1979, *E.M. Goble-Garratt s.n.* (MEL, PERTH 00153672); NE end of Clutterbuck Hills, Gibson Desert, *S.D. Hopper* 2833 (PERTH); 40 km SSE of eastern end of Clutterbuck Hills, Gibson Desert, *S.D. Hopper* 2898 (PERTH); Leinster Downs Station, 3 km N of Perseverance Well (Agnew Mine Camp No. 1 site), *B.R. Maslin* 5402 (NSW, PERTH); near Billygoat Bore, Noreena Downs Stn, SE of Nullagine and c. 150 km N of Newman, *A.A. Mitchell* PRP 1434 (PERTH).

Distribution. Widely scattered in arid central Western Australia, from near Nullagine and the Paterson Range (south-east region of the Great Sandy Desert), south to Leinster Downs and east to the Clutterbuck Hills in the Gibson Desert.

Habitat. Grows on rocky (commonly weathered granite) hills in tall open shrubland, often with *Acacia aneura* and frequently locally common in these habitats.

Phenology. Flowering recorded in August and September with old flowers persisting in June; young pods present in August and September, often together with flowers.

Conservation status. CALM Conservation Codes for Western Australian Flora: Priority Three.

Etymology. The odour of the foliage in fresh condition, reminiscent of Balsam Fir, suggests the specific epithet, from *balsameus*, an adjectival form of a Latin word for a fragrant gum.

Common name. Balsam Wattle.

Affinities. This little-collected species of the arid interior of Western Australia is at once recognizable in the field by the resinous odour of its phyllodes resembling that of the Northern Hemisphere Balsam Fir. Its precise affinities are unknown at present. It has some of the general appearance of the mulga group of species (i.e. *A. aneura* F. Muell. ex Benth. and its allies, see Randell 1992) but its subglobular to obloid heads and glabrous, \pm moniliform pods distinguish it.

Variation. One collection (*Hopper* 2833, in very young bud) has flat phyllodes but otherwise appears to agree with the apparently more normal variants of the species with terete phyllodes.

***Acacia crenulata* R.S. Cowan & Maslin, sp. nov.**

Frutex vel arbor effusa, rotundata, resinosa, 1–3 m alta, ramulis ad apicem complanatis, resinoso-costatis, demum teretibus, glabrescentibus. Stipulae c. 0.75 mm longae, triangulares, persistentes. Phyllodia anguste elliptica ad lineari-elliptica, apice curvato ad \pm uncinato, pulvino 1–2 mm longo, resinoso, lamina (20)30–60 mm longa, (2)3–6 mm lata, coriacea, glabra vel minutis rubris resinosis pilis ornata, glabrescentia, ad marginem resinosa, saepe crenulato-resinosa, nervis secundariis numerosis arcte parallelis indistinctis. Pedunculi solitarii vel binati, 1–2 mm longi, glabri praeter juvenales minute puberuli pilis numerosis rubris resinosis, bractea basali caduca. Capitula globularia, aurea, c. 4 mm diametro, 20–25-floribus, bracteolis unilateraliter peltatis. Flores 5-meri. Sepala in cupula connata, 1/3 petala breviora. Legumen lineare, 20–45 mm longum, 3–3.5 mm latum, tenuiter coriaceo-crustaceum, rectum ad leviter curvatum, \pm quadrangulare, minute resinoso-puberulum. Semina longitudinalia, obloideo-ovoidea, 2.3–2.7 mm longa, c. 1.5 mm lata, subnitida, maculata, arillo terminali luteo.

Typus: 5.5 km east of Carrabin, 61.3 km west of Southern Cross, on Great Eastern Highway, Western Australia, 30 March 1992, B.R. Maslin 7048 (*holo:* PERTH 05160863; *iso:* CANB, K, MEL, NSW, NY, PERTH 01994859).

Obconic or rounded *shrub* 1–3 m tall, single-stemmed or more commonly sparingly to moderately branched at ground level, in habit often resembling *Melaleuca uncinata*. *Bark* rather dark grey, finely longitudinally fissured on main stems, smooth on branches. *New shoots* slightly resinous (not viscid),

the phyllodes green with brownish margins. *Branchlets* flattened-angular at their extremities but soon becoming terete, crenulate resin-ribbed, the ribs yellow but ageing whitish as the resin dries, normally scurfy between ribs. *Stipules* c. 0.75 mm long, triangular, persistent. *Phyllodes* narrowly elliptic to linear-elliptic, (20)30–60 mm long, (2)3–6 mm wide, coriaceous, patent to inclined or erect, straight or sometimes very shallowly recurved, glabrous, or with many minute, red, resin-hairs, especially on nerves, glabrescent, dull and rather glaucous when young but ageing sub-shiny and green; *apex* acute, shallowly recurved to subuncinate, innocuous; *pulvinus* 1–2 mm long, resinous; *longitudinal nerves* numerous, closely parallel, indistinct (view with transmitted light when fresh) except the central nerve somewhat evident; *margins* resinous, often crenulately so, sometimes translucent-red when fresh (based on few observations), most commonly yellow or yellow-brown when dry. *Gland* on upper margin of phyllode 0–2 mm above pulvinus, rounded. *Inflorescences* simple, solitary at base of vegetative bud, or paired with a vegetative bud that grows out; *peduncles* 1–2 mm long, glabrous except minute, reddish resin-papillae especially when young; *basal peduncular bract* caducous, concave-triangular, c. 0.8 mm long. *Heads* globular, golden, c. 4 mm diam., 20–25-flowered; *bracteoles* unilaterally peltate, 0.5 mm long, the blade oblate with many minute, red resin-hairs. *Flowers* 5-merous; *sepals* united in a minutely puberulous, slightly lobed cup 1/3 as long as the basally united petals, c. 1.8 mm long. *Pods* linear, straight-edged or slightly constricted between seeds, scarcely raised over seeds, 20–45 mm long, 3–3.5 mm wide, thinly coriaceous–crustaceous, glabrous, straight to shallowly curved, resinous but not viscid; valve margins slightly raised vertically to valve face so that pods appear slightly quadrangular. *Seeds* longitudinal, obloid–ovoid, 2.3–2.7 mm long, c. 1.5 mm wide, subglossy, mottled; *funicle/aryl* terminal and (at least when dry) yellow.

Selected specimens examined. WESTERN AUSTRALIA: c. 30 km W of Southern Cross, R. Cumming 1439 (PERTH); Sanford Rock Nature Reserve, J.E.D. Fox 7302 (PERTH); 3.5 miles [5.6 km] NW of Bullabulling towards Caenyie Rock, B.R. Maslin 1887 (PERTH); 17.5 km SE of Mukinbudin on road to Bullfinch, B.R. Maslin 6699 (MEL, PERTH); 0.3 km E of Walyahmoning Rock, c. 60 km NW of Bullfinch, K. Newbey 9553 (PERTH); near N boundary of Chiddarcooping Hill Nature Reserve, c. 70 km NE of Merredin, A.S. Weston 14180 (CANB, PERTH).

Distribution. Scattered in the south-west of Western Australia in an area bound by Mukinbudin in the west, east to Walyahmoning Rock (north-west of Bullfinch) and from Carrabin to Bullabulling in the south.

Habitat. Occurs mostly on rocky outcrops in heavy soil and sandy clay-loam, in open eucalypt woodland.

Phenology. Flowering recorded in September and October; immature pods collected in early November.

Conservation status. CALM Conservation Codes for Western Australian Flora: Priority Three.

Etymology. The name is given in allusion to the crenulate-resinous margins of the phyllodes (from *crenulatus*, Latin for crenulate, a term commonly applied to leaf margins with rounded teeth).

Affinities. The precise relationships of this new species are unknown at present. It perhaps has affinities to *A. duriuscula* W. Fitzg. which is distinguished by its grey-green, commonly obtuse to subacute phyllodes with essentially uniform, fine nerves (the central nerve not or scarcely more pronounced than the rest) and non-resinous margins, longer peduncles (2–5 mm, or up to 8 mm when in fruit), longer

calyx relative to the corolla, papery pods lacking the raised margins of *A. crenulata*, and white seed arils.

Acacia cyclops A. Cunn. ex Don, *Gen. Syst.* 2: 404 (1832). *Type*: King George Sound, [Western Australia], January 1818, *A. Cunningham* 104 (*syn*: K); same location, December 1821, *A. Cunningham* 328 (*syn*: BM, K).

Acacia cyclopis Mackay ex Loudon, *nom. nud.*, *Hort. Brit.* 407 (1830).

?*Acacia eglandulosa* DC., *Prodr.* 2: 450 (1825); *Mém. Légum.* 445 (1827). *Type*: Australia, Herb. B. Delessert 1816 (*holo*: G-DC).

?*Acacia mirbelii* Dehnh. [as *Mirbeli*], *Rivista Napol.* 1: 168 (1839). *Type*: not designated. (Judging from the protologue and from specimens at FI, NAP, RO and W, it seems that Dehnhardt's *A. mirbelii* is the same as *A. cyclops*.)

Notes. It would be unfortunate if such a well-known, easily recognized, widespread species should require a change of name, especially when the present name is so descriptive. It is possible, however, that de Candolle's species *A. eglandulosa* is conspecific with what has been known for over 150 years as *A. cyclops*, and his name is older by just seven years. There is no indication of the collector of de Candolle's type, only that the sheet was from the herbarium of Benjamin Delessert. We leave to a future monographer the resolution of the correct name to apply to this taxon; in the meantime we will continue to use the well-known epithet in preference to adopting an unknown one without unequivocal evidence of the necessity to do so. Should they prove conspecific, a case for conservation of the name *A. cyclops* should be prepared.

When G. Don published Cunningham's manuscript name *Mimosa cyclopis* as an *Acacia*, he omitted the 'i', making it *A. cyclops* but as publishing author such an emendation, intentionally or accidentally, does not affect the name or the authorship. The name was treated by Loudon in "Hortus Britannicus" in its original form but he attributed the binomial to Mackay who apparently used it in a catalogue of plants growing at his nursery at Clapton in England. In any case, *A. cyclopis* Mackay is a *nomen nudum*. The remaining epithet in the above synonymy, *A. mirbelii*, surely refers to this species; although no certain type material of it has been located, Maslin studied two sheets in the Cesati Herbarium at RO which are labelled '*A. mirbeli*' but with no further data.

Acacia diaphana R.S. Cowan & Maslin, *sp. nov.*

Frutex fruticosus, effusus, resinosis, 1.5–3 m altus, ad 2.5 m latus. Phyllodia linearia, obtusa vel obtusa et minute excentrice mucronulata; lamina (32)40–65(70) mm longa, 2.5–4 mm lata, tenuiter coriacea, leviter incurvata, glabra, in quoque pagina uninervata, costo et marginibus valde resinosis, rare aliquot penninervis evidentibus; glans basalis. Racemi (1)2–6-capitulis, axe 2–8 mm longo, resinoso, minute appresso-puberulo pilis albis; pedunculi 2–5 mm longi; pedunculorum bractee basales c. 0.3 mm longae, triangulares, persistentes; capitula globularia, 3.5–4.5 mm diametro, aurea, resinosa, 15–20-floribus; bracteolae spathulatae, lamina crassa et viscida, stipite diaphano. Flores 5-meri, perianthio diaphano. Sepala longitudine 2/3 petali partes aequantia, libera, lineari-oblongata, glabra. Petala libera, reflexa, glabra. Legumen et semina non visa.

Typus: north-west of Mt Ragged [precise locality withheld for conservation reasons], Western Australia, 15 September 1990, *W. Archer* 15099011 (*holo*: PERTH 01166417; *iso*: CANB, K).

Bushy, spreading–erect, resinous *shrub* 1.5–3 m tall, branching just above ground level, the crown 2–2.5 m across. *Branchlets* angular-flattened at extremities with resinous ribs, ageing terete and ribless or very obscurely ribbed, glabrous or minutely white appressed-puberulous. *Branches* dull light brownish grey. *Stipules* absent or obscured by resin and indumentum. *Phyllodes* linear, attenuate basally, (30)40–65(70) mm long, 2.5–4 mm wide, thinly coriaceous, smooth, ascending, straight to shallowly incurved, glabrous, bright green (colour taken from collectors' field notes, but upon drying some specimens appear glaucous); *apex* obtuse with a minute, blunt, centric or excentric mucro; *pulvinus* 1 mm long, glabrous or minutely appressed-puberulous on upper surface; midrib and marginal nerves prominent and strongly resinous, the resin often in obvious droplets, rarely a few, scattered penninerves arising from midnerve evident. *Gland* on upper margin of phyllode at or near distal end of pulvinus, not prominent. *Inflorescences* (1)2–6-headed racemes 2–8 mm long; *raceme axis* resinous, minutely white appressed-puberulous (very pale yellow when young; hairs often obscured by resin); *peduncles* 2–5 mm long, resinous, hairy as on raceme axis; *basal peduncular bracts* c. 0.3 mm long, triangular, persistent. *Heads* globular, 3.5–4.5 mm diam., golden, resinous, 15–20-flowered; *bracteoles* spatulate, the blade thick and viscid, the stipe diaphanous. *Flowers* 5-merous; perianth diaphanous; *sepals* free, linear–oblanceolate, 2/3 length of petals, glabrous; *petals* free, reflexed, glabrous. *Pod* and *seeds* not seen.

Other specimens examined. WESTERN AUSTRALIA, all NW of Mt Ragged [precise localities withheld for conservation reasons]: *W. Archer* 22099023 (NY, PERTH); *K. Newbey* 8276 (PERTH); *K. Newbey* 9726 (PERTH); 19 Sep. 1984, *H. Smolinski s.n.* (PERTH 00609862).

Distribution. Localized in an area north-west of Mt Ragged, c. 130 km north-east of Esperance, south-east Western Australia.

Habitat. Grows in clay or sandy loam in small to large depressions that are wet to waterlogged at least seasonally, commonly with *Eucalyptus occidentalis*.

Phenology. Flowering recorded in September; pods not yet collected.

Conservation status. CALM Conservation Codes for Western Australian Flora: Priority One.

Etymology. The specific epithet refers to the translucent character of the perianth, from the Latin *diaphanus* (more or less transparent).

Affinities. *Acacia diaphana* belongs to the group of sect. *Phyllodineae* with racemose heads but its relatives are unknown at present. It is a distinctive species characterized by long, linear phyllodes with prominently resinous midribs and margins, and short racemes of heads and peduncles that are resinous and hairy (the indumentum often obscured by the resin).

Acacia gemina R.S. Cowan & Maslin, *sp. nov.*

Ab *A. deflexa* Maiden & Blakely ramulis, phyllodiis pedunculisque appresso-puberulis sed glabrescentibus; phyllodiis 10–25(30) mm longis, excentrice mucronulatis, patentibus ad inclinatis, rare leviter deflexis; glande 1–3 mm super pulvinum inserta; et pedunculorum bracteis basalibus 3-nervatis, differt.

Typus: Tunnell Rd, 0.2 km south-east of Forty Hollow Rd, Mt Saddleback, Western Australia, 29 August 1980, A.S. Weston 12667 (*holo*: PERTH 00695510; *iso*: K).

Spreading, much-branched *shrub* 0.4–1 m tall. *Bark* smooth, medium grey. *Branchlets* terete, insignificantly ribbed, appressed-puberulous. *Stipules* subulate, c. 1.5 mm long, appressed-puberulous, caducous to persistent. *Phyllodes* narrowly oblong to oblong-ob lanceolate or widely elliptic, 10–25(30) mm long, 3–4.5(6) mm wide, thick, coriaceous, patent to inclined, rarely slightly deflexed, straight or sometimes recurved, glabrous or more commonly \pm sparsely appressed puberulous on margins and nerves; *longitudinal nerves* 3 on each face, raised and widely separated; intervening secondary nerves absent or few and obscure; *apex* rounded-obtuse and excentrically mucronulate; *pulvinus* 1 mm long, smooth, yellow-brown, appressed puberulous, dilated at base. *Gland* situated between two branches of adaxial marginal nerve on upper margin of phyllode 1–3 mm above pulvinus, plane, circular. *Inflorescences* simple, 1 or 2 per axil; *peduncles* 2–4 mm long, appressed-puberulous; *basal peduncular bracts* cucullate, oblate, appressed-puberulous, 1–3-nerved, caducous. *Heads* globular, golden, 3–4 mm diam., (9)12–18-flowered; *bracteoles* fusiform to elliptic or oblanceolate, ciliate. *Flowers* 5-merous; *sepals* about half as long as petals, free, spatulate-linear to linear, ciliate; *petals* oblanceolate, free. *Ovary* appressed-puberulous. *Pods* linear, raised over and slightly constricted between seeds, 20–50 mm long, 2 mm wide, firmly chartaceous to thinly crustaceous, strongly curved to openly once-coiled, subglabrous, tan, the margins paler. *Seeds* longitudinal, ovoid-ellipsoid, 2 mm long, 1.3 mm wide, 1 mm thick, dull, black; *pleurogram* in paler area; *areole* minute, umbonate, grey; aril subterminal, white.

Selected specimens examined. WESTERN AUSTRALIA: near Narrogin, March 1938, W.E. Blackall s.n. (PERTH 00695580); 0.6 km from Boyagin Rock Reserve boundary on WSW side of road, R.S. Cowan A783 (PERTH); W side of Boyagin Rock Reserve, SW of Brookton, A.S. George 10895 (PERTH, TLF); near junction of Forty Hollow Rd and Tunnell Rd, Saddleback State Forest, 32°56'S, 116°27'E, D. Halford 808217 (CANB, PERTH); Boyagin Rock Reserve, R.D. Royce 8185 (PERTH); 21 miles [35 km] E of Billericay [near Hyden], K. Newbey 3236 (MEL, PERTH).

Distribution. All but two collections are from either within or near the Boyagin Rock Nature Reserve (c. 15 km south-west of Brookton) or the Saddleback Timber Reserve (which encompasses the Worsley mining area, c. 10 km south of Boddington). The two collections outside this area are from near Narrogin (c. 70 km east of Boddington) and near Hyden (c. 200 km east of Brookton).

Habitat. In open heath dominated by *Dryandra squarrosa* or in *Eucalyptus drummondii* low woodland, in both situations in lateritic gravel; the outlying population near Hyden (Newbey 3236) occurs in deep sand.

Phenology. Flowering recorded from August to October (Blackall collection from near Narrogin recorded as flowering in March); mature pods in late December and early January.

Conservation status. CALM Conservation Codes for Western Australian Flora: Priority Two.

Etymology. The close affinity with its nearest relative suggested the name, from *geminus*, Latin for twin-born or paired.

Affinities. *Acacia gemina* is most closely related to *A. deflexa* Maiden & Blakely which is most readily distinguished by its puberulous branchlets and peduncles (the hairs patent) and the phyllode gland situated at the distal end of the pulvinus; also, its basal peduncular bracts are \pm nerveless and its

phyllodes are often prominently deflexed. Both species are probably related to the 'A. *sulcata* group' (Cowan & Maslin 1993), particularly to *A. nitidula* Benth. and *A. dura* Benth.

Acacia heteroclita Meisn. in J.G.C. Lehmann, *Pl. Preiss.* 1: 18 (1844). *Type*: Cape Riche, Western Australia, 19 November 1840, *L. Preiss* 938 (*lecto*: 406: LD, *fide* Maslin & Cowan (1994b); *isolecto*: G, NY, PERTH – fragments ex G and NY).

Acacia trissoneura F. Muell., *Fragm.* 4: 6 (1863). *Type*: Gairdner Range, Fitzgerald River, Western Australia, *G. Maxwell s.n.* (*holo*: MEL; *?iso*: K, MEL).

Shrub or small *tree* 1–4 m tall, 2–5 m wide, the trunk to 12 cm diam. *New growth* sericeous (hairs usually yellow). *Bark* grey or grey-brown, smooth throughout or fissured at base of trunk. *Branchlets* compressed to terete, glabrous or sparsely appressed-puberulous, light brown to red-brown. *Stipules* minute, caducous. *Phyllodes* linear to linear-oblong-elliptic, (3)5–11 cm long, (2)3–9 mm wide, coriaceous, patent to ascending, somewhat curved, sometimes sigmoidally, appressed-puberulous at first, tardily glabrescent with apical portion often remaining ± appressed puberulous, dark or bright green; *apex* arcuately long-acuminate, the tip somewhat curved; *pulvinus* distinct (1)2–3.5 mm long; nerves 3 per face, rarely fewer, strongly raised, the midnerve on each face often stronger than lateral nerves; anastomoses absent or occasional. *Gland* on upper margin of phyllode 1–10 mm above pulvinus, distinct, large, round or widely elliptic. *Inflorescences* simple, 1 or 2 per axil; *peduncles* (4)6–10(12) mm long, sparsely appressed-puberulous to glabrous; *basal peduncular bract* caducous, broadly ovate, ciliolate. *Heads* globular or subglobular, bright to pale medium-yellow, 4–6 mm diam., 25–60-flowered, congested; *bracteoles* spatulate, the lamina circular to elliptic, puberulous, ciliolate, the stipe several times as long as the lamina, narrow to filiform. *Flowers* 5-merous; *sepals* less to more than half length of petals, free, spatulate, ciliolate; *petals* 1/2–3/4-united, the lobes triangular, acute, often with a prominent nerve. *Ovary* ± appressed-puberulous. *Pods* narrowly oblong to linear, slightly raised over but not constricted between seeds, 50–80 mm long, 2.5–9 mm wide, thinly coriaceous to thinly crustaceous, straight, sometimes ± undulate, glabrous or sparsely appressed-puberulous. *Seeds* longitudinal, ellipsoid-obloid, 2.5–6 mm long, 1.5–3 mm wide, compressed, dull, indistinctly mottled lighter brown on brown-black; *pleurogram* indistinct and U-shaped or narrower; *areole* small, or large and narrow and more than half seed-length; aril subterminal, small.

Notes. *Acacia heteroclita* is characterized by the linear to linear-oblong-elliptic phyllodes (3.5)5–11 cm long, (2)3–9 mm wide, with 3 evident nerves on each face and curved, long-acuminate tips, normally yellow-sericeous new shoots, globular flower heads and free sepals. The species is most closely related to *A. triptycha* F. Muell. ex Benth. and *A. trinalis* R.S. Cowan & Maslin; a key to these three species is presented below under *A. trinalis*.

Acacia heteroclita comprises two subspecies – a wide-ranging typical subspecies and subsp. *valida*, here described as new and restricted to the Porongurup Range north of Albany. Subspecies *valida* is a robust form of the species; it is larger in its phyllodes, pod and seeds than the typical subspecies.

Key to subspecies of *Acacia heteroclita*

Phyllodes (2)3–4 mm wide (occasionally to 6 mm in coastal habitats);
 pods 2.5–5 mm wide; seeds 2.5–3.5 mm long, 1.5 mm wide, areole small subsp. **heteroclita**
 Phyllodes 4–9(11) mm wide; pods 7–9 mm wide; seeds 5.5–6 mm long,
 3 mm wide, areole large subsp. **valida**

Acacia heteroclita Meisn. subsp. **heteroclita**

Phyllodes (3)5–9(11) cm long, (2)3–4(6) mm wide, linear to linear-oblongate, with no minor nerve anastomoses evident. *Heads* 4–5 mm diam., 25–41-flowered. *Pods* 50–55 mm long, 2.5–5 mm wide. *Seeds* 2.5–3.5 mm long, 1.5 mm wide; *areole* small.

Selected specimens examined. WESTERN AUSTRALIA: North Twin Peak Island, Recherche Archipelago, *M.I.H. Brooker* 3682 (PERTH); Bremer Bay, *C.A. Gardner* 7503 (PERTH); West Mt Barren, *A.S. George* 6965 (PERTH); Sandy Hook Island, 22 km SSE of Esperance, *S.D. Hopper* 2240 (PERTH); 21 km SE of Kulin towards Lake Grace, *B.R. Maslin* 3838 (AD, G, NSW, PERTH); Gordon Inlet, *K. Newbey* 1736 (PERTH); 12.6 km W of Mt Drummond, Fitzgerald River National Park, *K. Newbey* 3872 (CANB, MEL, NFLD, PERTH); Bremer Bay, *K. Newbey* 4276 (PERTH); North Twin Peak Island, Recherche Archipelago, *R.D. Royce* 6258 (PERTH); Triple Peak, Cape Le Grand National Park, *A.S. Weston* 7533 (PERTH).

Distribution. Discontinuous in south-west Western Australia extending from Kulin south to the Fitzgerald River National Park and east to Cape Le Grand National Park, including the nearby islands of the Recherche Archipelago. Most collections are from the Kulin–Dumbleyung–Lake Grace area, the Fitzgerald River National Park and in the vicinity of Cape Le Grand.

Phenology. Most flowering recorded in October, others between August and December; mature pods collected in January.

Variation. The phyllodes of subsp. *heteroclita* are normally 5–9(11) cm long and 3–4 mm wide; in coastal habitats at Bremer Bay and on islands of the Recherche Archipelago they tend to be slightly shorter (normally 3–7 cm long) and occasionally may reach 6 mm wide; furthermore, sometimes the new growth is silvery instead of the otherwise characteristic golden sericeous (e.g. *C.A. Gardner* 7503, *K. Newbey* 4276 and *R.D. Royce* 6258).

A variant from the Kulin area (e.g. *B.R. Maslin* 3838) has an unusual phyllode nervation for *A. heteroclita*, to which the collections must surely be referred: the midnerve is uniformly well developed but the major nerve on each side of it may fail to develop at all, at least not evidently, or only near the base or apex. Otherwise it is typical of the subspecies.

Discussion. Some duplicates of *J. Drummond* 5:8 were distributed as *J. Drummond* '4:8', but according to Bentham (1864) this number is properly assigned to *Acacia nodiflora*.

Acacia heteroclita subsp. **valida** R.S. Cowan & Maslin, *subsp. nov.*

Phyllodia (3.5)5–8 cm longa, 4–9(11) mm lata, laminae nervis saepe anastomosantibus. *Capitula* 5–6 mm diametro, 40–60-floribus. *Legumen* 75–80 mm longum, 7–9 mm latum. *Semina* 5.5–6 mm longa, 3 mm lata, pleurogramma angusta, plus quam dimidio longitudine seminis.

Typus: Porongurup Range, Western Australia, 26 May 1964, *A.S. George* 6236 (*holo:* PERTH 00701033).

Phyllodes (3.5)5–8 cm long, 4–9(11) mm wide, narrowly oblong-elliptic to almost linear, minor nerves often forming sparse anastomoses. *Heads* 5–6 mm diam., 40–60-flowered. *Pods* 75–80 mm long, 7–9 mm wide. *Seeds* 5.5–6 mm long, 3 mm wide; *areole* large, narrow, more than half the seed length.

Selected specimens examined. WESTERN AUSTRALIA: Devils Slide, Porongurup Range, *J.S. Beard* 7638 (PERTH); Porongurup Range, Jan. 1941, *F.M. Bennett s.n.* (PERTH 00701041); western end of Porongurup Range, *R.H. Kuchel* 1976 (PERTH); below Gibraltar Rock, Porongurup National Park, *C.J. Robinson* 1083 (PERTH); Porongurup Range, *R.D. Royce* 6117 (PERTH).

Distribution. Endemic in the Porongurup Range, c. 40 km north of Albany, south-west Western Australia.

Habitat. Grows in loamy soil on or near granite in heath or woodland.

Phenology. Flowers sporadically through the year, recorded in January, April, May and October; mature pods collected in January at which time mature flowers were also present.

Conservation status. CALM Conservation Codes for Western Australian Flora: Priority Two.

Etymology. The robust nature of the material of this subspecies is highlighted by the choice of the name, from *validus*, Latin for strong, powerful.

Affinities. Subspecies *valida* is a robust form of the species, apparently restricted to the Porongurup Range. It is larger in its phyllodes, pod and seeds than the typical subspecies and was referred to as such by Bentham (1864).

Discussion. Some duplicates of *J. Drummond* 5: 11 were distributed as *J. Drummond* '4: 11' but according to Bentham (1864) this number is properly assigned to *A. leptospermoides*.

Acacia leptoneura Benth., *London J. Bot.* 1: 341 (1842). *Type:* Swan River, Western Australia, *J. Drummond s.n.* (*holo:* K; *iso:* K, MEL, PERTH – fragment ex MEL).

Illustration. *Bot. Mag.* 74: pl. 4350 (1848).

Notes. This species is known only from the type and a few historical collections. In all respects it is very similar to *A. subflexuosa* Maiden (see below), from which it differs in its 16-nerved phyllodes and glabrous ovary; in *A. subflexuosa* the phyllodes are 8-nerved and the ovary appressed-puberulous. The type sheet of *A. leptoneura* at Herb. Kew is stamped 'Herbarium Hookerianum 1867' and bears two collections:

1. The left-hand specimen is probably part of *Gilbert* 187 (see below) and represents a narrow phyllode variant of *A. lineolata* subsp. *lineolata*; this specimen was probably not used by Bentham when preparing his original description of *A. leptoneura*.
2. The middle and right-hand specimens are the same collection, labelled simply 'Swan R., *Drummond*' and with '*leptoneura*' pencilled on the sheet in Bentham's hand between the two branchlets. This collection accords well with the protologue and is regarded as the holotype of *A. leptoneura*.

A second sheet at K, presented in 1915 by the Linnean Society, has what may be the same two collections, *Gilbert* 187 from the Wongan Hills, labelled 'a', and a *Drummond* collection numbered 303, and labelled 'b'. There are duplicates of *Drummond* 303 (or 3: 303) at BM, K, MEL, NY, OXF, P and PERTH; certainly all are conspecific with the *Drummond* type, if not the same gathering, which

may possibly be the case; however, Bentham did not cite the number 303 in the protologue of *A. leptoneura*. A third sheet at Kew, clearly annotated by Bentham as *A. leptoneura*, is from a plant grown presumably at Kew and used as the basis for the illustration in the *Botanical Magazine*. There are no precise locality or habitat data with the Drummond collection on which to base a search for the species and it is unlikely to be found henceforth, except perhaps accidentally.

Acacia leptoneura var. *pungens* Meisner was based on a sterile specimen and certain identification is impossible, but it has some of the appearance of *A. acellerata* Maiden & Blakely. It was referred by Bentham (1864), dubiously, to *A. aciphylla*.

Acacia oswaldii F. Muell. [as *Oswaldi*], *Fragm.* 4: 5 (1863). – *Racosperma oswaldii* (F. Muell.) Pedley, *Austrobaileya* 2: 353 (1987). *Type*: Morundee on Murray River, South Australia, February 1851, F. Mueller s.n. (*lecto*: MEL 117104, upper branchlet, here selected; *?isolecto*: K).

Acacia oswaldii F. Muell., *nom. nud.*, *Linnaea* 26: 609 (1855), *pro syn. sub A. lanigera*.

Acacia oswaldii F. Muell., *nom. inval.*, *Pl. Victoria* 2: 27 (1863), not effectively published; see Court *et al.* (1994) for discussion.

?*Acacia oswaldii* var. *abbreviata* Benth. [as *Oswaldi*], *Fl. Austral.* 2: 384 (1864). *Type*: S. Coast, R. Brown s.n. (n.v.).

Acacia sessiliceps F. Muell., *Chem. Druggist Australas. Suppl.* 5 (51): 26 (1882), *synon. nov.* *Type*: near Finke River, Northern Territory, 1880, H. Kempe (*holo*: MEL, flowering specimens on lower half of sheet, see discussion below; *iso*: PERTH 00770566, fragment ex MEL).

Acacia amaliae Domin, *Biblioth. Bot.* 89: 249 (1926). *Type*: without specific locality, Queensland, A. Dietrich s.n. [Domin no. '5403'] (*holo*: PR). *Synonymy fide* Pedley (1978).

Acacia amaliae var. *orthophylla* Domin, *loc. cit.* *Type*: Dividing Range near Jericho, Queensland, March 1910, K. Domin '5402', '5404' (*syn*: PR, n.v.). *Synonymy fide* Pedley (1978).

Bushy *shrub* or *tree* 2–6 m tall. *Bark* dark grey, fibrous, stringy on trunks, smooth on branches. *Branchlets* terete, glabrous, appressed-puberulous or tomentulose-sericeous, usually with many red or brown resin hairs. *New growth* with scattered clusters of appressed, red or brown resin hairs, sometimes golden- or silvery-sericeous without resin hairs. *Phyllodes* terete to compressed or flat, linear, narrowly elliptic or narrowly oblong-elliptic, (10)35–73(105) mm long, (1)3–7(15) mm wide, coriaceous to rigid, spreading to erect, straight to recurved, usually glabrous or early glabrescent except for often somewhat appressed-puberulous pulvinus, green or grey-green, occasionally somewhat glaucous; *longitudinal nerves* 3–6 per face, normally raised, with many secondary nerves that are nearly as prominent, anastomoses absent or occasional; *apex* generally acute to acuminate or obtuse with straight to uncinately mucro, sharply to coarsely pungent or innocuous; *pulvinus* 0.5–3 mm at often inequilaterally tapering base, especially in broader phyllodes. *Gland* prominent, basal, elongate-lenticular, rimmed, 2–4 mm long, impressed, infrequently round or widely elliptic and 1–1.5 mm long. *Inflorescences* usually simple, 2 per axil; *peduncles* 0(2) mm long, sericeous and with many red or brown resin hairs; *bracts* including basal peduncular bract, oblong-ovate to broadly ovate, ciliolate, appressed-puberulous to sericeous, slightly concave. *Heads* depressed-globular, 5-bracteolate at base, pale yellow, 4.5–5 mm diam., 4–15-flowered; *bracteoles* obovate to spatulate, the blade flabellate,

ciliolate. *Flowers* 5-merous; *sepals* more than 1/2 petal length, 1/4–2/3-connate, oblong to linear or oblanceolate; *petals* oblanceolate to elliptic, free, acute, tips reflexed, glabrous or appressed-puberulous. *Pods* persistent after dehiscence, linear, strongly raised over and slightly constricted between seeds, 9–31 cm long, 6–12 mm wide, strongly curved to openly coiled or twisted, coriaceous to woody, appressed-puberulous and (when young) with many clumps of red micro-hairs. *Seeds* longitudinal, obloid-ellipsoid, 6–8 mm long, 4–7 mm wide, c. 3–3.5 mm thick, glossy, dark brown; *pleurogram* narrowly oblong; aril large and fleshy, orange.

Common names. Umbrella Wattle, Miljee, Nelia, Middia, Curly Yarran, Whyacka, and more.

Typification. In the protologue of *A. oswaldii*, Mueller cited several localities but no collections. We have selected a lectotype from among his collections at herb. MEL in order to fix the application of the name. The sheet bearing the lectotype has a label in the author's hand and consists of two branchlets, both of which are referable to *A. oswaldii*; it is the upper branchlet with flower heads and old pod valves that we have designated as the lectotype. The second branchlet is sterile with differently shaped phyllodes and is probably another collection. The lectotype sheet also has a label added by J.H. Willis and is the sheet referred to by Pedley (1978). Collections from the other geographic areas given in the protologue cannot be located with certainty.

The type of *A. sessiliceps* is a flowering collection mounted on a herb. MEL sheet with a later collection by the same collector; the later collection is in fruit and several pods are to be found in the packet with the type along with flowers and phyllodes, probably from both collections.

Synonymy. Although we have not seen Domin's type of *A. amaliae* var. *orthophylla* we have followed Pedley (1978) in treating this name as synonymous with *A. oswaldii*. Bentham's *A. oswaldii* var. *abbreviata* is probably not distinct from the typical variant but we have not seen the type or any other authentic material representing this variant.

Variation. This is a transcontinental species with many variations but seemingly none of sufficient significance and discontinuity to warrant formal recognition, not even to accommodate *A. sessiliceps* which occurs principally in the Northern Territory and south-central Western Australia. Specimens formerly referred to *A. sessiliceps* are characterized by their very narrow (1–2 mm wide), terete to flat phyllodes; however, these appear to be the end of a cline in phyllode width. It is true that when one compares these variants with narrow phyllodes with typical *A. oswaldii* (phyllodes 3 mm or more wide) their facies are very different, but following an examination of herbarium material we think that it is not appropriate, at present at least, to recognize two taxa formally; Pedley (1978) suggested that *A. sessiliceps* 'may be no more than a narrow-phylloded variant of *A. oswaldii*'.

Other variations within *A. oswaldii*, also not given any formal status, may in fact represent distinguishable entities but again further work is needed to assess the significance of the differences that have been observed in herbarium material. The variants that we have been able to recognize include the following.

1. Some specimens which occur scattered throughout the range of the species have densely golden- or silvery-sericeous new shoots which lack resin. The flowers and fruits on these plants appear to be identical to those of typical *A. oswaldii* (which has new shoots with a sparse silvery appressed indumentum intermixed with many reddish resin hairs; the latter impart a rusty brown colour to the new growth). Unfortunately too few specimens are with new growth for us to meaningfully assess the significance and extent of the sericeous variant. Examples of the sericeous variant include

Koodnanie Creek, Birdsville Track, South Australia, *R. Filson* 3316 (MEL, PERTH) and c. 62 miles [99.2 km] SSE of Milparinka, New South Wales, *E.F. Constable* 4621 (NSW, PERTH).

2. Plants around Lake Moore, Western Australia, are c. 2 m tall with unusually short phyllodes (1–2.5 cm long), e.g. Mouroubra Station, *B.R. Maslin* 6669 (CANB, PERTH).
3. The inflorescences of *A. oswaldii* normally comprise closely sessile, axillary heads, but occasionally the heads are in rudimentary racemes (1- or 2-branched with axes 2–3 mm long) with peduncles 1–2 mm long, e.g. Gibson Desert, Western Australia, *T. Vercoe* and *M. McDonald* TKV 534 (PERTH).
4. The phyllodes of *A. oswaldii* are commonly coarsely to sharply pungent and sub-acute to acute or shortly acuminate, but sometimes they are not at all pungent and obtusely mucronulate, e.g. 45 km due SW of Yalgoo, Western Australia, *B.R. Maslin* 5378 (PERTH), Lake Amadeus, Northern Territory, *P.K. Latz* 5718 (BRI, DNA, PERTH).

Acacia pelophila R.S. Cowan & Maslin, *sp. nov.*

Frutex densus, rotundatus, glaber, 1–2 m altus, ad 2 m latus. Phyllodia lineari-oblancoolata, latissima ad medium et versus basem contracta, obtusa et apiculata, interdum oblique, 35–75 mm longa, 3–6 mm lata, coriacea, recta ad leviter curvata, glabra, nervis principalibus 6–10, distantis et elevatis, nervis secundariis fere quam distinctis, cum nervis primariis parallelis, aliquando anastomosantibus. Pedunculi 5–10 mm longi, 2 in quoque axilla, glabri, pedunculorum bracteae caducis, ovatis, 1.5–2.5 mm longis. Capitula ± obloidea, aurea, 5.5–6 mm longa, 4.5 mm diametro, 33–45-floribus, bracteolis oblancoolato-spathulatis, longo-ciliatis. Flores 5-meri. Sepala petalis dimidia breviora, discreta, spathulato-lineararia, ± ciliata. Petala anguste elliptica ad oblancoolata, discreta, glabra, patentia. Ovarium papillosum. Legumen lineare, supra semina elevatum et inter semina constrictum, 2–5 cm longum, 1.5 mm latum, tenuiter coriaceum, leviter curvatum, appresso-puberulum. Semina longitudinalia, obloideo-ellipsoidea, 3 mm longa, 1.2 mm lata, 0.8 mm crassitie, subnitida, nigra; arillus terminalis, albus.

Typus: north-west of Northampton [precise locality withheld for conservation reasons], Western Australia, 6 October 1972, *B.R. Maslin* 3125 (*holo:* PERTH 00193453; *iso:* CANB, K).

Dense, rounded *shrub* 1–2 m tall, to 2 m wide. *New growth* pale green, resinous and shiny. *Branchlets* glabrous, somewhat angled when young, soon terete. *Stipules* narrowly triangular, 0.5–0.8 mm long, glabrous, persistent. *Phyllodes* linear-oblancoolate, 35–75 mm long, 3–6 mm wide, coriaceous, ascending to erect, straight to very shallowly incurved, glabrous; *longitudinal nerves* 6–10 per face, distant (inter-nerve distance much wider than width of nerves), impressed or slightly raised, anastomoses absent or very few; *apex* obtuse, apiculate; *pulvinus* 1–2 mm long. *Gland* on upper margin of phyllode at distal end of pulvinus or up to 1 mm above it, small. *Inflorescences* simple, 2 per axil; *peduncles* 5–10 mm long, glabrous or occasionally sparsely puberulous; *basal peduncular bracts* caducous, cucullate, ovate, 1.5–2.5 mm long, glabrous or ciliate. *Heads* subglobular to obloid, 5.5–6 mm long, 4.5 mm diam., 33–45-flowered; *bracteoles* oblancoolate-spathulate, long-ciliate, the lamina widely elliptic to elliptic, acute. *Flowers* 5-merous; *sepals* 1/2 the petal length, free, spathulate-linear, ± ciliate; *petals* narrowly elliptic to oblancoolate, free, glabrous, spreading. *Ovary* papillose. *Pod* linear, raised over and ± slightly constricted between seeds, 2–5 cm long, 1.5 mm wide, firmly chartaceous to thinly coriaceous, straight to slightly curved, resinous, appressed puberulous. *Seeds*

longitudinal, obloid-ellipsoid, 3 mm long, 1.2 mm wide, 0.8 mm thick, semi-glossy, black; *pleurogram* U-shaped; *areole* small, slightly raised; aril terminal, 1/4–1/3 as long as seed, white.

Selected specimens examined. WESTERN AUSTRALIA, all NW of Northampton [precise localities withheld for conservation reasons]: *W.E. Blackall* 4539 (PERTH); *N. Perry* 252 (PERTH); *P.C. Ryan* 34 (CANB, K, PERTH); *D. Wilcox* 22 (PERTH).

Distribution. Known from only a few localities north-west of Northampton, Western Australia.

Habitat. Grows in white to grey-brown clay sometimes with an overburden of red or brown silt, commonly along saline creek lines with *Eucalyptus* sp. and *Acacia brumalis*.

Phenology. Flowering recorded in July, August and October; mature pods collected in November.

Conservation status. CALM Conservation Codes for Western Australian Flora: Priority One.

Etymology. The name refers to the fact that all the present collections of *A. pelophila* are from plants growing on clayey substrates, from two Latinized Greek words, *pelos* (clay), and the suffix *-phila* (loving, having an affinity for).

Affinities. *Acacia pelophila* is most closely related to the widespread species *A. sclerophylla* (see below) from which it is most readily distinguished by its generally larger phyllodes, obloid to sub-globular heads containing more numerous flowers and its narrower, straighter pods. The new species may superficially resemble *A. lanei* R.S. Cowan & Maslin which is readily distinguished by its white-sericeous, resinous branchlets and peduncles, globular heads commonly arranged in rudimentary racemes, and glabrous pods 2–3 mm wide. *Acacia lanei* is restricted to a small area around Hyden.

Acacia pinguiculosa* R.S. Cowan & Maslin, *sp. nov.

Frutex ramosissimus (0.1)0.3–1(1.5) m altus. Phyllodia linearia, obovata- ad oblanceolato-oblonga vel teretia, 10–30 mm longa, 1–7.5 mm lata, carnosa, ± recta vel leviter incurvata, glabra, nervis principalibus in quoque pagina 1–3 (laminis applanatis) vel 6–8 (laminis teretibus), nervis secundariis plerumque imperfectis vel destitutis. Pedunculi 1 vel 2 in quoque axilla, (5)7–10(13) mm longi, peduncolorum bracteis basalibus ± ovatis, 0.5 mm longis latisque. Capitula globularia, 3–6 mm diametro, 10–17-floribus. Flores 5-meri. Sepala 2/3–3/4 connata. Legumen lineare, biconvexum vel planum, leviter curvatum, 1–4 cm longum, 2–5 mm latum, coriaceum vel crasso-crustaceum, glabrum. Semina longitudinalia, lato-ellipsoidea ad ellipsoidea, 2.5–3.5 mm longa, 1.5–2 mm lata, maculata, arillo terminali.

Typus: Ravensthorpe Range near Kundip, c. 18 km south of Ravensthorpe township, Western Australia, 31 August 1980, *B.R. Maslin* 4784 (*holo:* PERTH 00170917; *iso:* CANB, K, MEL, NY).

Rounded or sometimes ± obconic *shrub*, spreading, compact to moderately open, (0.1)0.3–1(1.5) m tall and 0.7–2 m across, 2–many-branched at ground-level. *Branchlets* glabrous or occasionally sparsely appressed-puberulous at the resinous (not viscid) and sometimes scurfy extremities. *Bark* grey, finely fissured at base of main stems, otherwise smooth. *New shoots* resinous. *Stipules* triangular, 0.2–0.5 mm long, glabrous, caducous. *Phyllodes* terete to flat, linear or obovate to oblong-

oblanceolate, 10–30 mm long, 1–7.5 mm wide, \pm fleshy, smooth when fresh but drying finely to coarsely longitudinally wrinkled, ascending to erect, sub-straight to shallowly incurved, glabrous, green to yellowish-green; *longitudinal nerves* 1–3(5) per face (when flat) or 6–8 (when terete), on dry, terete phyllodes the nerves sometimes difficult to distinguish from the longitudinal wrinkles; *apex* rounded-obtuse; *pulvinus* 1–2 mm long, appressed-puberulous adaxially or glabrous. *Gland* obscure or sometimes absent, on upper margin of phyllode 0–4 mm above pulvinus. *Inflorescences* simple, 1 or 2 per axil; *peduncles* (5)7–10(13) mm long, glabrous or occasionally sparsely appressed-puberulous and sometimes with minute, reddish resin-hairs; *basal peduncular bract* often persistent, \pm ovate, 0.5 mm long and wide. *Heads* globular, bright light- to medium-golden, 7–9 mm diam. (fresh), 3–6 mm diam. (dry), sub-densely 10–17-flowered; *buds* sub-acute to apiculate. *Flowers* 5-merous; *sepals* 1/4–1/2 length of petals, 2/3–3/4 connate, ciliolate; *petals* free, narrowly elliptic, acute, glabrous, prominently 1-nerved. *Ovary* granulose to appressed-puberulous. *Pod* narrowly oblong to linear, biconvex to flat, straight to shallowly curved, 1–4 cm long, 2–5 mm wide, coriaceous to crustaceous, smooth or longitudinally wrinkled, glabrous. *Seeds* longitudinal, widely ellipsoid to ellipsoid, 2.5–3.5 mm long, 1.5–2 mm wide, mottled grey or yellowish and brown; aril terminal.

Distribution. Extends from the vicinity of Frank Hann National Park south to near Ravensthorpe and east to Mt Burdett and Cape Le Grand, southern Western Australia.

Etymology. The name for the species is from the diminutive of *pinguis*, Latin for fat, rich, in allusion to the thick, fleshy phyllodes.

Affinities. Perhaps related to the 'A. *sulcata* group' but most of the taxa of that alliance have different phyllode nervature, cucullate basal peduncular bracts and undulate pods (see Cowan & Maslin 1993).

Subspecies. This species comprises two subspecies: the typical subspecies is geographically restricted to a small area south and east of Ravensthorpe and is recognized by its broad, flat phyllodes, and the widespread subsp. *teretifolia* normally has \pm terete phyllodes 1–1.5 mm wide. However, some plants from about 15 km due north-east of Ravensthorpe (e.g. B.R. Maslin 4774, MEL, NY, PERTH) are unusual in having flat phyllodes 2–2.5 mm wide; these are probably variants of subsp. *teretifolia* (which occurs in the area) but further work is needed to confidently determine their taxonomic status.

Future study may require recognition of the two subspecies as distinct species but our present knowledge of the group does not justify that course.

Key to subspecies of *Acacia pinguiculosa*

- Phyllodes flat, (3)4–7 mm wide, obovate to oblong-oblanceolate;
pods smooth, coriaceous..... subsp. **pinguiculosa**
- Phyllodes \pm terete, 1–1.5 mm wide; pods longitudinally wrinkled
when dry, crustaceous..... subsp. **teretifolia**

Acacia pinguiculosa R.S. Cowan & Maslin subsp. **pinguiculosa**

Phyllodes obovate to oblong-oblanceolate, flat, 10–30 mm long, (3)4–7.5 mm wide, 1 or 3 (rarely 5) main nerves on each phyllode face. *Pod* smooth, coriaceous.

Selected specimens examined. WESTERN AUSTRALIA: NW of No Tree Hill on John Forrest track [c. 20 km due SSW of Ravensthorpe], K. Bradby 40 (PERTH); 7.4 km S of Ravensthorpe towards

Hopetoun, *B.R. Maslin* 3896 (BM, BRI, G, K, NSW, PERTH); 33.5 km E of Ravensthorpe towards Esperance, *B.R. Maslin* 3913 (PERTH); 15 km S of Ravensthorpe on road to Hopetoun, *B.R. Maslin* 4780 (AD, MO, PERTH); Ravensthorpe Range, 3 km NE of Kundip, *K. Newbey* 9691 (PERTH).

Distribution. Occurs to the south and east of the Ravensthorpe area, including the Ravensthorpe Range, south west Western Australia.

Habitat. Grows in loam, clay or laterite on low hills with *Eucalyptus tetraptera* or *Allocasuarina humilis* in dense scrub, commonly in association with granite.

Phenology. Flowering recorded from late June to September; mature pods collected in December.

Conservation status. CALM Conservation Codes for Western Australian Flora: Priority Three.

Acacia pinguiculosa* subsp. *teretifolia R.S. Cowan & Maslin, *subsp. nov.*

A subsp. *pinguiculosa* phyllodiis teretibus, 12–20 mm longis, 1–1.5 mm diametro, 6- vel 8-nervatis, glande minuta indistincta, legumine 15–35 mm longo, 2–3.5 mm lato, in sicco longitudinaliter rugoso, differt.

Typus: Cape Le Grand, c. 25 km south-east of Esperance, Western Australia, 7 October 1966, *P.G. Wilson* 5557 (*holo:* PERTH 00664650; *iso:* CANB, K, MEL).

Phyllodes terete or nearly so, 12–20 mm long, 1–1.5 mm diam., 6-nerved or uncommonly 8-nerved; gland minute, indistinct. *Pods* 15–35 mm long, 2–3.5 mm wide, wrinkled longitudinally when dry, crustaceous.

Selected specimens examined. WESTERN AUSTRALIA: on Hatters track, 1.3 km N of Mt Gibbs turnoff, *K. Bradby* 30 (PERTH); 38 km SE of Coujinup Hill, *M.A. Burgman* 1354 & *S. McNee* (PERTH); Mt Burdett, *M.A. Burgman* 3280 & *C. Layman* (PERTH); c. 17 km NNW of Young River crossing on Ravensthorpe–Esperance road, *N.N. Donner* 2806 (PERTH); N side of Mt Le Grand, *A.S. George* 11012 (PERTH); c. 65 miles [c. 104 km] E of Lake King, *R.H. Kuchel* 1827 (PERTH); Frank Hann National Park, *D. Monk* 322 (PERTH); c. 18 km NE of Ravensthorpe, near Woodenup Creek, *B.R. Maslin* 4775 (NSW, NY, PERTH); 16 miles [25.7 km] E of Lake King, *K. Newbey* 3276 (B, MO, PERTH); 13 km S of Mt Glasse, Bremer Ra., *K. Newbey* 5389 (BM, PERTH).

Distribution. Occurs in south-west Western Australia, extending from Frank Hann National Park and nearby (near Mt Gibbs, east of Lake King and south of Mt Glasse) south to near Ravensthorpe and east to Mt Burdett in the Wittenoorn Hills and Cape Le Grand.

Habitat. Grows in sand, gravel, loam or clay, commonly on lower slopes of hills or around their base, on or in association with granite, in open mallee shrubland, heath and dwarf scrub.

Phenology. Most flowering recorded from July to September (single flowering collections recorded for May and October); mature pods collected in December.

Conservation status. Not under threat.

Etymology. The subspecific epithet is derived from the Latin *teres* (rounded or cylindrical in section) and *folium* (a leaf), in reference to the terete form of the phyllodes.

Acacia recurvata R.S. Cowan & Maslin, *sp. nov.*

Frutex tholiformis, densus, 0.5–2.5 m altus. Cortex levis, griseus. Ramuli initio angulares resinosique. Stipulae 0.5–1.5 mm longae, persistentes. Phyllodia inaequilateraliter anguste elliptica, acuta, apiculata, 2.5–4 cm longa, 4–8 mm lata, coriacea, ± recurvata, glabra, nervis resinosis, in quoque pagina 5–10 nervis primariis leviter elevatis, nervis secundaris aliquando anastomosantibus; glans basalis. Racemi axis 0.5–1 mm longus, valde resinosus, post anthesin crescens. Pedunculi 5–8 mm longi, glabri vel hirsutelli, resinosi. Capitula globularia, aurea, 4.5–5 mm diametro, 18–25-floribus. Flores pentameri. Sepala 1/2–3/4-connata, resinosa. Petala in medio cohaerentia. Legumen lineare, 3–6 cm longum et 3.5–4 mm latum, resinosum, tenuiter crustaceum. Semina obloidea, 3.5–4 mm longa.

Typus: near Coorow [precise locality withheld for conservation reasons], Western Australia, 20 June 1977, C. Chapman *s.n.* (*holo*: PERTH 00193437; *iso*: CANB).

Dense, domed, much-branched *shrub* 0.5–2.5 m tall and 1–3 m across, branching at ground level. *Bark* smooth, grey or reddish grey. *New shoots* resinous, slightly viscid, shiny, green (drying brownish). *Branchlets* angular and strongly resinous at first, becoming terete, glabrous or sparsely and minutely, sub-appressed hirsutellous with antrorse pale yellowish or white hairs. *Stipules* triangular, 0.5–1.5 mm long, persistent. *Phyllodes* inequilaterally narrowly elliptic with the adaxial margin normally more curved than abaxial, 2.5–4 cm long, 4–8 mm wide, coriaceous, ascending, mostly shallowly to moderately recurved, sometimes straight and dimidiate, glabrous or rarely hirsutellous on nerves, dull grey-green or dark green with a silvery sheen; longitudinal nerves 5–10 per face, resinous (resin sometimes dryig whitish), anastomoses few; *apex* acute to sub-acute, ± apiculate; *pulvinus* 1–1.5 mm long. *Gland* on upper margin of phyllode at distal end of pulvinus, not prominent. *Inflorescences* simple in axillary pairs or 1- or 2-headed rudimentary racemes; axis 0.5–1 mm long, growing out at anthesis; *peduncles* 5–8 mm long, glabrous or sparsely hirsutellous with pale golden or white, spreading to ± appressed hairs, resinous; *basal peduncular bract* persistent through anthesis, ovate, acute, 0.8–1.5 mm long. *Heads* globular, golden, 4.5–5 mm diam., 18–25-flowered; bracteoles spatulate, the blade ovate, acute, apiculate, minutely puberulous, resinous. *Flowers* 5-merous; *sepals* c. 2/3 length of petals, 1/2–3/4-united, resinous; lobes rounded; *petals* reflexed, free but coherent in mid-section, resinous. *Ovary* papillose. *Pods* linear, slightly raised over seeds and not constricted between them, 3–6 cm long, 2–3 mm wide, thinly coriaceous-crustaceous, curved, glabrous, resinous, viscid when young. *Seeds* longitudinal, obloid, 3.5–4 mm long, 2 mm wide, dark brown, slightly shiny; aril terminal.

Selected specimens examined. WESTERN AUSTRALIA: all near Coorow [precise localities withheld for conservation reasons], 25 July 1977, C. Chapman *s.n.* (PERTH); B.R. Maslin 6580 (K, MEL, PERTH); D. Papenfus DP452 (MEL, NSW, PERTH); S. Patrick SP 1367 & A. Brown (CANB, PERTH).

Distribution. Restricted to the Coorow–Three Springs area, south-west Western Australia.

Habitat. Grows in sandy clay and hard granitic clay-loam, on or near breakaways in *Melaleuca uncinata* shrubland, and in *Eucalyptus wandoo* open woodland along watercourses.

Phenology. Flowering recorded in June and July; mature pods collected in October.

Conservation status. CALM Conservation Codes for Western Australian Flora: Declared Rare.

Etymology. The specific epithet is based on the Latin *recurvatus* (recurved), in reference to the phyllodes.

Affinities. Superficially similar to *A. vittata* (see below).

Acacia resinosa R.S. Cowan & Maslin, *sp. nov.*

Frutex aromaticus, rotundatus, 1–3 m altus. Ramuli resinosi, luteo-porcati. Phyllodia teretia, acuta, breviter curvata usque ad uncinata, (25)30–80(90) mm longa, 0.5–1 mm diam., recta ad leviter curvata, nervis c. 16, planis, pulvino cylindrico, 2–3.5 mm longo, resinoso, abrupte separato. Glans basalis. Pedunculi (2)4–8(9) mm longi, binati, resinosi, obscure puberuli, pilis minutis, rubris, glandulosis. Capitula globularia, 3.5–4 mm diametro, 18–37-floribus; bracteolae peltatae, lamina dense glanduloso-puberula pilis rubris minutis. Flores 5-meri. Calyx cupulatus, 5-angulatus, lobis subnullis usque ad breviter rotundatis, marginaliter rubro-glanduloso-puberulis. Corolla 1/2–3/4-connata. Legumen lineare, 40–70 mm longum, 2–3.5 mm latum, chartaceum, rectum, resinosum. Semina longitudinalia, ellipsoidea, 2.5–3.5 mm longa, c. 1.5 mm lata, maculata atro-brunnea et diluto-grisea; arillus terminalis.

Typus: Vermin Proof Fence No. 1, 5 km due SE of Emu Rock, E of Hyden, Western Australia, 11 October 1975, B.R. Maslin 3939 (*holo:* PERTH00150800; *iso:* AD, BM, BRI, CANB, K, MEL, MO, NSW, NY, W, Z).

Somewhat aromatic *shrub*, generally resinous (but not viscid), dense, rounded or sometimes obconical, 1–3 m tall, 1.5–4 m wide, normally much-branched basally, rarely single-stemmed with age; crown extending to ground level or occupying about 40% of plant height. *Bark* dark grey, fibrous or rough at base, smooth above. *Branchlets* glabrous, yellow-resinous, the resin encrusting the entire surface or confined to ridges. *Stipules* triangular, caducous or occasionally persistent. *Phyllodes* terete to subterete, (25)30–80(90) mm long, 0.5–1 mm diam., sub-rigid, ascending to erect, straight to shallowly incurved, glabrous, light green; *apex* straight or very shallowly curved to uncinata, innocuous; *longitudinal nerves* c. 16, plane, flat-topped and very close together; *pulvinus* 2–3.5 mm long, cylindrical, resinous, orange, abruptly separated from phyllode blade. *Gland* small, immersed in swollen base of phyllode blade. *Inflorescences* simple, 1 or 2 per axil; *peduncles* (2)4–8(9) mm long, glabrous or sometimes minutely appressed-puberulous, resinous; *basal peduncular bract* ovate, ± concave, resinous. *Heads* globular, golden, 5 mm diam. when fresh (3.5–4 mm when dry), densely 18–37-flowered; *bracteoles* peltate, stipe slender, blade rounded, densely glandular-puberulous with red micro hairs. *Flowers* 5-merous; *calyx* 1/2–3/4 length of corolla; sepals united, with 5 marginal irregularities or with definite, rounded lobes, puberulous on nerves, margins puberulous with glandular, red micro hairs; *petals* oblanceolate, 1/2–3/4-united, glabrous, each lobe uninerved. *Ovary* papillate-puberulous. *Pods* linear, slightly constricted between and slightly raised over seeds, slightly undulate, 40–70 mm long, 2–3.5 mm wide, firmly chartaceous to thinly coriaceous, straight, resinous, glabrous, greyish yellow; margins paler. *Seeds* longitudinal, ellipsoid, 2.5–3.5 mm long, c. 1.5 mm wide, glossy, mottled dark brown on dull yellow, mid-brown or grey; *pleurogram* obscure, U-shaped; *areole* small; aril white.

Selected specimens examined. WESTERN AUSTRALIA: 41.7 km ENE of Sheoak Hill, M.A. Burgman 2439 & S. McNee (PERTH); 12.1 miles [19.5 km] W of Kumarl towards Lake King, R. Cumming 2546 (PERTH); 3.6 km NNW of Wongan Hills–Ballidu road on Craig Road, turnoff 4.3 km N of Wongan Hills, R. Cumming 3627 (PERTH); 51 km from Wubin towards Mount Magnet, B.R. Maslin 3534

(CANB, PERTH, Z); 16 km SE of Kulin towards Lake Grace, *B.R. Maslin* 4075 (CANB, MO, PERTH); 34 km due NNE of Kalannie, *B.R. Maslin* 7529 (PERTH); 7 km SW of Ponier Rock, c. 72 km S of Balladonia Motel, Eyre Hwy, *K. Newbey* 7356 (PERTH); 3 km NE of Clear Streak Well, c. 73 km SE of Norseman, *K. Newbey* 7568 (PERTH); 23 km SE of Karonie, *K. Newbey* 8497 (PERTH); c. 6.5 km by road N of Wongan Hills, Wongan Hills Experimental Farm, Reserve 18672, Craig Road, *C.M. Parker* 210 (AD, CANB, PERTH); 14 km NE of Wubin on road to Mount Magnet, *P.G. Wilson* 6476 (AD, CANB, K, MEL, PERTH).

Distribution. Occurs in the south-west of Western Australia, widespread but discontinuous from near Gutha, south to near Wongan Hills, north of Koolyanobbing at Diemals, east to Karonie and in scattered localities from near Kulin east to near Ponier Rock (south of Balladonia).

Habitat. Grows on clay loam and sandy flats; occasional to locally abundant in low open woodland, thickets, open scrub and heath in association with *Acacia*, *Allocasuarina*, *Eucalyptus*, *Grevillea*, *Hakea* and *Melaleuca* spp.

Phenology. Flowering recorded in March and from June to December, but it is likely that sporadic flowering occurs most of the year; mature pods collected in December.

Conservation status. Widespread, not under threat.

Etymology. The specific epithet is derived from the Latin *resinosus* (resinous), in allusion to the more or less obvious resinous nature of most parts of the plant. In the case of flower parts, there are many red micro hairs which are apparently glandular, to the extent that bracteoles and calyx margins are coherent with one another.

Common name. Summer Wattle.

Affinities. In the Kalannic region (in the north-central wheatbelt region of Western Australia) there is a rare taxon of uncertain taxonomic status that appears to be closely related to *A. resinosa*; in places the two taxa are sympatric. This taxon is referred to as *A. aff. resinosa* and is most readily distinguished from *A. resinosa* its smaller stature (0.3–1 m tall), generally shorter phyllodes (2–5 cm long), sessile heads and yellow arils. Other close relatives for *A. resinosa* are unknown, although it does have a superficial resemblance to *A. coolgardiensis* Maiden subsp. *coolgardiensis*; these two taxa grow close to one another in places and care is needed to ensure that they are not confused on account of their similar growth habit and phyllodes. From a distance the crown of subsp. *coolgardiensis* has an overall greyish hue, whereas that of *A. resinosa* is light green; upon closer inspection subsp. *coolgardiensis* is distinguished by its fluted trunk, sessile, commonly obloid heads, and terete pods containing non-mottled seeds.

Acacia rigens A. Cunn. ex Don, *Gen. Hist.* 2: 403 (1832); Benth., *London J. Bot.* 1: 342 (1842). – *Racosperma rigens* (A. Cunn. ex Don) Pedley, *Austrobaileya* 2: 355 (1987). ?*Type*: Lachlan River, New South Wales, 1817, *A. Cunningham* 400 and 401 (both BM, K); see discussion below under *Typification*.

Acacia rigens A. Cunn. ex Loudon, *nom. subnud.*, *Hort. Brit.* 2: 406 (1830).

Acacia chordophylla F. Muell. ex Benth., *Linnaea* 26: 612 (1855). *Type*: Murray River, [Victoria], October 1848, *F. Mueller s.n.* (*lecto*: MEL 500636, *fide* Pedley 1978: 186; *isolecto*: A, BM, K).

Spreading *shrub* 2–3 m tall, occasionally a small *tree* to 6 m. *Bark* smooth, thin, exfoliating in narrow, elongate strips, dark grey. *Branchlets* strongly yellow-ribbed, sericeous between glabrous ribs, with many red resin hairs intermixed with shining white ones. *Phyllodes* linear, terete, rarely flat, 3–14 cm long, 0.8–1 mm diam. (terete form) to 2.5 mm wide (flat form), coriaceous to sub-rigid, patent to erect, straight to shallowly incurved, grey-green, glabrous or sericeous between nerves; *longitudinal nerves* numerous, some more prominent than others, yellowish; *apex* innocuous to ± coarsely pungent by a straight or curved point; *pulvinus* short, thick, appressed-puberulous, c. 1 mm long. *Gland* basal, small, depressed. *Inflorescences* simple, (1)2(4) per axil; *peduncles* normally 2–6 mm long, sericeous with many red resin hairs intermixed; *basal peduncular bracts* persistent, broadly ovate, concave, acute, sericeous. *Heads* globular, golden, 4–8 mm diam., 20–33-flowered; *bracteoles* spatulate with slender stipe and flabellate lamina, puberulous apically with many red, viscid resin hairs, ciliolate. *Flowers* 5-merous; *sepals* 1/2–2/3 length of petals, free to 1/2-united, oblong to oblong-spatulate, glabrous or lobes apically sericeous or puberulous, ciliolate; *petals* narrowly elliptic to oblanceolate-elliptic, free, glabrous. *Ovary* papillate puberulous. *Pod* sub-moniliform, raised over and constricted between seeds, 3.5–10 cm long, 2–3 mm wide, firmly chartaceous to thinly coriaceous, straight to slightly curved, twisted and loosely coiled after dehiscence, somewhat appressed-puberulous. *Seeds* longitudinal, obloid-ellipsoid to narrowly ellipsoid, 3–4.5 mm long, 1.5–2 mm wide, pale brown, glossy; *areole* half or more as long as seed, surrounded by paler brown area; *aril* conical, terminal, covering only seed apex.

Selected specimens examined. WESTERN AUSTRALIA: Ponton Creek, N of Zanthus, A.S. George 5979 (PERTH); 100 km E of Cosmo Newbery on Warburton road, A.S. George 12191 (PERTH, TLF); 1.4 miles [2.3 km] W of Hines Hill, B.R. Maslin 1733 (CANB, MEL, NSW, PERTH); c. 21 km due NE of Nungarin, B.R. Maslin 1967 (CANB, K, MEL, NSW); 3.2 km E of Boorabbin on Great Eastern Highway, B.R. Maslin 2407 (BRI, CANB, NY, PERTH, S); 25 km SW of Balladonia Motel, Dundas Nature Reserve, K. Newbey 11740 (PERTH); about 88 km from Southern Cross towards Coolgardie, M.E. Phillips WA/68 703 (PERTH).

SOUTH AUSTRALIA: Hundred of Ramsay, c. 15 km ESE of Minlaton, southern Yorke Peninsula, B.J. Blaylock 1699 (PERTH); about 12 km NE of Arno Bay along Lincoln Highway, H.J. Eichler 19172 (PERTH); 22.8 km SE of water tower in Taillem Bend on Dukes Highway, N. Hall H80/85 (PERTH); 18 km N of Mount Lindsay, 25 July 1980, D. Hewett s.n. (PERTH 00682004); Murray River, between Renmark and Chowilla Station, 2 Sep. 1982, B.R. Maslin s.n. (MEL, PERTH 00682020); Gawler Range area, M.H. Simmons 1720 (PERTH); about 14 km E of Cummins on Cummins–Tumby Bay road, D.J.E. Whibley 1939 (PERTH).

QUEENSLAND: Dingwall, 97 miles [155 km] SSE of Charleville, S.L. Everist 7508 (BRI); 45 km E of Cunnamulla, August 1971, F.D. Hockings s.n. (BRI); c. 14 miles [22.4 km] NNW of Tara along upper Humbug road, L.S. Smith 14154 (BRI).

NEW SOUTH WALES: 6 miles [9.6 km] by road E of Rankin Springs, E.F. Constable 7256 (PERTH); 3 miles [4.8 km] NE of West Wyalong, R. Coveny 2377 (PERTH); 12 km N of Condobolin, R. Perry 110 (PERTH).

VICTORIA: Stewart Flora and Fauna Reserve, Redcliffs area, M.G. Corrick 7387 (PERTH); 22.3 km N of Speed on Sunraysia Highway, N. Hall H80/38 (PERTH).

Distribution. Widespread throughout southern Australia, occurring in all mainland states except the Northern Territory. The principal range is from the Gawler Ranges, South Australia, east through north-western Victoria to near Dubbo in New South Wales but with a few scattered occurrences in western South Australia, Western Australia and Queensland.

Habitat. Common in drier red, sandy soils, mostly in mallee communities but also adjoining woodland (pine, box) communities.

Phenology. Flowering recorded from July to November, with the main period from August to September; mature pods collected from November to January.

Conservation status. Not considered to be under threat.

Typification. In his revision of *Acacia* in Queensland, Pedley (1978) typified *A. rigens* by Cunningham 400, indicating the lower left-hand specimen on a sheet at K as the holotype. The typification of this species, however, cannot be solved so easily, for it is rife with problems and uncertainties, compounded by the collector and by the author of the taxon.

Two Cunningham numbers are involved, 400 and 401, both of which were apparently only in flower; at least the collector in his field notes described only flowers. We have determined from lists of seeds collected in later years that Cunningham used the epithet '*rigens*' for 401, even though in the original field notes he wrote '*Acacia calamistrifolia*' for that number. His collection number 400 with old fruits and young inflorescences may well have been collected as late as 1823 when Cunningham re-collected in the type locality and presumably gave the same collection number to the new material. Since neither Cunningham nor Don mentioned fruits it seems appropriate here to review all the material of both collections before considering further what course to adopt with respect to typification.

Two sheets at Herb. BM bear type material, one with a flowering branchlet of Cunningham 400, the other with a flowering branchlet of Cunningham 401, as well as a branchlet of *A. havilandiorum* Maiden on each of the two sheets.

At Herb. K there are three sheets bearing type material, as well as various bits of other collections. Sheet one with a pinned label for Cunningham 400 has a single flowering branchlet which is probably a duplicate of that same collection represented at BM; there is also a small packet on this sheet, enclosing flower heads, presumably from the branchlet on this sheet, and old pod valves from a branchlet on a second sheet in young bud and old fruit.

The second sheet at K also bears, in the centre, set off by pencilled lines and stamped Herb. Hookerianum, a branchlet with the notation on a slip-on label '*Acacia sulcata* low flat country on L. R.'; in Cunningham's diary his notes for No. 400 read '*A. sulcata*. This appears to be *A. sulcata* of Mr Brown, agreeing with that plant in its persistent bractea . . . a twiggly shrub in sterile scrubby tract in the low flat Country on the Lachlan River 31 May–20 June'. This is perhaps the first of the collections numbered 400 referred to above, and the fruiting one may well have been collected later. The lower left-hand specimen on this sheet is ex Herb. Cunningham and has flower buds and dehisced pods. It is labelled *Acacia rigens*, Lachlan River, NSW, June 1817, Cunningham 400 and is the one nominated by Pedley as the holotype. The third specimen on this second sheet is not labelled but it and the centre one were incorrectly assigned to *A. elongata* Sieber ex DC. by Pedley (1978).

The third K sheet has three branchlets: the one on the right is *A. havilandiorum* and of no further interest here; the one on the left is a Fraser collection with a largely indecipherable label which was also wrongly allocated to *A. elongata* by Pedley; and the central specimen in young bud and old fruit is labelled, with a slip-on label, '*Acacia calamistrifolia* L. R.', the name used by Cunningham in his diary for his number 401, '*A. calamistrifolia*: . . . It differs from preceding in having decid. bractae & from *A. acicularis* in its geminate capitula / with preceding 20 June'. This branchlet would appear to be a duplicate of the left-hand specimen with young buds and old pods labelled '400' on the second K sheet.

To complicate matters further, there is no evidence on either the K or BM sheets to indicate that the material was seen by Don, and the only authentic Cunningham script (that we can recognize at least) on any of the sheets involved is represented by the collection numbers on the BM sheets which were cut from a field label or something similar and glued onto the sheets.

The Code (Greuter *et al.* 1994) stipulates that a lectotype must be chosen from the original material seen or used by the author prior to publication of the name of the taxon, but in this instance we cannot be certain even what constitutes original material. Don may have seen specimens of both 400 and 401, or neither, for it is entirely possible that Don's description was based on cultivated material, perhaps grown from seed taken from the K specimen of *Cunningham* 400, named as holotype by Pedley. Since there is so much uncertainty regarding what constitutes original material of *A. rigens*, resolution of the typification of the name must await further investigation.

Several important discrepancies between *A. rigens* as understood today and Don's protologue should be recorded. (1) He described the phyllodes as '3-nerved at the base' but those of *A. rigens* are multinerved (c. 16-nerved); (2) the phyllodes are said to have 'a gland-bearing tooth on the upper margin at the base', but in *A. rigens* the gland is minute, scarcely noticeable, certainly not borne on a 'tooth'; and (3) the heads are described as 'solitary' on peduncles 'clothed with rufous scales', but heads in *A. rigens* are preponderantly geminate, rarely one or as many as four in an axil, and the peduncles are generally sericeous with appressed, shiny white hairs and varying numbers of red resin hairs.

Notwithstanding the above discussion, Bentham's description in "Flora Australiensis" (1864) is essentially of *A. rigens* as understood today, and it is in this sense that we apply the name here.

Synonymy. *Acacia rigens* var. *humilis* was described by Bentham (1842) based on a Fraser collection but with a question mark to indicate that he was not certain of the rank. This specimen is in the Herbarium Hookerianum at K and annotated '*rigens humilis*' by Bentham; however, it is not *A. rigens* but *A. johnsonii*. The label in Fraser's hand reads: 'Acacia. Native of Bowen. bushes in S.W. Interior. flowers in Sept— a dwarf shrub'.

On a K sheet labelled *A. elongata* there are a number of branchlets; two of these, set off by pencil lines, have a Cunningham label for his number 44 collected April 1824 but this label appears to apply only to the left-hand specimen (in bud), for the other branchlet has a slip-on, indecipherable label and is in open flower. Bentham wrote '*rigens* β *humilis*' at the base of the left-hand specimen but it is clear that the specimen is of *A. elongata*.

Bentham (1864) described *A. rigens* var. *longifolia* based on a Leichhardt collection of unknown provenance with very long phyllodes. We have not seen this specimen and cannot be sure of the identity of this taxon.

Bentham (1864) published Mueller's manuscript name *A. chordophylla* but reduced it to synonymy under *A. rigens*; the two names apply to the same taxon.

Affinities. Often compared with *A. havilandiorum* which is not very closely related: *A. havilandiorum* has phyllodes with more numerous, fine, inconspicuous nerves and the gland is situated in the middle third of the blade; its peduncles are glabrous, its flowers mostly 4-merous, and its aril galeate, subterminal. *Acacia rigens* has some similarity to the Western Australian endemics *A. masliniana* R.S. Cowan and *A. roycei* Maslin, both of which are readily distinguished by their subulate-pungent phyllode apex.

Variation. The hoary phyllodes and young branchlets, hoary between the nerves, taken with partly united sepals, appressed-puberulous pods and conical aril, serve to distinguish this species. Many collections from the Kellerberrin and Southern Cross areas in south-west Western Australia have phyllodes that are glabrous at maturity (rather than sericeous between the nerves which is the typical condition) and the occurrence of free sepals is more common in these collections which are mostly from margins of saline habitats.

There is a gradual transition from terete phyllodes to broader, flat ones; although the broader phyllode form appears to occur more often in South Australia, there appears to be no real geographical disjunction. Specimens from New South Wales and Western Australia are more similar to each other than to those from South Australia; typically, phyllodes are elongate, slender, straight to somewhat curved. Material from Victoria and adjacent South Australia usually has the shortest phyllodes of the species and these are distinctly grey-green; in addition, in the southern Eyre Peninsula a variant with the most compressed, broadest phyllodes is found sympatrically with populations of the short phyllode variant. The species obviously should be investigated further throughout its range, especially populations around salt lakes and salt flats, for they may be potentially useful for reducing soil salinity in agricultural areas.

Acacia sclerophylla Lindley in T. Mitchell, Three Exped. Australia, 1st edn, 2: 139 (1838). *Type*: interior of New Holland [along the Murray River near junction with Loddon River at Swan Hill, Victoria], 20 June 1836, T. Mitchell '182' (*holo*: CGE; *iso*: K (left-hand specimen), MEL, PERTH—fragment ex K).

Dense *shrub*, rounded or flat-topped, much-branched, 0.5–2 m tall, often wider than tall. *Bark* grey, smooth or slightly fissured. *New shoots* ± glabrous and resinous or sometimes hairy. *Branchlets* ± terete, glabrous to hairy. *Stipules* (best observed on new shoots), triangular and *c.* 0.5 mm long, or linear-triangular and 1.5–2.5 mm long, sub-persistent to caducous. *Phyllodes* narrowly oblong-oblancoelate to linear-oblancoelate or linear, flat to sub-terete, rarely terete, (10)20–45(60) mm long, 1–4(5) mm wide, thick, coriaceous, ascending to erect, straight to shallowly incurved, glabrous or hairy, green or grey-green; *longitudinal nerves* 8 or more, 3–7(10) per face when flat, the nerves often of unequal prominence (3 commonly more prominent than the rest), sometimes mealy and often raised when dry, inter-nerve distance wider than nerve diameter, anastomoses absent; *apex* obtuse, straight- or excentrically curved-mucronate. *Gland* on upper margin of phyllode 0–1 mm above pulvinus, not prominent. *Inflorescences* simple, 1 or 2(4) per axil; *peduncles* (1)2–4(5) mm long, glabrous or hairy; *basal peduncular bract* caducous or sub-persistent, cucullate. *Heads* globular, light-golden, 5–6 mm (3–4 mm dry) diam., 12–20-flowered; *bracteoles* oblancoelate to obovate-oblong or narrowly elliptic. *Flowers* 5-merous; *sepals* 1/4–1/3 petal length, free, linear to oblong or narrowly spatulate, obtuse. *Pods* linear, raised over and slightly constricted between seeds, 30–60 mm long, 2–3 mm wide, curved to openly and somewhat irregularly coiled or twisted, glabrous or hairy. *Seeds* longitudinal, obloid to obloid-ovoid; aril terminal.

Distribution. Eastern Australia in south-east South Australia, north-west Victoria and south-west New South Wales; less common in south-west Western Australia.

Type locality. No details were given in the protologue for the precise place, date or number of the type collection; the data given above are taken from the holotype (collection number and date) and from Mitchell's map and journal of the expedition on which the species was found.

Affinities. Most closely related to *A. pelophila* (see above); see also under varieties below.

Variation. There is considerable variation in the phyllode nervature of the typical variety. Sometimes there are clearly three raised main nerves that are distinctly resinous but with the secondary nerves only slightly raised; this is also the normal condition in var. *teretiuscula*. In var. *sclerophylla* and var. *pilosa*, however, the number of phyllode nerves varies from three to seven, depending on the relative prominence of the secondary nerves, but often the main nerves may be distinguished, even when more numerous, by their greater prominence and by the fact that they are resinous.

Infraspecific taxa. *Acacia sclerophylla* occurs as three varieties. The typical variety has glabrous phyllodes which are usually broader than the other varieties (except a few atypical specimens from South Australia: see below). Variety *pilosa* differs from the other elements of *A. sclerophylla* by the nature of its branchlet and phyllode indumentum as well as by its longer stipules. Variety *teretiuscula* is closely related to the typical variety, differing primarily in its narrower phyllodes and uncinately-puberulous branchlets.

Key to varieties of *Acacia sclerophylla*

- 1 Branchlet apices, new shoots and phyllodes (at least when young) pubescent to pilose with tolerably long, weak, spreading or appressed hairs; stipules 1.5–2.5 mm long. (Western Australia.) var. ***pilosa***
1. Branchlet apices, new shoots and phyllodes glabrous or sparsely uncinately-puberulous (hairs very short, \pm appressed and abruptly curved upwards from base); stipules *c.* 0.5 mm long
 - 2 Phyllodes 1–1.5 mm wide, linear; branchlets sparsely uncinately-puberulous (sometimes almost glabrous). (Western Australia.) var. ***teretiuscula***
 2. Phyllodes (1.5)2–4(5) mm wide, linear-oblongate to narrowly oblong-oblongate, rarely linear; branchlets glabrous (rarely very sparsely uncinately-puberulous). (Western Australia, South Australia, New South Wales, Victoria.) var. ***sclerophylla***

Acacia sclerophylla Lindley var. ***sclerophylla***

Branchlets glabrous or occasionally very sparsely uncinately-puberulous as in var. *teretiuscula*. *New shoots* glabrous, resinous. *Phyllodes* linear-oblongate to narrowly oblong-oblongate and flat, rarely linear and compressed to subterete (in South Australian variant), (10)20–45 mm long, 2–4(5) mm wide, 1 mm wide in S.A. variant, glabrous, with 5–7(10) longitudinal nerves. *Peduncles* glabrous. *Pod* curved to twisted, glabrous.

Selected specimens examined. WESTERN AUSTRALIA: 6.9 miles [11 km] S of Cadoux, *R.J. Cumming* 1859 (PERTH); 10 km S of Tammin on road to Gardner Reserve, *B.R. Maslin* 6301 (CANB, K, MEL, PERTH); 0.6 km N of Wilsons Down turnoff on the Cunderdin–Wyalkatchem road, *M.H. Simmons* 1279 (PERTH).

SOUTH AUSTRALIA: Bute, *B. Copley* 3858 (PERTH); 31.9 km from Kimba on Eyre Highway to Ceduna, *N. Hall* H80/60 (PERTH); near Hartley, *D. Hunt* 2689 (PERTH); Hambridge National Park, *T.R.N. Lothian s.n.* (AD, PERTH); *c.* 24 km due E of Kadina, *B.R. Maslin* 4526 (PERTH); 2 miles [3.2 km] S of Port Wakefield, *M.D. Tindale* 403 (PERTH); *c.* 54.5 km N of Cowell, *M.D. Tindale* 438 (PERTH); western side of Murray River on road to Mannum, 10 km N of Murray Bridge, *D.J.G. Whibley* 4207 (PERTH); *c.* 16 km WSW of Waikerie, *J.R. Wheeler* 461 (PERTH).

VICTORIA: beside Ouyen–Pinnaroo road just E of Tutye, *M.G. Corrick* 6236 & *B.A. Fuhrer* (MEL, PERTH); Big Desert, 8 km S of Murrayville on Nhill road, *M.G. Corrick* 6388 (MEL, PERTH);

c. 11.7 km along road running W of Sunset Tank–Merrinee road, *P.S. Short* 1195 & *M.G. Corrick* (MEL, PERTH).

NEW SOUTH WALES: Sturt Highway, 3 km W of Balranald, *W. Bishop* 290 (NSW); Loch Lily, S of Broken Hill, *W.E. Mulham* W-1005 (NSW); 30 km W of Euston, *W.E. Mulham* 1349 (NSW).

Distribution. Restricted to a few localities in south-west Western Australia, between Cadoux and Tammin; common in south-east South Australia from Streaky Bay on the west coast of Eyre Peninsula, east to north-west Victoria where it is confined to an area from the Murray River south to near Nhill and as far east as Swan Hill, and then to south-west New South Wales where it is uncommon.

Habitat. Grows in a wide range of soil types, mostly in sandy soil and in some places overlying limestone (South Australia), but also in loam (Western Australia), red-gravel or clay, sometimes on dunes (New South Wales), in mallee eucalypt scrub or woodland.

Phenology. Flowering recorded from August to November; mature pods collected from January to March and July to December.

Conservation status. Widespread, not under threat.

Variation. Typically this variety has flat, linear-oblongate phyllodes 2–4 cm long and 2–4 mm wide, but in S.A. two unusual variants occur: one from the Murray region with linear phyllodes 4–6 cm long (e.g. *W.R. Barker* 4393, AD, PERTH), the other from the Eyre Peninsula with subterete phyllodes c. 1 mm wide (e.g. *B. Copley* 2965, AD, PERTH).

Affinities. Sometimes confused with *A. wilhelmiana* F. Muell. which is readily distinguished by its normally very reduced racemes and peduncles that are densely yellow hairy.

Acacia sclerophylla* var. *pilosa R.S. Cowan & Maslin, *var. nov.*

A var. *sclerophylla* ramulis et phyllodiorum nervis pilosis vel pubescentibus, saepe glabrescentibus, stipulis persistentibus, linearibus, 1.5–2.5 mm longis, differt.

Typus: Reserve 24282, Dumbleyung, Western Australia, 25 October 1977, *J.S. Beard* 8181 (*holo:* PERTH 00193402).

Branchlets pubescent to pilose at tips (hairs tolerably long, weak and spreading to appressed), often soon becoming glabrous. *New shoots* moderately to densely hairy. *Stipules* linear-triangular, 1.5–2.5 mm long. *Phyllodes* linear to linear-oblongate, 20–35 mm long, 2–3 mm wide, flat, hairy when young (indumentum similar to branchlets except hairs sometimes shorter), glabrous with age, with 3–5(7) longitudinal nerves. Old *pod* valves coiled, sparsely to densely hairy.

Selected specimens examined. WESTERN AUSTRALIA: 'Ryans Property', Doodlakine–Kununoppin road, 26 August 1987, *L. Atkins s.n.* (CANB, K, MEL, NY, PERTH 00823368); North Bungalla Reserve, 11 km N of Bungalla on road to Yorkrakine, *R.S. Cowan* A742 & *B.R. Maslin* (BRI, CANB, K, MEL, NSW, PERTH); 20 km from Lake Grace towards Kulin, *N. Perry* 518 (PERTH).

Distribution. A little-collected variety known from only a few localities in the central wheatbelt between Kununoppin and Dumbleyung, south-west Western Australia.

Habitat. Grows in sandy loam or clay in mallee, sometimes at margins of salt flats.

Phenology. Flowering recorded from August to October; pods not seen.

Conservation status. CALM Conservation Codes for Western Australian Flora: Priority Two.

Etymology. The name of the new variety is founded on the pilose character of the branchlets and main nerves of the phyllodes, from *pilosus*, Latin for pilose.

Acacia sclerophylla* var. *teretiusecula Maiden & Blakely, *J. Roy. Soc. Western Australia* 13: 22 (1928).
Type: Bruce Rock, Merredin district, Western Australia, August 1917, *F. Stoward* 171 (*holo:* NSW; *iso:* K, PERTH 00771678).

Branchlets uncinately-puberulous (hairs very short, appressed to sub-appressed, abruptly curved upwards from base), sometimes almost glabrous. *New shoots* glabrous or very sparsely hairy, resinous. *Stipules* triangular, c. 0.5 mm long. *Phyllodes* linear, flat to sub-terete, 20–45 mm long, 1–1.5 mm wide, glabrous or very sparsely uncinately-puberulous as on branchlets, with 3(5) longitudinal nerves occasionally whitish. *Pods* glabrous or sparsely appressed-hairy.

Selected specimens examined. WESTERN AUSTRALIA, between Bruce Rock and Lake Grace [precise localities withheld for conservation reasons]: *R.S. Cowan* A751 & *B.R. Maslin* (BM, BRI, CANB, K, MEL, NSW, PERTH); *K. Newbey* 1359 (CANB, K, MEL, MO, PERTH).

Distribution: A little-collected variety known from only a few scattered localities in the central wheatbelt between Bruce Rock and Lake Grace, south-west Western Australia.

Habitat. In scattered small populations on well-drained, light grey sand or brown clay-loam, in open mallee shrubland or woodland. A variant noted below occurs around salt lakes.

Phenology. Flowering recorded in August and September; mature pods collected in December.

Conservation status. CALM Conservation Codes for Western Australian Flora: Priority One.

Variation. A variant not included in the above description is recognized by its completely glabrous, resinous branchlets and terete to subterete, resinous, erect phyllodes. It occurs in saline habitats in scattered localities at Mt Kokeby (between Beverley and Brookton), Corrigin and Hines Hill, e.g. *B.R. Maslin* 6339 (PERTH). Further study may show this variant to warrant formal recognition.

Acacia subflexuosa Maiden, *J. & Proc. Roy. Soc. New South Wales* 53: 178, pl. 10, fig. 23, pl. 11, figs 1–6 (1920). *Type:* south-western area of Western Australia, 1849, *J. Drummond* 5: 5 (*holo:* NSW; *iso:* BM, CGE, K, MEL, P, PERTH 00772186, W).

[*Acacia triptycha* auct., non F. Muell. ex Benth.: *Fl. Austral.* 2: 337 (1864), not as to lectotype but as to *J. Drummond* 4: 132 and 5: 5 (see below).]

Spreading, rounded *shrub* 0.3–1 m tall and 0.4–1.8 m across. *Bark* dark grey-brown, exfoliating in narrow recurving strips at stem bases. *Branchlets* terete, ribs absent or scarcely evident, puberulous

(hairs patent) or appressed-puberulous at first, often becoming glabrous with age, grey but red-brown with loss of epidermis, older branchlets sometimes roughened. *Stipules* lanceolate-oblong to subulate, broadly based, 1–2.2 mm long, acute, 1-nerved, \pm persistent. *Phyllodes* terete to almost flat, (20)35–70(80) mm long, 1–2 mm diam., sub-rigid, commonly wide-spreading, \pm irregularly curved to shallowly sigmoid, puberulous or glabrous except pulvinus and base of blades appressed-puberulous, dark green; *longitudinal nerves* 8, 3 per face when \pm flat, strongly raised (furrowed between when dry) and widely separated; *apex* curved-mucronate to subuncinate; *pulvinus* short, \pm smooth, slightly flared at base. *Gland* on upper surface of phyllode 0–4 mm above pulvinus between 2 adaxial nerves that join above gland, small, plane, circular. *Inflorescences* simple, 2 per axil; *peduncles* 2–6 mm long, puberulous or appressed-puberulous or glabrous; *basal peduncular bracts* cucullate, rounded, puberulous or appressed-puberulous, 3-nerved. *Heads* globular, bright yellow, 3.5–4 mm diam., 15–22-flowered; *bracteoles* slightly exerted in bud, obovate to oblanceolate, acute, curved, slightly puberulous, ciliate. *Flowers* 5-merous; *sepals* more than half as long as petals, free, linear-spathulate; *petals* oblanceolate, free or *c.* 1/2-connate, occasionally weakly puberulous in apical portion. *Ovary* glabrous, puberulous or appressed-puberulous. *Pods* sub-moniliform, raised over seeds and shallowly to rather prominently constricted between them, often slightly undulate, 25–80 mm long, 2–2.5 mm wide, pendent, thinly crustaceous, curved, subnitid, sparsely puberulous or glabrous, margins distinctly thickened. *Seeds* longitudinal, widely ellipsoid, unilaterally constricted terminally, 2.5 mm long, 1.7 mm wide, 1.5 mm thick, dull, uniformly brown or mottled dark and light brown; *pleurogram* U-shaped; *areole* tiny; aril subterminal, crested.

Typification. The holotype is indicated as being at NSW because the protologue (p. 176) makes it clear that the source of Maiden's material was the British Museum herbarium and the NSW sheet bears a label to this effect. The sheet is annotated in Blakely's hand.

Affinities. *Acacia subflexuosa* is closely related to both *A. consanguinea* R.S. Cowan & Maslin and *A. leptoneura*. *Acacia consanguinea* differs most obviously from *A. subflexuosa* in having ascending to erect phyllodes which are generally straighter (normally they are uniformly very shallowly incurved), consistently terete and with (eight) rather obscure, scarcely raised longitudinal nerves that are shallowly and irregularly furrowed between; furthermore, the (obscure) gland is usually 6–10 mm above the pulvinus. *Acacia consanguinea* occurs from Muntadgin to Coolgardie, with outlying populations near Wialki and Kalannie. The differences between *A. subflexuosa* and *A. leptoneura* are found principally in the number of nerves in the phyllodes, eight in *A. subflexuosa* and about sixteen in *A. leptoneura*; the bracteoles are more obviously exerted in *A. subflexuosa* but otherwise the two species are extremely similar and deserve thorough field studies to resolve the question of whether or not the two taxa are really distinct, especially in view of the fact that *A. leptoneura* is known only by the (flowering) type collection. The latter statement will be surprising to many who have assigned collections to this species for years but all the sheets we have seen so determined are identifiable with other taxa.

Notes. As pointed out by Maiden (1920), the type of *A. subflexuosa* was included by Bentham (1864) in his *A. triptycha*, and was the source of his description of the phyllode of *A. triptycha* as 'flexuose'.

Acacia subflexuosa comprises two geographically disjunct subspecies.

Key to subspecies of *Acacia subflexuosa*

- Branchlets and peduncles with minute, appressed hairs; phyllodes glabrous except appressed-puberulous at base subsp. **subflexuosa**
 Branchlets and peduncles with dense, spreading hairs; phyllodes with sparse to moderately dense spreading hairs subsp. **capillata**

Acacia subflexuosa* Maiden subsp. *subflexuosa

Branchlets minutely appressed-puberulous at first, normally glabrescent with age. *Phyllodes* glabrous except minutely appressed-puberulous base of blade and pulvinus. *Peduncles* 2–5 mm long, glabrous or minutely appressed-puberulous.

Selected specimens examined. WESTERN AUSTRALIA: Dryandra State Forest, 24 June 1986, *K. Atkins s.n.* (K, PERTH 00756628); St Fergus Farm Road, c. 2–3 km N of turnoff to Avon Valley National Park along Toodyay Road, *H. Demarz* 6162 (PERTH); Jarrahdale, vicinity of Travellers Arms [hotel], Jan. 1968, *R.J. Edmiston s.n.* (PERTH 00700983); Baanga Hill, 16 km due SE of Lake King, on Hatters Hill Road, 1 km N of Baanga Hill Road, *B.R. Maslin* 6320 (CANB, K, MEL, PERTH); 18 km E of Lake King, *K. Newbey* 9478-1 (CANB, MELU, PERTH); Dryandra State Forest, *D. Rose* 190 (CANB, PERTH); Goonaring Springs, [c. 20 km due SW of Toodyay], late Nov. 1986, *B. Rowley s.n.* (PERTH 00799726); Baanga Hill, c. 16 km SE of Lake King townsite, *P.G. Wilson* 7017 (PERTH).

Distribution. Scattered localities between Wundowie and Dryandra State Forest with a disjunct occurrence near Lake King, south-west Western Australia.

Habitat. Grows in gravelly loam and gravel, usually on laterite hills and ridges in scrub and shrubland. Sometimes associated with granite outcrops.

Phenology. Flowering recorded from August to November, and a single collection in January; mature pods collected in November.

Conservation status. Not under threat.

Acacia subflexuosa* subsp. *capillata* R.S. Cowan & Maslin, *subsp. nov.

A subsp. *subflexuosa* ramulis, phyllodiis, pedunculis, bracteis basalibus, ovario et leguminibus puberulis, et petalis 1/2-connatis, differt.

Typus: south of Cunderdin [precise locality withheld for conservation reasons], Western Australia, 13 September 1982, *B.H. Smith* 101 (*holo:* PERTH 00866857; *iso:* MEL).

Branchlets densely puberulous with patent hairs. *Phyllodes* sparsely to moderately puberulous with patent hairs. *Peduncles* 4–6 mm long, densely puberulous with patent hairs.

Other specimens examined. WESTERN AUSTRALIA: S of Cunderdin [precise localities withheld for conservation reasons]; 27 Sept. 1994, *Anonymous s.n.* (PERTH 04105648); *D. Papenfus* DP 668 (PERTH); Nov. 1982, *B.H. Smith s.n.* (PERTH 00702218).

Distribution. Known from only a single population south of Cunderdin, south-west Western Australia, east and north of the typical subspecies.

Habitat. Grows in laterite and grey sand in scrubland.

Phenology. Flowers (past peak anthesis) collected in September; pods with seeds have not been seen.

Conservation status. CALM Conservation Codes for Western Australian Flora: Declared Rare.

Etymology. The specific epithet refers to the indumentum on many parts of the plant, from the Latin *capillatus* (hairy).

Acacia trinalis R.S. Cowan & Maslin, *sp. nov.*

Frutex densus, rotundatus, vel arbuscula fruticosa, 1.5–4 m alta. Ramuli glabri, ± resinoso-costati. Phyllodia linearia, acuta, ad apicem curvata ad subuncinata, 4.5–9 cm longa, 2–3 mm lata, recta ad leviter incurvata, 3-nervata, costa valde elevata et resinosa. Pedunculi (3)4–6(9) mm longi, 2 in quoque axilla, glabri, capitulis globularibus, 4–4.5 mm diametro, 22–28-floribus. Flores pentameri; sepalis 1/4–1/2-connatis et anguste oblongis; petalis discretis. Legumen et semina non visa.

Typus: between Wongan Hills and Piawaning [precise locality withheld for conservation reasons], Western Australia, 10 September 1975, *B.R. Maslin* 3812 (*holo:* PERTH 00193933; *iso:* BM, BRI, CANB, G, K, MEL, NSW, NY).

[*Acacia cochlearis* auct. non (Labill.) H.L. Wendl.; G. Benth, Fl. Austral. 2: 324 (1864), as to *J. Drummond* 2: 139.]

Dense *shrub* or bushy small *tree*, rounded or obconic, multi-stemmed, 1.5–4 m tall; crown to 4 m across; trunk to 12 cm diam. *Bark* smooth, grey. *New growth* glabrous, strongly resinous. *Branchlets* somewhat angular and resin-ribbed at extremities, soon terete, glabrous, orange to light brown. *Stipules* minute, triangular, caducous. *Phyllodes* linear, 4.5–9 cm long, 2–3 mm wide, thinly coriaceous, not rigid, patent to ascending, straight to shallowly incurved, glabrous, mid- to dark-green; *longitudinal nerves* 3 per face and widely spaced, somewhat raised (when dry) with the mid-nerve the most prominent, all nerves resinous (ageing mealy) or only the mid-nerve, anastomoses absent or few and longitudinally oriented; *apex* shortly acuminate, delicately recurved to sub-uncinate; *pulvinus* 1–3 mm long. *Gland* on upper margin of phyllode 1–2 mm above pulvinus, inconspicuous. *Inflorescences* simple, 2 per axil; *peduncles* (3)4–6(9) mm long, glabrous; *basal peduncular bracts* caducous. *Heads* globular to obloid, bright mid-golden, 7 mm diam. when fresh (4–4.5 mm diam. when dry), 22–28-flowered; *bracteoles* fusiform, elliptic or oblanceolate, acute, ciliate. *Flowers* 5-merous; *sepals* 1/2 as long as petals, free to 1/2-united, linear-spathulate, glabrous except ciliolate at apex; *petals* free. *Ovary* glabrous to papillose or minutely appressed-puberulous. *Pod* and *seeds* not seen.

Selected specimens examined. WESTERN AUSTRALIA [precise localities withheld for conservation reasons]: near Goomalling, *R.S. Cowan* A734 & *B.R. Maslin* (CANB, K, MEL, PERTH); near Goomalling, *R.S. & R.A. Cowan* A871 (CANB, K, MEL, NY, PERTH, US); near Goomalling, *G.F. Craig* 1612 (PERTH); near Coorow, *A. Doley* 1 (PERTH); near Goomalling, *B.R. Maslin* 4199 (PERTH); near Miling, *B.R. Maslin* 6211 (BRI, NSW, PERTH).

Distribution. A little-collected species, restricted to an area from near Marchagee (which is c. 65 km due north of Moora) south-east to the Mortlock River near Goomalling.

Habitat. Grows in brown sand and clay-loam associated with saline situations in ± swampy areas with saltbush scrub.

Phenology. Flowering recorded from July to September; pods not seen.

Conservation status. CALM Conservation Codes for Western Australian Flora: Priority One.

Etymology. The specific epithet is chosen with reference to the 3-nerved phyllodes, from *trinalis*, a Latin word for three.

Typification. At both K and BM, material of the *Drummond* 2: 139, cited above, is mounted on the same sheet with type material of *A. benthamii* Meisner. Bentham (1864) cited it incorrectly under *A. cochlearis* (Labill.) H.L. Wendl.

Affinities. The new species is so similar in general appearance to *A. heteroclita* Meisner and *A. triptycha* F. Muell. ex Benth. that a key may assist the user to distinguish them:

- 1 New shoots glabrous, resinous; phyllodes 2–3 mm wide;
branchlets resin-ribbed at extremities **A. trinalis**
1. New shoots sericeous (hairs golden, rarely white), not resinous;
branchlets not resin-ribbed at extremities
 - 2 Phyllodes 1–2 mm wide, flat to \pm terete **A. triptycha**
 2. Phyllodes normally 3–9 mm wide, flat **A. heteroclita**

Acacia trinalis has often been mistaken for a disjunct variant of *A. heteroclita*, the nearest relative, which has sericeous new shoots (hairs golden, occasionally white), non-resinous branchlet apices and phyllode nerves, large, conspicuous phyllode glands, free spatulate sepals and partly united petals. Geographically, *A. heteroclita* is also well-separated, occurring from Kulin south to Fitzgerald River National Park and east of Esperance.

Acacia triptycha F. Muell. ex Benth., Fl. Austral. 2: 337 (1864). *Type:* Kalgan River, Western Australia, A.F. Oldfield (*lecto:* MEL, here selected; *isolecto:* K, PERTH – fragments ex K and MEL; Termination Rock, Western Australia, G. Maxwell (*paralecto:* K, MEL, PERTH – fragment ex MEL).

Bushy, spreading *shrub* to small *tree* 1–4 m tall and to 3 m across. *New growth* appressed-puberulous, hairs golden (ageing white). *Branchlets* subterete to terete, glabrous or very sparsely appressed-puberulous. *Stipules* caducous. *Phyllodes* flat to \pm terete, linear, (30)70–100(130) mm long, 1–2 mm wide, coriaceous to thinly so, ascending to erect, straight or more often shallowly incurved, glabrous except at tip, dark green; *longitudinal nerves* 3 per face when flat, 8 in all when \pm terete, distant, raised (at least when dry); *apex* arcuately long-acuminate, the tip sericeous at least at first, commonly glabrous with age; *pulvinus* distinct, c. 2 mm long, transversely wrinkled. *Gland* on upper edge of phyllode 1–11(15) mm above pulvinus, not prominent. *Inflorescences* simple, 2 per axil; *peduncles* (4)6–9(10) mm long, glabrous or sparsely appressed-puberulous; *basal peduncular bract* cucullate, broadly ovate, glabrous except ciliate margins. *Heads* globular, pale to bright yellow, 4(6) mm diam., 26–40(70)-flowered; *bracteoles* spatulate, the blade rounded, \pm geniculate at junction with stipe, cucullate, ciliate, the stipe slender. *Flowers* 5-merous; *sepals* half or more as long as petals, free, linear-spatulate with a long, very slender stipe; *petals* 2/3–3/4-united. *Ovary* micro-puberulous or glabrous. *Pod* linear, slightly raised over seeds and straight-edged or shallowly constricted between seeds, 50–60 mm long, 3–4 mm wide, thinly crustaceous, straight, glabrous or sparingly appressed-puberulous. *Seeds* longitudinal, ellipsoid to obloid-ellipsoid, compressed, unilaterally constricted terminally, 2.8–3.3 mm long, 1.8 mm wide, glossy, mottled darker and lighter brown; *pleurogram* U-shaped; *areole* minute; aril subterminal, crested.

Selected specimens examined. WESTERNAUSTRALIA: slope of Mt Ragged, *T.E.H. Aplin* 4331 (AD, BRI, CANB, K, PERTH); Mt Barker (hill), *J.S. Beard* 7701 (PERTH); 20 miles [32 km] NE of Wittenoom Hills, *J.S. Beard* 6384 (PERTH); opposite Kamballup Roadhouse, South Stirling, *R.J. Cumming* 1002 (PERTH); Jacup Creek, Fitzgerald River, 12 Oct. 1935, *C.A. Gardner s.n.* (BM, PERTH 00686794); c. 15 km due SW of Scaddan, *B.R. Maslin* 2531 (PERTH); c. 10 km from Ravensthorpe towards Lake King, *B.R. Maslin* 3873 (CANB, G, K, MEL, NSW, NY, PERTH); 35 km SE of Ongerup, *N. Stevens* KRN 9519-1 (MELU, PERTH); Ravensthorpe Range, c. 8 km N of Ravensthorpe, *P.G. Wilson* 7973 (MEL, PERTH).

Distribution. Occurs sporadically in southern Western Australia from Mt Frankland east to Cape Arid National Park and near Ponier-Rock. Many collections are from Cape Arid National Park, mostly from Mt Ragged.

Habitat. Usually associated with granite or quartzite on granitic sand or reddish-brown clayey sand over quartz, in open scrub or heath on hills, thus the sporadic distribution.

Phenology. Most flowering recorded from September to December; a few, however, collected in the April to June period suggest perhaps two flowering periods; mature pods collected in December.

Conservation status. Not under threat.

Typification. Although the lectotype at MEL is labelled 'Oldfield 473', this is the only specimen of the lectotype collection with a number. Moreover, the number does not appear elsewhere in literature or on the material seen by Bentham. Consequently we have omitted the number in citing the lectotype collection. The selection of the lectotype and its location are based on the journal article by Maiden (1920) in which he indicated (p. 176) that his conclusion is based on material of Oldfield from the Kalgan River along with the material of the other three collections which Ewart had sent him for study, only two of which he considered to be this species. Because lectotypification is not, at the moment, retroactive, we validate here what Maiden apparently intended and which is necessary in any case. The two Drummond collections cited as this species by Bentham (1864) were used by Maiden to typify *A. subflexuosa* (see above).

Affinities. *Acacia triptycha* is very closely related to *A. heteroclita* (see key under *A. trinalis* above) and further studies may show that these taxa are only infraspecifically distinct. *Acacia triptycha* and its allies are taxonomically close to the '*A. fragilis* group' (see Cowan & Maslin 1995: 237).

Acacia trulliformis R.S. Cowan & Maslin, *sp. nov.*

Frutex ad 3 m altus, 1-2 m latus, ramulis angulatis, antrorse puberulis, pilis aureis. Stipulae triangulares ad ovatae, crassae, glabrae, persistentes. Phyllodia elliptica ad oblongo-elliptica, obtusa, apiculata, pulvino 0.8-2 mm longo, glabro, lamina 15-45 mm longa, 8-16 mm lata, tenuiter coriacea, nervis primariis 3 vel 4, nervis secundariis irregulariter anastomosantibus. Racemorum axes 2-8 mm longi, puberuli atque ramuli, bicapitulati; pedunculi 8-15 mm longi, puberuli et resinosi, 1- vel 2-capitati, bracteis basalibus persistentibus, 1.5-2 mm longis, ovatis ad oblongo-ovatis, glabris, crassis. Capitula globularia vel breviter obloidea, atro-aurea, 5-6 mm diametro, 62-75-floribus, bracteolis trulliformibus, longo-acuminatis. Flores 5-meri. Sepala 1/2-3/4-connata, anguste oblonga, parce puberula. Petala discreta, anguste oblanceolata, glabra. Ovarium minute papillatum. Legumen anguste oblongum, 3-3.5 cm longum, 5-6 mm latum, coriaceum, rectum ad \pm sigmoideo-curvedum,

pilosum, resinosum, brunneum, marginibus incrassatis. Semina longitudinalia, obloideo-ellipsoidea, 3.5–4 mm longa, 2.5 mm lata, atro-brunnea, arillo subterminali, albo.

Typus: south-east of Ongerup [precise locality withheld for conservation reasons], Western Australia, 12 September 1974, K.R. Newbey 4360 (*holo*: PERTH 00697176).

[*Acacia ixiophylla* auct. non Benth.; G. Bentham, Fl. Austral. 2: 387 (1864), as to the *G. Maxwell* collection.]

Spreading, open *shrub* 1–3 m tall, 1–2 m across. *Branchlets* angled at extremities but ageing terete and ± finely ribbed, resinous, ± appressed-puberulous, the hairs antrorsely curved and golden (ageing white). *Stipules* triangular to ovate, acute, thick, glabrous, minutely verruculose by raised stomata, persistent. *Phyllodes* elliptic to oblong-elliptic, slightly asymmetric, 15–45 mm long, 8–16 mm wide, l:w c. 1.5–3, thinly coriaceous, ascending to erect, straight, resinous, appressed-puberulous (with antrorsely curved hairs) when young on margins and main nerves, the hairs golden but often ageing white, sometimes becoming glabrous, dull to glossy, darkish green, glabrous; with 3 or 4 main, slightly raised, resinous *longitudinal nerves* per face, the secondary nerves anastomosing to form an open reticulum; *apex* obtuse–mucronate; *pulvinus* 0.8–2 mm long. *Gland* on upper margin of phyllode at distal end of pulvinus or to 1 mm above it. *Inflorescence* a (1)2-headed raceme; *raceme axes* 2–8 mm long, resinous, sparsely to densely golden appressed-puberulous, growing out; *peduncles* 8–15 mm (to 20 mm in fruit) long, resinous, indumentum as on raceme axes; *basal peduncular bracts* persistent, 1.5–2 mm long, ovate to oblong-ovate, acute, glabrous, thick, minutely verruculose by raised stomata; *heads* globular to obloid, golden, 5–6 mm diam., 62–75-flowered; buds resinous; *bracteoles* spatulate, the stipe sparingly puberulous, slender, the blade trullate, acuminate, often strongly uninerved, somewhat puberulous basally, minutely ciliolate. *Flowers* 5-merous; *sepals* 1/2–2/3 petal length, 1/2–3/4-united, narrowly oblong, apex rounded-obtuse, sparingly puberulous; *petals* free, narrowly oblanceolate, glabrous. *Ovary* minutely papillate. *Pods* narrowly oblong, raised over but not constricted between seeds, 3–3.5 cm long, 5–6 mm wide, coriaceous to thinly coriaceous, straight to sigmoidally curved, shortly pilose with glistening white hairs, resinous, brown, the margins thickened. *Seeds* longitudinal, obloid-ellipsoid, unilaterally constricted terminally, 3.5–4 mm long, 2.5 mm wide, 1.2 mm thick, semi-glossy, dark-brown; *pleurogram* U-shaped; areole 1/3–1/2 as long as seed; aril subterminal, white.

Selected specimens examined. WESTERN AUSTRALIA: SE of Ongerup [precise localities withheld for conservation reasons], K. Newbey 1628D (PERTH); K. Newbey 3254 (PERTH); K. Newbey 11825 (CANB, K. MEL, PERTH); D. Papenfus DP 500 & E. Hickman (PERTH); D. Papenfus DP 686 & L. Strahan (PERTH).

Distribution. Restricted to an area south-east of Ongerup with an early collection from ‘Gordon Range’ (which is probably near Gordon Inlet at the south-east corner of the Fitzgerald River National Park, about 90 km south-east of Ongerup). There are several mountains in that area (West Mt Barren, Mt Bland and, farther inland, Mt Maxwell) which might have been the basis for the collecting locality given.

Habitat. Grows on loamy sand creek flats in *Eucalyptus occidentalis* woodland.

Phenology. Flowering recorded from August to October; mature pods collected in December and January.

Conservation status. CALM Conservation Codes for Western Australian Flora: Priority One.

Etymology. The specific name is given in allusion to the shape of the bracteoles which are trowel-shaped, from the Latin *trulla*, the diminutive of *trua* (a skimmer or stirring spoon), and the suffix *-formis* (having the form of).

Affinities. *Acacia trulliformis* is a member of the *A. flavipila* group (see Cowan & Maslin 1990 and Maslin in press) and seems closest to *A. loxophylla* Benth. which is most readily distinguished by its smaller phyllodes (3–8 mm long, 2–5 mm wide) with resin masses in their axils, shorter peduncles (2–3 mm long) and fewer-flowered heads (20–40-flowered). There is also a relationship, less closely, with another member of the *A. flavipila* group – *A. cassicula* R.S. Cowan & Maslin – which has two main nerves on each phyllode face and a much more regular, impressed reticulum; it also has glabrous, shorter peduncles (3–5 mm long in flower, to 10 mm when in fruit), smaller, fewer-flowered heads (22–30-flowered) and glabrous, narrower pods (3–4 mm wide).

Discussion. This is the plant that Bentham labelled '*Acacia ixiophylla* Benth. var. *latifolia*' on a sheet at Kew but never formally published. The specimen was collected by G. Maxwell in the 'Gordon Range' and was cited by Bentham (1864) under *A. ixiophylla*.

Acacia vittata R.S. Cowan & Maslin, *sp. nov.*

Frutex densus, rotundatus, multicaulis, 1–4 m altus, 1–3 m latus. Cortex levis, manifeste lenticellatus, brunneolo-cinereus. Ramuli teretes, longitudinale vittati, lemniscis alternatim glabris et non-resinosis vel puberulis et resinosis, pilis antrorse curvatis. Phyllodia anguste elliptica ad anguste oblongo-elliptica, leviter inaequilateralia, acuta ad obtusa et excentrice apiculata, 3–5.5 cm longa, 3–7 mm lata, ratione horum 7.5–10.5, subrigide coriacea, leviter recurva, glabra vel nervis pilis antrorse curvatis, cinereo-viridia, nervis numerosis, leviter elevatis, aliquando anastomosantibus, resinosis, glande basali, inconspicua. Racemorum axis nullus vel ad 1 mm longus, bicapitatus, in resina inclusus; pedunculi 4–6 mm longi, appresso-puberuli, pedunculorum bractae basales persistens, ovatae, acutae, c. 1 mm longae. Capitula globularia, medio-aurea, 4.5 mm diametro, 29–31-floribus, bracteolis peltatis, lamina rotundata, minute viscido-puberula. Flores pentameri. Sepala longitudine 2/3 petali partes aequantia, 1/2–2/3-connata, oblonga, parce puberula, lobis obtusis ad rotundato-obtusis, viscido-ciliolatis. Petala elliptica ad oblanceolata, acuta, discreta, glabra. Ovarium appresso-puberulum. Legumen lineare, 1–3 cm longum et 4–5 mm latum, coriaceum, undulatum ad plicatum, subtiliter reticulatum, ± resinosum, villosum, lateribus villosis minoribus et interdum pilis a resina obscuris, diluto-brunneum. Semina longitudinalia, lato ellipsoidea ad obloideo-ellipsoidea, 3–4 mm longa, 2–2.5 mm lata, c. 1.5 mm crassitie, subnitida, atro-brunnea vel brunneo-nigra, pleurogramma U-formati, arillo cremeo, subterminali.

Typus: near Eneabba [precise locality withheld for conservation reasons], Western Australia, 25 August 1988, B.R. Maslin 6269 (*holo:* PERTH 00879940; *iso:* CANB).

Multi-stemmed, dense, rounded *shrub* 1–4 m tall, 1–3 m wide. *Bark* smooth, lenticellular, brownish grey. *New shoots* pale green, resinous. *Branchlets* terete, resinous, longitudinally striped with glabrous, light green or yellowish epidermis and brownish, ± appressed-puberulous bands (the hairs antrorsely curved). *Stipules* minute, triangular, persistent. *Phyllodes* narrowly elliptic to narrowly oblong-elliptic, slightly inequilateral (the adaxial margin more rounded than the abaxial one), 3–5.5 cm long, 3–7 mm wide, l:w = 7.5–10.5, coriaceous, ascending to erect, straight or shallowly incurved or shallowly recurved, glabrous or with scattered, antrorsely curved hairlets on nerves and

margins, grey-green; *longitudinal nerves* numerous (8–12 on each face), impressed or slightly raised, resinous, the inter-nerve distance much wider than nerve diameter, anastomoses between nerves absent or few; *apex* acute to obtuse and apiculate; *pulvinus* to 0.5 mm long. *Gland* basal, inconspicuous. *Inflorescences* simple (2 or 3 per axil) or sometimes a few in very short, 2-headed racemes, the axis 0.5–1 mm long; *peduncles* 4–6 mm long, densely appressed-puberulous, resinous; *basal peduncular bract* persistent, ovate, acute, c. 1 mm long. *Heads* glöbular to slightly obloid, medium-golden, 4.5 mm diam. (8 mm fresh), 29–31-flowered; *bracteoles* peltate, the blade rounded, viscid-puberulous. *Flowers* 5-merous; *sepals* 2/3 as long as petals, 1/2–2/3-united, oblong, sparingly puberulous, lobes obtuse to rounded-obtuse, viscid-ciliolate; *petals* elliptic to oblanceolate, acute, free, glabrous. *Ovary* appressed-puberulous. *Pod* prominently undulate, not constricted between seeds, 1–3 cm long (unexpanded length), 4–5 mm wide, thinly coriaceous, finely reticulate, resinous, villous, light brown. *Seeds* longitudinal, widely ellipsoid to obloid-ellipsoid, 3–4 mm long, 2–2.5 mm wide, c. 1.5 mm thick, somewhat shiny, dark brown to brown-black; *pleurogram* U-shaped; *areole* c. 1/2 as long as seed, slightly raised; aril creamy white, sub-terminal.

Selected specimens examined. WESTERN AUSTRALIA, near Eneabba [precise localities withheld for conservation reasons]: *A.R. Chapman* 615 (K, NY, PERTH); *B.R. Maslin* 6409 (CANB, K, MEL, PERTH); *S. Patrick* SP 1193 & *A. Brown* (BRI, NSW, PERTH).

Distribution. Occurs in the south-west of Western Australia, occasional to common in a restricted area near Eneabba.

Habitat. Grows in sand and slightly saline clay-loam on margins of seasonal lakes, in low open forest and low woodland of *Eucalyptus camaldulensis*, *Casuarina obesa* and *Melaleuca* sp.

Phenology. Flowering recorded in July and August; mature pods collected in November, December and February.

Conservation status. CALM Conservation Codes for Western Australian Flora: Priority Two.

Etymology. The specific name alludes to the distinctive striping of the branchlets, from *vittatus*, Latin for striped.

Affinities. *Acacia vittata* is part of the *A. flavipila* group (Cowan & Maslin 1990, Maslin in press), perhaps with affinities to *A. verricula* R.S. Cowan & Maslin which has clearly reticulate phyllodes, free sepals and curved to loosely undulate pods, and non-striped branchlets. *Acacia recurvata* (see above) resembles *A. vittata* in its phyllode and inflorescence characters but is distinguished by its non-striped branchlets and linear, non-undulate, glabrous pods. Furthermore, the phyllodes on *A. recurvata* tend to be more commonly recurved and more inaequilateral than those of *A. vittata*.

Acacia wilsonii R.S. Cowan & Maslin, *sp. nov.*

Frutex effusus, 0.2–0.3 m altus, 0.3 m latus. Ramuli initio leviter angulati, ± pilosi et pilis minutis resinosis nigris ornatis, demum teretes et glabri. Stipulae rigidae, anguste triangulari–lanceolatae, caudato–acuminatae, 1.5–3 mm longae, persistentes. Phyllodia sessilia, cum ramulis continua, teretia vel subteretia, innocua, ad apicem acuta et ± curvata ad uncinata, lamina 6.5–22.5 cm longa, 1–1.5 mm diam., coriacea ad subrigida, ascendens ad erecta, gradatim ± curvata, glabra, nervis 8 valde elevatis, glande destituta. Alabastra late ellipsoidea, bracteolis conspicue exsertis; pedunculi 4–10 mm longi,

ad 14 mm in fructu, solitarii vel raro binati, villosi et cum pilis minutis resinosis; pedunculorum bractea basales, persistentes, lanceolatae, caudato-acuminatae, 2.5 mm longae, ciliolatae; capitula globularia, 24–37-floribus. Flores 5-meri; sepala longitudine $1/2$ – $3/4$ petali partes aequantia, $1/2$ – $3/4$ -connata; petala $1/2$ -connata, elliptica, glabra. Legumen lineare, subteres, inter semina non constrictum, 3–5.5 cm longum, 3–3.5 mm latum, tenuiter crustaceum, leviter curvatum, pilis minutis nigris resinosis, marginibus latis pallidioribus. Semina longitudinalia, obloidea, 2–3 mm longa, 1.5 mm lata et crassa, hebetato-brunnea, tuberculata, areola levi et pallidior, pleurogramma fere semicirculari, arillo terminali, luteo.

Typus: 10 km north of Badgingarra, Western Australia, 2 November 1965, P.G. Wilson 3850 (*holo*: PERTH 00723754; *iso*: K, PERTH 01160060).

Prostrate *shrub*, normally 0.2–0.3 m tall, to c. 0.3 m wide, the branches spreading horizontally. *Branchlets* at first slightly angled, densely villous to pubescent with minute black resin hairs intermixed, soon terete and glabrous except resin hairs sometimes persistent. *Stipules* triangular, acuminate, 1.5–3 mm long, persistent. *Phyllodes* sessile, continuous on branchlets and not easily detached from them, terete to subterete, 6.5–22.5 cm long, 1–1.5 mm diam., coriaceous to semi-rigid, ascending to erect, shallowly incurved to shallowly sigmoid or sinuous, glabrous, green (ageing yellow-green), stomata evident at x10 mag.; *apex* acute, commonly slightly curved to uncinata, innocuous; *longitudinal nerves* 8, strongly raised when dry (nerves separated by well-defined, longitudinal furrows). *Gland* absent. *Inflorescences* simple, 1 or 2 per axil; *peduncles* 4–10 mm long, sometimes to 14 mm long in fruit, densely villous and with minute resin hairs intermixed; *basal peduncular bract* lanceolate, 2.5 mm long, persistent. *Heads* globular, golden, 8 mm diam., densely 24–37-flowered; *bracteoles* exerted in young bud. *Flowers* 5-merous; *sepals* $1/2$ – $3/4$ as long as petals, narrowly elliptic, $1/2$ – $3/4$ -united, ciliolate; *petals* $1/2$ -united, elliptic, glabrous. *Pods* linear, subterete, not constricted between seeds, 3–5.5 cm long, 3–3.5 mm wide, thinly crustaceous, slightly curved, dotted with minute, black resin hairs, greenish grey with yellowish, non-thickened margins. *Seeds* longitudinal, obloid, 2–3 mm long, 1.5 mm wide, 1.5 mm thick, dull, brown, tuberculate, tubercles irregular in form, the areole area smooth, paler, sometimes raised; *pleurogram* U-shaped to nearly semicircular; aril terminal, yellow, scalloped.

Selected specimens examined. WESTERN AUSTRALIA: Alexander Morrison National Park, J. Coleby-Williams 352 (PERTH); corner of Rose Thompson Rd and Eneabba–Carnamah road, J.A. Cochrane JAC 2019 (PERTH); c. 12 km E of Eneabba, E.A. Griffin 8143 (PERTH); E of Eneabba, M. Simmons 510 (PERTH).

Distribution. A rare but very distinctive species restricted to between Eneabba and Badgingarra, south-west Western Australia.

Habitat. Grows in white or grey sand in heath.

Phenology. Flowering recorded from September to November; mature pods also collected from September to October with both flower buds and mature pods present on most specimens.

Conservation status. CALM Conservation Codes for Western Australian Flora: Priority Two.

Etymology. The new species is named for Paul G. Wilson, collector of the type material but, more importantly, our respected colleague at PERTH who, for more than 30 years, has given us and many

others the benefit of his vast knowledge of plant systematics, of Latin and of the "International Code of Botanical Nomenclature". We welcome this opportunity to express our gratitude by naming this very interesting wattle in his honour.

Affinities. Close relatives of this distinctive new species are not readily apparent, but its pod characters suggest some affinities to *A. ridleyana* W. Fitzg. which occurs within the geographic range of *A. wilsonii*. *Acacia ridleyana* is readily recognized by its pulvinate, flat, much shorter phyllodes which have a clear articulation between the pulvinus and the branchlet.

Discussion. In this part of the genus, the occurrence of phyllodes that are epulvinate and continuous on the branchlets is rare. Among the plurinerved species, *A. campylophylla* Benth. and *A. chapmanii* R.S. Cowan & Maslin (1999) have such phyllodes but they are much shorter than those of *A. wilsonii*, their petals and sepals are free and their pods are very different.

Acknowledgements

Alex George is thanked for checking the Latin diagnoses and for editorial assistance. We are grateful to Terena Lally, Suzanne Curry and Diana Corbyn who provided valuable assistance during the preparation of the manuscript. Support for them and for the project generally was given by the Australian Biological Resources Study, to whom we are indebted.

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