JOURNAL of the ADELAIDE BOTANIC GARDENS

AN OPEN ACCESS JOURNAL FOR AUSTRALIAN SYSTEMATIC BOTANY

flora.sa.gov.au/jabg

Published by the
STATE HERBARIUM OF SOUTH AUSTRALIA
on behalf of the
BOARD OF THE BOTANIC GARDENS AND STATE HERBARIUM

State Herbarium of South Australia
PO Box 2732
Kent Town SA 5071
Australia

Government of South Australia
Department of Environment, Water and Natural Resources

Board *of the* Botanic Gardens *and* State Herbarium

J. Adelaide Bot. Gard. 2(3): 241-252 (1980)

A REVISION OF *IXIOCHLAMYS* (ASTERACEAE:ASTEREAE)

C.R. Dunlop

Department of Primary Production,
P.O. Box 5160, Darwin, Northern Territory, 5794

Abstract

The Australian endemic genus *Ixiochlamys* F. Muell. et Sond. ex Sond. is revised. Four species are recognised, two of which are newly described, viz. *I. filicifolia* Dunlop and *I. integerrima* Dunlop. Illustrations, maps showing distribution and ecological notes are provided for each species.

Introduction

Ixiochlamys was described by Mueller and Sonder in Sonder (1853). The type of *Ixiochlamys*, *I. cuneifolia*, was based on *Podocoma cuneifolia* R.Br., the type species of *Podocoma* R.Br. Brown's name, published in 1849, was a later homonym of a South American genus (also in Asteraceae), described by Cassini (1817).

Curiously, Bentham (1867) believed the South American and Australian genera of the same name to be congeners, placing *Ixiochlamys* in synonymy with *Podocoma*. He mistakenly attributed the latter name to Lessing.

Subsequent authors regarded *Podocoma* as a genus of South America and Australia until Grau (1975) showed that the species of the two continents belonged to separate genera. *Podocoma* Cass. is thus regarded as extra-Australian and *Podocoma* R.Br., the later homonym, is replaced by the first legitimate name for the Australian species, *Ixiochlamys* F. Muell. et Sond. ex Sond.

Ixiochlamys F. Muell. et Sond. ex Sond.

Ixiochlamys F. Muell. et Sond. ex Sond., Linnaea 25:466(1853).

Type: *Ixiochlamys cuneifolia* (R.Br.) F.Muell. et Sond. ex Sond. (≡ *Podocoma cuneifolia* R.Br.

Podocoma R.Br. in Sturt, Exped.Centr.Aust. 2, app 80 (1849), *nom. illeg.*, non Cass. (1817).

Type: *Podocoma cuneifolia* R.Br.

[*Podocoma* auct. non Cass., Bull. Soc. Philom. 137(1817):Benth., Fl. Aust. 3:492(1867); Bailey, Queensl. Fl. 3:808 (1900); Black. Fl. S. Aust. edn 1:596(1929), edn 2:866 (1957).]

Annual or perennial *herbs* or *sub-shrubs*. Stems and leaves covered to varying degrees in multiseptate trichomes and glands or in one species glabrescent to glabrous and eglandular. *Leaves* simple, cauline, alternate, sessile. *Capitula* heterogamous, solitary, on long axillary peduncles. *Phyllaries* narrow-lanceolate to linear, in several series, imbricate; reflexed after fruiting. *Receptacles* flat or slightly convex, epaleaceous. *Florets* numerous. *Marginal florets* mauve to white, in several series, female, fertile, ligulate. *Disc florets* yellow, usually fewer than marginal, bisexual with fertile achenes or functionally male; anthers without tails. *Achenes* flattened, smooth, with a filiform beak supporting the pappus; body of the achenes glabrous or covered to varying degrees with duplex hairs, glandular or eglandular. *Pappus* persistent, uni- or multiseriate; bristles very shortly plumose.

Distribution

In arid areas of the Northern Territory, Queensland, New South Wales, South Australia and Western Australia.

Affinities

Ixiochlamys is here considered to belong to the tribe Astereae where it has been placed by Grau (1977). Within Astereae, *Ixiochlamys* is readily distinguished from other Australian members by the smooth, beaked achenes and persistent pappus. With the exception of *Dichromochlamys* Dunlop, none of the Australian genera of Astereae could be considered to be closely related to *Ixiochlamys*. The relationship between these two genera is discussed in a separate paper on *Dichromochlamys* (Dunlop, 1980). The following key is provided to distinguish *Ixiochlamys* and *Dichromochlamys*:

Achenes beaked; receptacles flat or nearly so; involucres reflexed after fruiting..... *Ixiochlamys*
Achenes without beaks; receptacles conical; involucres remaining incurved after fruiting. *Dichromochlamys*

Podocoma Cass., probably the closest relative of *Ixiochlamys* outside Australia, is separated by Grau (1975) on a number of characters including achene structure, flower colour and shape of the style in the disc florets.

Within *Ixiochlamys*, *I. filicifolia* and *I. nana* stand together: both are annual with similar foliage and both have fertile disc florets. *I. cuneifolia* and *I. integerrima* are not closely related to each other or to the above species. They have in common pseudo-hermaphrodite disc florets and a perennial life-form but differ markedly in their foliage, vestiture and involucres.

Notes

The occurrence of the annual species, *I. filicifolia* and *I. nana* is shown on Maps 1 and 2 in relation to the zero isohyet for the month of May (Plumb, 1977). The configuration of this isohyet is similar in June. The isohyet represents the limit of early winter rains (May, June), which are responsible for the germination of many of the annual forbs, particularly the composites (Slatyer, 1962; Mott and McComb, 1975). The occurrence of *I. filicifolia* and *I. nana* is clearly determined by this early winter rainfall pattern. The distribution of *I. cuneifolia*, a perennial, is apparently also influenced by the rainfall pattern (Map 1). As will be discussed under that species, its occurrence is also dependent on topography.

I. integerrima, besides being independent of early winter rainfall (Map 2), has a different life-form from the other species. This relationship between life-form and geographical occurrence will be examined more fully under the species treatment.

Key to the Species

1. Leaves entire; leaves and involucres eglandular or almost so ..... 2. *I. integerrima*
   Leaves lobed; leaves and involucres glandular 2
2. Sub-shrub; leaves lobed at distal end only ..... 1. *I. cuneifolia*
   Annual; leaves deeply divided or lobed from the base 3
3. Achenes sparsely sericeous; leaves finely bi- or tripinnatisect ..... 3. *I. filicifolia*
   Achenes glabrous; leaves pinnatifid or bipinnatifid ..... 4. *I. nana*

1. **Ixiochlamys cuneifolia** (R.Br.) F.Muell. et Sond. ex Sond., Linnaea 25:466(1853).

Podocoma cuneifolia R.Br. in Sturt, Exped. Centr. Aust. 2, app. 81(1849).

Type: "In Herbario D. Sturt absque ulla indicatione loci vel stationis". (BM, holotype, (n.v.); DNA, photo).

Sub-shrub to c. 30cm high. Stems and leaves glandular, conspicuously hirsute with spreading white hairs, rarely glabrous. *Stems* decumbent to erect. *Leaves* crowded, spathulate, rarely almost linear, 3-9mm wide near the apex, tapering abruptly below to c. 1mm at base; apex irregularly lobed. *Phyllaries* glandular; inner series 1.3—1.6cm long.

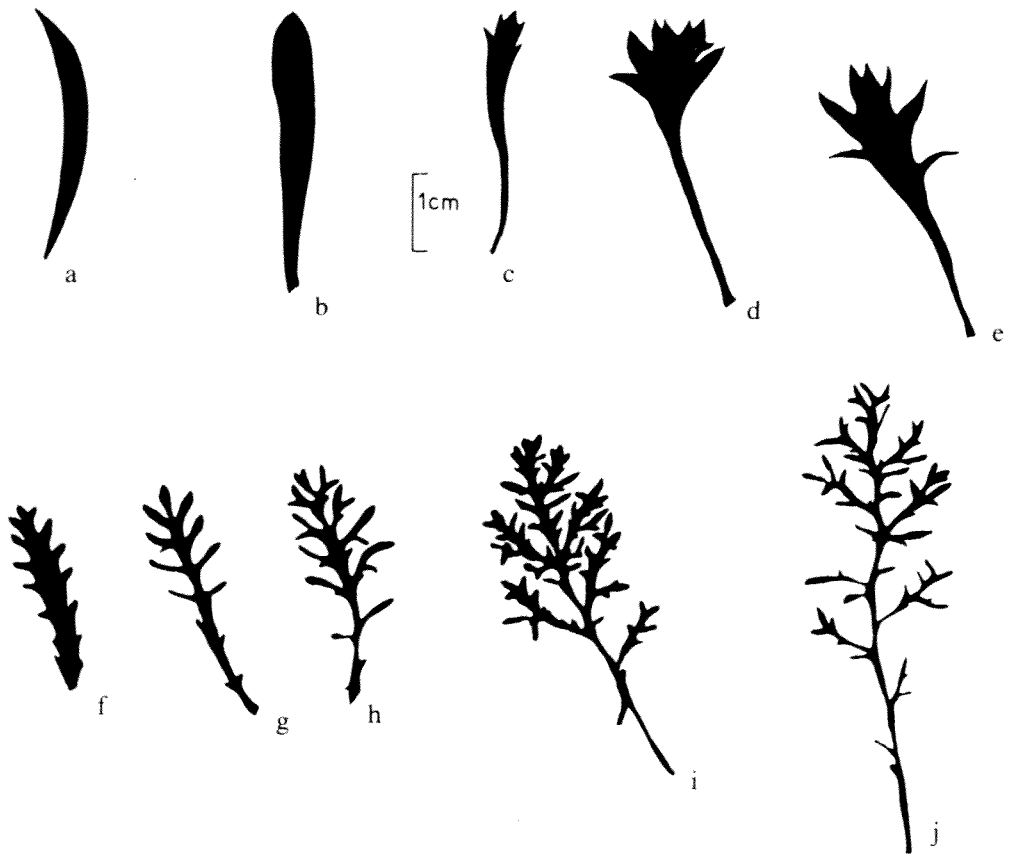


Fig. 1. Leaf outlines in *Ixiochlamys* spp. a, b, *I. integerrima*: a, from *Chippendale NT1456*; b, from *Chippendale NT6410*. c, d, e, *I. cuneifolia*: c, from *Symon 6784*; d, from *Ising 618*; e, from *Cooper s.n.* f, g, h, *I. nana*: f, from *Nelson 2215*; g, from *Lothian 1376*; h, from *Osborn s.n.* 1925. i, j, *I. filicifolia*: i, from *Symon 2190*; j, from *Donner 4487*.

Receptacle 4—10mm wide. Ligules of *marginal florets* c. 0.5mm wide, 3—5mm long, entire. *Disc florets* pseudo-hermaphrodite; ovary vestigial; corollas glandular, 5—6mm long. *Achenes* obovate, c. 2mm long, thinly sericeous in lower three quarters, glabrous above with minute scattered glands; beaks sparsely and minutely glandular, 6—12mm long. *Pappus* of marginal florets 6.5—11mm long, of disc florets 4.5—8mm long; multiseriate, uneven. (Figs 1 & 2.)

Distribution (Map 1)

Northern Territory, New South Wales, South Australia and Western Australia.

Selection of Specimens Examined

NORTHERN TERRITORY: Finke R., *G. Chippendale NT780*, 4.ii.1955 (ADW, CANB, NSW, NT); 12 miles SW. Tempe Downs, *M. Lazarides 6119*, 4.x.1956 (AD, BRI, CANB, NT); Giles Ck, *D.J. Nelson 2157*, 23.ix.1971 (AD, CANB, NSW, NT).

NEW SOUTH WALES: Silverton, *E.F. Constable 4679*, 27.xi.1947 (NSW); Fowlers Gap, *S. Jacobs 1932*, 18.x.1974 (NSW); Depot Glen, *J. Pickard 3127*, 30.x.1976 (NSW).

SOUTH AUSTRALIA: about 50km N. Marree, *R. Hill 1145*, 9.ix.1963 (AD); Parachilna Gorge, *M.C.R. Sharrad 1401*, 31.viii.1963 (AD); W. Brachina Gorge, *D.E. Symon 1382*, 7.ix.1961 (AD); Mt Morris, *D.J.E. Whibley 1015*, 7.ix.1963 (AD).

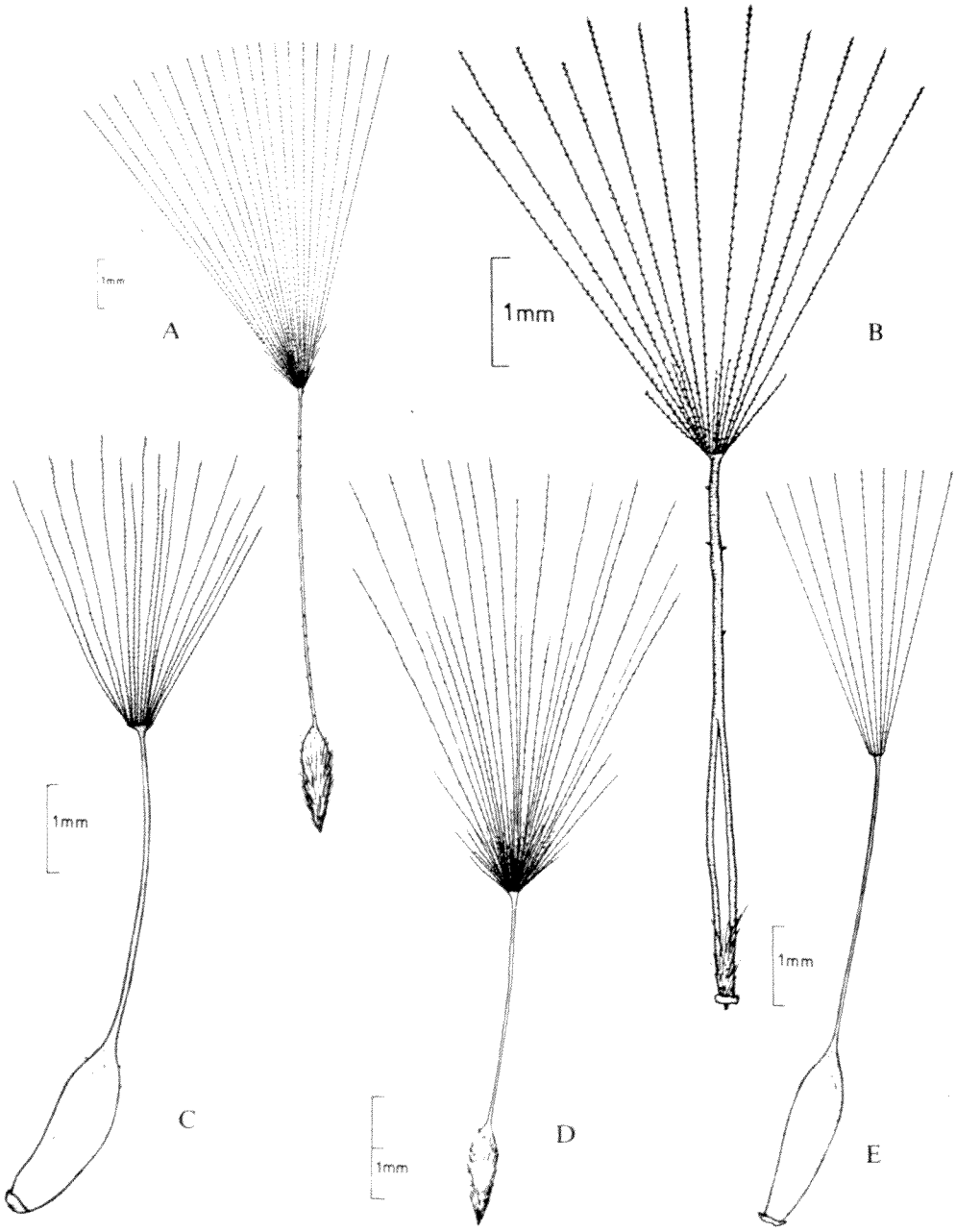


Fig. 2. Achenes of *Ixiochlamys* spp. A, B, *I. cuneifolia* from *Chippendale NT780*: A, marginal achene. B, disc achene (undeveloped). C, *I. integerrima* from *Chippendale NT6410*. D, *I. filicifolia* from *Latz 3163*. E, *I. nana* from *Latz 5125*.

WESTERN AUSTRALIA: 12 miles N. Roy Hill, *J.S. Beard 2807*, 15.viii.1963 (PERTH); Dampier Archipelago, *R.D. Royce 7404*, 13.vi.1962 (PERTH); Mount Augustus Station, *E. Wittwer 1058*, 18.viii.1973 (PERTH).

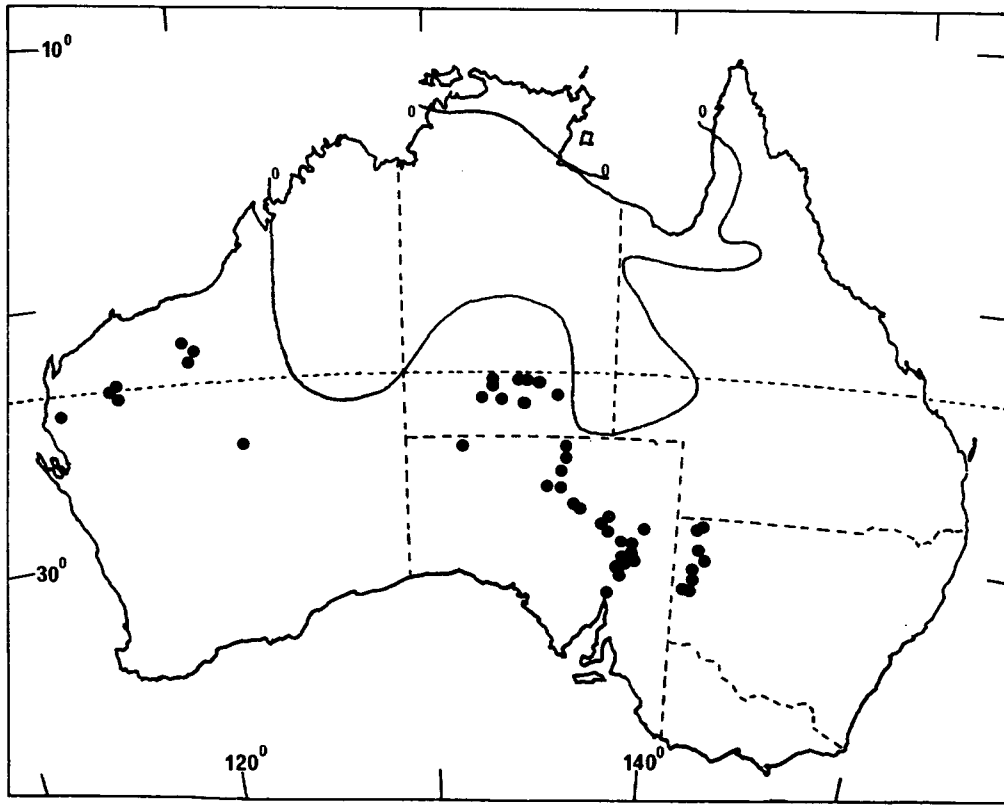
Notes

The type specimen of *Podocoma cuneifolia*, as cited by Brown, was without a locality. A photograph of the type specimen lodged at the British Museum, shows a more recent label with the locality: "On the return, about 32° S Lat. D. Sturt". This locality, reckoned from Sturt's journal (1849), would be in the Barrier Range, New South Wales.

Grau (1975) has detected two types of stigma in the disc florets: one with a short stigmatic region and one without. The implication is that a proportion of the disc florets will produce achenes. In this revision, only the sterile type of stigma has been seen in the central florets and from the mature heads examined it would appear that the disc florets never develop achenes.

In *I. cuneifolia* the vestiture of stiff white hairs on the leaves and stems is a good diagnostic character. In only two specimens examined, *Sharrad 1401* and *Symon 1382*, were these hairs absent. Both collections are from the same area in the Flinders Ranges, South Australia.

The preferred habitats of *I. cuneifolia*, as recorded on specimen labels, are stony and sandy beds of seasonal creeks associated with ranges, and in crevices in rock faces. This preference is reflected in its distribution which is centred in the Barrier Ra. (N.S.W.),



Map 1. Distribution of *Ixiochlamys cuneifolia*.

Flinders and Musgrave Ras (S.A.), MacDonnell Ra. (N.T.) and the Hamersley Ra. in Western Australia. Its absence from the channel country of south western Queensland, an area which would climatically be within its range, is probably due to the absence of this rocky habitat.

2. **Ixiochlamys integerrima** Dunlop; species nova, a congeneris foliis integerrimis eglandulatis differt.

Herba perennis. Caules et folia glabrata, pilis dispersis multiseptatis, basibus latis complanatis et caudis flagelliformibus; axillae foliorum superarum interdum villosae. *Caules* erecti. *Folia* oblanceolata, folia supera lineata, leviter falcata; 0.5—7mm lata, 1.2—9.5cm longa; integra, margines apparenter denticulati praesentia basium latarum pilorum; acuta ad acuminatis. *Phyllaria* linearia, glabra, eglandula vel glandibus minutis sparsis in seriebus externis. *Receptaculum* circa 6mm latum. Ligulae *flosculorum marginalium* conspicuae, 0.5—1mm latae, 5—8mm longae, integrae vel minute lobatae. *Flosculi disci* pseudo-hermaphroditi, ovario vestigiali; corollae circa 3mm longae, glandulosae, glandes filiformes, praecipue in lobis et in medio infra expansam superam partem; corolla persistens. *Achenia* oblonga ad obovatis, leviter curvata et asymmetrica, circa 2mm longa, sparsis perpusillis pilis prope apices. *Pappi* marginalium flosculorum circa 4mm longi uniseriati, inaequales; discorum flosculorum absentium vel redactorum ad unico vel plus rudimentalibus setis.

Typus: 20 miles NW. Georgina Downs H.S., *G. Chippendale NT 6410*, 16.vii.1959 (CANB 285758, holo; AD, BRI, K, NT).

Perennial *herb* to c. 30cm high. Stems and leaves glabrescent with scattered multiseptate hairs with broad flattened bases and long whip-like tails; axils of upper leaves sometimes villous; eglandular. *Stems* erect. *Leaves* oblanceolate, the upper ones linear, slightly falcate; 0.5—7mm wide, 1.2—9.5cm long; entire, the margins appearing finely toothed by the presence of broad hair bases; acute to acuminate. *Phyllaries* linear, glabrous, eglandular or with minute scattered glands on the outer series; inner series c. 8mm long. *Receptacle* c. 6mm wide. Ligules of *marginal florets* conspicuous, 0.5—1mm wide, 5—8mm long, entire or minutely lobed. *Disc florets* pseudo-hermaphrodite; ovary vestigial; corollas persistent, c. 3mm long, glandular, the glands filiform, mainly on lobes and in the middle below the expanded upper part. *Achenes* oblong to obovate, slightly curved and asymmetrical, c. 2mm long with scattered, very short hairs near the apices. *Pappus* of marginal florets c. 4mm long, uniseriate, ± even; of disc florets absent or reduced to one or more rudimentary bristles. (Figs 1, 2, 3.)

Distribution (Map 2)

Northern Territory and Queensland.

Specimens examined

NORTHERN TERRITORY: Hamilton bore to Kunoth Well, *N.T. Burbidge & M. Gray 4348*, 26.ix.1955 (CANB); about 20 miles N. Lake Nash H.S., *G.M. Chippendale NT 1456*, 12.viii.1955 (BRI, MEL, NSW, NT); 20 miles NW. Georgina Downs H.S., *G.M. Chippendale NT 6410*, 17.vi.1959 (AD, BRI, CANB, K, NT).

QUEENSLAND: 2 miles W. Duchess, *C.H. Gittins 725*, v.1963 (BRI, NSW); 43.5km E. Boulia, *G.W. Trapnell & K.A.W. Williams 167*, 22.viii.1973 (BRI).

Notes

I. integerrima is the only species of the genus outside the early winter rainfall zone (Map 2); it occurs just within the monsoonal belt, receiving a regular dry season from May to September (Plumb, 1977). Significantly, the life-form of *I. integerrima* is one commonly seen in the monsoonal region of northern Australia. By the classification of Raunkiaer (1934), *I. integerrima* would be termed a Suffruticose Chamaephyte; the aerial parts of the plant grow during the favourable season, dying back to the perennial root and stem base during the unfavourable (dry) season. Other composites in northern Australia with the same life-form include *Eurybiopsis macrorhiza* DC. and *Vittadinia brachycomoides* F. Muell.

Of the collections examined, only two had data on habitat. The species has been recorded from clay loam and limestone-derived soils.

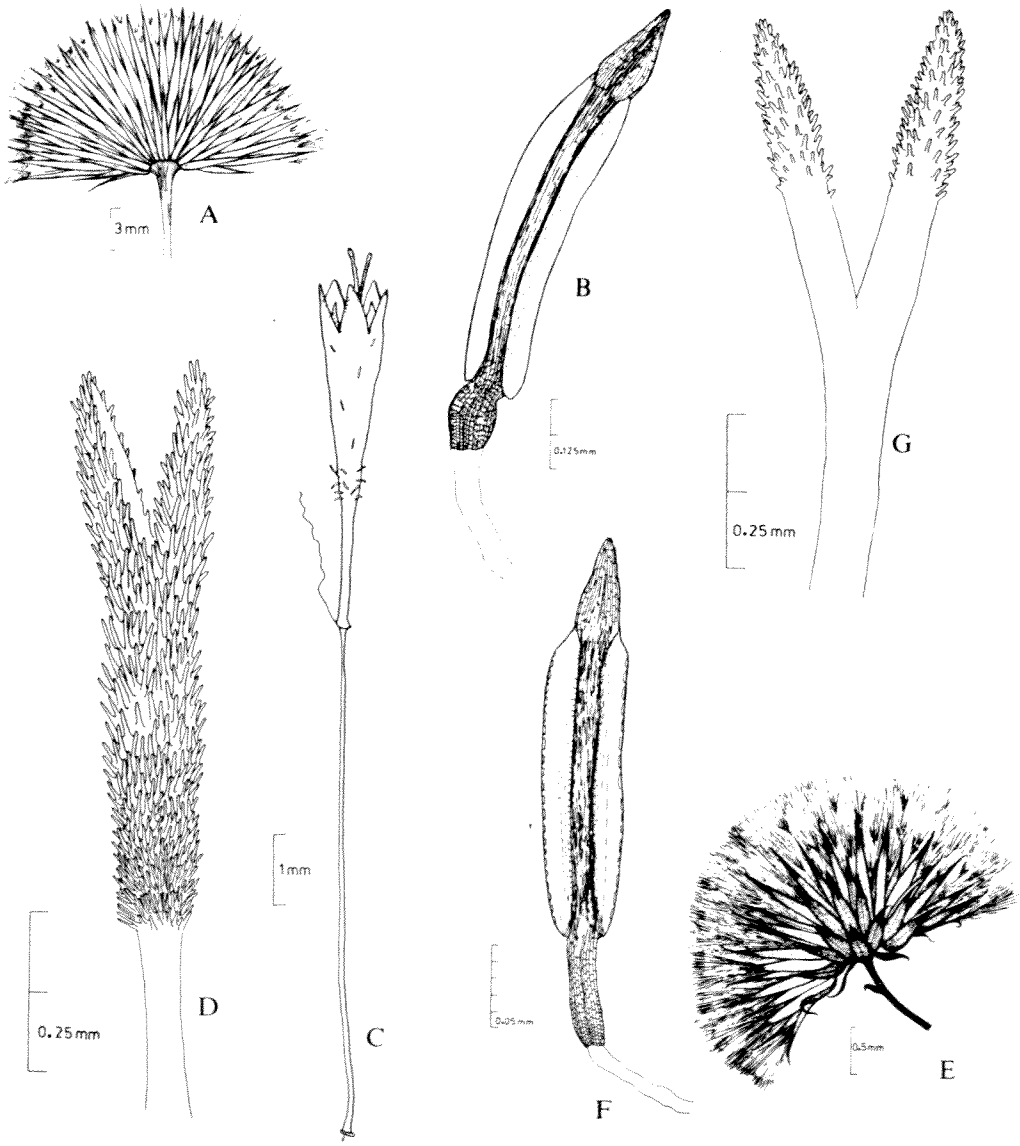
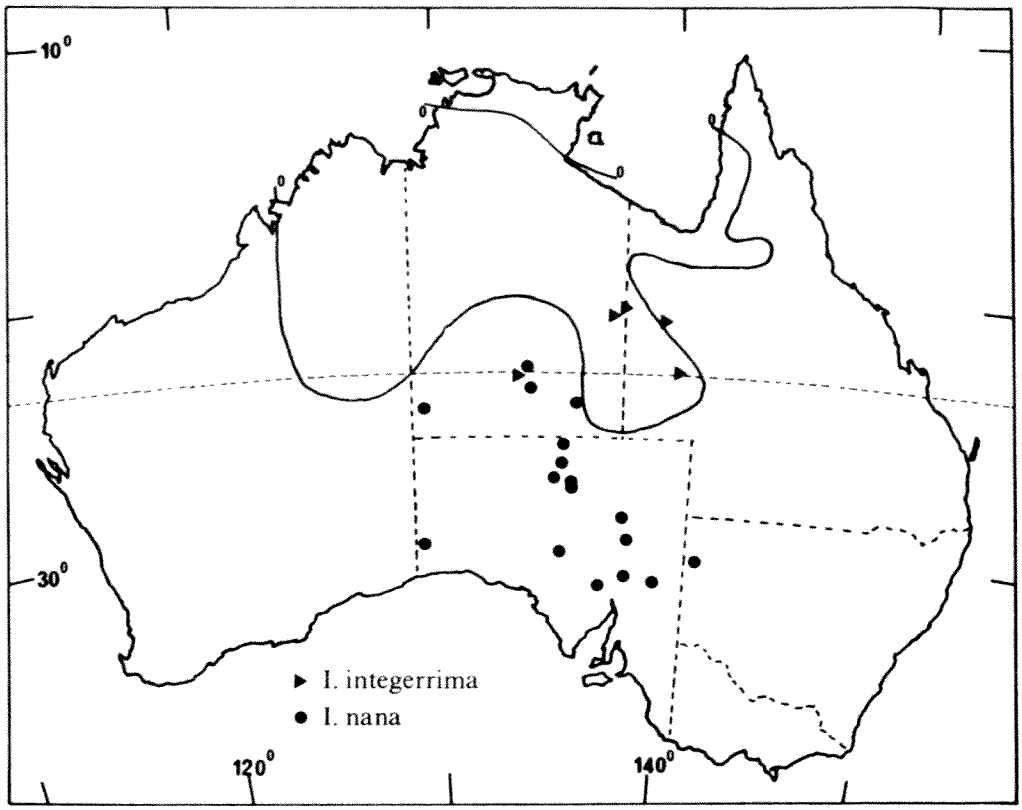


Fig. 3. A-D, *Ixiochlamys integerrima*, from *Chippendale NT6410*. A, capitulum; B, stamen; C, disc floret with undeveloped achene; D, style of disc floret. E-G, *I. filicifolia*, from *Latz 3163*. E, capitulum; F, stamen; G, style of disc floret.



Map 2. Distribution of *Ixiochlamys nana* and *I. integerrima*.

3. **Ixiochlamys filicifolia** Dunlop; species nova, species affinis *Ixiochlamydi nana* (Ewart et J. White) Grau a qua acheniis sericeis sparsim, capitulis grandibus et foliis tripinnatisectis differt.

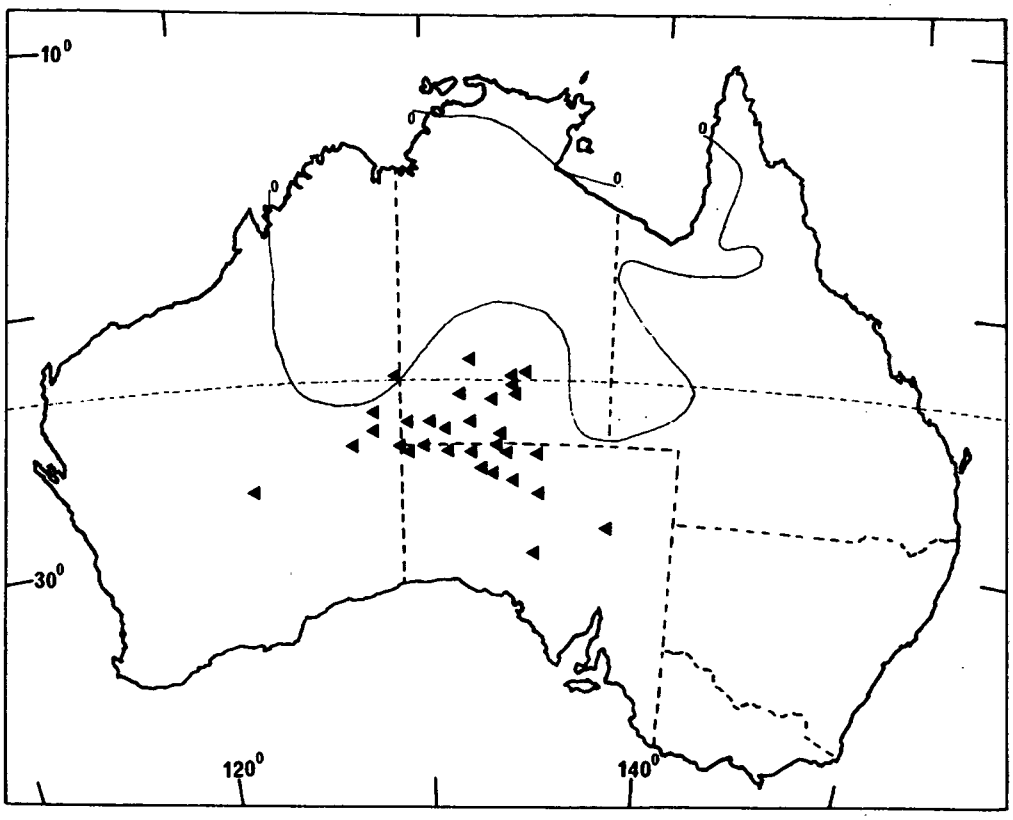
Herba annua, ad circa 25cm alta. Caules et folia glandulifera, pilosa ad villosa. *Caules* erecti. *Folia* ad circa 2.5cm lata et 7cm longa, in ambitu oblanceolatus ad spatulatum, subtiliter bi- vel tripinnatisecta. *Phyllaria* glandulifera; series intima circa 10mm longa. *Receptaculum* 4—8mm latum. Ligulae *flosculorum marginalium* circa 0.3mm latae, 1—2mm longae, integerae vel minute lobatae. *Flosculi disci* fertiles, corollae 5—6.5mm longae. *Achenia* 2—2.5mm longa, anguste obovata, sparsim sericea; rostra 2.5—5mm longa. *Pappi* 6—9mm longi, multiseriati, inaequales.

Typus: Mt Riddock Stn, *P.K. Latz 3163*, 3.viii.1972 (CANB 286036, holo; AD, K, NT, PERTH).

Annual *herb* to c. 25cm high. Stems and leaves pilose to villous, glandular. *Stems* erect. *Leaves* oblanceolate to spathulate in outline, to c. 2.5cm wide and 7cm long, finely bi- or tripinnately divided. *Phyllaries* glandular; inner series c. 10mm long. *Receptacle* 4—8mm wide. Ligules of *marginal florets* c. 0.3mm wide, 1—2mm long, entire or minutely lobed. *Disc florets* fertile, corollas 5—6.5mm long. *Achenes* 2—2.5mm long, narrow obovate, thinly sericeous; beaks 2.5—5mm long. *Pappus* 6—9mm long, multiseriate, uneven. (Figs 1, 2, 3.)

Distribution (Map 3)

Northern Territory, South Australia and Western Australia.



Map 3. Distribution of *Ixiochlamys filicifolia*.

Selection of Specimens Examined

NORTHERN TERRITORY: 6 miles E. Irving Ck, *P.K. Latz 1756*, 23.ix.1971 (BRI, MEL, NSW, NT); Harry Ck, *D.J. Nelson 2220*, 9.vi.1972 (DNA, NT); 5 miles N. Mt Cavanagh Stn, *R.A. Perry 5499*, 12.ix.1955 (CANB, NT); 5 miles S. Alice Springs, *R.E. Winkworth 1254*, 22.viii.1955 (CANB, NSW, NT).

SOUTH AUSTRALIA: N. Mt Eba, *B. Copley 2140*, 1.ix.1968 (AD); Mt Harriet, *Hj. Eichler 17254*, 5.ix.1963 (AD); Lake Harry, *R. Hill 287*, 29.vii.1955 (AD); De Rose Hill Stn, *T.R.N. Lothian 811/54*, 1954 (AD).

WESTERN AUSTRALIA: Wingelinna, *A.S. George 8761 B*, 18.vii.1967 (PERTH); Mt Tietkens, *A.S. George 8954*, 26.vii.1967 (PERTH); 78 miles S. Giles, *D.E. Symon 2190*, 31.vii.1962 (AD, ADW); 6km S. Bandya H.S., *P.G. Wilson 7344*, 27.viii.1968 (PERTH).

Notes

I. filicifolia has been collected mainly from loams and clay loams in Mulga (*Acacia aneura* F. Muell. ex Benth.) communities.

4. **Ixiochlamys nana** (Ewart et J. White) Grau, Mitt. Bot. Staatssamml. München 12:186 (1975).

Podocoma nana Ewart et J. White, J. & Proc. R. Soc. N.S.Wales 42:192 (1909).

Type: Mount Lyndhurst, *M.Koch 347*, ix.1899 (MEL 9059, 9061 p.p., syntypes; NSW); Mount Lyndhurst, *M. Koch 348*, ix.1899 (MEL 9061 p.p., syntype; NSW); Torrens Plains, *R. Tate s.n.*, 29.viii.1883 (MEL 9060, syntype).

Annual *herb* to c.25cm. Stems and leaves pilose or glabrous, glandular. *Stems* erect or prostrate. *Leaves* oblong to elliptic in outline, to c. 1cm wide and 4cm long, pinnately or bipinnately lobed; lower leaves with attenuate bases, upper leaves broad-based, almost stem-clasping. *Phyllaries* glandular; inner series 6—9.5mm long. *Receptacles* 2.5—5mm wide. Ligules of *marginal florets* filiform, c. 1mm long, minutely lobed. *Disc florets* fertile; corollas glandular, 3—4mm long. *Achenes* narrow obovate, slightly curved, 1.8—2mm long, glabrous; beaks 1.8—4.5mm long. *Pappus* c. 3mm long, uniseriate, ± even. (Figs 1 & 2.)

Distribution (Map 2)

Northern Territory, New South Wales and South Australia.

Selection of Specimens Examined

NORTHERN TERRITORY: north west Simpson Desert, *P.K. Latz 4653*, 30.ix.1973 (AD, BRI, CANB, DNA, NT); 65km W. Mt Ebenezer, *P.K. Latz 5125*, 16.v.1974 (DNA, K, NT); 9 miles SE. Alice Springs, *D.J. Nelson 2215*, 6.vi.1972 (ADW, DNA, K, NSW, NT, PERTH).

NEW SOUTH WALES: Fowlers Gap, *G.M. Cunningham & P.L. Milthorpe 1347*, 30.viii.1973 (NSW); Fowlers Gap, *L.R. Richley F38*, 20.ix.1973 (AD); Fowlers Gap, *M. Westoby 51*, viii.1978 (NSW).

SOUTH AUSTRALIA: Kingoonya, *herb. J.M. Black s.n.*, 24.ix.1920 (AD); Koonamore Stn, *M. Crisp 554*, 8.ix.1973 (AD, CBG); Muloorina Stn, *R. Hill 244*, 25.vii.1955 (AD); Evelyn Downs, *E.H. Ising s.n.*, 3.viii.1955 (AD).

Notes

The collection of Tate (MEL, 9060) was cited incorrectly with the original description of *Podocoma nana* with the date 1893. The date of collection on the specimen is 1883.

Habitat data from herbarium labels would suggest that *I. nana* occurs mainly on clayey soils in areas liable to flooding. It has also been recorded from a variety of other sites including Mulga (*Acacia aneura*) communities in sandy loam, on desert loams and gibber plains.

5. **Ixiochlamys**? sp. nov.

The following collection possibly represents a new species. Although it is distinct from the four named species, one collection was considered inadequate for description. In general facies the plants resemble *I. nana*, having the small heads of that species and similar foliage. The main differences are in the achenes which in *Latz 4652* are hairy and have a shorter beak than is normal for *I. nana*.

NORTHERN TERRITORY: north west Simpson Desert, *P.K. Latz 4652*, 30.ix.1973 (AD, DNA, NT).

Acknowledgements

To Dr Hj. Eichler, Curator, Herbarium Australiense, I am grateful for the opportunity to work on this revision at his institution during October 1979. The help of the staff of Herbarium Australiense, particularly that of Mr Lyn Craven is gratefully acknowledged.

I would like to thank the heads of the following herbaria for the loan of material and, in the case of several herbaria, for the opportunity to visit their institutions: AD, ADW, BRI, CBG, MEL, NSW, NT, PERTH. To Dr A.A. Munir, Australian Botanical Liaison Officer, Kew, I owe my thanks for photographs of specimens at Kew and the British Museum. My thanks also to my wife Adrianne, for the illustrations.

References

Bentham, G. (1867). 'Flora Australiensis' 3:492 (L. Reeve: London).
Brown, R. (1849). Botanical Appendix. In Sturt, C., 'Narrative of an Expedition into Central Australia,' 2:80 (T. & W. Boone: London).
Cassini, H.G. (1817). *Bull. Soc. Philom.* 137.
Dunlop, C.R. (1980). *J. Adelaide Bot. Gard.* 2:235-239.
Grau, J. (1975). *Mitt. Bot. Staatssamml. München* 12:181-194.
Grau, J. (1977). Astereae - systematic review. In Heywood, V.H., Harborne, J.B. and Turner, B.L. (eds), 'The Biology and Chemistry of the Compositae', Vol. 1:539-565. (Academic Press: London).
Mott, J.J. & McComb, A.J. (1975). *J. Ecol.* 63(2):635.
Plumb, T.W. (ed) (1977). 'Atlas of Australian Resources'. (Dept. of National Resources: Canberra).
Raunkiaer, C. (1934). 'The life-form of Plants and Statistical Plant Geography'. (Oxford University Press: London).
Slatyer, R.O. (1962). Climate of the Alice Springs area. In Perry, R.A. (ed), 'Lands of the Alice Springs Area'. 120 (CSIRO: Melbourne).
Sonder, O.W. (1853). *Linnaea* 25:466.
Sturt, C. (1849). 'Narrative of an Expedition into Central Australia', Vol. 2. (T. & W. Boone: London).

Index to Collections

In the following list the taxon to which each collection is referred is denoted by the initial letter of the specific name as follows: c = *Ixiochlamys cuneifolia*, f = *I. filicifolia*, i = *I. integerrima*, n = *I. nana*. Herbaria from which specimens have been seen are indicated by the usual acronyms.

Andrews s.n. (NSW):c. *Anon. s.n.* [n.d. (MEL, CANB), 1887 (MEL)]:c; *s.n.* (AD):c. *Ashby 4146* (AD): c. *Barker 216* (AD):c. *Beard 2807, 4495* (PERTH), *6071* (NSW, PERTH):c. *Beauglehole 10546* (NT):c. *Beck s.n.* (AD):c. *Bennett s.n.* (AD): c. *herb. Black s.n.*, 1926 (AD):c; *s.n.*, 1920 (AD):n. *Blaxell 648* (NSW):c. *Burbidge s.n.* (CANB):n. *Burbidge & Gray 4137* (CANB):c; *4356* (CANB):f; *4348* (CANB):i. *Byrne s.n.* (MEL):c. *Caldwell s.n.* (NT):c. *Callen s.n.* (AD):c. *Carrodus s.n.* (AD):c. *Chippendale NT780* (ADW, CANB, NSW, NT), *NT2118* (MEL, NT):c; *NT2549* (NSW, NT), *NT2859* (DNA, NT), *NT2886* (NT), *NT7449* (CANB, NT):f; *NT 1456* (BRI, MEL, NSW, NT), *NT 6410* (AD, BRI, CANB, K, NT):i. *Cleland s.n.* [16, 26.viii.1931 (AD); 29, 30.v.1937 (AD); 15, 20, 23.ix.1956 (AD); 1957 (AD)]:c; *s.n.* [1932, 1933, 1951, 25.viii.1954, viii.1954 (AD)]:f. *Constable 4679, 10778* (NSW):c. *Cooper s.n.* (AD):c. *Copley 2140* (AD):f. *Cornwall 84, 282* (AD):c. *Crisp 154, 223* (CBG), *554* (AD, CBG):n. *Cunningham & Milthorpe 1081, 4016* (NSW):c; *1041, 1347* (NSW):n. *De Beuzeville 66* (NSW):c. *Demarz 2421, 4441, 4460* (PERTH):c. *De Nardi 836* (NSW):c. *Dittrich s.n.* (MEL):c. *Donner 4487* (AD):f. *Dunlop 1416* (CBG):c; *2978* (NT):f. *?Eapea s.n.* (MEL):c. *Eichler 12560, 17332* (AD):c; *17246, 17254, 17363, 17515* (AD):f. *Fairall 1936* (PERTH):c. *Filson 3468* (AD):c. *Fox 7905012, 7905046* (NSW):c. *Forrest s.n.* (MEL):c. *Gardner 3295* (PERTH):c. *George 8761B, 8954* (PERTH):f. *C. Giles s.n.* (MEL):c. *E. Giles s.n.* (MEL):c. *Gittins 725* (BRI, NSW):i. *Henshall 947* (NT):c. *Hill 78, 98, 1145* (AD):c; *287* (AD):f; *244* (AD):n. *Hilton 1262, 1454* (ADW):c. *Hutchinson 87* (PERTH):c. *Irvine s.n.* (MEL, NSW):c. *Ising 618* (AD), *s.n.* [1918, 1931, 1950 (AD), 3, 10.ix.1952 (AD), 1953 (ADW), viii.x.1955 (AD)]:c; *s.n.* [1931, 1950 (AD)]:f; *1570, 3454* (AD), *s.n.* [8, 24.ix.1920 (AD); 1931, 1951 (AD); 9, 27, 30.viii.1952 (AD); vii.1955 (AD); 3, 12, 29.viii.1955 (AD)]:n. *Jacobs 1932* (NSW):c. *L. Johnson 648* (NSW):c. *U. Johnson NSW 128020* (AD, NSW):c. *Kemp s.n.* (MEL):c; *330* (MEL):f. *Kennedy s.n.* [1885, 1886 (MEL)]:c. *King s.n.* (MEL):c. *Koch 219* (AD, BRI, MEL, NSW):c; *347, 348* (MEL, NSW):n. *Kraehenbuehl 13* (AD):c; *14* (MEL):f. *Kuchel 892, 2679, 2927, 3112* (AD):c; *94* (AD):f. *Lander 80* (AD, NSW):c. *Lange 23* (AD):f. *Latz 1870* (BRI, NT, PERTH), *5235* (NT):c; *1756* (BRI, MEL, NSW, NT), *1796* (NT), *3148* (NT), *3163* (AD, CANB, K, NT, PERTH), *4135* (AD, NT), *4149, 4281* (NT):f; *4193* (AD, NT), *4653* (AD, BRI, CANB, DNA, NT), *5125* (NT):n; *4652* (AD, DNA, NT):*sp. aff.* n. *Lawrie 1697* (NSW):c. *Lazarides 6119* (AD, BRI, CANB, MEL, NSW, NT):c. *Lothian 1050, 3098* (AD):c; *1954* (AD):f; *1058* (AD), *1376* (AD, NT), *1623, 2176* (AD):n. *Lullfitz & Fairall 2696* (PERTH):c. *Malony 4* (NSW, NT):c. *McLeod s.n.* (A.D.):c. *Mills s.n.* (AD):c. *Morris 321* (ADW, BRI), *261/22* (NSW), *780* (ADW, BRI), *4274/20* (NSW):c. *Mulham W510* (NSW):c. *Mueller s.n.* (MEL 9064, 9079):c. *Nelson 1551* (AD, NSW), *2157* (AD, CANB, NSW, NT):c; *2220* (DNA, NT), *2386* (NT):f; *2215* (ADW, DNA, K, NSW, NT, PERTH), *2225* (BRI, NT):n. *Nicholls 928* (AD, MEL, NSW, NT):f. *Orchard 714* (AD):f. *Osborn s.n.* [1925 (AD), 1928 (CANB, NSW)]:n. *Perry 5499* (CANB, NT):f. *Pickard 3127* (NSW):c. *Richards s.n.* (MEL):c. *Richley 1125* (AD):c; *F38* (AD):n. *Robjohns s.n.* (AD):c. *Rogerson 192* (PERTH):c. *Royce 7404* (PERTH):c. *Schodde 474* (AD, CANB):f. *herb. Schomburgk s.n.* (AD):c. *Setter 430* (ADW):c. *Sharrad 1401* (AD):c. *Sikkes 838* (CBG, NSW):c. *Sikkes & Ollerenshaw 933, 958* (CBG):c. *Specht 2837* (AD):n. *Symon 1382, 1433* (ADW), *6010* (AD), *6784* (AD, CANB), *7547* (AD), *9094* (AD, NSW), *9264* (AD), *11399, 11416c* (ADW):c; *2178* (AD, ADW), *2190* (AD, ADW):f. *Tate s.n.* [vi.1883 (AD), viii. 1883 (MEL)]:c; *s.n.* (MEL):n. *Telfer 80* (AD):c. *Tepper 9, s.n.* (MEL):c. *Thompson NSW127693* (AD, NSW):c. *Thornton s.n.* (MEL):f. *Tietkens s.n.* (MEL):c. *Trapnell & Williams 167* (BRI):i. *Turvey 12908* (NSW), *s.n.* (AD, CBG):f. *Vasek 34* (CANB):f. *Warren 2506* (AD):c. *Weber 2580, 2689* (AD):c. *Westoby 51* (NSW):n. *Whibley 1015, 2287, 3942, 3984, 5613* (AD):c; *1155* (AD):f.

White 96 (AD), *s.n.* [1915 (AD); 11, 13.x.1917 (AD); 1920 (AD)]:c; *88*, *s.n.* [vii.1914 (MEL); viii. 1914 (AD); 10.viii.1914 (AD)]:f. *Whitman ANU4064* (CANB):f. *Williams 6598* (AD):c. *Willis s.n.* [19.vii.1966 (MEL)]:c; *s.n.* (MEL):f. *Wilson 7344* (PERTH):f. *Winkworth 792* (BRI, NT):c; *1254* (CANB, NSW, NT):f. *Wittwer 1058* (PERTH):c.