

Studies in the genus *Acacia* (Mimosaceae)—7 —The taxonomy of some diaphyllodinous species—

By B. R. Maslin

Abstract

Seven Western Australian species of *Acacia* with horizontally flattened phyllodes (i.e. diaphyllodes) are discussed. Four new species are described: *A. binata* sp. nov., *A. crassuloides* sp. nov., *A. diaphyllodinea* sp. nov. and *A. vassalii* sp. nov. The new name, *A. spathulifolia* nom. nov., replaces the illegitimate homonym, *A. spathulata* F. Muell. ex Benth. non Tausch. Synonymy for *A. ericifolia* is listed. *Acacia leptospermoides* is treated as comprising three subspecies, viz. subsp. *leptospermoides*, subsp. *obovata* subsp. nov. and subsp. *psammophila* (E. Pritzell) comb. et stat. nov.

Except for *A. ericifolia* and *A. spathulifolia*, all taxa are illustrated and their distribution mapped.

Introduction

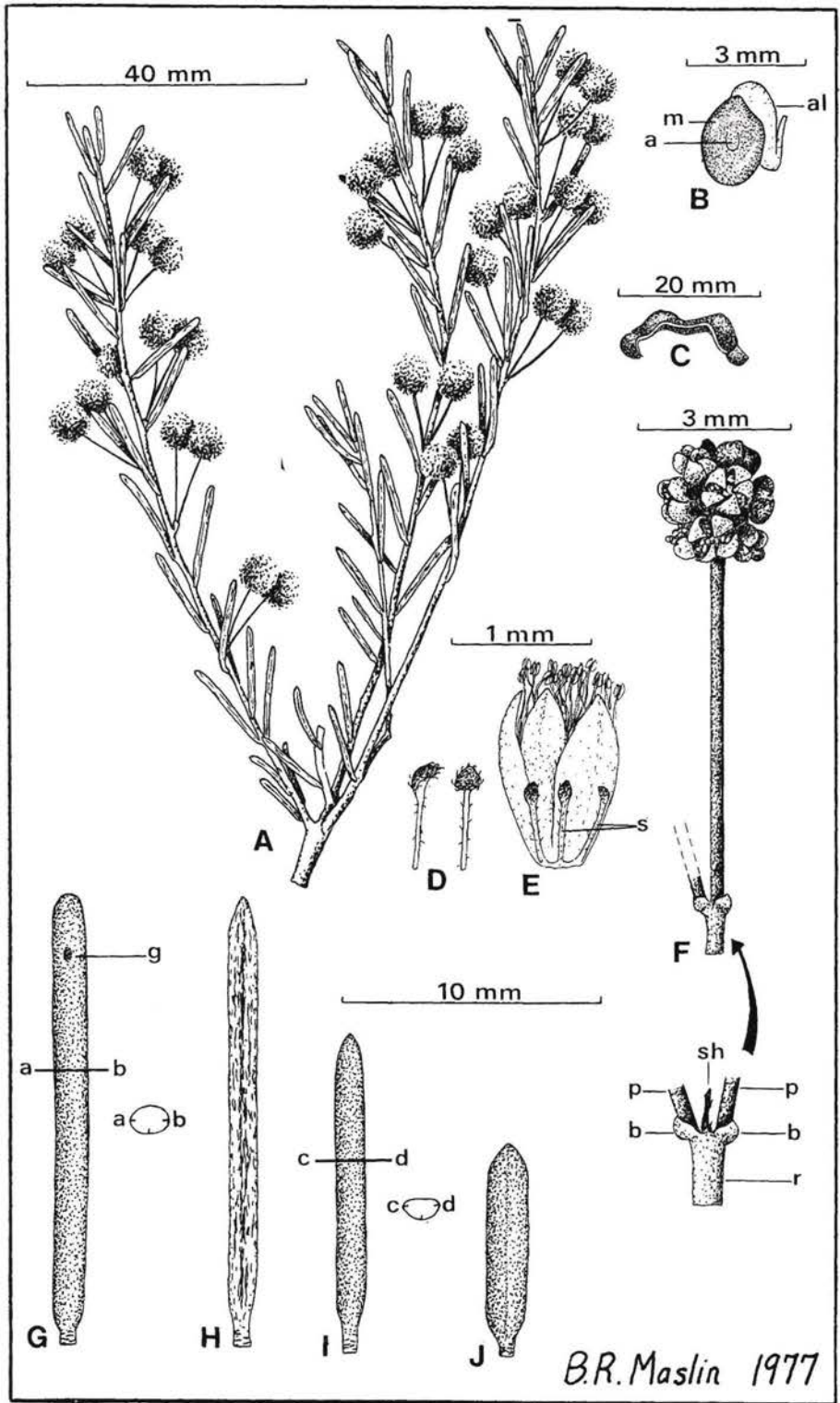
The present work is published so that names will be available for use in forthcoming papers by Ph. Guinet*, J. Vassal† and myself dealing with various aspects of diaphyllodinous acacias. Although diaphyllodinization will be fully discussed elsewhere, some introductory remarks concerning this hitherto little known phenomenon are warranted here. The terms "Diaphyllodineae" and "Orthophyllodineae" were first used in reference to *Acacia* by Hochreutiner (1896). These terms referred to subdivisions of *Acacia* containing species with horizontally flattened phyllodes and vertically flattened phyllodes respectively. The latter is by far the more common condition in the genus. In diaphyllodinous species, the extra-floral nectary (gland) is situated on the upper surface of the phyllode instead of on the upper margin as is the case in orthophyllodinous taxa. With the exception of some members of the predominantly tropical series *Brunioideae*, diaphyllodinous *Acacia* species within Australia are, to my knowledge, restricted to the southwest of Western Australia. It is noted, however, that Vassal and Guinet (1972) reported the occurrence of diaphyllodinization in *A. willardiana* Rose, a Mexican species (see Pedley (1975) for comments regarding Vassal and Guinet's paper).

* Dr. Ph. Guinet, Centre National de la Recherche Scientifique, Université des Sciences et Techniques du Languedoc, Montpellier, France.

† Dr. J. Vassal, Laboratoire de Botanique, Université Paul Sabatier, Toulouse, France.

Figure 1—*Acacia binata*. A—Upper portion of branch. B—Seed showing small areole (a), relatively large aril (al) and obscure pale mottlings (m). C—Legume. D—Bracteoles (side and back views). E—Flower showing free, spatulate sepals (s) with dark brown laminae. F—Inflorescence with inset showing base of the binate raceme (p—peduncle, b—basal peduncular bract, sh—developing new shoot, r—raceme axis). G to J—Phyllodes showing size variation (g—gland). G (spirit specimen)—Adaxial view of phyllode with transverse section (a—b) showing very slightly horizontally flattened outline and nerve positions. H (dry phyllode)—Adaxial view of same phyllode showing surface wrinkling and obscure medial sulcae. I (reconstituted phyllode)—Adaxial view with transverse section (c—d) showing obscurely plano-convex outline and nerve positions. J (reconstituted phyllode)—Abaxial view showing obscure nerve.

A from P. G. Wilson 5532; B—C from B. R. Maslin 4046; D—E from S. Paust 809; F from B. R. Maslin 3490 (the type); G—H from B. R. Maslin 993; I from K. Newbey 4314; J from E. M. Bennett 2729.



In most cases only a selection of specimens is cited under each taxon. A complete list of specimens seen is given at the end of the paper.

Taxonomy

1. *Acacia binata* Maslin sp. nov.—Figure 1.

Frutex ad 1 (1.3) m altus; rami glabri. *Stipulae* \pm caducae, liberae. *Phyllodia* subteretia vel inconspicue plano-convexa, anguste oblonga ad linearia, (6) 8–17 (20) mm longa, 1–1.5 mm lata, L/B = (4) 6–20, glabra, turgida et laevia in statu vivo, longistrorsum sulcata in statu sicco; nervia principalia 3, nervatio plerumque obscurissima. *Glans* inconspicua, in pagina supera 1–2 mm infra apicem phyllodii. *Inflorescentia* racemosa brevis pedunculorum binorum ad extremum axis brevis (0.5–2 mm); pedunculi 7–13 mm longi; capitula globulosa ad parum obloidea, 14–24 (30) floribus. *Flores* 5-meri; sepala libera, spatulata; petala 1.5 mm longa, glabra. *Legumen* \pm curvum, circinatum vel sigmoideum, ad 35 mm longum, ca. 3.5 mm latum, glabrum. *Semina* in legumine longitudinalia, ellipsoidea ad obloidea vel \pm pyriformia, ca. 2.5 x 1.5 mm, saepe obscure maculata; arillus semine 2–3-plo brevior.

Type: About 12 km due NNW of Ongerup (on Foster Road), Western Australia. "Low, dense, shrub 40–70 cm tall, 1.5–2.5 m diam.; peduncles dark red; flowers deep yellow; phyllodes smooth, ascending to \pm spreading; bark smooth, light grey; branchlets dark red." 31 Aug. 1973, B. R. Maslin 3490 (holo: PERTH; iso: CANB, K, MEL, NSW, NY, P).

Shrub to 1(1.3) m tall and 1.5–2.5 m wide, dense, domed and with many branches radiating from ground level when young, more open, infundibular and single-stemmed (branching ca. 15 cm above ground level) with age; bark smooth, light grey on main trunks; *new shoots* (arising from distal end of raceme axis within angle formed by the twinned peduncles) glabrous, slightly resinous at apex; *branches* terete, finely ribbed, glabrous, dark reddish (normally overlain by a light grey, longitudinally fissured epidermis) but sometimes light brown or yellowish towards apex. *Stipules* \pm caducous, free, deltoid, minute (0.1–0.2 mm long), slightly thickened. *Phyllodes* ascending to slightly spreading, numerous but hardly congested, subterete (very slightly horizontally flattened) or obscurely plano-convex, often slightly flatter and obscurely channelled above when dry, narrowly oblong to linear in plane view, (6) 8–17 (20) mm long, 1–1.5 mm wide, L/B = (4) 6–20, straight or slightly curved upwards, glabrous, bright green to olive green when fresh, generally becoming darker upon drying, turgid and smooth when fresh but longitudinally sulcate when dry; *nervature* normally very obscure (nerves not, or barely, raised and sometimes indiscernible when dry), *principal nerves* 3 (2 marginal, 1 central abaxially), nerveless on adaxial surface, secondary nerves not apparent; *apex* obtuse, often somewhat orange-coloured; *pulvinus* terete, ca. 0.5 mm long, transversely wrinkled, normally orange. *Gland* extremely indistinct (generally not observable in dry specimens), situated on upper surface of phyllode 1–2 mm below the apex. *Inflorescences* reduced racemes consisting of twinned peduncles at the distal end of a short (0.5–2 mm) raceme axis, at anthesis a dormant vegetative bud present within angle formed by the peduncles; *peduncles* 7–13 mm long, glabrous, very finely longitudinally wrinkled when dry, red to brown; *basal peduncular bracts* persistent, solitary, ovate, concave, minute (ca. 0.5 mm long), ciliolate; *flower heads* deep golden yellow, globular to slightly obloid, with 14–24 (30) flowers. *Bracteoles* spatulate, ca. 1 mm long; claws linear, glabrescent, yellow; laminae \pm inflexed, often densely ciliolate, dark brown. *Flowers* 5-merous; *sepals* $\frac{1}{2}$ ($\frac{2}{3}$) length of corolla, free, spatulate, claws linear glabrescent to ciliolate and yellow, laminae \pm concave ciliolate and frequently dark brown; *corolla* 1.5 mm long, readily separating into distinct petals which are glabrous and very obscurely 1-nerved; *ovary* sessile, glabrous. *Legumes* irregular in shape when dry, more or less curved, circinnate or sigmoid, to 35 mm long, ca. 3.5 mm wide, undulate, slightly raised over seeds (more obvious in young legumes), firmly chartaceous yet rather brittle, glabrous, slightly resinous, slightly wrinkled when dry, dark brown; margins

not (or barely) contracted between seeds, barely thickened, yellow to light brown. *Seeds* longitudinal to slightly oblique in legume, ellipsoid to obloid or \pm pyriform, ca. 2.5 x 1.5 mm, dark greyish, often with a few obscure pale-coloured surface mottlings, rather shiny, dark-coloured peripheral line obscure; *pleurogram* obscure, open towards the hilum; *areole* horseshoe-shaped, ca. 0.5 mm long; *funicle* filiform, ca. 0.5 mm long, reflexed below and \pm gradually expanded into a slightly curved \pm clavate cream-coloured aril which extends beyond half the length of the seed.

Distribution: (Figure 6) Western Australia: Ongerup-Ravensthorpe district.

Habitat: *Acacia binata* appears to be restricted to loam or clay soil (often rocky) frequently in low-lying areas near water courses. It is commonly found growing in dense scrub with *Eucalyptus angulosa* and *E. oleosa* var. *oleosa*.

Flowering period: August-October.

Fruiting period: Legumes with mature seed have been collected in mid-December.

Judging from specimens seen, it is likely that the fruiting period extends to about the end of January. This species produces rather copious fruit.

Selected specimens: WESTERN AUSTRALIA:—20 mi (32 km) E of Ravensthorpe, *E. M. Bennett* 2729 (MEL, PERTH); Carracarrup area, ca. 13 mi (20.8 km) S of Ravensthorpe, *B. R. Maslin* 993 (AD, PERTH); 13 km W of Ravensthorpe towards Jerramungup, *B. R. Maslin* 2578 (PERTH, TLF); 15 km S of Ravensthorpe towards Hopetoun, *B. R. Maslin* 4046 (PERTH); 13 km SSE of Ongerup, *K. Newbey* 4314 (PERTH); 15 mi (24 km) from Ravensthorpe towards Lake King, *S. Paust* 809 (PERTH); 5 km E of Ravensthorpe, *P. G. Wilson* 5532 (AD, BRI, K, MEL, PERTH).

Acacia binata has its closest affinities with *A. crassuloides* and *A. diaphyllodinea*. These three species form a close-knit assemblage referred to below as the *A. diaphyllodinea* group (see page 209). *Acacia binata* is most readily distinguished from *A. crassuloides* and *A. diaphyllodinea* by the following characters: phyllodes longer and/or narrower, raceme axes longer and easily observable even to the unaided eye (axes so reduced as to frequently appear absent in the other two species), peduncles normally longer and with insignificant ovate (not rostriform) subtending basal bracts, flowers more numerous in the heads and seeds longitudinal to slightly oblique in the legumes (oblique in the other two species).

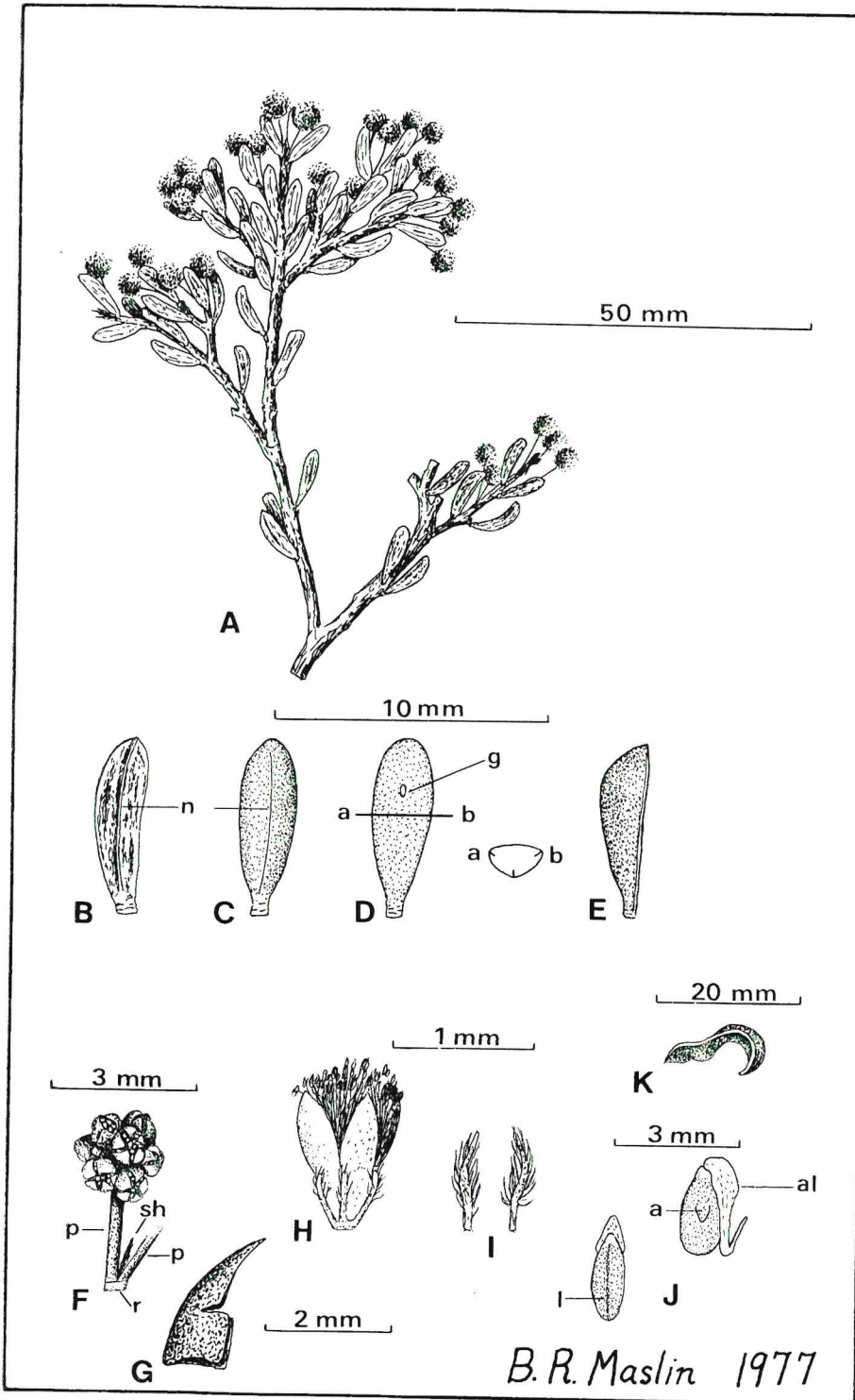
Acacia binata is superficially very similar to the narrow phyllode forms of *A. leptospermoides* subsp. *leptospermoides* but is readily distinguished by its free stipules and its reduced racemose inflorescences.

In the Lake King district a variant of *A. binata* has recently been discovered. *R. Hnatiuk* 760791, 32 km E of Lake King, differs from the other specimens of *A. binata* in the following characters: phyllodes glaucescent, flowers 6–7 per head and sepals minute (ca. 0.2 mm long). Before the true taxonomic position of this variant can be assessed, further gatherings (particularly fruiting specimens) are required.

The specific epithet refers to the diagnostic inflorescences which are reduced racemes consisting of a pair of peduncles positioned at the distal end of a short raceme axis.

2. *Acacia crassuloides* Maslin sp. nov.—Figure 2.

Frustrum pulviniformis, ad 50 cm altus; *rami* glabri. *Stipulae* caducae, liberae. *Phyllodia* applanata, plano-convexa, plerumque anguste obovata, 5–10 mm longa, 1.3–2.5 mm lata (in statu sicco), L/B = 2.5–4.5, carnosae, turgidae et laevia in statu vivo, glabra; *nervia* principalia 3. *Glans* (saepe absens) inconspicua, in dimidium distale paginae superiorae phyllodii. *Inflorescentia* racemosa brevissima pedunculorum binorum ad extremum axis brevis (\leq 0.5 mm); *pedunculi* 2–8 mm longi; *bractae* basales pedunculi rostriformes; *capitula* globulosa, 7–10 floribus. *Flores* 5-meri; *sepala* libera; *petala* 1–1.5 mm longa, glabra, enervia. *Legumen* curvum ad sigmoideum, ad 17 mm longum et 3 mm latum, glabrum. *Semina* in legumine obliqua, pyriformia, 2–2.5 mm longa, 1.3 mm lata; *arillus* clavatus.



Type: Esperance road \pm 69 mi (110.5 km) south of Norseman (i.e. 3 mi (4.8 km) south from Circle Valley Siding), Western Australia. "Low dense cushion-like bushes 20–40 cm tall, among mallee eucalypts on yellow sand plain. Phyllodes cylindro-clavate, turgid and faintly glaucescent when fresh." 7 Sept. 1963, J. H. Willis s.n., MEL 502978 (holo: PERTH; iso: CANB, K, MEL, NSW, NY, PERTH).

Low, dense, cushion-like spreading *shrub* to 50 cm tall and 100 cm wide, much branched at the base; bark grey and slightly roughened (smooth, light brown and slightly resinous on branchlets); *epidermis* light grey, longitudinally fissured, peeling, most evident towards apices of branches; *new shoots* arising from within angle formed by the twinned peduncles; *branches* terete, very obscurely ribbed (ribs most pronounced immediately below insertion of phyllode), glabrous. *Stipules* caducous, present only on new shoots, free, triangular, minute (< 0.5 mm long). *Phyllodes* ascending, rather congested, mostly present only on young branches (deciduous with age), horizontally flattened (i.e. diaphyllodinous) but plano-convex in cross section (concave adaxially when dry), normally narrowly obovate in plane view, 5–10 mm long, 1.3–2.5 mm wide (when dry), L/B = 2.5–4.5, fleshy, turgid and smooth when fresh but coarsely wrinkled when dry, slightly resinous, glabrous, slightly glaucescent when fresh but generally drying dark olive green; *principal nerves* 3 (2 marginal, 1 central abaxially), *secondary nerves* very obscure and only visible when dry; *apex* obtuse but with a minute and innocuous mucro, brown but often grey towards extremity (due to dead epidermal tissue); *pulvinus* transversely wrinkled. *Gland* (frequently absent) situated on distal half of upper surface of phyllode, inconspicuous (comprising a very shallow, circular or elliptical, brown to yellow depression ≤ 0.5 mm diam.). *Inflorescences* extremely reduced racemes (peduncles twinned at distal end of a minute raceme axis which is ≤ 0.5 mm long) new shoots arising from within angle formed by peduncles; *peduncles* 2–8 mm long, glabrous; *basal peduncular bracts* caducous, solitary, rostriform, concave, often auricled at base, 1.5–2.5 mm long, glabrous, dark brown; *flower heads* golden yellow, globular, with 7–10 flowers. *Bracteoles* 0.5–0.7 mm long, variable, either narrowly oblong and straight, or spatulate with acuminate laminae (concave but \pm not inflexed); laminae ciliate and often also tomentose abaxially (hairs \pm glistening and relatively rather long).

Flowers 5-merous; *sepals* $\frac{1}{3}$ length of corolla, free, in a single flower can vary from linear to spatulate, tomentose at apex (hairs as on bracteole laminae); *petals* free, 1–1.5 mm long, glabrous, nerveless; *ovary* sessile, glabrous. *Legumes* curved to sigmoid, to 17 mm long and 3 mm wide, brittle, barely raised over seeds, very finely wrinkled when dry, glabrous, slightly pruinose, dark brown; margins not contracted between seeds, barely thickened, pale. *Seeds* oblique in legume, pyriform, somewhat compressed, 2–2.5 mm long, 1.3 mm wide, lightish grey but paler at hilar end, not mottled, somewhat shiny, with a narrow band of dark brown tissue around periphery; *pleurogram* quite prominent (bordered by a diffuse, narrow band of dark brown tissue); areole "u"- to "v"-shaped, open towards the hilum, < 0.5 mm long; *funicle* filiform,

Figure 2—*Acacia crassuloides*. A—Upper portion of branch. B to E—Phyllodes (g—gland, n—abaxial nerve). B (dry phyllode)—Abaxial view showing coarse surface wrinklins. C (reconstituted phyllode)—Abaxial view of same phyllode. D (reconstituted phyllode)—Adaxial view of same phyllode with transverse section (a—b) showing plano-convex outline and nerve positions. E (reconstituted phyllode)—Side view of same phyllode showing thickness of specimen. F—Inflorescence showing peduncles (p), reduced raceme axis (r) and developing new shoot (sh). G—Rostriform basal peduncular bract. H—Flower. I—Bracteoles (side and back views) showing relatively long hairs. J—Seed (surface and end views) showing dark-coloured peripheral line (l), small areole (a) and relatively long aril (al). K—Legume.

A, F and G from J. H. Willis s.n. (the type); B–E, H–I from E. M. Scrymgeour 790; J–K from Freeman s.n. (PERTH duplicate).

ca. 2 mm long, gradually expanded and reflexed below a conspicuous, clavate, slightly curved, dull, cream-coloured aril which extends beyond half the length of the seed.

Distribution: (Figure 6) Western Australia: The highway between Norseman and Esperance forms the known eastern limit of distribution of *A. crassuloides*. The species is known to extend to about 80 km west of the highway.

Habitat: Not much is known concerning the habitat preferences of this species. It has been recorded as growing in sandy to clayey soils in either open heath vegetation or mallee eucalypt scrub or woodland.

Flowering period: Judging from the specimens at hand, *A. crassuloides* flowers from September to October.

Fruiting period: Only one gathering with legumes containing mature seeds has been seen. This was collected in January.

Selected specimens: WESTERN AUSTRALIA:—527 miles, Coolgardie-Esperance Highway, *E. M. Scrymgeour* 790 (PERTH); Grass Patch, *F. D. Freeman* s.n., Jan. 1960 (MEL 502982, PERTH); 126 km E of Lake King, 32° 42' S and 120° 51' E, *R. Hnatiuk* 760883 (PERTH); 6.5 km N of Salmon Gums towards Norseman, *B. R. Maslin* 2453 (CANB, TLF, PERTH).

Acacia crassuloides is closely allied to *A. binata* and *A. diaphyllodinea*. These three species form a close-knit assemblage referred to below (page 209) as the *A. diaphyllodinea* group. *Acacia crassuloides* is a smaller shrub than the other two species, with thicker and normally shorter phyllodes and also fewer flowers in its heads. In addition, *A. crassuloides* is distinguished from *A. binata* by its usually slightly broader yet shorter phyllodes ($L/B = 2.5-4.5$ compared with (4) 6-20) which are more obviously plano-convex in cross section and often more obviously nerved when dry (although the nerves in both these species are less apparent than in *A. diaphyllodinea*), its shorter raceme axes, its larger, rostriform basal peduncular bracts, its differently shaped bracteoles (compare Figs. 1D and 2I), and its shorter legumes with their paler coloured, obliquely placed seeds (\pm longitudinal in *A. binata*). In addition, *A. crassuloides* is distinguished from *A. diaphyllodinea* by the following features: its phyllodes are less obviously mucronulate, more obviously plano-convex (i.e. less horizontally flattened) and less apparently nerved abaxially when dry, its bracteoles are more hairy (hairs \pm glistening and relatively long), its smaller legumes and its slightly smaller, paler coloured seeds with their longer funicles (relative to seed length).

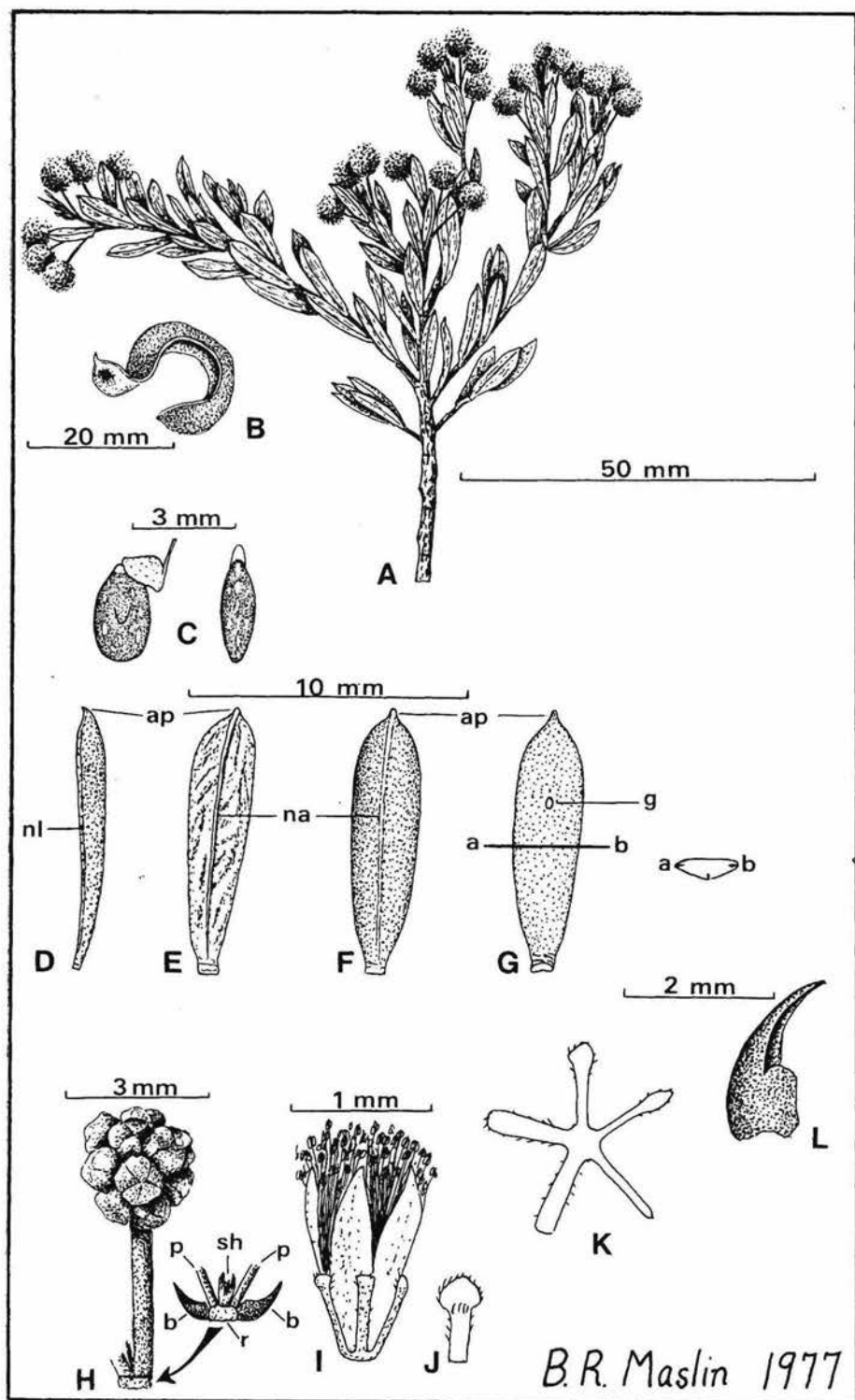
The specific epithet which was suggested to me by Dr. J. H. Willis, formerly of the National Herbarium, Victoria (MEL) refers to the diagnostically thick phyllodes which are reminiscent of leaves in some species of *Crassula*.

3. *Acacia diaphyllodinea* Maslin sp. nov.—Figure 3.

Frutex ad 1 m altus; rami glabri. *Stipulae* caducae, liberae. *Phyllodia* applanata, inconspicue plano-convexa, anguste oblonga ad anguste obovata vel anguste elliptica, 8-15 mm longa, 2-3.5 mm lata, $L/B = 3-6$ (7), glabra, laevia in statu vivo, \pm longitudinaliter sulcata in statu sicco; nervia principalia 3; apex mucronulatus. *Glans* (saepe absens) in-

Figure 3—*Acacia diaphyllodinea*. A—Upper portion of branch. B—Legume valve. C—Seeds (side and end views) showing mottled surface and short aril. D to G—Phyllodes (g—gland, ap—apiculum, na—abaxial nerve, nl—lateral nerve). D (spirit specimen)—Side view of phyllode showing relative lack of thickness. E (dry phyllode)—Abaxial surface showing obvious nerve (na) and surface wrinkling. F (spirit specimen)—Abaxial surface of same phyllode. G (spirit specimen)—Adaxial surface of same phyllode with gland (g) and transverse section (a—b) showing plano-convex outline and nerve positions. H—Inflorescence with inset showing basal arrangement (r—extremely reduced raceme axis, b—basal peduncular bracts (caducous), p—peduncle, sh—new shoot). I—Flower. J—Bracteole. K—Calyx (opened out) showing irregular lobing of sepals. L—Rostriform basal peduncular bract.

A, J from B. R. Maslin 3443 (the type); B-C from K. Newbey 3478; D-G from B. R. Maslin 3872; H-I, K-L from D. Young 128.



B.R. Maslin 1977

conspicua, in dimidium distale paginae superae phyllodii. *Inflorescentia* racemosa brevissima pedunculorum binorum ad extremum axis brevis (0.5 mm); *pedunculi* 5–8 mm longi; *bracteae* basales pedunculi rostriformes; *capitula* globulosa, 13–15 floribus. *Flores* 5-meri; *sepala* libera; *petala* 1.5 mm longa, glabra. *Legumen* curvum, circinatum vel sigmoideum, ad 40 mm longum et 7 mm latum, glabrum. *Semina* in legumine obliqua, \pm pyriformia, ca. 3 mm longa et 2 mm lata, maculata (interdum obscure); *arillus* \pm strictus.

Type: About 7 km S of Mount Madden towards Ravensthorpe, Western Australia. Shrub 0.6–1 m tall; bark smooth, light grey; phyllodes ascending, smooth, subglaucous. 28 Aug. 1973, B. R. Maslin 3443 (holo: PERTH; iso: CANB, K, MEL, NY, P).

Spreading *shrub* to 1 m tall, moderately branched near base; *bark* grey, smooth or slightly roughened (red-brown to yellow, often very slightly pruinose and slightly resinous on branchlets); *epidermis* light grey, longitudinally fissured, peeling, most evident towards apices of branches; *new shoots* (arising from within angle formed by the twinned peduncles) glaucous, many young phyllodes (especially the terminal ones) tinged purple; *branches* terete, obscurely ribbed (ribs visible only immediately below insertion of phyllodes), glabrous. *Stipules* caducous, present only on new shoots, free, linear to very narrowly triangular, ca. 0.5 mm long. *Phyllodes* ascending, rather congested, present only on young branches (deciduous with age), horizontally flattened (i.e. diaphyllodinous), obscurely plano-convex in cross section (flat or very shallowly concave above and shallowly convex below when dry), narrowly oblong to narrowly obovate or narrowly elliptic in plane view, 8–15 mm long, 2–3.5 mm wide at broadest point, L/B = 3–6 (7), ca. 1 mm thick, straight, glabrous, olive green to subglaucous (except on new shoots), drying a light olive green, smooth when fresh but \pm longitudinally wrinkled when dry; *principal nerves* 3 (2 marginal, 1 central and slightly raised abaxially when dry), nerveless on adaxial surface, secondary nerves indistinct (openly longitudinally reticulate and observable only when dry); *apex* mucronulate (mucro distinct but 0.5 mm long, yellowish); *pulvinus* transversely wrinkled, yellow. *Gland* (frequently absent) situated on distal half of upper surface of phyllode, inconspicuous (comprising a very shallow, circular, brown depression 0.5 mm diam.). *Inflorescences* extremely reduced racemes (peduncles twinned at distal end of a minute raceme axis which is $<$ 0.5 mm long), new shoots arising from within angle formed by peduncles; *peduncles* 5–8 mm long, glabrous; *basal peduncular bracts* caducous, solitary, rostriform, concave, auricled at base, 2–2.5 mm long, glabrous, dark brown; *flower heads* medium golden yellow, globular, with 13–15 flowers. *Bracteoles* ca. 1 mm long, variable, either linear without expanded laminae or, more generally, spatulate with claws expanded into inflexed triangular minutely ciliolate laminae. *Flowers* 5-merous; *sepals* $\frac{1}{3}$ – $\frac{1}{2}$ length of corolla, free, in a single flower can vary from narrowly oblong to linear-spatulate (apex only slightly expanded), claws glabrous or ciliolate, laminae short inflexed and minutely ciliolate; *petals* free, 1.5 mm long, very obscurely 1-nerved, glabrous; *ovary* sessile, glabrous. *Legumes* curved, circinnate or sigmoid, to 40 mm long and 7 mm wide, firmly chartaceous yet quite brittle, very slightly raised over seeds, very finely wrinkled when dry, glabrous, somewhat glaucescent (more apparent when young), brownish (purple in parts when young); margins not contracted between seeds, barely thickened, pale. *Seeds* oblique in legume, not separated by well defined transverse partitions, \pm pyriform, often somewhat compressed, ca. 3 mm long and 2 mm wide, greyish (when young) to dark brown, mottled (sometimes obscurely so), rather dull, dark peripheral line obscure or absent; *pleurogram* fine, sometimes bordered by an obscure and narrow band of pale tissue; *areole* “u”- to “v”-shaped, open towards the hilum, $<$ 0.5 mm long; *funicle* filiform, ca. 1 mm long, abruptly expanded into a relatively short thick cream \pm straight aril.

Distribution: (Figure 6) Western Australia: Ravensthorpe-Lake King area.

Habitat: East of Lake King this species occurs in sandy soil while further south near Ravensthorpe it grows in loamy clay in open scrub. In places near Mount Madden, *A. diaphyllodinea* is quite well developed in lateritic gravel along road verges.

Flowering period: Judging from herbarium label information the flowering period extends from mid-June to about mid-September.

Fruiting period: Legumes with mature seeds have been collected in early January.

Selected specimens: WESTERN AUSTRALIA:—6.5 km S of Mount Madden towards Ravensthorpe, *B. R. Maslin* 3872 (PERTH); 6 mi (9.6 km) S of Mount Madden, *K. Newbey* 3478 (PERTH); 34 km E of Lake King, along Rabbit Proof Fence, *D. Young* 128 (PERTH).

Acacia diaphyllodinea, together with *A. binata* and *A. crassuloides*, forms a close-knit assemblage which is referred to here as the *A. diaphyllodinea* group.

The principal characters shared by these species are as follows: stipules caducous and not united as in members of the related *A. leptospermoides* group; branches glabrous; phyllodes horizontally flattened (but not obviously so in *A. binata*), glabrous, principal nerves 3 (2 marginal, 1 central abaxially, nerveless adaxially); glands not prominent and frequently absent, situated on upper surface of phyllodes generally in their distal halves; inflorescences reduced racemes comprising a pair of peduncles at the distal end of a short raceme axis (axis often so reduced in *A. crassuloides* and *A. diaphyllodinea* as to appear absent), new shoots arising from within angle formed by peduncles; flowers 5-merous; sepals free; petals glabrous and nerveless or obscurely 1-nerved; legumes curved to sigmoid, slightly raised over seeds, glabrous, margins not (or barely) contracted between seeds; areole very small in relation to seed.

Acacia diaphyllodinea is distinguished from both *A. binata* and *A. crassuloides* by its either broader or longer, mucronulate phyllodes which are more obviously 1-nerved abaxially, its broader legumes and its short funicle relative to the seed length (see *A. binata* and *A. crassuloides* for further details).

This is an attractive species especially when making new growth. The glaucous young shoots (with many phyllodes tinged purple) contrast well with the normally olive green mature foliage.

The specific epithet alludes to the obvious horizontal flattening of the phyllodes.

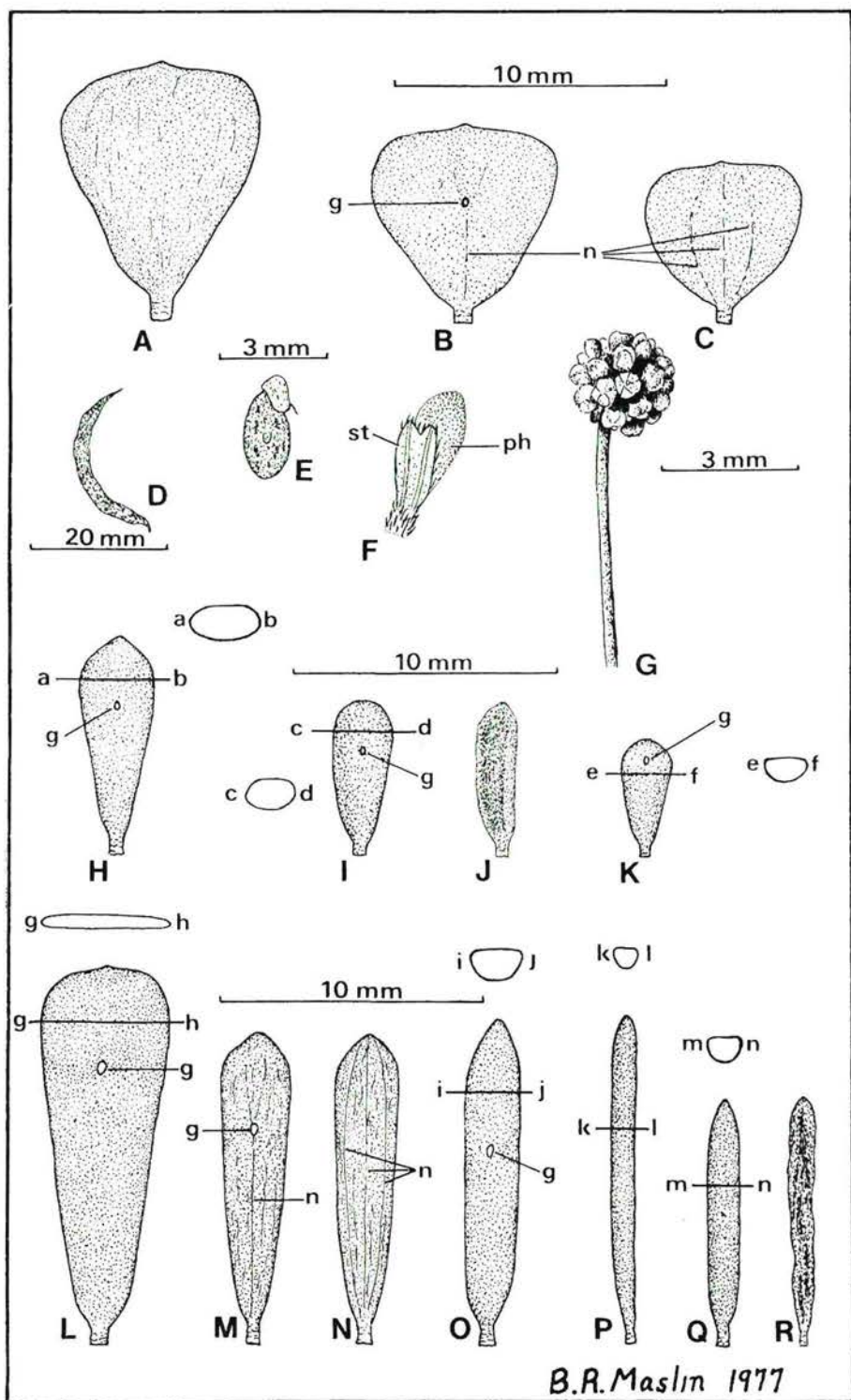
4. *Acacia ericifolia* Benth., London J. Bot. 1:345 (1842). Type: Swan River, Drummond (K-photograph seen).

Acacia hookeri Meisn. in Lehm. et al., Plant. Preiss. 1:12 (1844). *Syntypes:* Preiss 981 (FI, G, GOET, HBG, K, L, MEL, NY, P, PERTH—fragment, STRAS) and Drummond 300 (G, G—DC, MEL, P, PERTH—fragment); Bentham, Flora Austral. 2:341 (1864).

Acacia ericifolia Benth. var. *crassa* E. Pritzel, Bot. Jahrb. Syst. 35:294 (1904). *Type:* North from Mingenew, *L. Diels* 3058 (lecto: PERTH). *Syntype:* Inter flumina Moore et Murchison, *E. Pritzel* 376 (B, E, G, K, L).

Acacia ericifolia Benth. var. *typica* E. Pritzel, l.c., nom. illeg.

Acacia ericifolia is not a particularly common species although its range extends from Perth north to the Geraldton district. In its gross phyllode morphology it closely resembles the narrow, \pm terete phyllode forms of *A. leptospermoides* subsp. *leptospermoides* but is distinguished by a combination of the following characters: branchlets densely pilose (hairs lax and somewhat spreading) to puberulous (hairs rather lax and normally not distinctly antrorse and appressed as in subsp. *leptospermoides*); young phyllodes normally hairy although sometimes sparsely so (glabrous in subsp. *leptospermoides* except rarely in some broad phyllode forms); mature, dry phyllodes normally more obviously concave above and frequently more obviously wrinkled than in subsp. *leptospermoides*.



5. *Acacia leptospermoides* Benth., *Linnaea* 26:626 (1855). *Type*: Swan River, *Drummond* coll. 4, no. 2 (holo: K; iso: MEL, PERTH—fragment)—Figures 4 and 7.

Acacia leptospermoides is widespread in southwest Western Australia (Figure 7). It is closely related to *A. ericifolia* from which it can normally be distinguished by its glabrous and shorter or broader phyllodes. *Acacia leptospermoides* is very variable in its phyllode morphology and is divided here into three subspecies. Subspecies *obovata* and subsp. *psammophila* with their broad, flat and small, thick phyllodes respectively have restricted distributions (the first occurs north of the Murchison River and the second in the Mullewa-Geraldton district). The typical subspecies is more variable and more widely distributed than the other two; its range extends from Dirk Hartog Island in the north to Cranbrook and Lake Grace in the south.

Key to subspecies of *Acacia leptospermoides*.

- 1a. Phyllodes small, 4–7 (9) mm long, 1–2 (2.5) mm wide, L/B = 2–5 (8), obovate to narrowly obovate*, fleshy (turgid when fresh but normally sulcate and often ± flattened when dry) 5c. subsp. *psammophila*
- b. Phyllode characters not combined as above (either broader and/or longer) 2
- 2a. Phyllodes ± terete, not above 1.5 mm wide, narrowly oblong to linear 5a. subsp. *leptospermoides*
- b. Phyllodes distinctly horizontally flattened 3
- 3a. Phyllodes obovate to widely obovate or sometimes orbicular, L/B = 0.8–2, 5–10 (13) mm long, 4–7 (8) mm wide 5b. subsp. *obovata*
- b. Phyllodes narrowly oblong to narrowly obovate (very rarely obovate), L/B = (2) ≥ 3, (7) 9–17 mm long, 1.5–6 mm wide 5a. subsp. *leptospermoides*

5a. subsp. *leptospermoides*—Figures 4L–R and 7

Acacia ericifolia Benth. var. *crassa* E. Pritzel, *Bot. Jahrb. Syst.* 35:294(1904), pro parte, not as to lectotype, as to Diels 4058 (PERTH).

Acacia ericifolia Benth. var. *glaucescens* E. Pritzel, l.c., *synon. nov.* *Type citation*: “in distr. Avon pr. Moora in arenosis (D. 3097)” (lecto: PERTH), lecto. nov.

Acacia ericifolia Benth. var. *tenuis* E. Pritzel, l.c., *synon. nov.* *Type citation*: “In distr. Irwin pr. Greenough River in arenosis (D. 4212)” (lecto: PERTH), lecto. nov.

Selected specimens: WESTERN AUSTRALIA:—70 mi peg (from Perth), Geraldton Highway, T. E. H. Aplin 19 (PERTH); Between Pingrup and Lake Magenta, W. E. Blackall 3079 (PERTH); 13 mi (20.8 km) N of Bolgart, H. Demarz 3919 (PERTH); Cranbrook, L. Diels 4416A (PERTH); ± 1.5 km N of Herald Bay outcamp, Dirk Hartog Island, 25° 51' S, 113° 05' E, A. S. George 11498 (AD, CANB, K, MEL, NY, PERTH); 4 mi (6.4 km) S of Marchagee, R. T. Lange 4 (PERTH, TLF—fragment); Near 157 mi peg on Geraldton Highway, ca. 4 mi

* Best to observe fresh or reconstituted phyllodes.

Figure 4—*Acacia leptospermoides*. A to G—subsp. *obovata*: A to C—Phyllode variation (A—abaxial view showing very obscure surface wrinklings; B—adaxial view showing nerve (n) extending from pulvinus to gland (g); C—abaxial view showing 3 obscure nerves (n)). D—Legume. E—Seed showing short aril and surface mottlings. F—New shoot showing young phyllode (ph) and connate stipules (st). G—Inflorescence. H to K—subsp. *psammophila*: Phyllode variation (H–I, K—reconstituted phyllodes showing gland (g) position on adaxial surface and transverse sections showing ± obscurely plano-convex outline; J—dry phyllode concave adaxially). L to R—subsp. *leptospermoides*: Phyllode variation (g—gland). L (reconstituted phyllode)—Adaxial view with transverse section (g–h) showing flattened outline. M (dry phyllode)—Adaxial view showing nerve (n) extending from pulvinus to gland. N (dry phyllode)—Abaxial view of same phyllode showing three nerves (n). O–Q (reconstituted phyllodes)—Adaxial view with transverse section showing plano-convex outline. R (dry phyllode)—Adaxial view showing uneven contraction of lamina.

A from B. R. Maslin 4299 (the type); B, D–E from A. S. George 11227; C from C. H. Gittins 1591; F from B. R. Maslin 3648; G from A. M. Ashby 4620; H from A. M. Ashby 3852; I–J from J. Long 4; K from A. C. Burns 4; L from B. R. Maslin 3075; M–N from B. R. Maslin 3689; O from W. E. Blackall 3079; P from T. E. H. Aplin 19; Q–R from H. Demarz 3919.

(6.4 km) S of Marchagee, *B. R. Maslin* 1445 (CANB. PERTH); 14.5 km W of Three Springs towards Eneabba, *B. R. Maslin* 3075 (PERTH); Tamala Station, *B. R. Maslin* 3689 (L, NT, NSW, PERTH).

There is considerable phyllode variation in the material I have referred here to subsp. *leptospermoides*. The phyllodes seem to vary continuously from narrow and \pm terete to broad and flat (Figs. 4L-R); there is no geographical correlation with the different forms encountered. The type specimens of the three synonyms listed above have phyllodes which are narrow and \pm terete while the type specimen of *A. leptospermoides* is representative of the less frequent broad, flat phyllode forms. It is possible that future mass sampling techniques coupled with statistical methods will reveal a basis for recognizing more than one taxon within this complex.

5b. subsp. obovata Maslin subsp. nov.—Figure 4A-G.

Frutex 1.3 (1.5) m alta, diffusa; *rami* antrorse strigosi ad antrorse puberuli. *Stipulae* caducae, connatae. *Phyllodia* applanata, obovata ad late obovata vel interdum orbiculata 5–10 (13) mm longa, 4–7 (8) mm lata, L/B = 0.8–2, carnosae turgidae et laevia in statu vivo, glabra; *nervia* principalia 6, nervatio plerumque obscurissima. *Glans* proxima medium in pagina supera phyllodii. *Inflorescentia* simplex; *pedunculi* 4–7 mm longi; *capitula* globulosa, 30–35 floribus. *Flores* 5-meri; *sepala* libera vel in dimidio inferiore connata; *petala* 1.5 mm longa, glabra. *Legumen* curvum, ad ca. 30 mm longum, 1.5–2 mm latum. *Semina* in legumine longitudinalia, 2.5 mm longa, 1.5 mm lata, maculata.

Type: 14.5 km N of Murchison River, North West Coastal Highway, Western Australia. "Shrub 1.3 m tall, normally "v"-shaped, sparsely divided at base; bark smooth, grey; phyllodes concentrated towards ends of branches, ascending, subglaucous, thickened; heads medium yellow." 19 Sept. 1976, *B. R. Maslin* 4292 (holo: PERTH; iso: CANB, K, NY).

Spreading, openly branched, normally infundibular *shrub* to 1.3 (1.5) m tall, sparsely divided at base; *branches* antrorsely strigose to antrorsely puberulous, glabrous with age. *Stipules* caducous, present only on new shoots, connate for most of their length, yellowish brown. *Phyllodes* horizontally flattened (i.e. diaphyllodinous), obovate to widely obovate or sometimes orbicular, 5–10 (13) mm long, 4–7 (8) mm wide, L/B = 0.8–2, fleshy smooth and turgid when fresh but quite flat and finely wrinkled when dry, glabrous, very glaucous when young but maturing green; *nervature* generally very obscure but normally \pm apparent on young dry phyllodes, *principal nerves* 6 (3 abaxial extending from pulvinus to apex with the central one generally more apparent than the lateral ones, 1 adaxial extending from pulvinus to gland, 2 marginal—apparent when fresh); *apex* obtuse and normally mucronulate; *pulvinus* horizontally flattened, ca. 0.5 mm long, transversely wrinkled, orange. *Gland* situated on upper surface of phyllode near its middle, not prominent, ca. 0.2 mm diam., lip not raised. *Inflorescences* simple, 1 (2) per node; *peduncles* 4–7 mm long, glabrous; *basal peduncular bracts* often caducous, solitary, rostriform, concave; *flower heads* bright yellow, globular, with 30–35 densely arranged flowers. *Bracteoles* spatulate, ca. 1 mm long, the dark brown laminae visible between adjacent flowers in inflorescence bud. *Flowers* 5-merous; *sepals* $\frac{1}{2}$ – $\frac{3}{4}$ length of petals, free or connate for ca. $\frac{1}{2}$ their length, sparsely puberulous, claws linear, laminae slightly inflexed and keeled; *petals* 1.5 mm long, glabrous, very obscurely 1-nerved. *Legumes* curved, to ca. 30 mm long, 1.5–2 mm wide, sometimes slightly undulate, barely raised over seeds, firmly chartaceous to very slightly coriaceous, reticulate, medium brown; marginal nerve apparent but barely thickened, slightly contracted between seeds. *Seeds* longitudinal in legume, ellipsoidal-obloid but truncated along edge adjacent to aril, narrowed towards the periphery, 2.5 mm long, 1.5 mm wide, brown, mottled; *pleurogram* obscure, open towards the hilum; areole "u"- to "v"-shaped, minute (ca. 0.2 mm long); *funicle* filiform, ca. 0.5 mm long, abruptly expanded into a slightly shiny yellowish to brownish (when dry) aril which is not convoluted and extends $\frac{1}{3}$ – $\frac{1}{2}$ down one side of the seed.

Distribution: (Figure 7) Western Australia: Known only from the North West Coastal Highway between 11 km and 30 km north of the Murchison River. Further sampling of suitable habitats will probably extend the known range of this taxon, especially in an east-west direction.

Habitat: Yellow to light brown sand or sandy loam in open heath or open scrub.

Flowering period: July-August.

Fruiting period: Legumes with mature seeds have been collected in early January. At this time of the year the glaucous young foliage is evident.

Selected specimens: WESTERN AUSTRALIA:—390 mi peg, North West Coastal Highway, *A. M. Ashby* 4620 (PERTH); Near 413 mi peg, North West Coastal Highway, 27° 25' S, 114° 40' E, *A. S. George* 11227 (PERTH); 7 mi (11.2 km) N of Galena, *C. H. Gittins* 1591 (PERTH); 14.5 km N of Murchison River on North West Coastal Highway, *B. R. Maslin* 3648 (PERTH); 12 km N of Murchison River bridge on North West Coastal Highway, *M. E. Trudgen* 1684 (AD, BRI, MEL, NSW, PERTH).

From their respective seed/seedling and pollen studies, Vassal and Guinet (pers. comm.) report the distinctness of this taxon and suggest its possible recognition at the species level. However, considering the overall morphological variation encountered in the *A. leptospermoides* group, I feel it is best treated as a subspecies. The distinguishing gross morphological features of subsp. *obovata* are to be found in its phyllodes. Compared with the other two subspecies of *A. leptospermoides*, the phyllodes in subsp. *obovata* are shorter and/or broader, differently shaped and possess glands which are frequently situated nearer the middle. All the collections so far of subsp. *obovata* are from a small area north of the Murchison River (Fig. 7).

The subspecific epithet refers to the phyllodes whose shape is normally obovate.

5c. subsp. *psammophila* (E. Pritzel) Maslin, comb. et stat. nov.—Figures 4H-K and 7.

Acacia psammophila E. Pritzel, Bot. Jahrb. Syst. 35:294(1904). Type citation: "Hab. in distr. Irwin pr. Greenough River juxta viam Mullewensem in fruticetis arenosis, c. alabastr. m. Julio (D. 3294)". (lecto: PERTH), lecto. nov.

Selected specimens: WESTERN AUSTRALIA:—Yuna, on Mullewa road, *A. M. Ashby* 1580 (PERTH); Eradu, *G. Phillips* for *A. M. Ashby* 3852 (CANB, K, PERTH); 8 mi (12.8 km) along Casuarina Road, SE of Geraldton, *A. C. Burns* 4; 30 mi (48 km) E of Geraldton, *J. Long* 4.

Pritzel originally described this taxon as a distinct species. Both Vassal and Guinet (pers. comm.) report that their respective studies on the seed/seedlings and pollen show that it does not warrant specific rank; both workers suggested close affinities with subsp. *leptospermoides*. My own morphological studies indicate that the taxon is best treated as a subspecies of *A. leptospermoides* being distinguished principally by its short, thick and fleshy phyllodes which are obovate to narrowly obovate. These characters are best observed in fresh or reconstituted specimens. Occasionally very short, thick phyllodes occur in subsp. *leptospermoides* (particularly on plants from around Tammin and Cunderdin). These individuals may superficially resemble subsp. *psammophila* but in most instances the distinguishing characters given in the Key are sufficient to confidently separate these taxa. Although subsp. *psammophila* is restricted to the Geraldton-Mullewa district its range does overlap with the more widely distributed subsp. *leptospermoides* (Fig. 7).

6. *Acacia spathulifolia* Maslin nom. nov., based on *A. spathulata* F. Muell. ex Benth.

Acacia spathulata F. Muell. ex Benth., Flora Austral. 2:356 (1864), non Tausch (1836); Mueller, F., Icon. Austral. Acac. Dec. 5: t.1, 1887. Lectotype: Murray R. (?River—see

discussion below), W.A., *Oldfield* (MEL—specimen seen by Bentham; iso: PERTH—fragment), lecto. nov.

Syntype citations: "Bay of Rest, N.W. Coast, *A. Cunningham*" (n.v.); "Dirk Hartog Island and Shark Bay, *Milne*" (n.v.); "Murchison River, *Oldfield*" (n.v.).

The collecting locality given on the lectotype sheet is puzzling. This sheet is annotated by Mueller "Murray R. W.A. Oldf." Bentham saw the sheet and in his original description of *A. spathulata* listed the locality as "Murray River." The only Murray River known today in Western Australia is 70 km south of Perth and some 250 km south of the most southerly known record of *A. spathulifolia*. There seem to be three possible explanations for the apparently anomalous locality citation: (1) *A. spathulifolia* may have been

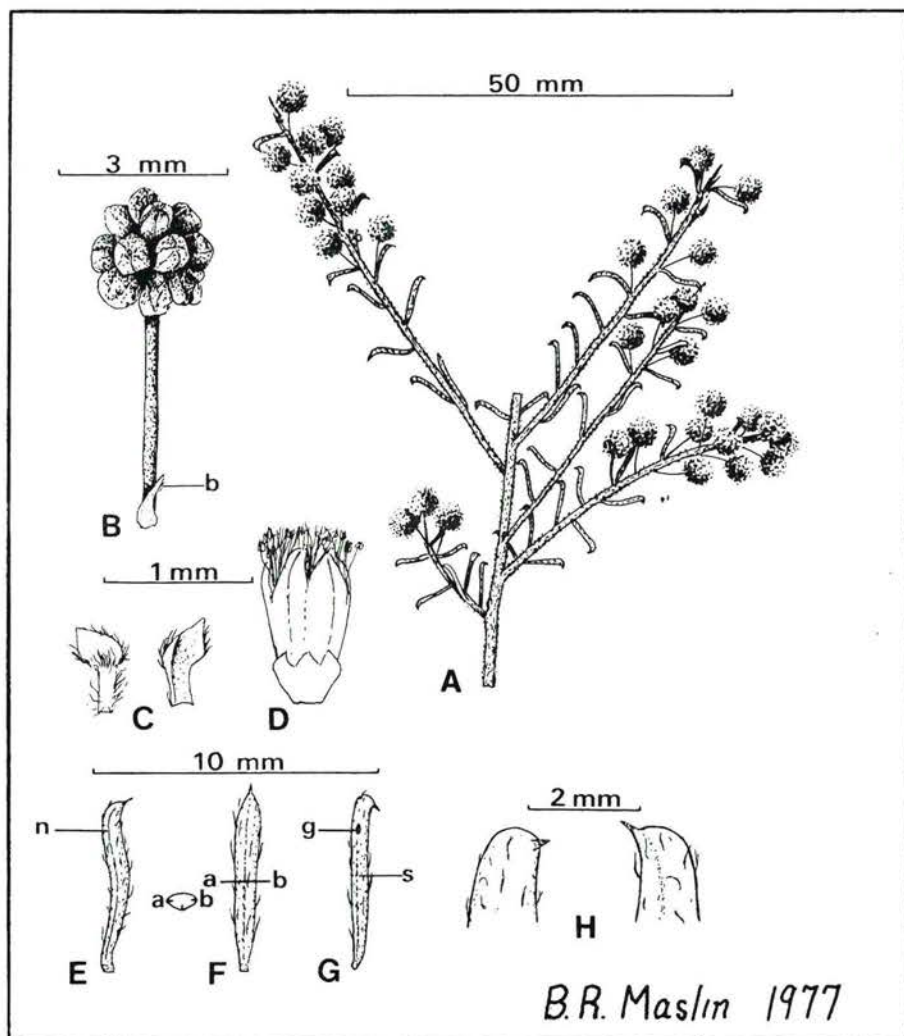


Figure 5—*Acaicia vassalii*. A—Upper portion of branch. B—Inflorescence showing solitary basal peduncular bract (b). C—Bracteoles (abaxial and side views). D—Flowers E to G—Phyllode variation. E (reconstituted phyllode)—Side view showing obscure lateral nerve (n). F (reconstituted phyllode)—Adaxial view with transverse section (a—b) showing \pm plano-convex outline and nerve positions. G (dry phyllode)—Adaxial view showing gland (g) and obscure medial sulcus (s). H (reconstituted phyllodes)—Phyllode apices in side view. A from Gardner s.n.; B, E–F, H from Blackall s.n.; C–D, G from Ising s.n. (the type).

previously more widely distributed than it is today or (2) the locality given in the protologue is incorrect or (3) there once existed in W.A. a watercourse known as the Murray River which today goes under another name.

Acacia spathulifolia is common on coastal limestone in the Jurien Bay district and extends north to the vicinity of North West Cape. The species is obviously diaphyllodinous and in its stipules and phyllodes closely resembles the broad phyllode forms of *A. leptospermoides* subsp. *leptospermoides*. *Acacia spathulifolia* is readily distinguished from this subspecies by its diaphanous, very shortly lobed calyx (lobes broadly triangular), its larger flower buds which are fewer and less compact in the heads and its lack of bracteoles.

7. *Acacia vassalii* Maslin sp. nov.—Figure 5.

Frutex; *rami* apices versus dense tomentosi. *Stipulae* demum caducae, basi versus connatae in statu juvenili. *Phyllodia* parum applanata, inconspicue plano-convexa, anguste oblonga sed in basin gradatim decrescens, 4–8 mm longa, ca. 1 mm lata, recta vel curvata, uncinata, subtiliter puberula ad glabrata; *nervia principalia* 3; apex rostrata. *Glans* (saepe absens) in tertio distale paginae superae phyllodii. *Inflorescentia* simplex; *pedunculi* 3–4.5 mm longi; *capitula* globulosa, 15–16 floribus. *Flores* 5-meri; *calyx* breviter \pm oblongus-lobatus; *petala* 1 mm longa, 1-nervia. *Legumen* et semina n.v.

Type: Wongan Hills, Western Australia. Aug. 1935, E. H. Ising s.n. (holo: PERTH; iso: PERTH; according to C. A. Gardner's annotation on the type sheet, there is a duplicate of this collection at K).

Shrub (further details unknown); *branches* terete, very obscurely ribbed, densely tomentose towards apices but becoming glabrous with age; *epidermis* grey, finely longitudinally fissured (exposing a smooth red bark beneath). *Stipules* deciduous with age, very narrowly triangular, 1–2 mm long, scarious, ciliolate, otherwise glabrous, light brown and connate near base when very young (i.e. on new shoots) but becoming darker and separated (laterally displaced) with age. *Phyllodes* spreading to ascending, rather distant, slightly horizontally flattened (i.e. diaphyllodinous), \pm plano-convex in cross section, sometimes medially sulcate above when dry, narrowly oblong but tapered towards base in plane view, 4–8 mm long, ca. 1 mm wide, straight or gently arched upwards and always prominently uncinata (thus sometimes producing a shallowly sigmoid outline), finely puberulous to glabrescent, obscurely finely wrinkled when dry; *nervature* very obscure, *principal nerves* 3 (2 marginal, 1 central abaxially), nerveless on adaxial surface; *apex* rostellate, apiculum ca. 0.3 mm long and light brown; *pulvinus* ca. 0.5 mm long, orange. *Gland* (often absent) situated on distal $\frac{1}{3}$ of upper surface of phyllode, circular, 0.2 mm diam., lip not raised. *Inflorescences* simple, 1 per node; *peduncles* 3–4.5 mm long, glabrous or glabrescent; *basal peduncular bracts* persistent, solitary, triangular to oblong, concave, slightly curved, \pm 0.5 mm long, ciliolate, sometimes sparsely puberulous abaxially; *flower heads* yellow, globular, with 15–16 flowers. *Bracteoles* spatulate, 0.5 mm long; *claws* linear, \pm equalling laminae in length; *laminae* ovate, inflexed, slightly concave, puberulous abaxially. *Flowers* 5-merous; *calyx* \pm $\frac{1}{3}$ length of corolla, divided for $\frac{1}{4}$ its length into \pm oblong ciliolate lobes which are slightly inflexed at apex, tube very obscurely 5-nerved a little angular when dry and \pm sparsely puberulous; *petals* 1 mm long, connate for $\frac{2}{3}$ their length, glabrous, 1-nerved; *ovary* sessile, glabrous. *Legumes* and seeds not seen.

Distribution: (Figure 6) Western Australia: I have seen only three collections of *A. vassalii*, one of which is without locality. Of the remaining two collections one is labelled Wongan Hills and the other Wararoo. I am unable to establish the position of this last-mentioned locality.

Habitat: Nothing is known of the ecological preferences of this species.

Flowering period: The few specimens at hand are in flower and were collected in July and August.

Specimens seen: WESTERN AUSTRALIA:—*W. E. Blackall* s.n., without other detail (CANB, PERTH); Wararoo, *C. A. Gardner* s.n., July 1939 (PERTH).

Acacia vassalii is poorly represented in herbarium collections. It is a very distinctive taxon with its small, very obscurely nerved, slightly horizontally flattened, uncinately phyllodes with their rostellate apices. In phyllode shape *A. vassalii* is rather reminiscent of some species found in the Series *Brunioideae* e.g. *A. asperulacea* F. Muell. and *A. spondylophylla* F. Muell. but in other characters (especially its non-verticillate phyllodes) it is quite distinct from this Series.

In the absence of legumes, the correct affinities of this species are difficult to establish. The horizontally flattened, 3-nerved phyllodes and the stipule morphology suggest an affinity with the *A. diaphyllodinea* group (page 209) but *A. vassalii* is readily distinguished by its tomentose branchlets, its uncinately, rostellate phyllodes, its simple (not racemose) inflorescences, its persistent, triangular to oblong basal peduncular bracts (not rostriform and caducous) and its united sepals (not free).

This species is named in honour of Jacques Vassal who, since 1963, has published many valuable papers dealing with *Acacia*, especially in relation to their seed and seedling morphology.

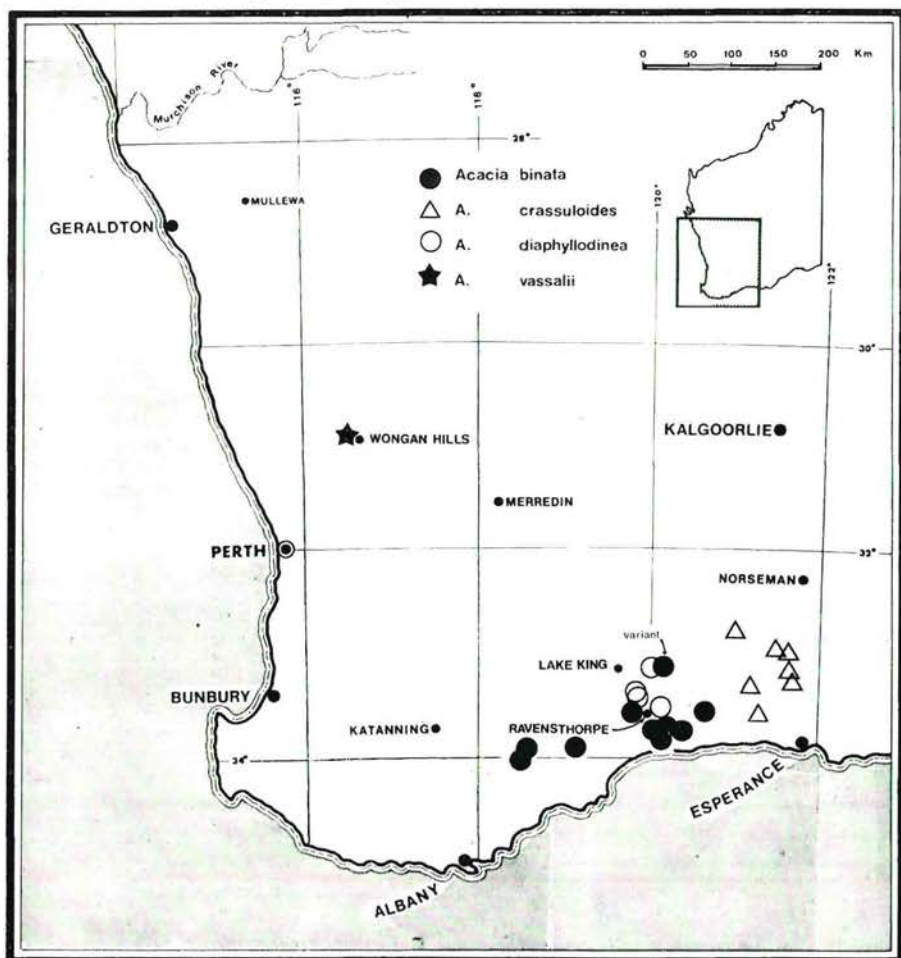


Figure 6—Distribution of *A. binata*, *A. crassuloides*, *A. diaphyllodinea* and *A. vassalii*.

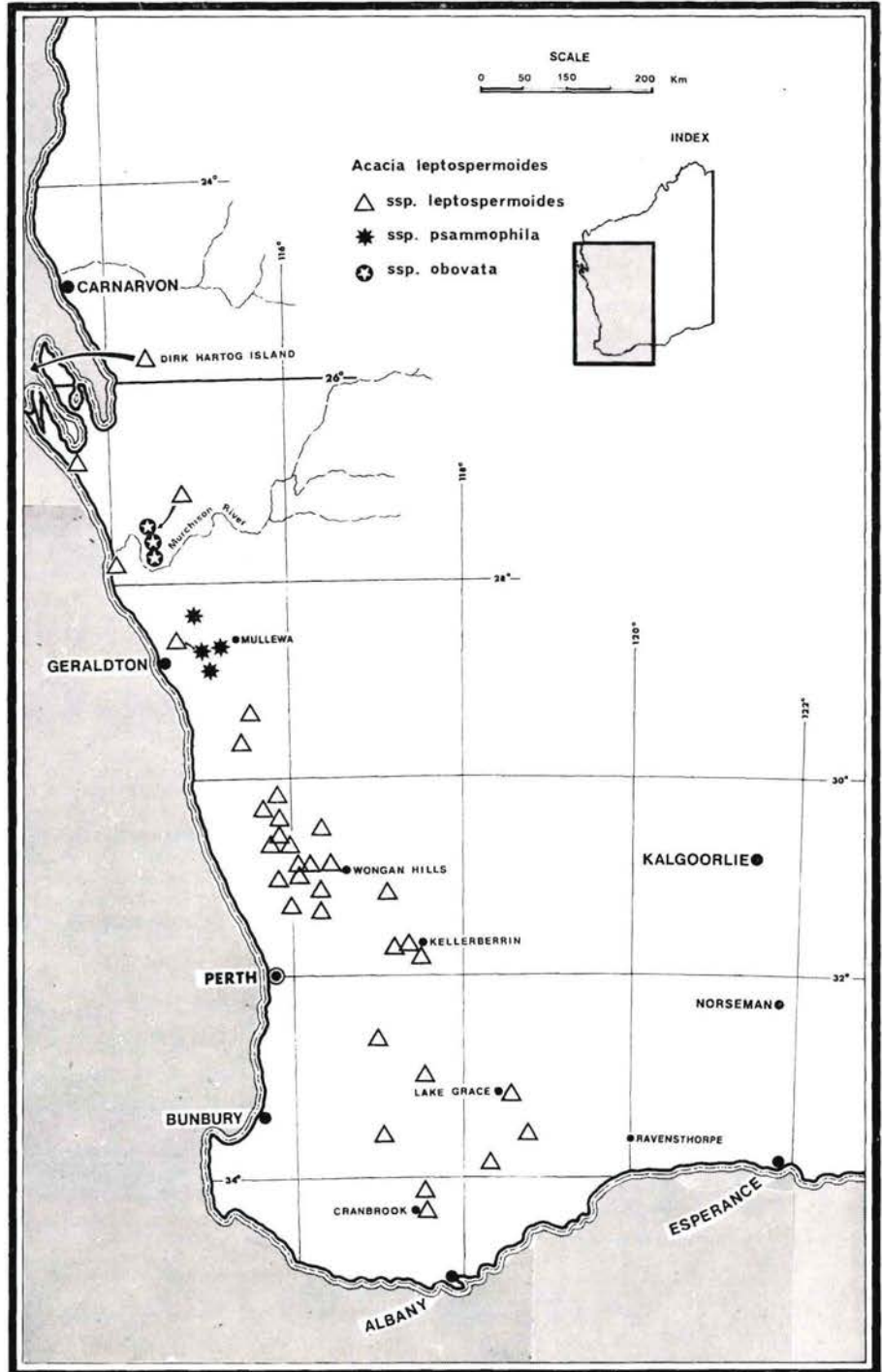


Figure 7—Distribution of *A. leptospermoides* subsp. *leptospermoides*, subsp. *obovata* and subsp. *psammophila*.

Acknowledgements

I wish to express my deep appreciation for assistance received from both Dr. J. Vassal and Dr. Ph. Guinet who made available their respective unpublished results concerning seed/seedling and pollen characteristics of most taxa dealt with here. Dr. J. H. Willis is also acknowledged for his generous assistance in providing material and information concerning *A. crassuloides*.

References

- HOCHREUTINER, M. G. (1896). Contribution a l'étude des *Acacias* phyllodines. Arch. Sci. Phys. Nat., ser. 4. **1** (3): 278-280.
- PEDLEY, L. (1975). Revision of the extra-Australian species of *Acacia* subg. *Heterophyllum* Contr. Qd. Herb. No. **18**, p. 1-24.
- VASSAL, J. et GUINET, PH. (1972). Un *Acacia* Américain a pétiole diaphyllodinisé *A. willardiana* Rose. Adansonia, ser. 2 **12** (3): 421-428.

Index to numbered specimens seen

This index is arranged alphabetically according to the name of the collector. Numbers in parentheses refer to the corresponding taxon in the text. Unless otherwise stated, the specimens are housed at the Western Australian Herbarium (PERTH). Abbreviations for herbaria are those given in Index Herbariorum, Part 1, Edition 6 (1974).

- Aplin, T. E. H. 19(5a), 1989(5a).
- Armitage, I. 518(2).
- Ashby, A. M. 1580(5c), 1897(6), 3787(4), 3852(5c—CANB, K, PERTH: comm. G. Phillips), 4522(4), 4591B(4—CANB, PERTH: comm. G. Phillips), 4620(5b), 4623(5c).
- Barrow, M. M71(5a).
- Beard, J. S. 3524(6), 6885(6), 7246(5a), 7282(6).
- Bennett, E. M. 2388(1), 2729(1—MEL, PERTH).
- Berg, R. Y. 95A(6), 224A(1).
- Blackall, W. E. 550(6), 683(6), 1008(2), 2516(5a), 2745(6), 3079(5a), 4850(6).
- Blockley, J. V. 564(4), 613(4).
- Briggs, B. G. 304(2).
- Burns, A. C. 1(4), 2(4), 4(5c), 5(4), 7(5c), 9(4), 14—9 Aug. 1965(6), 14—23 July 1967(5c), 17(5c), 29(5c), 36(5c), 76(6).
- Chadwick, Y. 2286(6).
- Cossalter, C. 1539(6).
- Coveny, R. 3025(6).
- Demarz, H. 3919(5a), 4175(5b).
- Diels, L. 3058(4—syntype of *A. ericifolia* var. *crassa*), 3097(5a—lectotype of *A. ericifolia* var. *glaucescens*), 3294(5c—lectotype), 4058(5a—syntype of *A. ericifolia* var. *crassa*), 4212(5a—lectotype of *A. ericifolia* var. *tenuis*), 4416A(5a).
- Drummond, J. 300(4—syntype of *A. hookeri*: G, G-DC, MEL, P, PERTH—fragment), 141 or coll.2, no.141(5a—CGE, G, K, P), coll.2, no.144(5a—MEL, PERTH—fragment), 151 or coll.2, no.151(4—G, K, MEL, PERTH—fragment), coll.4, no.11(5a—type: K, MEL, PERTH—fragment).
- Eichler, H. 15950(5a), 20254(2).
- Fairall, A. R. 1188(6).
- Freeman, F. D. s.n. (2—MEL 502982, PERTH; MEL 502993).
- Freeman, O. s.n. (2—MEL 502990 and 502991).
- Gardner, C. A. 2635(6), 9001(5a), 13230(6).
- George, A. S. 1420(6), 11227(5b), 11498(5a—AD, CANB, K, MEL, NY, PERTH), 11551(5a), 2533(6).
- Gittins, C. H. 1591(5b).
- Green, J. W. 481(6), 1373A(5c).

- Hargett, B. 7(4).
 Hnatiuk, R. 760409(5b—CANB, TLF, PERTH, RSA), 760791(1—variant), 760883(2).
 Kitcher, J. S858(5b).
 Lange, R. T. 4(5a), 23(5c), 57(5a).
 Long, J. 4(5c), 13(6).
 Lullfitz, F. 1653(6), L1735(5a), L2919(5a), L2956(4), L2979(5c), L3584(2), L5001(1).
 Maslin, B. R. 72(6), 91(6), 142(5a), 700(6—CANB, PERTH), 703(6—AD, PERTH), 720(4—MEL, NSW, PERTH), 993(1—AD, PERTH), 1445(5a—CANB, PERTH), 1640(5a), 1716(5a), 2453(2—CANB, TLF, PERTH), 2558(1), 2578(1—PERTH, TLF), 2792(4), 3056(6—K, PERTH), 3075(5a), 3273(5a—CANB, PERTH), 3310(6), 3381(5a—CANB, K, P, PERTH), 3386(5a), 3427(5a—K, PERTH), 3443(3—type: CANB, K, MEL, NY, P, PERTH), 3490(1—type: CANB, K, MEL, NSW, NY, P, PERTH), 3648(5b), 3689(5a—L, NSW, NT, PERTH), 3755(5a—AD, PERTH), 3756(5a—BRI, NY, PERTH), 3804A(5a—K, PERTH), 3814(5a—BRI, PERTH), 3872(3), 3922(1), 3926(3—CANB, TLF, PERTH), 4081A(5a), 4046(1), 4054(3), 4207(5a), 4274(5a), 4292(5b—type: CANB, K, NY, PERTH), 4332(4), 4333(4—PERTH, TLF), 4352(5a).
 McFarland, D. and N. 1003(4).
 Nelson, E. C. ANU17323(6).
 Newbey, K. 1293(5a), 1940(5a), 2156(6), 3432(5a—ADW, PERTH), 3478(3), 3666(1), 3666D(1), 4314(1).
 Paust, S. 798(1), 809(1), 1108(5a).
 Preiss, L. 981(4—syntype of *A. hookeri*: FI, G, GOET, HBG, K, L, MEL, NY, P, PERTH—fragment, STRAS).
 Pritzel, E. 376(4—syntype of *A. ericifolia* var. *crassa*: B, E, G, K-photo seen, L).
 Royce, R. D. 8879(2), 9734(5a), 10249(3).
 Saffrey, R. A. 1525(4—K, MEL, NSW, PERTH).
 Scrymgeour, E. M. 790(2).
 Simmons, M. 314(2).
 Smith, F. G. 1679(5b).
 Tindale, M. D. 1342(6), 2647(5a), 2650(5a), 3895(5a).
 Trudgen, M. E. 1520(1—PERTH, TLF), 1684(5b—AD, BRI, MEL, NSW, PERTH).
 Went, F. W. 39(6), 124(5a).
 Willis, J. H. s.n. (2—type: MEL 502978, CANB, K, NSW, NY, PERTH), MEL 502980(2), MEL 502992(2).
 Wilson, P. G. 5532(1—AD, BRI, K, MEL, PERTH), 831(6).
 Young, D. 128(3).