Studies in the genus Acacia (Mimosaceae)—4
A Revision of the Series Pulchellae

By B. R. Maslin

Abstract

A taxonomic revision of *Acacia* series *Pulchellae* is presented. With the exception of *A. mitchellii* which occurs in eastern Australia, the members of this Series are endemic to south-west Western Australia. The twenty-four species recognized comprise forty-five taxa. Twenty-eight new names or combinations are proposed.

The morphology of the Series is discussed and keys to species and infra-specific taxa are provided. In most cases the taxa are illustrated and their distribution mapped.

Introduction

Bentham (1842) proposed the first classification of the genus *Acacia* in which subgeneric categories were formally named (see Ross, 1973). By employing both vegetative and inflorescence characters Bentham divided the genus into six Series, one phyllodinous and five bipinnate. The *Pulchellae*, together with the *Botryocephalae* and *Gummiferae*, are the only bipinnate Series which occur in Australia—the first two being endemic to this region. In general terms, the *Pulchellae* can be distinguished from the *Botryocephalae* by their simple or extremely reduced racemose inflorescences, and from the *Gummiferae* by normally having scarious stipules.

Although there are deficiencies in Bentham's classification it is a convenient system for grouping the species of this vast genus. Therefore, for the purpose of this revision, Bentham's treatment has been accepted. It should be noted, however, that the *Pulchellae* are a diverse and possibly unnatural group of species.

Unless otherwise indicated, the specimens cited in this paper are housed at the Western Australian Herbarium (PERTH). In most instances only a selection of specimens is listed for each taxon. The abbreviations for herbaria are those given in Index Herbariorum pt.1 ed.5 (1964), with the addition of UWA for the Department of Botany, University of Western Australia (see Taxon 15(8):336, 1966)

All illustrations appearing in this work have been drawn from pressed herbarium specimens.

Unless otherwise indicated, the measurements given in the descriptions below are from dried herbarium material.

Morphology

This chapter provides definitions for the more specialized terms which appear in the taxonomic descriptions below. Many of these terms are illustrated in Figure 1. In addition, some of the general morphological attributes of the *Pulchellae* are discussed here.

1. *Habit:* About half the species in the *Pulchellae* are from 0·5 to 2 metres tall. The remaining taxa are either taller shrubs from 3 to 5 metres in height (2 species); dwarf, erect shrubs not exceeding 0·6 metres in height (17 taxa); or prostrate (3 species).

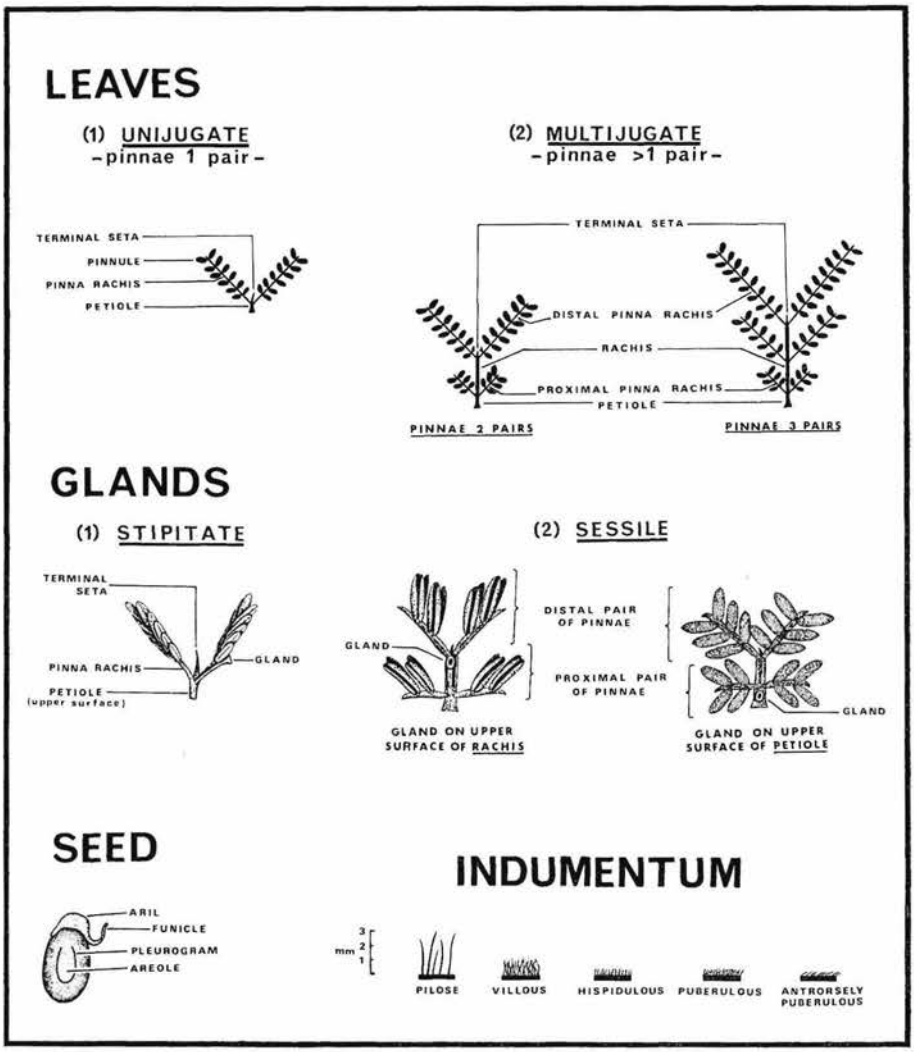


Figure 1—Some morphological features of the *Pulchellae*. See p. 388 for definition of terms illustrated here.

A relatively uncommon feature in the *Pulchellae* is the production of *suckers* which develop from short subterranean runners. With the information available to date, suckers appear to be restricted to the group of dwarf taxa referred to above, but not all members of this group produce them. The taxa for which suckering has been recorded are *A. browniana* var. *endlicheri*, *A. drewiana* var. *minor*, and *A. varia* var. *varia*, var. *crassinervis*, and var. *parviflora*. Judging from some herbarium sheets, runners also appear to occur on *A. insolita*.

2. *Indumentum:* Hair morphology, especially length and direction (i.e. antrorse, retrorse, or spreading) are useful taxonomic characters. Most of the indumentum types used in this paper are illustrated in Figure 1. The term *puberulous* which appears very frequently in the descriptions below requires a brief explanation. This term is applied to an indumentum consisting of hairs which

are short, soft, and spreading; the hairs may be either straight or tortuous. If the hairs are directed upwards (towards the apex of the organ) the indumentum is termed *antrorsely puberulous* (these hairs are less appressed than in *antrorsely strigose*).

3. *Spines:* Only three closely related species within the *Pulchellae* possess axillary spines, viz. *A. lasiocarpa*, *A. megacephala*, and *A. pulchella*. The spines are modified branches (see Vassal, 1970, p.24), occurring at the nodes together with a pair of scarious stipules.

The presence or absence of spines, their frequency, and their number per node (i.e. solitary or in pairs) are useful taxonomic characters but undue reliance should not be placed on them in differentiating taxa. In both *A. lasiocarpa* and *A. pulchella* spineless individuals often occur within varieties which typically possess axillary spines; only one taxon, *A. lasiocarpa* var. *villosa*, is consistently spineless. When spines occur on *A. lasiocarpa* they are always solitary at the nodes; likewise, one-spined nodes are normal for *A. megacephala*, but a two-spined variant has been recorded for this species. On *A. pulchella* the number is variable with both one- and two-spined nodes occurring.

4. *Leaves:* Because past authors have frequently applied different terms to the individual parts of compound leaves, the present author's usage of foliar terminology is here defined.

(i) *Jugate*—yoked together, in pairs. Used here with reference to the pinnae. The word is often prefixed by a numeral, for example, 3-jugate leaves possess three pair of pinnae. See also *multijugate* and *unijugate*.

(ii) *Multijugate leaves*—possessing more than one pair of pinnae.

(iii) *Petiole*—the stalk of the leaf, i.e. that portion of the primary leaf axis situated below the proximal pair of pinnae.

(iv) *Petiolule*—the stalk of a pinnule.

(v) *Pinna*, pl. *Pinnae*—primary division of a bipinnate leaf. In the descriptions below, a distinction is made between the proximal (lowermost) and distal (uppermost) pair of pinnae.

(vi) *Pinna rachis*—the pinnule-bearing axis of the bipinnate leaf. This term was used by Windler (1966) with reference to *Neptunia*.

(vii) *Pinnule* (= Leaflet)—the ultimate division of the bipinnate leaf.

(viii) *Primary leaf axis*—the combined petiole, rachis (when present), and terminal seta.

(ix) *Rachis*, pl. *Rachides*—the pinnae-bearing axis of the bipinnate leaf, situated above the petiole. (This term is commonly applied to the pinnule-bearing axis of a pinnate leaf.)

(x) *Terminal seta*—the appendage which terminates the rachis (of a multijugate leaf) or the petiole (of a unijugate leaf)—see Maslin (1972), for further details.

(xi) *Unijugate leaves*—possessing one pair of pinnae.

5. *Glands:* Glands are present on the leaves of most species in the *Pulchellae* but sometimes they are quite small and not readily observed. Both gland structure and position are of considerable taxonomic value in this Series. The only species which lack glands are *A. insolita* (doubtfully included in the *Pulchellae*) and *A. mitchellii* (but see p. 471).

On the basis of gland morphology, the *Pulchellae* can be divided into two major groups, one with stipitate glands and the other with sessile glands. The first group includes *A. lasiocarpa*, *A. megacephala*, and *A. pulchella;*

the gland on these species arises from near the distal end of the petiole within the angle formed by the pinnae but often it is obscured by the terminal seta. In *A. megacephala* and *A. pulchella* the gland normally consists of a distinct stipe (1–4 mm long) ending in a dilated apex; *A. lasiocarpa* on the other hand often has very reduced glands (± 0·5 mm long). Interestingly these three species all have unijugate leaves and they are the only members of the *Pulchellae* possessing axillary spines.

The remaining nineteen species have sessile glands which occur on the upper surface of the petioles and /or rachides normally immdeiately below the insertion of the pinnae. There is never more than one gland situated between each pair of pinnae as is often the case in the series *Botryocephalae*. In a few species a small gland occurs on the upper surface of the pinna rachis below the insertion of one or more pairs of pinnules. Table 1 summarizes the distribution of sessile leaf glands in the *Pulchellae*.

TABLE 1

Species	Gland position		
	Petiole	Rachis	Pinna Rachis
A. depressa [U]	x		
A. newbeyi [U]	x		
A. moirii [U]	x		
A. tayloriana [U]	x		
A. tayloriana	x		
A. gilbertii [U]	x		(x)—sometimes present
A. gilbertii	x	(x)—often present	(x)—sometimes present
A. drummondii			
subsp. candolleana [U]	x		
subsp. drummondii	x		
subsp. elegans	(x)—often present	x	
A. varia			
var. affinis	x		
var. crassinervis	x		
var. parviflora	x		
var. varia	x	(x)—often present	
A. luteola	(x)—rarely present	x	
A. preissiana		x	
A. drewiana			
subsp. drewiana		x	
subsp. minor		x	
subsp. pungens [U]	(Gland present on terminal seta.)		
A. browniana		x	
A. plicata		x	x
A. lateriticola		x	
A. empelioclada		x	x
A. empelioclada [U]			x
A. leioderma		x	x
A. nigricans		x	
A. grisea		x	
A. pentadenia	(x)—present or absent	x	
A. subracemosa		x	

Table 1—Distribution of sessile leaf glands in the *Pulchellae*. [U] = unijugate leaves (species without brackets are multijugate); x = presence of gland.

6. *Inflorescences:* In the *Pulchellae* the inflorescences are normally simple, but in a few species they consist of very short racemes e.g. *A. lasiocarpa*, *A. megacephala*, *A. newbeyi*, *A. nigricans*, *A pentadenia*, *A pulchella*, and *A. subracemosa*. In these species the raceme axis normally varies from less than 1 to 4 mm in length and is subtended by 1 to 3 scarious bracts; normally there are from 1 to 4 peduncles per raceme and these are subtended by a solitary basal bract. The racemes in the *Pulchellae* are not nearly as well developed as they are in the series *Botryocephalae*.

For the remaining species with simple inflorescences, the presence or absence of bracts at the base of the peduncles is an important taxonomic character. These bracts are referred to as *basal bracts* in the descriptions below. Generally speaking, species lacking basal bracts have hairy (not glabrous) peduncles and triangular-shaped calyx lobes (as opposed to oblong ones).

The term *obloid* is applied to very short cylindrical flower heads (i.e. length: width = 2:1–6:5). When the length and width proportions are equal the flower head is termed *globular*. A *cylindrical* flower head is one on which the length is greater than twice the width.

7. *Seeds:* Seed orientation in the legume is either longitudinal or transverse (to oblique). In the first case, the long axis of the seed lies parallel to the long axis of the legume, while in the second the long axis of the seed is normal (or inclined up to forty-five degrees) to the long axis of the legume. The long axis of an orbicular seed is taken as being a line drawn from the middle of the aril and passing through the centre point of the areole.

A *pleurogram* occurs on all seeds examined. It is either unbroken (i.e. continuous) or open towards the hilum. The area bounded by the pleurogram is termed the *areole* (see Maslin, 1972, for further details).

The *aril* is generally defined as an expansion of the *funicle* (Jackson, 1928); however, as Vassal (1971, p.213). points out, there has been considerable confusion in the past regarding the application of these terms. About half the species in the *Pulchellae* have a filiform, or almost filiform funicle which abruptly thickens into a large fleshy aril. In the remaining species the funicle tends to gradually expand into the aril without a clear distrinction between the two structures.

Relationships within the Pulchellae

The series *Pulchellae* as circumscribed here consists of a diverse assemblage of twenty-four species. With the evidence available to date (which has been derived almost entirely from comparative morphology) it is not certain whether this Series constitutes a natural taxonomic group. Although a number of natural sub-groups have been recognised (see Figure 2) the absolute relationships between these have not been determined. Data from anatomy, cytology, pollen and seedling morphology, phytochemistry, and other studies would be necessary in an attempt to reveal these relationships. Such studies are outside the scope of the present work.

Concerning Figure 2 the following points should be noted:

1. *Acacia insolita*. The true position of this species within the genus *Acacia* is somewhat obscure. In this species the uppermost leaves are reduced to phyllodes, therefore in the strict sense it should be included in the *Phyllodineae* rather than the *Pulchellae*. However, because *A. insolita* has traditionally been included in the *Pulchellae*, I have accepted it for the purpose of this revision.

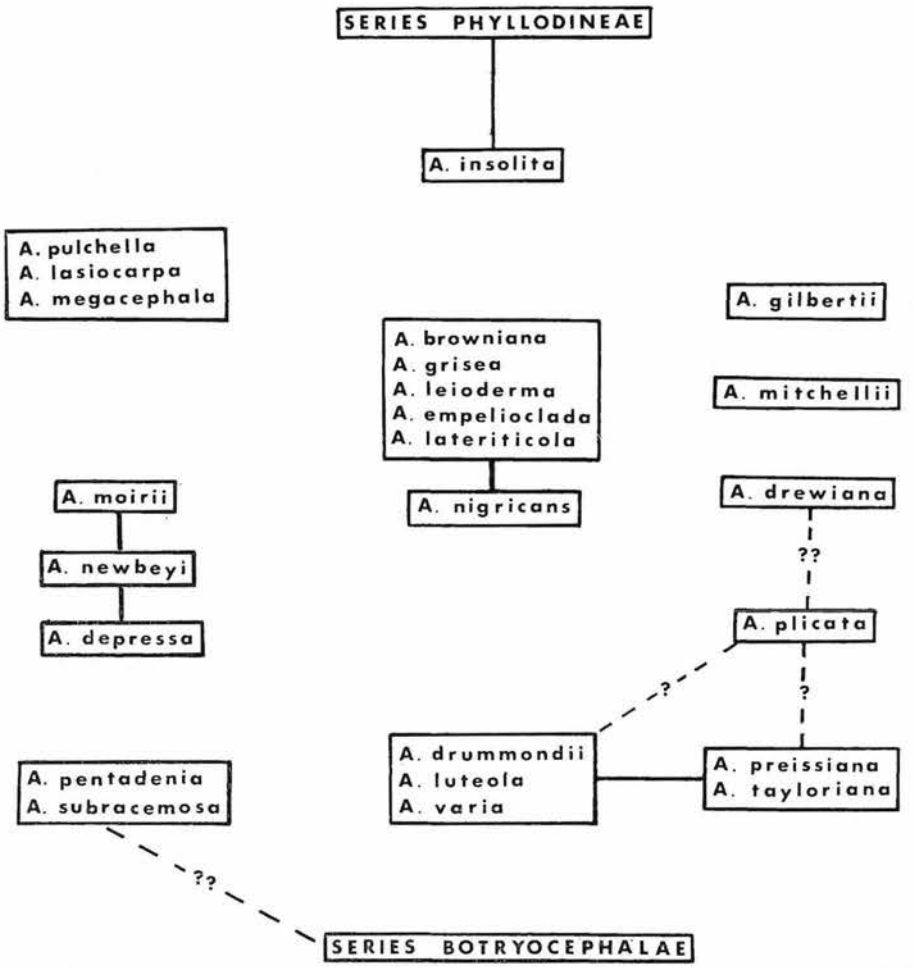


Figure 2—Affinities in the series *Pulchellae*. Species blocked are closely related; a solid line indicates probable close relationship; a broken line indicates uncertain affinity.

2. *Acacia drewiana*, *A. gilbertii*, and *A. mitchellii* possess one or more important taxonomic characters which render them quite unusual for the *Pulchellae*. The relationship of these species to the other members of the Series is not clear. *Acacia plicata* is another species with uncertain affinities; it could be distantly related to *A. drummondii* or *A. preissiana*, or even *A. drewiana*.

3. *Acacia depressa*, *A. moirii*, and *A. newbeyi* share two important taxonomic characters, viz. consistently unijugate leaves and sessile petiolar glands. However, when all the morphological attributes of these species are considered simultaneously, the relationship between them is not clear. Although these taxa have no obvious affinities with the remainder of the *Pulchellae* they can be thought of as occurring somewhere between the *A. pulchella* group (no. 6 below) and either the *A. drummondii* group (no. 7 below) or the *A. browniana* group of species (no. 8 below).

4. *Acacia pentadenia* and *A. subracemosa* are united by their overall foliage and inflorescence characters. These species appear to be somewhat removed from the remainder of the *Pulchellae;* they may possibly be distantly related to the series *Botryocephalae*.

5. *Acacia preissiana* and *A. tayloriana* appear to be related to each other. The group with which they seem most closely allied is *A. drummondii* and its allies (no. 7 below).

6. *Acacia lasiocarpa*, *A. megacephala*, and *A. pulchella* are the only species in the Series which have axillary spines and stipitate glands. These species constitute a natural group and are quite distinct from the remainder of the *Pulchellae*.

7. *Acacia drummondii* together with *A. luteola* and *A. varia* form a natural group whose members share the following characters: obloid to cylindrical flower heads, ebracteate peduncle bases, triangular-shaped calyx lobes, and glands which are normally situated on the petiole. As mentioned above, *A. preissiana* and *A. tayloriana* (perhaps also *A. plicata*) appear to have some affinities with this group.

8. *Acacia browniana* together with *A. empelioclada*, *A. grisea*, *A. lateriticola*, *A. leioderma*, and *A. nigricans* form the largest natural group within the *Pulchellae*. These species are united by the following attributes: axillary spines absent, leaves normally multijugate, gland sessile (never present on petiole), peduncles glabrous and with 3–4 fairly conspicuous basal bracts (except *A. nigricans*), flower heads globular, and calyx lobes oblong, inflexed and slightly thickened at the apex.

SERIES PULCHELLAE

Shrubs (rarely small trees) 0·3–2 (3–5) m tall, sometimes prostrate; axillary *spines* present or absent. *Stipules* scarious, rarely spiny. *Leaves* bipinnate, rarely the uppermost reduced to phyllodes (*A. insolita*), articulate on branch, rarely decurrent; *pinnae* 1–3 (4–8) pairs; *rachis* 1–15 (55) mm long; *terminal seta* scarious, rarely spiny; *pinnules* on unijugate leaves: (1) 2–10 (12) pairs, on multijugate leaves: 1–3 (4–5) pairs on proximal pinnae and 2–10 (12–30) pairs on distal pinnae. *Gland* sessile or stipitate, situated on upper surface of rachis and/or petiole, rarely on pinna rachis. *Inflorescences* simple or sometimes shortly racemose; *peduncles* glabrous or hairy, base ebracteate or with up to 4, ± conspicuous bracts; *flower heads* globular to cylindrical. *Flowers* 5 (rarely 4) -merous; *calyx* normally connate for ca. ½ or more its length, rarely truncate or divided to base, lobes oblong to triangular; *ovary* sessile, rarely stipitate. *Legumes* normally somewhat hard and brittle, rarely firmly chartaceous, flat (rarely plicate); *margins* normally thickened. *Seeds* transverse to longitudinal in legume; *pleurogram* continuous or open towards the hilum; *funicle* filiform or dilated, reflexed below a thickened straight to once-folded aril.

Type species: *Acacia pulchella* R.Br.

Key to Species—based on dried, *flowering* material.

1a. Flower heads cylindrical 2
b. Flower heads globular or obloid 5

2a. Pinnules flat or slightly recurved 3
b. Pinnules prominently recurved to revolute 4

3a. Pinnules glabrous or minutely strigose on margins. Widespread.
20. A. drummondii (Figs. 28–30)
b. Pinnules ± conspicuously hairy. Widespread .... **19. A. varia** (Figs. 24–26)

4a. Flower heads very pale yellow (± sulphur-coloured), obloid to shortly cylindrical (6–12 mm long); pinnules recurved to revolute, 2–6 x 0·5–1 mm, normally glabrous or sparsely hairy. (Denmark to Cheyne Beach, north to Stirling Range)
18. A. luteola (Fig. 23)
b. Flower heads not ± sulphur-coloured *or* if almost so then heads distinctly cylindrical and pinnule characters not combined as above. Widespread and variable ....
19. A. varia (Figs. 24, 26, 27)

5a. Flowers 4-merous, white, 2–8 per head; branches glabrous; petiole 8–14 mm long; pinnules 8–20 x 3–5 mm. Flowers from December to March. (Sporadic from York to Augusta and Denmark) .... **23. A. gilbertii** (Fig. 32)

b. Flowers 5-merous, yellow or cream-coloured, 10 or more per head 6

6a. Pinnae consistently 1 pair (i.e. leaves unijugate) 7

b. Pinnae more than 1 pair (a few unijugate leaves may occur among the multijugate ones) 19

7a. Pinnules prominently recurved to revolute 8

b. Pinnules flat 10

8a. Leaves strongly decurrent along branch; terminal seta subulate and pungent, 10–18 mm long; stipules ± spinescent; axillary spines absent. Rare. (Near Wannamal) **22c. A. drewiana** subsap. **pungens** (Fig. 31J-K)

b. Leaves articulate on branch; terminal seta scarious, 0·5–3 mm long; stipules scarious; axillary spines present or absent 9

9a. Peduncles completely glabrous; axillary spines absent. Not common. (West to East Mount Barren) .... **10. A. empelioclada** (Fig. 15)

b. Peduncles hairy to some degree; axillary spines present or absent. Widespread and variable .... **3. A. lasiocarpa** (Fig. 6)

10a. Axillary spines present (sometimes few, rarely absent); stipules scarious; gland stipitate, normally 1–4 mm long, arising at distal end of petiole from within the angle formed by the pinnae 11

b. Axillary spines absent but stipules occasionally spiny (*A. moirii* subsp. *recurvistipula*); gland sessile, situated on upper surface of petiole near insertion of pinnae (often inconspicuous; rarely absent) 14

11a. Peduncles completely glabrous 12

b. Peduncles hairy to some degree 13

12a. Flowers 80–90 per head; peduncles 15–25 mm long; pinnules narrowly obovate, 3–6 x 1·5–3 mm; branchlets densely shortly pilose. (Geraldton district) **2. A. megacephala** (Fig. 5)

b. Flowers 10–40 (50) per head; peduncles 2–15 mm long. Widespread and variable. **1. A. pulchella** (Fig. 4)

13a. Hairs on branches and peduncles retrorse; peduncles ca. 10 mm long; spines 1 per node; pinnules normally slightly recurved, 3–4 pairs, discolorous, ± prominently 1-nerved below. (Geraldton to Murchison River) **3a. A. lasiocarpa** var. **lasiocarpa**–variant

b. Characters not combined as above. Widespread and variable. **1. A. pulchella** (Figs. 3–4)

14a. Petiole 7–25 mm long; branchlets not spinescent 15

b. Petiole < 0·5–2 mm long *or* if longer (to 4 mm) then branchlets prominently spinescent 16

15a. Upper leaves reduced to phyllodes; peduncles 6–12 mm long, minutely puberulous; pinnules (on lower leaves) 6–10 pairs; shrub erect. (Dwellingup to Bridgetown; Pingelly to Narrogin) .... **24. A. insolita** (Fig. 33)

b. Leaves all bipinnate; peduncles 25–50 mm long, pilose; pinnules 3–5 pairs, hispid below; shrub prostrate. Rare. (Augusta district) .... **16. A. tayloriana** (Fig. 21)

16a. Peduncles ± conspicuously hairy; stipules sometimes spiny; pinnules 3–7 pairs, sometimes conspicuously hairy. (Manypeaks to near Hyden and Ravensthorpe; Badgingarra district) .... **4. A. moirii** (Figs. 7–9)

b. Peduncles glabrous (rarely sparsely and minutely strigose—*A. depressa*); stipules never spiny; pinnules glabrous to glabrescent 17

17a. Flowers 25–43 per head; branchlets pilose (hairs spreading and conspicuous, 1–2 mm long), not spinescent. (East to West Mount Barren).... **10. A. empelioclada** (Fig. 15)

b. Flowers 10–15 per head; branchlets glabrous or minutely hairy, spinescent or subspinescent 18

18a. Petiole 3–4 mm long; branchlets prominently spinescent; pinnules 3–4 pairs; shrub prostrate. Rare. (Near Tarin Rock) .... **5. A. depressa** (Fig. 10)

b. Petiole 0·5 mm long; branchlets subspinescent; pinnules normally 2 pairs; shrub erect. (Ongerup to Hyden and Ravensthorpe) .... **6. A. newbeyi** (Fig. 11)

19a. Leaves strongly decurrent along branch (Fig. 31I); petiole absent (i.e. lowermost pair of pinnae arising at junction of leaf axis and branch); branches and peduncles hairy. (Armadale to Bindoon; Wongan Hills; Kukerin to Lake Grace) **22. A. drewiana** (Fig. 31)

b. Leaves articulate on branch; petiole present although often very short (± 1 mm).... 20

20a. Branchlets glabrous 21

b. Branchlets hairy 27

21a. Pinnules somewhat thickened and prominently revolute (these are glabrous variants of normally hairy species) 22

b. Pinnules flat or slightly recurved 24

22a. Pinnules 4–5 pairs; rachis ca. 15 mm long; flower heads globular. (Near York) **15. A. preissiana**

b. Pinnules 2–3 pairs; rachis 2–4 mm long; flower heads obloid to shortly cylindrical.... 23

23a. Flower heads pale yellow (± sulphur-coloured); branchlets prominently ribbed. (Albany to Stirling Range) .... **18. A. luteola**

b. Flower heads deep yellow; branchlets not prominently ribbed. (Lucky Bay, east of Esperance) .... **19d. A varia** var. **parviflora**

24a. Leaves large: rachis 10–55 mm long, pinnae 2–5 (6–8) pairs, distal pinna rachis 25–80 mm long; pinnules 12–30 pairs, obliquely truncate at base, ± sessile (i.e. petiolule extremely reduced). (Pemberton to near Albany) .... **13. A. pentadenia** (Fig. 18)

b. Leaves smaller than above; pinnules 2–8 (13) pairs, ± rounded at base, petiolule quite distinct 25

25a. Flowers 28–35 per head; gland (small and sessile) normally present on upper surface of distal pinna rachis below uppermost 1–2 pairs of pinnules; branches prominently ribbed; pinnules 5–11 mm long. (Albany to Mount Barker, eastward to West Mount Barren) .... **12. A. leioderma** (Fig. 17)

b. Flowers 14–21 per head; pinna rachis eglandulose; branch ribs often less prominent than above (these are glabrous to glabrescent variants of normally hairy species).... 26

26a. Peduncles twinned on an extremely short raceme axis, 2–6 per leaf axil. (Esperance district) .... **11. A. nigricans**

b. Peduncles simple, 1 (2) per leaf axil. (Albany to Busselton) .... **7. A. browniana**

27a. Sepals free to base, linear-spathulate; leaves eglandulose. (Eastern Australia.) **21. A. mitchellii**

b. Sepals united; gland present on upper surface of petiole or rachis, often small. (Western Australia) 28

28a. Peduncles hairy to some degree; calyx lobes normally triangular 29

b. Peduncles completely glabrous; calyx lobes oblong 36

29a. Pinnules flat to slightly recurved 30

b. Pinnules slightly thickened and prominently recurved to revolute 33

30a. Petiole 7–17 mm long; pinnules 9–11 x 3–5 mm, ± prominently reticulate and antrorsely hispid below; shrub prostrate. Flowers in January. Rare. (Augusta district) **16. A. tayloriana** (Fig. 21)

b. Petiole 1– 3mm long; pinnules not as above; shrub erect 31

31a. Flowers 40–55 per head; pinnules 2–8 pairs, densely hairy, mostly above 6 mm long· (Hill River district) .... **17. A. plicata** (Fig. 22)

b. Flowers 14–20 head; pinnule characters not combined as above 32

32a. Pinnules 7–13 pairs, sessile (i.e. petiolule ± absent); pinnae 3–6 pairs; calyx lobes triangular; peduncles ± conspicuously hairy. (Near Augusta to Witchcliffe) **14. A. subracemosa** (Fig. 19)

b. Pinnules normally 3–7 pairs, petiolule present; pinnae normally 2 pairs; calyx lobes oblong; peduncles ± sparsely hairy. (Nannup to Mount Chudalup) **7c. A. browniana** var. **obscura** (Fig. 12)

33a. Flower heads distinctly globular; leaves relatively large: rachis 4–13 mm long, distal pinna rachis 7–20 mm long, pinnules 2–8 pairs and 4–15 mm long 34

b. Flower heads obloid (i.e. slightly longer than broad); leaves normally smaller than above (neglect foliage on juvenile plants): rachis 1–4 mm long, distal pinna rachis 1·5–8 mm long, pinnules 2–4 pairs and 2–6 mm long 35

34a. Flowers 40–55 per head; hairs conspicuous at apex of bracteoles (observe unexpanded inflorescence); peduncles puberulous (hairs < 0·5 mm long); pinnules densely puberulous, normally 6–15 mm long; shrub erect. Flowers from August to October. (Hill River district) .... **17. A. plicata** (Fig. 22)

b. Flowers 20–28 per head; hairs not conspicuous on bracteoles; peduncles pilose (hairs ca. 1 mm long); pinnules less hairy and normally shorter than above; shrub prostrate. Flowers from December to January. (Sporadic from Bindoon to Albany) **15. A. preissiana** (Fig. 20)

35a. Flower heads deep yellow; gland (small and sessile) present on upper surface of petiole (and often also rachis) below insertion of the pinnae. Widespread.
19d. A. varia var. **parviflora** (Fig. 27)

b. Flower heads pale yellow (± sulphur-coloured); gland present on upper surface of rachis below insertion of distal pinnae, petiole normally eglandulose. (Denmark to Cheyne Beach, north to Stirling Range) .... **18. A. luteola** (Fig. 23)

36a. Hairs on branchlets uniformly short (ca. 0·7 mm or less long) 37

b. Hairs on branchlets long (ca. 1·5–3 mm) but often mixed with shorter ones 39

37a. Peduncles twinned on an extremely short raceme axis, 2–6 per leaf axil; branchlets often conspicuously ribbed, hispidulous (hairs normally tubercle-based). (Esperance district) .... **11. A. nigricans** (Fig. 16)

b. Peduncles simple, 1 (2) per leaf axil; branchlets often inconspicuously ribbed, hairs rarely tubercule-based. (West of Ravensthorpe) 38

38a. Pinnules flat, finely and densely puberulous above and below, concolorous, somewhat thickened and imbricate. (Kojonup to Nyabing) .... **8. A. grisea** (Fig. 13)

b. Pinnules recurved to revolute *or* if flat then normally glabrous or ciliolate, rarely concolorous. Widespread and variable .... **7. A. browniana** (Fig. 12)

39a. Peduncles 5–15 mm long at anthesis; flowers 12–21 per head. Widespread and variable
7. A. browniana (Fig. 12)

b. Peduncles 15–30 mm long at anthesis; flowers 24–43 per head 40

40a. Gland (small and sessile) present on upper surface of distal pinna rachis at base of uppermost 1–4 pairs of pinnules; distal pinna rachis 10–30 mm long and bearing 4–10 pairs of normally glabrous pinnules. (Cape Riche to East Mount Barren)
10. A. empelioclada (Fig. 15)

b. Glands absent from base of pinnules; distal pinna rachis 5–15 mm long and bearing 2–5 pairs of sparsely hispidulous pinnules. (Muchea to Pemberton)
9. A. lateriticola (Fig. 14)

1. Acacia pulchella R.Br. in Ait. f., Hort. Kew. ed.2, 5:464 (1813). *Syntypes:* (1) " Hort. Kew. (New Holl. Mr Brown.) ". (2) " R. Brown, Iter Australiense, 1802–5."—Bennett No. 4322. (BM—photo seen). See discussion below.

Mimosa pulchella (R.Br.) Poir., Encycl. Meth. (Bot.) Suppl. 5:530 (1810).
Acacia lanuginosa Hort. ex Regel, Gartenflora 3:155 (1854), non C. A. Gardner (1939). *Type:* n.v.

Shrub (0·25) 0·5–2 (3) m tall; *branchlets* sometimes spinescent, straight to prominently flexuose, ± nerveless to prominently ribbed, glabrous or hairy (indumentum variable). *Spines* axillary, 1–2 per node, occasionally absent. *Stipules* scarious. *Leaves* bipinnate; *petiole* minute (0·5 mm) to 1·5 mm long (sometimes 2–5 mm towards base of branches); *terminal seta* narrowly triangular, (0·5) 1–4 mm long, dark brown; *pinnae* 1 pair; *pinna rachis* (0·5) 1–10 (15) mm long, normally glabrous or sparsely ciliolate; *pinnules* 2–8 (11) pairs, (narrowly) oblong to (narrowly) obovate, 1–5 (6) x 0·5–1·5 (3·5) mm, flat, green to glaucous, glabrous or ciliolate (puberulous above and below on var. *reflexa*), normally 1-nerved below (nerve fine or thickened). *Gland* stipitate, arising at junction of pinnae, (< 0·5) 1–3 mm long, glabrous or sometimes puberulous, apex normally dilated. *Inflorescence* a very condensed raceme (except on var. *fagonioides* where it is simple), peduncle arising from axil of the uppermost bract on the very short raceme axis (to 3 mm long) sometimes a second peduncle arising from axil of the lowermost bract; *peduncles* 1–3 per axil, 2–15 (20) mm long, glabrous or hairy; *flower heads* globular, with 10–40 (50) flowers. *Bracteoles* dimorphous: lower series (arranged in a single ring at base of receptacle) reflexed, normally ± oblong and inflexed at apex; upper series (spirally arranged) erect, variable. *Flowers* 5-merous; *calyx* ½–¾ length of corolla, divided for ⅓–½ its length into oblong glabrous or ciliolate lobes, tube glabrous to sparsely puberulous and nerveless to prominently 5-nerved; *petals* 1·5–2 (2·5) mm long, glabrous to glabrescent, 1-nerved. *Legumes* narrowly oblong, 15–80 x 3–5 (7–9) mm, flat or slightly undulate, raised over seeds, glabrous or hairy, light to dark brown; *margins*

straight (rarely prominently contracted between the seeds), yellow to light brown. *Seeds* (not seen for var. *reflexa* or var. *subsessilis*), longitudinal in legume (sometimes the proximal and distal seeds on var. *fagonioides* tending to oblique), oblong to orbicular, (2) 2·5–4·5 (6) x 1·5–3 (4·5) mm, dark greyish to brown, ± dull to shiny; *pleurogram* often prominent, with a narrow opening towards the hilum; *funicle* sometimes minute, filiform but often slightly dilated, reflexed below a thickened ± straight or once (sometimes twice) -folded aril.

At British Museum, Natural History, there are two sheets which could possibly represent type material of *A. pulchella*. The first is labelled " Hort. Kew. (New Holl. Mr. Brown.)"; it is also annotated "*Mimosa microphylla*, *Acacia pulchella*"—none of this handwriting is Robert Brown's; this sheet consists of a single flowering specimen. The second sheet which consists of four specimens (two flowering, one sterile, one in fruit) bears a label " R. Brown, Iter Australiense, 1802–5."—Bennett No. 4322, and a second label (in Robert Brown's hand) " *Mimosa armata*, King George III's Sound . . . " which has apparently been attached here in error. Judging from photographs seen, all the specimens contained on these sheets represent the same taxon. I have refrained from selecting a lectotype from this material because there is some uncertainty regarding the origin of the specimens. The whole question of Robert Brown's types for *Acacia* species described in Aiton's Hortus Kewensis needs to be thoroughly investigated.

The original description of *A. lanuginosa* Hort. ex Regel was very brief; no type was cited. Judging from the protologue, I have tentatively referred this species to *A. pulchella*, but it is impossible to determine from Regel's description the particular variety to which this species belongs.

Acacia pulchella is undoubtedly the most variable member of the *Pulchellae* and perhaps also the most variable *Acacia* species in Western Australia. It has been convenient to recognize six varieties within this species. Three of these (var. *fagonioides*, var. *reflexa* and var. *subsessilis*) are quite distinct, but the variational limits of the remaining varieties (var. *glaberrima*, var. *goadbyi* and var. *pulchella*) are not clearly defined. Certainly further work is required to elucidate the complex variation patterns which exist within this species. Specimens from the region of Busselton to Albany are particularly confusing and ecological studies in this area would prove most worthwhile.

Acacia pulchella is related to both *A. lasiocarpa* Benth. and *A. megacephala* B. R. Maslin. These three species are the only members of the *Pulchellae* which possess stipitate glands and axillary spines. *Acacia pulchella* is readily distinguished from *A. lasiocarpa* by its flat pinnules, and from *A. megacephala* by its smaller flower heads—see under these two species for further details.

Key to varieties[1]

1a. Branchlets and flowering peduncles completely glabrous 2
b. Branchlets and/or flowering peduncles hairy to some degree (hairs sometimes sparse or minute 4
2a. Peduncles 2–3 mm long; bracteole laminae acuminate, dark brown, ± prominent in the bud; pinnules 2–4 pairs. Rare .... **f.** var. **subsessilis**
b. Peduncles 7–15 mm long; bracteole laminae ovate, neither dark brown nor very prominent in the bud 3
3a. Pinnules normally 3–5 pairs and obovate; spines mostly numerous, (1) 2 per node; branchlets often slightly pruinose, ribs normally not prominent. (Widespread—Murchison River to Ravensthorpe) .... **c.** var. **glaberrima** (Figs. 4D-I)
b. Pinnules normally 5–8 pairs and ± narrowly oblong; spines often few, 0–1 per node (never 2); branchlets not pruinose, ribs normally prominent. (Boyup Brook to Albany; Esperance) .... **d.** var. **goadbyi** (Figs. 4J-L)
4a. Peduncles arising from near apex of the solitary axillary spine; branchlets strigose; pinnules 2–4 pairs, normally obovate, glabrous to glabrescent. (Toodyay and Eneabba districts .... **e.** var. **fagonioides** (Figs. 4M-O)
b. Peduncles arising from leaf axil at base of spine 5

5a. Pinnules finely puberulous above and below, concolorous, ± glaucous; pinnae reflexed; branches ± densely and conspicuously hairy. (Coorow to near Gleneagle)
b. var. **reflexa** (Figs. 4A-C)

b. Pinnules glabrous or ciliolate 6

6a. Peduncles 2–3 mm long; flowers 10–19 per head, attenuated in the bud; pinnules 2–4 pairs. (Not very common—Wyalkatchem to Ravensthorpe)
f. var. **subsessilis** (Figs. 4P-S)

b. Peduncles above 5 mm long; flowers above 20 per head; pinnules 4–9 pairs.... 7

7a. Peduncles glabrous. (Not common—Harvey to Dunsborough) **c.** var. **glaberrima**

b. Peduncles minutely puberulous. (Widespread—Moora to Dunsborough and Albany)
a. var. **pulchella** (Fig. 3)

1a. var. **pulchella**—*Fig.* 3

Acacia pulchella R.Br. var. *hispidula* Meisn. in Lehm., Plant. Preiss. 1:22 (1844). *Syntypes:* "In limoso-calculosis sylvae inter Mahogany Creek et Halfwayhouse (Darling's-Range) d.13 Sept. 1839. *Herb. Preiss.* No. 908 (*Drummond* n.309, 311)". (iso: MEL, PERTH—*Drummond* 311; K (photo seen)—*Drummond* 309 and 311)

[*Acacia pulchella* R.Br. var. *hispidissima* auct. non (A.DC.) Meisn.: Meisn. in Lehm., Plant, Preiss. 1:22 (1844), as to specimens cited.]

Much branched *shrub* 0·5–1 (1·5) m tall; *branchlets* slightly to prominently flexuose, finely to prominently ribbed, moderately puberulous to glabrescent, often with an additional layer of pilose hairs. *Spines* 2 per node, normally numerous and unequal in length. *Petiole* 0·5–1·5 (3) mm long; *terminal seta* narrowly triangular, 1–4 mm long; *pinna rachis* 3–10 mm long; *pinnules* (3) 4–8 pairs, oblong, narrowly oblong, or slightly obovate, 1–5 x 0·5–1·5 mm, often dark green above and somewhat lighter green below, sometimes concolorous, glabrous to minutely puberulous along margins, nerveless to 1-nerved below (nerve fine or thickened), lateral veins often ± thickened. *Gland* less than or ± equalling terminal seta, apex dilated. *Peduncles* 5–15 mm long, minutely antrorsely puberulous (hairs sometimes sparse); *flower heads* with (15) 24–40 flowers. *Bracteoles* (upper series) 1·5–2·5 mm long; laminae ovate, often prominently narrowed at the apex. *Calyx tube* glabrescent, 5-nerved; *petals* 1-nerved (nerve ± thickened when dry). Legumes 15–45 x 3–4 mm, glabrous or sometimes shortly pilose. *Seeds* ± oblong, 2·5–3·5 x 1·5–2 mm.

Distribution and habitat: (Map 2) South-west Western Australia: extending from Moora southward to Augusta and Albany; commonly found in lateritic soil.

WESTERN AUSTRALIA: West of Mount Barker, *A. M. Ashby* 3663 (AD, PERTH, RSA); Mount Bakewell, York, *A. S. George* 3046; Near Boggy Lake, 6 miles SW of Walpole, *J. W. Green* 1091; Mersea Lake, ca. 12 mi S of Bridgetown, *W. A. Loneragan* 276 (UWA); Yallingup, *J. H. Maiden* s.n., Sept.-Nov. 1909 (NSW 1329621); King George Sound, *J. H. Maiden* s.n., Nov. 1909 (ex NSW 132954); Kalamunda, *B. R. Maslin* s.n., 28 Nov. 1971; 3 mi E of Harvey, *B. R. Maslin* 436; 0·5 mi S of Lower Chittering on the Bullsbrook road, *B. R. Maslin* 753; 8 km S of Nannup towards Pemberton, *B. R. Maslin* 2869 (CANB, PERTH); Banks of Kalgan River, Albany area, *B. R. Maslin* 2965; Darling Range, *Preiss* 890, 26 July 1839 (MEL, PERTH—incorrectly given in protologue as "908"); Near Canning River, *Preiss* 899 (MEL, PERTH—fragment); Darling Range, *E. Pritzel* 520 (AD, NSW); Bullsbrook, *F. G. Smith* 1722; About 2 mi from Moora towards Dandaragan, *F. W. Went* 154; Cape Leeuwin, *P. G. Wilson* 10236 (AD, K, MEL, NSW, PERTH).

Flowering and fruiting period: Flowers from late July to October (occasionally November-December); mature seeds have been collected in late November and December.

Acacia pulchella var. *pulchella* is quite a variable taxon. In the region from Moora to Cape Naturaliste it is normally recognized by the following characters: branch indumentum is a mixture of pilose and hispidulous or puberulous hairs (the pilose layer is sometimes sparse); midrib and lateral veins on lower surface of pinnules somewhat thickened; petiole to 1·5 mm long,

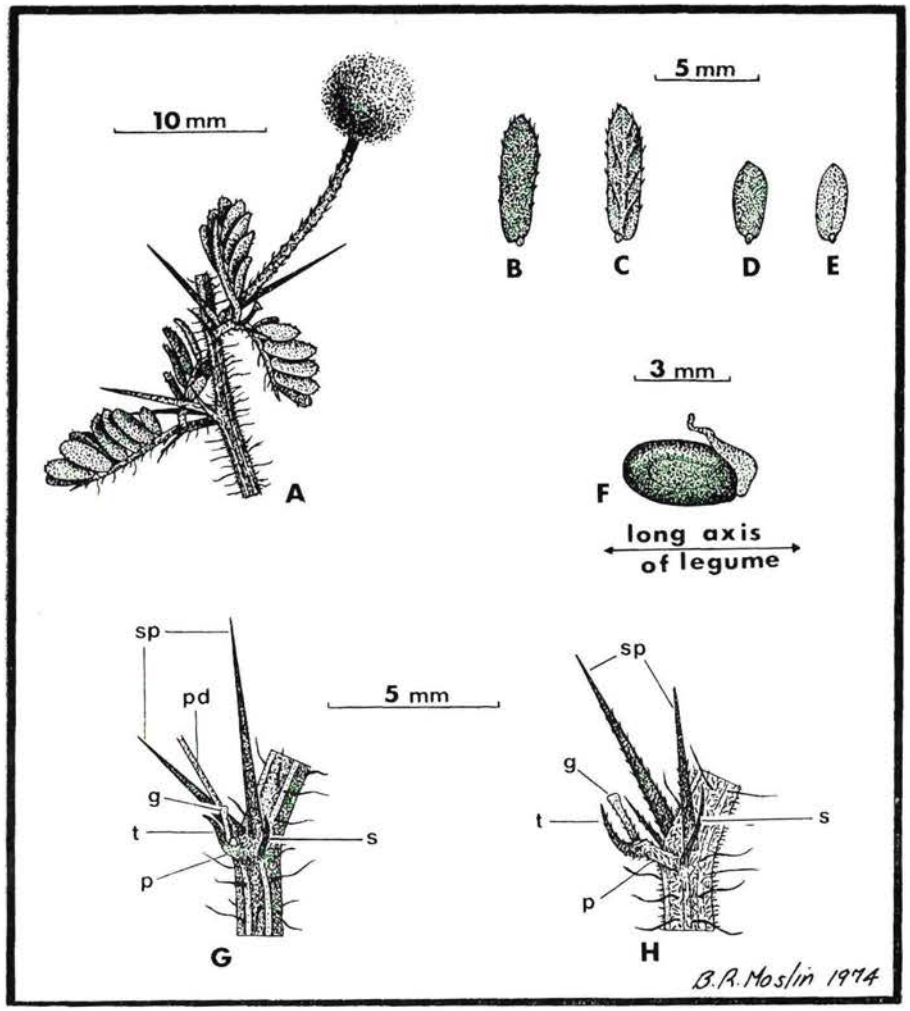


Figure 3—*Acacia pulchella* var. *pulchella*. A—Portion of branch. B to E—Pinnules (B—upper surface; C—lower surface showing thickened midrib and lateral veins; D—upper surface; E—lower surface showing obscure midrib). F—Seed (dark brown). G—Node of Cape Naturaliste-Albany form (pinnae removed) showing axillary spines (*sp*), stipitate gland (*g*), short terminal seta (*t*) and stipules (*s*), base of peduncle (*pd*), and very short petiole (*p*). H—Node of Moora-Cape Naturaliste form (pinnae removed) showing axillary spines (*sp*), stipitate gland (*g*), long terminal seta (*t*) and stipules (*s*), and elongated petiole (*p*).
A from *B. R. Maslin* 753; B-C from *F. W. Went* 154; D-E from *P. G. Wilson* 10236; F from *B. R. Maslin* s.n.; G from *B. R. Maslin* 2965; H from *F. G. Smith* 1722.

and bracteole-laminae normally prominent (see Figs. 31, C and H). It is this form which includes the type of *A. pulchella* var. *hispidula* Meisn. There is some evidence to suggest that morphological intermediates occur between this form and *A. pulchella* var. *reflexa* B. R. Maslin—see page 401.

The above-mentioned distinguishing characters are often absent from individuals occurring in the Cape Naturaliste-Albany area. These plants often lack the pilose hair layer on their branches, the pinnule midrib is not thickened and the lateral veins are absent, the petiole is often shorter, and the bracteole-laminae are normally ovate and less prominent (see Figs. 3E and G). It is this form which corresponds to the type of *A. pulchella* and which is sometimes difficult to distinguish from var. *glaberrima* Meisn.—see page 403.

1b. var. **reflexa** B. R. Maslin var. nov.—*Figs. 4A-C*

Frutex ad ca. 1 m altus; *rami* puberuli ad breviter pilosi. *Spinae* axillares, 1(2) in nodo quoque. *Pinnae* unijugatae, plerumque reflexae; *pinnulae* 4–8 (10)-jugae, 2·5–5 x 1·5–2 mm, utrinque subtiliter puberulae, aliquantum glaucae (in statu vivo). *Glans* stipitata, 1·5–3 mm longa. *Pedunculi* puberuli. *Calycis* tubus saepe manifeste 5-nervosus.

Type: 7 km N of Bullsbrook East, Western Australia, 20 July 1973, *K. F. Kenneally* 882 (holo: PERTH; iso: B, CANB, K, MEL, NSW, NY, PERTH).

Openly branched *shrub* to ca. 1 m tall; *branchlets* finely ribbed to ribless, moderately to densely puberulous to shortly pilose, often reddish. *Spines* 1 (2) per node, often sparse, 4–7 (10–20) mm long. *Pinnae* normally reflexed, sometimes spreading; *petiole* often less than 0·5 mm long (may reach 2–5 mm towards base of branches); *terminal seta* 1–2·5 mm long, narrowly to very narrowly triangular, dark brown; *pinna rachis* 4–10 (20) mm long, indumentum as on branches; *pinnules* 4–8 (10) pairs, oblong to narrowly oblong, sometimes slightly obovate, 2·5–5 x 1·5–2 mm, somewhat imbricate, finely puberulous over entire surface, nerveless above, 1-nerved below, lateral veins few (nerves ± obscure and slightly thickened), concolorous, somewhat glaucous (when fresh). *Gland* 1·5–3 mm long, somewhat thickened, puberulous. *Peduncles* moderately to densely puberulous; *flower heads* 6–7 mm diam. at anthesis, with 32–43 flowers. Bracteoles (upper series) 2 mm long, moderately to densely puberulous; laminae ovate, normally not prominent in the bud. *Calyx tube* often prominently 5-nerved; *petals* 1-nerved (nerves somewhat thickened). *Legumes* (young) 25–35 x 3·5 mm, densely puberulous. *Seeds* n.v.

Distribution and habitat: (Map 2) South-west Western Australia: most common in areas north of Perth from near Bullsbrook northwards to near Coorow. There is one record of this plant from the vicinity of Gleneagle, which is about 50 km due southeast of Perth. *Acacia pulchella* var. *reflexa* grows in either moist grey sand near swamps or in laterite in Jarrah (*Eucalyptus marginata* Donn ex Sm.) forest.

WESTERN AUSTRALIA: Mogumber, *W. E. Blackall* s.n., Aug. 1929; Tootbardi road, west of Coorow, *C. Chapman* s.n., early June 1972; Hill River, *C. A. Gardner* s.n., June 1943; 39 mile peg, Albany Highway, *K. F. Kenneally* 902; Near 39 mile peg on Great Northern Highway, *B. R. Maslin* 2779 (MEL, PERTH); 74 mile peg, south of New Norcia, *F. G. Smith* 1715; Badgingarra district, *F. G. Smith* 1823; Chittering, 30 miles N of Perth, *J. Souster* 445 (NSW, PERTH); 22·9 miles N of Bindoon on Great Northern Highway, *M. D. Tindale* 1267 (ex NSW).

Flowering and fruiting period: Flowers from June to August; immature legumes have been collected in mid-September.

This new variety is closely related to *A. pulchella* var. *pulchella* and there is some morphological evidence to suggest that intermediates occur between these taxa (see below). It is distinguished from the typical variety by the nature of its branch indumentum, fewer spines, reflexed pinnae, and concolorous, somewhat glaucous pinnules which are finely puberulous above and below (when hairs are present on the pinnules of var. *pulchella* they are restricted to the margins). *Acacia pulchella* var. *reflexa* begins its flowering season nearly two months before var. *pulchella.*

As mentioned above, there is some evidence to suggest that morphological intermediates occur between var. *reflexa* and var. *pulchella* (see *Smith* 1715 and *Tindale* 1267). These putative intermediates have been collected from about 25 kilometres to 40 kilometres north of Bindoon on the Great Northern Highway. They are characterized by spreading pinnae, 2–3 (4) pairs of pinnules which are discolorous, puberulous on both surfaces, and quite prominently veined below, and acuminate bracteole-laminae which are somewhat conspicuous in the bud.

The varietal epithet refers to the reflexed pinnae.

1c. var. **glaberrima** Meisn. in Lehm., Plant. Preiss. 1:22 (1844). *Lectotype:* In Nova Hollandia, ad flumen Swan River, (1843), *Preiss* 884 (iso: K—photograph seen, MEL, PERTH—fragment)—*Figs. 4D-I*

Acacia hispidissima A. DC., Prod. 2:455 (1825). *Type:* "in Nova-Hollandia orient" (holo: G-DC—photograph seen; probable iso: K, this specimen labelled " Nouvelle-Hollande C. occident. Baie du Geographe. Herb. Mus. Paris "—photograph seen).

Acacia pulchella R.Br. var. *hispidissima* (A.DC.) Meisn. in Lehm., Plant. Preiss 1:22 (1844)—as to name only.

Acacia lanata Hort. ex K. Koch, Allgem. Gartenz. 26:197 (1858) pro syn.

Acacia denudata Lehm. ex Meisn. in Lehm., Plant. Preiss. 1:21 (1844); Lehm., Del. Semin. Hort. Hamb. (1842) nomen. *Syntypes:* " In depressis umbrosis prope Woodman's-point, d.15, Aug. 1839. *Herb. Preiss.* No. 893. (*Drummond* n.312) " (iso: MEL, PERTH—fragment).

Acacia pulchella R.Br. var. *denudata* (Lehm. ex Meisn.) E. Pritzel, Bot. Jb. 35:310 (1904).

Acacia pulchella R.Br. var. *denudata* (Lehm. ex Meisn.) E. Pritzel subvar. *typica* E. Pritzel, Bot. Jb. 35:310 (1904), nom. illeg.

Acacia erioclada Hort. ex K. Koch, Allgem. Gartenz. 26:197 (1858) pro syn.

Acacia denudata Lehm. ex Meisn. var. *gracilis* Meisn. in Lehm., Plant. Preiss. 1:21 (1844). *Type:* " In umbrosis ad ripam fluvii Preston (Wellington) m. Dec. 1839. *Herb. Preiss.* No. 904." (n.v.)

Acacia denudata Lehm. ex Meisn. var. *spinosissima* Meisn. in Lehm., Plant Preiss. 1:22 (1844). *Type:* "Colitur in Horto Baumanniano Mulhusiae Alsatorum, ubi florentem vidi vere 1843." (n.v.)

Acacia pulchella R.Br. var. *denudata* (Lehm. ex Meisn.) E. Pritzel subvar. *spinosissima* (Meisn.) E. Pritzel, Bot. Jb. 35:310 (1904).

Acacia grandis Hort. ex Henfrey, Gdnrs'. Mag. Bot. 3:177 cum. icon. (1851). *Type:* n.v.

Divaricately branched *shrub* (0·5) 1–2 (3) m tall; *branchlets* often spinescent, slightly to prominently flexuose, normally finely ribbed, smooth and normally glabrous, sometimes sparsely (rarely densely) pilose, often slightly pruinose. *Spines* (1) 2 per node, normally unequal in length, 5–15 (20–25) mm long. *Stipules* 0·5–1 (2) mm long. *Petiole* less than 0·5 mm long; *terminal seta* 1–2·5 mm long, narrowly triangular, dark brown; *pinna rachis* 1–5 (6–13) mm long; *pinnules* 3–5 (6–9) pairs, obovate to narrowly obovate, sometimes narrowly oblong, 1–5 x 1–2 mm, normally subglaucous (sometimes very glaucous), glabrous, finely 1-nerved. *Gland* (0·5) 1–3 mm long, glabrous. *Peduncles* 7–15 mm long (20 mm when in fruit), glabrous; *flower heads* 5–8 mm diam. at anthesis, with (20) 25–40 (50) flowers. *Bracteoles* (upper series) 1–1·5 mm long; laminae small, ovate. *Calyx tube* ± obscurely nerved; *petals* 1·5–2 (2·5) mm long, 1-nerved (nerve sometimes thickened). *Legumes* 15–50 x 4–5 mm, glabrous. *Seeds* ± orbicular to oblong, 2·5–4·5 x 2·5–3 mm.

Distribution and habitat: (Map 1) South-west Western Australia: a widespread variety most common in the region from Moora southward to Margaret River and Ravensthorpe; it has been collected as far north as the Hutt River (about 80 km north of Geraldton). This variety grows in a number of ecological situations: it is very common in the poor sandy soil of the Swan Coastal Plain from near Yanchep to Busselton, it also grows in loamy clay near swamps in the Fitzgerald River area, and again in lateritic soil in the Darling Range.

WESTERN AUSTRALIA: 14 miles NE of Fitzgerald River mouth, *K. M. Allan* 349 (AD, K, PERTH); Western Australia, *J. Drummond* 156 (MEL, PERTH—fragment), and 310 (isosyntype of *A. pulchella* var. *glaberrima*, MEL); Claremont, *W. V. Fitzgerald* s.n., June 1899 (NSW 132985); Kings Park, Perth, *C. A. Gardner* s.n., July 1920; Victoria Plains, *C. A. Gardner* 597; 7 miles E of Wannamal, *A. S. George* 5934; Yanchep National Park, *A. M. James* 209 and 209a; 4·5 mi W of Wongan Hills towards Elphin, *B. R. Maslin* 133; Dunsborough township, *B. R. Maslin* 467 (pilose variant); Perth Metropolitan area, *B. R. Maslin* 1626 (B, MO, PERTH); About 4 km N of Bridgetown towards Greenbushes, *B. R. Maslin* 2847; Near Beaufort River, Albany Highway, *B. R. Maslin* 2984 (CANB, PERTH); South Subiaco, *A. Morrison* s.n., 15 Aug. 1908; Pinjarra, *A. Morrison* s.n., 30 Sept. 1901; Tone River, *Oldfield* 456b (MEL); Murchison River, *Oldfield* s.n. (MEL 49500); About 20 mi W of Ravensthorpe, *S. Paust* 706; Below Mt. Madden reservoir, *R. A. Saffrey* 292 (B, L, MAAS, PERTH); 9·5 km N of Marchagee on Geraldton Highway, *R. A. Saffrey* 1567 (BH, BRI, PERTH); 1 mi S of Tarin Rock Siding, *M. D. Tindale* 187; Near Busselton, *F. W. Went* 43.

Flowering and fruiting period: Flowers from (May) June to October; mature legumes have been collected in November.

Acacia pulchella var. *glaberrima* is quite a polymorphic taxon and includes within its range of variation the types of *A. denudata* Lehm. ex Meisn. var. *denudata* and *A. hispidissima* A.DC. Judging from the original descriptions of *A. grandis* Hort. ex Henfrey and *A. denudata* var. *gracilis* Meisn. and var. *spinosissima* Meisn., these names are also synonymous with var. *glaberrima.*

Although the branches on this variety are typically glabrous, some pilose individuals do occur (particularly in areas south of Harvey). Normally the indumentum is very sparse, but in specimens from around Dunsborough it is often dense. This densely pilose form of var. *glaberrima* corresponds to the type of *A. hispidissima* and perhaps also to that of *A. grandis.* In addition to its pilose branches, this form normally differs from typical var. *glaberrima* in that its stipules, terminal setae, and pinnae rachides are slightly longer, and its pinnules are more numerous (4–9 pairs), slightly longer, and narrowly oblong to narrowly obovate.

When the total variation of var. *glaberrima* is compared with that of var. *pulchella*, it is apparent that these taxa are closely related. The differences between them are sometimes only slight, especially on individuals from the Margaret River to Bridgetown and Mount Barker area—the glabrous peduncle is the most reliable character in distinguishing var. *glaberrima* from var. *pulchella.*

Acacia pulchella var. *glaberrima* is also closely related to var. *goadbyi* (Domin) B. R. Maslin. Because of the variable nature of these taxa, multiple characters are generally necessary to separate them. *Acacia pulchella* var. *glaberrima* is usually recognized by its more numerous spines which normally occur in pairs at most nodes (absent or solitary on var. *goadbyi*), its subglaucous, normally fewer and obovate pinnules, and its less prominently ribbed branchlets which are often slightly pruinose; var. *glaberrima* is generally distributed to the north of var. *goadbyi.*

The inland populations of var. *glaberrima* (from about Wongan Hills to Lake King) grow as somewhat smaller and more compact shrubs than those occurring elsewhere; they are also often more spiny and have smaller leaves (Fig. 4E). These plants should not be confused with *A. pulchella* var. *subsessilis* B. R. Maslin which is readily recognized by its very short peduncles.

1d. var. **goadbyi** (Domin) B. R. Maslin comb. et stat. nov.—*Figs. 4J-L*

Acacia goadbyi Domin, Mém. Soc. Sci. Bohéme 1921–22, 2:47 (1923). *Holotype:* "Albany, coll. *B. J. Goadby*, comm. *Miss Morgan* Febr. 1901." (K—photograph seen.)

Divaricately branched *shrub* (0·5) 1–1·5 m tall; *branchlets* straight to slightly flexuose, normally prominently ribbed (ribs often yellow), glabrous, normally light brown to red and sometimes with prominent green mottlings between ribs. *Spines* often sparse, 0–1 per node, 4–9 (12–15 mm long. *Petiole* less than 0·5 mm long; *pinna rachis* (3–4) 5–9 (12–15) mm long; *pinnules* (3–4) 5–8 (11) pairs, narrowly oblong to narrowly obovate (sometimes obovate when pinnules very small), (2) 3–5 (6) x ca. 1 mm, light to dark green and normally somewhat imbricate when dry, concolorous, glabrous or sparsely ciliolate, nerveless or obscurely 1-nerved below. *Gland* shorter than or slightly exceeding terminal seta. *Peduncles* glabrous; *flower heads* with 21–30 flowers. *Bracteoles* (upper series) ca. 1 mm long, sparsely puberulous; laminae ovate. *Calyx* normally obscurely nerved; *petals* obscurely (occasionally prominently) 1-nerved (nerve thickened). *Legumes* 20–40 x ca. 3 mm, glabrous. *Seeds* oblong, 2·5 x 1·5 mm; *pleurogram* prominent.

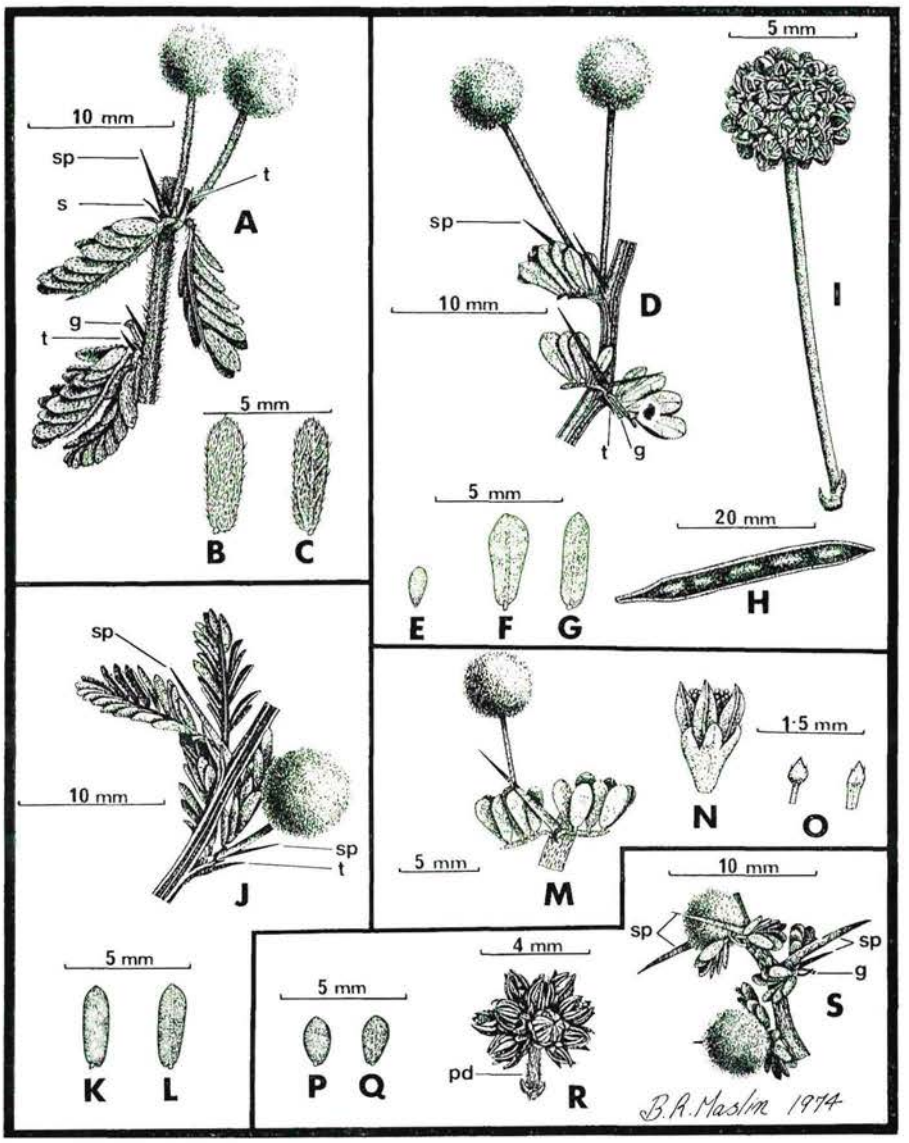


Figure 4—*Acacia pulchella*. A to C—var. *reflexa*: A—Portion of branch. B and C—Densely puberulous pinnules (B—upper surface; C—lower surface showing slightly thickened veins). D to I—var. *glaberrima*: D—Portion of branch. E to G—Pinnule variation. H—Legume. I—Inflorescence. J to L—var. *goadbyi*: J—Portion of branch. K—Pinnule (upper surface). L—Pinnule (lower surface). M to O—var. *fagonioides*: M—Portion of branch. N—Flower. O—Bracteoles. P to S—var. *subsessilis*: P—Pinnule (upper surface). Q—Pinnule (lower surface). R—Inflorescence showing short peduncle (*pd*). S—Portion of branch. *g*—gland; *pd*—peduncle; *sp*—spine; *s*—stipule; *t*—terminal seta.
A from *W. E. Blackall* s.n.; B-C from *J. Souster* 445; D from *C. A Gardner* s.n.; F from *R. A. Saffrey* 292; F and I from *A. Morrison* s.n., 15 Aug. 1908; G from *B. R. Maslin* 2847; H from *B. R. Maslin* 1626; J from *Goadby* s.n.; K-L from *B. R. Maslin* 2966; M from *C. Chapman* s.n., 24 June 1973; N-O from *J. Drummond* 2: 154; P-R from *E. Parkin* s.n.; S from *R. D. Royce* 3685.

Distribution and habitat: (Map 1) South-west Western Australia: common around Albany; it has also been collected from near Esperance. A small

leaved form of var. *goadbyi* occurs in the Stirling Range, Manjimup, and Boyup Brook districts (see discussion below). This variety commonly grows in low-lying areas near creeks and swamps.

WESTERN AUSTRALIA: King George's Sound, Sept. 1899, *Goadby* 340 (NSW, PERTH—unnumbered); Mount Barker Hill, *K. F. Kenneally* s.n., 25 Nov. 1973; 8 mi S Boyup Brook towards Mayanup, *B. R. Maslin* 626; 34 mi S Kojonup towards Rocky Gully, *B. R. Maslin* 638 and 639; 10 km SE of Manjimup on Muir Highway, *B. R. Maslin* 2885; Banks of Kalgan River, Albany, *B. R. Maslin* 2966; 5 miles N of Esperance, *R. D. Royce* 3596; Near Cheyne Beach turn-off on Highway No. 1, *M. D. Tindale* 307 and *B. R. Maslin:* Chester Pass, Stirling Range, *J. H. Willis* s.n., 4 Sept. 1947.

Flowering and fruiting period: Flowers from (July) August to October; mature legumes have been collected in December.

In the Albany and Esperance districts, var. *goadbyi* is recognized by its prominently ribbed branchlets, its relatively few, solitary axillary spines, and its quite large leaves bearing 5–8 (11) pairs of pinnules. However, in other areas, e.g. Stirling Range, Manjimup, Boyup Brook, the leaves are smaller: these plants appear to be related to var. *glaberrima* and, to a lesser degree, var. *pulchella*. Further information is needed concerning these small leaved forms of var. *goadbyi*.

1e. var. **fagonioides** (Benth.) Macbride, Contr. Gray Herb. Harv. New Series 59:8 (1919)—*Figs. 4M-O*

Acacia fagonioides Benth., Lond. J. Bot. 1:387 (1842). *Type:* " Swan River, *Drummond.*" (probable holo: K—photograph seen, see discussion below.)

Intricately branched *shrub* 0·5–1 m tall, to ca. 1 m diam.; *branches* yellowish to grey; *branchlets* moderately strigose (hairs antrorse or retrorse), sometimes spinescent, very obscurely ribbed, reddish to yellowish. *Spines* 1 per node, 3–12 mm long (inflorescence arising from axil of uppermost bract on spine). *Stipules* 0·5–1 mm long. *Petiole* minute; *terminal seta* 0·5–1 mm long; *pinna rachis* 2–6 mm long; *pinnules* 2–4 pairs, normally obovate, 2·5–5·5 x 1·5–3·5 mm, glaucous to subglaucous, glabrous to glabrescent, nerveless above, nerveless or 1-nerved below. *Gland* minute, not exceeding terminal seta. *Inflorescences* simple; *peduncles* arising from axil of uppermost bract on spine, 4–8 mm long, glabrous to strigose; *flower heads* 4–8 mm diam. at anthesis, with 13–25 flowers. *Calyx* ca. ½ length of corolla, tube glabrous and ± nerveless; petals 1·5–2 mm long, 1-nerved (nerve ± thickened). *Legumes* (nearly mature) 40–80 x 7–9 mm, glabrous; *margins* slightly (rarely prominently) contracted between seeds. *Seeds* (nearly mature) longitudinal in legume but proximal and distal seeds sometimes tending towards oblique, elliptic, 6 x 4·5 mm.

Distribution and habitat: (Map 1) South-west Western Australia: excluding the Drummond specimens (see below and also the type) for which no precise locality data is given, var. *fagonioides* is known only from two widely separated localities, i.e. near Toodyay and near Eneabba. It grows in both lateritic soil in Jarrah-Marri forest (Toodyay) and gritty sand in low sandplain scrub (Eneabba).

WESTERN AUSTRALIA: Western Australia, *J. Drummond* 2:154 (K—photo seen, MEL); West of Toodyay, Toodyay-Perth road, *N.T. Burbidge* 8034; Just south of the Arrowsmith River on Eneabba-Arrino road, *C. Chapman* s.n., 1 July 1973 (B, CANB, CBG, K, L, MEL, NSW, NY, PERTH), also 25 Oct. 1973; Near Eneabba, *C. Chapman* s.n., 24 June 1973.

Flowering and fruiting period: Flowers in June and July; near-mature legumes have been collected in October.

In the original description of *A. fagonioides*, Bentham (1842) cited only one collection: " Swan River, Drummond.". Meisner (1848, p.205) repeated Bentham's earlier description but cited " Swan River, Drummond coll. II:

No. 154." At Kew (K) there are three specimens of *A. fagonioides* all of which are labelled, Swan River, Drummond (photograph seen by the author). Two of these specimens are mounted together (sheet stamped " Herbarium Hookerianum, 1867 ") while the third is mounted separately (sheet presented to Kew by the Linnean Society, 1915)—the last sheet also bears the inscription (in a different hand), " 2nd ser. (collection) no. 154." This last specimen, together with the right hand specimen on the Herbarium Hookerianum sheet, are probably part of the same collection; at Melbourne (MEL) there is a specimen labelled " 154 " which could also belong to this collection. As Drummond's Second Collection was not dispatched from the Swan River until January 1844 (two years after the publication of *A. fagonioides*), the collection labelled, Swan River, Drummond II: 154 cannot be the type. The specimen here regarded as the probable holotype of *A. fagonioides* is the left hand specimen on the Herbarium Hookerianum sheet referred to above. This specimen accords very well with Bentham's original description.

Although Bentham (1864) relegated *A. fagonioides* to synonymy under *A. pulchella*, Macbride regarded it as a variety of that species. It is Macbride's treatment which is followed here.

This variety is distinguished from the other infraspecific taxa of *A. pulchella* by its inflorescences being borne near the apex of the solitary axillary spines. It is interesting to note that this same unusual spine-inflorescence relationship occurs also in *A. lasiocarpa* Benth. var. *epacantha* B. R. Maslin. Other characters useful in recognizing var. *fagonioides* include its strigose branchlets and its few, normally obovate, glaucous to subglaucous pinnules.

1f. var. **subsessilis** B. R. Maslin var. nov.—*Figs. 4P-S.*

Frutex 25–60 (100) cm altus; *ramuli* puberuli ad strigosi, raro glabri. *Spinae* plurimae, 1–2 in quoque nodo. *Pinnae* unijugatae; *pinnulae* 2–4-jugae, 1·5–2·5 x 0·5–1mm, plerumque glaucae, glabrae ad minute et sparsim ciliolatae. *Glans* stipitata, variabilis. *Pedunculi* 2–3 mm longi. *Capitula* spinae non excedentes, 10–19-floribus; *calyx* et *corolla* 5-nervosa.

Type: Kukerin, Western Australia, 2 Sept. 1934, *C. A. Gardner* s.n. (holo: PERTH; iso: CANB, K).

Diffuse, divaricately branched *shrub* 25–60 (100) cm tall; *branchlets* sometimes spinescent, straight to flexuose, normally obscurely ribbed, sparsely to densely minutely puberulous to strigose, rarely glabrous. *Spines* numerous, 1–2 per node, 4–10 (18) mm long. *Stipules* 0·5–1 mm long. *Petiole* less than 0·5 mm long; *terminal seta* narrowly triangular, 1–2 mm long, glabrous; *pinna rachis* 0·5–2 mm long; *pinnules* 2–4 pairs, obovate to narrowly obovate, sometimes oblong, 1·5–2·5 x 0·5–1 mm, slightly thickened, normally glaucous, glabrous to minutely and sparsely ciliolate, nerveless above, midrib sometimes thickened below. *Gland* variable, less than or ± equalling terminal seta, apex hardly dilated. *Raceme axis* extremely reduced; *peduncles* 2–3 mm long, solitary, sparsely to densely puberulous or strigose, rarely glabrous; *flower heads* not exceeding spines, with 10–19 flowers. *Bracteoles* (upper series) variable, 1–2 (2·5) mm long; claws short; laminae triangular to narrowly ovate, normally dark brown and 1-nerved, sometimes prominent in the bud. *Flowers* attenuated in the bud; *calyx tube* 5-nerved; *petals* 1·7–2 mm long, prominently 1-nerved, narrowed at the apex. *Legumes*—see below. *Seeds* n.v.

Distribution and habitat: (Map 2) South-west Western Australia: although most records of this variety are from between Narrogin and Ravensthorpe, it has been collected as far north as Bindoon and Wyalkatchem. *Acacia pulchella* var. *subsessilis* is not particularly common throughout its range.

WESTERN AUSTRALIA: 1 mi N of Wyalkatchem towards Koorda, *B. R. Maslin* 157; 2 mi S of Narrogin towards Wagin, B. R. Maslin 660 (B, CANB, MEL, NSW, NY PERTH); About 5 km due NE of Bindoon, *B. R. Maslin* 3264; 100 mi N of Stirling Range, *Muir* s.n., 1879 (MEL 49546); 3 mi NW of Ongerup, *K. Newbey* 394; Nyabing, *E. Parkin* s.n., 20 July 1970; 36 mi W of Ravensthorpe, *R. D. Royce* 3685.

Flowering period: July to September.

This variety is distinguished from the other infraspecific taxa of *A. pulchella* by its almost sessile flower heads which bear from 10 to 19 flowers. Other characters useful in recognizing var. *subsessilis* include its numerous spines, small leaves, attenuated flower buds, and prominently nerved petals.

Although var. *subsessilis* normally has puberulous branchlets, some glabrous individuals have been collected. These should not be confused with the small leaved, very spiny, inland form of var. *glaberrima* which is recognized by its long peduncles and less prominent bracteoles.

No satisfactory fruiting material of var. *subsessilis* has been collected. The following is a description of fruiting valves which were collected from the ground beneath *B. R. Maslin* no. 660: 25–40 x 3 mm, raised over seeds, glabrous, dark brown; margins almost straight, light brown.

2. Acacia megacephala B. R. Maslin, Nuytsia (1)3 : 254–256, fig. 1 (1972). *Type:* " At Kojarena Siding, 19 miles east of Geraldton towards Mullewa, Western Australia, 8 Aug. 1970, *B. R. Maslin* 676 " (holo: PERTH; iso: K, MEL, NSW)—*Fig.* 5

Diffuse *shrub* 1–2 m tall; *branchlets* often pendulous, finely ribbed, moderately to densely shortly pilose, light grey; *bark* smooth, grey-brown at base, red-brown on branches. *Spines* axillary, 1 (rarely 2) per node, often absent from some nodes, glabrous, or shortly pilose towards the base. *Stipules* very narrowly triangular, 1·5–4 mm long, normally shortly pilose. *Leaves* bipinnate; *petiole* very short, ca. 1 mm long; *termina seta* very narrowly triangular, (2) 3–4 (5) mm long, shortly pilose; *pinnae* 1 pair; *pinna rachis* 4–6 mm long, sparsely shortly pilose below, glabrous, and prominently ribbed above; *pinnules* 4–6 pairs, narrowly obovate, 3–6 x 1·5–3 mm, flat, dull green to subglaucous (new shoots light green), glabrous, smooth, inconspicuously 1-nerved, obtuse. *Gland* stipitate, arising at junction of pinnae, ± equalling or exceeding terminal seta, glabrous or shortly pilose, apex dilated. *Inflorescence* a very condensed raceme, peduncles arising from axil of uppermost and often also lowermost bract on the very short raceme axis; *peduncles* greatly exceeding the leaves, 15–25 mm long, glabrous, basal bracts solitary and sometimes caducous; *flower heads* deep yellow, large, globular, 8–10 mm diam. at anthesis, with 80–90 flowers. *Bracteoles* dimorphous; lower series (arranged in a single ring at base of receptacle) reflexed, oblong, ca. 1 mm long; upper series (spirally arranged) erect, ca. 1·5 mm long, claws linear, laminae pear-shaped. *Flowers* 5-merous; *calyx* ca. 2/3 length of corolla, narrowly turbinate, divided for 1/5 its length into oblong obtuse sparsely ciliolate lobes which are somewhat inflexed at the apex, tube glabrous to glabrescent; *petals* 2–3 mm long, connate for 3/4 their length, glabrous; *pollinia* 12-grained; *ovary* sessile, glabrous. *Legumes* linear to narrowly oblong, 25–50 x 4 mm, flat, slightly raised over seeds, glabrous, dark brown with a slight glaucous bloom; *margins* ± not contracted between seeds, thickened, pale coloured. *Seeds* longitudinal in legume, oblong, 3–4 x 1·5–2 mm, brown, quite shiny; *pleurogram* continuous; *areole* ± oblong, 2·5–3 x 1 mm; *funicle* filiform, reflexed below a thickened straight or once-folded yellow aril.

Distribution and habitat: (Map 1) South-west Western Australia: extending from about 16 km east of Geraldton eastwards to the Greenough River and southwards to Burma Road (about 40 km southeast of Geraldton). *Acacia megacephala* appears to be confined to sand or loam throughout its range.

WESTERN AUSTRALIA: Burma Road, south-east of Walkaway, *A. M. Ashby* 2892 (AD); 10 mi E of Geraldton, *W. E. Blackall* 2755; 19 mi E of Geraldton, *A. S. George* 9220; 17 mi E of Geraldton, *J. W. Green* 474; 19 mi E of Geraldton on the road to Mullewa, *B. R. Maslin* 684; Northern Gully (E of Geraldton), *G. Phillips* s.n., 2 Dec. 1971; About 50·5 mi W of Mullewa on the road to Geraldton, *M. D. Tindale* 1328.

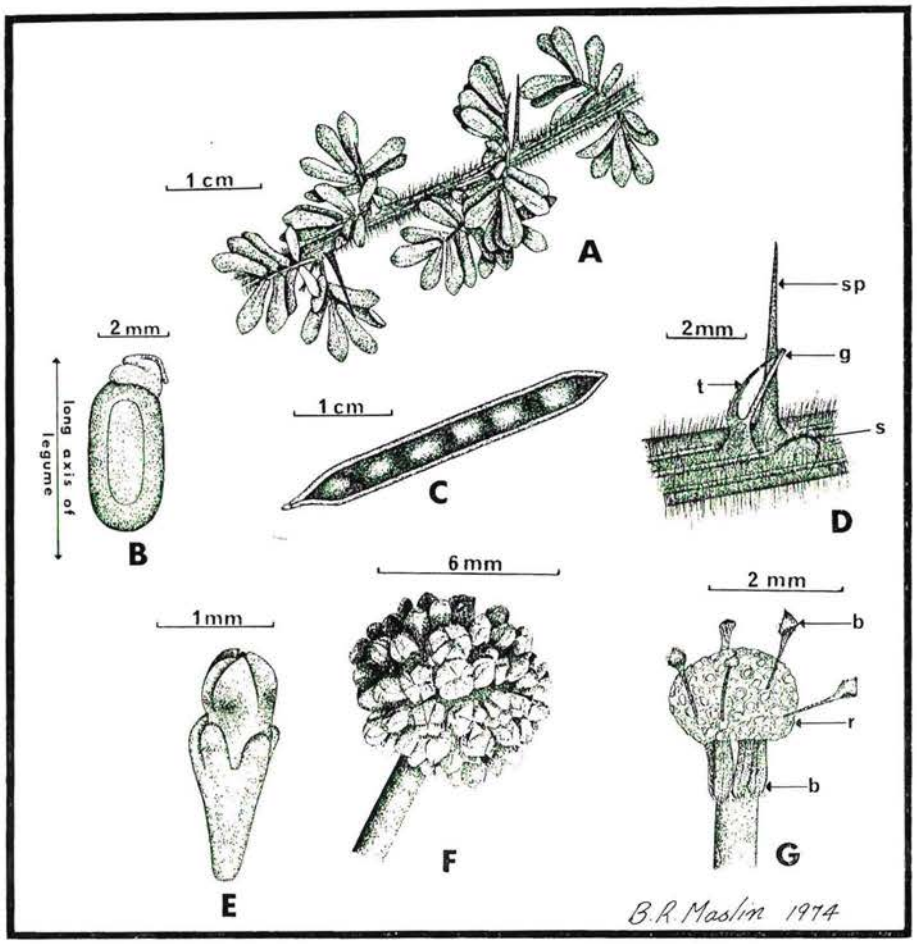


Figure 5—*Acacia megacephala*. A—Portion of branch. B—Seed. C—Legume. D—Node (pinnae removed) showing solitary spine (*sp*), stipitate gland (*g*), and narrow stipule (*s*) and terminal seta (*t*). E—Flower. F—Flower head. G—Receptacle (r) with dimorphic bracteoles (b).
A, D-G from *B. R. Maslin* 676 (the type); B from *G. Phillips* s.n.; C from *B. R. Maslin* 684.

Flowering and fruiting period: Flowers from July to September; mature legumes have been collected in early December.

The presence of stipitate glands, axillary spines, unijugate leaves, modified racemose inflorescences, and longitudinal seed arrangement, relates *A. megacephala* to both *A. pulchella* R.Br. and *A. lasiocarpa* Benth. From both these species it is distinguished by its long peduncles, prominently capitate receptacles, and large flower heads each bearing 80–90 narrowly turbinate flowers. (Note. In *A. lasiocarpa* var. *villosa* the peduncles are quite long, and the flower heads bear 65–75 narrowly turbinate flowers—see this variety for further details.) In addition to the characters mentioned above, *A. megacephala* is distinguished from *A. pulchella* by its somewhat larger pinnules, often longer and narrower stipules and terminal setae, and often by the nature of its branch indumentum. The flat pinnules and larger glands readily separate *A. megacephala* from *A. lasiocarpa*.

3. Acacia lasiocarpa Benth. in Endl. et al., Enum. Plant. Hueg. 43 (1837). *Type:* " Swan River. (Hügel.)" (holo: W—sheet labelled " 130 *Acacia lasiocarpa* Benth., Fremantle, *Hügel* ").

Acacia cycnorum Benth., Lond. J. Bot. 1:388 (1842). Meisner in Lehm., Plant. Preiss. 1:22 (1844) " cygnorum ". *Type:* Swan River, *Drummond*, 1839. (holo: K—photograph seen).

Acacia pulchella R. Br. var. *cycnorum* ("cygnorum") (Benth.) E. Pritzel, Bot. Jb. 35: 310 (1904).

Shrub 0·2–1·5 (2·5) m tall; *branchlets* often spinescent, sometimes flexuose, obscurely nerved to nerveless, indumentum various. *Spines* axillary, 1 per node, sometimes absent, 3–20 mm long, spreading, normally sparsely hairy towards base, brown. *Stipules* triangular to very narrowly triangular, 0·5–3·5 mm long, scarious but sometimes slightly thickened towards the base, brown. *Leaves* bipinnate; *petiole* < 0·5–1·5 mm long; *terminal seta* triangular or occasionally linear, 0·5–3 mm long, scarious but often slightly thickened towards the base, often dark brown and prominent; *pinnae* 1 pair; *pinna rachis* 1–10 (20) mm long, apex green or dark brown, sometimes prominent; *pinnules* 2–6 (12) pairs, narrowly oblong, 1–10 x 0·5–1·5 mm, prominently recurved to revolute (rarely flat in var. *lasiocarpa*), green or sometimes glaucous, glabrous to hairy, nerveless above, 1-nerved below. *Gland* stipitate, arising at junction of pinnae, < 0·5–0·5 (1) mm long, stipe often extremely reduced, apex sometimes slightly dilated. *Inflorescence* a very condensed raceme (except on var. *epacantha* where it is simple), peduncle arising from axil of the uppermost bract on the very short raceme axis, a new shoot or sometimes a second peduncle arising from axil of the lowermost bract; *peduncles* 2–20 mm long, indumentum various; *flower heads* globular, 4–9 mm diam. at anthesis (often larger in fresh state), with (13) 16–75 flowers. *Bracteoles* 1–2·5 (3·5) mm long; laminae green to dark brown, often conspicuous in bud. *Flowers* 5-merous; *calyx* (1 /2) 2 /3–4 /5 length of corolla, divided for 1 /4–1 /2 its length into ± oblong sparsely ciliolate lobes which are slightly thickened and inflexed at the apex, tube glabrous to sparsely puberulous and obscurely to prominently 5-nerved; *petals* 1·5–2·5 mm long, glabrous to glabrescent, nerveless to prominently 1-nerved. *Legumes* narrowly oblong, 10–45 x 3–7 mm, flat, curved, or prominently undulate, raised over seeds, glabrous or hairy, light brown to black, sometimes with a slight glaucous bloom; *margins* not (or only slightly) contracted between seeds, yellow to brown. *Seeds* longitudinal to transverse in legume, oblong to orbicular, 2–3·5 x 1·5–3·5 mm, colour variable, sometimes mottled; *pleurogram* open towards the hilum; *funicle* ± filiform, normally reflexed below a prominently thickened straight aril.

In the original description of *A. lasiocarpa* the type is given as " Swan River, Hügel ". At Vienna (W) where Hügel's collection is housed, there is a vegetative specimen labelled by Bentham " 130 *Acacia lasiocarpa* Benth., Freemantle, Hügel " (seen by the present author). This specimen accords very well with the original description (except that *A. lasiocarpa* was described with fruit). As no type material of *A. lasiocarpa* has been found at Kew (K), the Vienna specimen is here regarded as the holotype (the legumes presumably having been lost).

Having examined the holotype of *A. lasiocarpa* and also a photograph of the type of *A. cycnorum* Benth., I have no hesitation in regarding these specimens as belonging to the same species. Although the former name has precedence, the latter has been more frequently used by authors in the past.

Previous authors have usually regarded *A. lasiocarpa* as a synonym of *A. pulchella* R.Br. Undoubtedly these two species are closely related; however, *A. lasiocarpa* is normally distinguished by its prominently recurved to revolute pinnules. Because of the variable nature of these two species one can only generalise as to the other characters separating them. Nevertheless,

A. lasiocarpa can often be recognized by the following attributes: branches moderately to densely puberulous to shortly pilose (hairs often denser and more conspicuous than in *A. pulchella*), never glabrous; axillary spines solitary, sometimes absent (never two per node as often occurs in *A. pulchella*); gland normally very reduced; peduncles never glabrous, indumentum normally denser and more conspicuous than in *A. pulchella*.

Acacia lasiocarpa is a very variable species with five varieties recognized here. Of these, var. *villosa* and var. *epacantha* are quite distinct, but the remaining three varieties (var. *bracteolata*, var. *lasiocarpa* and var. *sedifolia*) may prove difficult to distinguish in the key below. Complete material, i.e. flowers and fruits, is generally required to confidently identify specimens to varietal rank.

Key to varieties:

1a. Flowers 65–75 per head; axillary spines absent; peduncles 10–20 mm long; pinnules 3–7 x 1–1·5 mm, moderately to densely puberulous; legumes glabrous. (Geraldton district) .... **c.** var. **villosa** (Figs. 6G-H)

b. Flowers 15–50 per head; axillary spines normally present but sometimes few (if absent, then pinnules narrower, normally shorter, and less hairy than above) 2

2a. Peduncles arising from near apex of axillary spine; pinnules 2 pairs 6–10 mm long; legumes shortly pilose (hairs slightly inflated). (Dandaragan to Badgingarra) **e.** var. **epacantha** (Figs. 6I-J)

b. Peduncles not situated on spine (i.e. arising from leaf axil); pinnules 1–4 mm long.... 3

3a. Bracteole laminae dark brown, 1-nerved, acuminate, 1–2·5 mm long, prominent in the bud; peduncles short, ± obscured by flower heads at anthesis; pinnules 2 (3) pairs; branch hairs normally dense and retrorse; legumes glabrous; seeds pearly white with brown mottlings. (Widespread) .... **d.** var. **bracteolata** (Figs. 6N-T)

b. Characters not combined as above 4

4a. Flowers normally less than 24 per head; pinnules normally 2–3 pairs and 1–2·5 mm long; pinna rachis 1–2 (3) mm long; peduncles slender; legumes normally hairy. (Watheroo to Mount Bland) .... **b.** var. **sedifolia** (Figs. 6K-M)

b. Flowers 30–50 per head; pinnules normally 3–6 pairs and 2·5–3 mm long; pinna rachis 3–10 mm long; peduncles stout; legumes normally glabrous. (Bunbury to Murchison River) .... **a.** var. **lasiocarpa** (Figs. 6A-F)

3a. var. **lasiocarpa**—*Figs. 6A-F*

Shrub 0·3–1·5 m tall, either dense, compact and somewhat rounded, or spreading and openly branched; *branchlets* often spinescent, moderately to densely puberulous (hairs sometimes retrorse) to shortly pilose. *Spines* few to numerous, sometimes absent. *Petiole* to ca. 0·5 mm long; *terminal seta* 1–2·5 mm long; *pinna rachis* (2) 3–10 (20) mm long, apex not prominent; *pinnules* revolute (rarely flat to slightly recurved), (2) 3–6 (12) pairs, (2) 2·5–3 (4) x 0·5–1 mm, glabrous to moderately puberulous (or hispidulous). *Gland* < 0·5 (1) mm long. *Peduncles* 4–13 mm long, normally moderately to densely puberulous to shortly pilose; *flower heads* 5–7 mm diam. at anthesis, with 30–50 flowers. *Bracteoles* not very prominent in the bud, 1·5–2 (3) mm long, glabrous to puberulous. *Calyx* 2/3–3/4 length of corolla, tube ± obscurely 5-nerved; *petals* 1·5–2 (2·5) mm long, 1-nerved (nerve somewhat thickened), glabrous to glabrescent. *Legumes* 15–40 x 3–4 mm, flat, glabrous (very rarely hairy), dark brown with a glaucous bloom; *margins* yellow. *Seeds* orbicular, 2–2·5 mm diam., grey-brown.

Distribution and habitat: (Map 3) South-west Western Australia: extending from near Bunbury northwards to the Murchison River. This variety is common on the poor sandy soil of the coastal dunes from near Bunbury to Geraldton. Between Bunbury and Fremantle var. *lasiocarpa* sometimes occurs east of the dunes where it can be restricted to clay-soil swamps. In the more northerly parts of its range, var. *lasiocarpa* extends inland to the vicinity of Three Springs and Eradu; here it is quite common in sandy gravel.

WESTERN AUSTRALIA: Somerville Pine Plantation, *K.M. Allan* 371 (K, PERTH); Geraldton, *R. Coveny* 3040; Western Australia, *J. Drummond* n. 131 (MEL 49508); Fremantle, *A.J. Eames* and *A. T. Hatchkiss* s.n. (NSW 132977); Darling Range, near Bindoon, *C. A Gardner* s.n., Sept. 1964; Yanchep National Park, *A. M. James* 208 and 298; 27 mi E of Geraldton towards Mullewa, *B. R. Maslin* 702 (MEL, PERTH); Between Dongara and Mingenew, *B. R. Maslin* 727; 7 mi E of Jurien Bay, *B. R. Maslin* 1457 (E, NT, PERTH); Near Guildford, *L. Preiss* 886 (MEL 49487) and 898 (MEL 49547—in part); Cannington *E. J. Raltogan* s.n. (UWA 1149); 25·5 km N of Geraldton, *R. A. Saffrey* 1527 (K, PERTH); 6·5 km W of Ellendale towards Walkaway, *R. A. Saffrey* 1543 (E, MEL, NSW, PERTH); Lancelin, *F. G. Smith* 1935; Kalamunda, *H. Steedman* s.n., 6 Sept. 1924; 6·2 mi N of Three Springs, *M. D. Tindale* 1293; Between Badgingarra and Jurien Bay, *D. J. E. Whibley* 3177 (AD); City Beach, *J. H. Willis* s.n. (MEL 49633); 16 km N of Junga Dam, Kalbarri National Park, *P. G. Wilson* 6674.

Flowering and fruiting period: Flowers from June to October; legumes first appear in August and September and reach maturity in November and December.

Acacia lasiocarpa var. *lasiocarpa* is quite a variable taxon. On the coastal dunes it grows as a low, dense, compact, somewhat rounded shrub, with few axillary spines (or entirely spineless) and scarcely spinescent branchlets. This form has some affinities with var. *villosa* (E. Pritzel) B. R. Maslin—see this variety for further details. In the northern inland part of its range, i.e. Three Springs to Eradu, var. *lasiocarpa* grows into a taller, harsher, more openly branched shrub with spinescent branchlets and numerous axillary spines.

From about 20 km north of Geraldton northward to the Murchison River, a form of var. *lasiocarpa* occurs in which the pinnules are ± flat to recurved (instead of prominently revolute). This form is also characterized by its strigose to puberulous branches and peduncles (hairs retrorse), its somewhat thickened, 4 to 6 pairs of glabrous pinnules which are ± prominently 1-nerved below, and its relatively long gland (about 1 mm). More detailed studies could reveal that this entity requires infraspecific rank.

Another form, recorded from a number of clay-soil swamps on the Swan Coastal Plain between Fremantle and Bunbury, always has 2 pairs of pinnules and sometimes quite prominent bracteoles. This form appears to have some affinities with var. *bracteolata* B. R. Maslin.

Overall, var. *lasiocarpa* appears most closely related to var. *sedifolia*—see this taxon for differentiating characters.

3b. var. **sedifolia** (Meisn.) B. R. Maslin comb. nov.—*Figs. 6K-M*

Acacia cycnorum Benth. (" cygnorum ") var. *sedifolia* Meisn. in Lehm., Plant. Preiss. 1:22 (1844). *Type:* " In sublimoso-glareosis sylvae district. Hay, d.7. Nov. 1840. *Herb. Preiss.* No. 911." (iso: MEL, PERTH—fragment).

Acacia cycnorum Benth. (" cygnorum ") var. *minutifolia* Meisn. l.c. *Type:* " In region interior. Australiae merid.-occid., d.7. Mart. 1840. *Herb. Preiss.* No. 912." (iso: MEL, PERTH—fragment).

Dense, spreading, divaricately branched *shrub*, 0·3–1 (1·5) m tall, to 1·5 m diam.; *bark* grey; *branchlets* often spinescent, straight to slightly flexuose, normally moderately puberulous (hairs antrorse, retrorse, or patent), sometimes shortly pilose, often light brown. *Spines* absent or sparse (± restricted to apex of branchlets), sometimes numerous, 3–12 mm long. *Stipules* 0·5–1 (1·5) mm long. *Petiole* less than 0·5 mm long; *terminal seta* 0·5–1 mm long, dark brown; *pinna rachis* 1–2 (3) mm long, apex not prominent; *pinnules* 2–3 (4–5) pairs, 1–2·5 (3) mm long, antrorsely puberulous to glabrescent. *Gland* minute. *Peduncles* (2·5) 3–8 mm long, slender, sparsely to densely puberulous; *flower heads* 4–5 mm diam. at anthesis (8 mm diam. when fresh), with (13) 16–23 (26) flowers. *Bracteoles* normally not prominent in the bud, 1–1·5 mm long, puberulous. *Calyx tube* ± obscurely 5-nerved; *petals* 1·5 (2)

mm long, nerveless to prominently 1-nerved. *Legumes* (5) 10–25 x 3–5 mm, slightly to prominently undulate, moderately to densely puberulous to shortly pilose (occasionally glabrous), brown to black. *Seeds* (few seen) transverse in legume but the proximal and distal seeds often longitudinal, 2–2·5 x 1·5–2 mm, uniformly brown, or blackish with brown mottlings.

Distribution and habitat: (Map 3) South-west Western Australia: from near Watheroo southward to near Cranbrook and Ravensthorpe. In the northern part of its range, var. *sedifolia* extends eastwards to near Wyalkatchem and Tammin.

This variety is common in the rocky clay of the Wandoo woodland (*Eucalyptus wandoo* Blakely) around Bindoon. It also occurs on loamy flats around Moora, but does not extend onto the higher sandplain country west of this town where both var. *lasiocarpa* and var. *bracteolata* occur. Towards the eastern limit of its distribution (around Tammin), var. *sedifolia* grows in sandy soil.

WESTERN AUSTRALIA: 2 mi N of Wyalkatchem, *T. E. H. Aplin* 510; Near Bolgart, *J. S. Beard* 1576; Near Mount Bland, *M. I. H. Brooker* 2718 (AD, PERTH); Western Australia, *J. Drummond* no. 308 (MEL); Youndegin, York East, *Miss A. Eaton* s.n., 1890 (MEL 49681 and 49682); Between Perth and King Georges Sound, *W. H. Harvey* s.n., April, July, 1854 (ex K); Nalyering Wells, *B. R. Maslin* 593 (MEL, NSW, PERTH); 4 mi N of Katanning towards Dumbleyung, B. R. Maslin 648 (MEL, NSW, PERTH); 14 mi N of Wagin towards Narrogin, *B. R. Maslin* 656; 0·5 mi S of Arthur River towards Wagin, *B. R. Maslin* 1139 (NSW, PERTH); About 5 km due NE of Bindoon, *B. R. Maslin* 3230; Kalgan River, Oldfield 458 (MEL); Mount Bakewell (York), *Preiss* 892 and 894 (MEL); 15 mi S of Tammin, *R. D. Royce* 9431; Watheroo National Park, *R. D. Royce* 9729; Mount Caroline, *Miss J. Sewell* s.n., 1890 (MEL 49684); 13 km E of Wagin, *P. G. Wilson* 6208.

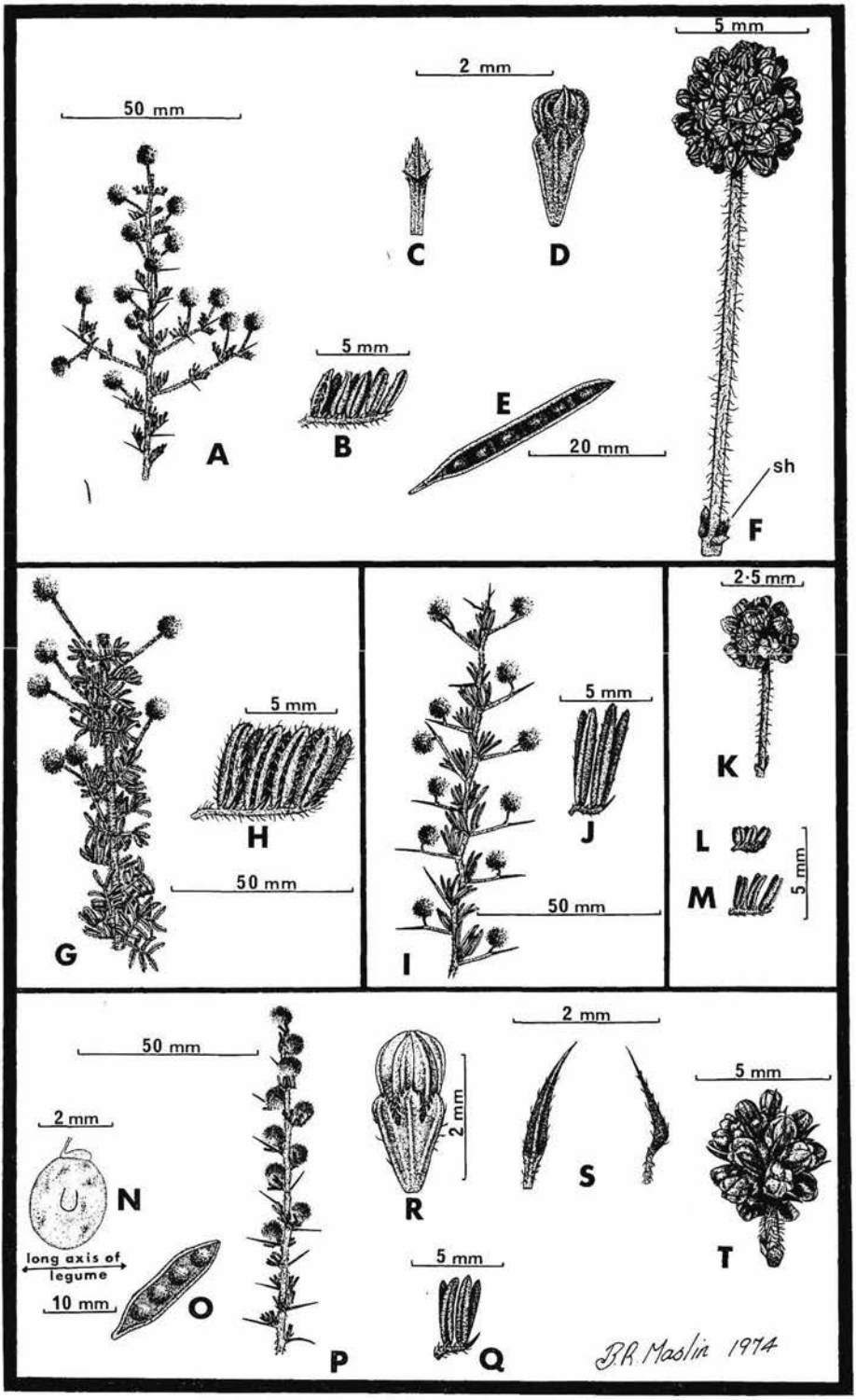
Flowering and fruiting period: Flowers from June to September; mature legumes are present in November.

Acacia lasiocarpa var. *sedifolia* is based on *A. cycnorum* Benth. var. *sedifolia* Meisn. (1844, p.22); on this page Meisner also described *A. cycnorum* var. *minutifolia*. After examining a large range of material (including an isotype of the above two varieties) it seems as though both these names should apply to the same taxon. The type of var. *minutifolia* differs most significantly from the type of var. *sedifolia* in that it is more spiny, but as can be seen from the description above, this is a variable character. In the above-cited work, Meisner altered Bentham's original spelling of the specific epithet " cycnorum " to " cygnorum ". The original spelling is retained by the present author.

Complex variation patterns occur within var. *sedifolia* and more work is certainly required in order to elucidate these.

This variety is most closely related to var. *lasiocarpa* from which it is distinguished by its puberulous (rarely glabrous) legumes, smaller flowers and flower heads, more slender and often shorter peduncles, often fewer and shorter pinnules, and shorter pinnae rachides. The geographical range of these two varieties does not appear to overlap; however, in the region from Moora to about Bullsbrook they do occur within a few miles of each other (var. *sedifolia* being restricted to the heavier, loamy or clay soils to the east, while var. *lasiocarpa* grows in the sand soils to the west).

Figure 6—*Acacia lasiocarpa*. A to F—var. *lasiocarpa*: A—Portion of branch system. B—Pinna. C—Bracteole. D—Flower. E—Legume. F—Inflorescence showing new shoot (*sh*) arising from axis of lowermost bract on condensed raceme axis. G to H—var. *villosa*: G—Portion of branch. H—Pinna. I to J—var. *epacantha:* I—Portion of branch showing inflorescence positioned on spine. J—Pinna. K to M—var. *sedifolia*: K—Inflorescence. L and M—Pinna. N to T: var. *bracteolata*: N—Seed (pearly white with brownish mottlings). O—Legume. P—Portion of branch. Q—Pinna. R—Flower. S—Bracteoles showing prominent, dark brown, 1-nerved laminae. T—Inflorescence.
A from *K. M. Allan* 371; B and D from *R. A. Saffrey* 1543; C and F from *A. M. James* 208; E from *B. R. Maslin* 1457; G–H from *B. R. Maslin* 3321; I-J from *B. R. Maslin* 3247 (the type); K-L from *B. R. Maslin* 656; M from *B. R. Maslin* 3230; N-O from *B. R. Maslin* 2320; P-Q from *B. R. Maslin* 3246 (the type); R-S from *K. Newbey* 297; T from *B. R. Maslin* 3256.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5 mm
Q
5 mm
T
B.R. Maslin 1974

3c. var. **villosa** (E. Pritzel) B. R. Maslin comb. nov—*Figs. 6G-H*

Acacia pulchella R.Br. var. *villosa* E. Pritzel, Bot. Jb. 35:310 (1904). *Syntypes: Diels* 3211 and 2066 (n.v.).

Single-stemmed, openly branched, somewhat spindly *shrub*, 1·5–2 (2·5) m tall; *bark* grey, smooth but finely fissured towards base; *branchlets* often pendulous, densely shortly pilose, light brownish. *Spines* absent. *Stipules* very narrowly triangular, 2–3·5 mm long. *Petiole* 1–1·5 mm long; *terminal seta* linear to very narrowly triangular, 1·5–3 mm long; *pinna rachis* 2·5–7 mm long; *pinnules* 2–4 (5) pairs, 3–7 (8) x 1–1·5 mm, moderately to densely puberulous. *Gland* normally minute, apex slightly dilated with a shallow central orifice; an additional smaller gland often occurs on the pinna rachis below the lowermost pair of pinnules. *Peduncles* spreading to ascending, 10–20 mm long (exceeding leaves), moderately to densely puberulous; *flower heads* light to deep yellow, 7–9 mm diam. at anthesis, with 65–75 densely packed flowers. *Bracteoles* 2–2·5 mm long; claws linear; laminae narrowly ovate, moderately puberulous, yellow to light brown, ± nerveless. *Calyx* 3/4–4/5 length of corolla, narrowly turbinate, tube 5-nerved; *petals* 2–2·5 mm long, 1-nerved. *Legumes* 15–45 x ca. 4 mm, flat, glabrous, dark brown. *Seeds* n.v.

Distribution and habitat: (Map 3) South-west Western Australia: known only from the Nanson-Howatharra region (about 30 km north of Geraldton) where it grows in rocky loam.

WESTERN AUSTRALIA: Howatharra, *A. M. Ashby* 2148; Moresby Range, *A. M. Ashby* 4586, 4587, 4614; Moresby Range, *A. C. Burns* 5 (K, PERTH) and 8; 8 km W of Nanson, *B.R. Maslin* 3164 and 3349 (MEL, PERTH); 28 km from Geraldton towards Northampton, North West Coastal Highway, *B. R. Maslin* 3321.

Flowering and fruiting period: Flowers from June to August; immature legumes are present in September.

Acacia lasiocarpa var. *villosa* is readily distinguished from the other varieties by its large flower heads with 65–75, densely packed, narrowly turbinate flowers. Other characters useful for recognition include its densely and shortly pilose branchlets, long narrow stipules and terminal setae, quite large pinnules, relatively long peduncles, and lack of axillary spines. Further work could indicate that this taxon warrants specific rank.

The habit of var. *villosa* is very distinctive. It is an openly branched, somewhat spindly shrub, normally growing to 1·5–2 m tall; its branchlets are often pendulous, and the foliage is dark green except for the light green new shoots; the trunk can reach 5 cm in diameter at ground level. The very spreading pinnae are caducous towards the base of the branches but the stipules and terminal setae bases are persistent.

This variety is closely related to var. *lasiocarpa*. The axillary spines in the latter are often sparse and sometimes completely absent (N.B. var *villosa* is spineless). Spineless individuals of var. *lasiocarpa* often occur on the coastal sand dunes between Bunbury and Geraldton; they are dense, ± rounded, intricately branched shrubs, not exceeding 0·5 m in height. This habit is quite different from that of var. *villosa* (see above). In addition to its habit and larger flower heads, var. *villosa* is distinguished from var. *lasiocarpa* by its broader, often longer, moderately to densely puberulous pinnules.

The variety *villosa* shares a number of characters with *A. megacephala*. Both taxa have quite long peduncles, relatively large pinnules and flower heads, very narrow stipules and terminal setae, often pendulous branchlets, and a restricted distribution in the Geraldton district. They are readily distinguished by the absence of axillary spines and the revolute, puberulous pinnules of var. *villosa*.

3d. var. **bracteolata** B. R. Maslin var. nov.—*Figs.* 6*N-T*

Frutex plerumque 20–60 cm altus; *rami* plerumque dense et retrorse puberuli ad retrorse strigosi. *Spinae* plerumque plurimae, 1 in quoque nodo. *Pinnae* unijugatae; *pinnulae* 2 (3)—jugae, 2–4 x 0·5–1 mm, revolutae, glabrae ad sparsim puberulae. *Glans* stipitata, minuta. *Pedunculi* 2–5 mm longi. *Bracteolae* in alabastro prominentes, laminae manifeste 1-nervosae, atrobrunneae. *Petala* in alabastro attenuata, glabra, 1-nervosa. *Legumina* glabra. *Semina* perlario-alba, brunneo-maculata.

Type: 45 km NW of Moora towards Badgingarra, Western Australia, 3 Aug. 1973, *B. R. Maslin* 3246 (holo: PERTH; iso: CANB, K, MEL, NSW, NY).

Compact or rather diffuse, much branched *shrub*, normally 20–60 cm tall; *branchlets* sometimes prominently flexuose, normally densely retrorsely puberulous to retrorsely strigose (hairs rarely antrorse), occasionally with a sparse additional layer of short pilose hairs. *Spines* mostly numerous, 4–12 mm long. *Stipules* 0·5–1·5 mm long. *Petiole* less than 0·5 mm long; *terminal seta* narrowly triangular, 1–2 mm long, quite prominent, dark brown; *pinna rachis* 1–2 x 0·5 mm, apex triangular, 0·5–1 mm long, normally prominent and dark brown; *pinnules* 2 (3) pairs, 2–4 x 0·5–1 mm, glabrous to sparsely puberulous, green or glaucous. *Gland* minute. *Peduncles* 2–5 mm long, densely retrorsely puberulous; *flower heads* 5–7 mm diam. at anthesis (10 mm in fresh state), with (15) 17–27 (35) flowers. *Bracteoles* protruding prominently between adjacent flowers in the bud; laminae narrowly ovate, 1–2·5 mm long, acuminate, prominently 1-nerved (nerve ± thickened), dark brown. *Calyx tube* quite prominently 5-nerved; *petals* attenuated in bud, 2–2·5 mm long, glabrous, 1-nerved (nerve thickened). *Legumes* 15–40 x 5 mm, flat to slightly undulate, glabrous, light to dark brown (sometimes with a slight glaucous bloom). *Seeds* transverse to oblique in legume (the proximal and distal seeds sometimes longitudinal), ca. 2·5 x 2 mm, pearly white with brownish mottlings; *pleurogram* brown.

Distribution and habitat: (Map 4) South-west Western Australia: a widely distributed variety, extending from the Hill River district (about 200 km north-northwest of Perth) southward to Katanning and Jerramungup, then eastward to Scaddan (about 50 km north of Esperance). One collection of var. *bracteolata* has been made from Lake Deborah (*P. G. Wilson* no. 6188), which is the most inland record for any Western Australian member of the *Pulchellae*. (Lake Deborah is about 350 km due east-northeast of Perth.)

This variety grows in either sandy or loamy soil (which is often mixed with gravel). In the Hill River district var. *bracteolata* commonly grows along water courses but it is less frequent on the associated lateritic hills in this region.

WESTERN AUSTRALIA: Scaddan, *H. E. Knox* 2; 11 mi NE of Kojonup towards Katanning, *B. R. Maslin* 645 (AD, MEL, NSW, PERTH); Tammin Flora Reserve, *B. R. Maslin* 2320; About 1 km S of Yerecoin, *B. R. Maslin* 3256; 15 mi S of Borden, *K. Newbey* 297; 11 mi NW of Ongerup, *K. Newbey* 365; 10 mi E of Jerramungup, *S. Paust* 683; 82·5 mi N of Perth, between Bolgart and Calingiri, *S. Paust* 987; Gibson, N of Esperance, *R. D. Royce* 3585; 15 mi S of Tammin, *R. D. Royce* 8430; West side of Causeway, Lake King, *M. D. Tindale* 239 and *B. R. Maslin;* 16 km W of N end of Lake Deborah, *P. G. Wilson* 6188.

Flowering and fruiting period: Flowers from June to October; mature legumes are present in December.

Acacia lasiocarpa var. *bracteolata* is generally recognized by a combination of the following characters: long, dark brown, prominently 1-nerved bracteole-laminae which conspicuously protrude between adjacent flowers in the bud; normally retrorsely hairy branches and peduncles; pearly white seeds with brown mottlings; prominently 1-nerved petals; normally dark brown, ± conspicuous terminal setae and pinna rachis apices; and quite large, ± sessile flower heads.

In the Ravensthorpe-Lake King area there occurs a slightly atypical form of var. *bracteolata*. It differs most significantly from the typical form in that its indumentum is antrorse.

Acacia lasiocarpa var. *bracteolata* at times may be confused with var. *sedifolia* (Meisn) B. R. Maslin, but it is generally distinguished from this taxon by its more prominent bracteoles, and its normally larger pinnules and flower heads.

This variety appears most closely related to var. *epacantha*—see the latter taxon for details.

The varietal epithet refers to the prominent bracteoles.

3e. var. **epacantha** B. R. Maslin var. nov.—*Figs. 6I-J*

Frutex 30–50 (70) cm altus; *rami* antrorse puberuli ad strigosi. *Spinae* 10–20 mm longae. *Pinnae* unijugatae; *pinnulae* 2-jugae, (4·5) 6–10 mm longae, revolutae, glabrae ad sparsim antrorse puberulae. *Glans* stipitata, minuta. *Pedunculi* spinarum axillis bractearum summarum (raro infimarum) exorientes, antrorse strigosi. *Bracteolae* in alabastro prominentes. *Calyx* et corolla 5-nervosa. *Legumina* plerumque curva ad circinata, breviter pilosa. *Semina* (prope maturitas) in legume longitudinalia, ± orbicularia, complanata.

Type: 15 km S of Badgingarra towards Dandaragan, Western Australia, 3 Aug. 1973, *B. R. Maslin* 3247 (holo: PERTH; iso: CANB, K, MEL, NSW, NY, PERTH).

Rather dense, ± rounded *shrub*, 30–50 (70) cm tall, to 150 cm diam.; *branches* slightly flexuose, moderately antrorsely puberulous to strigose, brown. *Spines* 10–20 mm long, bracts 2 (inflorescence arising from axil of upper, rarely lower, bract). *Stipules* 1–2 mm long. *Petiole* less than 0·5 mm long; *terminal seta* 1–2 mm long, dark brown; *pinna rachis* 1–2 mm long, apex 0·5–1·5 mm long acute and normally dark brown; *pinnules* 2 pairs, (4·5) 6–10 mm long, glabrous to sparsely antrorsely puberulous. *Gland* minute. Inflorescences simple; *peduncles* arising from axil to uppermost (rarely also lowermost) bract on spine, 7–8 mm long, moderately antrorsely strigose; *flower heads* bright yellow, ca. 6 mm diam. at anthesis (10 mm in fresh state), with 23–26 flowers. *Bracteoles* prominent in bud, ca. 2·5 mm long, prominently inflexed, glabrous to sparsely puberulous; claws ca. 1 mm long; laminae narrowly ovate, ca. 1·5 mm long, brown. *Calyx tube* 5-nerved (nerves ± thickened); *petals* 2 mm long, 1-nerved (nerve thickened). *Legumes* normally curved to circinnate, 15–40 x (4) 5–7 mm, moderately to densely shortly pilose (hairs slightly inflated, ± transparent), dark brown. *Seeds* (near maturity) longitudinal in legume, ± orbicular and flattened, 3–3·5 mm diam., light brown.

Distribution and habitat: (Map 4) South-west Western Australia: restricted to an area from near Dandaragan to Badgingarra (about 200 km due north-northwest of Perth). This variety appears to favour lateritic loam or clay soils.

WESTERN AUSTRALIA: North of Dandaragan, *C. A. Gardner* 9285; 15 km N of Badgingarra, *P. G. Wilson* 3838 (AD, BRI, PERTH).

Flowering and fruiting period: Flowering specimens have been collected in August, while a fruiting specimen (with near-mature seeds) has been collected in November.

The peduncle arising from the axil of the uppermost bract on the spine readily distinguishes var. *epacantha* from the other infraspecific taxa of *A. lasiocarpa*. It is interesting to note that this same unusual inflorescence arrangement occurs also in *A. pulchella* R.Br. var. *fagonioides* (Benth.) Macbride.

This variety appears to be most closely related to var. *bracteolata* B. R. Maslin. Both these taxa have similar pinnules as well as dark brown terminal setae and pinna rachis apices. In addition to its inflorescence arrangement,

var. *epacantha* is distinguished from var. *bracteolata* by its branch indumentum, its longer, strigose peduncles, and its legume characters.

The varietal epithet refers to the fact that the inflorescence is positioned on the axillary spine.

4. Acacia moirii E. Pritzel, Bot. Jb. 35:312, f.37 (1904). *Syntypes: Diels* 3458 (iso: PERTH—fragment); *A. J. Moir* (n.v.).

Small *shrub* 15–60 cm tall; *branches* finely ribbed (ribs yellow), indumentum various; axillary spines absent. *Stipules* spiny or scarious, narrowly oblong to very narrowly triangular, (1·5) 2–8 mm long, straight to reflexed, puberulous to shortly pilose. *Leaves* bipinnate; *petiole* 1–2 mm long; *terminal seta* spiny or scarious, linear to narrowly triangular, 1–4 (6) mm long, straight to reflexed; *pinnae* 1 pair; *pinna rachis* 5–15 mm long, terete or ± obscurely ribbed above, apex straight to reflexed; *pinnules* 3–7 pairs, ± narrowly oblong to obliquely elliptic, 1·5–6 (8–10) x 1–3 mm, flat, green to glaucous, indumentum various, nerveless above, nerveless or prominently 1-nerved below (nerve excentric), obliquely narrowed at apex. *Gland* situated on upper surface of petiole below insertion of pinnae; sessile, circular, ca. 0·5 mm diam. *Inflorescences* simple; *peduncles* solitary (rarely 2–3 per leaf axil towards end of branchlets), 5–20 mm long, puberulous, basal bracts ciliolate; *flower heads* globular, 5–8 mm diam. at anthesis, with 15–25 ± densely packed flowers. *Bracteoles* 1–1·5 mm long; claws glabrous, slightly dilated; laminae inflexed, concave, puberulous to shortly pilose. *Flowers* 5-merous; *calyx* 1/2–2/3 length of corolla, divided for 1/4–1/3 its length into oblong ciliolate lobes which are slightly thickened inflexed and shortly pilose at the apex, tube glabrous, prominently 5-nerved; *petals* 1·5–2·5 mm long, connate for 1/2–2/3 their length, 1-nerved, glabrous to glabrescent; *ovary* glabrous or sparsely papillate. *Legumes* somewhat hard and brittle, narrowly oblong, 15–40 x 5–6 mm, flat, slightly raised over seeds, densely villous, dark grey-brown; *margins* not contracted between seeds, thickened. *Seeds* transverse to slightly oblique in legume, oblong to elliptic, 2·5–3 x 2 mm, black, shiny; *pleurogram* with a narrow opening towards the hilum; *funicle* filiform, reflexed below an abruptly thickened straight aril.

The exact position of *A. moirii* within the series *Pulchellae* is not clear but it appears to have its closest affinities with *A. depressa* B. R. Maslin and *A, newbeyi* B. R. Maslin; these three taxa are united by their unijugate leaves and sessile petiolar glands. *Acacia moirii* is distinguished from both these species by its habit, longer stipules and pinnae rachides, somewhat larger flower heads, densely hairy peduncles and legumes, more prominently nerved calyx and corolla, and often greater number of pinnules.

The possession of unijugate leaves, flat pinnules, and petiolar glands would suggest an affinity with *A. pulchella* R.Br.; however, the lack of axillary spines, sessile petiolar glands, and transverse seeds, readily distinguish *A. moirii* from that species.

Three subspecies differing primarily in vegetative characters are recognized within *A. moirii*. Except for slight differences in the relative size of organs, the inflorescence and fruit morphology of these infraspecific taxa is very similar.

Key to subspecies

1a. Stipules spiny and reflexed; pinnules glabrous to glabrescent, ± nerveless and glaucous, 3–5 pairs. (Kukerin to Hyden and Mount Madden; Badgingarra district)
c. subsp. **recurvistipula** (Fig. 9)

b. Stipules not spiny, normally ascending; pinnules densely hairy and/or with a thickened midrib below 2

2a. Pinnules densely hairy above and below, 3–4 pairs, normally 3–6 mm long; branches densely villous; terminal seta and apex of pinna rachis straight. (Near Hopetoun to to Jerdacuttup) .... **b.** subsp. **dasycarpa** (Fig. 8)

b. Pinnules glabrous above, ± sparsely hairy below and /or on margins, 3–7 pairs, normally 1·5–3·5 mm long; branches normally antrorsely puberulous; terminal seta and apex of pinna rachis often reflexed. (Near Manypeaks to Jerdacuttup)
a. subsp. **moirii** (Fig. 7)

4a. subsp. **moirii**—*Fig.* 7

Shrub 15–40 cm tall, dividing at ground level into many slender, spreading to erect branches; *branches* obscurely flexuose, moderately antrorsely puberulous (occasionally with an additional layer of short, pilose hairs). *Stipules* narrowly oblong to very narrowly triangular, (1·5) 2–4 (5) mm long, straight to slightly reflexed, slightly thickened especially towards the base. *Leaves* with indumentum as on branches (except for pinnules); *terminal seta* narrowly triangular, 1·5–3 mm long, normally reflexed towards the apex, thickened (especially towards the base), sometimes ± spiny; *pinna rachis* (5) 7–10 mm long, apex triangular slightly thickened and reflexed (sometimes straight); *pinnules* 3–7 pairs, ± oblong to obliquely elliptic, 1·5–3·5 x 1–1·5 mm, green to subglaucous, glabrous and nerveless above, prominently 1-nerved and sparsely to moderately antrorsely puberulous below (hairs sometimes restricted to margin). *Peduncles* 8–13 mm long, densely ± retrorsely puberulous; *flower heads* 6–8 mm diam. at anthesis, with 16–25 flowers. *Calyx* 2/3 length of corolla; *petals* 2 mm long, connate for 2/3 their length. *Seeds* oblong to elliptic, ca. 3 x 2 mm.

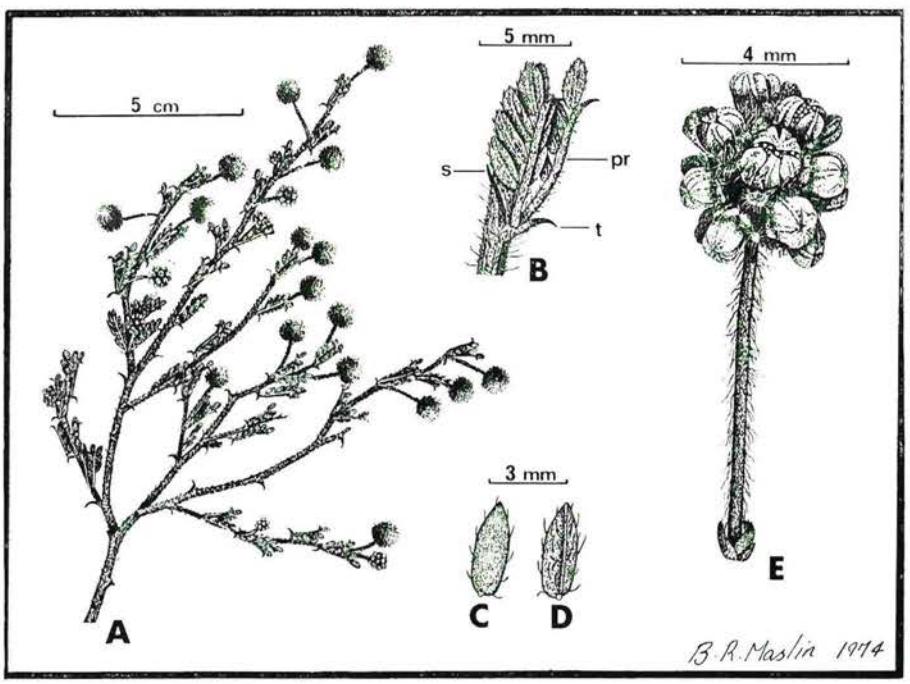


Figure 7—*Acacia moirii* subsp. *moirii*. A—Portion of branch system. B—Node showing stipule (*s*), terminal seta (*t*) and pinna rachis (*pr*) with reflexed apices. C—Pinnule (upper surface). D—Pinnule (lower surface showing midrib). E—Inflorescence.
A from *K. Newbey* 1275; B-E from *K. Newbey* 1269D.

Distribution and habitat: (Map 5) South-west Western Australia: southern regions from the vicinity of Manypeaks (about 40 km north-east of Albany) to about 30 km east of Ravensthorpe. This subspecies favours areas of sand over laterite.

WESTERN AUSTRALIA: Whoogarup Range, SW of Ravensthorpe, *A. S. George* 7187; 25 km S of Jerramungup, *B. R. Maslin* 2591 (CANB, PERTH); About 30 km E of Ravensthorpe towards Esperance, *B. R. Maslin* 3458 (K, MEL, NSW, PERTH); 11 mi SE of Ongerup, *K. Newbey* 1269 and 1269D; 16 mi S of Jerramungup, *K. Newbey* 1275; About 20 mi NE of Albany towards Jerramungup, *S. Paust* 491.

Flowering and fruiting period: Flowers from May to July (August); mature legumes present in November and December.

Based on morphological criteria, subsp. *moirii* appears to lie more or less intermediate between subsp. *recurvistipula* B. R. Maslin and subsp. *dasycarpa* B. R. Maslin. The distinguishing characters of these taxa are given below.

4b. subsp. **dasycarpa** B. R. Maslin subsp. nov.—*Fig.* 8

Frutex 30–60 cm altus; *rami* dense breviter villosi. *Stipulae* 4–8 mm longae. *Folia* dense antrorse breviter villosa; *rachis pinnarum* 6–15 mm longa; *pinnulae* 3–4-jugae, supra enerviae, infra 1-nervatae. *Pedunculi* dense puberuli. *Capitula* globulosa, 17–20-floribus. *Semina* oblonga, ca. 2·5 x 2 mm.

Type: 2 miles west of the Eyre Range, Western Australia, 30 May 1970, *K. Newbey* 3175 (holo: PERTH; iso: CANB, K).

Shrub 30–60 cm tall, single-stemmed or dividing at ground level into a few erect or slightly spreading branches; *branches* not flexuose, densely shortly villous. *Stipules* narrowly oblong to very narrowly triangular, 4–8 mm long, straight, scarious but slightly thickened at base. *Leaves* densely antrorsely shortly villous; *terminal seta* linear to narrowly triangular, 3–4 (6) mm long, straight, scarious but slightly thickened at base; *pinna rachis* 6–15 mm long, apex ± narrowly oblong straight and ± flattened; *pinnules* 3–4 pairs, ± narrowly oblong to obliquely elliptic, 3–6 (8–10) x (1·5) 2–3 mm, densely shortly antrorsely villous, green to subglaucous, nerveless above, 1-nerved below. *Peduncles* (10) 15–20 mm long, densely puberulous; *flower heads* 6–8 mm diam. at anthesis, with 17–20 flowers. *Calyx* 1/2–2/3 length of corolla; *petals* 2–2·5 mm long, connate for ca. 1/2 their length. *Legumes* densely villous. *Seeds* oblong, ca. 2·5 x 2 mm.

Distribution and habitat: (Map 5) South-west Western Australia: occurring in a somewhat restricted area from near Hopetoun to the vicinity of

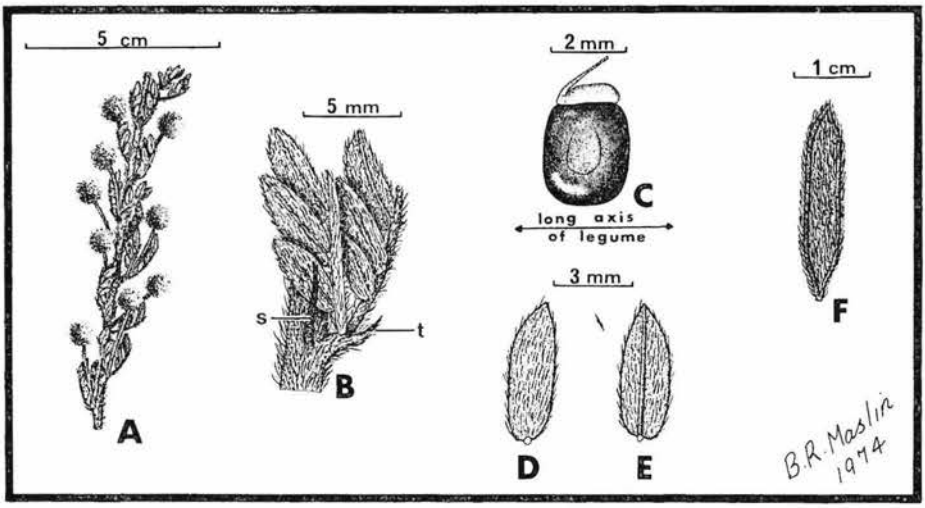


Figure 8—*Acacia moirii* subsp. *dasycarpa*. A—Portion of branch. B—Node showing stipule (*s*) and terminal seta (*t*). C—Seed (black). D and E—Densely villous pinnules (D—upper surface; E—lower surface showing midrib). F—Densely villous legume. A-B from *T. Daniell* s.n.; C and F from *T. E. H. Aplin* 2720; D-E from *B. R. Maslin* 977.

41539—(2)

Jerdacuttup (about 40 km east of Ravensthorpe). A specimen of subsp. *dasycarpa*, seen by Bentham and housed at Melbourne (MEL 49407), is recorded as being collected from Cape Arid (east of Esperance); there is no collector given on this sheet. As this locality is 250 km east of the known range of subsp. *villosa*, and as recent intensive collecting in the Cape Arid region has failed to reveal this subspecies, it is probable that the Melbourne sheet is incorrectly annotated. This subspecies occurs in a variety of habitats: around Hopetoun it grows in deep white sand in tall open shrubland with *Banksia speciosa* R.Br.; at East Mount Barren it grows in stony quartzite in low heath vegetation; while around the Eyre Range it grows in sand over laterite in tall open shrubland with *Eucalyptus tetragona* (R.Br.) Benth.

WESTERN AUSTRALIA: East Mount Barren, *T. E. H. Aplin* 2720; 40 to 70 km E of Ravensthorpe, *T. Daniell* s.n., 5 Aug. 1972; Jerdacuttup, *R. Edmiston* s.n., 1972; About 1·5 mi NE of No Tree Hill, East Mount Barren area, *B. R. Maslin* 977 (CANB, MEL, NSW, NY, PERTH); 2 mi N of Hopetoun, *K. Newbey* 3304; Cape Arid, no collector given (MEL 49407).

Flowering and fruiting period: Flowers from May to August; mature legumes are present in late October.

Acacia moirii subsp. *dasycarpa* is more closely related to the typical subspecies than to subsp. *recurvistipula* B. R. Maslin. From the former taxon it is distinguished by its densely shortly villous branches and pinnules, its somewhat longer stipules, terminal setae, pinnae rachides, pinnules, and peduncles, and its straight (not reflexed) terminal setae and pinna rachis apices. *Acacia moirii* subsp. *dasycarpa* grows to a slightly taller shrub than subsp. *moirii;* also it is not as prolifically branched at the base as the typical subspecies.

The subspecific epithet refers to the densely hairy legumes which are particularly prominent on specimens of this taxon but not diagnostic for it within the species *A. moirii*.

4c. subsp. **recurvistipula** B. R. Maslin, Nuytsia 1(3): 258–260, f.3 (1972). *Type:* " 9 miles north of ' The Humps ' (which is ca. 10 miles due north-east of Hyden), Western Australia, 15 July 1970, *B. R. Maslin* 570 (holo: PERTH)"—*Fig.* 9.

Compact *shrub* 15–45 cm tall, dividing at ground level into a number of erect branches; *branches* ± flexuose, moderately antrorsely puberulous. *Stipules* spiny, 3–6 mm long, reflexed. *Leaves* sparsely antrorsely puberulous (except for pinnules); *terminal seta* ± spiny, 1–3 mm long, straight or somewhat reflexed; *pinna rachis* ca. 5 mm long, apex oblong ± flattened and straight or reflexed; *pinnules* 3–5 pairs, narrowly oblong to obliquely elliptic, 2–4 x 1–1·5 mm, slightly thickened, more or less glaucous, glabrous to sparsely antrorsely puberulous (hairs normally restricted to the margin), nerveless to inconspicuously 1-nerved. *Peduncles* 5–15 mm long, normally moderately retrorsely puberulous; *flower heads* ca. 5 mm diam. at anthesis, with 15–17 flowers. *Calyx* ca. 1/2 length of corolla; *petals* 1·5–2 mm long, connate for 1/2 their length. *Legumes* 15–40 x 4–5 mm. *Seeds* not seen in mature state.

Distribution and habitat: (Map 5) South-west Western Australia: about 300 km due south-east of Perth from Kukerin to Hyden then south-east to near Mount Madden (40 km north of Ravensthorpe). A collection of subsp. *recurvistipula* has also been made from the Dandaragan-Badgingarra area, about 200 km north of Perth (see *B. R. Maslin* 3004). A similar distribution pattern occurs in *A. drewiana* W. V. Fitzg. subsp. *minor* B. R. Maslin; however, the northern population of this taxon is centred around Wongan Hills. Future sampling of suitable habitats in the intervening region may determine whether these occurrences represent real or apparent disjunct distributions. The Badgingarra specimen of subsp. *recurvistipula* differs from the southern populations in that its branches are less flexuose and its indumentum is slightly denser and more spreading.

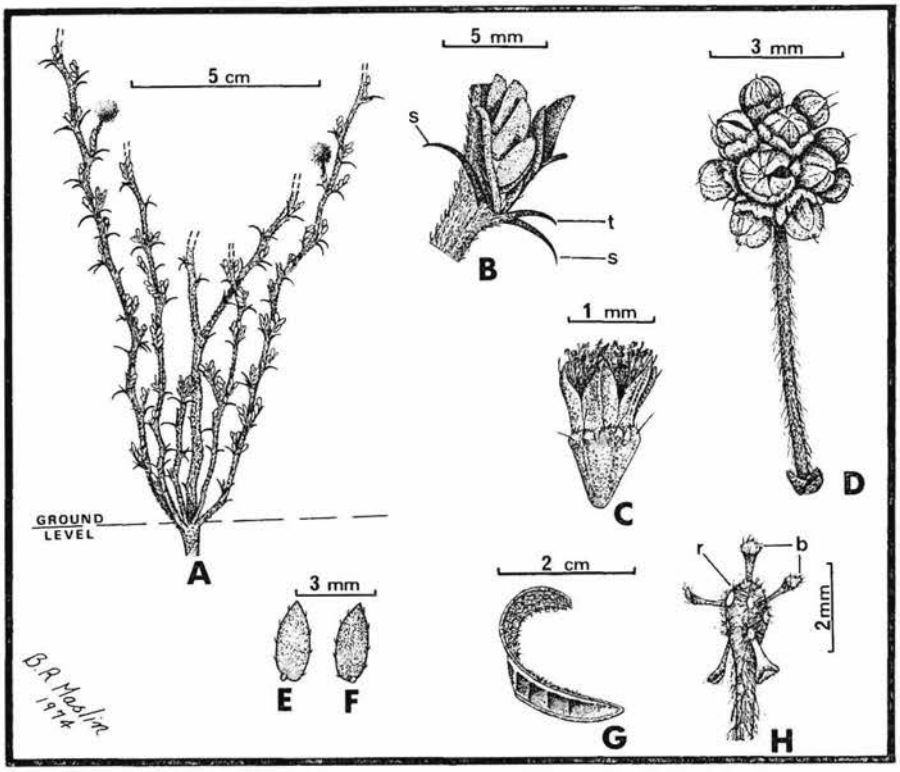


Figure 9—*Acacia moirii* subsp. *recurvistipula*. A—Lower portion of plant. B—Node showing spiny stipules (*s*) and terminal seta (*t*). C—Flower. D—Inflorescence. E—Pinnule (upper surface). F—Pinnule (lower surface showing midrib). G—Legume valve. H—Receptacle (*r*) with bracteoles (*b*).
A, C-D, H from *A. S. George* 6349; B from *D. Young* 129; E-F from *M. D. Tindale* 171 and *B. R. Maslin*; G from *B. R. Maslin* 525.

WESTERN AUSTRALIA: About 17 mi from Ravensthorpe towards Lake King, *E. M. Canning* WA 68/7299; 8 mi N of ' The Humps ', *B. R. Maslin* 569; About 4 mi S of Kulin, *B. R. Maslin* 525; 25·5 km from Dandaragan towards Badgingarra, *B. R. Maslin* 3004; 197½ mile peg, E of Dumbleyung, *A. S. George* 6349; 18 mi W of Lake Grace, *M. D. Tindale* 171 and *B. R. Maslin:* 16 km W of Lake King township, *P. G. Wilson* 7159; 37 km E Lake King, *D. Young* 129.

Flowering and fruiting period: Flowers from May to July; seeds still immature in November.

In that subsp. *recurvistipula* has antrorsely puberulous branches, more or less spiny and often somewhat reflexed terminal setae, and retrorsely puberulous peduncles, it is more closely related to subsp. *moirii* than to subsp. *dasycarpa*. Although the stipules on the type subspecies are prominent and slightly thickened at the base, they are never spiny or prominently reflexed as in subsp. *recurvistipula*. In addition, the pinna rachis of subsp. *moirii* is normally slightly longer than of subsp. *recurvistipula* and it normally has a more prominently reflexed apex. The pinnules of the two subspecies are quite different; in the type subspecies they are thicker, often greater in number, prominently 1-nerved below, generally less glaucous, and have a denser indumentum.

Normally subsp. *recurvistipula* grows as an erect, compact shrub in open places among sandplain vegetation on sandy or lateritic soil. However, occasionally it has been found growing semiprostrate among litter beneath tall shrubs such as *Casuarina pinaster* C. A. Gardner. This phenomenon has been described previously (Maslin, 1972).

5. Acacia depressa B. R. Maslin nom. nov.—based on *A. echinata* B. R. Maslin—*Fig.* 10

Acacia echinata B. R. Maslin, Nuytsia 1 (3):256–257, fig. 2 (1972), non G. Don, Gen. Hist. 2:402 (1832). *Type:* " 6 miles east of Kukerin, Western Australia, 20 Dec. 1964, *K. Newbey* 1620 " (holo: PERTH; iso: K, MEL, NSW).

Dwarf, much branched, compact, cushion-like, prostrate *shrub*, 2–5 x 50 (or more) cm., vegetative parts sparsely strigose to glabrous; *branchlets* ± erect, spinescent, terete; axillary spines absent. *Stipules* narrowly triangular, 0·5–1 mm long, somewhat thickened especially near the base. *Leaves* bipinnate, glabrous to glabrescent; *petiole* 3–4 mm long, terete; *terminal seta* 0·5–1 mm long, somewhat thickened; *pinnae* 1 pair; *pinna rachis* 2–4 mm long, terete, apex somewhat flattened; *pinnules* 3–4 pairs, narrowly oblong to asymetrically narrowly obovate, 2–3 x ca. 1 mm, flat, smooth, concolorous, obscurely 1-nerved. *Gland* situated on upper surface of petiole normally near insertion of pinnae; sessile, small, circular. *Inflorescences* simple; *peduncles* solitary, 10–20 mm long, sparsely strigose to glabrous, basal bracts 2; *flower heads* yellow, globular, 3–4 mm diam. at anthesis, with 12–15 flowers. *Bracteoles* less than 1 mm long; claws short, glabrous; laminae concave, ciliolate. *Flowers* 5-merous; *calyx* ca. 1 /2 length of corolla, divided for ca. 1 /4 its length into oblong to triangular ciliolate lobes which are slightly inflexed at apex, tube glabrous and obscurely 5-nerved; *petals* 1·5 mm long, obscurely 1-nerved, glabrous. *Legumes* ± firmly chartaceous, narrowly oblong, ca. 10 x 3 mm, prominently raised over seeds, moderately strigose, dark brown; *margins* not contracted between seeds, somewhat thickened, light brown. *Seeds* not seen in mature state.

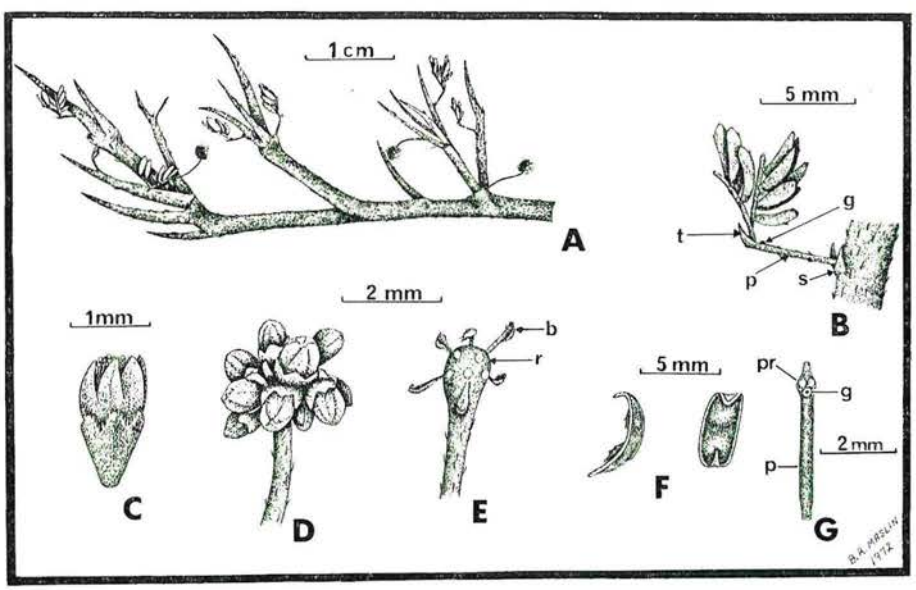


Figure 10—*Acacia depressa*. A—Portion of branch system showing prostrate habit. B—Node showing stipules (*s*), terminal seta (*t*), prominent petiole (*p*) and minute gland (*g*). C—Flower. D—Flower head. E—Receptacle (*r*) with bracteoles (*b*). F—Legume valves. G—Leaf axis showing position of pinna rachides (*pr*); minute, sessile gland (*g*) prominent, terete petiole (*p*).
A-F from *K. Newbey* 1620 (the type); G from *M. D. Tindale* 170 and *B. R. Maslin*.

Distribution and habitat: (Map 11) South-west Western Australia: known only from the type locality which is a lateritic hill between Kukerin and Tarin Rock.

WESTERN AUSTRALIA: 198 mi peg Dumbleyung-Lake Grace road, *A. S. George* 5800; 6 mi W of Tarin Rock, *F. Lullfitz* 5901; 18 mi W of Lake Grace, *M. D. Tindale* 170 and *B. R. Maslin*.

Flowering period: December-January.

Don (1832, p.404) published the new name, *A. echinata* for the phyllodinous species previously described as *A. echinula* DC. (1825). Although Don's name was validly published, it is illegitimate, being superfluous, and therefore must be rejected. It is unfortunate that *A. echinata* G. Don was not listed in either Bentham's Flora Australiensis or Index Kewensis because the present author also used this name (Maslin 1972, p.256) being unaware at the time that it was occupied. Consequently, *A. echinata* B. R. Maslin, being a later homonym, is illegitimate and must also be rejected. The new epithet, "depressa", refers to the very low and spreading habit of this species.

The cushion-like habit, short spinescent branchlets, and unijugate leaves with long petioles render *A. depressa* a very distinctive species within the series *Pulchellae*. Its relationship to the other members of this Series is obscure although it appears to have some affinities with *A. moirii* E. Pritzel and *A. newbeyi* B. R. Maslin (see these species for details).

6. Acacia newbeyi B. R. Maslin sp. nov.—*Fig.* 11

Frutex 0·5–1 m altus; *rami* strigosi ad antrorse puberuli; *ramuli* sub-spinescentes; spinae axillares nullae. *Folio* bipinnata, glabra ad glabrata; *petiolus* minus quam 0·5 mm longus; *pinnae* unijugatae; *pinnulae* (1) 2 (3)-jugae, oblongae ad oblique obovatae, 2–5 x 1–2 mm, planae, concolorae, enerviae vel infra inconspicue 1-nervatae. *Glans* sessilis, in pagina supera petioli infra insertionem pinnarum posita. *Inflorescentia* racemosa, condensata, solitaria; *pedunculi* 4–10 mm longi, glabri. *Capitula* globulosa, 10–13-floribus. *Florae* 5-merae; *calycis lobi* oblongi ad triangulares; *petala* glabra, perobscure 1-nervata. *Legumina* 20–25 x 3 mm, glabra ad glabrata. *Semina* 2–2·5 x 1·5 mm, brunnea.

Type: 1·5 miles north of Nyabing, Western Australia, 17 Aug. 1973, *K. Newbey* 3727 (holo: PERTH; iso: B, CANB, K, MEL, NSW, NY, PERTH).

Openly branched *shrub* 0·5–1 m tall and 0·6–1·5 m diam., normally dividing near ground level into 2–4 main branches; *bark* slightly roughened, medium grey; *branches* obscurely ribbed, strigose to antrorsely puberulous; *branchlets* sub-spinescent; axillary spines absent. *Stipules* oblong to triangular, minute, ca. 0·5 mm long, thickened towards the base. *Leaves* bipinnate, glabrous to glabrescent; *petiole* minute, less than 0·5 mm long; *terminal seta* sometimes caducous, triangular, ca. 0·5 mm long, thickened towards the base; *pinnae* 1 pair; *pinna rachis* 1·5–2·5 x 0·7–0·8 mm, somewhat thickened, apex straight to reflexed; *pinnules* (1) 2 (3) pairs, oblong to obliquely obovate, 2–5 x 1–2 mm, flat, slightly thickened, light green, concolorous, nerveless or obscurely 1-nerved below, obtuse, obliquely narrowed at apex. *Gland* situated on upper surface of petiole below insertion of pinnae; sessile, circular, minute, less than 0·5 mm diam. *Inflorescence* a very condensed, solitary, axillary raceme, peduncle arising from axil of the uppermost (cleft) bract on the very short raceme axis; a new shoot develops from within the axil of the lowermost bract on the axis; *peduncles* 4–10 mm long, glabrous; *flower heads* light yellow, globular, 3–4 mm diam. at anthesis, with 10–13 flowers. *Bracteoles* 0·5–0·7 mm long; laminae concave, ciliolate. *Flowers* 5-merous; *calyx* 1/4–1/3 length of corolla, divided for 1/3–1/2 its length into oblong to triangular ciliolate lobes, tube glabrous and nerveless; *petals* 1·5–2 mm long, connate for 1/3–1/2 their length, glabrous, very obscurely 1-nerved; *ovary* glabrous. *Legumes* ± firmly chartaceous, narrowly oblong, 20–25 x 3 mm, prominently raised over seeds, glabrous to glabrescent, light brown; *margins* not contracted between seeds, somewhat thickened, light brown. *Seeds* oblong-elliptic, 2–2·5 x 1·5 mm, dark brown, shiny; *pleurogram* with a narrow opening towards the hilum, bordered by a rim of light coloured tissue; *areole* ca. 1·5 x 0·5 mm; *funicle* filiform or dilated, reflexed below a straight or once-folded abruptly thickened cream aril.

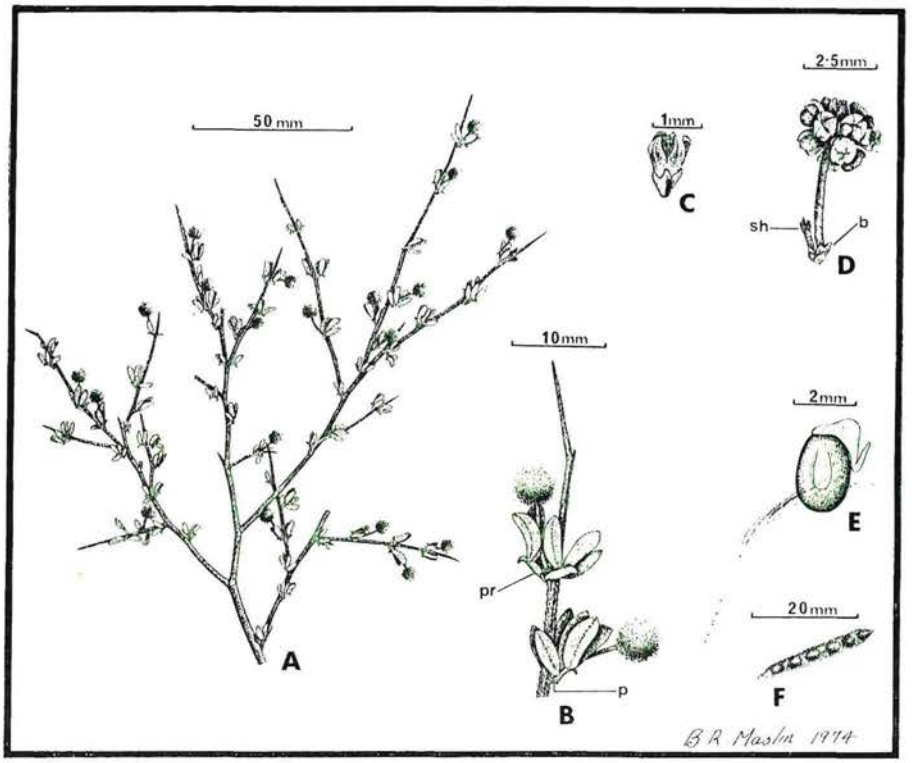


Figure 11—*Acacia newbeyi*. A—Portion of branch system. B—Sub-spinescent branchlet with two leaves, note few pinnules, minute petiole (*p*) and somewhat thickened pinna rachis (*pr*). C—Flower. D—Inflorescence showing peduncle arising from axil of uppermost bract (*b*) on the very condensed raceme axis, and a new shoot (*sh*) developing in axil of lowermost bract. E—Seed (dark brown). F—Legume.
A-B from *K. Newbey* 3727 (the type); C-D from *K. Newbey* 2821; E-F from *K. Newbey* 2821D.

Distribution and habitat: (Map 11) South-west Western Australia: southern regions from the vicinity of Ongerup east to near Ravensthorpe and north to Nyabing and Hyden. Although distributed over a reasonably wide area, *A. newbeyi* is not common throughout its range. This species appears to be confined to areas of sand over laterite, often in association with *Eucalyptus redunca* Schau. or *E. falcata* Turcz.

WESTERN AUSTRALIA: Hyden district, 8 km N of Dragon Rocks, *N. G. Marchant* 72/551; 4 mi N of Chillinup Pool, *K. Newbey* 2821 and 2821D; 20 mi NNW of Ongerup, *K. Newbey* 3728; About 35 km due W of Ravensthorpe, *P. G. Wilson* 7110 (CANB, PERTH).

Flowering and fruiting period: Flowers from July to August; mature seed has been collected in November.

The exact taxonomic position of *A. newbeyi* within the series *Pulchellae* is not clear. Although it superficially resembles *A. browniana* H. Wendl., the unijugate leaves, petiolar gland, and inflorescence structure readily distinguish it from that species. *Acacia newbeyi* appears to have its closest affinities with *A. depressa* B. R. Maslin from which it is separated by its habit, subspinescent branchlets, minute petioles, and normally fewer pinnules. *Acacia newbeyi* also has some affinities with *A. moirii* E. Pritzel, but it is readily distinguished from that species by its minute spitules and petiole, shorter and broader pinnae rachides, normally fewer pinnules, flower structure, somewhat smaller flower heads, and glabrous peduncles.

This species normally occurs among the lower vegetation of Mallee scrubland where it grows into a spreading, openly branched shrub 50–100 cm tall and 60–120 cm in diameter. In more exposed areas, e.g. semi-cleared farmlands, *A. newbeyi* is lower and denser (50–60 cm tall), and the bushes vary from 100–150 cm in diameter. This species has a life span of about 5–8 years; seeds germinate readily following fire or other environmental disturbances (Ken Newbey pers. comm.).

This species is named in honour of Mr. Ken Newbey, who, for many years has made valuable collections of Western Australian plants, particularly from the Ongerup area.

7. Acacia browniana H. Wendl., Flora 2:139 (1819)—based on *A. ciliata* R.Br.

Acacia ciliata R.Br. in Ait. f., Hort. Kew. ed. 2, 5:465 (1813) pro parte, as to neotype, non Humb. et Bonpl. ex Willd. (1809). *Neotype:* R. Brown, Iter Australiense, 1802–5 (Bennett 4321)—lower lefthand specimen on sheet (BM—photo seen).

Acacia strigosa Link, Enum. Plant. Hort. Berol. 2:444 (1822), nom. illeg., non. Lindl. (1838) nec. (Pers.) Spreng. (1826). Based on *A. ciliata* R.Br.

Shrub 0·3–2 m tall, occasionally suckering; *branches* ± obscurely ribbed, indumentum various, rarely glabrous; axillary spines absent. *Stipules* linear to narrowly oblong or narrowly triangular, (0·5) 1–3·5 x 0·2–0·6 (0·9) mm, sometimes caducous, patent to reflected or sometimes ascending, scarious, dark brown, ciliolate. *Leaves* bipinnate, indumentum normally as on branches (except for pinnules); *rachis* 1–6 (10) mm long; *pinnae* (1) 2 (3) pairs; *pinna rachis* (1) 1·5–3·5 (4·5–6) mm long on proximal pinnae, 1·5–18 (25–30) mm long on distal pinnae; *pinnules* 1–3 pairs on proximal pinnae, 2–7 (8–12) pairs on distal pinnae, (narrowly) oblong to elliptic or slightly obovate, 2–9 x 1–3·5 mm, flat to revolute, normally dark green and ± nerveless above, light green and finely 1-nerved below, rarely concolorous and glaucous, glabrous to puberulous or ciliolate. *Gland* situated on upper surface of rachis either at base of pinnae or to 1 mm below them (var. *obscura*); sessile, 0·2–1 mm diam. *Inflorescences* simple; *peduncles* (1) 2 per axil, 5–15 (20) mm long, glabrous or sparsely puberulous (var. *obscura*), basal bracts 3–4 and ciliolate; *flower heads* globular, 4–6 mm diam. at anthesis, with 12–21 flowers. *Flowers* 5-merous; *calyx* 1/2–2/3 length of corolla, divided for ca. 1/4 its length into oblong inflexed slightly thickened normally ciliolate lobes, 5-nerved, tube glabrescent and yellow or dark brown; *petals* 1·5–2·5 mm long, glabrous, 1-nerved, normally inflexed at apex giving flower-bud a ± truncate appearance; *ovary* glabrous. *Legumes* narrowly oblong, 10–35 x 5–7 mm, flat, raised over seeds, glabrous, light to dark brown, rarely greyish; *margins* normally not contracted between seeds, thickened, light brown. *Seeds* (as to var. *browniana* and var. *intermedia* only) transverse to oblique in legume, oblong to elliptic, 2·5–3·5 x 1·5–2·5 mm, light to dark brown, shiny; *pleurogram* prominent, continuous or with a narrow opening towards the hilum; *areole* 1–2·5 x 1–2 mm; *funicle* reflexed below a ± abruptly thickened once-folded aril.

The name *A. browniana* is based on *A. ciliata* R.Br. (1813), non Humb. et Bonpl. ex Willd. (1809). Until now, most authors have referred to this taxon as *A. strigosa* Link; however, Link's name is illegitimate, being a later nomenclatural synonym of *A. browniana*.

Acacia ciliata R.Br. was described in Ait. f., Hort. Kew. ed. 2, 5:465 (1813). The new *Acacia* names used by Brown in this work were applied by him to plants collected in Australia, but were evidently based on plants cultivated in England. The only sheet known to the present author which could possibly be regarded as type material of *A. ciliata* R.Br. is one at British Museum, Natural History, annotated "*Acacia strigosa Link.*" This sheet

has a " Robert Brown, Iter Australiense " label bearing Bennett distribution number 4321 and it consists of a mixture of two taxa, viz. *A. browniana* and *A. luteola* B. R. Maslin. These two species occur sympatrically at Albany (King George Sound), a locality visited by Brown in 1801–02. There is no direct evidence to suggest that Brown actually considered this sheet when describing *A. ciliata*, nor is there anything to definitely indicate the origin of the specimens contained thereon. As this sheet consists of a mixture of two species, it is necessary to select one specimen as the nomenclatural type, thus fixing the name *A. browniana*. Because of the uncertainty surrounding the specimens on this sheet a lectotype cannot be designated; instead, a neotype is selected. Accordingly, the lower left hand specimen on this sheet is here chosen as the neotype of *A. ciliata*. This specimen agrees with Brown's (very brief) description.

Acacia browniana is related to *A. grisea* S. Moore, *A. lateriticola* B. R. Maslin, and *A. nigricans* (Labill.) R.Br. (see these species for differentiating characters). The above species, together with *A. empelioclada* B. R. Maslin and *A. leioderma* B. R. Maslin, form an inter-related species group (see p. 394).

Although *A. browniana* is very polymorphic, it can usually be recognized by a combination of the following characters: branches normally hairy; leaves relatively small (but see below); flowering peduncles normally glabrous and slender (thickening considerably when in fruit); flower heads small, globular, normally with less than 20 flowers; petals quite prominently 1-nerved, often inflexed at the apex giving the flower-buds a ± truncate appearance; legumes relatively small, glabrous.

As stated above, the leaves in *A. browniana* are relatively small. However, the foliage on juvenile plants as well as that at the base of the main branchlets on mature shrubs is often considerably enlarged. These larger leaf dimensions are given in parenthesis in the description above and below.

Following extensive field work it became possible to recognize four varieties under *A. browniana*. However, due to the variable nature of this species and the relatively minor characters distinguishing the infraspecific taxa, the key presented below may not work in all cases. Also, there is some indication that morphological intermediates occur between var. *browniana* and var. *obscura*. This adds to the difficulty of keying out these varieties.

Key to varieties: (Neglect leaves on juvenile plants.)

1a. Pinnules hairy below (hair density variable), prominently recurved to revolute, 2–4 pairs; distal pinna rachis 2–4 mm long. (Stirling and Porongurup Ranges) b. var. **intermedia**

b. Pinnules glabrous or ciliolate (if sparsely hairy below then pinnules flat to slightly recurved and often exceeding 4 pairs, also distal pinna rachis above 4 mm long) 2

2a. Most distal pinna rachides not exceeding 5 mm; pinnules normally 2–3 pairs and 2–4 mm long. (Albany to Busselton) .... **a.** var. **browniana**

b. Many distal pinna rachides ca. 1 cm or more long; pinnules often above 3 pairs and/or above 4 mm long 3

3a. Branch hairs* antrorse; pinnules normally flat and glabrous 4

b. Branch hairs* patent; pinnules normally slightly recurved and /or ciliolate 5

4a. Pinnules glaucous and concolorous. (Mogumber to Bindoon) .... **d.** var. **endlicheri**

b. Pinnules dark green above, light green below. (Albany to Busselton) **a.** var. **browniana**

5a. Flowering peduncles glabrous; dwarf shrub 0·3–0·4 m tall, spreading vegetatively by subterranean runners. (Sporadic in Jarrah forest from Bindoon to Mount Barker) **d.** var. **endlicheri**

b. Flowering peduncles normally sparsely hairy at base; tall shrub to 1–2 m, runners absent. (Karri or Karri-Jarrah forest from Nannup to near Northcliffe) **c.** var. **obscura**

*In both var. *browniana* and var. *endlicheri* glabrous variants have been recorded.

7a. var. **browniana**—*Figs. 12G–O*

Acacia strigosa Link var. *brevifolia* Meisn. in Lehm., Plant. Preiss 1:20 (1844). *Type:* " In solo turfaceo-arenoso ad Stirling's terrace (Plantagenet) d.22 Nov. 1840. *Herb. Preiss.* No. 902 " (iso: K—photograph seen, MEL, PERTH—fragment).

Acacia browniana H. Wendl. var. *brevifolia* (Meisn.) Seem., Europ. Eingef. Acac. 53 (1852).

Acacia ciliata R.Br. var. *brevifolia* (Meisn.) Macbride, Contr. Gray Herb. Harv. N.S. 59:9 (1919).

Spreading *shrub* 1–2 m tall; *branches* moderately antrorsely puberulous and often invested with an additional layer of pilose hairs, rarely pilose or glabrous, hairs occasionally tubercle-based. *Stipules* 1·5–3·5 x 0·2–0·3 mm. *Rachis* 1–4 (5) mm long; *pinna rachis* 1·5–3·5(5) mm long on proximal pinnae, 1·5–12 (15-30) mm long on distal pinnae; *pinnules* 1–2 (3) pairs on proximal pinnae, 2–5 (6–12) pairs on distal pinnae, narrowly oblong to elliptic, 2–8 x 1–2 mm, flat to slightly recurved, dark green above, light green below, glabrous or sometimes hispidulous along margins. *Gland* situated on upper surface of rachis normally immediately below insertion of pinnae (very rarely 0·5 mm below them); circular to oblong, 0·3–1 mm diam., lip ± prominent. *Peduncles* 5–15 mm long, glabrous, *flower heads* with 12–17 flowers. *Petals* inflexed at apex giving flower-bud a ± truncate appearance. *Legumes* 10–30 x 6–7 mm, dark brown. *Seeds* 2·5–3·5 x 1·5–2·5 mm, light to dark brown.

Distribution and habitat: (Map 6) South-west Western Australia: most common in the area from Albany to the Augusta-Busselton district and extending inland to Manjimup and Mount Barker; var. *browniana* has been collected as far east as the Bremer River. This variety commonly grows in grey sandy soil in low-lying areas near swamps and creeks. It also occurs in lateritic soil in Jarrah (rarely Jarrah-Karri) forests.

WESTERN AUSTRALIA: Road to Margaret River, *Armstrong* s.n. (UWA 1146); 27 mi from Augusta on road to Nannup, *E. M. Bennett* 2852 (AD, L, PERTH); Mount Melville, Albany, *L. Diels* 3378; Western Australia, *J. Drummond* 16 (MEL, PERTH); About 8 km south of Mount Barker, *Hj. Eichler* 16005 (AD); About 16 km S of Busselton, *B. R. Maslin* 2826 (K, PERTH); 7 km W of Manjimup towards Nannup, *B. R. Maslin* 2863; 1·6 km W Donnelly River Crossing on Manjimup-Nannup road, *B. R. Maslin* 2864; 24 km E of Karridale on Brockman Highway, *B. R. Maslin* 2883 and 2883A; 32·2 km E of Walpole towards Denmark on South Coast Highway, *B. R. Maslin* 2925 and 2925A; 2 km W of King River crossing on Albany-Two People's Bay road, *B. R. Maslin* 2963 (MEL, PERTH); About 15 km S of Mount Barker towards Albany, *B. R. Maslin* 2980 (BH, BRI, CANB, PERTH); Mounts Clarence and Melville, *Maxwell* 54 (MEL); King George Sound, *Oldfield* 459 and 460 (MEL): Between Walpole and Denmark, *S. Paust* 401; Bremer River, *Webb* s.n., 1884 (MEL 49672); South of Nannup, *F. W. Went* 100; Between Porongorups and Mount Barker, *D. Whibley* 3304 (AD); Parryville, *J. H. Willis* s.n., 5 Sept 1947 (MEL 49720).

Flowering and fruiting period: Flowers from July to October; mature legumes occur from October to December.

Using a combination of geographical distribution and morphological characters, var. *browniana* can be divided into two forms. The " typical form," which includes the type of *A. ciliata* and *A. strigosa* var. *brevifolia*, extends along the south coast from the Bremer River to Walpole, then northward to Mount Barker and Manjimup. Further west there occurs the " western form " which extends from Augusta northward to near Busselton and eastward to the vicinity of Nannup. Geographically situated between these two forms is *A. browniana* H. Wendl. var. *obscura* (A.DC.) B. R. Maslin. There is some evidence to suggest that morphological intermediates occur between var. *obscura* and the " typical form " and the " western form " of var. *browniana* where it meets these taxa in the Manjimup and Nannup areas respectively (see var. *obscura* for further details).

Generally speaking, the organs of the " typical form " are slightly smaller than those of the " western form ". However, there is an overlap of parameters and further sampling may reduce the apparent differences even further. The major differences between the two forms are summarised in Table 2.

TABLE 2

Character	"Typical form"	"Western form"
Rachis length (mm)	1–2 (4)	2–4 (5)
Distal pinna rachis length (mm)	1·5–3 (5–15)	5–12 (to 30)
Pinnule pairs (per distal pinna rachis)	2–3 (4–8)	2–5 (6–12)
Pinnule length (mm)	2–4	2–8
Gland diameter (mm)	0·3–0·4	0·5–1
Peduncle length (mm)	5–10	10–15
Flower head diameter at anthesis (mm)	4–5	5–6
Number of flowers per flower head	12–15	14–17

Table 2—Differences between the " typical form " and the " western form " of *A. browniana* var. *browniana*. NB. Parameters for leaves on juvenile plant and those towards the base of main branchlets on mature shrubs given in parenthesis.

Glabrous variants of var. *browniana* " western form " do occur. These may superficially resemble *A. leioderma* but are distinguished by their less prominently ribbed branches, smaller leaves and flower heads, and eglandulose distal pinnae rachides.

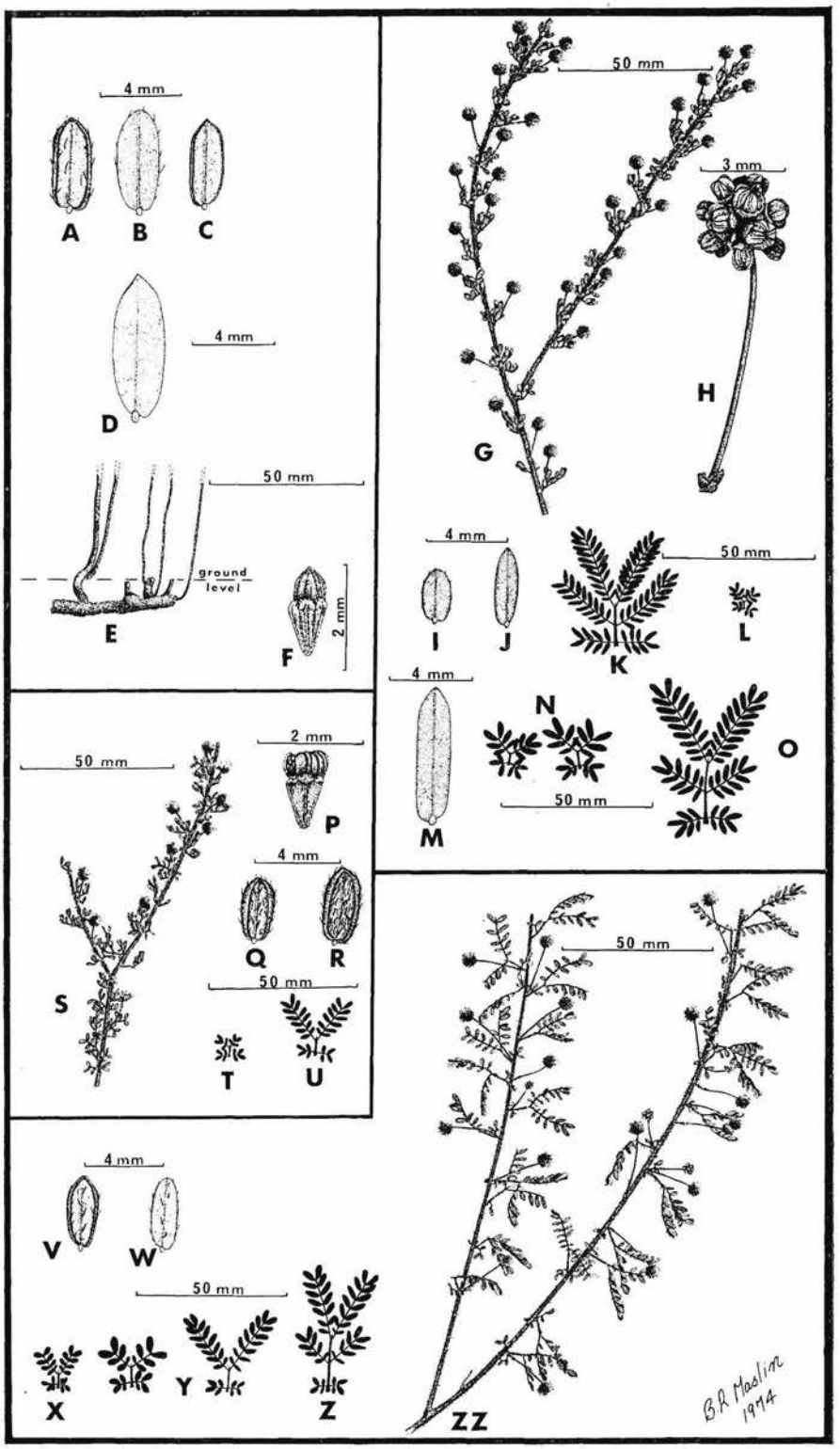
7b. var. **intermedia** (E. Pritzel) B. R. Maslin comb. nov.—*Fig.* 12*P-U*

Acacia strigosa Link var. *intermedia* E. Pritzel, Bot. Jb. 35:312 (1904). *Lectotype:* Suckey's Peak, (Sukey Hill near Cranbrook—B. R. Maslin) Stirling Range, *L. Diels* 3002 (iso: PERTH).
Acacia ciliata R.Br. var. *intermedia* (E. Pritzel) Macbride, Contr. Gray Herb. Harv. N.S. 59:9 (1919).

Shrub 0·5–1 m tall, dividing at ground level into a few spreading branches; *branches* moderately to densely puberulous (hairs somewhat antrorse) to hispidulous. *Stipules* 1–2 x ca. 0·3 mm. *Rachis* 1·5–3 (4) mm long; *pinna rachis* 1·5–3 (4·5) mm long on proximal pinnae, 2–4 (15) mm long on distal pinnae; *pinnules* 2 pairs on proximal pinnae, 2–4 (12) pairs on distal pinnae, 2–3 (4) x 1 mm, prominently recurved to revolute, somewhat thickened, dark green above, light green below, puberulous (sometimes glabrous above). *Gland* situated on upper surface of rachis immediately below insertion of pinnae; circular to slightly oblong, 0·3–0·5 mm diam., lip prominent, orifice well defined. *Peduncles* 7–10 mm long, glabrous; *flower heads* with 14–18 flowers. *Petals* inflexed at apex giving flower-bud a ± truncate appearance. *Legumes* 20–35 x 7 mm, light brown to greyish. *Seeds* 2·5–3 x 1·5 mm, light brown.

Distribution and habitat: (Map 6) South-west Western Australia: common below the summits in the Stirling Range (also occurring in the Porongurup Range but less common) where it grows in shallow sandy or rocky soil.

Figure 12—*Acacia browniana*. A to F—var. *endlicheri*: A to D—Pinnule variation. E—Base of plant showing subterranean runner. F—Flower bud. G to O—var. *browniana:* G—Portion of branch system. H—Inflorescence. I to J—Pinnule variation ("typical form"). K and L—Leaf silhouettes of "typical form" (K—juvenile leaf; L—mature leaf). M—Pinnule ("Western form"). N and O—Leaf silhouettes of "Western form" (N—mature leaf; O—juvenile leaf). P to U—var. *intermedia*: P—Flower showing inflexed petals. Q and R—Pinnules. S—Portion of branch system. T and U—Leaf silhouettes (T—mature leaf; U—juvenile leaf). V to ZZ—var. *obscura*: V and W—Pinnule variation (V—slightly recurved; W—flat). X to Z—Leaf silhouettes (X and Y—mature leaves; Z—juvenile leaf). ZZ—Portion of branch system.
A and F from *B. R. Maslin* 2956; B from *B. R. Maslin* 3203; C from *B. R. Maslin* 4; D from *W. E. Blackall* s.n.; E from *Mary Warburton* s.n.; G from *B. R. Maslin* 2980; H from *B. R. Maslin* 2864; I from *S. Paust* 401; J from *L. Diels* 3378; K from *B. R. Maslin* 2925A; L from *B. R. Maslin* 2963; M from *E. M. Bennett* 2852; N-O from *B. R. Maslin* 2863; P-Q from *R. T. Lange* 131; R from *B. R. Maslin* 2609; S from *Maxwell* s.n.; T-U from *B. R. Maslin* 2960; V and X from *B. R. Maslin* 2893; W and ZZ from *F. M. C. Schoch* 50; Y-Z from *B. R. Maslin* 2864.


4 mm
A
B
C
4 mm
D
50 mm
ground level
E
F
2 mm
50 mm
3 mm
G
H
4 mm
I
J
50 mm
K
L
4 mm
M
N
50 mm
O
50 mm
2 mm
P
4 mm
Q
R
S
50 mm
T
U
4 mm
V
W
50 mm
X
Y
Z
50 mm
ZZ
B.A. Maslin 1974

WESTERN AUSTRALIA: 37 mi peg, Albany-Borden road, *A. S. George* 6395; Porongurup Range, *R. T. Lange* 131; Sukey Hill, east of Cranbrook, *B. R. Maslin* 2609 (K, PERTH); Turn-off to Nancys Peak, Porongurup-Mount Barker road, *B. R. Maslin* 2960 (CANB, PERTH); South West Australia, *Maxwell* s.n. (MEL 49669); District North West Plantagenet, *E. Pritzel* 350 (AD, K (photograph seen)—syntype); Chester Pass, *N. H. Speck* s.n. (UWA 1137).

Flowering and fruiting period: Flowers from July to August; mature legumes present in late December.

The combination of small leaves, prominently recurved to revolute pinnules which are slightly thickened and normally moderately puberulous below, and a restricted distribution, serve to distinguish var. *intermedia* from the other infraspecific taxa of *A. browniana*. This variety appears most closely allied to the typical forms of var. *browniana* and var. *endlicheri* (Meisn.) B. R. Maslin.

7c. var. **obscura** (A.DC.) B. R. Maslin comb. et stat. nov.—*Fig.* 12*V-ZZ*

Acacia obscura A.DC., Mém. Soc. Phys. Genève 6:605 t.3 (1834); G. Bentham, Flora Austral. 2:418 (1864)—not as to description, see discussion below. *Type:* Jardin de Grenier, près Genève, 19 Mar. 1833 (holo: G).

Spreading, openly branched *shrub*, 1–2 m tall; *branches* normally finely ribbed, moderately to densely puberulous to hispidulous (hairs straight or hooked at apex, often tubercule-based). *Stipules* 2–3 x 0·4–0·6 (0·9) mm. *Rachis* 3·5–5 (10) mm long; *pinna rachis* 1·5–3 mm long on proximal pinnae, (3) 5–13 (25) mm long on distal pinnae; *pinnules* 2(3) pairs on proximal pinnae, (2) 3–7 (8–10) pairs on distal pinnae, oblong, 2–3·5 (6) x ca. 1·5 mm, slightly recurved, dark green above, light green below, ciliolate (sometimes with a few additional hairs below). *Gland* situated on upper surface of rachis 0·5–1 mm below insertion of pinnae; circular to oblong, 0·5–0·8 mm diam., lip and orifice quite prominent. *Peduncles* 10–15 mm long, sparsely puberulous especially near base, sometimes glabrous; *flower heads* with 14–20 flowers. *Petals* inflexed at apex, normally giving flower-bud a truncate appearance. *Legumes* and *seeds* n.v.

Distribution and habitat: (Map 6) South-west Western Australia: Warren district from Manjimup west to Nannup and south to Mount Chudalup (10 km north of Point D'Entrecastreaux). Occurs as an understorey shrub in Karri (*Eucalyptus diversicolor* F. Muell.) or Karri-Jarrah (*Eucalyptus marginata* Donn ex Sm.) forest.

WESTERN AUSTRALIA: Nannup-Manjimup road, *D. Churchill* 017 (UWA); 1·6 km W of Donnelly River crossing on Manjimup-Nannup road, *B. R. Maslin* 2864 (BRI, CANB, K, MEL, PERTH); 12·8 km S of Pemberton towards Northcliffe, *B. R. Maslin* 2893; Mount Chudalup (which is ca. 10 km N of Point D'Entrecastreaux), *B. R. Maslin* 2900; Warren River district, *F. M. C. Schoch* 50.

Flowering period: September to October.

Bentham (1864, p.418) misapplied the name *A. obscura*. Of the nine collections cited by Bentham under this species five have been examined by the present author, viz. *Drummond* IV:18 and *Preiss* 885 (*A. preissiana* (Meisn.) B. R. Maslin), *Drummond* V:17 (*A. empelioclada* B. R. Maslin), Gordon River, *Oldfield* and *Drummond* II:153 (*A. lateriticola* B. R. Maslin). Another specimen (which I have not seen) is probably *A. nigricans*—see page 441. Bentham gave no indication that he had seen the type of *A. obscura*. The confusion surrounding the application of the name *A. obscura* has persisted to the present day. After inspecting a large range of material, including the type of *A. obscura*, I can see no justification in maintaining this name at the specific rank.

Acacia browniana var. *obscura* is closely related to the typical variety from which it is distinguished by the following characters: branches puberulous to hispidulous—hairs short, at right angles to the branch surface and either

straight or uncinate (when the hairs are short on var. *browniana* they are distinctly antrorse); peduncles normally sparsely puberulous, especially near the base (always glabrous on var. *browniana*). *Acacia browniana* var. *obscura* grows in Karri or Karri-Jarrah forest; var. *browniana* is mainly restricted to Jarrah forest (rarely occurring in the Karri).

Geographically, var. *obscura* is situated more or less between the " typical form " and the " western form " of var. *browniana*. Judging from morphological criteria, there is some indication that intermediates occur between var. *obscura* and both these forms where they meet in the Manjimup and Nannup regions respectively. In addition to the characters mentioned above, var. *obscura* is distinguished from the " typical form " of var. *browniana* by its somewhat larger leaves, and from the " western form " by its slightly recurved, ciliolate pinnules.

Some of the larger-leaved individuals of var. *obscura* may superficially resemble *A. subracemosa* B. R. Maslin—see this species for details.

7d. var. **endlicheri** (Meisn.) B. R. Maslin comb. nov.—*Fig.* 12*A-F*

Acacia endlicheri Meisn. in Lehm., Plant. Preiss. 1:21 (1844). *Lectotype: Preiss no.* 905 (iso: MEL, PERTH—fragment).
Acacia strigosa Link var. *endlicheri* (Meisn.) Benth., Flora Austral. 2:419 (1864).

Small *shrub* 30–40 cm tall, spreading by subterranean runners (i.e. suckering), either single-stemmed or dividing at ground level into many slender branches; *branches* pilose or hispidulous, rarely puberulous or glabrous. *Stipules* variable, 0·5–1·5 (3) x 0·2–0·3 (0·4) mm. *Rachis* 3–6 (9) mm long; *pinna rachis* 2–4 (6) mm long on proximal pinnae, (3) 8–18 mm long on distal pinnae; *pinnules* 1–3 pairs on proximal pinnae, (2) 3–7 (9) pairs on distal pinnae, oblong-elliptic or slightly obovate, 2–9 x 1–3·5 mm, flat to recurved, glaucous and concolorous or dark green above and light green below, glabrous or sparsely hispidulous on margins. *Gland* situated on upper surface of rachis normally immediately below insertion of pinnae (sometimes situated 1 mm below them); circular to oblong, 0·2–0·5 mm long, lip often not prominent. *Peduncles* 8–15 (20) mm long, glabrous; *flower heads* with (13) 18–21 flowers. *Petals* barely inflexed at apex, flower-bud ± attenuated. *Legumes* 15–22 x 5–7 mm, light brown. *Seeds* n.v.

Distribution and habitat: (Map 6) South-west Western Australia: occurring sporadically from near Mount Barker northward to Bindoon. This variety appears to be restricted to lateritic gravel (sometimes overlain with a shallow layer of sand or loam) in Jarrah (*Eucalyptus marginata* Donn ex Sm.) forest.

WESTERN AUSTRALIA: Mogumber, *W. E. Blackall* s.n., Aug. 1929; About 19·2 km E of Collie towards Darkan, *B. R. Maslin* 4 and 3202; 4 mi N of Quindanning, *B. R. Maslin* 665 (MEL, PERTH); 23 km from Denmark towards Mount Barker, *B. R. Maslin* 2956 and 3203; About 9·7 km due NE of Bindoon, *B. R. Maslin* 3268 (K, PERTH); Upper Hay River, *Mrs. Mary Warburton* s.n., 1870 (MEL 49668 and 49729).

Flowering period: August to October.

Initially, Bentham (1855, p.629) relegated *A. endlicheri* Meisn. to synonymy under *A. strigosa* Link (= *A. browniana*): however, in 1864 he treated it as a variety of this species.

Acacia browniana var. *endlicheri* grows to a maximum height of about 40 cm, and is therefore the smallest member of this species; also it is the only variety of *A. browniana* capable of suckering. These are the two most reliable characters in distinguishing it from the other varieties but unfortunately these features are observable only in the field.

Acacia *browniana* var. *endlicheri* includes two forms which are distinguished primarily on their branch indumentum and their pinnule morphology. The first form (which includes the type of var. *endlicheri*) has slightly thickened,

± recurved pinnules which are dark green above and light green below (Figs. 12A-C); its branches are normally hispidulous. However, glabrous individuals do occur (the type is sparsely hispidulous). This form, which has been recorded from near Mount Barker and near Collie, resembles var. *intermedia* (E. Pritzel) B. R. Maslin from which it is distinguished (in addition to the characters mentioned above) by its larger leaves and attenuated flower buds. The second form, recorded from Mogumber and Bindoon, has flat, glaucous, normally concolorous pinnules (Fig. 12D), and pilose or antrorsely puberulous branches. Further investigation may indicate that this form warrants varietal rank.

8. Acacia grisea S. Moore, J. Linn. Soc. (Bot.) 45:174 (1920). *Type:* " East of Katanning; *Stoward*, 166 ". (holo: BM—n.v. but checked by A. S. George, Australian Botanical Liaison Officer, 1968)—*Fig.* 13

Small *shrub* to ca. 0·5 m tall; *branches* inconspicuously ribbed, greyish, densely and uniformly puberulous to hispidulous (hairs 0·1–0·3 mm long);

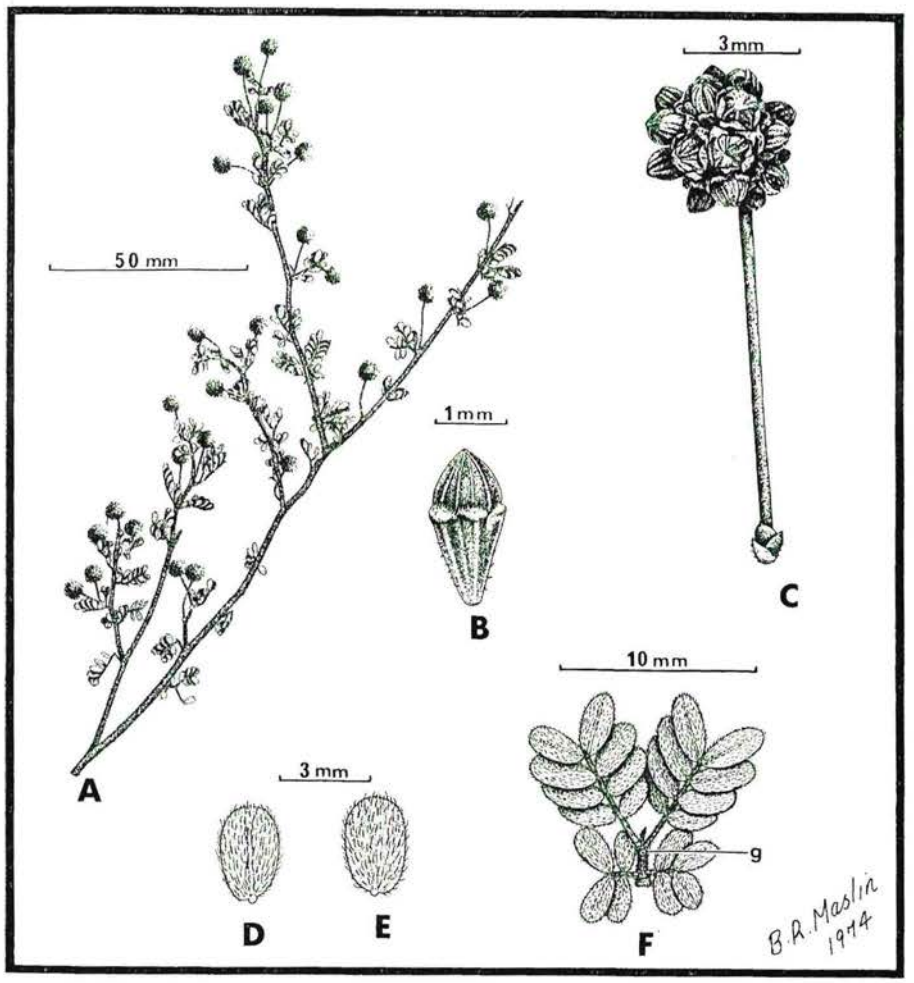


Figure 13—*Acacia grisea*. A—Portion of branch system. B—Flower. C—Inflorescence. D and E—Antrorsely puberulous pinnules (D—lower surface; E—upper surface). F—Leaf showing ± imbricate pinnules and small, sessile gland (*g*).
All from *K. Newbey* 1283.

axillary spines absent. *Leaves* bipinnate, indumentum as on branches (except for pinnules); *rachis* 1–3 mm long; *pinnae* (1) 2 pairs; *pinna rachis* 2–4 mm long on proximal pinnae, 7–10 mm long on distal pinnae; *pinnules* 2–3 pairs on proximal pinnae, 4–7 pairs on distal pinnae, oblong to elliptic, 2–4 x 1–2 mm, normally ± imbricate, flat, somewhat thickened, concolorous, grey-green, finely antrorsely puberulous, midvein often obscure but somewhat thickened. *Gland* situated on upper surface of rachis below insertion of distal pair of pinnae; sessile, circular, ca. 0·4 mm diam. *Inflorescences* simple; *peduncles* solitary, 10–20 mm long, glabrous, basal bracts 4 and ciliolate; *flower heads* globular, 5–6 mm diam. at anthesis, with 16–26 flowers. *Flowers* 5-merous; *calyx* ca. 1 /2 length of corolla, divided for 1 /5 its length into oblong ± inflexed very slightly thickened ciliolate lobes, tube glabrous or puberulous; *petals* ca. 1·5 mm long, glabrous, 1-nerved. *Legumes* somewhat hard and brittle, narrowly oblong, 20–40 x 5 mm, flat, slightly raised over seeds, moderately pilose; *margins* not contracted between seeds, thickened. *Seeds* n.v.

Distribution and habitat: (Map 6) South-west Western Australia: occurs in a somewhat restricted area from Kojonup to Nyabing. *Acacia grisea* is not a very common species throughout its range; it grows in gravelly loam.

WESTERN AUSTRALIA: About 8 mi SE of Broomehill, *B. R. Maslin* 646 (AD, B, BH, BRI, K, MEL, NSW, PERTH) and 1137; 3 mi E of Nyabing, *K. Newbey* 1283; Kojonup, *F. Steward* s.n., June 1916.

Flowering period: June to August.

The inflorescence characters and general leaf morphology indicate that *A. grisea* is closely related to *A. browniana* H. Wendl. It is distinguished from this species by its pilose legumes and slightly thickened, somewhat imbricate, concolorous* pinnules which are finely puberulous above and below. The known geographical ranges of these two species do not overlap (*A. grisea* is distributed further inland than *A. browniana*).

9. Acacia lateriticola B. R. Maslin sp. nov.—*Fig.* 14.

Acacia strigosa Link var. *borealis* E. Pritzel, Bot. Jb. 35:312 (1904). *Type:* "Hab. in distr. Darling pr. Serpentine in eucalyptetis arenosis flor. m. Jun. (D.3159)." (iso: PERTH—fragment).

[*Acacia cycnorum* auct. non Benth.: Hooker, Curtis's Bot. Mag. 78 t.4653 (1852).]

[*Acacia obscura* auct. non A.DC.: Bentham, Flora Austral. 2:418 (1864), pro parte—as to *Drummond* II:153 and *Oldfield*, Gordon River.]

Frutex 0·5–1 (1·5) m altus; *ramuli* plerumque dense pilosi etiam ± hispiduli; spinae axillares nullae. *Folia* bipinnata; *pinnae* (1) 2 (3)-jugae; *rhachis* 2–4 (5·5) mm longa; *pinnulae* pinnarum proximalium 1–2 (3)-jugae, pinnarum distalium 2–5 (8)–jugae, ±planae vel recurvae ad revolutae, sparsim hispidulae. *Glans* sessilis, in pagina supera rhachidis. *Pedunculi* (10) 15–30 mm longi, glabri (raro puberuli). *Capitula* globulosa, 24–36-floribus. *Florae* 5-merae; *calycis lobi* oblongi; *petala* glabra. *Legumina* 30–50 x 5–10 mm, glabra vel modice pilosa. *Semina* in legumine transversa ad obliqua, 2·5–4·5 x 2 mm.

Type: 13 km S of Donnybrook on South Western Highway, Western Australia, 18 Sept. 1972, *B. R. Maslin* 2841 (holo: PERTH; iso: CANB, K, MEL, NY).

Shrub 0·5–1 (1·5) m tall, either single-stemmed or dividing at ground level into a number of spreading to erect branches; *branches* quite prominently ribbed, dark brown to greyish, normally densely clothed with a mixture of pilose (to 3 mm long) and hispidulous, tubercule-based hairs; axillary spines absent. *Stipules* normally very narrowly triangular, 2–4 x 0·2–0·3 mm, (occasionally oblong and to 1 mm broad), scarious, sparsely ciliolate. *Leaves* bipinnate, indumentum as on branches (except for pinnules); *petiole* ca. 1·5

* In *A. Browniana* the pinnules are almost always dark green above and somewhat lighter green below; only in the Bindoon form of var. *endlicheri* (Meisn.) B. R. Maslin are they concolorous, however they are then ± glabrous.

mm long; *rachis* 2–4 (5·5) mm long, prominently ribbed above; *terminal seta* narrowly triangular to linear, 1–2·5 mm long; *pinnae* (1) 2 (3) pairs; *pinna rachis* 2–6 mm long on proximal pinnae, 5–15 (20) mm long on distal pinnae, ribbed above, apex 1–1·5 mm long and ± flattened; *pinnules* 1–2 (3) pairs on proximal pinnae, 2–5 (8) pairs on distal pinnae, narrowly oblong to narrowly ovate, 2·5–7 (9) x 1–2 mm, ± flat or recurved to revolute, dark green and ± shiny above, light green and dull below, sparsely hispidulous, finely 1-nerved. *Gland* situated on upper surface of rachis below insertion of distal pinnae on 2-jugate leaves, subsequently absent if pinnae 3 pair; sessile, circular to oblong, 0·5–0·7 mm diam. *Inflorescences* simple; *peduncles* 1–2 per axil, (10) 15–30 mm long, glabrous (rarely puberulous), basal bracts 3 and ciliolate; *flower heads* light yellow (sometimes cream), globular, 7–10 mm diam. at anthesis, with 24–36 flowers. *Bracteoles* 1·5 mm long, shortly pilose, dimorphous: lower series (arranged in a single ring at base of receptacle) reflexed, oblong; upper series (spirally arranged) erect, claws narrow, gradually expanded into thickened inflexed laminae. *Flowers* 5-merous; *calyx* 2/3 length of corolla, divided for 1/4–1/3 its length into oblong inflexed thickened ciliolate lobes, readily separating into narrowly oblong-spathulate sepals, tube glabrescent and yellow or brown; *petals* 2–2·5 mm long, connate for 1/2 their length, glabrous, 1-nerved, thickened at apex; *ovary* glabrous. *Legumes* somewhat hard and brittle, narrowly oblong, 30–50 x 5–10 mm, flat to slightly undulate, raised over seeds, glabrous to moderately pilose, dark brown; *margins* not contracted between seeds, thickened, light brown. *Seeds* transverse to oblique in legume, oblong, 2·5–4·5 x 2 mm, light to dark brown; *pleurogram* continuous or with a narrow opening towards the hilum; *areole* 2·5 x 1·2 mm; *funicle* slightly dilated, reflexed below a ⌊ gradually thickened once-folded cream coloured aril.

Distribution and habitat: (Map 7) South-west Western Australia: confined to lateritic soil in Jarrah (*Eucalyptus marginata* Donn ex Sm.) and Marri (*E. calophylla* R.Br. ex Lindl.) forest from near Muchea southward to the vicinity of Pemberton and Busselton.

WESTERN AUSTRALIA: Dwellingup, *W. E. Blackall* s.n., Sept. 1937; Western Australia, *J. Drummond* (II):153 (MEL, NSW) and n.167 (MEL); Near Collie, *A. Fairall* 771; Manjimup, *M. Koch* 2460 (MEL, PERTH); 10 mi E of Harvey, *B. R. Maslin* 433; 13 km W of Nannup-Busselton road on Sabina Road, *B. R. Maslin* 2825 (BRI, CANB, PERTH); 3·2 km N of Boyanup towards Bunbury, *B. R. Maslin* 2836; 2·4 km W of Manjimup towards Nannup, *B. R. Maslin* 2861; Kelmscott, *A. Morrison* s.n., 11 Sept. 1897 and 20 July 1900; Gordon River, *Oldfield* 556 (MEL); Bedfordale, *F. M. C. Schoch* 379; Mornington Mills, *R. F. Williams* s.n., 2 Oct. 1932 (UWA 1135); Dwellingup, *J. H. Willis* s.n., Sept. 1947 (MEL 49719).

Flowering and fruiting period: Flowers from late May to October; mature legumes are present from October to December.

Pritzel (1904, p.312) described this new species as *A. strigosa* Link var. *borealis*. However, Pritzel's name was never widely adopted by subsequent botanists.

Hooker (1852) erroneously referred this taxon to *A. cycnorum* Benth., a species which is treated here as a taxonomic synonym of *A. lasiocarpa* Benth.

Bentham (1864, p.418) misapplied the name *A. obscura* A.DC. (see page 430); of the nine collections which he cited under this species, at least two are *A. lateriticola*, viz. *Drummond* II:153 and *Oldfield*, Gordon River.

Acacia lateriticola is closely allied to both *A. browniana* H. Wendl. and *A. empelioclada* B. R. Maslin. From the former species it is distinguished by longer peduncles, larger flower heads, type of branch indumentum (see below), and to some degree, pinnule morphology (the pinnules are normally either larger or more recurved than those in *A. browniana*). The geographical ranges

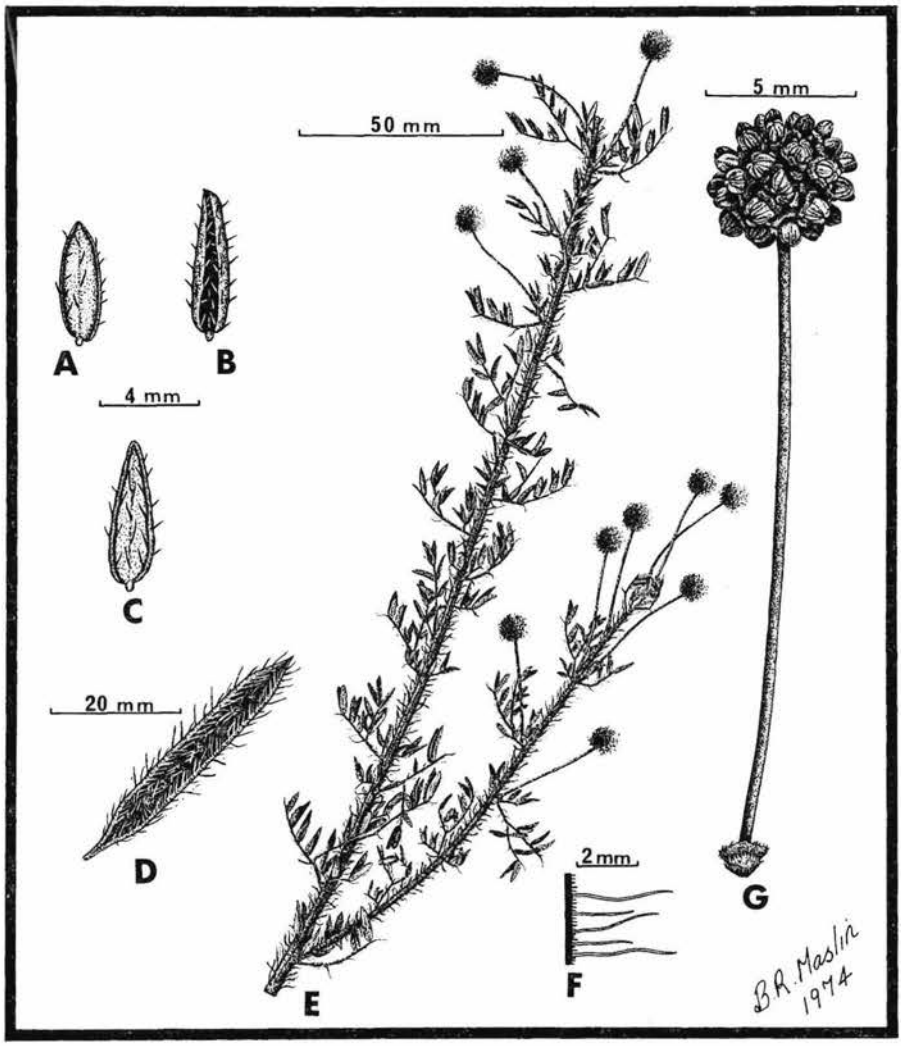


Figure 14—*Acacia lateriticola*. A to C—Pinnule variation (all lower surface). D—Legume. E—Portion of branch system. F—Branch hairs (pilose and hispidulous). G—Inflorescence.
A from *A. Fairall* 771; B and G from *W. E. Blackall* s.n.; C, E and F from *A. Morrison* s.n. 20 July 1900; D from *A. Morrison* s.n., 11 Sept. 1897).

of these two species overlap in the Manjimup-Pemberton district. Generally speaking, *A. lateriticola* is distributed north of this district while *A. browniana* occurs to the south, east and west.

The large, normally light yellow flower heads borne on long, glabrous peduncles, and the relatively large, often recurved pinnules render *A. lateriticola* superficially similar to *A. empelioclada*. However, *A. lateriticola* is distinguished by its branch indumentum (see below), its often shorter, eglandulose pinnae rachides, its generally fewer, shorter, sparsely hispidulous pinnules, and its longer legumes. The known geographical ranges of these two species do not overlap.

The branch indumentum on *A. lateriticola* consists of a mixture of pilos and hispidulous, tubercule-based hairs; however, sometimes the hispidulous layer is poorly developed. On *A. empelioclada* the branches are just pilose;

they lack the additional layer of shorter hairs. Pilose hairs are not always developed on *A. browniana*, but if present they are normally shorter than on *A. lateriticola;* also these hairs are mixed with an antrorsely puberulous (not hispidulous) layer.

The specific epithet alludes to the preference of this species for lateritic soil.

10. Acacia empelioclada B. R. Maslin sp. nov.—*Fig.* 15

Acacia obscura A.DC. var. *moiriana* E. Pritzel, Bot. Jb. 35:312 (1904). *Type:* " Hab. in distr. Stirling pr. Cape Riche in clivis rupestribus montis Melville flor. m. Jul. (D.3489)." (iso: PERTH—fragment).

Acacia obscura auct. non A.DC.: Bentham, Flora Austral. 2:418 (1864), pro parte—as to [*Drummond* V:17.]

Frutex 1–2 m altus; *rami* modice ad dense pilosi; spinae axillares nullae. *Folio* bipinnata; *rhachis* (2) 4–7 (9) mm longa; *pinnae* 1–2 (3)-jugae; *pinnulae* pinnarum proximalium 2–4-jugae, pinnarum distalium (3) 4–10-jugae (foliarum unijugatarum 3–7-jugae), 4–10 x 1–3 mm, planae vel recurvae ad revolutae. *Glans* sessilis, in pagina supera rhachidis; glans minor in rhachibus pinnarum distalium infra insertionem parum 1–4 summorum pinnularum *Capitula* globulosa, 25–43-floribus. *Florae* 5-merae; *calycis lobi* oblongi; *petala* glabra. *Legumina* 15–25 x 5–6 mm, parce ad dense pilosa. *Semina* in legumine transversa ad obliqua, 2·5–3 x 2 mm.

Type: About 1·5 km due NW of Mount Bland, about 60 km due SW of Hopetoun, south coast of Western Australia, 30 Aug. 1973, *B. R. Maslin* 3484 (holo: PERTH; iso: B, BRI, CANB, K, MEL, NSW, NY, PERTH).

Shrub 1–2 m tall, either single-stemmed or dividing at ground level into many spreading to erect branches; *branches* ribbed, dark grey to blackish, red to brown on young shrubs and also often on branchlets of mature plants, moderately to densely pilose (hairs tubercule-based); axillary spines absent. *Stipules* variable, normally narrowly oblong, 3–4 x 0·2–1 mm, often caducous, glabrous or sparsely pilose, slightly thickened at base. *Leaves* bipinnate, indumentum as on branches (except for pinnules); *petiole* 1–2 mm long; *rachis* (2) 4–7 (9) mm long, prominently ribbed above; *terminal seta* narrowly oblong to narrowly triangular, 1–2 x ca. 0·2 mm, often caducous, somewhat thickened at base; *pinnae* 1–2 (3) pairs; *pinna rachis* 2–12 mm long on proximal pinnae, 10–30 mm long on distal pinnae (7–25 mm long on unijugate leaves), ribbed above, apex ca. 1 mm long; *pinnules* 2–4 pairs on proximal pinnae, (3) 4–10 pairs on distal pinnae (3–7 pairs on unijugate leaves), narrowly oblong, 4–10 x 1–3 mm, flat to recurved (revolute upon drying), dark green above, slightly lighter green below, normally glabrous, finely 1-nerved. *Gland* situated on upper surface of rachis below insertion of pinnae, absent from unijugate leaves; a small gland (0·3–0·5 mm diam.) normally occurs below insertion of uppermost 1–4 pairs of pinnules on distal (rarely proximal) pinna rachis; sessile, circular, 0·5–0·8 (1·2) mm diam., lip yellow and prominent, orifice brown and shallow. *Inflorescences* simple; *peduncles* 1–2 per axil, (10) 15–20 (25) mm long, glabrous, basal bracts 3 and ciliolate; *flower heads* pale yellow to cream, globular, 5–7 mm diam. at anthesis, with 25–43 flowers. *Bracteoles* 1 mm long, moderately puberulous, dimorphous; lower series (arranged in a single ring at base of receptacle) reflexed, oblong, apex inflexed; upper series (spirally arranged) erect, claws narrow, expanded into narrow inflexed laminae. *Flowers* 5-merous; *calyx* 1/2 length of corolla, divided for ca. 1/5 its length into oblong inflexed ± thickened ciliolate lobes, tube slightly angular yellow or brown and sparsely puberulous; *petals* ca. 2 mm long, connate for 1/2 their length, glabrous, 1-nerved; *ovary* glabrous or tomentose at apex. *Legumes* somewhat hard and brittle, narrowly oblong, 15–25 x 5–6 mm, flat, raised over seeds, sparsely to densely pilose, dark brown; *margins* not contracted between seeds, thickened. *Seeds* transverse to almost oblique in legume, oblong to elliptic, 2·5–3 x 2 mm, tan, shiny; *pleurogram* prominent, open towards the hilum; *areole* ca. 2 x 1 mm; *funicle* slightly dilated, reflexed below a gradually thickened once-folded aril.

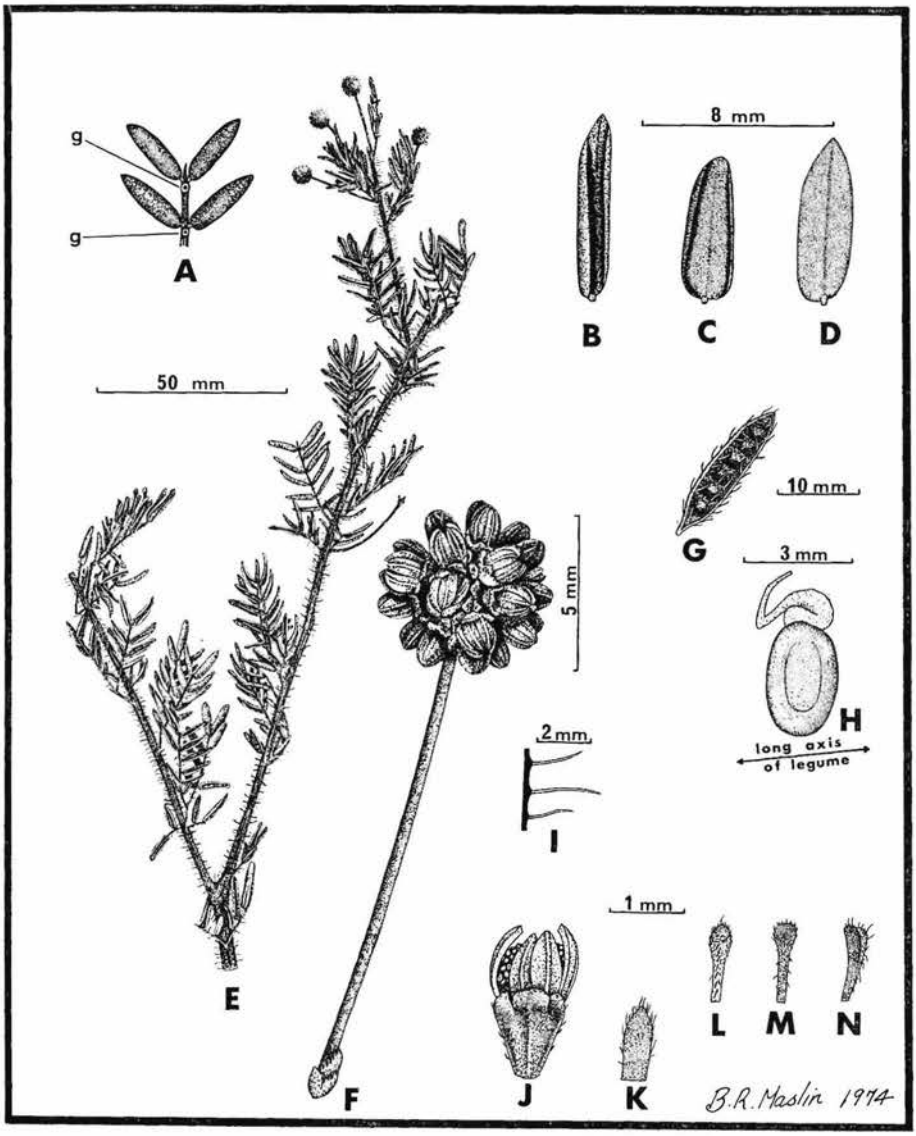


Figure 15—*Acacia empelioclada*. A—Upper surface of distal pinna rachis showing sessile gland (*g*) at base of pinnules. B to D—Pinnule variation (all lower surface). E—Portion of branch system. F—Inflorescence. G—Legume. H—Seed (tan-coloured). I—Pilose branch hairs. J—Flower. K—Bracteole (lower series). L to N—Bracteoles (upper series). A-B, I from *B. R. Maslin* 3484 (the type); C from *E. Wittwer* 393a; D from *J. Drummond* V:17; E from *R. D. Royce* 9063; F from *K. Newbey* 825; G from *A. S. George* 1791; H from *Maxwell* s.n.; J-N from *B. R. Maslin* 916.

Distribution and habitat: (Map 7) South-west Western Australia: southern regions from Cape Riche eastward to East Mount Barren; never occurring more than about 15 km from the sea. *Acacia empelioclada* tolerates a variety of edaphic conditions: it grows on the rocky spongolite slopes of Mount Melville at Cape Riche, and also on the quartzite slopes of West Mount Barren; around the base of Mount Bland and West Mount Barren it grows in sand or sandy laterite; in the East Mount Barren area it grows in clay soil along watercourses.

WESTERN AUSTRALIA: Swan River Colony, *J. Drummond* V:17 (MEL, PERTH)' Half-way up West Mount Barren, *A. S. George* 1791; Mount Melville near Cape Riche *B. R. Maslin* 1062 (AD, K, MEL, NSW, PERTH); Between the Hamersley River and East Mount Barren, *B. R. Maslin* 916; Mettlers Brook on the west side of West Mount Barren, *Maxwell* s.n. (MEL 49469); Mount Bland, *K. Newbey* 825; Fitzgerald River Reserve, *R. D. Royce* 9063; 22 mi south of Ravensthorpe, *E. Wittwer*, 393a.

Flowering and fruiting period: Flowers from July to October; young legumes appear in early October and mature in late November.

Bentham (1864, p.418) misapplied the name *A. obscura* A.DC. (see page 430); of the nine collections which he cited under this species, at least one is *A. empelioclada*, viz. *Drummond* V:17.

Pritzel (1904, p.312) described the present species as *A. obscura* A.DC. var. *moiriana*. However, this name was never widely adopted by subsequent botanists. Pritzel's epithet was not used as the specific ephithet for *A. empelioclada* because confusion may develop between this name and *A. moirii* E. Pritzel, which is a valid species within the *Pulchellae*.

Judging from morphological criteria, *A. empelioclada* appears to lie between *A. lateriticola* B. R. Maslin and *A. leioderma* B. R. Maslin—see below. The species also bears some resemblance to *A. nigricans* (Labill.) R.Br. and *A. browniana* H. Wendl.

The leaves on *A. empelioclada* are quite variable. Some plants are consistently unijugate while others have from one to three pairs of pinnae on the same bush; the pinnules range from flat to recurved (revolute upon drying). Plants with perfectly flat pinnules are known only from Cape Riche; the type of *A. obscura* var. *moiriana* and also *Drummond* V:17 (see above) are included here. This form never has consistently unijugate leaves, while its pinna rachis is sometimes eglandulose. In many respects, e.g. large leaves and flower heads, flat pinnules, and gland morphology, this form resembles *A. leioderma* from which it is distinguished by its pilose, less prominently ribbed branches. Further east from between West and East Mount Barren, some plants have consistently unijugate leaves, and the pinnules vary from concave to recurved. These plants bear an overall resemblance to *A. lateriticola*—see this species for further details.

The specific epithet refers to the blackish colour of the mature branches. However, the branches on juvenile plants and also often the branchlets on mature shrubs are red to brown in colour.

11. Acacia nigricans (Labill.) R.Br. in Ait. f., Hort. Kew. ed. 2, 5:465 (1813)—as to name only.—*Fig.* 16

Mimosa nigricans Labill., Nov. Holl. Plant. Specim. 2:88, t.238 (March 1807), non Vahl (1807). *Type:* " Habitat in terra Van-Leuwin ". (lecto: right hand specimen on sheet labelled " Nova Hollandiae ora austro-occidentalis. Herb. Webbianum. Ex Herb. Labillardière "—FI, photograph seen).

Acacia rutaefolia Link, Enum. Plant. Hort. Berol. 2:444 (1822), nom. illeg., based by implication on *A. nigricans* (Labill.) R.Br.

Acacia ignorata K. Koch, Allgem. Gartenz. 26:195 (1858). *Type:* n.v.

Acacia pentadenia Hort. ex K. Koch (1858) non Lindl. (1832), pro syn.

[*Acacia obscura* auctt. non. A.DC.: (?) Bentham, Flora Austral. 2:418 (1864), pro parte—as to R. Brown, Goose Island Bay, n.v.; Willis 1953, p. 26 and 1959, p. 100.]

Shrub 1–2 m tall; *branches* normally prominently ribbed, moderately hispidulous to glabrescent, hairs denser along ribs and normally tubercule-based; axillary spines absent. *Stipules* narrowly oblong to narrowly triangular, 2–3 x 0·3–0·5 mm. *Leaves* bipinnate, indumentum as on branches (except for pinnules); *rachis* 3–9 (13) mm long, ribbed above; *pinnae* (1) 2 (3) pairs; *pinna rachis* 2–4 (7) mm long on proximal pinnae, 5–11 (15) mm long on distal pinnae; *pinnules* 2 (3) pairs on proximal pinnae, 3–5 (8) pairs on distal pinnae, oblong to somewhat elliptic or obovate, flat to slightly recurved, glabrous or

occasionally ciliolate. *Gland* situated on upper surface of rachis (0·5) 1–2 (3) mm below insertion of pinnae, occasionally situated immediately below pinnae; sessile, 0·5–0·7 (0·9) mm diam., lip prominent, *Inflorescence* of 1–3 short axillary binate racemes, each subtended, as well as the peduncles, by a small glabrous or ciliolate bract; *raceme axis* less than 1 to 2 mm long; *peduncles* 2 per raceme, 8–10 (20) mm long, glabrous; *flower heads* pale yellow, globular, 3–5 mm diam. at anthesis, with 11–26 flowers. *Flowers* 5-merous; *calyx* 1/2 length of corolla, divided for ca. 1/4 its length into oblong inflexed slightly thickened ciliolate lobes, tube glabrescent; *petals* 1·5–2·5 mm long, connate for 1/2 their length, 1-nerved; *ovary* glabrous. *Legumes* somewhat hard and brittle, narrowly oblong, 15–35 x 5–6 mm, flat, moderately raised over seeds, glabrous, rarely shortly pilose, dark brown; *margins* not contracted between the seeds, thickened, yellow to light brown. *Seeds* oblique in legume, oblong to elliptic, 2·5–3 x 1·5 mm, brown, shiny, *pleurogram* continuous or with a narrow opening towards the hilum; *areole* 2 x 1 mm; *funicle* reflexed below a ± abruptly thickened, curved or once-folded aril.

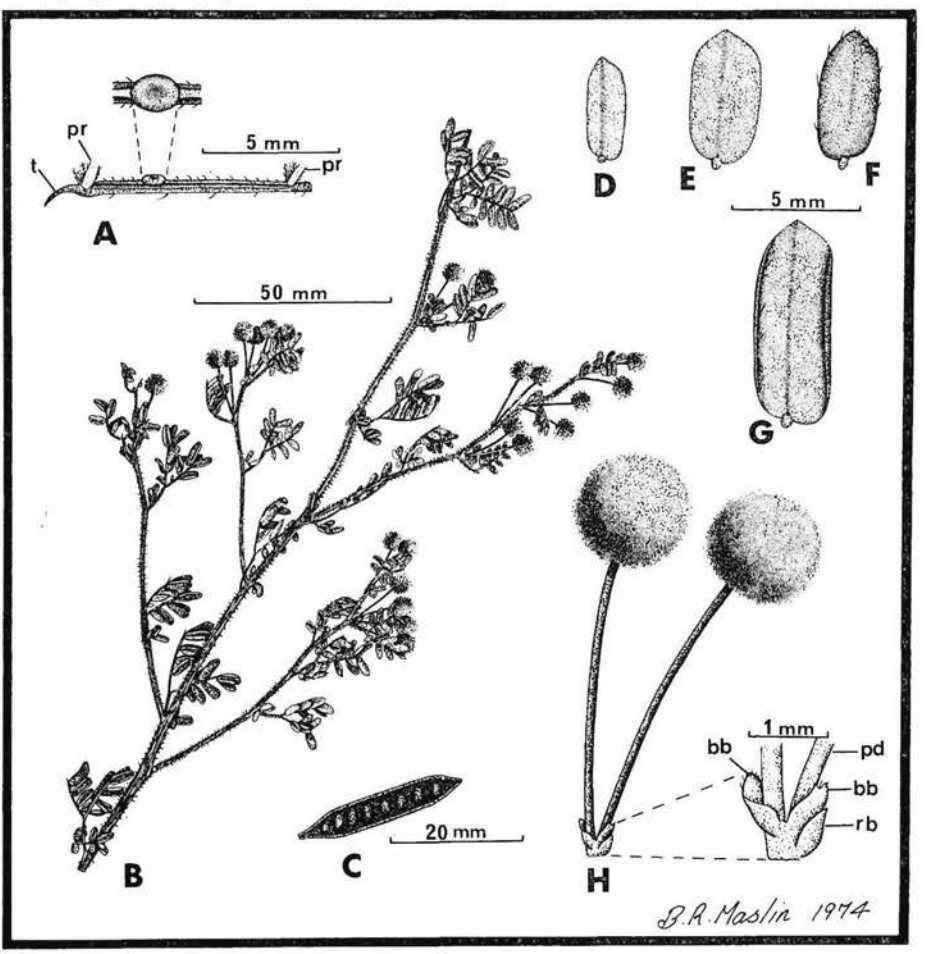


Figure 16—*Acacia nigricans*. A—Leaf axis (side view) showing gland (inset—top view of gland), terminal seta (t), and base of pinnae rachides (pr). B—Portion of branch system. C—Legume. D to G—Pinnule variation (F—upper surface; rest—lower surface). H—Inflorescence—inset showing solitary basal bract (bb) subtending peduncle (pd) and solitary bract subtending the condensed raceme axis (rb).
A and D from *R. H. Kuchel* 1656; B, G and H from *E. M. Scrymgeour* 835; C from *J. S. Beard* 2305; E from *P. G. Wilson* 10006; F from *R. D. Royce* 3598.

Distribution and habitat: (Map 6) South-west Western Australia: from Barker Inlet (50 km due west of Esperance) to Cape Arid (120 km due east of Esperance); also recorded for Middle, Mondrain, and Sandy Hook Islands in the Recherche Archipelago. *Acacia nigricans* appears to be restricted to near coastal regions in either sandy or rocky soil.

WESTERN AUSTRALIA: Mount Merivale, Esperance, *J. S. Beard* 2305; Barkers Inlet, *E. M. Canning* 7027 (CBG); Esperance, *D. Churchill* s.n., 16 Aug. 1956 (UWA 1142); About 50 km east of Esperance, *R. H. Kuchel* 1656 (AD, CANB, PERTH, UC); Near Cape Arid, *Maxwell* s.n., 1875 (MEL 49470); Duke of Orleans Bay, *A. E. Orchard* 1316; Cape Le Grand National Park, *R. D. Royce* 8690; 5 mi N of Esperance, *R. D. Royce* 3598; Condingup Road junction, 570 miles on Coolgardie-Esperance highway, *E. M. Scrymgeour* 835; Middle Island, Recherche Archipelago, *J. H. Willis* s.n., 22 Nov. 1950 (MEL 49461); Lucky Bay, 35 km ESE of Esperance, *P. G. Wilson* 10006 (B, K, MEL, NSW, PERTH).

Flowering and fruiting period: Flowers from July to October; legumes appear in early October and reach maturity in November and December.

Acacia nigricans (Labill.) R.Br. was based on *Mimosa nigricans* Labill. At Florence (FI), where much of Labillardière's collection is housed, there are two sheets which can be regarded as type material. Both these sheets are labelled " Herb. Webbianum. Ex Herb. Labillardière " and pinned to each is part of Labillardière's handwritten manuscript description of *Mimosa nigricans*. One of these sheets carries two specimens of *A. nigricans* while the other has only one rather depauperate specimen of this taxon; the right hand specimen on the former sheet is here selected as the lectotype. This sheet is annotated (not in Labillardière's hand) " Nova Hollandia ora austro-occidentalis " and although this annotation is in a form different from that in the protologue, i.e. " Habitat in terra Van-Leuwin ", it undoubtedly refers to the same locality, that being Esperance Bay on the south coast of Western Australia.

A Central American species, *Mimosa nigricans*, was described by Martin Vahl in Ecolog. Am. 3:37 t.29 (1807); however, no exact date of publication can be found for this work. Labillardière's description of the Western Australian taxon, *Mimosa nigricans*, appeared in March 1807, and it is here assumed that Labillardière's work antedates that of Vahl. As *Acacia nigricans* (Labill.) R.Br. was based on *Mimosa nigricans* Labill., the correct author citation for this plant is " (Labill.) R.Br."; however, if it is subsequently found that Vahl's work was published first, the author citation would become "R.Br.".

When Robert Brown made the above new combination, he apparently applied the name to a plant from the Albany area (perhaps " R. Brown, Iter Australiense, 1802–5. King George III Sound " Bennett distribution number 4320, which is housed at BM—photograph seen by the author; this plant is here described as *A. leioderma* B. R. Maslin). Brown's description of *A. nigricans*, although brief, strongly indicates that he was referring to *A. leioderma* even though *Mimosa nigricans* was given as the basionym. Most authors, including Bentham (1864), seem to have followed Brown's interpretation and thus have misapplied the name, *A. nigricans*. Ironically, Robert Brown appears to have collected the true *A. nigricans* (see below).

Past authors have generally considered *A. rutaefolia* Link to be a synonym of *A. nigricans* (Labill.) R.Br.; this approach is also adopted here. However, it should be noted that there is some uncertainty concerning Link's intention when he published *A. rutaefolia* thus: " 5534 *A. rutaefolia*. Ait. Kew. 5. 465. Hab. in Australia. *h.* T. Elegans plantula floribus flavis. Foliola inaequalia." On page 465 of Ait. f., Hort. Kew. ed. 2, vol. 5 (1813) Robert Brown made the new combination, *A. nigricans* (Labill.) R.Br. and proposed the common name, " Unequal-wing'd *Acacia* " for this species (presumably to reflect the discrepancy in size between the proximal and distal pair of pinnae). Link's "Foliola inequalia" presumably refers to Brown's "Unequal-wing'd", and it is therefore assumed Link intended that the name *A. rutaefolia* should replace *A.*

nigricans; however, Link's name is illegitimate being superfluous. As mentioned above, when Brown made the new combination *A. nigricans* (Labill.) R.Br., he apparently applied the name to the plant which is here described as *A. leioderma*. In applying the name *A. rutaefolia* to this taxon, Link has actually misapplied his own illegitimate name.

It could be argued that Link was describing a new species, *A. rutaefolia*, which was systematically referable to page 465 of " Ait. Kew ", or alternatively, that he was proposing a new name for the species misinterpreted by Robert Brown as *A. nigricans* (i.e. *A. leioderma*). However, there is no evidence to support these assertions.

Because of the misapplication of the name *A. nigricans* to the taxon here described as *A. leioderma*, the true *A. nigricans* has often been called *A. obscura*. For example, Willis (1953, p.26) and (1959, p.100) cites *A. obscura* from Middle, Mondrain, and Sandy Hook Islands in the Recherche Archipelago—a voucher specimen from Middle Island has been seen by the present author (MEL 49461). Also, a Robert Brown collection from Goose Island Bay (which is on Middle Island) is cited by Bentham (1864, p.418) under *A. obscura;* although I have not seen this collection, it is most probably *A. nigricans* because recent intensive collecting on Middle Island by staff members of the W.A. Herbarium reveal that this is the only bipinnate *Acacia* occurring at this locality.

In the original description of *A. ignorata*, Koch (1858, p.195) stated that this species was for several years grown in German gardens under the name *A. pentadenia;* this plant was supposed to have been introduced from England; Koch also stated that Bentham did not consider it different from *A. obscura*. Although I have not seen the type (if one exists), the description of *A. ignorata* is quite comprehensive and almost certainly applies to *A. nigricans*.

Acacia nigricans is a somewhat variable species especially in the density of its branch indumentum, pinnule size, and number of flowers per flower head. It appears to be closely related to *A. browniana* H. Wendl., *A. empelioclada* B. R. Maslin, and *A. leioderma* B. R. Maslin. From these taxa, *A. nigricans* differs most significantly in its inflorescence arrangement (see below); also its known geographical range does not overlap any of these species.

The inflorescences on *A. nigricans* are reduced racemes ; they consist of two peduncles, each subtended by a solitary basal bract, distally situated on a very short raceme axis which is also subtended by a small solitary bract. One to three of these binate racemes may occur in each leaf axil, thus resulting in clusters of two to six flower heads per node. These reduced racemes are not common in the *Pulchellae*, but the same sort of structural pattern does occur on *A. pentadenia* Lindl., *A. newbeyi* B. R. Maslin, *A. subracemosa* B. R. Maslin, *A. lasiocarpa* Benth., *A. megacephala* B. R. Maslin, and *A. pulchella* R.Br.

The species with which *A. nigricans* is most likely to be confused is *A. browniana*, especially those forms with hispidulous branches. In addition to the characters mentioned above, *A. nigricans* can be distinguished by its normally more prominently ribbed branches bearing tubercule-based hairs, and its often more prominent gland (which is normally situated 1–2 mm below the insertion of the pinnae).

Glabrescent forms of *A. nigricans* can superficially resemble *A. leioderma* (which is completely glabrous), but the latter species is recognized by its simple inflorescences, larger flower heads, and normally gland-bearing distal pinnae rachides.

Of *A. nigricans*' closest relatives, *A. empelioclada* is geographically nearest this species. Like *A. nigricans* this species also grows in near-coastal regions, and it also has prominently ribbed branches bearing tubercule-based hairs. *Acacia empelioclada* is distinguished from *A. nigricans* by its simple inflorescences, longer branch hairs, larger flower heads, and gland-bearing distal pinnae rachides.

12. Acacia leioderma B. R. Maslin sp. nov.—*Fig.* 17

[*Acacia nigricans* auctt. non (Labill.) R.Br.: R. Brown in Ait. f., Hort. Kew. ed. 2, 5:465 (1813); K. Koch, Allgem. Gartenz. 26:195 (1858); G. Bentham, Flora Austral. 2:418 (1864).] [*Acacia rutaefolia* auctt. non Link: Link, Enum. Plant. Hort. Berol 2:444 (1822); W. Aiton, Ann. Blumisterei Gartenbisitz p. 58 + tab (1827).]

Frutex 1–2 m altus; *rami* manifeste costati, glabri; spinae axillares nullae. *Folio* bipinnata; *pinnae* (1) 2 (3)-jugae; *pinnulae* pinnarum proximalium 2 (3)-jugae, pinnarum distalium 4–8 (13)-jugae, 5–11 x 1·5–3 (4) mm, planae vel interdum parum recurvae, glabrae. *Glans* sessilis, in pagina supera rhachidis infra insertionem pinnarum posita; plerumque glans minor in rhachidibus pinnarum infra insertionem parum 1–2 summorum pinnularum. *Pedunculi* 10–20 (30) mm longi, glabri. *Capitula* globulosa, 28–35-floribus. *Florae* 5-merae; *calycis lobi* oblongi; *petala glabra*. *Legumina* 30–40 x 6–7 mm, glabra. *Semina* in legume transversa ad parum obliqua, 2–3 x 1·5–2 mm.

Type: 21 km from Denmark towards Mount Barker, Western Australia, 21 Sept. 1972, *B.R. Maslin* 2955 (holo: PERTH; iso: CANB, K, MEL, NY).

Shrub 1–2 m tall; *branches* prominently ribbed, normally red to brown, smooth, glabrous; axillary spines absent. *Stipules* linear to narrowly triangular, 2·5–4 x 0·3–0·5 mm, slightly thickened especially at base. *Leaves* bipinnate, glabrous but rachis sometimes puberulous above; *petiole* 1–2 mm long; *rachis* 3–6 (8·5) mm long, prominently ribbed above (rib ± vertically dilated towards the terminal seta); *terminal seta* narrowly triangular, 1·5–2 (3) mm long, slightly thickened at base; *pinnae* (1) 2 (3) pairs; *pinna rachis* 3–4 (6) mm long on proximal pinnae, 10–30 (40) mm long on distal pinnae, prominently ribbed above, apex 0·5–1·5 mm long; *pinnules* 2 (3) pairs on proximal pinnae, 4–8 (13) pairs on distal pinnae, normally narrowly oblong, 5–11 x 1·5–3 (4) mm, flat or occasionally slightly recurved, dark green above, light green below, midvein fine, a second short less conspicuous nerve often diverges from the petiolule. *Gland* situated on upper surface of rachis below insertion of the pinnae; a small gland normally occurs on upper surface of distal and medial pinnae rachides (normally absent from proximal pinnae) below uppermost 1–2 pairs of pinnules; sessile, 0·6–1 mm diam., lip and orifice prominent. *Inflorescences* simple; *pedunculs* 1–3 per axil, 10–20 (30) mm long, glabrous, basal bracts 3–4 and ciliolate; *flower heads* globular, 7–10 mm diam. at anthesis, with 28–35 flowers. *Bracteoles* 1–1·5 mm long, sparsely to moderately puberulous, dimorphous: lower series (arranged in a single ring at base of receptacle) reflexed, oblong to obovate, 0·5–0·8 mm broad; upper series (spirally arranged) erect, claws linear, laminae pear-shaped and inflexed. *Flowers* 5-merous; *calyx* 1/2 length of corolla, divided for 1/5 its length into somewhat imbricate inflexed thickened ciliolate lobes, tube often dark brown glabrous to glabrescent and obscurely 5-nerved; *petals* 2–2·5 mm long, connate for 1/2–2/3 their length, glabrous, ± obscurely 5-nerved; *ovary* tomentose at apex, occasionally glabrous. *Legumes* somewhat hard and brittle, narrowly oblong, 30–40 x 6–7 mm, flat, raised over seeds, glabrous, dark brown, *margins* not contracted between seeds, thickened, light brown. *Seeds* transverse to slightly oblique in legume, oblong to elliptic 2–3 x 1·5–2 mm tan to grey-brown; *pleurogram* prominent, continuous or with a narrow opening towards the hilum; *areole* 1·5–2 x 1 mm; *funicle* slightly dilated, reflexed below a ± gradually thickened once-folded aril.

Distribution and habitat: (Map 7) South-west Western Australia: common in the Albany, Mount Barker, and Manypeaks district but has been collected as far east as West Mount Barren. This species favours sandy loam in low lying areas near watercourses, but it also grows in lateritic soils on higher ground.

Under *A. nigricans*, Meisner (1844) cited two specimens collected from Mount Bakewell, which is near York, about 96 km east of Perth. Duplicates of these plants (*Preiss* 891 and *Drummond* 314) are at Melbourne (MEL); both are *A. gilbertii* Meisn., not *A. leioderma*.

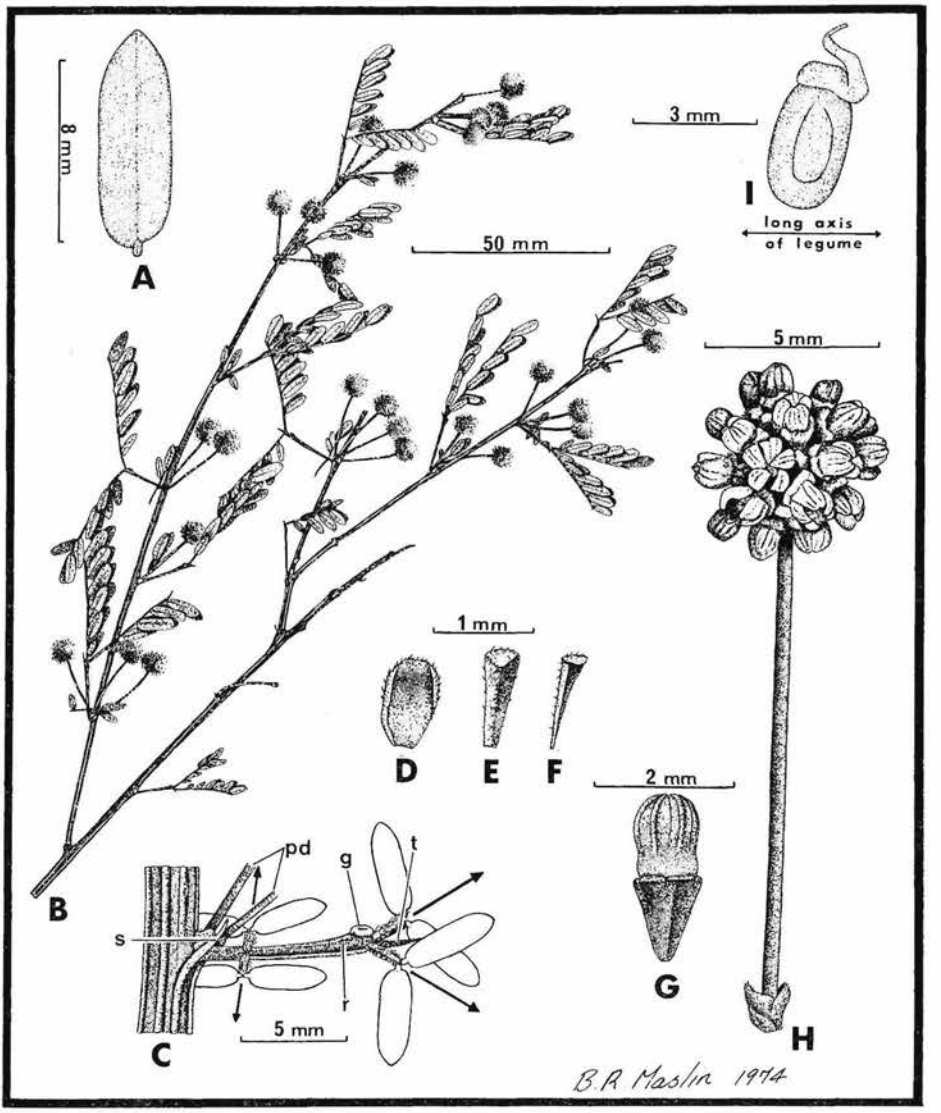


Figure 17—*Acacia leioderma*. A—Pinnule. B—Portion of branch system. C—Node showing peduncles (pd), prominent stipule (s), and leaf (pinnae incomplete) with gland (g), terminal seta (t), and rachis (r). D to F—Bracteoles (D—lower series; E and F—upper series). G—Flower. H—Inflorescence. I—Seed (tan-coloured).
A, D-F from *B. R. Maslin* 2955 (the type); B and H from *F. Lullfitz* 3400; C from *R. H. Kuchel* 1969; G from *E. M. Scrymgeour* 1121; I from *T. E. H. Aplin* 2756.

WESTERN AUSTRALIA: Dillon Bay, *T. E. H. Aplin* 2756; Porongurup Range, *J. S. Beard* 5801; King George III Sound, *R. Brown* Iter Australiense, 1802–5, Bennett distribution number 4320 (BM—photograph seen); Miller's Point, east of Boat Harbour, *E. M. Canning* 7479 (CBG, PERTH); Swan River Colony, *J. Drummond* n.18 (MEL, PERTH); Lower Fitzgerald River, *A. S. George* 9922; Mount Manypeaks, *J. Goodwin* 7 (UWA); About 25 km north of Albany, *R. H. Kuchel* 1969 (AD, PERTH); South Stirlings, *F. Lullfitz* 3400; 17·7 km E of Mount Barker towards Porongurup, *B. R. Maslin* 2959; King George's Sound, *Maxwell* s.n. (MEL 49441 and 49445); 10 miles south of Bluff Knoll, *K. Newbey* 2331; Mount Williams, near Princess Royal Harbour, *Preiss* 887 (MEL); Green Range, E. of Albany, *R. D. Royce* 7686; 3 miles along Mt. Many Peaks road from Upper Kalgan Bridge, *E. M. Scrymgeour* 1121; Albany, *E. H. Wilson* and *D. A. Herbert* s.n., Nov. 1920.

Flowering and fruiting period: Flowers from August to early November; both young and mature legumes are present in October and November.

Acacia leioderma has previously been known as *A. nigricans*. This is because when Robert Brown made the new combination, *A. nigricans* (Labill.) R.Br. (based on *Mimosa nigricans* Labill.) he apparently misapplied the name to a plant from the Albany area (perhaps, " King George III Sound ", Bennett distribution number 4320, which is housed at BM—photograph seen) which is here described as *A. leioderma*. *Acacia nigricans* (sensu lectotypico) is quite a different species and is restricted to the Esperance district which is about 380 km due east-northeast of Albany.

Link proposed the name *A. rutaefolia* presumably as a nomen novum for *A. nigricans* (Labill.) R.Br. Link's name is illegitimate, being superfluous. In applying his name to the Albany plant (*A. leioderma*), Link has actually misapplied his own illegitimate name. For a full discussion see under *A. nigricans*.

Acacia leioderma is a member of the *A. browniana* H. Wendl. group of species (see p. 394). Its closest relative is *A. empelioclada* B. R. Maslin from which it is most readily distinguished by having glabrous, prominently ribbed branches.

Vegetatively *A. leioderma* can sometimes resemble *A. gilbertii* Meisn. and the glabrous forms of *A. browniana* H. Wendl. var. *browniana*—see these taxa for distinguishing features.

The specific epithet refers to the smooth branches.

13. Acacia pentadenia Lindl., Edwards' Bot. Reg. 18:t.1521 (1832). *Lectotype:* Nov. Holld. *Baxter*—central fragment on sheet (CGE—photo seen)—*Fig.* 18

Acacia biglandulosa Meisn. in Lehm., Plant. Preiss. 2:205 (1848).
Type: " Swan River, *Drummond.* coll. II. No. 97." (iso: MEL, NSW—sphalm. "3rd collection ", PERTH).

? *Acacia neilii* Hort. ex Seeman, Verh. Gartenbau-Ges. Wien 1846:72 (1846); fide K. Koch, Allgem. Gartenz. 26:195 (1858), " Neillii " pro syn. sub. *A. pentadenia* Lindl. *Type:* n.v.

Tall *shrub or small tree*, 2–5 (7) m high; *bark* smooth, grey to brown; *branches* prominently ribbed, glabrous or rarely glabrescent; axillary spine; absent. *Leaves* bipinnate, glabrous to glabrescent; *petiole* 2–3 (5) mm longs *rachis* 10–55 mm long, prominently ribbed above; *pinnae* 2–5 (6–8) pairs (proximal pair often caducous); *pinna rachis* 3–10 mm long on proximal pinnae, 25–80 mm long on remaining pinnae; *pinnules* 2–4 pairs on proximal pinnae, 12–30 pairs on remaining pinnae, oblong (may become ± triangular due to folding of margins), (1·5) 3–6 x 1–2·5 mm, flat or slightly recurved, glabrous or sparsely ciliolate, finely 1-nerved, dark green above, light green below, apex sometimes prominently inflexed, base obliquely truncate, petiolule ± absent. *Gland* situated on upper surface of rachis a short distance below insertion of pinnae; present or absent on petiole below proximal pair of pinnae; sessile, circular, 0·5–0·9 mm diam., lip prominent. *Inflorescences* of (1) 2–4 (5) short axillary racemes bearing (1) 2–4 flower heads, each raceme, as well as the peduncles, subtended by a brown ciliolate bract; *raceme axis* less than 1 to 4 mm long, glabrous; *peduncles* 6–20 mm long, glabrous; *flower heads* globular, 5–7 mm diam. at anthesis. *Flowers* 5-merous; *calyx* 1/3 to nearly 1/2 length of corolla, divided for less than 1/4 its length into inflexed ± thickened ciliolate slightly imbricate lobes, tube brown glabrous to sparsely puberulous and nerveless; *petals* 2·5 mm long, ± obscurely 1-nerved, yellow, glabrous, tube slightly contracted towards the base; *ovary* glabrous. *Legumes* somewhat hard and brittle, narrowly oblong, 15–50 x 3–4 mm, flat, slightly raised over seeds, glabrous, dark brown; *margins* not contracted between seeds, thickened, yellow. *Seeds* longitudinal in legume, ± oblong, 2·5–3 x 2

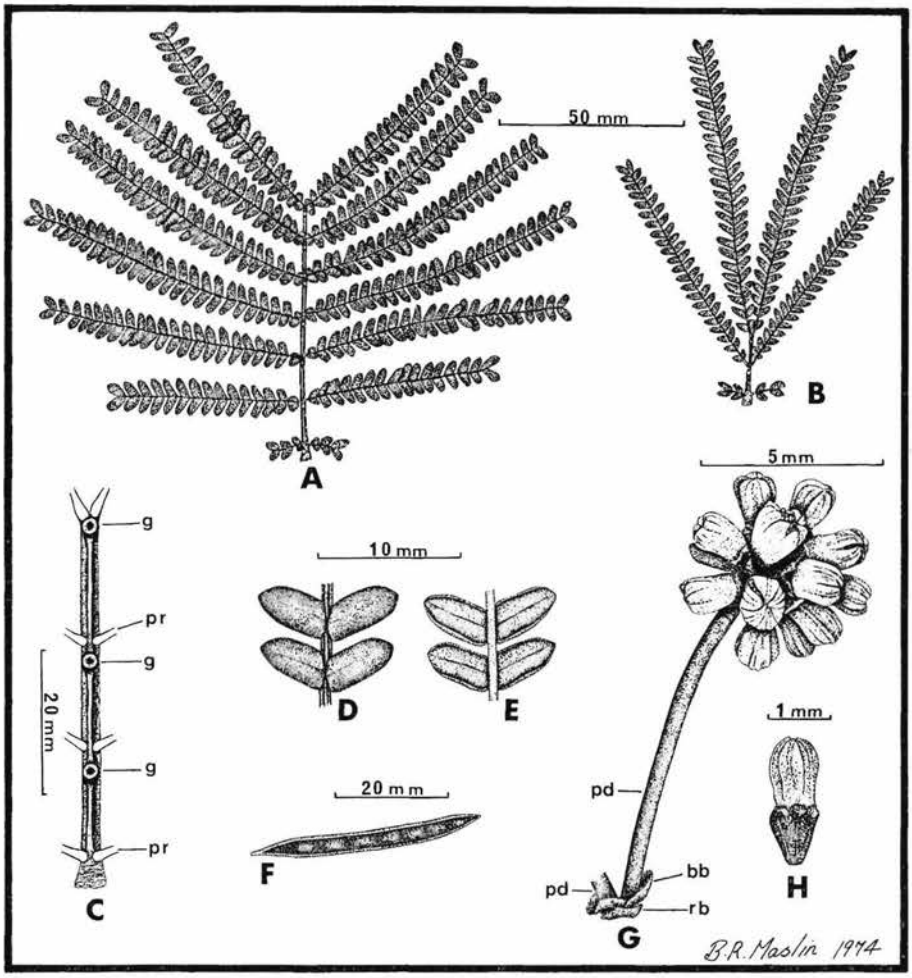


Figure 18—*Acacia pentadenia*. A and B—Leaves. C—Leaf axis (upper surface) showing glands (g) and base of pinnae rachides (pr). D—Pinnules (upper surface). E—Pinnules (lower surface). F—Legume. G—Inflorescence showing basal bract (bb) subtending peduncle (pd), also solitary bract (rb) subtending the condensed raceme axis. H—Flower. A-E from *B. R. Maslin* 2896; F from *J. W. Green* 1135; G-H from *A. M. Ashby* 2417.

mm, light brown, shiny; *pleurogram* prominent, continuous or with a narrow opening towards the hilum; *funicle* short, flattened, reflexed below a thickened curved aril.

Distribution and habitat: (Map 8) South-west Western Australia: southern regions from Pemberton to Torbay (near Albany). Normally associated with Karri forest (*Eucalyptus diveriscolor* F. Muell.) but may also occur near swamps and on lateritic loam in Jarrah forest (*E. marginata* Donn ex Sm.)—see below.

WESTERN AUSTRALIA: Near Shannon Mill, *A. M. Ashby* 2417 (AD, PERTH); Between Albany and Denmark, *Hj. Eichler* 16085 (AD); Kent River, *C. A. Gardner* 1264; Near Deep River, 4–5 miles SW of Walpole, *J. W. Green* 1135; Big Brook, Pemberton, *M. Koch* 2343 (MEL); Mount Roe South, *O. W. Loneragan* s.n., 6 Apr. 1965; 1·6 km S Northcliffe towards Windy Harbour, *B. R. Maslin* 2896 (BRI, PERTH); 14·5 km E Walpole towards Denmark, South Coast Highway, *B. R. Maslin* 2922 (B, CANB, K, NY, PERTH); Torbay, *Oldfield* s.n. (MEL 49480); Parryville, 12 mi W of Denmark, *J. H. Willis* s.n., 5 Sept. 1947 (MEL).

Flowering and fruiting period: Flowers from September to October; mature legumes occur from December to January.

The type of *A. pentadenia* is at Cambridge (CGE) and a photograph of it has been seen by the author. This sheet carries three separate fragments: the central one, consisting of a single leaf, three flower heads, and a minute portion of stem, has been chosen as the lectotype. One of the remaining fragments is a leaf only, while the other (consisting of the upper portion of a branch) probably represents the stunted form of *A. pentadenia* which is referred to below.

Acacia pentadenia is typically associated with Karri forest (hence the common name, ' Karri Wattle ') where it normally forms tall, dense thickets. However, in some areas, particularly in the Walpole-Denmark region, *A. pentadenia* grows near swamps and on lateritic loam in Jarrah forest. Under these conditions it is often a stunted shrub (to about 2 m tall) and its pinnules are often smaller and more inflexed than normal.

Acacia pentadenia is most closely related to *A. subracemosa* B. R. Maslin. These taxa, besides being the tallest species in the *Pulchellae*, also possess larger leaves than any member of this Series. Other characters common to them include reduced racemose inflorescences and obliquely truncate, ± sessile pinnules. Both species are associated with the Karri forest, but their distributions do not overlap. *Acacia pentadenia* is readily distinguished from *A. subracemosa* by its glabrous branches, leaves, and peduncles (see *A. subracemosa* for further details).

14. Acacia subracemosa B. R. Maslin sp. nov.—*Fig.* 19

Frutex 2–3 m altus; *rami* dense puberuli ad hispiduli; spinae axillares nullae. *Folia* bipinnata; *rhachis* 15–55 mm longa; *pinnae* 3–6-jugae; *rhachis pinnarum* proximalium 2–6 mm longa, aliarum 15–50 mm longa; *pinnulae* pinnarum proximalium 2–3-jugae, aliarum 7–13-jugae, oblongae ad ± triangulares, 3–6 x 1·5–3 mm, modice puberulae, basibus oblique truncatis, petiolulis + nullis. *Glans* sessilis, in pagina supera rhachidis haud procul supra pinnas proximales posita. *Inflorescentia* racemosa brevis axillaris, 2–4 (6)-capitata; *pedunculi* 7–17 mm longi, modice puberuli ad hispiduli. *Capitula* globulosa, 15–20-floribus. *Florae* 5-merae; *calycis lobi* triangulares. *Legumina* 15–40 x 4–6 mm, sparsim puberula. *Semina* in legumine transversa ad obliqua immatura interdum longitudinalia), ± oblonga, 2–2·5 x 1·5 mm.

Type: 3 km W of Karridale towards Hamelin Bay, Western Australia, 19 Sept. 1972, *B. R. Maslin* 2877 (holo: PERTH; iso: BRI, CANB, K, MEL, NSW, NY, PERTH).

Tall, spreading, dense *shrub*, 2–3 m high; *bark* smooth, grey to light brown, lenticels prominent; *branches* finely ribbed, densely puberulous to hispidulous (hairs normally tubercule-based); axillary spines absent. *Stipules* prominent on young shrubs, narrowly triangular, 2–4·5 mm long, spreading, curved, sparsely ciliolate, light brown. *Leaves* bipinnate, indumentum as on branches (except for pinnules); *petiole* ca. 1 mm long; *rachis* 15–55 mm long, prominently ribbed above; *terminal seta* often caducous, narrowly triangular, 2–4 mm long, slightly thickened, glabrous to sparsely ciliolate; *pinnae* 3–6 pairs (proximal pair sometimes caducous); *pinna rachis* 2–6 mm long on proximal pinnae, 15–50 mm long on remaining pinnae; *pinnules* 2–3 pairs on proximal pinnae, 7–13 pairs on remaining pinnae, oblong to ± triangular, 3–6 x 1·5–3 mm, slightly recurved, moderately puberulous, nerveless uneven and dark green above, prominently 1 (2) -nerved smooth and light green below base obliquely truncate, petiolule ± absent. *Gland* situated on upper surface of rachis a short distance above proximal pinnae; sessile, circular, 0·6–0·8 mm diam., lip prominent. *Inflorescence* a solitary, short, axillary raceme, bearing 2–4(6) flower heads; *raceme axis* normally less than 1 mm long (may range from 2–20 mm), subtended by 2–3 brown scarious ciliolate bracts; *peduncles* 7–17 mm long, moderately puberulous to hispidulous, basal bract solitary; *flower heads* cream, globular, 5–6 mm diam. at anthesis, with

15–20 loosely arranged flowers. *Flowers* 5-merous; *calyx* 1/2 (or slightly less) length of corolla, divided for 1/5–1/4 its length into triangular ciliolate lobes which are neither thickened nor inflexed, tube 5-nerved and glabrous; *petals* 2·5–3 mm long, connate for ca. 1/2 their length, 1-nerved, glabrous or sparsely hispidulous at apex; *ovary* glabrous. *Legumes* narrowly oblong, 15–40 x 4–6 mm, flat, raised over seeds, sparsely puberulous, dark to medium brown. *Seeds* (few seen) transverse to oblique in legume (some immature seeds observed to be longitudinal), ± oblong, 2–2·5 x 1·5 mm, grey-brown, shiny; *pleurogram* obscure, continuous or with a narrow opening towards the hilum; *funicle* filiform, reflexed below an abruptly thickened curved aril.

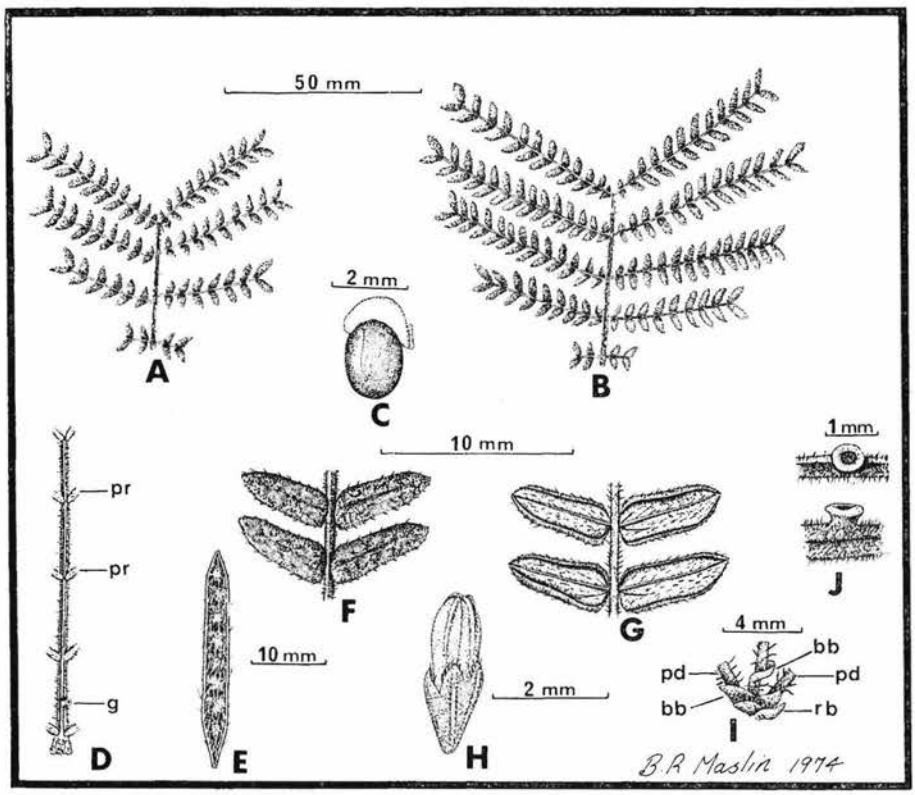


Figure 19—*Acacia subracemosa*. A and B—Leaves. C—Seed (grey-brown). D—Leaf axis (upper surface) showing gland (g) and base of pinnae rachides (pr). E—Legume. F—Pinnules (upper surface). G—Pinnules (lower surface). H—Flower. I—Base of inflorescence showing basal bract (bb) subtending peduncle (pd), also two bracts (rb) subtending the condensed raceme axis. J—Gland (top and side views).
A, C-D, F-J from *B. R. Maslin* 2877 (the type); B and E from *B. R. Maslin* 1677.

Distribution and habitat: (Map 8) South-west Western Australia: occurring in a restricted area from the vicinity of Augusta northward to near Witchcliffe. *Acacia subracemosa* appears to grow only in red sand over limestone in Karri forest (*Eucalyptus diversicolor* F. Muell.).

WESTERN AUSTRALIA: Cape Leeuwin, *C. Andrews* s.n., Oct. 1905; Cultivated at Montrose, Victoria, *E. E. Lord* s.n., July 1966 (MEL 49473); 2·5 mi W of Karridale on road to Hamelin Beach, *B. R. Maslin* 1677 (CANB, K, MEL, NY, PERTH) and 1678 (CANB, MEL, NSW, PERTH); Mammoth Cave, ca. 7 km due SW of Witchcliffe, *B. R. Maslin* 3210; Northwest of Karridale, *S. Paust* 199.

Flowering period: September to October.

Acacia subracemosa is closely related to *A. pentadenia* Lindl. These are the tallest members of the *Pulchellae*, reaching 3 metres and 5 (7) metres respectively, also their leaves are larger than any other species in this Series. In addition, both species have obliquely truncate, ± sessile pinnules, and reduced racemose inflorescences. *Acacia subracemosa* is readily distinguished from *A. pentadenia* by its hairy branches, leaves, and peduncles, its solitary leaf gland, its solitary axillary raceme, and its triangular calyx lobes. Although both species occur in the Karri forest, their distributions do not overlap.

Some of the larger-leaved individuals of *A. browniana* H. Wendl. var. *obscura* (A.DC.) B. R. Maslin may superficially resemble *A. subracemosa* especially since the indumentum on both these taxa is quite similar. However, *A. subracemosa* may be recognized by its ± sessile, obliquely truncate pinnules, its triangular calyx lobes, and its solitary basal peduncular bract.

The specific epithet refers to the reduced racemose inflorescences, a character not particularly common in the *Pulchellae* (see p. 392).

15. Acacia preissiana (Meisn.) B. R. Maslin comb. et stat. nov.—*Fig.* 20

Acacia obscura A.DC. var. *preissiana* Meisn. in Lehm., Plant. Preiss. 1:20 (1844). *Type:* " In region. interior. Australiae merid-occid. m. Oct. 1840 *Herb. Preiss.* No. 885 " (iso: K—photograph seen, MEL, PERTH—fragment).
Acacia preissiana Lehm., Del. Sem. Hort. Hamb. (1842), nom. nud.
[*Acacia obscura* auct. non A.DC.: Bentham, Flora Austral. 2:418 (1864), pro parte—as to *Drummond* IV:18 and *Preiss* 885.]

Prostrate, multistemmed *shrub; branches* to 40 cm long, finely nerved, brown to greyish, indumentum a mixture of pilose and hispidulous hairs (rarely glabrous); axillary spines absent. *Stipules* oblong to ovate, 1–1·5 x 0·6–1 mm, somewhat obscurely 1–3 nerved. *Leaves* bipinnate, indumentum as on branches (except for pinnules); *petiole* 1–2 (5) mm long, terete; *rachis* (2) 4–10 (20) mm long, obscurely ribbed above; *terminal seta* 1–1·5 mm long, straight or reflexed; *pinnae* 2–3 (5) pairs; *pinna rachis* 3–5 mm long on proximal pinnae, 7–20 mm long on distal pinnae, obscurely ribbed above; *pinnules* 2–3 pairs on proximal pinnae, 3–7 pairs on distal pinnae, narrowly oblong, 4–6 x ca. 1 mm, revolute, pilose to puberulous, nerveless and uneven (in dried state) above, prominently 1-nerved below. *Gland* situated on upper surface of rachis normally halfway between the pinnae (may occur immediately below insertion of pinnae); sessile, 0·3–0·5 mm diam., lip and orifice not prominent. *Inflorescences* simple; *peduncles* solitary, 15–25 (30) mm long, moderately pilose (hairs spreading, straight, ca. 1 mm long), rarely glabrous, base ebracteate at anthesis; *flower heads* yellow, globular, 6–7 mm diam. at anthesis, with 20–28 flowers. *Bracteoles* ca. 1 mm long, hispidulous to glabrescent. *Flowers* 5-merous; *calyx* 1/2 length of corolla, divided for ca. 1/4 its length into triangular ciliolate or glabrous lobes which are neither thickened nor inflexed, 5(15)-nerved, tube glabrous; *petals* 2 mm long, sparsely hispidulous at apex, 5(15)-nerved (midrib prominent, two marginal ribs less prominent); *ovary* glabrous. *Legumes* and *seeds*—see below.

Distribution and habitat: (Map 8.) South-west Western Australia; occurring sporadically from Bindoon southwards to near Albany. *Acacia preissiana* grows in laterite (or white sand over laterite) in Jarrah (*Eucalyptus marginata* Donn ex Sm.) forest.

WESTERN AUSTRALIA: Near Albany, *W. E. Blackall* s.n., Dec. 1927; Collie *L. Diels* 2175; Waroona, *Diels* and *Pritzel* 250; Western Australia, *J. Drummond* (IV): 18 (MEL, NSW, PERTH); Wooroloo, M. *Koch.* 1600 (AD, MEL, NSW, PERTH); 62 mi peg, Great Northern Highway, *F. Lullfitz* 5920; About 12 mi N of Bindoon, *B. R. Maslin* 2618 and 2619; 19·2 km E of Collie towards Darkan, *B. R. Maslin* 3201 (CANB, K, NY, PERTH); Mount Talbot, *O. H. Sargent* s.n., 23 Jan. 1924.

Flowering period: December to January.

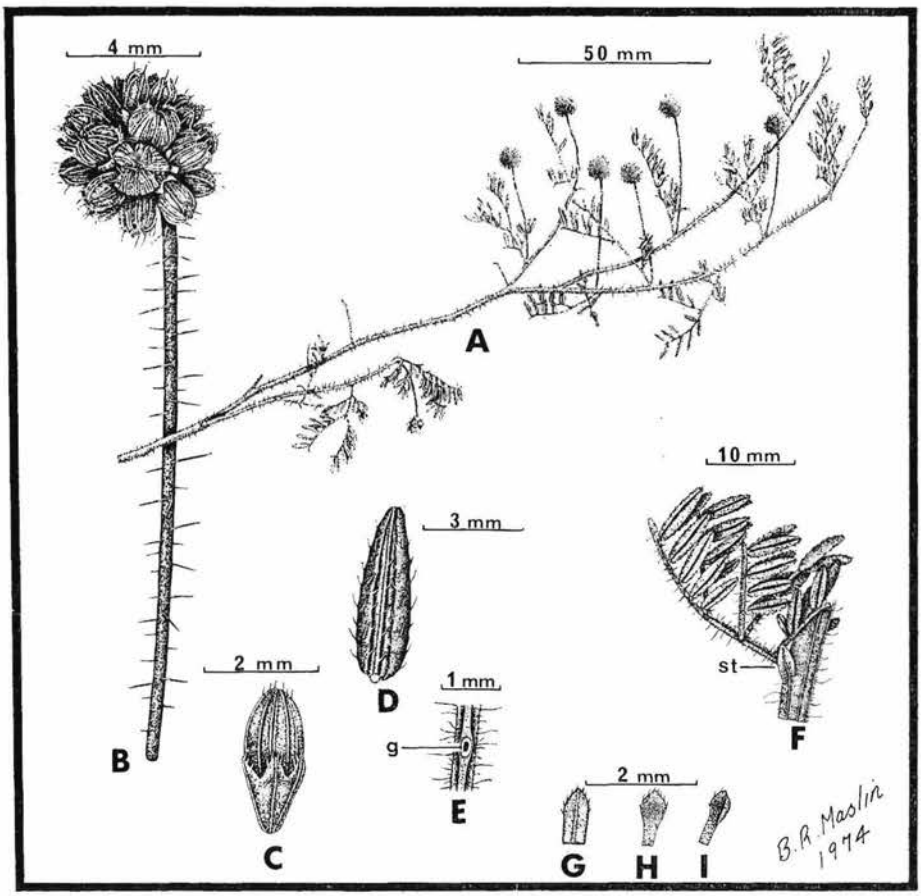


Figure 20—*Acacia preissiana*. A—Portion of branch system showing prostrate habit. B—Inflorescence. C—Flower. D—Revolute pinnule (lower surface). E—Portion of rachis showing sessile gland (g). F—Node showing stipule (st). G to I—Bracteoles. A. D, F from *F. Lullfitz* 5920; B from *B. R. Maslin* 3201; C, E, G, I from *Diels* and *Pritzel* 250; H from *O. H. Sargent* s.n.

Bentham (1864, p.418) gave *A. preissiana* Lehm. (nom. nud.) as a synonym of *A. obscura* A.DC.; he also included the type of *A. obscura* A.DC. var. *preissiana* Meisn. (*Preiss* 885) in the list of specimens cited under that species. However, Bentham misapplied the name *A. obscura* (see p. 430); at least two of the nine collections listed are *A. preissiana*, viz. *Preiss* 885 and *Drummond* IV:18.

Acacia preissiana appears to have its closest affinities with *A. tayloriana* F. Muell. Both these species are prostrate and flower during summer; other characters shared by them include similar branch hairs, prominent stipules, triangular calyx lobes, and moderately pilose, ebracteate peduncles. The small, revolute pinnules of *A. preissiana* readily distinguish it from *A. tayloriana*. Both these species appear to have some relationship to *A. drummondii* and its allies (see p. 394) from which they are most readily distinguished by their globular flower heads.

In its general leaf morphology and ebracteate, hairy peduncles, *A. preissiana* superficially resembles *A. drewiana* W. V. Fitzg. and *A. plicata* B. R. Maslin (see these taxa for differentiating characters).

Although *A. preissiana* is normally hairy, a glabrous variant has been recorded from Mount Talbot which is near York (see *Sargent* s.n.).

Reliable fruiting material of *A. preissiana* has not been collected. The following is a description of some legumes and seeds collected from the ground beneath *B. R. Maslin* no. 2618 and 2619: *Legumes* somewhat hard and brittle, narrowly oblong, 15–30 x 4–6 mm, flat, slightly raised over seeds, glabrous or pilose, dark brown; *margins* not contracted between seeds, thickened. *Seeds* longitudinal in legume, oblong, 3·5–4 x 2 mm, brown; *pleurogram* quite prominent, continuous; *areole* ca. 2 x 1 mm; *funicle* less than 1 mm long, abruptly expanded into a thickened straight aril.

16. Acacia tayloriana F. Muell., Sth. Sci. Rec. 2:151 (1882). *Type:* " Near the Blackwood-River." (holo: MEL 49742; iso: PERTH)—*Fig.* 21

Prostrate *shrub; branches* to ca. 30 cm long, finely nerved, slightly angular towards the apex, brown, indumentum a mixture of short pilose and hispidulous hairs; axillary spines absent. *Stipules* elliptic, ca. 2·5 x 1 mm, obscurely 3-nerved, ciliate. *Leaves* bipinnate, indumentum as on branches (except for pinnules); *petiole* 7–17 mm long, often slightly vertically flattened; *rachis* 7–17 mm long, narrower than petiole; *terminal seta* linear, ca. 3 mm long; *pinnae* 1–3 pairs; *pinna rachis* 15–20 mm long on proximal pinnae, 15–22 mm long on distal pinnae, ribbed above; *pinnules* 4–5 pairs on proximal pinnae, 3–5 pairs on distal pinnae, elliptic to narrowly elliptic, 9–11 x 3–5 mm, flat, ± antrorsely hispid on margin and below (hairs tubercule-based), ± prominently reticulate, midrib prominent, 2–3 less conspicuous veins diverging from the petiolule. *Gland* situated on upper surface of petiole either immediately below insertion of proximal pinnae or some distance below them; sessile, 0·8–1 mm diam., lip not prominent. *Inflorescences* simple; *peduncles* solitary, 25–50 mm long, sparsely to moderately pilose (hairs spreading, straight, ca. 1 mm long), base ebracteate at anthesis; *flower heads* cream, globular (± obloid in the bud), 7–8 mm diam. at anthesis, with ca. 22 flowers. *Bracteoles* ca. 1·5 mm long, ciliolate, claws gradually expanded into slightly inflexed concave laminae. *Flowers* 5-merous; *calyx* 1/3–1/2 length of corolla, divided for ca. 1/3 its length into triangular ciliolate lobes which are neither thickened nor inflexed, obscurely 5-nerved, tube glabrescent; *petals* 2 mm long, connate for 1/2–2/3 their length, 1-nerved, glabrous to glabrescent; *ovary* glabrous. *Legumes* and *seeds* n.v.

Distribution and habitat: (Map 8) South-west Western Australia: Known only from a restricted area near the Blackwood River in the vicinity of Nillup (about 25 km due north-east of Augusta). This species grows in gravel or deep grey sandy soil in Jarrah forest (*Eucalyptus marginata* Donn ex Sm.).

WESTERN AUSTRALIA: Sue's Road, 1·5 km N of Brockman Highway (east of Nillup), *B. R. Maslin* 3526; Nillup, *R. D. Royce* 38.

Flowering period: January.

Acacia tayloriana is a rare species. With the exception of the type, there are only two collections of it known to the author.

This prostrate, summer flowering species appears most closely allied to *A. preissiana* (Meisn.) B. R. Maslin from which it is readily distinguished by its large, flat pinnules—see *A. preissiana* for further details. Also the petiolar glands, ebracteate peduncles and triangular calyx lobes indicate an affinity with the *A. drummondii* Lindl. group of species (see p. 394) from which it is most readily distinguished by its globular flower heads. However, until further material of *A. tayloriana* is collected (in particular, fruiting specimens) the exact position of this species within the *Pulchellae* remains somewhat obscure.

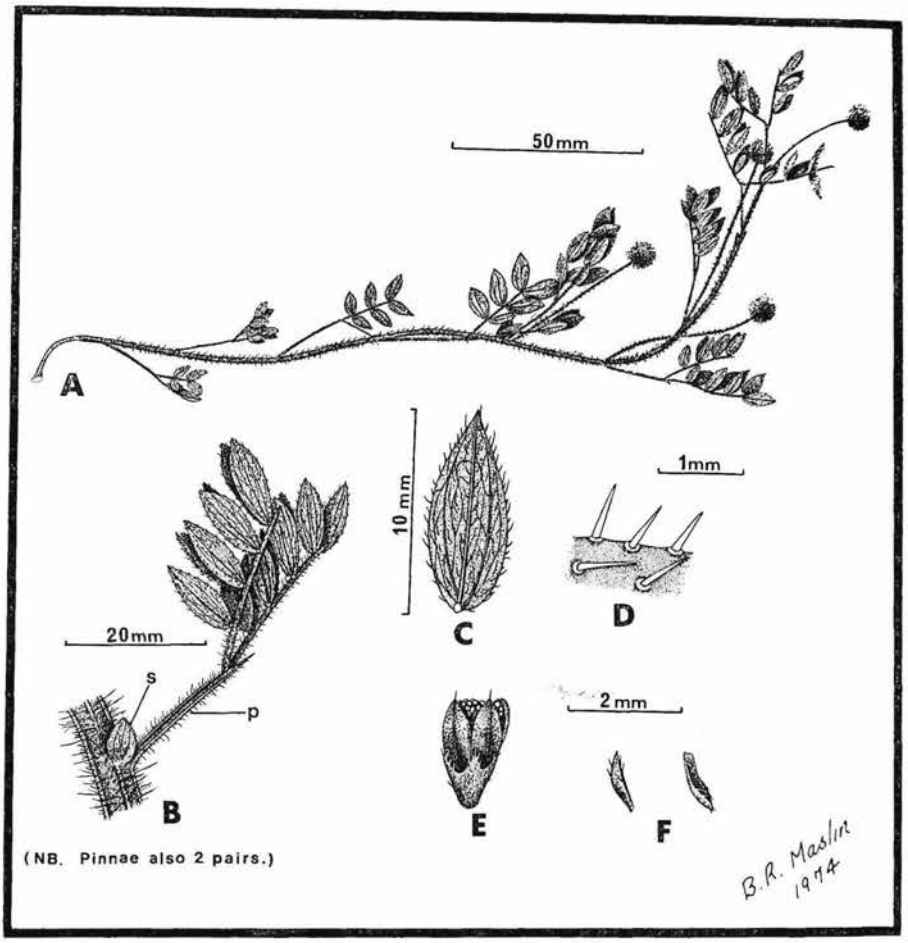


Figure 21—*Acacia tayloriana*. A—Portion of branch system showing prostrate habit. B—Node showing prominent stipule (s) and petiole (p). C—Pinnule (lower surface) showing reticulate venation. D—Indumentum on lower surface of pinnule. E—Flower. F—Bracteoles.
A-B, E-F from *R. D. Royce*. 38; C-D from isotype (PERTH).

17. **Acacia plicata** B. R. Maslin sp. nov.—*Fig.* 22

Frutex 1–1·5 m altus; *rami* dense breviter pilosi; spinae axillares nullae. *Folio* bi pinnata; *rhachis* 4–13 (20) mm longa; pinnae (1) 2–3(4) jugae; *rhachis pinnarum* proximalium 2–5 mm longa, aliarum (5) 10–20 (25) mm longa; *pinnulae* pinnarum proximalium 1–2 jugae, aliarum 2–8-jugae, (4) 6–15 x 1–4 mm, parum recurvae ad revolutae. *Glans* sessilis, in pagina supera rhachidis posita; etiam glans minor in rhachidibus aliquot aut omnibus pinnarum infra insertionem 1–3 summorum pinnularum. *Pedunculi* 20–25 mm longi, puberuli ad glabrati. *Capitula* globulosa, 40–55-floribus. *Bracteolarum laminae* pilis prominentibus (ad 1·5 mm longis) patulis, eburneis, vestitae. *Florae* 5-merae; *calycis lobi* oblongi ad triangulares, ad apices pilis plerumque paucis prominentibus, patulis, eburneis, vestiti. *Legumina* plicata, 10–20 x 5 mm, modice ad dense hispidula. *Semina* in legumine obliqua, 3–4 x 2–3 mm.

Type: Green Range, Western Australia, 19 Aug. 1949, *C. A. Gardner* 9333 (holo: PERTH; iso: CANB, K, MEL).

Erect, openly branched *shrub*, 1–1·5 m tall; *branches* inconspicuously ribbed, dark greyish (epidermis often white on branchlets), densely shortly pilose; axillary spines absent. *Stipules* 2–2·5 x ca. 0·4 mm, scarious, ciliate on margin and below, glabrous above. *Leaves* bipinnate, indumentum as

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on branches (hairs shorter on pinnules); *petiole* ca. 1 mm long; *rachis* 4–13 (20) mm long, commonly channelled above between first two pair of pinnae, narrower and ribbed above between subsequent pinnae; *terminal seta* linear to narrowly triangular, 1·5–3 mm long; *pinnae* (1) 2–3 (4) pairs; *pinna rachis* 2–5 mm long on proximal pinnae, (5) 10–20 (25) mm long on remaining pinnae, ribbed above, apex brown and 1–2 mm long; *pinnules* 1–2 pairs on proximal pinnae, 2–8 pairs on remaining pinnae, narrowly oblong to narrowly obovate, (4)6–15 x 1–4 mm, slightly recurved to revolute, light green to yellow-green, densely puberulous, nerveless or obscurely 1-nerved above, 1-nerved below. *Gland* situated on upper surface of rachis, on 2-jugate leaves the gland is inserted below the distal pair of pinnae, it is subsequently present or absent if pinnae 3–4 pairs; a small gland occurs below insertion of uppermost 1–3 pairs of pinnules on some or all pinnae rachides; sessile, circular, 0·5 mm diam. or less, lip and orifice prominent. *Inflorescences* simple; *peduncles* solitary, 20–25 mm long, puberulous to glabrescent, base ebracteate at anthesis;

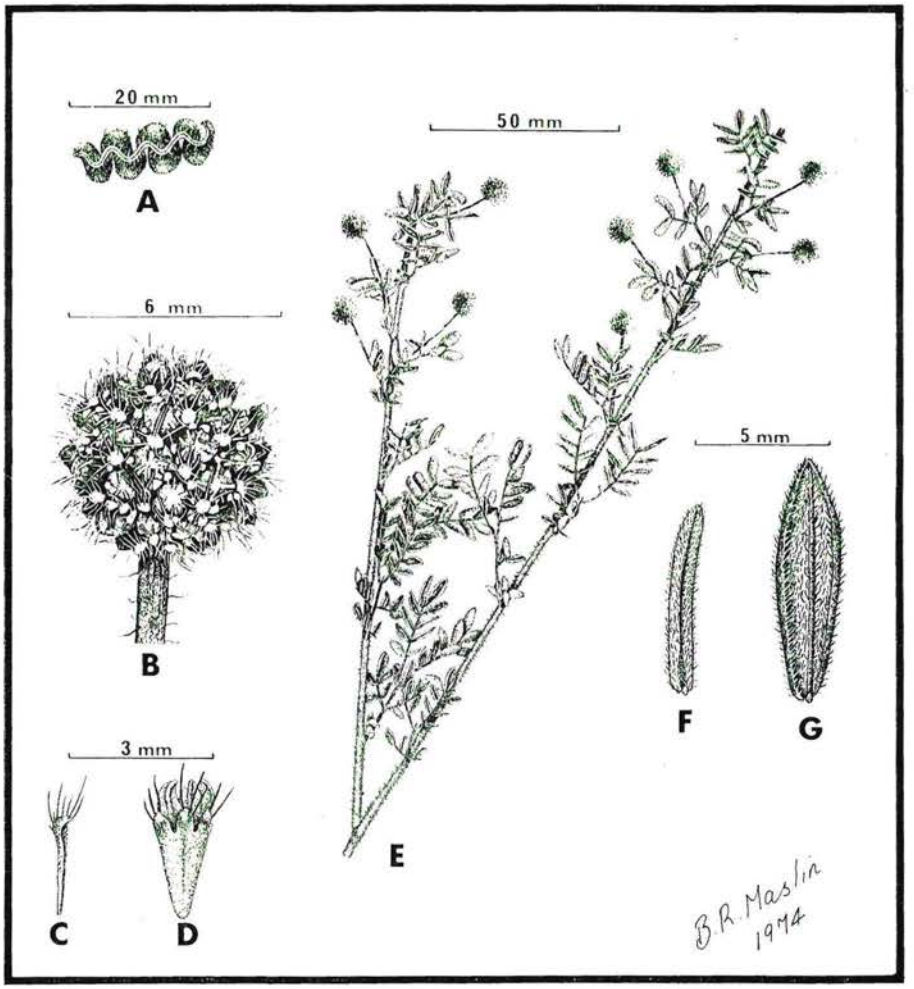


Figure 22—*Acacia plicata*. A—Plicate legume. B—Flower head. C—Bracteole (note conspicuous hairs on lamina) D—Flower (note conspicuous hairs on calyx lobes). E—Portion of branch system. F and G—Pinnule variation (lower surface).
A and F from *H. Demarz* 1526; B-D from *C. A. Gardner* 9333 (the type); E from *H. Demarz* 1526; G from *B. R. Maslin* 1474.

flower heads globular, 7–8 mm diam. at anthesis, with 40–55 flowers. *Bracteoles* 2 mm long; claws narrow, glabrous; laminae somewhat thickened, inflexed, bearing conspicuous (to 1·5 mm long) spreading white hairs abaxially. *Flowers* 5-merous; *calyx* 2/3–4/5 length of corolla, divided for 1/5–1/3 its length into oblong to ± triangular slightly thickened lobes which normally bear a few conspicuous (ca. 0·5 mm long) spreading white hairs at the apex, readily separating into oblong-spathulate sepals, tube glabrous and obscurely 5-nerved; *petals* 2·5–3 mm long, connate for 2/3–4/5 their length, glabrous, 1-nerved; *ovary* glabrous to glabrescent. *Legumes* plicate with up to 8 conspicuous folds, 10–20 x 5 mm, prominently raised over seeds, moderately to sparsely puberulous, light to dark brown; *margins* not contracted between seeds, pale coloured. *Seeds* oblique in legume, broadly elliptic, 3–4 x 2–3 mm, dark brown to black, shiny; *Pleurogram* ± obscure, open towards the hilum; *areole* 1·5–2 x 1–1·3 mm; *funicle* filiform, straight or with 1–2 short folds, abruptly expanded into a short straight thickened aril.

Distribution and habitat: (Map 8) South-west Western Australia: the Hill River district, about 200 km due NNW of Perth. As indicated from the areas sampled to date, *A. plicata* is not a particularly common species; it appears to grow only in loam or loamy clay where sedimentary rocks (sandstone and siltstone) occur. This species is typically found along watercourses in association with York Gums (*Eucalytpus loxophleba* Benth.) and Wandoo (*E. wandoo* Blakely).

WESTERN AUSTRALIA: 100 mile post on Eneabba road, *H. Demarz* 1907 and 1526; Western Australia, *J. Drummond* s.n. (MEL 49692 and 49693); Jurien Bay district, *S. James* s.n., Aug. 1967 (UWA 1132); Cataby Brook (near 100 mi peg on Perth-Jurien Bay Road), *B. R. Maslin* 1474 and 2626 (B, BRI, PERTH); About 12 mi due E of Jurien Bay, *B. R. Maslin* 2624 (AD, NSW, PERTH).

Flowering and fruiting period: Flowers from August to October; young legumes appear in October and mature in mid-November (some bushes retain undehisced legumes until March).

Acacia plicata is recognized by its densely hairy branches and leaves, its bracteole-laminae and calyx lobes bearing long, white, spreading hairs at their apices, and its plicate legumes. This species also has glands on its pinnae rachides, a character not particularly common in the *Pulchellae* (otherwise known only in *A. empelioclada* B. R. Maslin and *A. leioderma* B. R. Maslin, also sometimes in *A. gilbertii* Meisn., *A. lasiocarpa* Benth. var. *villosa* (E. Pritzel) B. R. Maslin and *A. luteola* B. R. Maslin.

The exact taxonomic position of *A. plicata* within this Series is uncertain. The ebracteate peduncles and ± triangular calyx lobes indicate an affinity with *A. drummondii* Lindl. and its allies (see p. 394). However, the globular flower heads, eglandulose petioles, and plicate legumes distinguish *A. plicata* from this group. Its general leaf morphology, ebracteate peduncles, and globular flower heads suggest some affinities with *A. drewiana* W. V. Fitzg. subsp. *drewiana* and *A. preissiana* (Meisn.) B. R. Maslin. However, the decurrent leaves of the former, and the prostrate habit plus the flower morphology of the latter, readily distinguish these taxa from *A. plicata.*

The specific epithet alludes to the very distinctive pleated nature of the legumes.

18. Acacia luteola B. R. Maslin sp. nov.—*Fig.* 23

Acacia ciliata R.Br. in Ait. f., Hort. Kew. ed. 2, 5:465 (1813), pro parte, not as to neotype.

Acacia obscura A.DC. var. *canescens* Meisn. in Lehm., Plant. *Preiss.* 1:20 (1844). *Type:* " Ad sinum Regis Georgii III. absque florib. *Herb. Preiss.* No. 910 " (holo: NY).

Acacia drummondii Lindl. var. *ovoidea* Benth., Flora Austral. 2:419 (1864). *Type:* " Towards Cape Riche, *Maxwell.*" (iso: MEL 49361, PERTH—fragment).

Frutex 0·5–1 m altus; *rami* pilosi, raro glabri; spinae axillares nullae. *Folia* bipinnata; *rhachis* 1·5–4 (8) mm longa; *pinnae* (1) 2 (3)-jugae; *pinnulae* pinnarum proximalium 2–3-jugae, pinnarum distalium 2–3 (6)-jugae, recurvae ad revolutae, glabrae vel sparsim (raro dense) antrorse puberulae ad hispidulae. *Glans* sessilis, in pagina supera rhachidis infra insertionem pinnarum posita, raro etiam in petiole. *Capitula* obloidea ad breviter cylindrica, luteola, *Florae* 5-merae; *calyx* et *corolla* manifeste 5-nervosa. *Legumina* dense breviter pilosa. *Semina* in legumine obliqua, brunnea.

Type: Porongurup Range, Western Australia, 3 March 1922, *C. A Gardner* 1287 (holo: PERTH; iso: CANB).

Shrub 0·5–1 m tall, either single-stemmed or dividing near ground level into 2–3 erect branches; *branches* finely (rarely prominently) nerved, nerves normally yellow, indumentum normally a mixture of sparse to dense short pilose and puberulous to antrorsely puberulous hairs, rarely glabrous, green to brown; axillary spines absent. *Stipules* narrowly oblong to narrowly triangular, 1·5–3 x 0·2–0·5 mm. *Leaves* bipinnate, indumentum as on branches (except for pinnules); *petiole* 1–2 mm long; *rachis* 1·5–4 (8) mm long, often obscurely channelled above; *terminal seta* narrowly oblong to elliptic or narrowly elliptic, 1–2 (3) x 0·5–0·7 mm, straight or sometimes slightly (rarely prominently) reflexed, flat but somewhat thickened, 1-nerved below (nerve thickened); *pinnae* (1) 2 (3) pairs; *pinna rachis* 2–3 (5) mm long on proximal pinnae, 3–6 (9) mm long on distal pinnae, apex elliptic to narrowly elliptic or occasionally oblong 1–2 (3) x 0·5–0·7 mm straight to somewhat reflexed flat but slightly thickened 1-nerved below (nerve thickened); *pinnules* 2–3 pairs on proximal pinnae, 2–3 (6) pairs on distal pinnae, narrowly oblong or sometimes narrowly obovate, 2–6 x 0·5–1 mm, recurved to revolute, slightly thickened, dark green above, light green below, glabrous to sparsely (rarely densely) antrorsely puberulous to hispidulous, obliquely narrowed at apex. *Gland* situated on upper surface of rachis below insertion of distal and medial pinnae, rarely an additional gland situated on petiole below proximal pinnae; sessile, circular to oblong, 0·2–0·4 mm diam., lip not prominent (hardly protruding above level of rachis), orifice normally shallow and not very distinct. *Inflorescences* simple; *peduncles* normally solitary, 10–20 mm long, moderately to densely short pilose to hispidulous, rarely glabrous, base normally ebracteate at anthesis; *flower heads* very pale yellow (± sulphur-coloured), obloid to shortly cylindrical at anthesis, sometimes ± globular prior to anthesis, 6–12 x 5–9 mm, with 16–22 (26–30) flowers; *receptacle* 1·5–9 mm long (can vary from 1·5–5 mm on a single specimen). *Bracteoles* 1–1·5 mm long, sparsely puberulous; claws narrow; laminae narrowly ovate, somewhat inflexed, concave. *Flowers* 5-merous, normally minutely pedicellate; *calyx* 1/2 length of corolla, divided for 1/3–1/2 its length into triangular ciliolate lobes, prominently 5-nerved, tube glabrous to moderately shortly pilose; *petals* 2–3 mm long, connate for 1/2 their length, prominently 1-nerved (nerves most conspicuous at apex), glabrous, sparsely hispidulous, or moderately shortly pilose; *ovary* normally densely villous. *Legumes* somewhat brittle, narrowly oblong, 20–50 x 6–8 mm, flat, raised over seeds, densely shortly pilose, dark brown to grey-brown; *margins* not contracted between seeds, thickened. *Seeds* oblique in legume, elliptic, 3 x 2–2·5 mm, dark brown, shiny; *pleurogram* continuous or with a narrow opening towards the hilum, often bordered by a band of light coloured tissue; *areole* 2 x 1 mm; *funicle* filiform, reflexed below a normally once-folded thickened cream-coloured aril.

Distribution and habitat: (Map 8) South-west Western Australia: southern regions from Denmark to Cheyne Beach (100 km due northeast of Albany) and north to the Stirling Range. This species favours sandy or loamy soil in low-lying swampy areas.

WESTERN AUSTRALIA: Mount Barker, *W. E. Blackall* s.n., Sept. 1899; About 8 km south of Mount Barker, *Hj. Eichler* 16005; Hay River, west of Albany, *C. A. Gardner* s.n.; Red Gum Pass, Stirling Range, *A. S. George* 6114; Porongurup, *Mrs. Knight* s.n. (MEL

49732); 32 km E of Manypeaks towards Jerramungup, *B. R. Maslin* 2597; 23 km from Denmark towards Mount Barker, *B. R. Maslin* 2957 (K, PERTH); King George Sound, *Maxwell* s.n. (MEL 49662); North-West Plantagenet district, *E. Pritzel* 349 (AD, NSW—glabrous variant); Narrikup, *R. D. Royce* 4239; 4 miles NE of Cheyne Beach turn-off on Highway No. 1, *M. D. Tindale* 309 and *B. R. Maslin*; 1 mile N of King River, 9 miles N of Albany, *M. D. Tindale* 294 and *B. R. Maslin*.

Flowering and fruiting period: Flowers from late February to September; legumes appear from August to September and mature between October and December.

Acacia ciliata R.Br. is the basionym of *A. browniana* H. Wendl. The possible type of this species is housed at the British Museum (Natural History) and consists of a mixture of two taxa: *A. browniana* (sensu neotypico) and *A. luteola*—see p. 426. *Acacia luteola* is readily distinguished from *A. browniana* by its obloid to shortly cylindrical flower heads, ebracteate peduncles, triangular calyx lobes, and pilose legumes.

Acacia luteola is a somewhat polymorphic species and includes within its range of variation the taxa previously described as *A. obscura* A.DC. var. *canescens* Meisn., and *A. drummondii* Lindl. var. *ovoidea* Benth. On a single plant the flower heads can range from obloid to shortly cylindrical and the

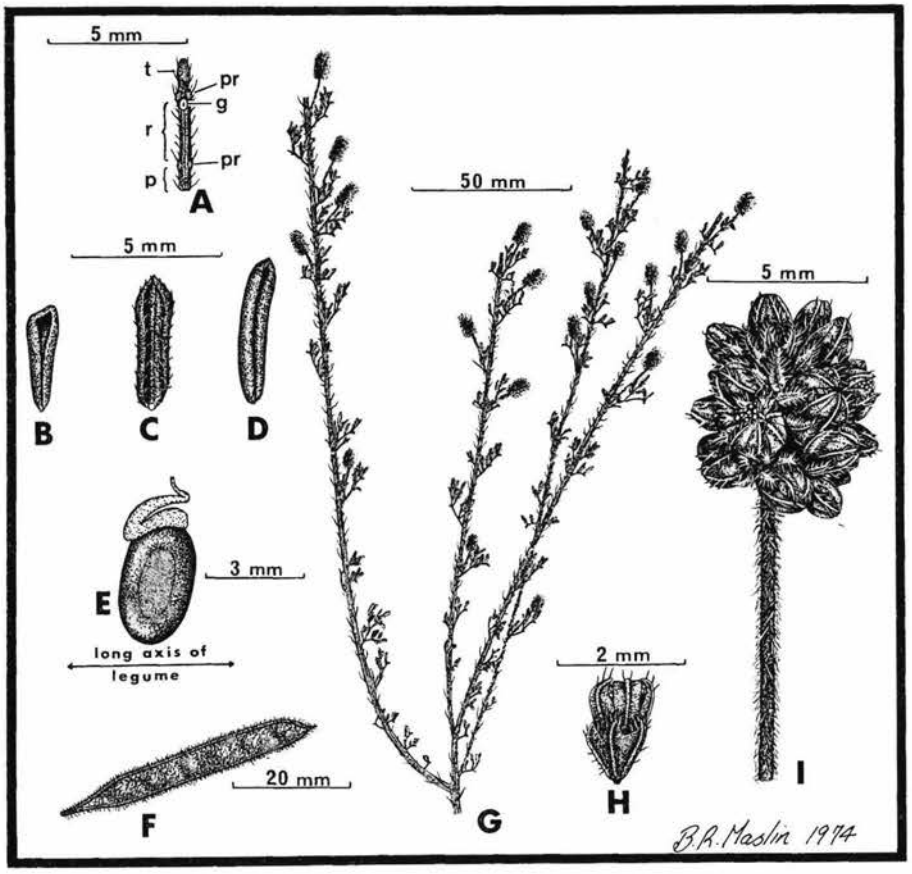


Figure 23—*Acacia luteola*. A—Leaf axis (upper surface) showing gland (g) situated on rachis (r), short petiole (p), terminal seta (t), and position of insertion of pinnae rachides (pr). B to D—Pinnule variation (lower surface). E—Seed (dark brown). F—Legume. G—Portion of branch system. H—Flower. I—Inflorescence.
A and H from *R. D. Royce* 4239; B and G from *M. D. Tindale* 294 and *B. R. Maslin*; C from *A. S. George* 6114; D-F from *B. R. Maslin* 2597; I from *C. A. Gardner* 1287 (the type).

pinnules from recurved to prominently revolute. Although this species normally has hairy branches, leaves, peduncles, etc., a glabrous variant has been recorded from the Albany and Stirling Range areas. This variant is more robust than the typical form, its branches are more prominently ribbed (when dry), and a sessile gland sometimes occurs at base of the distal pair of pinnules.

Acacia luteola is closely related to *A. varia* B. R. Maslin; it also has some affinities with *A. drummondii* Lindl. From the latter species it is distinguished by the nature of its branch indumentum, its recurved to revolute, often puberulous pinnules, its short, very pale yellow flower heads, its prominently 5-nerved calyx, and its dark brown seeds.

The two characters which can be employed to fairly reliably separate *A. luteola* and *A. varia* are gland position and flower head morphology. In *A. luteola* a gland is always present below the insertion of the distal pair of pinnae (i.e. on the rachis). Only very rarely is an additional gland present below the proximal pinnae (i.e. on the petiole). *Acacia varia* on the other hand always has a gland on its petiole; only in var. *parviflora* is an additional gland often present on the rachis. *Acacia luteola* has very pale yellow (more or less sulphur-coloured), obloid to shortly cylindrical flower heads. The typical variety of *A. varia* is the only member of that species with heads approaching this colour while var. *parviflora* is the only member which often has obloid flower heads. Other characters useful in distinguishing *A. luteola* from *A. varia* include its somewhat taller habit, its normally straight, ascending, sparsely divided branches, its often narrower and less hairy pinnules, its often more prominently nerved calyx and corolla, and its slightly broader legumes. *Acacia luteola* begins its flowering season at least three months before *A. varia*.

The specific epithet refers to the very pale yellow flower heads which are typical for this taxon.

19. Acacia varia B. R. Maslin sp. nov.

Frutex 25–60 (100) cm altus; *rami* pilosi; spinae axillares nullae. *Folia* bipinnata; *pinnae* (1) 2 (3)-jugae; *pinnulae* pinnarum proximalium 2–3-jugae, pinnarum distalium 2–5 (7)-jugae, planae ad revolutae, pilosae, raro glabrae. *Glans* sessilis, in pagina supera petioli infra insertionem pinnarum proximalium posita, glans altera in rachidis infra pinnas distales (var. *parviflora*). *Pedunculi* plerumque pilosi, ad basin sub anthesin ebracteati. *Capitula* cylindrica, interdum obloidea. *Florae* 5-merae; *calycis lobi* triangulares; *petala* enervia ad manifeste 1-nervosa. *Legumina* 15–35 x 3–5 mm, varie vestita. *Semina* (var. *crassinerve* exclusa) in legumine transversa ad obliqua, 2–3 x 1·5–2 mm, brunnea ad nigra (var. *affinis* pallide brunnea).

Type: 5·6 km from Denmark towards Mount Barker, Western Australia, 21 Sept. 1972, *B. R. Maslin* 2949 (holo: PERTH; iso: CANB, K, MEL, NY, PERTH).

Small *shrub* 25–60 (100) cm tall, branches very rarely prostrate (var. *parviflora*), sometimes suckering; *branches* ± obscurely nerved, indumentum various; axillary spines absent. *Leaves* bipinnate, indumentum as on branches (except for pinnules); *petiole* 1–4 (8) mm long; *rachis* 1–4 (5–10) mm long, terete or broadly ribbed above; *terminal seta* various; *pinnae* (1) 2 (3) pairs; *pinna rachis* 1·5–6 (7–9) mm long on proximal pinnae, 1·5–10 (12–15) mm long on distal pinnae, apex various; *pinnules* 2–3 pairs on proximal pinnae, 2–5 (7) pairs on distal pinnae, normally narrowly oblong, 2–4·5 (5–13) x 0·5–2·5 (3·5) mm, flat to revolute, often thickened, normally dark green and nerveless above, subglaucous and 1-nerved below (nerve often prominently thickened), hairy, rarely glabrous, often obliquely narrowed at apex. *Gland* situated on upper surface of petiole below insertion of proximal pinnae, sometimes an additional gland occurs on rachis below distal pinnae (var. *parviflora*); sessile, circular to oblong, prominent to obscure. *Inflorescences* simple; *peduncles* normally solitary, 7–25 mm long, sparsely to densely hairy, rarely glabrous, base

ebracteate and anthesis; *flower heads* pale or dark yellow, cylindrical or sometimes obloid, 7–35 x 4–7 mm at anthesis, with (20) 25–55 (70) flowers. *Bracteoles* various. *Flowers* 5-merous; *calyx* 1 /2–2 /3 length of corolla, divided for 1 /4–1 /2 its length into triangular ciliolate lobes, hairy or glabrous, obscurely or sometimes prominently 5-nerved; *petals* 2–3 mm long, hairy or sometimes glabrous, nerveless to prominently 1-nerved; *ovary* normally densely villous. *Legumes* somewhat brittle, narrowly oblong, 15–35 x 3–5 mm, flat, raised over seeds, indumentum various, dark brown to greyish brown; *margins* not (or only slightly) contracted between seeds, thickened. *Seeds* (excluding var. *crassinervis*) transverse to oblique in legume, oblong to elliptic, 2–3 x 1·5–2 mm, dark brown to black (light brown on var. *affinis*), shiny; *pleurogram* continuous or open towards the hilum, often bordered by a band of light coloured tissue; *funicle* reflexed below a straight to once-folded aril.

Acacia varia is related to both *A. drummondii* Lindl. and *A. luteola* B. R. Maslin. From the former species it is distinguished by the nature of its branch indumentum and its revolute and/or puberulous pinnules and from the latter by its gland position and flower head morphology (see *A. luteola* for further details).

As indicated by the specific epithet, *A. varia* is a polymorphic species; four varieties are described below. One of these, var. *affinis*, is closely related to *A. drummondii* subsp. *drummondii* and further work may indicate that it should be transferred to that species.

Key to varieties

1a. Peduncle hairs normally retrorse and sparse; petals obscurely nerved and ± glabrous; pinnules 3–10 mm long, midrib on lower surface not thickened, recurved to revolute; seeds light brown. (North of Perth from Muchea to New Norcia)
c. var. **affinis** (Fig. 26)

b. Peduncle hairs spreading and normally dense; petals ± prominently 1-nerved *and/or* hairy; pinnules normally 2–5 mm long, midrib on lower surface thickened; seeds (where known) dark brown to black. (South of Perth) 2

2a. Flower heads pale yellow (±cream-coloured). (Sporadic from Gleneagle to Margaret River and Manypeaks) .... **a.** var. **varia** (Fig. 24)

b. Flower heads deep yellow 3

3a. Pinnules ± flat. (Williams to Katanning) .... **b.** var. **crassinervis** (Fig. 25)

b. Pinnules prominently recurved to revolute. (Arthur River to Manypeaks and Esperance)
d. var. **parviflora** (Fig. 27)

19a. var. **varia**—*Fig.* 24

Dwarf *shrub* 30–40 cm tall, suckers present, either single-stemmed or dividing at ground level into 2–3 erect branches; *branches* often finely nerved (nerves yellowish), puberulous to antrorsely puberulous and normally mixed with sparse, short pilose hairs. *Petiole* 1–2 mm long; *rachis* 1–4 (5–6) mm long; *terminal seta* narrowly oblong to narrowly triangular, 1–2 mm long, straight or somewhat reflexed, flat, slightly thickened; *pinna rachis* 2–4 (5) mm long on proximal pinnae, 4–7 (9) mm long on distal pinnae, apex oblong to elliptic or sometimes triangular 1–2 mm long and straight or somewhat reflexed; *pinnules* 2–3 pairs on proximal pinnae, 2–4 (5) pairs on distal pinnae, narrowly oblong to slightly narrowly obovate, 3–6 x 1–2 mm, flat to recurved, hardly thickened, olive green (when dry), ± antrorsely puberulous (hairs somewhat coarse), nerveless above, 1-nerved below (nerve moderately to prominently thickened), obliquely narrowed and often inflexed at apex, minutely apiculate. *Gland* situated on upper surface of petiole below insertion of lower-most pair of pinnae, absent from rachis; 0·3–0·5 mm diam., lip normally not prominent, orifice shallow. *Peduncles* 8–14 mm long, densely puberulous to hispidulous, occasionally with an additional layer of pilose hairs; *flower heads* very pale

yellow (± cream-coloured), cylindrical, normally 10–20 x 4–5 mm at anthesis, with (20) 26–35 loosely arranged flowers. *Bracteoles* 1–2 mm long, shortly pilose, normally dark brown; claws linear; laminae narrowly elliptic, slightly inflexed. *Calyx* and *corolla* sparsely (sometimes densely) shortly pilose to puberulous (hairs somewhat coarse), 5-nerved (nerves thickened, sometimes

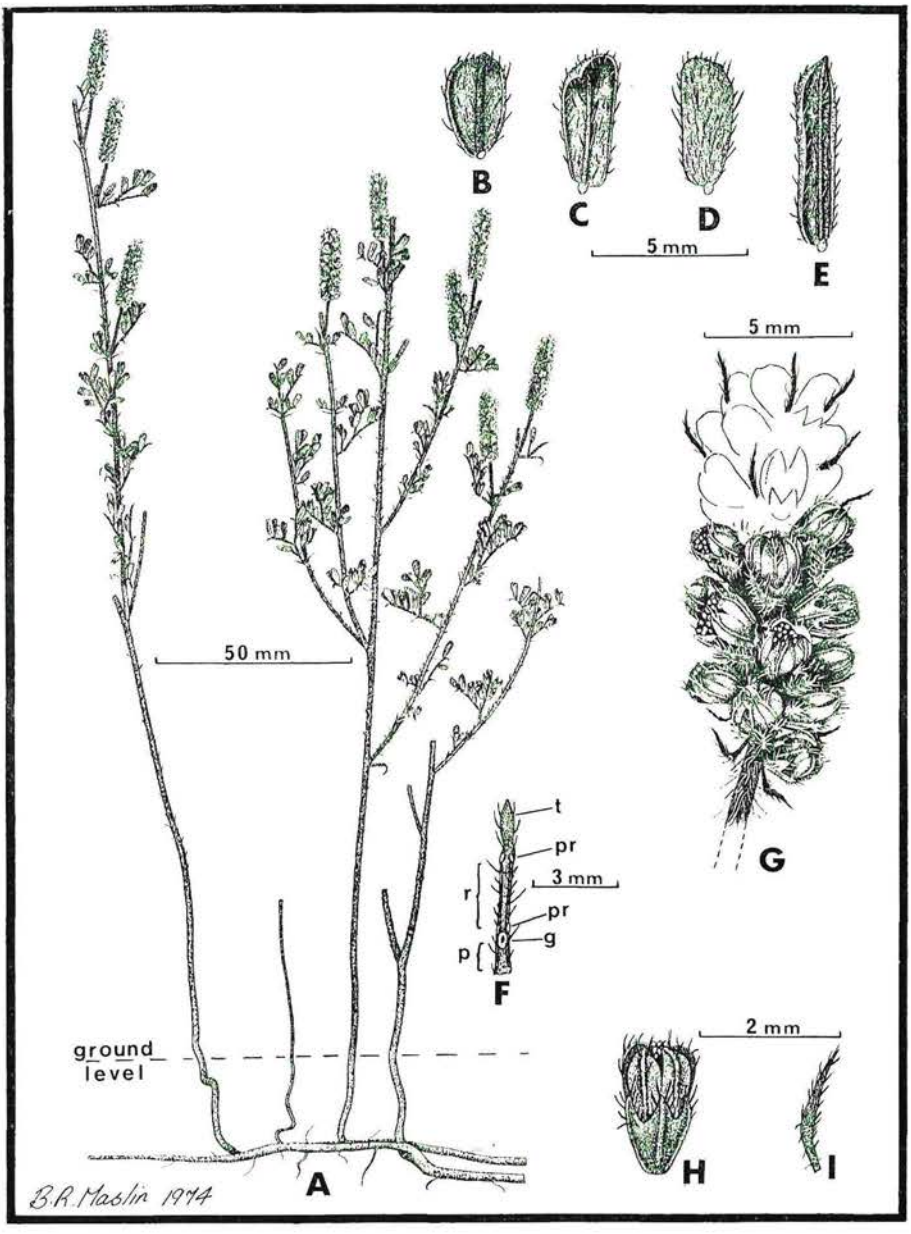


Figure 24—*Acacia varia* var. *varia*. A—Mature plant showing erect habit and subterranean runners. B to E—Pinnule variation (C—apex inflexed). F—Leaf axis (upper surface) showing gland (g) situated on petiole (p), rachis (r), terminal seta (t), and position of insertion of pinnae rachides (pr). G—Inflorescence. H—Flower. I—Bracteole.
A, C-D, F-I from *B. R. Maslin* 2949 (the type); B from *R. D. Royce* 2749; E from *B. R. Maslin* 2868.

indistinct). *Legumes* 15–25 x 3–4 mm, densely puberulous. *Seeds* (few seen) oblong to elliptic, ca. 3 x 2 mm, dark brown to blackish; *funicle* filiform, reflexed below an abruptly thickened ± straight aril.

Distribution and habitat: (Map 9) South-west Western Australia: occurring sporadically from Gleneagle (about 50 km south-east of Perth) southward to the Margaret River and Albany-Manypeaks areas. This variety is restricted to lateritic soil throughout its range.

WESTERN AUSTRALIA: Mount Manypeak, *A. M. Ashby* 3636 (AD); About 10 km north-west of Gleneagle, *Hj. Eichler* 15782 (AD); East of Margaret River, *J. J. Havel* 525; Lowden, *Koch* 2000 (AD, MEL); 13·5 km S of Nannup towards Pemberton, *B. R. Maslin* 2868 (AD, NSW, PERTH); 9·6 km SW of Manypeaks towards Nanarup, *B. R. Maslin* 2973 (BRI, L, NSW, PERTH); Blackwood River, *Mrs. McHard* s.n., 1874 (MEL 49368); King George Sound, *J. R. Muir* s.n. (MEL 49369); 1 mi S of Kirup, *R. D. Royce* 2749.

Flowering and fruiting period: Flowers from August to September; most legumes have dehisced by late December.

The habit of var. *varia* is very distinctive. It spreads by means of subterranean runners which give rise to dwarf, erect suckers that are either single-stemmed or divide at ground level into two or three main branches. Because of this mode of vegetative reproduction, var. *varia* forms clones wherever it occurs. Although var. *parviflora* and var. *crassinervis* can sucker under certain conditions, these varieties normally divide at (or near) ground level into many spreading to erect branches.

In addition to its growth habit, var. *varia* is distinguished from the other three varieties by its more or less cream-coloured flower heads, its normally more prominently nerved calyx and corolla, its less thickened pinnules which are often inflexed at the apex, and its often more conspicuous bracteoles.

In that var. *varia* has pale yellow flower heads, and normally prominently nerved calyces and corollas, it bears some resemblance to *A. luteola*; also the branch indumentum on these taxa is very similar. From *A. luteola*, var. *varia* is distinguished by its growth habit, gland position, normally longer flower heads, and broader, flatter, often more densely clothed pinnules.

19b. var. **crassinervis** B. R. Maslin var. nov.—*Fig.* 25

Frutex 25–60 cm altus; *rami* dense puberuli. *Pinnulae* pinnarum proximalium 2–3-jugae, pinnarum distalium 3–5-jugae, oblongae ad parum obovatae, 3–4·5 x 2·5 mm, planae ad leviter recurvae, incrassatae, utrinque dense puberulae, infra manifeste 1-nervosae. *Glans* in pagina supera petioli infra insertionem pinnarum posita. *Pedunculi* dense puberuli. *Capitula* cylindrica. *Petala* (pilis plerumque antrorsis ad adpressis) puberula.

Type: 4 km E of Katanning towards Nyabing, Western Australia, 28 Sept. 1970, *B. R. Maslin* 771 (holo: PERTH; iso: B, CANB, K, MEL, NSW, NY).

Shrub 25–60 cm tall, suckers present or absent, normally dividing at (or near) ground level into many slender spreading to erect branches; *branches* nerveless to very obscurely nerved, densely and uniformly puberulous, normally grey. *Petiole* 1·5–3 mm long; *rachis* 1–2 mm long, terete or obscurely ribbed above, rib broad and flat; *terminal seta* oblong to triangular, 0·5–1 mm long, straight to reflexed, thickened; *pinna rachis* 2–6 mm long on proximal pinnae, 4–9 mm long on distal pinnae, apex oblong 0·5–1 mm long and straight to somewhat reflexed; *pinnules* 2–3 pairs on proximal pinnae, 3–5 pairs on distal pinnae, oblong to slightly obovate, 3–4·5 x 1·5–2·5 mm, flat to slightly recurved, thickened, concolorous or discolorous, densely puberulous, nerveless, above, prominently 1-nerved below, ± obliquely narrowed at apex, often minutely apiculate. *Gland* situated on upper surface of petiole below insertion of proximal pair of pinnae, absent from rachis; oblong, 0·4–0·6 mm long, lip quite prominent. *Peduncles* 9–11 mm long, densely puberulous; *flower heads* yellow, cylindrical, 7–14 x 5–6 mm at anthesis, with 35–55 rather densely packed flowers. *Bracteoles* 1–1·5 mm long, densely puberulous. *Calyx* 1/2–2/3 length of corolla, moderately to densely puberulous, obscurely

5-nerved; *petals* puberulous, hairs normally antrorse to appressed, ± obscurely 1-nerved. *Legumes* (collected from ground beneath the type) 20–30 x 4–5 mm, densely puberulous to shortly pilose, dark brown. *Seeds* n.v.

Distribution and habitat: (Map 9) South-west Western Australia: from near Williams and Narrogin south-east to Katanning. The only information to hand regarding the habitat requirements of var. *crassinervis* is that at the type locality it grows in lateritic soil. This variety is not particularly common throughout its range.

WESTERN AUSTRALIA: Sources of Blackwood River, *Miss Cronin* s.n., 1889 (MEL 49388); About 3 km east of Katanning, *R. H. Kuchel* 1887 (AD, PERTH, PRE, SI); Near Narrogin, *R. T. Lange* 149; 78·2 miles N of Kojonup on Albany Highway, *M. D. Tindale* 362 and *B. R. Maslin* (K, NSW, PERTH).

Flowering period: August to September.

Acacia varia var. *crassinervis* appear to be most closely related to var. *parviflora*. Characters which unite these taxa include the type of branch indumentum, the basic leaf morphology (except that on var. *crassinervis* the pinnules are flat), the distinctly yellow, rather densely packed flower heads, and the puberulous, obscurely nerved calyces.

The small, flat to slightly recurved, closely spaced pinnules which are more or less obliquely narrowed at the apex, render var. *crassinervis* superficially similar to var. *varia*. However, in var. *crassinervis* the indumentum is denser, shorter, softer, and more uniformly sized, the pinnules are somewhat thicker, the flower heads are distinctly yellow, the calyx is less prominently nerved, and the petal indumentum is softer and less spreading.

The varietal epithet refers to the thickened midrib on the lower surface of the pinnules. This character, although distinctive in var. *crassinervis*, is not diagnostic for this variety.

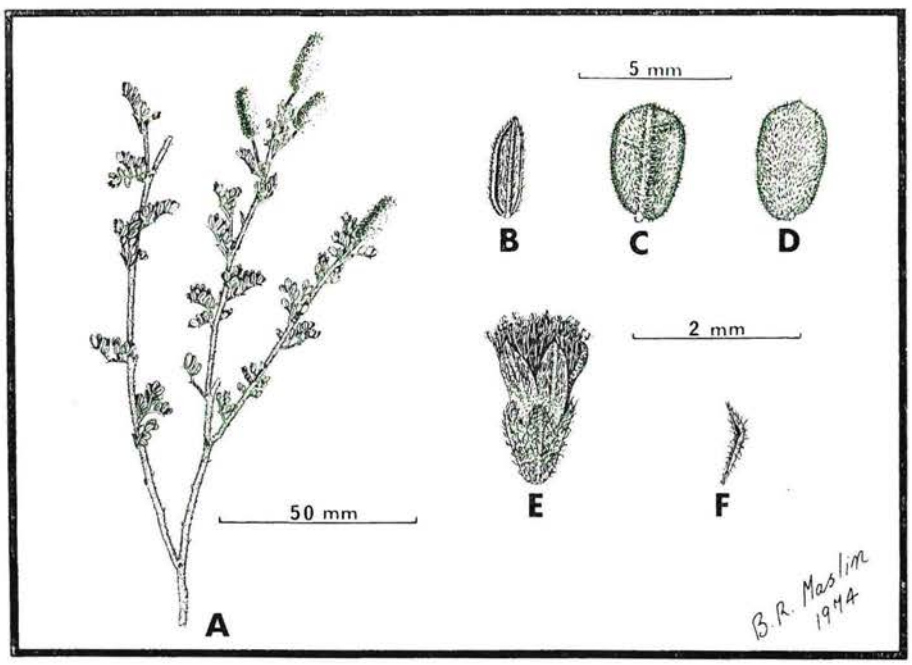


Figure 25—*Acacia varia* var. *crassinervis*. A—Portion of branch system. B to D—Pinnule variation (B and C—lower surface showing thick midrib; D—upper surface). E—Flower. F—Bracteole.
A, E-F from *B. R. Maslin* 771 (the type); B from *M. D. Tindale* 362 and *B. R. Maslin*; C-D from *R. H. Kuchel* 1887.

19c. var. **affinis** B. R. Maslin var. nov.—*Fig.* 26

Frutex plerumque ad 60 cm altus; *rami* pilosi et/vel puberuli. *Rhachis* 2–3 (5–6) mm longa; *seta terminalis* oblonga vel ovata ad elliptica; *pinnulae* variabiles, pinnarum proximalium 2 (3)-jugae, pinnarum distalium 2–3 (4–6)-jugae, recurvae ad revolutae, plerumque antrorse puberulae. *Glans* in pagina supera petioli infra insertionem pinnarum proximalium posita. *Calyx* ± enervius; *petala* obscure nervata, plerumque glabra. *Legumina* sparse ad modice puberula. *Semina* (pauca visa) oblonga, pallide brunnea.

Type: Near 39 mile peg, Great Northern Highway, Western Australia, 20 Aug. 1972, *B. R. Maslin* 2793 (holo: PERTH; iso: CANB, K).

Erect *shrub* to 60 cm tall (sometimes diffuse with branches to 100 cm long), suckers absent, dividing near ground level into many slender branches; *branches* finely nerved, nerves normally yellow, indumentum (variable) pilose and/or puberulous (hairs straight, antrorse, or retrorse), reddish to brown but somewhat grey towards the base; *branchlets* greenish. *Petiole* 1–3 mm long; *rachis* 2–3 (5–6) mm long, rib on upper surface broad and channelled above; *terminal seta* oblong or ovate to elliptic, 1–3 mm long, normally somewhat reflexed, flat, slightly thickened; *pinna rachis* 2–5 (7) mm long on proximal pinnae, (3) 5–10 (12–14) mm long on distal pinnae, apex ± oblong to elliptic 1·5–3 mm long straight to somewhat reflexed flat and slightly thickened; *pinnules* variable, well spaced along pinna rachis, 2 (3) pairs on proximal pinnae, 2–3 (4–6) pairs on distal pinnae, narrowly oblong to narrowly ovate, (2) 3–10 (13) x 0·5–1·5 (3·5) mm, recurved to revolute, slightly thickened, sparsely to densely antrorsely puberulous, sometimes shortly pilose, rarely glabrous, dark green and nerveless above, subglaucous and ± obscurely 1-nerved below (nerve not thickened), ± obliquely narrowed at apex. *Gland* situated on upper surface of petiole below insertion of proximal pair of pinnae; sometimes not prominent, 0·2–0·4 mm diam., lip hardly raised above petiole surface, orifice shallow. *Peduncles* 10–25 mm long, sparsely or occasionally densely retrorsely puberulous to retrorsely strigose, occasionally shortly pilose to puberulous; *flower heads* bright yellow, cylindrical, 15–35 x ca. 5 mm at anthesis, with 30–50 (70) ± loosely arranged flowers. *Bracteoles* 0·7–1 mm long, sparsely puberulous; claws linear; laminae ovate, somewhat inflexed. *Calyx* ± nerveless, glabrous to sparsely puberulous; *petals* ca. 1·5 mm long, obscurely nerved, glabrous or occasionally sparsely puberulous. *Legumes* 15–35 x 4–5 mm, sparsely to moderately puberulous. *Seeds* (few seen) oblong, ca. 2 x 1·5 mm, light brown; *aerole* slightly darker than rest of seed; *pleurogram* open towards the hilum; *funicle* filiform, reflexed below a thickened, straight or once-folded aril.

Distribution and habitat: (Map 9) South-west Western Australia: north of Perth from near Muchea to New Norcia. This variety is the most northerly distributed member of the species *A. varia.* It grows on lateritic soil (or sand over laterite) in Jarrah-Marri (sometimes Wandoo) woodland. It is quite common on disturbed areas such as road verges.

WESTERN AUSTRALIA: Near Bindoon, *C. A. Gardner* s.n., Sept. 1966; 61 mile peg, Perth-Geraldton Highway, *R. T. Lange* 89; About 5 km due ENE of Muchea, *B. R. Maslin* 3218 (BRI, NSW, NY, PERTH); About 7 km from Bullsbrook East towards Chittering, *B. R. Maslin* 3222; Muchea, *J. G. Patterson* s.n., Aug. 1958 (UWA 1151); Swan District, *E. Pritzel* 395 (AD); Near New Norcia, *F. W. Went* 80.

Flowering and fruiting period: Flowers from July to September; most legumes have dehisced by mid-December.

The correct taxonomic position of var. *affinis* within the *A. varia-A. drummondii* complex is somewhat uncertain; undoubtedly further work is required on this taxon. Its general leaf morphology indicates its inclusion in *A. varia;* however, its inflorescence characters suggest an affinity with *A. drummondii* subsp. *drummondii.* There is some evidence to suggest that morphological intermediates may occur between these two taxa.

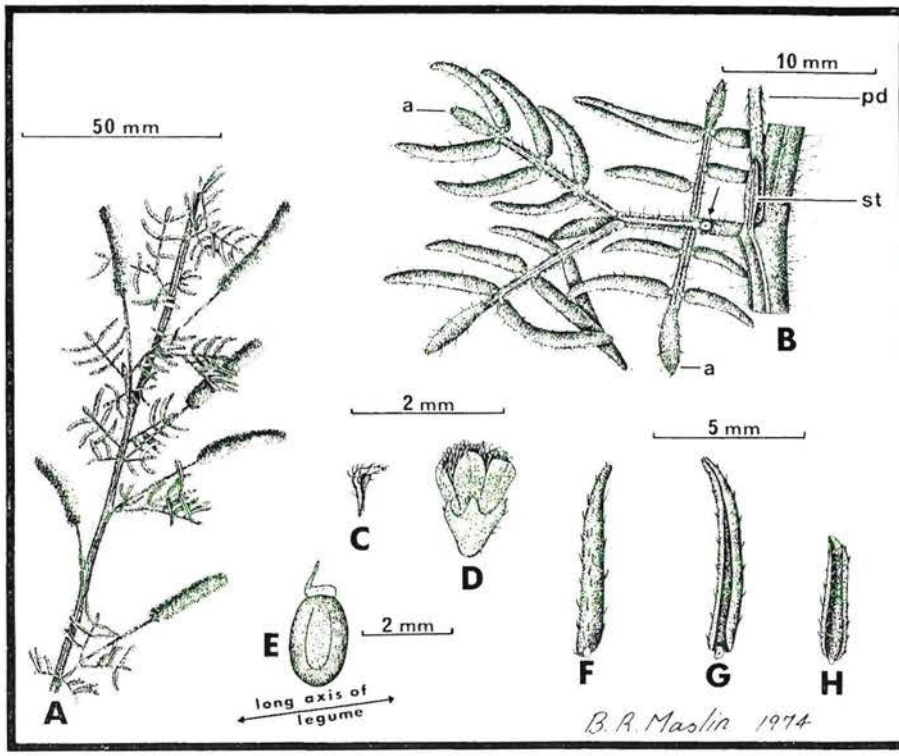


Figure 26—*Acacia varia* var. *affinis*. A—Portion of branch system. B—Node showing stipules (st), peduncle (pd), and leaf (gland position arrowed) with flattened pinna rachis apices (a). C—Bracteole. D—Flower. E—Seed. F to H—Pinnule variation (F—upper surface; G and H—lower surface).
A-D, F-G from *B. R. Maslin* 2793 (the type); E from *B. R. Maslin* 3222; H from *R. T. Lange* 89.

This variety is quite variable, especially with respect to the nature of its branch indumentum and its pinnule size. It is distinguished from the other three varieties of *A. varia* by the following characters: its pinnules, peduncles, and flower heads are normally somewhat longer, (however, there is an overlap of parameters when all the varieties are considered simultaneously), its pinnules are somewhat less prominently nerved below, its peduncles normally bear retrorse hairs (spreading or antrorse in the other varieties), the pinna rachis apex is usually more prominent, and its petals are obscurely nerved and glabrous to glabrescent (in the other varieties the petals either have a ± thickened central nerve and/or are significantly hairy).

The varietal epithet refers to postulated relationship between this taxon and *A. drummondii* subsp. *drummondii*.

19d. var. **parviflora** (Benth.) B. R. Maslin comb. nov.—*Fig.* 27

Acacia drummondii Lindl. var. *parviflora* Benth., Flora Austral. 2:419 (1864). *Lectotype:* West Mount Barren and on the hills to eastward, *Maxwell* s.n. (MEL 49363—specimen seen by Bentham; PERTH—fragment)

Shrub to 60 (100) cm tall, occasionally suckering, normally dividing at ground level into many spreading to erect branches, sometimes diffuse with ± prostrate branches; *branches* ± obscurely nerved, moderately to densely puberulous to shortly pilose, rarely densely villous or glabrous. *Petiole* 2–4 (8) mm long; *rachis* 1–2 (4–10) mm long, terete or obscurely ribbed above;

terminal seta normally oblong to triangular, 0·5–1·5 mm long, straight, somewhat thickened; *pinna rachis* 1·5–5 (6–9) mm long on proximal pinnae, 1·5–8 (10–15) mm long on distal pinnae, apex normally oblong to triangular, 0·5–1·5 mm long, straight to slightly reflexed, somewhat thickened; *pinnules* 2–3 pairs on proximal pinnae, 2–4 (5–7) pairs on distal pinnae, narrowly oblong, 2–4 (6–7) x 1–2 mm, prominently recurved to revolute, thickened, moderately to densely antrorsely puberulous to hispidulous, rarely densely shortly villous or glabrous, prominently 1-nerved below, obliquely narrowed at apex. *Gland* situated on upper surface of petiole below insertion of proximal pair of pinnae, an additional gland is often present on rachis below distal pair of pinnae; normally prominent, 0·4–0·8 mm diam., lip normally somewhat raised above surface of leaf axis. *Peduncles* 7–15 mm long, densely puberulous to hispidulous, rarely glabrous; *flower heads* yellow, obloid to cylindrical, 7–20 x 5–7 mm at anthesis, with 25–50 rather densely packed flowers. *Bracteoles* ca. 1 mm long, puberulous. *Calyx* sparsely to densely puberulous, ± obscurely 5-nerved; *petals* sparsely to densely puberulous, 1-nerved (nerves sometimes obscure). *Legumes* 20–35 x 4–5 mm, moderately to densely puberulous, rarely densely villous. *Seeds* oblong to elliptic, 2–3 x 1·5 mm, dark brown to black; *funicle* reflexed below a thickened, curved or once-folded aril.

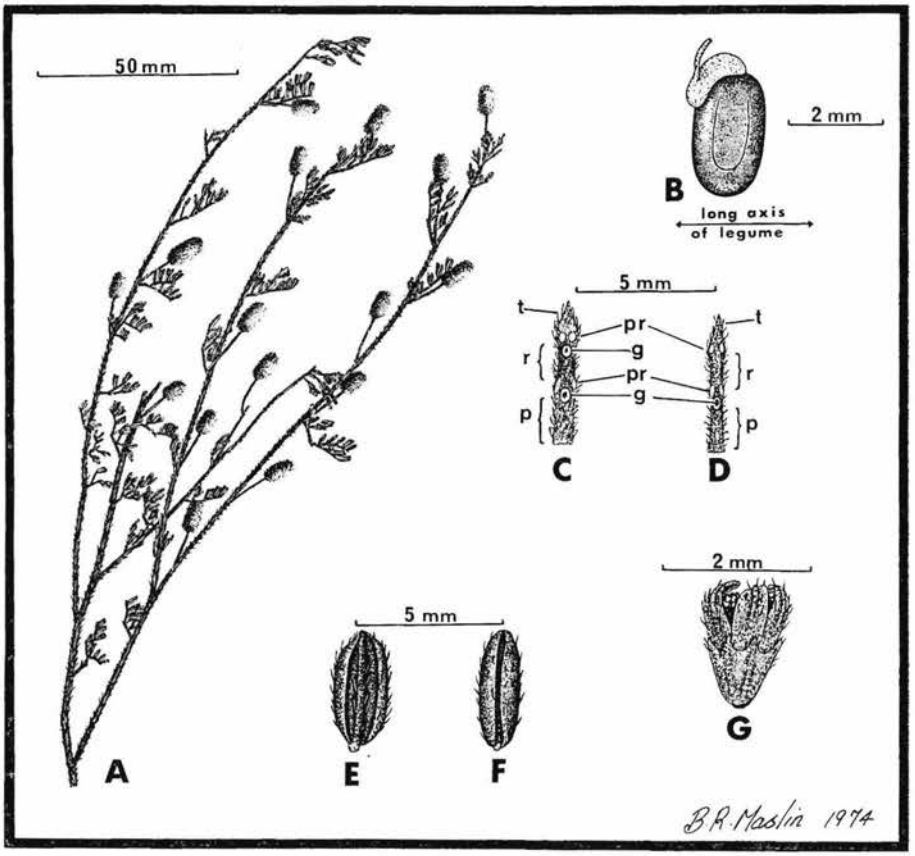


Figure 27—*Acacia varia* var. *parviflora*. A—Portion of branch system. B—Seed (dark brown). C and D—Leaf axes (upper surface) showing gland (g) positions, terminal setae (t), rachides (r), petioles (p), and position of insertion of pinnae rachides (pr). E and F—Pinnule variation (lower surface). G—Flower.
A and C from *Lullfitz* 3596; B from *B. R. Maslin* 2553; D from *Ralphe* and *Stamford* s.n.; E-G from *A. S. George* 10031.

Distribution and habitat: (Map 9) South-west Western Australia: most common in the area from near Manypeaks east to the Esperance district; var. *parviflora* also occurs north-west of Manypeaks to near Arthur River. This variety normally grows in sand or gravelly sand.

WESTERN AUSTRALIA: Point Ann, 20 mi NE of Bremer Bay, *K. M. Allan* 345 (CANB, K, NY, PERTH, villous variant); 8 miles N of Esperance, *D. M. Churchill* 4; Hopetoun, *G. Douglas* s.n., July 1915 (NSW 65957); South Stirling sandplain, *A. S. George* 6239; Lucky Bay, *A. S. George* 7466 (glabrous variant); West Mount Barren, *A. S. George* 10031; Gibson Soak, *Lullfitz* 3596; 16 mi S of Jerramungup towards Albany, *B. R. Maslin* 997; Near Gairdner River, *B. R. Maslin* 1052 (K, PERTH); 0·5 mi west of Young River crossing, Albany-Esperance road, *B. R. Maslin* 2553; S.W. Australia, *Maxwell* s.n. (MEL 49357); 137 mi peg on Albany Highway, *K. Newbey* 3682; Arthur River, *Oldfield* 555 (MEL, iso-syntype of *A. drummondii* Lindl. var. *parviflora* Benth.); About 20 mi NE of Albany towards Jerramungup, *S. Paust* 533; Ravensthorpe, *Ralphe* and *Stamford* s.n., 26 June 1924; Cranbrook, *Steward* 38; Near Mount Le Grand, *A. S. Weston* 6744.

Flowering and fruiting period: Flowers from May to September; mature legumes are present from October to December.

Acacia varia var. *parviflora* is a variable taxon. The leaves on the young plants are generally considerably larger than those on mature bushes; these larger leaf dimensions are given in parenthesis in the description above. Although var. *parviflora* normally has hairy branches, a glabrous variant has been recorded from Lucky Bay, which is 30 km south-east of Esperance. Another variant, known only from Point Ann (60 km south-west of Hopetoun) is prostrate and its branches are much divided and densely villous. The habit of the typical form is normally erect (although in regrowth the plants may be diffuse with more or less prostrate, sparsely divided branches) and the branches are puberulous to shortly pilose.

This variety appears to be most closely related to var. *crassinervis* B. R. Maslin (see this taxon for details).

Acacia varia var. *parviflora* is the only infraspecific taxon in which a gland often occurs below the distal as well as the proximal pair of pinnae. This fact, together with the prominently recurved to revolute pinnules and often obloid flower heads, could lead to confusion with *A. luteola* B. R. Maslin. From this species, var. *parviflora* is distinguished by the following characters: shrub often smaller and more diffuse; branches less obviously nerved; petiole slightly longer; rachis often shorter; pinnules thicker, slightly broader and normally more hairy; flower heads distinctly yellow (± sulphur-coloured in *A. luteola*); calyx (and often corolla) somewhat less prominently nerved.

From limited field observations, it appears as though var. *parviflora* will produce suckers only under certain edaphic conditions. Suckers can develop when the plants grow in lateritic clay. This may be due (in part) to the presence of a subsurface lateritic or clay barrier which prevents normal root development. However, var. *parviflora* normally grows in sand (often with some laterite present) and under these conditions suckers do not appear to develop.

20. Acacia drummondii Lindl., Sketch Veget. Swan Riv. Colony (Append. to Edwards' Bot. Reg.) XV (1839). *Lectotype:* Swan River, *Drummond* s.n. (holo: CGE—photo seen; ?iso; K—photo. seen, MEL 49354)

Shrub 0·3–2 m tall; *branches* strigose to puberulous (hairs retrorse or antrorse), sometimes glabrous; axillary spines absent. *Stipules* narrowly oblong to narrowly triangular, 1–4 mm long. *Leaves* bipinnate, indumentum normally as on branches (except for pinnules); *petiole* ± terete, 0·5–5 mm long; *rachis* 2–8 (10–23) mm long, ribbed above; *terminal seta* narrowly triangular to oblong-elliptic, slightly thickened; *pinnae* 1–2 (3) pairs; *pinna rachis* 2–8 (10–13) mm long on proximal pinnae, (3) 4–13 (16–27) mm long on distal pinnae, apex triangular or oblong-elliptic; *pinnules* (1) 2 (3–4) pairs on proximal

pinnae, 2–4 (5) pairs on distal pinnae, variable in shape and size, flat or slightly recurved (subsp. *elegans*), glabrous or sometimes minutely strigose on margins, green or glaucous, nerveless to 1(2)-nerved (nerve often excentric). *Gland* situated on upper surface of petiole and/or rachis below insertion of pinnae; sessile, circular. *Inflorescences* simple; *peduncles* normally solitary, 10–30 (40) mm long, base normally ebracteate at anthesis, strigose to puberulous; *flower heads* cylindrical, 10–35 (45) x 4–7 mm at anthesis. *Bracteoles* 0·8–1 mm long, puberulous. *Flowers* 5-merous (rarely a few 4-merous flowers occur on some flower heads); *calyx* ca. 1 /2 length of corolla, divided for 1 /4–1 /2 its length into triangular or ± oblong glabrous or ciliolate lobes, tube puberulous and ± nerveless; *petals* 1·5–2·5 mm long, connate for 1/2 their length, nerveless to prominently 1-nerved, glabrous to densely strigose-puberulous; *ovary* tomentose, sometimes glabrous. *Legumes* somewhat brittle, narrowly oblong, 20–35 x 4–7 mm, flat, slightly raised over seeds, puberulous to glabrescent, light brown to greyish brown; margins not (or slightly) contracted between seeds, thickened, light brown to yellow. *Seeds* (not seen for subsp. *drummondii*) transverse to slightly oblique in legume, oblong to elliptic, 2–3 x 1·5 mm, light brown, shiny; *pleurogram* with a narrow opening towards the hilum; *funicle* slightly dilated, reflexed below a thickened straight to curved or once-folded aril.

A photograph of the type sheet of *A. drummondii* at Cambridge (CGE) has been inspected by the author. Mounted on this sheet are three fragments, viz. Swan River, Drummond s.n., 1839 (lectotype); Vasse River, on the South West coast of New Holland, Mrs. Molloy s.n., 1839; West Australia, no date or collector given. The first two fragments listed above are of subsp. *drummondii*, the third is possibly subsp. *elegans* (see below). In the original description of *A. drummondii* no type is cited. However, in the protologue Lindley states " . . . , spicis axillaribus cernuis simplicibus . . . ". As the Drummond specimen has slightly drooping flower heads, and as its other characters appear to accord quite well with the original description, this specimen is here selected as the lectotype. Mr. George Chippendale, while Australian Botanical Liaison Officer at Kew in 1973, reported that at Kew there is a sheet (ex Herb. Benthamianum) upon which the following four fragments are mounted (a photograph of this sheet seen by the present author): Swan River, Drummond s.n., 1839; Vasse River, Mrs. Molloy s.n.; specimen with no details; Preiss 901. From the notes which Chippendale provided, it seems likely that these fragments (with the exception of Preiss 901) are duplicates of the type collection at Cambridge. At Melbourne (MEL) there is an unnumbered Drummond specimen collected from " W.A." which may possibly be an iso-lectotype of *A. drummondii* (see MEL 49354).

Acacia drummondii is related to both *A. luteola* B. R. Maslin and *A. varia* B. R. Maslin (see page 394). The flat and glabrous (or minutely strigose) pinnules readily distinguish *A. drummondii* from both these species—see *A. luteola* and *A. varia* for further details.

Key to subspecies

1a. Pinnae consistently 1 pair. (Sporadic from Bindoon to near Ravensthorpe)
b. subsp. **candolleana** (Fig. 29)

b. Pinnae more than 1 pair (a few unijugate leaves may occur among the multijugate ones) 2

2a. Gland* present on rachis, present or absent on petiole; pinnules dark green above and light green below, midrib on lower surface fairly apparent, often slightly obovate, normally 5–12 x 2–4 mm; hairs on peduncles patent or antrorse. (Near Denmark to Manypeaks; Toodyay district) .... **c.** subsp. **elegans** (Fig. 30)

b. Gland* absent from rachis, present on petiole; pinnules glaucous and ± concolorous, nerveless or obscurely 1-nerved below, narrowly oblong, normally 3–6 x 1–2 mm; hairs on peduncles (when present) retrorse. (Near New Norcia to Collie and Williams)
a. subsp. **drummondii** (Fig. 28)

* Gland small and sessile, situated on upper surface of leaf axis below insertion of pinnae.

20a. subsp. **drummondii**—*Fig.* 28

Acacia drummondi Lindl. var. *typica* E. Pritzel, Bot. Jb. 35:313 (1904), nom. illeg.

Openly branched *shrub* 30–60 (100) cm tall, normally dividing at ground level into many spreading branches; *branches* finely ribbed (ribs often yellow), sparsely to moderately retrorsely strigose (rarely retrorsely puberulous or glabrous), red-brown (grey at base). *Rachis* 2–3 (5–9) mm long with a sulcate rib above; *terminal seta* narrowly triangular to oblong-elliptic, slightly thickened; *pinnae* (1) 2 (3) pairs; *pinna rachis* 2–4·5 (6–13) mm on proximal pinnae, 4–8 (11–16) mm on distal pinnae, apex narrowly triangular to oblong-elliptic; *pinnules* 2 (3–4) pairs on proximal pinnae, 2–3 (5) pairs on distal pinnae, narrowly oblong, (2) 3–6 (8–12) x 1–2 (2·5) mm, slightly thickened, glabrous (rarely ciliolate), glaucous, ± concolorous, nerveless to obscurely 1-nerved, apex obliquely narrowed. *Gland* not prominent, situated on upper surface of petiole below insertion of proximal pinnae; 0·2–0·3 mm diam. *Peduncles* 10–18 mm long (25 mm in fruit), sparsely to moderately retrorsely puberulous to retrorsely strigose (rarely glabrous); *flower heads* 10–25 x 4–6 mm at anthesis.

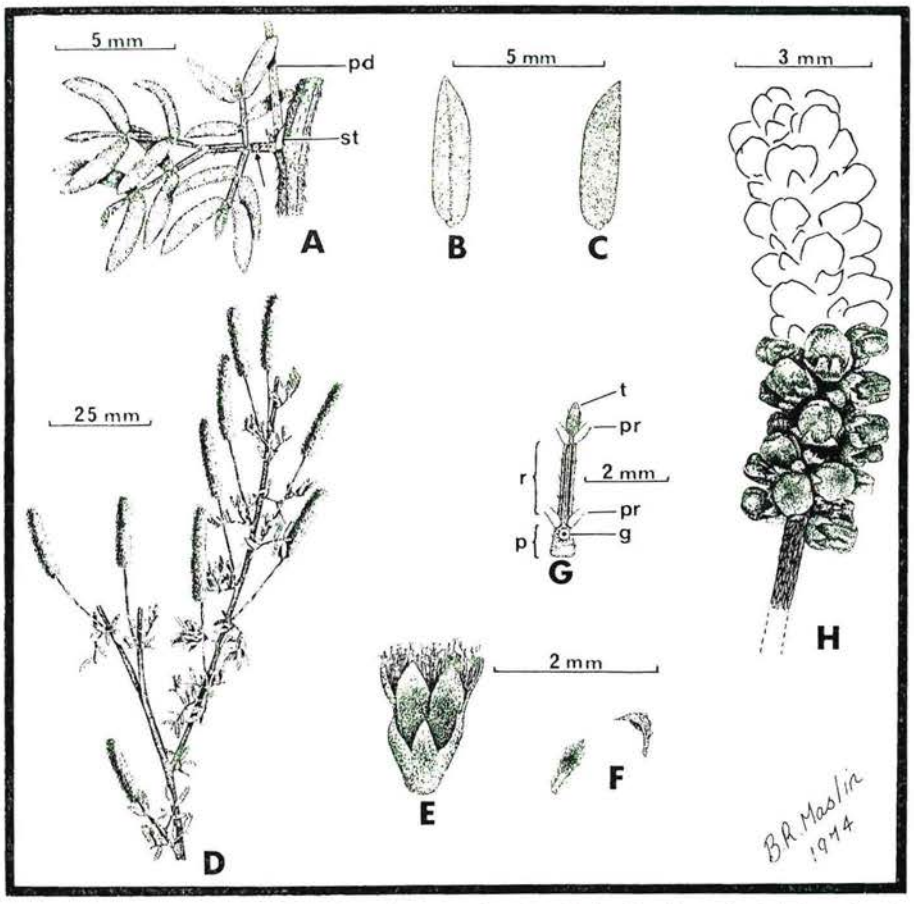


Figure 28—*Acacia drummondii* subsp. *drummondii*. A—Node showing stipule (st), peduncle (pd), and leaf (gland position arrowed). B—Pinnule (lower surface showing obscure midrib). C—Pinnule (upper surface). D—Portion of branch system. E—Flower. F—Bracteoles. G—Leaf axis (upper surface) showing gland (g) situated on petiole (p), rachis (r), terminal seta (t), and base of pinnae rachides (pr). H—Inflorescence showing retrorsely strigose peduncle.
A, D-G from *B. R. Maslin* 2985; B-C from *M. Koch* 1481; H from *R. T. Lange* 186.

Calyx tube sparsely puberulous; *petals* glabrous, nerveless to obscurely 1-nerved; *ovary* glabrous to moderately tomentose. *Legumes* 20–25 x 4–5 mm, sparsely strigose, grey brown (immature) to tan (mature). *Seeds* n.v.

Distribution and habitat: (Map 10) South-west Western Australia: commonly occurring in rocky clay in Wandoo (*Eucalyptus wandoo* Blakely) or Wandoo-Jarrah (*E. marginata* Donn ex Sm.) woodland from near New Norcia southward to the Collie-Williams area.

WESTERN AUSTRALIA: Parkerville, *C. Andrews* s.n., Aug. 1902; 32·9 mi from Collie towards Williams, *E. M. Canning* WA/68 3831; Western Australia, *J. Drummond* 315 (MEL, fragment at PERTH); No locality, *C. A. Gardner* 9313; Wooroloo, *M. Koch* 1481 (MEL, PERTH); Bakers Hill, *R. T. Lange* 186; 11 km NW of Williams on Albany Highway, *B. R. Maslin* 2985 (BRI, CANB, K, PERTH); Darling Range, *Preiss* 901 (MEL, fragment at PERTH); Beraking, *R. F. Williams* s.n., 1934 (UWA 1153); 100 mile post on Great Northern Highway, *E. B. J. Smith* s.n., 19 July 1967.

Flowering period: July to October.

In the past, subsp. *drummondii* was not normally differentiated from subsp. *elegans* B. R. Maslin subsp. nov. (see below). However, subsp. *drummondii* can be readily recognized by its shorter, eglandulose rachides, its glaucous, ± concolorous and nerveless pinnules, its strigose peduncles, and its glabrous, ± nerveless petals.

Acacia drummondii subsp. *drummondii* appears to have some affinities with *A. varia* var. *affinis* B. R. Maslin, and there is some evidence to suggest that morphological intermediates may occur between these taxa.

20b. subsp. **candolleana** (Meisn.) B. R. Maslin stat. nov.—*Fig.* 29.

Acacia candolleana Meisn. in Lehm., Plant. Preiss. 2:206 (1848). *Type:* "Swan River, *Drummond* coll. II, No. 152" (iso K—photo seen, MEL, PERTH—fragment).
Acacia drummondii Lindl. var. *major* Benth., Flora Austral. 2:419 (1864)—based on *A. candolleana*.
Acacia drummondii Lindl. var. *candolleana* (Meisn.) Domin, Mém Soc. Sci. Bohème 1921–22: 48 (1923), nom. illeg.—based on *A. candolleana*.

Shrub 1–1·5 m tall, single-stemmed or sometimes dividing near ground level into a few main branches; *branchlets* ribbed, sparsely to moderately strigose to puberulous (hairs antrorse). *Petiole* 1–2 mm long; *terminal seta* narrowly triangular, thickened towards the base; *pinnae* 1 pair; *pinna rachis* 3–7 (10) mm long, apex narrowly triangular and somewhat thickened; *pinnules* 2–3 (4) pairs, asymetrically elliptic or obovate to oblong, 4–11 x 3–7 mm, flat, glabrous, normally glaucous below and green or subglaucous above. *Gland* situated on upper surface of petiole below insertion of pinnae. *Peduncles* normally solitary, 10–20 mm long, densely (antrorsely) puberulous; *flower heads* 15–25 x 5–6 mm at anthesis. *Petals* glabrous, nerveless or 1-nerved (nerve more prominent at apex of petals); *ovary* densely tomentose. *Legumes* 20–30 x 5–6 mm, glabrescent, light brown. *Seeds* oblong, 2·5–3 x 1·5 mm; *funicle* reflexed below a straight to curved aril.

Distribution and habitat: (Map 10) South-west Western Australia: occurring sporadically from Bindoon southward through Collie to the Fitzgerald River National Park (south-west of Ravensthorpe) on the south coast. This subspecies normally grows in sandy or loamy laterite in Jarrah (sometimes with Wandoo) forest.

WESTERN AUSTRALIA: Near Marradong, *J. C. Anway* 304 (AD, MEL); Mount Cook, *R. Edmiston* s.n., 21 Sept. 1971; 73 mile peg, Perth-Geraldton Highway, *R. T. Lange* 22; 19·2 km E of Harvey towards Quindanning, *B. R. Maslin* 3200; 2 mi from Tallanalla towards Harvey, *M. E. Phillips* WA/68 4066; Fitzgerald River Reserve, *R. D. Royce* 9263; Collie, *F. W. Went* s.n., June 1916; Willowdale Camp, *R. F. Williams* s.n., 18 Aug. 1932 (UWA 1122 and 1123).

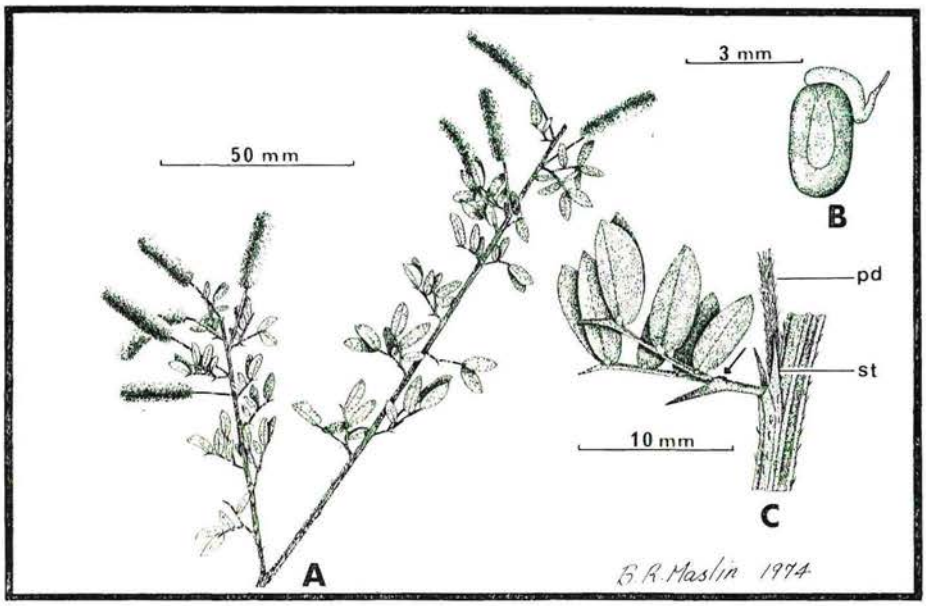


Figure 29—*Acacia drummondii* subsp. *candolleana*. A—Portion of branch system. B—Seed (light brown). C—Node showing stipules (st), peduncle (pd), and unijugate leaf (gland position arrowed).
A and C from *M. E. Phillips* WA 168 4066; B from *B. R. Maslin* 3200.

Flowering and fruiting period: Flowers from July to October; very few undehisced legumes still present on the bushes in late December.

The affinities of this subspecies seem to lie with subsp. *elegans* rather than with subsp. *drummondii;* however, subsp. *candolleana* is readily distinguished from both of these taxa by its consistently unijugate leaves.

20c. subsp. **elegans** B. R. Maslin subsp. nov.—*Fig.* 30

Acacia pseudodrummondii Herincq, Bull. Soc. Hort. Seine 11:194 (1853). *Type:* n.v.
Acacia pelloiae C. A. Gardner, J. Roy. Soc. W.A. 9(1):40 (1923). *Type: Gardner Herb.* no. 626a (holo: PERTH).

Frutex 1–2 m altus; *ramuli* manifeste nervati, sparsim antrorse puberuli ad glabri. *Rhachis* 3–8 (15–23) mm longa; *seta terminalis* anguste triangularis; *pinnae* (1) 2 (3)-jugae; *pinnulae* pinnarum proximalium (1) 2 (3)-jugae, pinnarum distalium 2–4 (5)-jugae, glabrae ad glabratae. *Glans* sessilis, in pagina supera rachidis infra insertionem pinnarum distalium, praesens vel absens in pagina supera petiolum infra insertionem pinnarum proximalium. *Capitula* cylindrica. *Petala* plerumque modice stigosa. *Legumina* modice puberula. *Semina* pallide brunnea.

Type: 35·5 km from Denmark towards Mount Barker, Western Australia, 21 Sept. 1972, *B. R. Maslin* 2958 (holo: PERTH; iso: CANB, K, NY).

Shrub 1–2 m tall, either single-stemmed or dividing at ground level into a number of spreading branches; *branchlets* quite prominently ribbed, sparsely antrorsely puberulous to glabrous, reddish brown to grey. *Rachis* 3–8 (15–23) mm long, ribbed above; *terminal seta* narrowly triangular, slightly thickened towards the base; *pinnae* (1) 2 (3) pairs; *pinna rachis* 3–8 (10) mm long on proximal pinnae, (3) 5–13 (16–27) mm long on distal pinnae, apex narrowly triangular and ± thickened towards the base; *pinnules* (1) 2 (3) pairs on proximal pinnae, 2–4 (5) pairs on distal pinnae, (narrowly) oblong to elliptic or obovate, (3) 5–12 (13–17) x (1) 2–4 (5–6) mm (size variable), flat or slightly recurved, glabrous to glabrescent (hairs minute), dark green and nerveless (or very obscurely nerved) above, light green and 1(2)-nerved below (nerve ± excentric), apex oblique and sometimes inflexed. *Gland* situated on upper

surface of rachis below distal pinnae, present or absent on petiole below proximal pinnae. *Peduncles* (10) 15–30 (40) mm long, moderately to densely puberulous to antrorsely puberulous; *flower heads* (10) 20–35 (45) x 5–7 mm at anthesis. *Calyx tube* puberulous; *petals* moderately strigose-puberulous or sometimes glabrous, 1-nerved (nerve more prominent at apex of petals); *ovary* densely tomentose. *Legumes* 25–35 x 6–7 mm, moderately puberulous, dark brown. *Seeds* oblong to elliptic, 2–3 x ca. 1·5 mm; *funicle* reflexed below a once-folded aril.

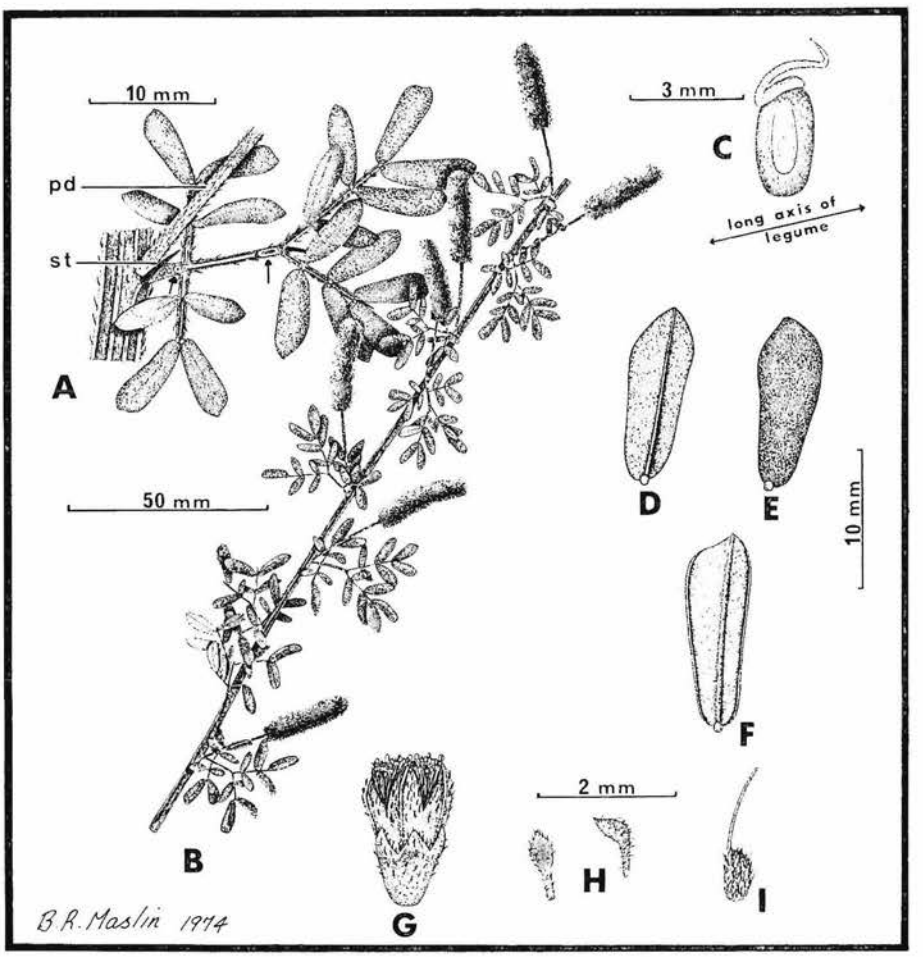


Figure 30—*Acacia drummondii* subsp. *elegans*. A—Node showing stipule ((st), peduncle pd), and leaf (gland positions arrowed). B—Portion of branch system. C—Seed (light brown). D—Pinnule (lower surface showing midrib). E—Pinnule (upper surface). F—Pinnule (lower surface showing midrib and slightly recurved margins). G—Flower. H—Bracteoles. I—Gynoecium showing densely tomentose ovary.
A-B from *R. D. Royce* 3741; C from *B. R. Maslin* 2598; D-E, H-I from *B. R. Maslin* 2958 (the type); F-G from *W. M. Atkin* 31.

Distribution and habitat: (Map 10) South-west Western Australia: common in the Albany-Stirling Range district. This subspecies has also been collected from the Bindoon and Toodyay districts (north-east of Perth); however, it is probably not native to these regions. *Acacia drummondii* subsp. *elegans*

favours loamy or sandy soil in low-lying, often swampy areas. There is, however, a form which grows on the rocky slopes of some peaks in the Stirling Range (see below).

WESTERN AUSTRALIA: 42 mile peg on Great Northern Highway, *K. M. Allan* 294 (CANB, MO, PERTH, SP) [probably introduced]; Tenterden, *W. M. Atkin* 31; Toolbrunup, 700 metres, *L. Diels* 4677; *Drummond* 15 (MEL 49384); Bluff Knoll, summit, *C. A. Gardner* 1450; Near Mondurup, Stirling Range, *C. A. Gardner* 16208; Half-way up Bluff Knoll, Stirling Range, *B. R. Maslin* 1102 (MEL, NSW, PERTH); Near top of Bluff Knoll, Stirling Range, *B. R. Maslin* 1103 (NSW, PERTH); 20 mi east of Manypeaks towards Jerramungup, *B. R. Maslin* 2598; Perongerup [Porongurup] Ranges, *Maxwell* s.n. (MEL 49373); Mondurup Peak, *F. Mueller* s.n., 15 Oct. 1867 (MEL 49377); King George's Sound, swamps, *Oldfield* 554 (MEL); About 20 mi NE of Albany towards Jerramungup, *S. Paust* 532; 5 mi N of Narrikup, *R. D. Royce* 3741; Toodyay district, roadside, *C. L. Wilson* 837 [probably introduced]; Stirling Range, 1 km N of base of Bluff Knoll, *P. G. Wilson* 4193 (AD, E, L, MEL, PERTH).

Flowering and fruiting period: Flowers from July to October; young legumes appear from September to November; mature legumes are present in December.

In the past, most authors seem to have erroneously regarded subsp. *elegans* as the typical form of *A. drummondii*. However, subsp. *drummondii* as here lectotypified is quite different from subsp. *elegans* (see subsp. *drummondii* for differentiating characters). Herincq was aware of these differences when he described *A. pseudodrummondii;* this species is here relegated to synonymy under subsp. *elegans*. Because of its awkwardness, the name " pseudodrummondii " was not used by the present author as the subspecific epithet for subsp. *elegans*.

Gardner (1923) described *A. pelloiae* from material collected near the summit of Bluff Knoll in the Stirling Range. This name is here regarded as being synonymous with subsp. *elegans;* however, it is slightly different from the typical form, e.g. stipules sometimes a little more prominent (not spinescent as in the original description), pinnules slightly more recurved, and the peduncles and flower heads slightly shorter. This may prove to be a montane form of subsp. *elegans;* it has been collected from Bluff Knoll and Mondurup Hill, both in the Stirling Range.

21. Acacia mitchellii Benth., Lond. J. Bot. 1:387 (1842). *Type:* " Interior of N.S. Wales, *Mitchell.*" (n.v.)

Diffuse *shrub* 0·5–1·5 (2) m tall; *branches* slightly resinous, obscurely to moderately ribbed, normally densely puberulous; axillary spines absent. *Stipules* ± triangular, minute, ca. 0·5 mm long, prominently thickened at base. *Leaves* bipinnate, indumentum as on branches (except for pinnules); *petiole* 0·5–1 (1·5)mm long; *rachis* 1–2 (7–15) mm long, terete or ribbed or channelled above; *terminal seta* oblong to triangular, 1–2 mm long, straight to somewhat reflexed, slightly thickened (especially towards the base); *pinnae* (1) 2–3 (4–5) pairs; *pinna rachis* 1·5–3·5 (5) mm long on proximal pinnae, 2–7 mm long on distal pinnae, ribbed above, apex somewhat reflexed; *pinnules* 2–3 (4) pairs on proximal pinnae, 2–4 (5–7) pairs on distal pinnae, normally oblong to narrowly oblong or obovate, sometimes elliptic, 2–5 (6) x 1–2 mm, flat, glabrous, sometimes slightly thickened, light green to glaucous, ± concolorous, very obscurely 1-nerved, obtuse but often minutely apiculate. *Gland* absent (but see discussion below). *Inflorescences* simple but sometimes falsely racemose at ends of branchlets due to leaf reduction; *peduncles* 1–2 per axil, 10–20 mm long, sparsely (rarely densely) puberulous to glabrous, base ebracteate at anthesis; *flower heads* pale yellow, globular, 5–8 mm diam. at anthesis, with 30–45 flowers. *Bracteoles*, ca. 1 mm long; claws linear, glabrous to puberulous, laminae ovate, ciliolate, often puberulous abaxially, slightly concave. *Flowers* 5-merous, slightly resinous, *sepals* 2/3 length of petals, shortly united at base, linear-spathulate, ciliolate; *petals* ca. 1·5 mm long, free; *ovary* glabrous. *Legumes* firmly chartaceous, narrowly oblong,

(15) 20–50 x (4) 5–7 mm, straight to slightly curved, ± flat, somewhat raised over seeds, often obscurely reticulate, glabrous, brown to grey-brown; *margins* straight or somewhat contracted between the seeds, slightly thickened. *Seeds* longitudinal in legume, oblong obovate or slightly elliptic, 4–5·5 x 2·5–3·5 mm, dark brown to black, dull; *pleurogram* prominent, continuous; *funicle* filiform and often coiled, ± abruptly thickened into a cream-coloured clavate aril.

Distribution and habitat: New South Wales, Victoria, and South Australia. *Acacia mitchellii* commonly grows near swamps; it has also been recorded from sandy and rocky loam in *Eucalyptus* woodlands.

NEW SOUTH WALES: Guy Fawkes, *J. L. Boorman* s.n., 12/1909 (NSW 65910); Gwydir Highway, 42 mi E of Glen Innes, *P. Burgess* s.n., 12/1960 (NSW 58971); Gibraltar Range National Park, c. 42 miles E of Glen Innes, *R. Coveny* 2233 and 2234.
VICTORIA: 7 miles north of Portland, along Henty Highway, *J. Anderson* 374 (MEL); Brisbane Ranges, about 1 mile NE of Steiglitz, *H. I. Aston* 82 (MEL); Grampians, *A. C. Beauglehole* 24864 (MEL); Glenelg River, south-west Victoria, *Miller* s.n. (MEL 27189).
SOUTH AUSTRALIA: Far south-east of the State. No specimens seen. See Court 1972, p. 242.

Flowering and fruiting period: Flowers between (August) October and March; because it takes a long time for legumes to mature, the previous year's fruits are often present on the bushes during the next flowering season.

The relationship of *A. mitchellii* to the other members of the *Pulchellae* is not clear. It is the only species in the Series which occurs outside Western Australia. Two important characters, eglandulose leaves (but see below), and free (not united) sepals, are found only in this species. In addition, the combination of ebracteate peduncle bases, longitudinal seeds, and firmly chartaceous legumes (rare in the *Pulchellae*), is not found elsewhere in this group. Also, according to Vassal (1965), the sequence of seedling leaf development in *A. mitchellii* differs from that of the other species of *Pulchellae* studied by that author.

In the description above, the leaves of this species are said to be eglandulose. Certainly no clearly defined gland occurs on the petiole or rachis as in other members of the *Pulchellae* (excluding *A. insolita*, which is included in this revision only for convenience). However, sometimes there occurs on the rachis a very obscure depression which could be interpreted as an extremely reduced gland. An anatomical study is required to check this possibility.

22. Acacia drewiana W. V. Fitzg. in Maiden, J. Roy. Soc. N.S.W. 51:273 (1917). *Type:* Cannington, *W. V. Fitzgerald*, Feb. 1905 (holo: NSW; iso: PERTH).

Small *shrub* 20–60 cm tall, sometimes suckering, dividing at ground level into many spreading to erect branches; *branches* flexuose, finely ribbed, indumentum various; axillary spines absent. Stipules scarious or ± spinescent. *Leaves* bipinnate, decurrent, indumentum as on branches (except for pinnules); *petiole* absent (i.e. proximal pair of pinnae arise at junction of leaf axis and branch); *rachis* 5–20 mm long, quite rigid, somewhat dilated towards the base; *terminal seta* variable, sometimes spinescent, 1·5–11 mm long, straight or reflexed; *pinnae* 1–3 (4) pairs; *pinna rachis* 1·5–8 (10) mm long, apex sometimes distinctly flattened and straight to reflexed; *pinnules* narrowly oblong, 2·5–6 (8) x ca. 1 mm, recurved to revolute, somewhat thickened, green to glaucous, glabrous to puberulous, nerveless above, prominently 1-nerved below. *Gland* on multijugate leaves: situated on upper surface of rachis at (or some distance below) insertion of pinnae; on unijugate leaves: situated on upper surface of terminal seta near its base; often inconspicuous. *Inflorescences* simple; *peduncles* solitary, 7–20 mm long, densely shortly pilose

to hispidulous, basal bracts minute and normally absent at anthesis; *flower heads* globular, 6–10 mm diam. at anthesis, with 14–35 flowers. *Bracetoles* 1·5–2 mm long, shortly pilose; claws linear; laminae narrow, straight or slightly inflexed, ± concave. *Flowers* 5-merous; *calyx* 2/3 length of corolla, divided for ca. 1/2 its length into oblong ciliolate lobes which sometimes have a few additional conspicuous spreading white hairs at the apex, prominently 5-nerved, tube glabrescent; *petals* 2–3 mm long, prominently 1-nerved, glabrous to puberulous; *ovary* glabrous. *Legumes* somewhat hard and brittle, narrowly oblong, 15–45 x 5–7 mm, flat to slightly undulate, raised over seeds, moderately to densely shortly pilose, dark brownish; *margins* not contracted between the seeds, thickened, light to dark brown. *Seeds* (as to subsp. *pungens* only) longitudinal in legume, elliptic, 4 x 3 mm, black, dull, minutely roughened; *pleurogram* fine, continuous or open towards the hilum; *funicle* less than 1 mm long, expanded into a once-folded yellowish aril which is somewhat dilated at the hilum.

In his original description of *A. drewiana*, Fitzgerald described the flowers as 4-merous; however, as can be seen from the description above, they are 5-merous.

Acacia drewiana is unique within the series *Pulchellae* in that its primary leaf axis is not articulated on the branch. Instead it is decurrent and in this respect *A. drewiana* can be likened to the phyllodinous species in the series *Continuae* (Bentham, 1864). The lowermost pair of pinnae arise at the junction of the primary leaf axis and the branch so that no petiole is developed.

In its hairy branches, recurved to revolute pinnules, and hairy, ebracteate peduncles, *A. drewiana* superficially resembles *A. preissiana* (Meisn.) B. R. Maslin and *A. plicata* B. R. Maslin. *Acacia drewiana* is distinguished from both these species by its habit, flexuose, branches, decurrent leaves, and absence of petiole.

Key to subspecies

1a. Pinnae consistently 1 pair; terminal seta pungent. Rare. (Near Wannamal) **c.** subsp. **pungens** (Figs. 31J-K)

b. Pinnae more than 1 pair (a few unijugate leaves may occur among the multijugate ones); terminal seta not pungent 2

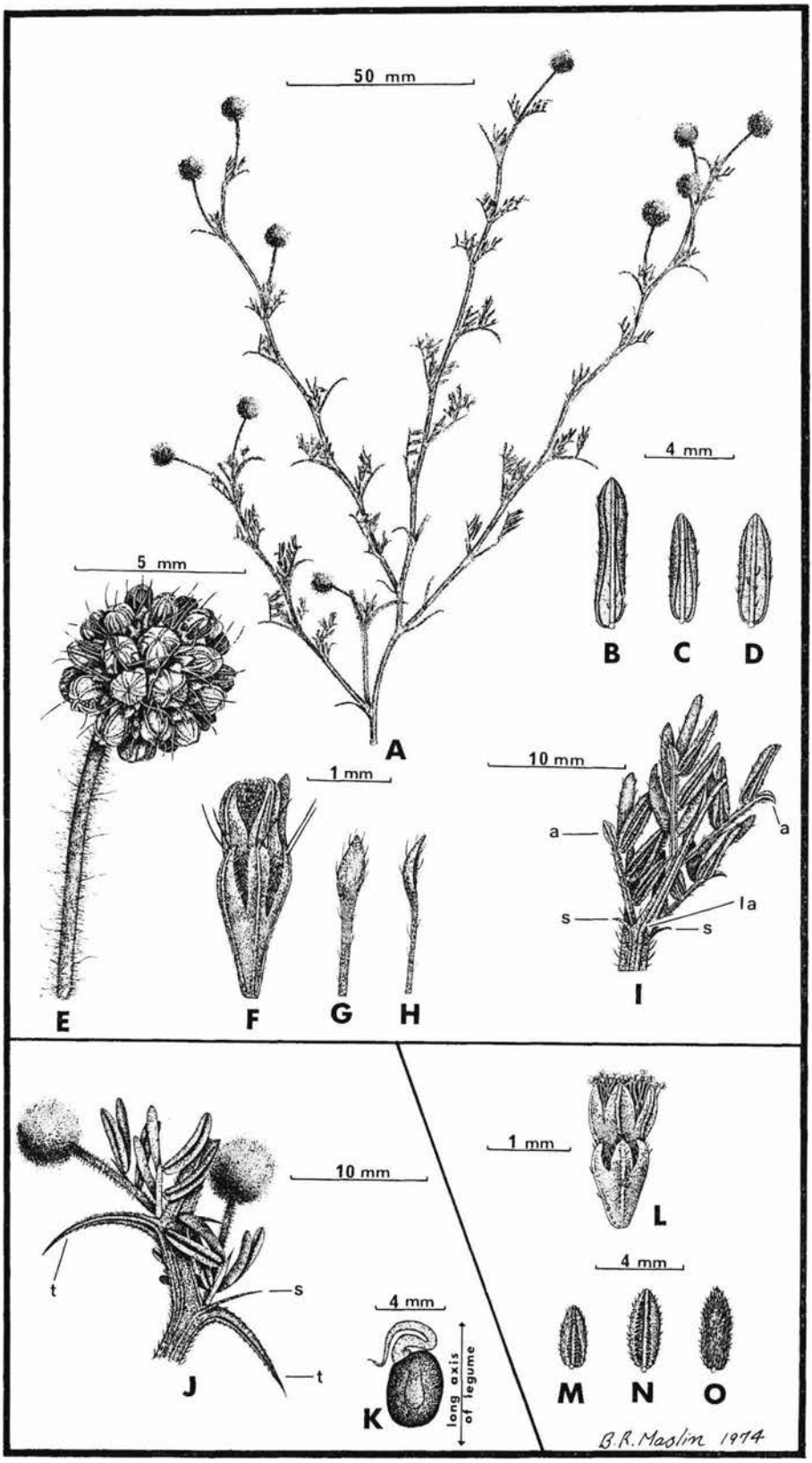
2a. Apex of pinna rachis conspicuously flattened and prominently reflexed; pinnules 4–6 mm long; calyx lobes ciliolate and with additional conspicuous, spreading hairs at the apex. (Near Armadale to Bindoon) .... **a.** subsp. **drewiana** (Figs. 31A-I)

b. Apex of pinna rachis not conspicuously flattened, ± straight; pinnules 2·5–4 mm long; calyx lobes ciliolate, without additional longer hairs. (Wongan Hills; Kukerin to Lake King) .... **b.** subsp. **minor** (Figs. 31L-O).

22a. subsp. **drewiana**—*Figs.* 31*A-I*

Shrub 30–60 cm tall; *branches* quite stout, puberulous, hispidulous or shortly pilose. *Stipules* 1·5–2·5 x 0·3–0·5 mm, base slightly thickened. *Rachis* 5–20 mm long, rigid, prominently thickened, ribbed above and below (upper rib channelled above); *terminal seta* variable, linear to narrowly triangular, 2–11 mm long, straight or reflexed, rather rigid but not pungent; *pinnae*

Figure 31—*Acacia drewiana*. A to I—subsp. *drewiana*: A—Portion of branch system. B to D—Pinnule variation (lower surface). E—Inflorescence. F—Flower (note conspicuous hairs on calyx lobes). G to H—Bracteoles. I—Node showing stipules (s), decurrent primary leaf axis (la), and flattened reflexed pinna rachis apices (a). J to K—subsp. *pungens*: J—Portion of branch showing ± spinescent stipules (s), and decurrent spinescent terminal seta (t). K—Seed. L to O—subsp. *minor*: L—Flower. M to O—Pinnule variation (M and N—lower surface; O—upper surface).
A from *W. M. Carne* s.n.; B, C, E and H from *H. Steedman* s.n.; D and I from *B. R. Maslin* 3217; F and G from *C. A. Gardner* s.n.; J from *Julia Wells* s.n. (the type); K from *A. S. George* 5937; L, N and O from *A. S. George* 4447 (the type); M from *M. D. Tindale* 226 and *B. R. Maslin*.


50 mm
A
4 mm
B
C
D
5 mm
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1 mm
F
G
H
10 mm
a
a
s
la
s
I
10 mm
t
s
t
J
4 mm
long axis of legume
K
1 mm
L
4 mm
M
N
O
B.R. Maslin 1974

(1) 2–3 pairs; *pinna rachis* 4–8 (10) mm long, ribbed above, apex flattened oblong to elliptic 2–3 mm long reflexed and ribbed below; *pinnules* 2–4 (5) pairs, 4–6 (8) x ca. 1 mm, recurved to revolute, dark green above, subglaucous below, glabrous to sparsely puberulous. *Peduncles* 10–20 mm long; *flower heads* 8–10 mm diam. at anthesis, with 25–35 flowers. *Calyx lobes* ciliolate and with a few additional conspicuous, spreading, white hairs (0·5–2 mm long) at the apex; *petals* 2·5–3 mm long, glabrous to glabrescent. *Legumes* 30–40 x 6–7 mm. *Seeds* n.v.

Distribution and habitat: (Map 5) South-west Western Australia: occurring in a somewhat restricted area from Wongong Brook (about 35 km SE of Perth) northward to near Bindoon (about 80 km NE of Perth). This subspecies appears to favour sandy loam, often in low-lying areas near swamps.

WESTERN AUSTRALIA: Wongong Brook near Armadale, *W. M. Carne* s.n., 30 May 1924 (NSW—fragment, Perth); Muchea, *C. A. Gardner* s.n., April 1928; Cannington, *A. J. Gray* s.n., 1960; About 0·5 km E of Muchea turn-off on Great Northern Highway, *B. R. Maslin* 3217 (BRI, CANB, MEL, PERTH); About 3·4 km E of Muchea turn-off on Great Northern Highway, *B. R. Maslin* 3220B (B, K, NY, PERTH); Muchea, *H. Steedman* s.n., April 1928 (MEL 49335, PERTH); Darling Range behind Gosnells, *L. Steenbohm* s.n., 10 Feb. 1960 (NSW—fragment, PERTH).

Flowering period: April-July.

Acacia drewiana subsp. *drewiana* is more closely related to subsp. *minor* than to subsp. *pungens*—see these taxa for differentiating characters.

22b. subsp. **minor** B. R. Maslin subsp. nov.—*Fig.* 31 *L-O*

Frutex nanus, 20–45 (60) cm altus; *rami* plerumque dense puberuli. *Rhachis* 5–11 (15) mm longa; *pinnae* 2–3 (4)-jugae; *rhachis pinnarum* 3–8 mm longa; *pinnulae* 2·5–4 mm longae, manifeste revolutae, plerumque modice puberulae.

Type: Lake Camm turn-off, Newdegate-Lake King road, Western Australia, 25 May 1963, *A. S. George* 4447 (holo: PERTH; iso: CANB, NSW, PERTH).

Shrub 20–45 (60) cm tall, sometimes suckering; *branches* slender, densely puberulous, rarely glabrescent, light brown. *Rachis* 5–11 (15) mm long, rather rigid, not prominently ribbed above or below; *terminal seta* narrowly triangular, 1·5–2 mm long, slightly thickened towards the base, often dark brown; *pinnae* 2–3 (4) pairs; *pinna rachis* 3–8 mm long, apex narrowly oblong to narrowly triangular ca. 1 mm long slightly thickened often dark brown and straight to slightly reflexed; *pinnules* 2·5–4 mm long, prominently revolute, thickened, often glaucous, normally moderately puberulous. *Flower heads* 6–7 mm diam. at anthesis, with 22–24 flowers. *Calyx* moderately puberulous (lobes lack the additional long, spreading hairs of subsp. *drewiana*); *petals* 2 mm long, puberulous at apex. *Legumes* and *seeds* not seen in mature state.

Distribution and habitat: (Map 5) South-west Western Australia: this subspecies has been collected from two widely separated regions, the first about 300 km due south-east of Perth from near Kukerin eastward to the Lake King district, and the second from near Wongan Hills which is about 150 km north-east of Perth. Future sampling of suitable habitats may indicate whether these occurrences represent a real, or only an apparent, disjunct distribution. A similar distributional pattern exists in *A. moirii* E. Pritzel subsp. *recurvistipula* B. R. Maslin. *Acacia drewiana* subsp. *minor* grows in laterite or sandy laterite among dense sandplain scrub.

WESTERN AUSTRALIA: 2·2 mi N of Wongan Hills, *E. M. Scrymgeour* 2095 (CANB PERTH); 11 mi E of Newdegate on the road to Lake King, *M. D. Tindale* 226 and *B. R. Maslin*.

Flowering and fruiting period: Flowers from about May to July; immature fruiting specimens have been collected in August and September.

Acacia drewiana subsp. *minor* is more closely related to the typical subspecies than to subsp. *pungens* B. R. Maslin. From the former taxon it differs in having more slender branches, somewhat smaller leaves and flower heads, less rigid rachides which are not as prominently dilated at the base, narrower and ± straight pinna rachis apices, and calyx lobes without additional conspicuous, white, spreading hairs at the apex. The distribution of these two subspecies does not overlap; subsp. *drewiana* is more or less restricted to the region of Perth, whereas subsp. *minor* occurs much further inland.

The normal habit of subsp. *minor* is an openly branched shrub 20–45 cm tall with is main stem dividing at ground level into many slender, quite rigid, spreading to erect, flexuose branches. Sometimes however, it grows beneath tall shrubs within dense vegetation; in these situations its branches become slightly elongated (to 60 cm), lax, and more or less prostrate. A similar example of phenotypic plasticity occurs in *A. moirii* subsp. *recurvistipula*.

The subspecific epithet was selected to reflect the overall smaller nature of this taxon relative to subsp. *drewiana*.

22c. subsp. **pungens** B. R. Maslin subsp. nov.—*Fig.* 31*J-K*

Rami antrorse puberuli. *Stipulae* ± spinescentes. *Seta terminalis* 10–18 mm longa, subulata, spinescens; *pinnae* unijugatae; *rhachis pinnarum* 1·5–4·5 mm longa; *pinnulae* 2–3-jugae, manifeste revolutae, glabratae. *Pedunculi* 7–10 mm longi.

Type: Boxvale, *Miss Julia Wells* s.n. (holo: MEL 49593).

Branches antrorsely puberulous. *Stipules* ± spinescent, 5–6 mm long, straight or reflexed. *Terminal seta* 10–18 mm long, rigid, subulate, spinescent, straight or reflexed; *pinnae* 1 pair; *pinna rachis* 1·5–4·5 mm long, apex linear; *pinnules* 2–3 pairs, prominently revolute, glabrescent. *Gland* situated on upper surface of terminal seta near its base. *Peduncles* 7–10 mm long; *flowers* 14–16 per head. *Calyx lobes* ciliolate (without the additional spreading hairs of supsp. *drewiana*); *corolla* ca. 2 mm long. *Seeds*—see species description.

Distribution and habitat: (Map 5) South-west Western Australia: recorded from Boxvale (the location of which is somewhat doubtful) and from near Wannamal (about 95 km north of Perth). The only information to hand regarding the habitat requirements of subsp. *pungens* is that the Wannamal specimen was collected in gravelly soil in Wandoo woodland (*Eucalyptus wandoo* Blakely).

WESTERN AUSTRALIA: 7 miles E of Wannamal, *A. S. George* 5937, 8 Nov. 1963—in fruit (NSW, PERTH).

Acacia drewiana subsp. *pungens* is a rare taxon. The consistently unijugate leaves and the large, subulate, pungent terminal setae readily distinguish it from the other subspecies. Superficially it resembles some forms of *A. lasiocarpa* Benth., but there is no real affinity between these taxa.

Throughout this revision, the apical portion of the primary leaf axis distal to the uppermost pair of pinnae (even when only one pair is present) has been referred to as the terminal seta (see Maslin, 1972). To remain consistent, the large, subulate, pungent structure which forms the entire leaf axis on subsp. *pungens*, is called the terminal seta, although perhaps more accurately it should be termed the rachis.

The subspecific epithet refers to the pungent terminal seta which is diagnostic for this taxon.

23. Acacia gilbertii Meisn. in Lehm., Plant. Preiss. 2:204 (1848). *Type:* "Swan River, 'Vasse and Augusta road', m. Dec. 1842. *Gilbert*, No. 50." (iso: K—photograph seen)—*Fig.* 32

Acacia nigricans (Labill.) R.Br. var. *subracemosa* Meisn. in Lehm., Plant Preiss. 2:204 (1848). *Type:* " Swan River, *Drummond.* coll. II. No. 157." (iso: K—photograph seen: MEL 49404—probable isotype).

Shrub ca. 1 m tall; *branches* finely ribbed, red to brown, smooth, glabrous; axillary spines absent. *Stipules* caducous. *Leaves* bipinnate, glabrous; *petiole* prominent, 8–14 mm long, the vertically flattened rib above dilated towards the terminal seta; *rachis* 5–10 mm long; *pinnae* 1 (2) pairs; *pinna rachis* 20–40 mm long; *pinnules* 3–7 pairs, normally narrowly oblong, 8–20 x 3–5 mm, flat, light green (reddish on new shoots), midvein fine, a second less conspicuous nerve often diverges from the petiolule. *Gland* obliquely terminating rib on upper surface of petiole below proximal pinnae, an additional gland present or absent on upper surface of rachis below distal pinnae in 2-jugate leaves; a small gland sometimes occurs on upper surface of pinna rachis below insertion of lowermost pair of pinnules; sessile, oval, 0·6–1·5 mm long, lip not prominent. *Inflorescences* simple but sometimes apparently racemose due to leaf reduction; *peduncles* 1–2 per axil, glabrous, base ebracteate at anthesis; *flower heads* white, globular, with 2–8 flowers. *Bracteoles* sessile, caducous. Flowers 4-merous, glabrous; *calyx* 1/5–1/4 length of corolla, truncate or sinuate-toothed, nerveless; *petals* 2–3 mm long, free, nerveless or obscurely 1-nerved; *ovary* stipitate, glabrous. *Legumes* hard and somewhat brittle, narrowly oblong, 10–30 x 4–5 mm, flat, slightly raised over seeds, glabrous, light to dark brown; *margins* not contracted between seeds, thickened. *Seeds* longitudinal in legume, oblong to elliptic, 3·5–4 x 2–2·5 mm, dark brown, shiny; *pleurogram* prominent, continuous or with a narrow opening towards the hilum; *funicle* filiform, abruptly expanded into a thickened once-folded aril.

Distribution: (Map 11) South-west Western Australia: occurring sporadically from York southward to near Augusta and Denmark.

WESTERN AUSTRALIA: 6·5 mi W of Pemberton, *E. M. Bennett* 3203 (B, MO, PERTH); Near Nannup, *W. E. Blackall* s.n., late Dec. 1930; Dryandra, *A. L. Clifton* 10; Western Australia, *J. Drummond* 314 (MEL); Denmark, *C. A. Gardner* 407; Pemberton, *M. Koch* 2271 (MEL); Between 187 and 188 mile pegs on Bussell Highway, *B. R. Maslin* 476 (AD, MEL-NSW, PERTH); 5 mi S of Witchcliffe on Bussell Highway, *B. R. Maslin* 1603; Mount Bake, well, *Preiss* 891 (MEL); Forest Grove, *R. D. Royce* 3977; 4 mi from York, *O. H. Sargent* s.n., 22 June 1924.

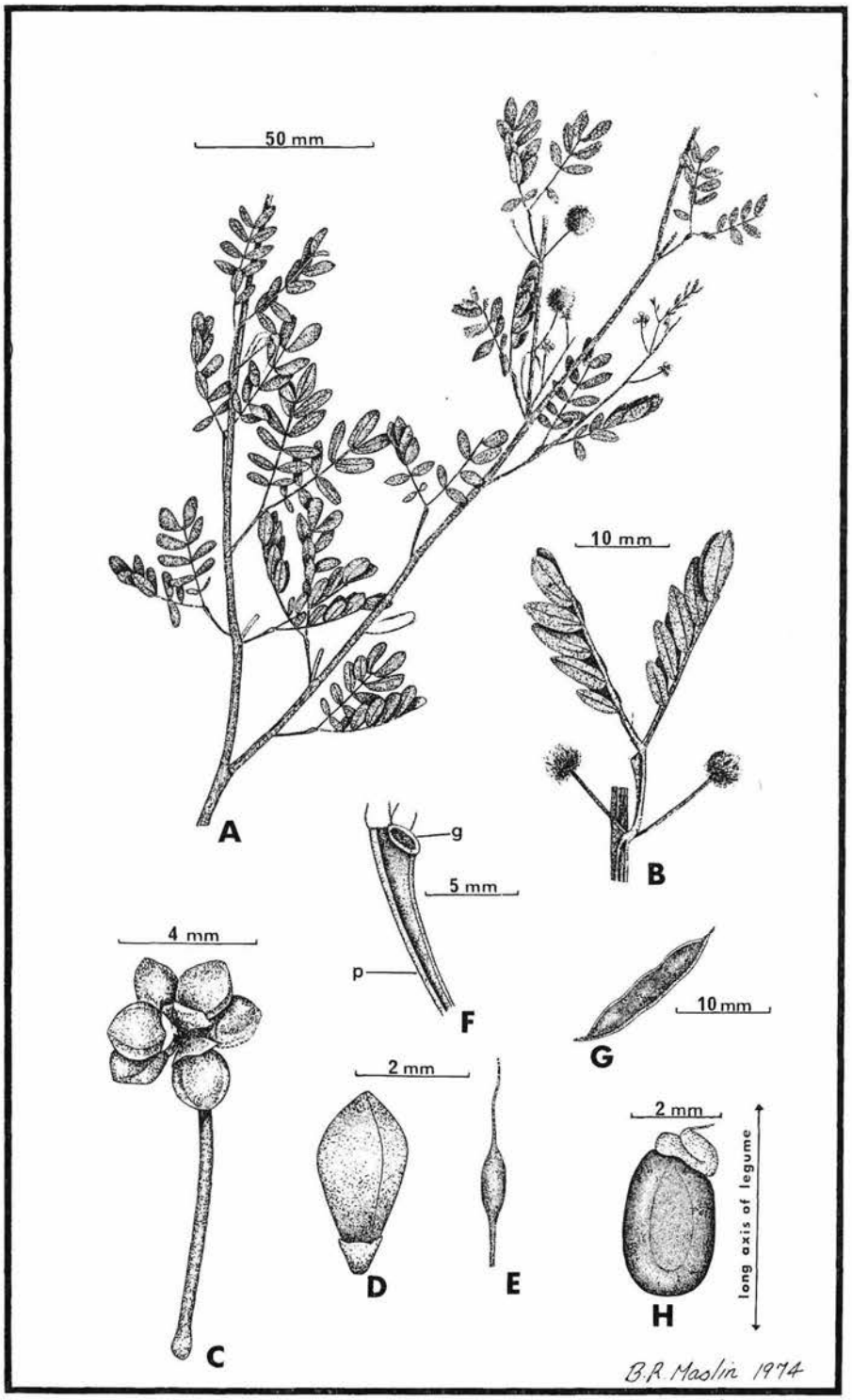
Flowering and fruiting period: Flowers from December to March; mature legumes appear in August and persist on some bushes until December.

Bentham (1864, p.417) included the type of *A. nigricans* (Labill.) R.Br. var. *subracemosa* Meisn. (*Drummond* II:157) in the list of specimens cited under *A. gilbertii*. Mr. L. Pedley, while Australian Botanical Liaison Officer at Kew in 1972, compared the types of these two taxa (which are mounted on the same herbarium sheet) and commented that they agree with each other in almost every detail. The present author has inspected a photograph (from Kew) of these types and it is apparent that they represent the same taxon.

The white, 4-merous flowers, and the small, truncate or sinuate-toothed calyces render *A. gilbertii* unique within the series *Pulchellae*. It is interesting to note the similarity in flower structure between this species and the phyllodinous taxa, *A. myrtifolia* (Sm.) Willd. and *A. celastrifolia* Benth. Other interesting characters found in *A. gilbertii* include its ebracteate peduncles, 2 to 8 flowers per head, sessile caducous bracteoles, stipitate ovaries, and longitudinal seeds.

Acacia gilbertii is not closely related to any species in the *Pulchellae* but as it has smooth, glabrous, red to brown branches, and large pinnules, it bears a superficial resemblance to *A. leioderma* B. R. Maslin. In addition to the

Figure 32—*Acacia gilbertii*. A—portion of branch system. B—Node. C—Inflorescenec. D—Flower showing ± truncate calyx. E—Stipitate ovary. F—Gland (g) obliquely terminating the vertically flattened rib on upper surface of petiole (p). G—Legume. H—Seed. A from *R. D. Royce* 3977; B, F-H from *B. R. Maslin* 1603; C-E from *Blackall* s.n.


50 mm
A
10 mm
B
g
5 mm
p
F
4 mm
C
2 mm
D
E
10 mm
G
2 mm
H
long axis of legume
B.R. Maslin 1974

characters mentioned above, *A. gilbertii* is distinguished from this species by its caducous stipules, longer petioles, normally unijugate leaves, and the absence of glands between the distal pinnules on the pinnae rechides.

24. Acacia insolita E. Pritzel, Bot. Jb. 35:310, f.36 (1904). *Syntypes:* "Hab. in distr. Darling australi pr. Greenbushes in silvis umbrosis glareosis flor. m. August. (D.3835, E. Pritzel Pl. Austr. occid. 1013)." (Iso-Pritzel 1013: AD. NSW, W.)—*Fig.* 33

Shrub normally 30–60 cm tall, probably producing suckers; *branchlets* ribbed (ribs yellow), green to brown, glabrous or sometimes puberulous; axillary spines absent. *Stipules* ± narrowly oblong, 1–2 (6) mm long, glabrous or ciliolate, light brown. *Leaves* dimorphic, indumentum as on branchlets. *Bipinnate foliage* (normally confined to lower part of plant): *petiole* 7–25 mm long, ± terete to somewhat vertically flattened, straight, lateral rib normally conspicuous; *terminal seta* 1–2 mm long; *pinnae* 1 pair; *pinna rachis* 20–30 (45) mm long, ribbed above; *pinnules* 6–10 pairs, elliptic to narrowly elliptic or somewhat ovate, (3) 4–8 x 1·5–2·5 (4) mm, flat, subglaucous, concolorous, smooth or obscurely wrinkled, nerveless to obscurely 1-nerved (sometimes with an obscure second nerve diverging from the petiolule), minutely apiculate; *gland* absent. *Phyllodes* (confined to upper part of branches): linear, 10–60 x 1–3 mm, flat, midrib prominent, shortly apiculate (apiculum straight on uncinate); *pulvinus* 0·5–1 mm long, obscurely rugose; *gland* absent. *Inflorescences* simple; *peduncles* solitary, normally confined to the axil of the phyllodes, 6–12 mm long, minutely puberulous, base ebracteate at anthesis; *flower heads* yellow, globular, 7–9 mm diam. at anthesis, with 14–17 flowers. *Bracteoles* 1–1·5 mm long. *Flowers* 5-merous; *calyx* 1/2 length of corolla, divided for ca. 1/4 its length into oblong to triangular ciliolate lobes, tube glabrous to sparsely puberulous and normally prominently 5-nerved; *petals* ca. 2·5 mm long, glabrous, 1-nerved (nerve thickened and prominent at apex of petals). *Legumes* somewhat hard and brittle, narrowly oblong, 45–50 x 7 mm, reticulate, flat, slightly raised over seeds, glabrous, light to dark brown; *margins* not (or only slightly) contracted between seeds, prominently thickened, yellow. *Seeds* transverse to oblique in legume, orbicular to broadly elliptic, 3–3·5 x 3 mm, flattened, dark brown, shiny; *pleurogram* continuous; *aerole* 1·5 x 1 mm; *funicle* filiform, reflexed below a straight abruptly thickened aril.

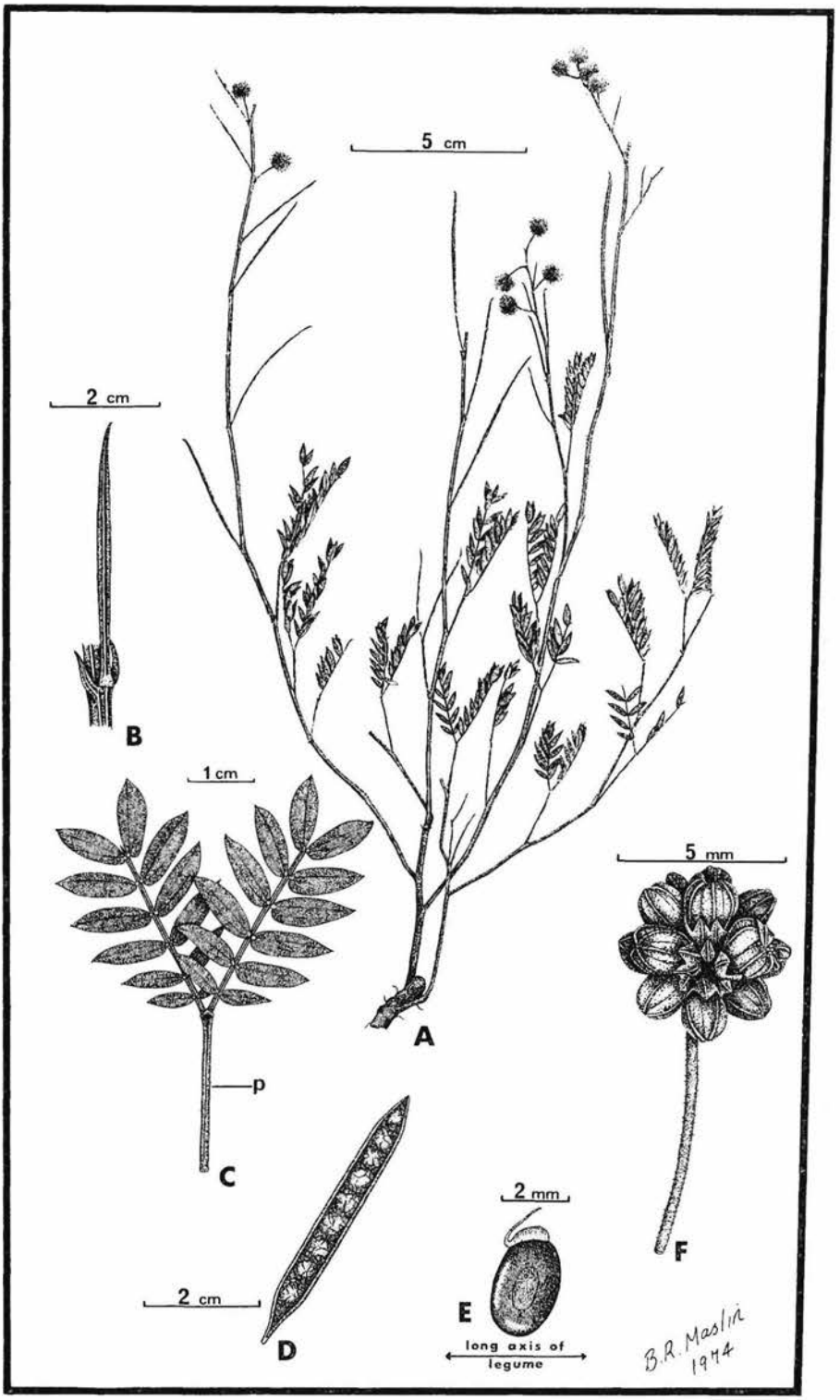
Distribution and habitat: (Map 11) South-west Western Australia: lateritic soil in the Darling Range from Dwellingup to the Bridgetown district; this species has also been collected further to the east from between Pingelly and Narrogin.

WESTERN AUSTRALIA: Collie, *C. Andrews* s.n., July 1905 (NSW, PERTH) also Oct. 1913; Lowden, *M. Koch* 2152 (MEL, NSW, PERTH); Approximately 14 mi E of Dwellingup, *W. Loneragan* 332; West of Popanyining, *F. Lullfitz* 1786; Darkan West, *F. Lullfitz* s.n., 20 July 1962; Marradong, *N. G. Marchant* 4; 7 mi E of Donnybrook on road to Collie, *B. R. Maslin* 615 (AD, MEL, NSW, PERTH); 45 mi SE of Boyup Brook on road to Cranbrook, *B. R. Maslin* 632; Narrogin, *A. J. Milesi* s.n., July 1940; Bridgetown, *I. Olsen* 641 (NSW).

Flowering and fruiting period: Flowers from late June to August; mature legumes have been collected in early December.

The mature foliage in *A. insolita* consists of phyllodes; the bipinnate leaves which occur lower down the branch appear to be persistent throughout the life of the plant. Juvenile plants (where phyllodes have not yet developed)

Figure 33—*Acacia insolita.* A—Mature plant with phyllodes at apex of branches and bipinnate foliage towards base. B—Phyllode. C—Bipinnate leaf with long petiole (p). D—Legume. E—Seed. F—Flower head.
A from *C. Andrews* s.n., July 1905; B-C from *N. G. Marchant* 4; D-E from *C. Andrews* s.n., Oct. 1931; F from *F. Lullfitz* 1786.


5 cm
2 cm
B
1 cm
p
C
A
5 mm
F
2 mm
E
long axis of legume
2 cm
D
B.R. Maslin 1974

can be recognized by their relatively large, unijugate leaves, their long, eglandulose petioles, and their flat, minutely apiculate, quite numerous pinnules. Inflorescences are generally not developed until the mature, phyllodinous foliage is produced.

Judging from some herbarium sheets, it appears likely that *A. insolita* produces suckers; however, this is yet to be confirmed by field observations.

Because *A. insolita* has traditionally been included in the *Pulchellae*, I have accepted it for the purpose of the present revision. However, it is highly unlikely that the natural affinity of this species is with the *Pulchellae;* the development of phyllodes alone would exclude it from this Series. Also, the eglandulose petioles are very unusual for this group. The true position of *A. insolita* within the genus *Acacia* is somewhat obscure.

Dubious names

Acacia subtilis Hoffmannsegg, Verz. Pflkult. Nachtr. 2:43 (1826). This species was described from vegetative material; it was apparently cultivated under the name *A. pulchella.* Having examined the original description of *A. subtilis* I am unable to apply this name with certainty to any known member of the *Pulchellae.*

Excluded species

Acacia shirleyana Domin., Bibl. Bot., Stuttgart 89:826 (1926) = *Dichrostachys spicata* (F. Muell.) Domin. I have examined the type of *A. shirleyana*, "N.W. Australia: inter flum. Ashburton et De Gray River. legit E. Clement"—PR) and this specimen is definitely *Dichrostachys spicata.* It is interesting to note that in the same publication as *A. shirleyana* was described, Domin made the new combination *D. spicata* (based on *Neptunia spicata* F. Muell.) and cited the following specimens: "zwischen Ashburton—und Yule, Ashburton—und De Gray River, E. Clement." It will be noted that the second locality is identical to the one given on the type of *A. shirleyana.*

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Assistance with the revision of the *Pulchellae* has been received from many sources both at the institutional and personal level. Although it is not possible to mention everyone individually, the author extends his sincerest thanks to all those from whom help has been received. Special mention must be made of the generosity of the National Herbarium of Victoria for donating to the W.A. Herbarium fragments of many *Acacia* type specimens (including some *Pulchellae.*) I am particularly indebted to Mr. Arthur Court (CBG) for his valuable advice on some nomenclatural matters and in particular for allowing me access to much of his manuscript material on Australian *Acacia* species. Mr. Alex George is also gratefully acknowledged for checking my Latin descriptions.

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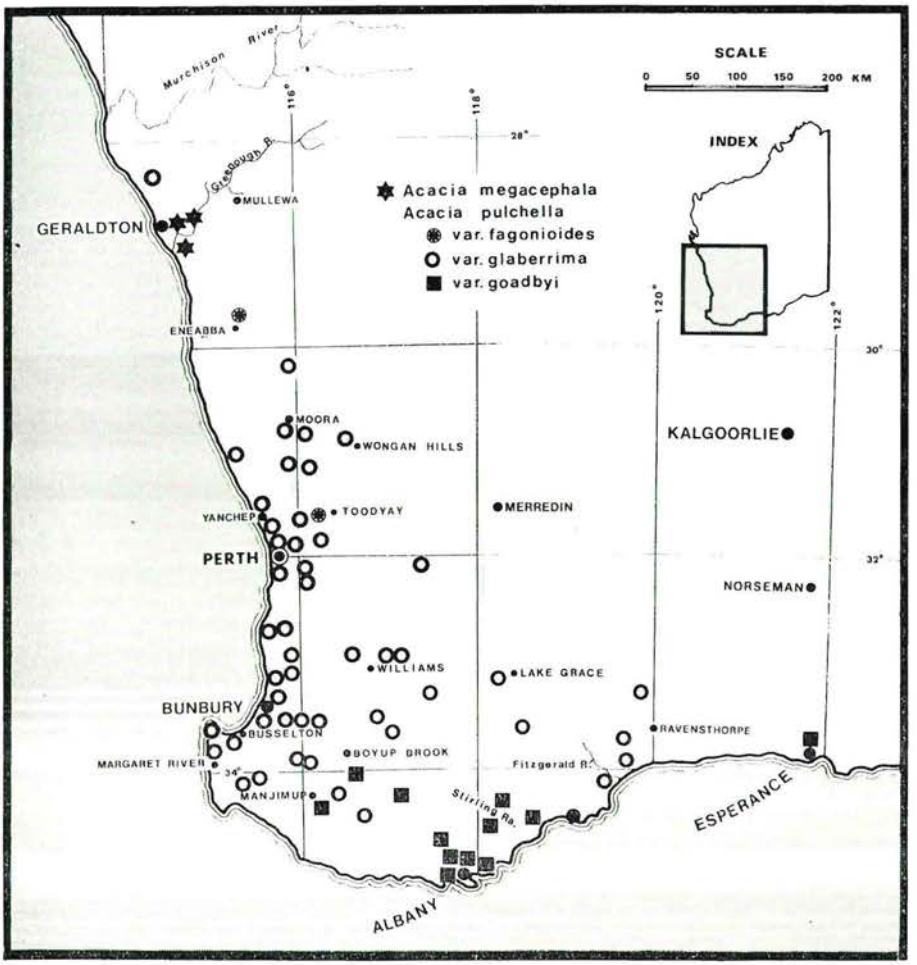
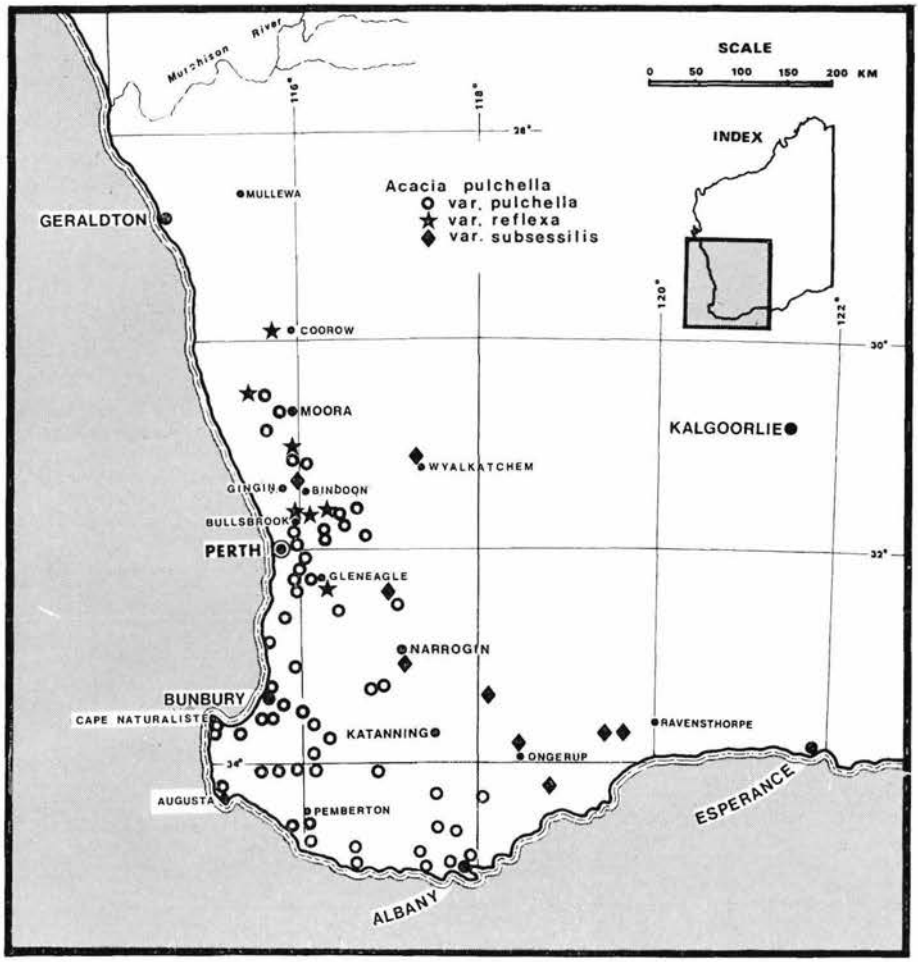
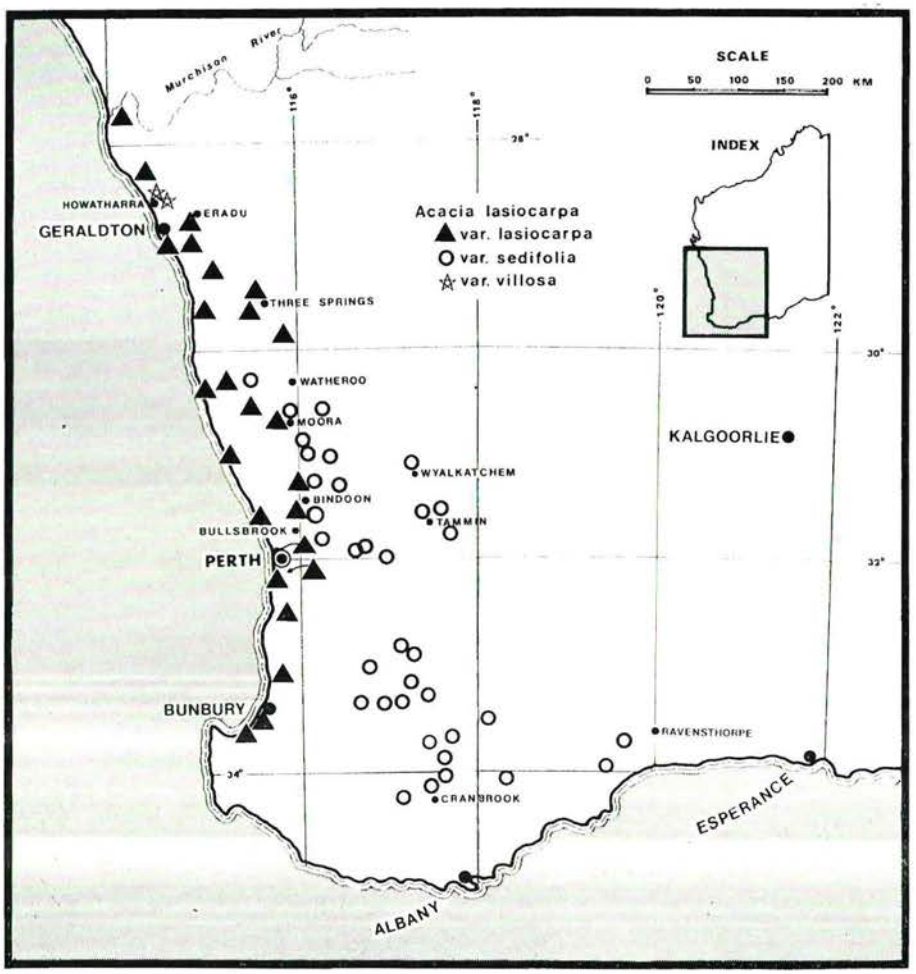


Map 1—Distribution of *Acacia megacephala*, *A. pulchella* var. *fagonioides*, var. *glaberrima*. and var. *goadbyi*.

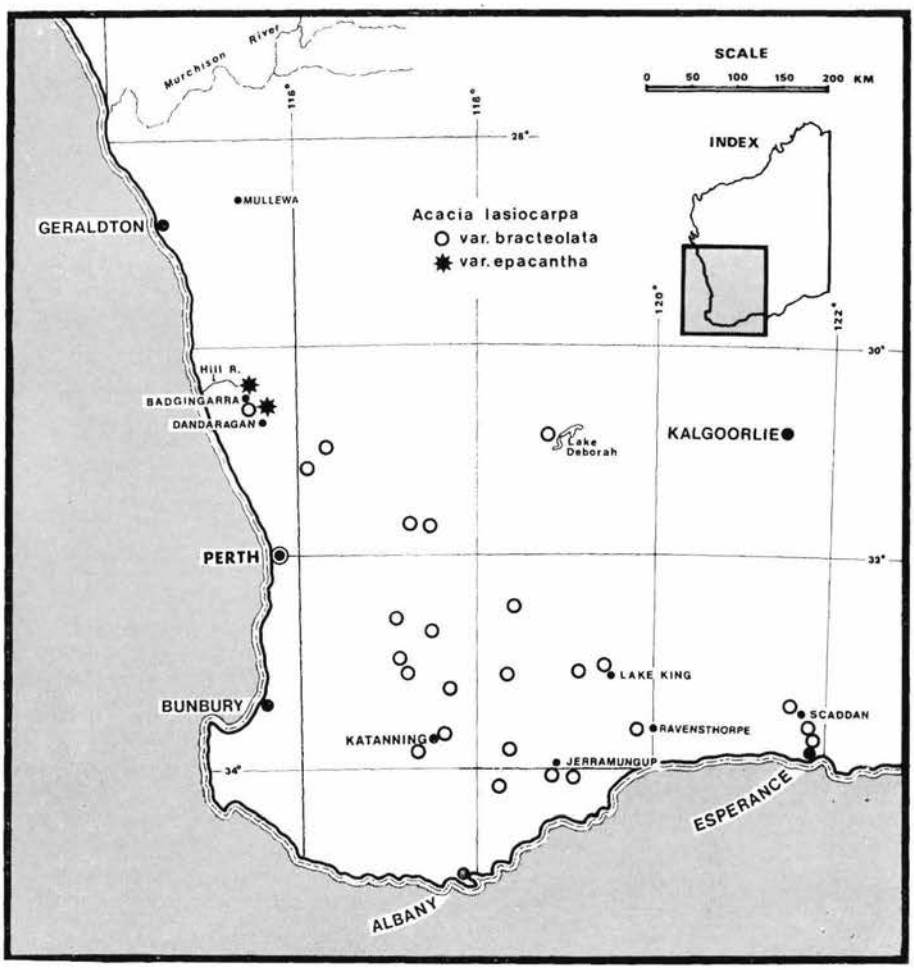


Map 2—Distribution of *Acacia pulchella* var. *pulchella*, var. *reflexa* and var. *subsessilis*.

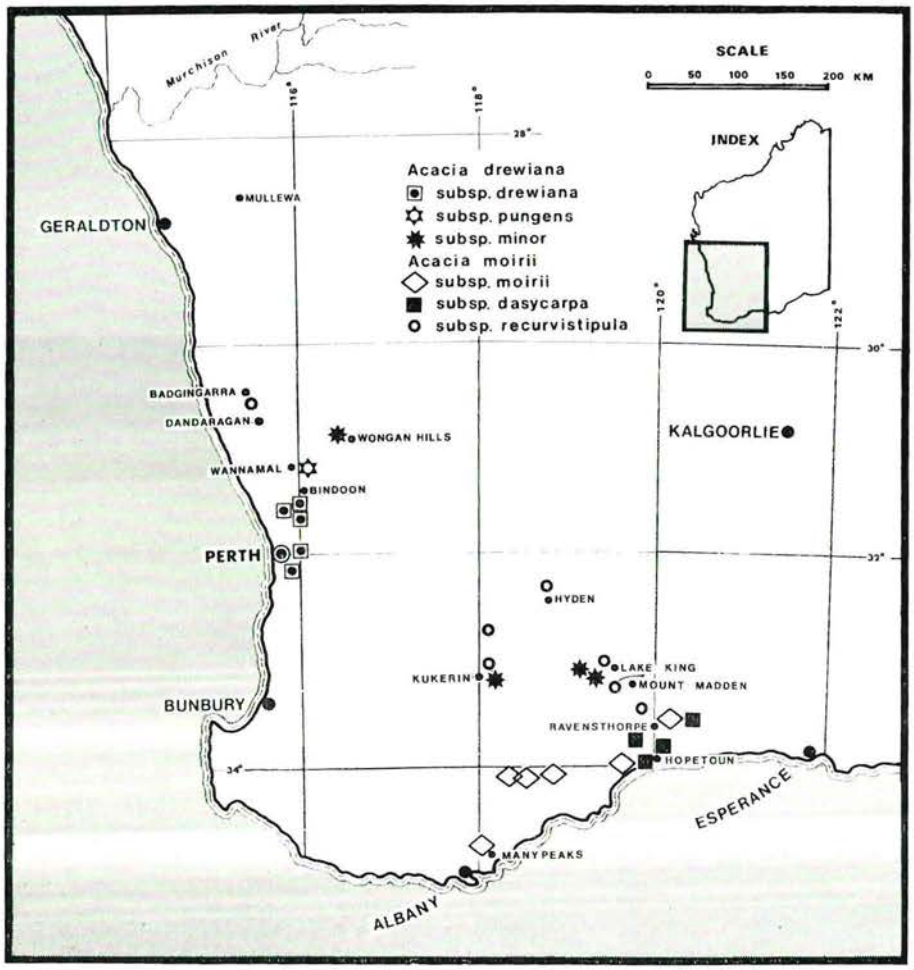
41539—(4)



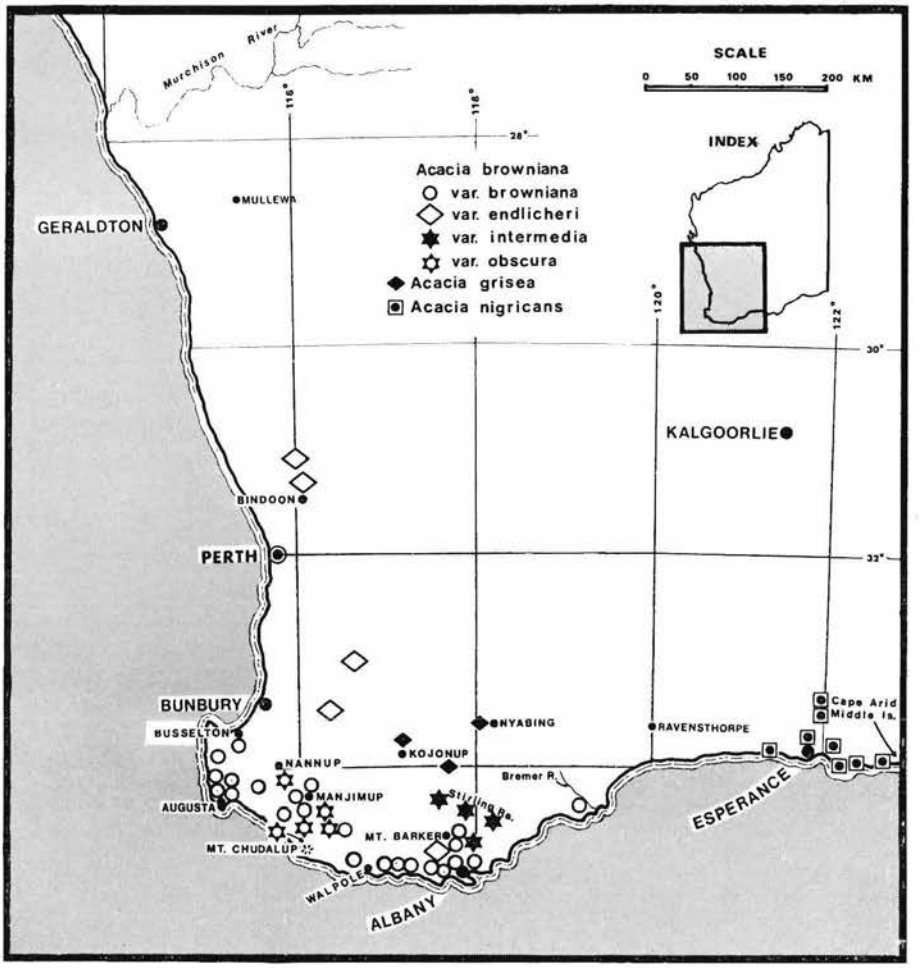
Map 3—Distribution of *Acacia lasiocarpa* var. *lasiocarpa*, var. *sedifolia* and var. *villosa*.



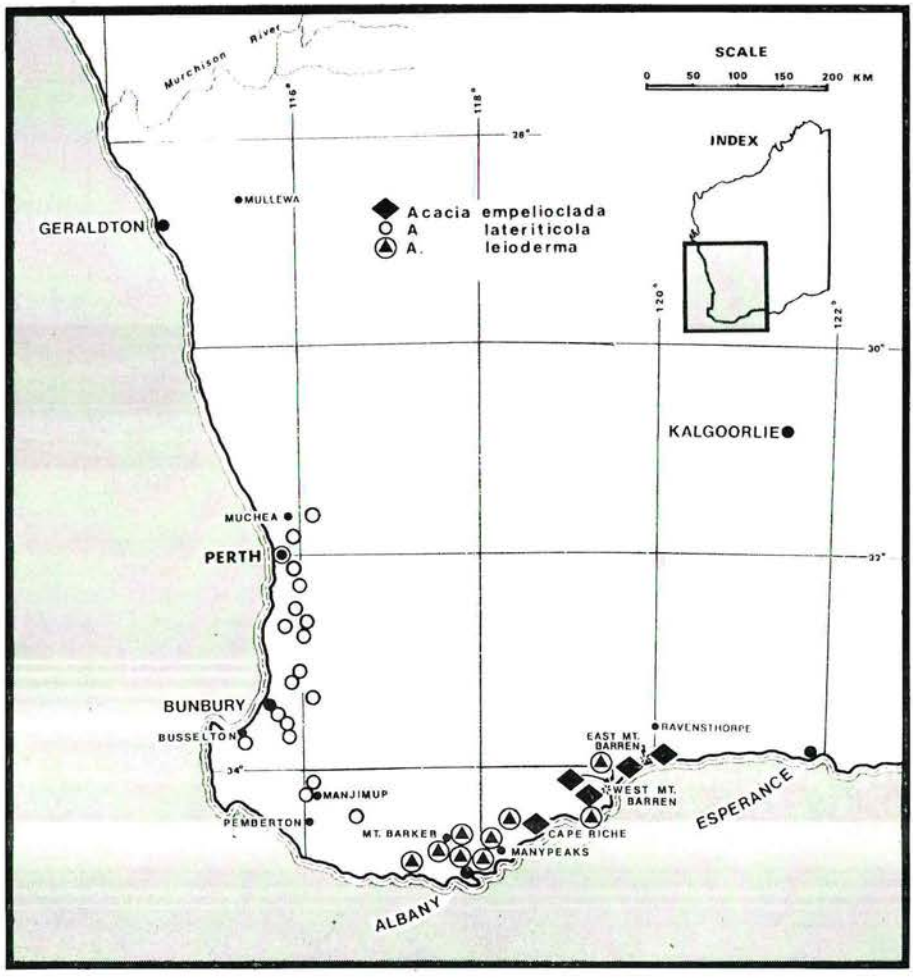
Map 4—Distribution of *Acacia lasiocarpa* var. *bracteolata* and var. *epacantha*.



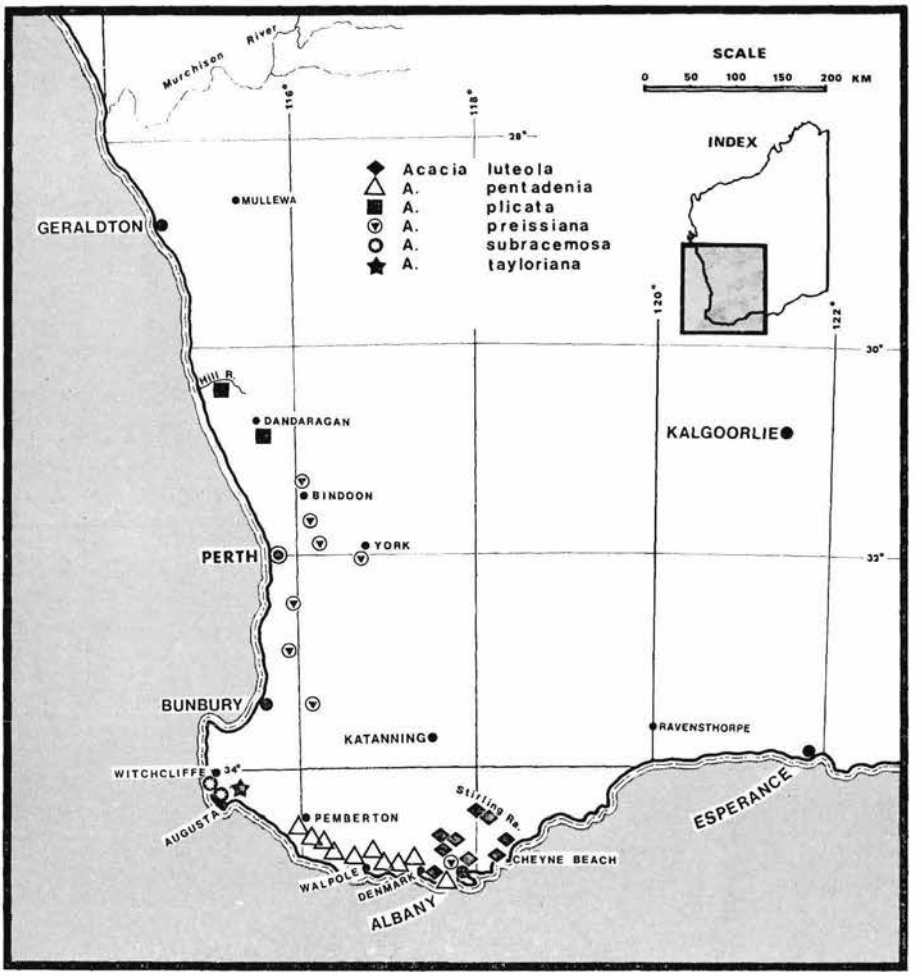
Map 5—Distribution of *Acacia drewiana* and *A. moirii*.



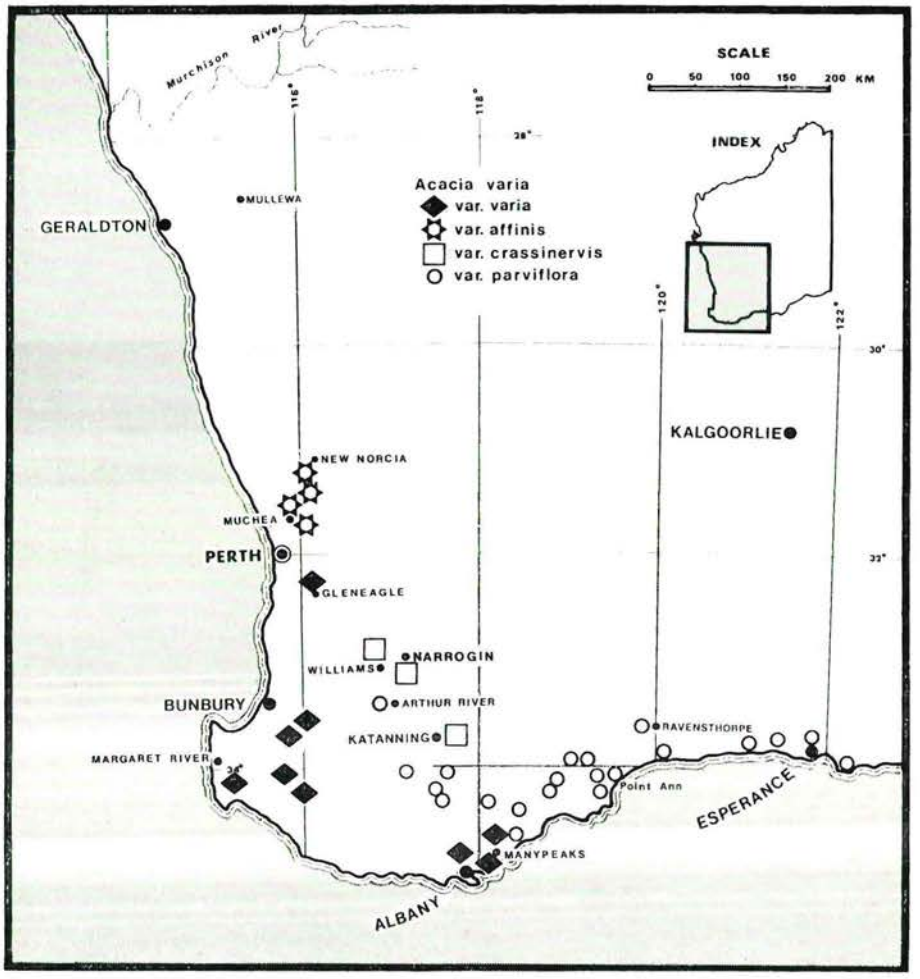
Map 6—Distribution of *Acacia browniana*, *A. grisea*, and *A. nigricans*.



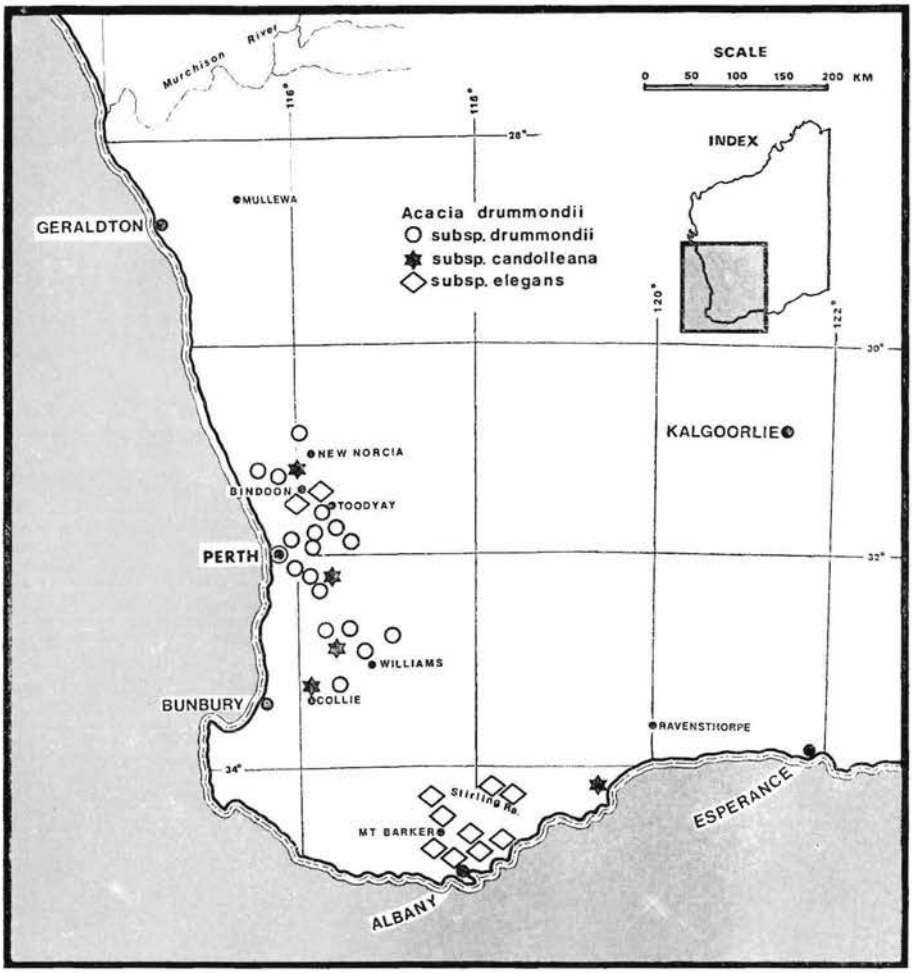
Map 7—Distribution of *Acacia empelioclada*, *A. lateriticola* and *A. leioderma*.



Map 8—Distribution of *Acacia luteola, A. pentadenia, A. plicata, A. preissiana, A. subracemosa* and *A. tayloriana.*

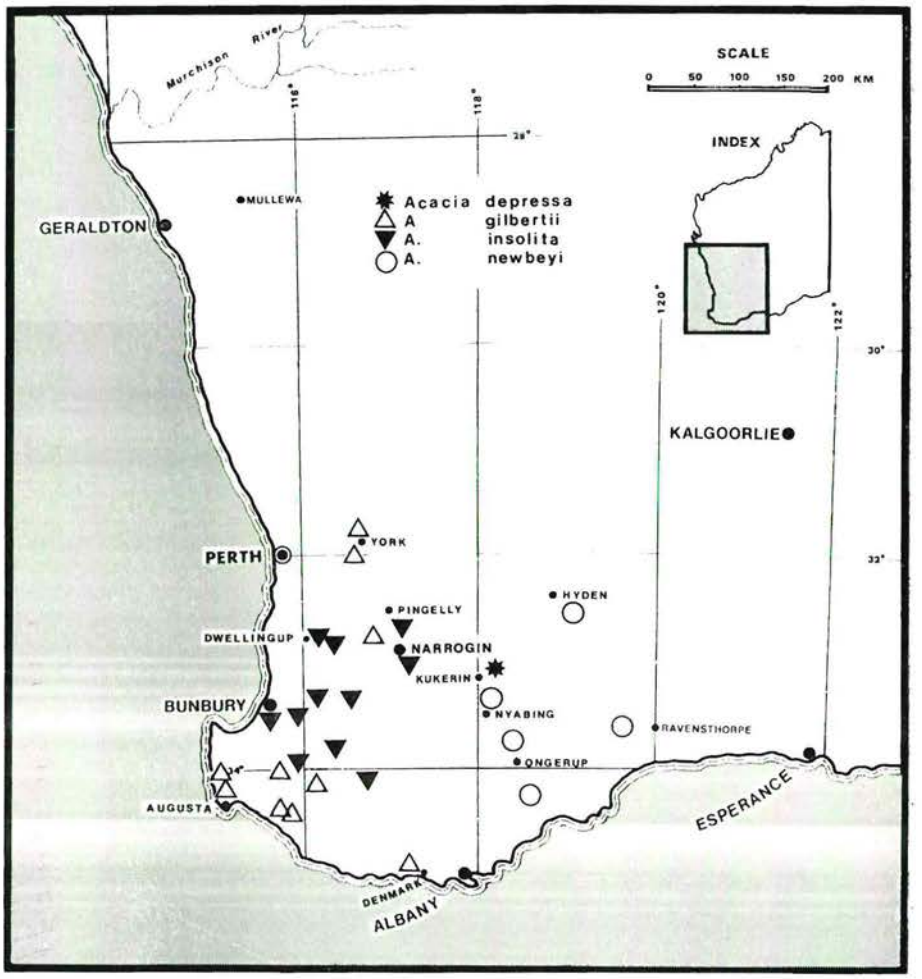


Map 9– Distribution of *Acacia varia*.



Map 10—Distribution of *Acacia drummondii*.

41539—(5)



Map 11—Distribution of *Acacia depressa*, *A. gilbertii*, *A. insolita* and *A. newbeyi*.

Index to names

New names are in **bold** type, accepted names in Roman, others in *italics*. Numbers refer to the page.

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