New taxa and new combinations in Australian Pittosporaceae

By Eleanor M. Bennett*

Abstract

The following four new species are described—*Billardiera uniflora*, *Bursaria occidentalis*, *Bursaria lasiophylla* and *Cheiranthera alternifolia*. In addition 12 new varieties are described—1 in *Cheiranthera*, 9 in *Bursaria* and 2 in *Billardiera*. The genus *Rhytidosporum* F. Muell. is placed in synonymy under *Billardiera*. A revised systematic arrangement within the genus *Billardiera* is outlined.

Introduction

The following new names and new combinations are published in order to validate their inclusion in a forthcoming paper on the Pittosporaceae. This it is hoped will appear as a family part in the proposed Flora of Australia.

Apart from the publication of a number of new combinations and the description of several new species and varieties, a revised classification of the genus *Billardiera* is provided. The division into sections is based on the fruit, and that into series on overall morphology since it is considered that the use of fruit characters alone is insufficient to provide natural groupings within the sections.

Billardiera

In a previous paper (1972) I combined the then two accepted genera *Billardiera* and *Marianthus* under the former name. McGillivray (1975) reinstated the genus *Rhytidosporum* F. Muell. (which was included under *Marianthus* by Bentham) and which I have here placed in synonymy under *Billardiera* series *Procumbentes*. The species described under *Rhytidosporum* have a habit and capsule similar to those of the Western Australian *Billardiera villosa*. Because *Billardiera* already shows much morphological variation between species it seems better to consider *Rhytidosporum* as belonging to it also.

In the following systematic arrangement I have decided to follow the previously accepted characters and to divide the genus into two sections based on the fruit. In the section *Billardiera*, two series have been made, based on the number of loculi in the ovary. Series *Biloculares* shows variation in the corolla, but a division below series seems unwarranted.

In the section *Marianthus* several characters have been used in combination to distinguish the series.

1. Habit; typically the plants are twiners but in one series they are low or bushy shrubs.
2. Flower; whether the petals are free or coherent.
3. Fruit; a considerable amount of variation is present particularly in the shape and method of dehiscence.

The series *Parviflorae* I believe to be the "bridging" group between the two sections. This series has a loculicidally dehiscent capsule, but is distinct from the other series in having pithy compartments for the seeds. In the

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series *Biloculares* the seeds are embedded in pith in a 2-locular ovary, but in the series *Uniloculares* the seeds are in a 1-locular ovary but not embedded in pith. I have placed the section *Marianthus* before *Billardiera* as I consider there to be a trend from a 2-celled fruit through the series *Parviflorae* to the 1-celled fruit of the series *Uniloculares*.

Billardiera Sm., Spec. Bot. Nov. Holl. 1: t.1 (1793)

Section I **Marianthus** (Hueg. ex Endl.) E.M. Bennett, comb. et stat. nov.

Basionym: *Marianthus* Hueg. ex Endl., in Endl. et al., Enum. Pl. Hueg. 8(1837).

Type species: *M. candidus* Hueg. ex Endl.

Fruit a capsule.

Series 1: **Pictae** (Benth.) E.M. Bennett, comb. nov. (Fig. 1a)

Basionym: *Marianthus* ser. *Pictae* Benth., Fl. Austr. 1:116 (1863)

Lectotype species: *B. bicolor* (Putterl.) E.M. Bennett (*M. pictus* Lindl.) lecto. nov.

Marianthus series *Normales* Benth., loc. cit. Lectotype species: *M. candidus* Hueg. ex Endl. lecto. nov.

Twiners or flexuose shrubs. *Flowers* solitary to corymbose. *Petals* free, linear or spathulate (in *B. erubescens* connate at anthesis but eventually free).

Capsules septicidally and loculicidally dehiscent, glabrous.

Included species: *Billardiera bicolor* (Putterl.) E.M. Bennett, *B. candida* (Hueg. ex Endl.) E.M. Bennett, *B. erubescens* (Putterl.) E.M. Bennett.

Series 2: **Bignoniae** E.M. Bennett, ser. nov. (Fig. 1 b, c)

Marianthus ser. *Oncosporeae* Benth., Fl. Austr. 1:116 (1863) in part, not as to lectotype.

Type species: *B. bignoniacea* (F. Muell.) E.M. Bennett.

Corolla tubulosa, supra medium contracta, extus pubescens, demum versus basim libera. *Capsula* cylindrica, puberula; dehiscentia loculicidali.

Twiner. *Flowers* solitary, *Corolla* tubular, contracted above ovary, pubescent outside, eventually petals free towards base. *Capsule* loculicidal, cylindrical, puberulous.

Only species: *B. bignoniacea* (F. Muell.) E.M. Bennett.

Billardiera bignoniacea (F. Muell.) E.M. Bennett, comb. nov.

Basionym: *Marianthus bignoniaceus* F. Muell., Trans. Phil. Soc. Vict. 1:6 (1853)

Series 3: **Calopetalae** E.M. Bennett, ser. nov. (Fig. 1 d,e)

Marianthus ser. *Pictae* Benth., Fl. Austr. 1:116 (1863), in part, not as to lectotype.

Type species: *Billardiera ringens* (Drumm. ex Harv.) E.M. Bennett

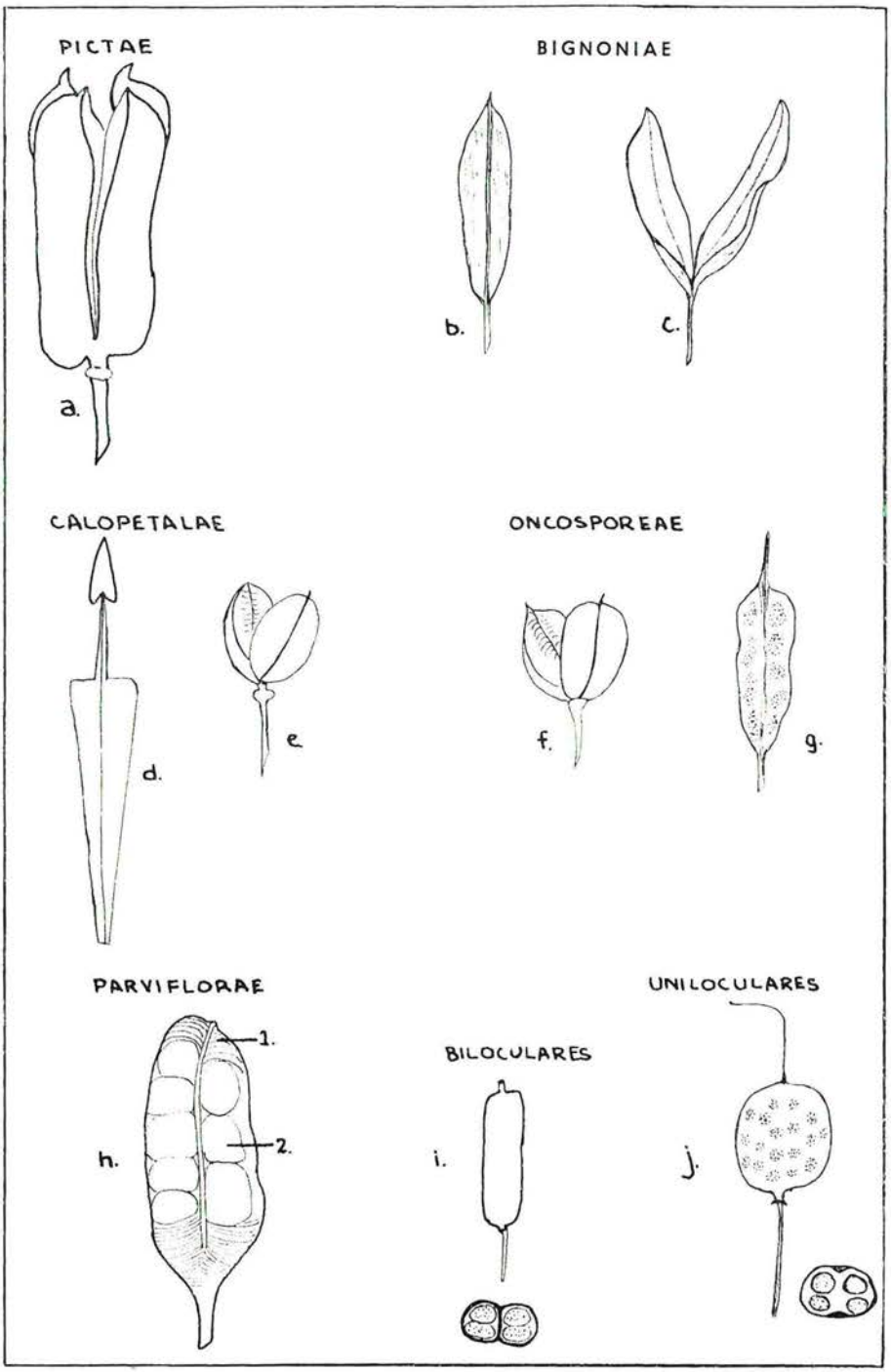

Figure 1—Fruit of *Billardiera* Series. A—Pictae (*B. bicolor*). B–C—Bignoniae (*B. bignoniacea*). D–E—Calopetalae. D—Stamen, x 3·5. E—Capsule (*B. ringens*). F–G—Oncosporeae (F—*B. granulata*. G—*B. caeruleo-punctata*). H—Parviflorae (*B. parviflora*); 1—pith, 2—pithy compartments for seed. I—Biloculares (*B. coriacea*), berry and t.s. of berry. J—Uniloculares (*B. longiflora*); berry and t.s. of berry.

Petala primum connata, sed demum libear. Antherarum *filamenta* per tres longitudinis quadrante dilatata, deinde in acumen brevis subula abrupte contracta. *Capsula* ovoidea chartacea dehiscentia loculicidali.

Twiner. *Inflorescence* densely corymbose. *Petals* at first connate, but eventually free. Anther *filaments* dilated for three quarters of length then abruptly contracted with a short subulate point. *Capsule* loculicidally dehiscent, chartaceous.

Only species: *Billardiera ringens* (Drumm. ex Harv.) E.M. Bennett

Series 4: **Procumbentes** (Benth.) E.M. Bennett, comb. nov.

Basionym: *Marianthus* ser. *Procumbentes* Benth., Fl. Austr. 1:116 (1863). Lectotype species: *Billardiera procumbens* (Hook.) E.M. Bennett, lecto. nov.

Rhytidosporum F. Muell. Pl. Indig. Colony Victoria 1 : 75 (1860).

Small, erect, suberect or prostrate shrubs. *Flowers* solitary or few and corymbose. *Petals* lanceolate or linear. *Capsule* loculicidally dehiscent, ovoid or shortly cylindrical.

Included species: *Billardiera villosa* (Turcz.) E.M. Bennett, *B. procumbens* (Hook.) E.M. Bennett, *B. prostrata* (D. McGillivray) E.M. Bennett, *B. alpina* (D. McGillivray) E.M. Bennett.

Billardiera alpina (D. McGillivray) E.M. Bennett, comb, nov.

Basionym: *Rhytidosporum alpinum* D. McGillivray, Telopea 1:56 (1975)

Billardiera procumbens (Hook.) E.M. Bennett, comb. nov.

Basionym: *Pittosporum procumbens* Hook., Companion Bot. Mag. 1:275(1836)

Bursaria procumbens (Hook.) Putterl., Syn. Pittosp. 20(1839)

Rhytidosporum procumbens (Hook.) F. Muell., Pl. Indig. Col. Vict. 1:75(1860)

Marianthus procumbens (Hook.) Benth., Fl. Austr. 1:117(1863)

Pittosporum nanum Hook., Companion Bot. Mag. 1:275(1836)

Campylanthera ericoides Lindl. in Mitch., Three Exped. 2:277(1838)

Bursaria diosmoides Putterl., Syn. Pittosp. 20(1839)

Bursaria stuartiana Klatt, Linnaea 28:568(1857)

Billardiera prostrata (D. McGillivray) E.M. Bennett, comb. nov.

Basionym: *Rhytidosporum prostratum* D. McGillivray, Telopea 1:55(1975)

Series 5: **Oncosporeae** (Benth.) E.M. Bennett, comb. nov. (Fig. 1 f,g)

Basionym: *Marianthus* ser. *Oncosporeae* Benth., Fl. Austr. 1:116(1863)

Lectotype species: *Billardiera granulata* (Turcz.) E.M. Bennett lecto. nov. (*M. granulatus* (Turcz.) Benth. being the only species in Bentham's series which had been described in the genus *Oncosporum*)

Marianthus series *Normales* Benth., Fl. Austr. 1:116(1863) in part, not as to lectotype.

Twiners. *Flowers* solitary or in few-flowered corymbs. *Petals* free, lanceolate or linear. *Capsule* loculicidally dehiscent, ovoid or cylindrical, glabrous.

Included species: *Billardiera granulata* (Turcz.) E.M. Bennett, *B. drummondiana* (Putterl.) E.M. Bennett, *B. coeruleo-punctata* (Klotsch) E.M. Bennett.

Series 6: **Parviflorae** E.M. Bennett, ser. nov. (Fig. 1 h)

Marianthus ser. *Normales* Benth., Fl. Austr. 1:116(1863), in part, not as to lectotype.

Marianthus series *Procumbentes* Benth., loc. cit, in part, not as to lectotype.

Type species: *Billardiera parviflora* DC.

Capsula dehiscentia loculicidalis seminibus in carpellis fibrosis inclusis.

Slender twiner. *Inflorescence* corymbose with up to 5 flowers. *Petals* free, linear. *Capsule* loculicidally dehiscent with fibrous compartments in which the seeds are embedded.

Included species: *Billardiera parviflora* DC.

Section II: **Billardiera**

Billardiera Sm., Spec. Bot. New Holl. 1:t.1(1793). Type: *B. scandens* Sm.

Fruit a berry.

Series 1: **Biloculares** E.M. Bennett, ser. nov. (Fig. 1i)

Section *Eubillardiera* Pax in Engler and Prantl, Nat. Pflanzenfam. III, 2a: 113(1891) nom. illeg.

Type species: *Billardiera scandens* Sm.

Bacca bicellularis, *stylo* brevi, < 5 mm longo. *Semina* in endocarpo medulloso inclusa.

Berry 2-celled, style short, < 5 mm long. *Seeds* embedded in pithy endocarp.

Included species: *Billardiera scandens* Sm., *B. coriacea* Benth., *B. floribunda* (Putterl.) F. Muell., *B. variifolia* DC., *B. sericea* (Turcz.) E.M. Bennett, *B. laxiflora* (Benth.) E.M. Bennett, *B. lehmanniana* F. Muell., *B. sericophora* F. Muell., *B. cymosa* F. Muell., *B. versicolor* F. Muell., *B. uniflora* E.M. Bennett.

Billardiera scandens Sm. var. **sericata** E.M. Bennett, var. nov. (Fig. 2 A-C).

Folia elliptica-lanceolata, subtus pileis longis hinnuleis sericea, supra adpresso-pubescentia deinde glabrescentia. *Pedicelli* dense sericei.

Type: North of Booti Booti, New South Wales, 13 Oct. 1953, *L.A.S. Johnson* (HOLOTYPE: NSW 135428).

Leaves elliptic-lanceolate, ± petiolate 22–70 x 9–25 mm, undersurface sericeous with long fawn hairs, upper surface appressed pubescent becoming glabrescent. *Flowers* terminal, solitary (occasionally 1 or 2 additional flowers in upper axils). *Pedicels* 5–11 mm, densely hirsute.

Distribution: Eastern coastal areas of New South Wales and southern Queensland from Nerang to Twofold Bay.

This differs from the typical variety in having elliptic leaves with a sericeous undersurface, the varietal epithet referring to the latter character.

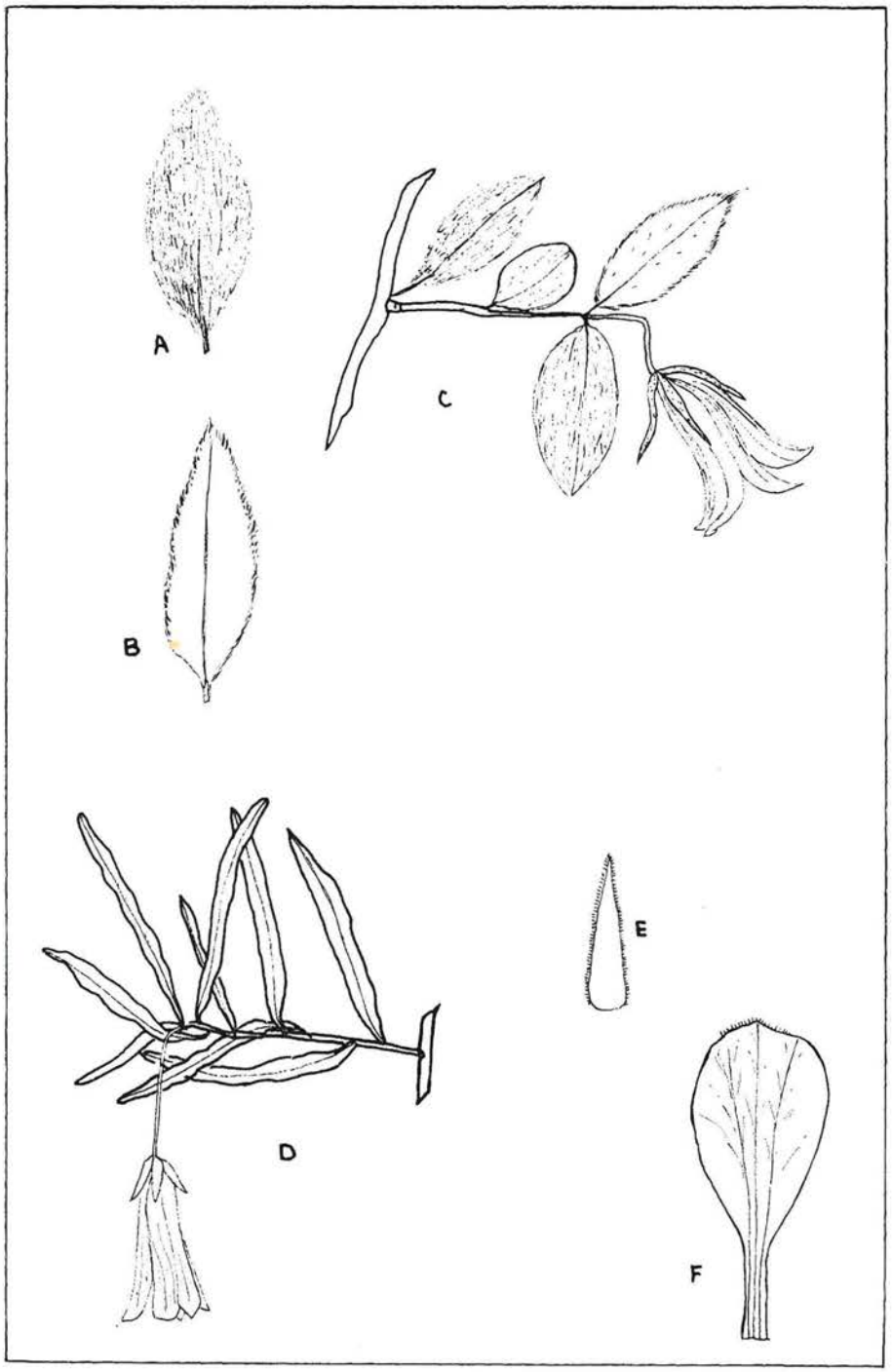

Figure 2—A–C—*Billardiera scandens* Sm. var. *sericata* E.M. Bennett. A—Leaf, lower surface. B—Leaf, upper surface. C—Flowering branchlet. All from NSW 135428, x 1. D–F—*Billardiera uniflora* E.M. Bennett. D—Flowering branchlet, x 1. E—Sepal, x 4. F—Petal, x 2. All from MEL 63268.

Billardiera uniflora E.M. Bennett, sp. nov. (Fig. 2 D-F)

Frutex volubilis. *Folia* linearia ad angusto-lanceolata. *Flores* solitarii, raro 2–3; pedicelli graciles, glabri. *Sepala* ovato-lanceolata; petali lanceolati.

Type: Port Lincoln, South Australia, *N.L. Browne* (HOLOTYPE: MEL 63268).

Twiner or creeper up to 1 m high. *Leaves* linear to narrow-lanceolate, entire or crenate, shortly petiolate, 14–50 x 1–9 mm, glabrous to sparsely pubescent on surface, often densely pubescent along margins. *Flowers* solitary, occasionally 2–3 together, pendulous or erect, cream or white, occasionally suffused purple. *Pedicels* 9–14 mm, glabrous. *Sepals* ovate-lanceolate, glabrous, margin ciliate (2)4–6 x 0·5–1 mm. *Petals* free, lanceolate, 12–16 mm, lamina ± 4 mm wide. *Ovary* glabrous or hirsute.

Distribution: In South Australia within 60 km S and SE of Adelaide, around Port Lincoln, and on Kangaroo Island.

This species differs from *B. scandens* in the sepals, which are shorter, not as pubescent and do not have a prominent midvein. It differs from *B. versicolor* in having few pendulous flowers, longer sepals, more spreading petals, and in the margins of the leaves not being closely revolute. The specific epithet refers to the inflorescence which is usually 1-flowered.

Series 2: **Uniloculares** E.M. Bennett ser. nov. (Fig. 1j)

Section *Billardieriopsis* Pax in Engler and Prantl, Nat. Planzenfam. III, 2a: 113(1891) nom. illeg.

Type species: *Billardiera longiflora* Labill.

Bacca unicellularis sine medulla; *stylus* > 5 mm longus.

Berry 1-celled without pith; *style* > 5 mm long.

Billardiera longiflora Labill., Nov. Holl. Pl. 1:64, t.89(1805)

Billardiera longiflora Labill. var. **ovalis** (Lindl.) E.M. Bennett, stat. et comb. nov.

Basionym: *Billardiera ovalis* Lindl., Bot. Reg. t.1719 (1834).

This variety differs from the typical one in having broad lanceolate or ovate leaves with revolute margins; in the var. *longiflora* the leaves are linear to lanceolate and flat.

Bursaria

Bursaria incana Lindl. in Mitch., Trop. Aust. 224(1848)

Bursaria incana Lindl. var. **septentrionalis** E.M. Bennett, var. nov. (Fig. 3A-D).

Ovarium incanum. *Fructus* pubescens.

Type: East slopes of Spider Summit near Mareeba (Maruba) Queensland; 20 April 1961, *D.W. Goodall* (HOLOTYPE: BRI 041128).

Ovary hoary-pubescent. *Fruit* pubescent.

Distribution: Cook district of Queensland.

This variety differs from the typical one in the hoary ovary and fruit, which in var. *incana* are glabrous. The epithet refers to the northern distribution of the taxon.

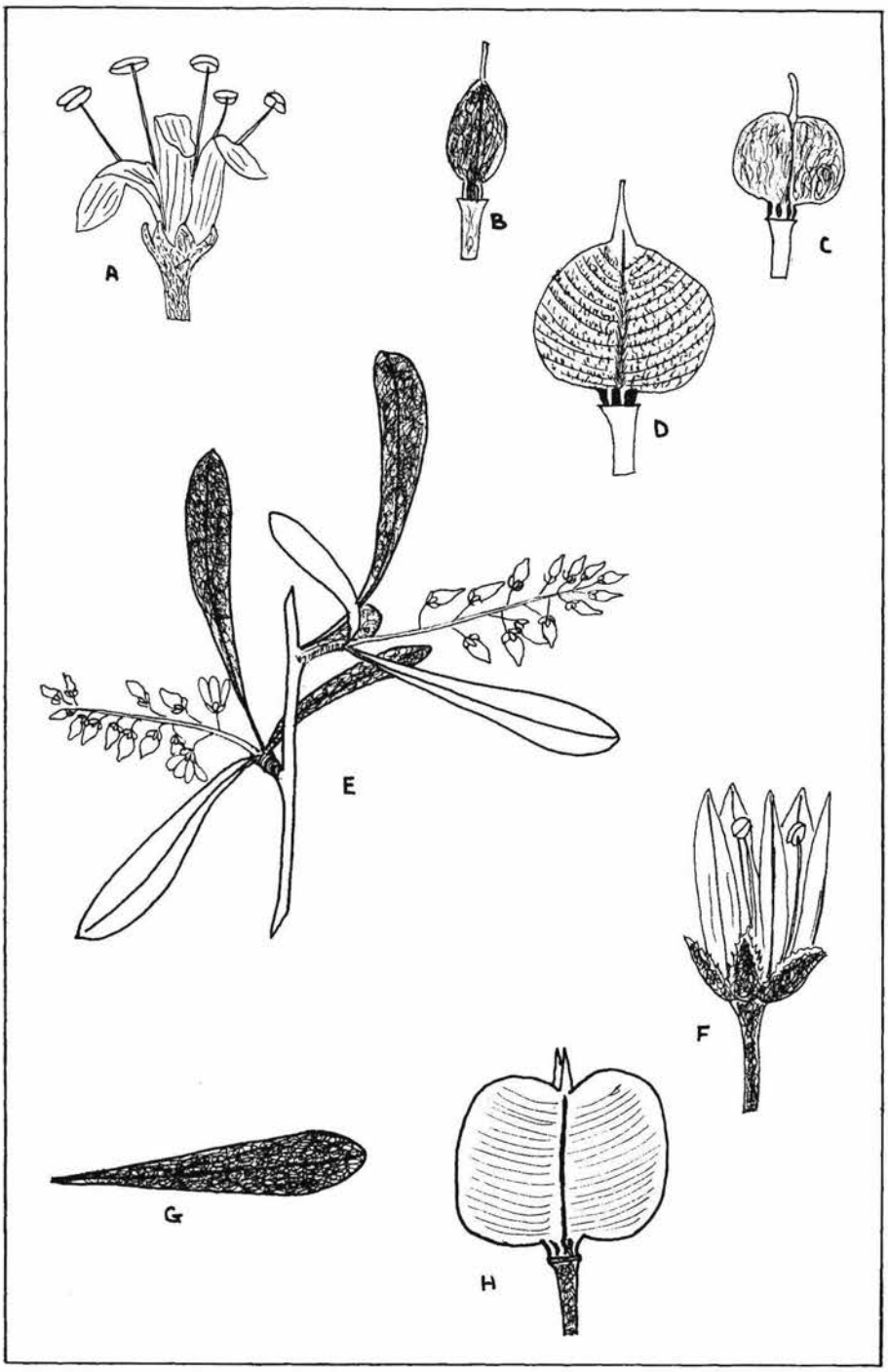

Figure 3—A–D—*Bursaria incana* Lindl. var. *septentrionalis* E.M. Bennett. A—Flower, x 3. B—Ovary, x 5. C—Developing fruit, x 3. D—Immature fruit, x 4. All from BRI 041128. E–F—*Bursaria occidentalis* E.M. Bennett. E—Flowering branchlet, x 1. F—Flower, x 3. G—Leaf, x 1. H—Fruit, x 3. All from E.M. Bennett 3315 (PERTH).

Bursaria lasiophylla E.M. Bennett, sp. nov.

Frutex elatus, usque ad 2·5 mm altus. *Folia* 2–4-fasciculata, ovata, obovata ad lanceolata, glabra vel sparsim pubescentia supra, cinerea ad albida vel aurea incana subtus; margines plani ad revoluti. *Inflorescecentia* ab racemo ad paniculam parce ramosam varians, pubescens vel glabra, axillaris vel in ramulo axillari terminalis. *Sepala* lineari-lanceolata, decidua. *Ovarium* glabrum vel pubescens.

Type: East bank of Queanbeyan River above Woolcara Captain Flat, New South Wales, Jan. 1963, *Walker* (HOLOTYPE: CANB 121106; ISOTYPE: NSW)

Tall *shrub* up to 2·5 m high; young stems hoary becoming glabrescent. *Leaves* 2–4 together, ovate, obovate to lanceolate, glabrous or with scattered pubescence above, grey to white or golden hoary below, 4–30 x 2–10 mm; margin flat to revolute. *Inflorescence* varying from a raceme to a sparsely branched panicle, pubescent or glabrous, axillary, or terminal to axillary branchlets. *Sepals* 1–2 x 0·5 mm, linear-lanceolate, deciduous, ciliate ± glabrous. *Ovary* glabrous to pubescent 2–4 mm high; style 0·5—1 mm long, glabrous. *Capsule* glabrous or pubescent at base and along midline 4–7 x 5–8 mm.

This species differs from *Bursaria incana* in that the panicle and undersurface of the leaf are not densely hoary, and the sepals are not hoary. It differs from *Bursaria spinosa* (which is glabrous) in having a somewhat hoary undersurface to the leaf, and from *Bursaria longisepala* in having deciduous sepals. The specific epithet refers to the hoary undersurface of the leaf.

Bursaria lasiophylla var. **lasiophylla.** (Fig. 4 A-C)

Leaves obovate 6–14 x 3–4 mm glabrous or with scattered hairs on upper surface. *Petals* glabrous 4–5·5 x 1–2 mm. *Ovary* glabrous 2–4 mm.

Distribution: Southern New South Wales and northern to north eastern Victoria.

Bursaria lasiophylla var. **albicoma** E.M. Bennett, var. nov. (Fig. 4 D-F)

Folia lineari-lanceolata; apicibus recurvis ± uncinatis. *Paniculae* pubescentes, in ramulis axillaribus terminales. *Ovarium* albidum incanum.

Type: Harrison Creek Gully, South Australia, 2 Aug. 1958, *D.N. Kraehenbuehl* s.n. (HOLOTYPE: AD96422084)

Leaves linear-lanceolate, 9–30 x 5–10 mm; apex recurved and ± uncinate. *Panicle* shortly pubescent, terminal on axillary branchlets. *Ovary* densely white hoary, 3–4 mm high.

Distribution: Palmer to Mannum areas of South Australia.

This variety differs from the typical variety in having broader, longer leaves and a hoary ovary, the epithet referring to the latter character.

Bursaria lasiophylla var. **atriplicina** E.M. Bennett, var. nov. (Fig. 4 G-J)

Folia lanceolata, marginibus revolutis. *Paniculae* pubescentes terminales vel axillares. *Ovarium* glabrum.

Type: Talbingo, 22 miles from Tumut, New South Wales, May 1917, *H.E. Ellen* (HOLOTYPE: NSW)

Leaves lanceolate, (10) 14–30 x 2–6 mm; margin revolute. *Panicle* shortly pubescent, terminal or axillary. *Petals* 3–4 x 0·75–1 mm. *Ovary* glabrous, 2–4 mm high, style 0·5–0·75 mm long, glabrous.

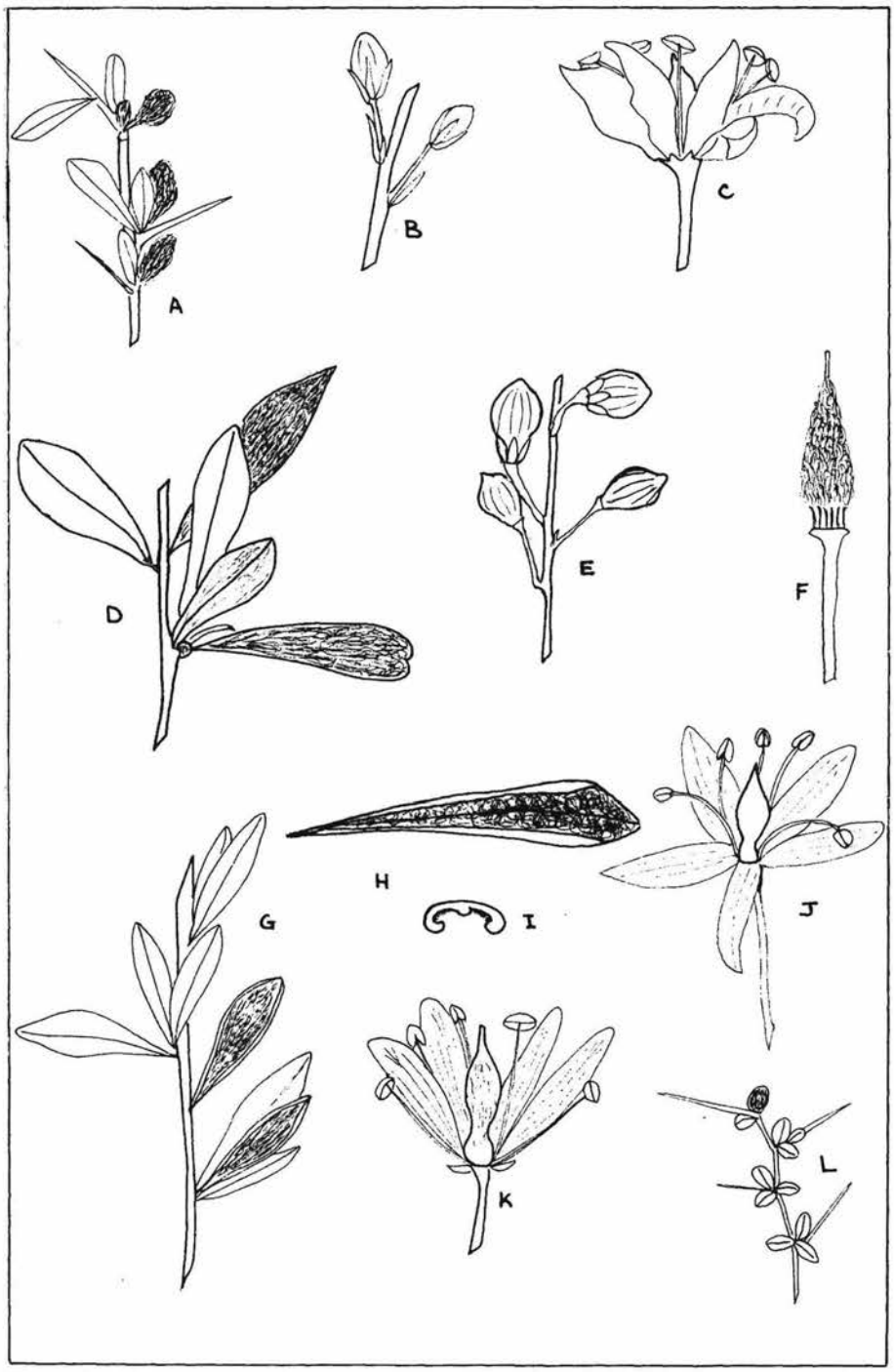

Figure 4—A–C—*Bursaria lasiophylla* E.M. Bennett var. *lasiophylla*. A—Leaves, x 1. B—Buds, x 2. C—Flower, x 4. From CANB 121106. D–F—*Bursaria lasiophylla* var. *albicoma* E.M. Bennett. D—Leaves, x 2. E—Buds, x 3. F—Ovary, x 4·5. From AD 96422084. G–J—*Bursaria lasiophylla* var. *atriplicina* E.M. Bennett. G—Leaves, x 1. H—Under surface of leaf, x 2. I—T.S. of leaf, x 2. J—Flower, x 4. From H. E. Ellen, May 1917 (NSW). K–L—*Bursaria lasiophylla* var. *parvifolia* E.M. Bennett. K—Flower with one petal and sepal removed, x 5. L—Leaves, x 1. From MEL 66145.

Distribution: Eastern areas of central and southern New South Wales, extending into the south eastern and western areas of Victoria.

The epithet refers to the resemblance of the leaves to those of some species of *Atriplex*.

Bursaria lasiophylla var. **parvifolia** E.M. Bennett, var. nov. (Fig. 4 K-L)

Folia ovato-lanceolata, glabra vel ± pubescentia, deinde glabrescentia. *Paniculae* ramosae, incanae. *Ovarium* leviter ad dense pubescens.

Type: Mt. William, Victoria, Feb. 1872, *D. Sullivan* (HOLOTYPE: MEL 66145)

Leaves ovate-lanceolate, 4–6 x 2–3 mm, glabrous or ± pubescent becoming glabrescent. *Axillary* spines slender, 7–12 mm long. *Panicle* racemose, shortly hoary pubescent. *Sepals* ovate. *Ovary* slightly to densely pubescent.

Distribution: Inglewood to Stawell in western Victoria.

This variety differs from the other varieties in the small leaves (to which the epithet refers) and in the racemose panicle.

Bursaria occidentalis E.M. Bennett, sp. nov. (Fig. 3 E-H)

Frutex vel arbor parva; rami spinis lateralibus. *Folia* linearia, lanceolata, oblanceolata ad obovata, ± 4 ad nodam fasciata, infra dense albido-incana, supra parce et breviter pubescentia. *Inflorescentia* racemus, racemus corymbosus, vel panicula parce ramosa, terminalis. *Sepala* deltoidea, incana persistentia. *Ovarium* glabrum.

Type: 10 miles from turnoff to Useless Loop from Denham Road, Shark Bay, Western Australia, 3 Sept. 1975, *E.M. Bennett* 3315 (HOLOTYPE: PERTH)

Shrub or small tree, branches with lateral thorns. *Leaves* linear to lanceolate, oblanceolate to obovate, solitary or up to 4 clustered at node, 20–65 x 3–13 mm, undersurface densely white hoary, upper surface with scattered short pubescence. *Inflorescence* terminal to branchlets, a raceme, corymbose raceme or a very sparsely branched panicle. *Pedicels* hoary. *Sepals* 1–2 x 1–1·5 mm deltoid, acute, hoary, persistent. *Petals* 5–8 x 1–1·5 mm, cream, 3-nerved. *Stamens* 4–6 mm long. *Ovary* glabrous, 2–4 mm high. *Capsule* glabrous, round, 6–9 x 8–12 mm.

Distribution: From Shark Bay-Geraldton area south east to the Kalgoorlie area of Western Australia.

This species differs from *B. incana*, to which it is most closely related, in the panicle being terminal to the short lateral branchlets, the flowering branches bearing lateral thorns and in the sepals having an obvious midvein. *Bursaria incana* has a panicle terminal to the long branches, the flowering branches unarmed and the sepals hoary, obscuring any venation. The epithet *occidentalis* refers to the western distribution of the species.

Bursaria longisepala Domin, Biblioth. Bot. 89: 714(1925)

Bursaria longisepala var. **pilosa** E.M. Bennett, var. nov. (Fig. 6 A-C)

Folia infra incana. *Sepala* ca. 5·5 mm longa. *Petala* ca. 7·5 mm longa.

Type: Nattai River near Colo, New South Wales, 26 Nov. 1911, *E. Cheel* (HOLOTYPE: NSW 728691)

Leaves hoary on undersurface. *Sepals* ca. 5·5 mm long. *Petals* ca. 7 mm long.

Distribution: New South Wales from Yerranderie in the north to Wombeyan Caves in the south.

This differs from the typical variety in having a hoary undersurface to the leaf (from which character the epithet is derived) and in the longer sepals and petals, the typical variety having glabrous leaves.

Bursaria spinosa Cav., Ic. 4:30, t.350 (1797)

I have recognised six varieties within this species but these do not appear to represent clearly distinguishable taxa. I feel that extensive field observations of the habit correlated with leaf and floral morphology are required before a detailed revision of this species can be achieved. The size and shape of the leaves and the degree of spinescence vary with the age of the plant and the position on the plant, so that two collections made from the one plant can appear different. This species is extremely variable and widely distributed. I am retaining two previously described varieties, viz. var. *macrophylla* Hook., J. Bot. (Hooker) 1:249 (1834) and var. *microphylla* Ewart et al., Proc Roy Soc. Vic. N.S.23: 56 (1910).

One group of plants which I include under var. *macrophylla* Hook. has a distinctive leaf and stem surface which appears macroscopically to be a bloom and to warrant its recognition as a separate variety. Dr. N.G. Marchant has examined the bloom and concludes it to be a scurf caused by a fungal infection. As these plants are randomly distributed through the range of the normal var. *macrophylla* I have decided to retain them in this variety.

Bursaria spinosa var. **spinosa**

Spinescent *shrub*, less than 2 m high. *Leaves* linear, lanceolate or oblanceolate, 10–25 x 3–10 mm. *Sepals* less than 1 mm long, deciduous at anthesis. *Petals* 3–4 x 1 mm.

Bursaria spinosa var. **australis** E.M. Bennett, var. nov. (Fig. 5 A-C)

Folia linearis-lanceolata, eis longitudinorum dissimilorum aggregatis, ± recurva. *Petala* linearia. *Sepala* deltoidea sub anthesi praesentia.

Type: Ca. 1 km south of Freeling, South Australia, 27 Nov. 1965, *D.N. Kraehenbuehl* 1558 (HOLOTYPE: AD 96710134).

Leaves linear-lanceolate, clustered in groups of differing lengths (6) 10–20 x 2–4 mm, ± recurved. *Sepals* deltoid, 0·5–1 mm, present at anthesis. *Petals* linear (4·5)5·5–6·5 x 1·2–2 mm.

Distribution: South-east of South Australia, north-western Victoria and with a few collections in central New South Wales.

This differs from the typical variety in the larger petals, and in the shape and fasciculation of the leaves. The epithet refers to the southern distribution.

Bursaria spinosa var. **lanceolata** E.M. Bennett, var. nov. (Fig. 5 D,E)

Frutex plerumque ± 2 m. *Folia* lanceolata. *Stamina* 3–4·5 mm longa, petala excedentia.

Type: Stoneyfell, Ferguson Park, South Australia, 1 Nov. 1971, *K. Preiss* 13 (HOLOTYPE: AD 97118145)

Low to medium *shrub*, usually less than 2 m high. *Leaves* lanceolate 25–70 x 3–9 mm. *Sepals* caducous. *Petals* 2·5–4 x 1 mm. *Stamens* 3–4·5 mm long, exceeding petals.

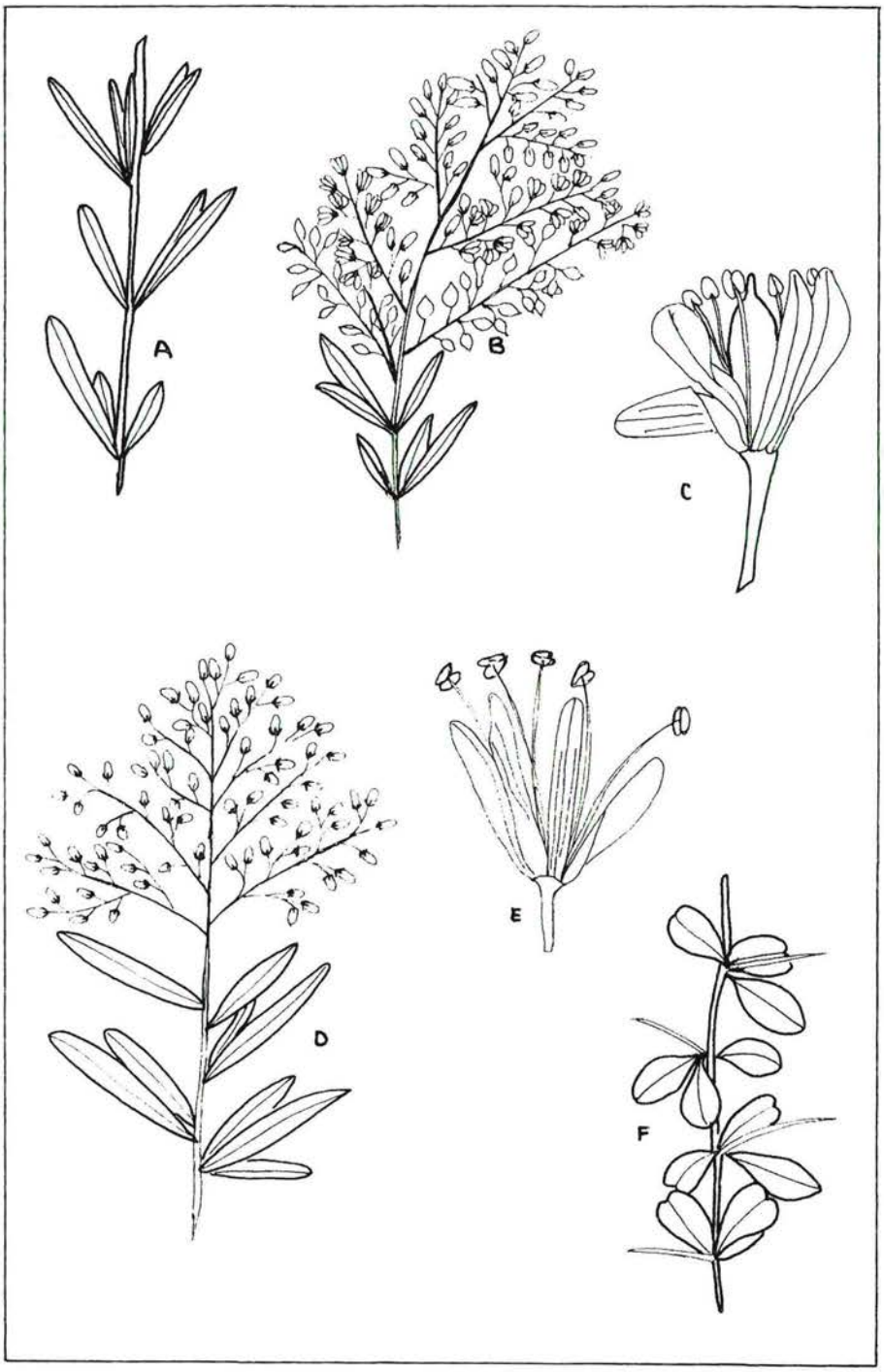

Figure 5—A–C—*Bursaria spinosa* Cav. var. *australis* E.M. Bennett. A—Leaves, x 1. B—Inflorescence, x 0·5. C—Flower, x 4. All from AD 96710134. D–E—*Bursaria spinosa* var. *lanceolata* E.M. Bennett. D—Inflorescence, x 0·5. E—Flower, x 5. From AD 97118145. F—*Bursaria spinosa* var. *obovata* E.M. Bennett. Branchlet with spines and leaves, x 1. From CANB 73151.

Distribution: South Australia—Eyre Peninsula, Kangaroo Island, Port Augusta, Yorke Peninsula and then south-eastwards to Penola.

This variety differs from var. *macrophylla* in being a small to medium shrub and in the leaves being less than 1 cm wide; var. *macrophylla* is a tall shrub or tree and the leaves generally are 1–2 cm wide but often wider. The var. *lanceolata* differs from var. *australis* and var. *spinosa* in the longer leaves. The epithet refers to the lanceolate leaves.

Bursaria spinosa var. **obovata** E.M. Bennett, var. nov. (Fig. 5 F)

Folia dispersa vel fasciculata, obovata vel obovata-lanceolata, glabra. *Spinae* numerosae, graciles. *Sepala* sub anthesi praesentia.

Type: Sandy Harbour, Hunter Valley, New South Wales, 13 Aug. 1959. *R. Story* (HOLOTYPE: CANB 73151; ISO: CANB 69983, NSW)

Leaves scattered or clustered, obovate to obovate-lanceolate 6–12(18) x 3–6 mm, glabrous, medvein prominent on undersurface. *Spines* rather numerous, slender 6–10 mm long. *Stems* and panicle densely short pubescent to glabrous. *Sepals* $< 0{\cdot}5$ mm long, persistent at anthesis.

Distribution: This variety has a scattered distribution along the eastern section of Queensland, New South Wales, Victoria and South Australia. Generally the leaves become coriaceous towards the coast and southwards.

This variety differs from all the other varieties in the obovate leaves (to which the epithet refers) and in the small persistent sepals.

Cheiranthera

Cheiranthera alternifolia E.M. Bennett, sp. nov. (Fig. 6 D-H)

Frutex humilis. *Folia* dispersa, linearia, carinata vel plana. *Flores* solitarii vel in corymbium 2-5(11) florium disposita. *Stamina* ± petala aequantia vel eis duplo breviora.

Type: Scott's Creek, South Australia, 20 Oct. 1964, *D.J.E. Whibley* 1494 (HOLOTYPE: AD 96717068).

Small *subshrub* up to 50 cm high. *Leaves* alternate, linear, 7–60 x 0·75–1·5 mm, carinate or flat. *Flowers* solitary or in corymbs of 2–5(11) flowers. *Sepals* free, lanceolate, 4–8 x 1–2 mm, glabrous. *Petals* pale to dark blue, broad-lanceolate, 12–21 x 5–8 mm. *Staminal filaments* 3–5 mm long, anther loculi 3·5–5 mm long. *Ovary* glabrous 5–6·5 mm high. *Capsule* glabrous, seeds black shining.

Distribution: North-west Victoria and southern and western South Australia.

This species differs from *C. cyanea* in the leaves being scattered, not clustered at the node, and from *C. filifolia* in the stamens being equal to or less than half-length of the petals, and the petals being broad.

Two collections of a small-leaved variant of this species have been collected, one from NW Victoria and the other from Kangaroo Island. Other collections of this species have these smaller leaves in the lower part but develop the longer leaves higher up.

Cheiranthera cyanea Brongn., Bot. (Phan.) Voy. La Coquille t.77 (published between 1827 and 1834)

C. linearis A. Cunn. ex Lindl., Bot. Reg. 20, sub t.1719 (Mar-Dec. 1834)

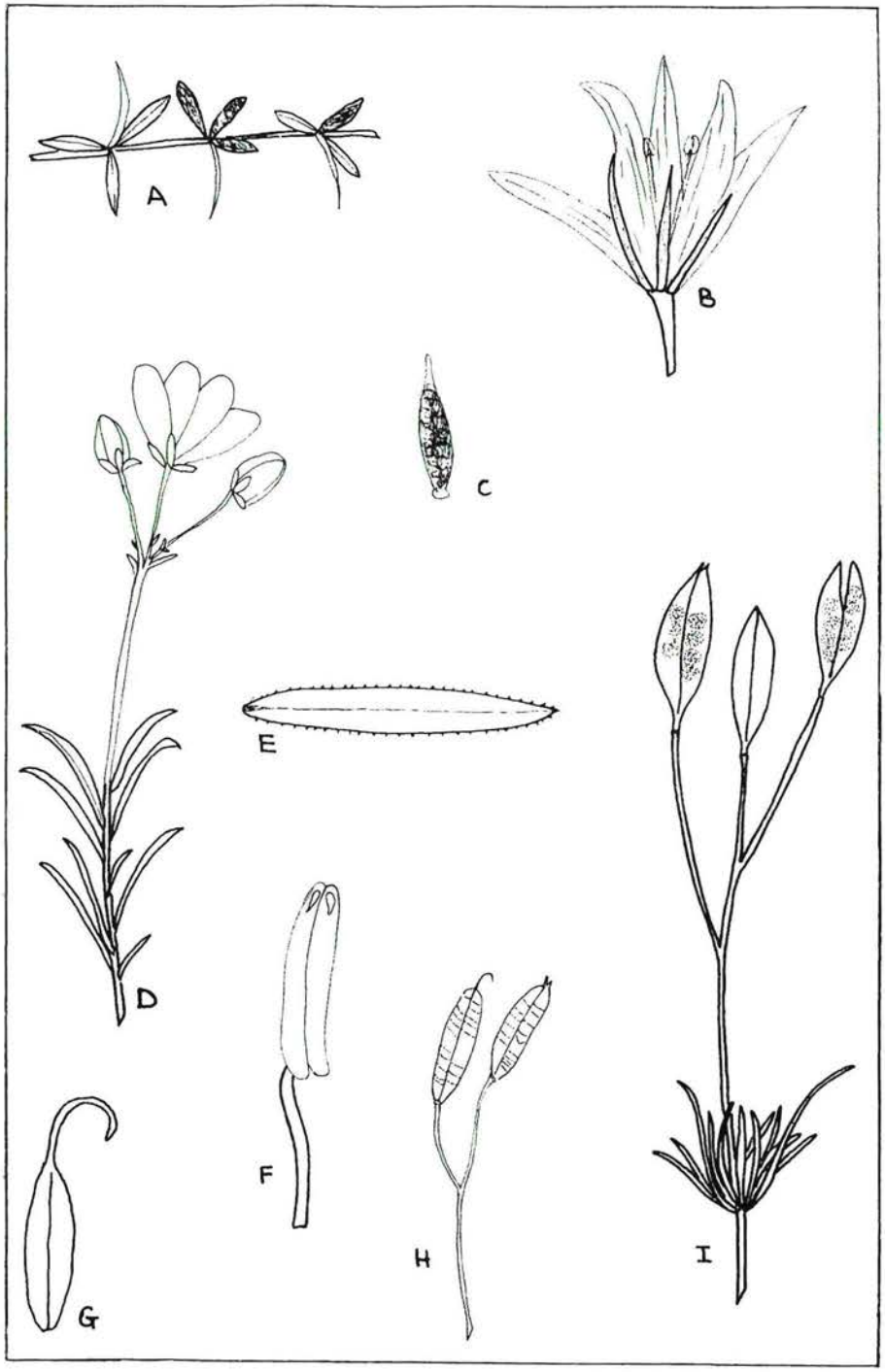

Figure 6—A–C—*Bursaria longisepala* Domin var. *pilosa* E.M. Bennett. A—Leaves, x 1. B—Flower, x 4. C—Ovary, x 3. All from NSW 728691. D–H—*Cheiranthera alternifolia* E.M. Bennett. D—Inflorescence, x 1. E—Leaf, x 1·5. F—Anther, x 9. G—Ovary, x 8. I—*Cheiranthera cyanea* Brongn. var. *borealis* E.M. Bennett. Fruiting branchlet.

In recent literature, particularly Eichler (1965) and Willis (1973), opinions have differed as to which of the above specific names has priority. It is likely that Brongiart's t.77 was published well before 1834 as it is not near the end of the work, whereas *C. linearis* may not have been published until late in 1834. I believe *C. cyanea* to have priority, a conclusion also reached by Stafleu (pers. comm.), until evidence to the contrary is produced.

Cheiranthera cyanea var. **borealis** E.M. Bennett, var. nov. (Fig. 6 I)

Folia dispersa, supra fasciata, arte revoluta ut teretia videntur. *Cymae* terminales ve ramulos axillares superioros terminantes folia excedentes.

Type: Stanthorpe, Queensland Dec. 1962, *W.T. Jones* (HOLOTYPE: BRI 036214)

Lower *leaves* alternate, scattered, upper ones clustered, fasciculate, closely inrolled so as to appear terete, 10–22 x 1·15 mm. *Cymes* terminal or terminating upper axillary branchlets, much exceeding leaves.

Distribution: New South Wales on the border with Queensland and in the Darling Downs and Burnett regions of Queensland.

This differs from the typical variety in the shorter clustered leaves and the cymes much exceeding the leaves; the var. *cyanea* has long, linear leaves and the cymes often do not exceed them. The varietal epithet refers to the northern distribution.

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