

Flora of South Australia

5th Edition



Photograph: Helen Owens

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

All rights reserved

Copyright of illustrations might reside with other institutions or
individuals. Please enquire for details.

Department of
Environment,
Water and
Natural Resources

Contact:

Dr Jürgen Kellermann

Editor, *Flora of South Australia* (ed. 5)

State Herbarium of South Australia

PO Box 2732

Kent Town SA 5071

Australia

email: juergen.kellermann@sa.gov.au



Government
of South Australia



Flora of South Australia

5th Edition | Edited by Jürgen Kellermann

FABACEAE (LEGUMINOSAE) (partly)¹

I.R. Thompson² & P.G. Wilson³

Treatments of Fabaceae presented here include tribes Bossieae, Brongniartieae and Indigofereae. Other groups are in preparation and will be made available once finalized. — Ed.

TRIBE BOSSIAEEAE (Benth.) Hutch.

Prepared by I.R. Thompson

Small trees, shrubs, subshrubs, or perennial herbs, with branches occasionally armed (not in S.A.), without glandular material in axils; leaves alternate or opposite, petiolate, 1–3-foliolate, imparipinnate, or absent; stipules present, free, persistent or caducous, sometimes fusing to form a scale; lamina of leaflets mostly entire; leaflets short-petiolulate, estipellate. **Inflorescences** terminal or pseudoaxillary, comprising few- to many-flowered racemes or flowers solitary; sometimes with scales below; flowers pedicellate; bract basal or near-basal; bracteoles persistent or caducous; calyx with tube variable in length relative to lower lobes; lobes imbricate in bud, upper lobes ± free or variously fused, sometimes relatively broad and/or long; petals clawed; stamens forming an adaxially open sheath, anthers uniform, versatile; ovary mostly few–several-ovulate. **Pods** dehiscent, predominantly stipitate, body oblong to elliptic in profile, moderately to strongly compressed, valves variably rigid, with thinner valves sometimes rolling on dehiscence, rarely with internal partitions; seeds with hilum short, c. lateral, mostly arillate; aril hood-like.

7 genera and c. 104 species, all endemic in Australia. *Hovea* and *Templetonia*, included in this tribe in Jessop & Toelken (1986), are now in the tribe Brongniartieae.

- 1. Leaves trifoliolate
 - 2. Plants erect, c. 1–3 m high; inflorescences many-flowered..... 3. **Goodia**
 - 2: Plants prostrate; inflorescences 1- or 2-flowered 4. **Muelleranthus**
- 1: Leaves unifoliolate or leaves absent (scales in their place)
 - 3. Inflorescences mostly 3 or more flowered in an elongate raceme, without basal bud scales; flowers with a cylindrical hypanthium 1. **Aenictophyton**
 - 3: Inflorescences mostly 1-flowered (but several may be clustered in axil), with bud scales below; flowers without an hypanthium
 - 4. Bracteoles 0.3–3 mm long; pods without a winged upper margin; leaves without lateral lobes or leaves absent..... 2. **Bossiaea**
 - 4: Bracteoles 5–10 mm long; pods with a winged upper margin; leaves commonly with acute, pungent-pointed lateral lobes 5. **Platylobium**

¹ This work can be cited as: Thompson, I.R. & Wilson, P.J. (2011). Fabaceae (Leguminosae) (partly) (version 1). In: Kellermann, J. (ed.), *Flora of South Australia* (ed. 5). 22 pp. (State Herbarium of South Australia: Adelaide). www.flora.sa.gov.au/ed5

² National Herbarium of Victoria, Royal Botanic Gardens Melbourne, Private Bag 2000, South Yarra, VIC 3141, Australia.

³ National Herbarium of New South Wales, Royal Botanic Gardens, Mrs Macquaries Road, Sydney, NSW 2000, Australia.

© Department of Environment and Natural Resources, Government of South Australia. ISBN 978-1-922027-12-2 (PDF). Publication date: 26 Oct. 2011.



Government of South Australia

Department of Environment and Natural Resources

1. AENICTOPHYTON A.T.Lee

Contr. New South Wales Natl. Herb. 4(7): 422 (1973).

(from the Greek *ainiktos*, baffling, and *phyton*, a plant, in reference to the difficulty the author had in placing *A. reconditum* in a new genus.)

Rhizomatous herbs; branches terete; leaves alternate, unifoliolate or imparipinnate, with petiole and rachis green; lamina entire, with terminal leaflet slightly longer than lateral ones; stipules persistent, free, herbaceous becoming dry and pale. **Inflorescences** pedunculate, of several flowered racemes, scales absent below, bract and bracteoles herbaceous, variably persistent, bracteoles inserted distally; hypanthium conspicuous; calyx sparsely hairy or glabrous; upper lobes moderately fused, similar in length to lower lobes; standard equal to or longer than wings, wings longer than keel. **Pods** ± narrow-oblong in profile, glabrous, upper suture not winged or ridged; aril small or vestigial.

2 species endemic in Australia.

Reference: Thompson (2011c).

1. **Aenictophyton anomalum** (F.Muell.) I.Thomps., *Muelleria* 29(2): 185 (2011) — *Ptychosema anomalum* F.Muell., *Fragm.* 9: 62 (1875) — **Illustr.:** I.R.Thomps., *Muelleria* 29: 185, fig. 8a–c (2011).

Erect herbs to c. 30 cm high, with rhizomes to c. 4 mm in diam., stems to 1.5 mm in diam.; indumentum of sparse to scattered appressed hairs on most parts; leaves (5–) 7–11-foliolate; petiole 8–25 mm long, rachis 10–40 mm long, petiolules 0.4–0.8 mm long, lamina of leaflets obovate to oblanceolate or elliptic, mostly 2–7 × 1–4 mm (sometimes less than 1 mm when folded), with terminal one longest, often folded, margin flat, often with raised secondary veins, with apex obtuse to truncate, commonly with a short recurved apiculum; stipules lanceolate, 1–3 mm long, erect. **Flowers** 5–9 per raceme, flowering progressively; peduncle 20–30 mm long; pedicels 2–3 mm long; bract and bracteoles caducous, bract 2 mm long; bracteoles 1–2 mm long, inserted 1–2 mm below receptacle; receptacle 1.5–2.5 mm long, ribbed; calyx 3–4 mm long, with reddish longitudinal stripes, lobes c. equalling tube; sinus between upper lobes c. 1 mm deep; standard 6–10 mm long, including claw 2.5–3 mm long, orange, sometimes with purplish bands on outside; wings 5–8 mm long, yellow or purple; keel 5–7 mm long, greenish-yellow; ovary several-ovulate, style c. 2 mm long. **Pods** with stipe 3–5 mm long, body oblong-elliptic, 10–15 × 4–5 mm, mostly 1–4-seeded (not seen mature), base cuneate, beak c. 0.5 mm long, valves variably flecked or blotched purple; seeds c. 3 mm long, greenish-brown; aril a rim only.

S.A.: NW; N.T.; N.S.W. Grows on sand dunes. Flowers: Aug.–Sep.

Imparipinnate leaves, an elongate, ribbed hypanthium, and a striped calyx and hypanthium distinguish this species from other species in the Bossiaceae. The rachis and petiole of leaves are rather broad and green, and therefore resemble stems.

2. BOSSIAEA Vent.

Descr. Pl. Nov. 1, 7 (1800).

(After Bossieu de la Martinière, botanist to the ill-fated French expedition of La Pérouse which visited Sydney in 1788.)

Shrubs or subshrubs; branches sometimes flattened; leaves opposite or more often alternate, unifoliolate (but sometimes appearing to be simple), or absent, sessile or petiolate, lamina mostly entire; stipules persistent, free, mostly dry, in leafless species united to form a scale. **Inflorescences** sessile, mostly solitary, floral bracts and bracteoles scale-like, persistent or not, floral bracts few to several; bracteoles inserted proximally to distally, generally small; calyx glabrous or mostly somewhat sparsely hairy, pubescent internally, upper lobes predominantly moderately fused, sometimes markedly longer than lower lobes; petals yellow, with red markings, occasionally all red or all yellow, standard longer than wings, wings c. equal to keel, or occasionally keel with the longest petals. **Pods** elliptic, oblong-elliptic or narrow-oblong in profile, hairy all over (not in S.A.), with hairs restricted to sutures, or glabrous upper suture sometimes ridged but hardly winged; aril c. half of length of seed. **Bossiaceas.**

Endemic to Australia, with c. 65 species. Currently undergoing revision.

The petiole-petiolule articulation is sometimes geniculate in *Bossiaea*, a feature also evident in species of *Platylobium*. In *Bossiaea* a spur sometimes develops at this articulation.

1. Plants leafy, a pair of stipules at each node; flowering branches terete to slightly flattened, pubescent, 0.3–1.5 mm wide
2. Shrubs, > 20 cm high; petiole c. 0.5 mm long; leaf-apex acute; bracteoles mostly inserted distally, persistent..... 1. **B. cinerea**
- 2: Dwarf sub-shrubs, mostly < 20 cm high; petiole 0.8–5.0 mm long; leaf-apex subacute to rounded; bracteoles inserted proximally, often caducous 3. **B. prostrata**
- 1: Plants generally leafless, with a single scale at each node; flowering branches markedly flattened, glabrous, 3–10 mm wide
3. Keel c. 7 mm long; bracteoles present at anthesis and overlapping calyx; flowering, developing cladodes glabrous except for margins; ovary c. 6-ovulate..... 2. **B. ensata**
- 3: Keel 15–20 mm long; bracteoles lost at anthesis; developing cladodes hairy all over; ovary c. 20-ovulate 4. **B. walkeri**

1. **Bossiaea cinerea** R.Br.in W.T.Aiton, *Hortus Kew.* ed. 2, 4: 268 (1812). — *B. cordifolia* Sweet, *Fl. Australas.* t. 20 (1827); *B. tenuicanlis* Graham, *Edinburgh New Philos. J.* 29: 171 (1840). — **Illustr.:** M.G.Corrick & B.A.Fuhrer, *Wildfl. Victoria* 84, fig. 303 (2000).

Erect or straggling shrub to 100 cm high; new branches ± terete, c. 1 mm diam., with hairs appressed or spreading; leaves: petiole 0.2–0.5 mm long, commonly with a spur at the slightly geniculate articulation with petiolule, lamina narrowly triangular-ovate to lanceolate, 6–20 × 2–8 mm, base rounded to slightly cordate, margin revolute, apex acute, with apiculum 0.2–2 mm long, sometimes pungent, upper surface mostly glabrous, often minutely asperous, lower surface with scattered hairs; stipules narrow-lanceolate to ± linear, 1–3 mm long, mostly strongly recurved, dry. **Pedicels** 5–20 mm long; bracts c. 0.5 mm long; bracteoles ± opposite, inserted 1–4 mm below receptacle, ovate, 0.3–0.5 mm long; calyx 3–4.5 mm long, reddish-brown, glabrous or sparsely hairy with appressed hairs, upper lobes c. 2 mm wide, with point lateral; standard 10–12 mm long, keel predominantly dark purple; ovary 4–6 ovulate, style c. 4 mm long. **Pods** with stipe 2–4 mm long, body 12–20 × 6–8 mm, glabrous; seeds 3–4 mm long. **Showy bossiaea. Fig. 1A–C.**

S.A.: SE; N.S.W.; Vic.; Tas. Flowers: Aug.–Sep.

2. **Bossiaea ensata** Sieber ex DC., *Prodr.* 2: 117 (1825).

Erect or sprawling leafless shrub to c. 2 m high; branches (cladodes) winged, to 15 mm wide, with flowering branches 3–8 mm wide, sometimes developing flakes of epicuticular wax;; new growth glabrous except for margins which have variably persistent hairs;; leaves not seen; scales ovate, 2–2.5 mm long, eroding with age. **Pedicels** 2–3 mm long; scales 2–4, bract 2–2.5 mm long, inserted c. 1 mm along pedicel, caducous; bracteoles inserted shortly below receptacle, subopposite, narrow-ovate, 2–2.5 mm long, persistent; calyx in bud with small beak directed obliquely, at anthesis calyx 4–5 mm long, glabrous, upper lobes c. triangular, 1.5 mm wide, a little larger than lower lobes; standard c. 8 mm long, yellow with red mark; wings and keel slightly shorter, purplish distally; ovary 4–6-ovulate, style c. 2 mm long. **Pods** stipitate, glabrous (not seen mature). **Sword bossiaea. Fig. 1D–E.**

S.A.: EP (southern section); Qld; N.S.W.; Vic. Flowers: Oct.

This taxon is currently placed in *B. ensata* but warranting taxonomic recognition. The description above is based on S.A. material which differs from typical *B. ensata* from the E coast of N.S.W. and far eastern Vic. in having larger, more distally inserted bracteoles, larger scales, more frequent branching, and shorter, broader cladodes. From *B. scolopendria* (Andrews) Sm. it differs mainly in having smaller flowers.

(Vulnerable status in S.A.)

3. **Bossiaea prostrata** R.Br., *Curtis's Bot. Mag.* 36: t. 1493 (1812). — **Illustr.:** M.G.Corrick & B.A.Fuhrer, *Wildfl. Victoria* 85, fig. 306 (2000).

Prostrate to weakly ascending subshrub to c. 20 cm high, with stout taproot, new branches 0.3–0.7 mm wide, somewhat flattened, hairy; leaves: petioles 0.8–5 mm long, unspurred at a strongly geniculate junction with petiolule, lamina suborbicular, ovate or oblong-ovate, becoming narrow-ovate upwards, 7–25 × 3–15 mm, base

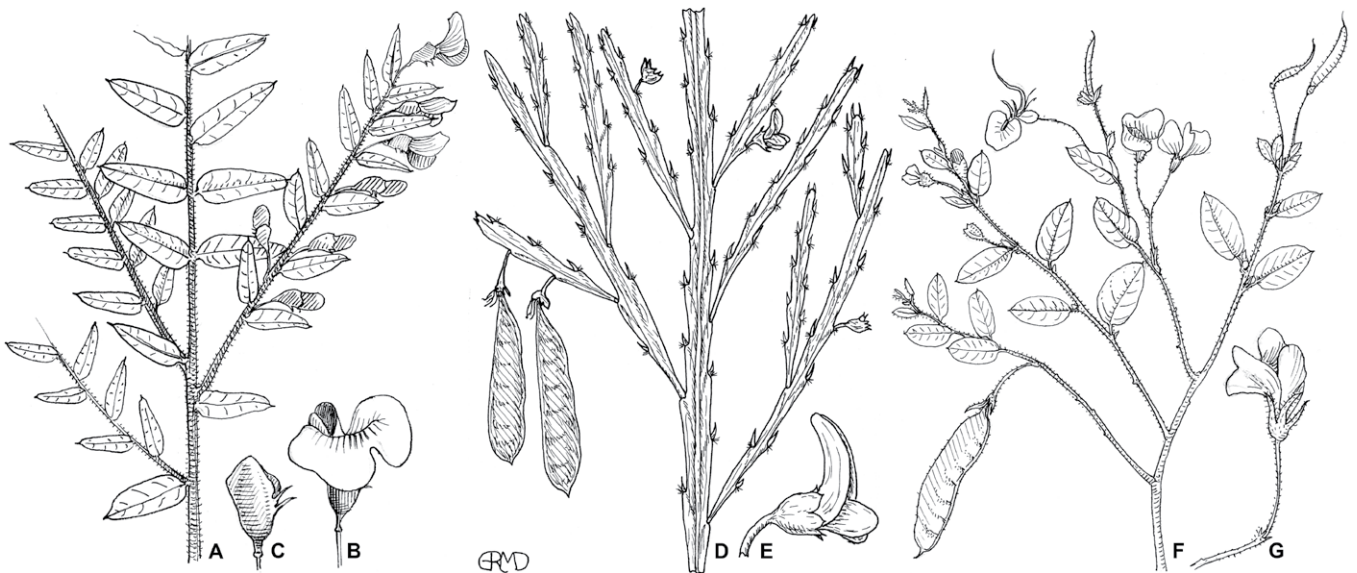


Fig. 1. A–C, *Bossiaea cinerea*: A, branch; B, flower; C, calyx. D–E, *B. ensata*: D, branch; E, flower. F–G, *B. prostrata*: F, branch; G, flower. Illustrations by G.R.M. Dashorst, from *Flora of South Australia* 2: 690, Fig. 372A–C (1986).

rounded to slightly cordate, margin nearly flat, sometimes slightly undulate, apex subacute to rounded, with apiculum to 0.5 mm long, not pungent, surfaces transiently hairy; stipules lanceolate, erect or slightly divergent, dry. **Pedicels** 5–20 mm long; bracts 2 or 3, largest to 2 mm long, somewhat persistent; bracteoles opposite or subopposite, inserted in proximal half of pedicel, lanceolate, 2–3 mm long; calyx in bud with beak pointing forwards, c. 4 mm long, moderately hairy with spreading hairs, upper lobes 1–1.8 mm wide; standard c. 10 mm long, keel purple in distal half; ovary 8–12-ovulate, style c. 3 mm long. **Pods** with stipe 1–2 mm long, body oblong, 20–30 × 5–7 mm, generally hairy along both sutures, rarely hairy on valves; seeds c. 2 mm long. **Creeping bossiaea**. Fig. 1F–G.

S.A.: EP (southern section), SL, SE; Qld; N.S.W.; Vic.; Tas. Flowers: Sep.–Nov.

4. ***Bossiaea walkeri*** F.Muell., *Fragm.* 2: 120 (1861). — **Illustr.**: L.F.Costermans, *Native Trees Shrubs S.E. Austral.* 195 (1981); *Fl. Victoria* 3: 813, fig. 164i (1994).

Erect leafless shrub to c. 2 m high; branches (cladodes) winged to 7 mm wide, flowering branches 2–6 mm wide; early glabrescent, developing exfoliating epicuticular wax; new growth transiently covered with hair; leaves occasionally seen near base of branches; petiole 1–2 mm long, with petiole-petiolule junction geniculate, lamina elliptic to orbicular, 10–20 mm long; scales ovate, 2–2.5 mm long, eroding with age. **Pedicels** 3–6 mm long; basal bracts 6–12, largest to c. 2.5 mm long, with more distal ones caducous; bracteoles inserted 0.5–2 mm beyond base of pedicel, ovate, c. 3 mm long, early caducous; calyx in bud hardly beaked, at anthesis calyx 6–10 mm long, glabrous, upper lobes quadrangular, 3 mm wide; standard 14–18 mm long, remaining folded, pale red; keel 20–25 mm long, red; ovary c. 20-ovulate, style 6–8 mm long. **Pods** with stipe 3–4 mm long, body narrow-oblong, c. 60 × 10 mm, with hairs along sutures, glabrescent, valves glaucous; seeds c. 3 mm long. **Cactus pea, cactus bossiaea**.

S.A.: NW, NU, GT, EP, MU, SL; W.A.; N.S.W.; Vic. Mainly on sandy flats or dunes. Flowers: Jul.–Nov., occasionally autumn.

Abscission scars of the two bracteoles are sharply defined and become visible once the bract and more distal scales are lost. Juvenile leaf morphology is similar to that of species like *B. prostrata*. When such leaves are formed a pair of broad stipules are present. The scale at each leafless node can be considered to be the result of fusion of this pair of stipules. The same developmental process is likely to account for the single scale seen at nodes in *Templetonia egena*.

3. **GOODIA** Salisb.

Parad. Lond. 1, t. 41 (1806).

(After Peter Good, horticulturist and botanical collector under Robert Brown in the early 1800s, and who travelled on board Matthew Flinders' H.M.S. Investigator.)

Shrubs; branches terete; leaves alternate, pinnately 3-foliolate, long-petiolate; terminal leaflet slightly larger than lateral ones, lamina entire, stipules caducous, free, herbaceous. **Inflorescences** pedunculate, of terminal many-flowered racemes; floral bracts and bracteoles herbaceous, caducous, floral bract solitary; bracteoles inserted distally; calyx glabrous or hairy, glabrous internally, upper lobes moderately to \pm completely fused, c. as long as lower lobes, standard a little longer than wings, wings c. equal to keel. **Pods** rhomboid-elliptic or oblong to narrow-oblong in profile, glabrous or rarely with a few hairs restricted to sutures, upper suture commonly with a thick, low ridge; aril 1/3–2/3 of length of seed. **Goodias**.

Endemic in Australia, with 2 species and 1 variety currently recognised.

Reference: Thompson (2011a).

1. **Goodia medicaginea** F.Muell., *Fragm.* 1: 10 (1858) — *Goodia lotifolia* Salisb. var. *lotifolia* auct. non. H.B. Will.: J.Z. Weber in Jessop & Toelken, *Fl. S. Austral.* 2: 691 (1986); *Goodia lotifolia* Salisb. var. *pubescens* auct. non (Sims) H.B. Will.: J.Z. Weber in Jessop & Toelken, *Fl. S. Austral.* 2: 692 (1986) — **Illustr.:** *Pl. W. N.S.W.* 395 (1982); I.R. Thomp., *Muelleria* 29: 142 & 144, fig. 1d, 2b & d (2011).

Shrubs to c. 2 m high, with appressed to nearly spreading hairs mostly present on axes, calyces and undersurface of leaves; leaves: petiole 10–20 mm long, rachis 3–18 mm long, petiolules 1.5–3 mm long, lamina elliptic, orbicular, obovate, or obovate, 10–30 × 8–25 mm, apex obtuse to truncate, or slightly emarginate, with apiculum to 0.8 mm long, upper surface glabrous, lower surface with scattered appressed hairs; stipules 4 mm long. **Racemes** up to 30-flowered; pedicels 3–10 mm long; bract 5 mm long, caducous; bracteoles inserted 1–4 mm below summit of pedicel, 2 mm long, caducous; calyx 3–5 mm long, usually with scattered appressed to spreading hairs, upper lobes 1.5–2 mm wide, completely fused to produce a \pm truncate upper lip or with sinus to c. 0.5 mm deep; standard 7–10 mm long, with limb 4–6 mm long, yellow with a purple mark surrounding a yellow throat, variably purple on back, wings 6–8 mm long, generally purple distally, keel 6–8 mm long, purple distally; ovary 2–4-ovulate, with scattered hairs on sutures, style 2–2.5 mm long. **Pods** with stipe 5–10 mm long, body rhomboid-elliptic, (10–) 15–25 × 7–11 mm with sutures glabrescent; seeds c. 3 mm long, black; aril c. 2 mm long, c. 1 mm high, zone of attachment 0.8–1 mm long, lobe strongly overhanging and downcurved. **Western golden-tip, clover tree**.

S.A.: FR, EP, MU, YP, SL, KI, SE; W.A.; N.S.W.; Vic.; Tas. Flowers: Aug.–Nov.

Short-podded plants occur on the Eyre Peninsula. In the Flinders Ranges the leaf rachis is particularly long (often > 10 mm). *Goodia pubescens* Sims occurs in far south-western Vic. but has not been recorded for S.A. It is similar to *G. medicaginea* in having hairs on inflorescence rachides, pedicels, calyces and the lower surface of leaves. However, in *Goodia pubescens* the leaf rachis is generally shorter, the upper lip of the calyx is conspicuously cleft, the standard is largely yellow abaxially, wings are yellow distally, the ovary and developing fruit do not have hairs on sutures, and the aril of seeds has a much longer zone of attachment. Additionally, leaves of *G. pubescens* differ in that they commonly have sparse to scattered hairs on the upper surface.

4. MUELLERANTHUS Hutch.

Gen. Fl. Pl. 1:361 (1964).

(After F. Mueller, Australian botanist; Greek anthos, flower.)

Prostrate herbs; branches terete; leaves alternate, mostly digitately trifoliolate, long-petiolate; leaflets all similar in size, lamina broad-obovate or cuneiform, entire or distally denticulate; stipules persistent, free, herbaceous. **Inflorescences** pedunculate, of 1–3-flowered racemes, floral bracts and bracteoles herbaceous, variably persistent, floral bract solitary, bracteoles inserted distally; calyx hairy, glabrous internally, upper lobes moderately fused; standard equal to or longer than keel, wings often a little shorter than keel. **Pods** \pm narrow-oblong in profile, glabrous, upper suture not winged and not or hardly ridged; aril not developed or only c. 1/10 of length of seed. **Sand-peas**.

3 species endemic in Australia.

Reference: Thompson (2011c).

1. **Muelleranthus stipularis** (J.M. Black) A.T. Lee, *Contr. New South Wales Natl. Herb.* 4: 419 (1973). — *Ptychosema stipulare* J.M. Black, *Trans. Roy. Soc. S. Austral.* 62: 103 (1938). — **Illustr.:** *Pl. W. N.S.W.*, 407 (1981); I.R. Thomps., *Muelleria* 29: 182, fig. 4l–m (2011).

Prostrate plants with stems to c. 60 cm long, c. 0.5–0.8 mm in diam.; glabrous, or more often with spreading hairs on most parts; leaves: petiole 7–30 mm long; leaflets broad-obovate or cuneiform, mostly 3–7 (–9) × 2–6 mm, flat, apex broadly obtuse to truncate, rarely emarginate; stipules broad-ovate, 2–6 × 2–5 mm. **Flowers** 1 or rarely 2 per raceme, peduncle 10–50 mm long; pedicels 1–2.5 mm long; bract 2–3 mm long, variably persistent; bracteoles 1–2.5 mm long, 0.2–0.4 mm wide; receptacle inconspicuous; calyx 3–3.5 mm long, lobes c. equalling tube; sinus between upper lobes 0.8 mm deep, lower lobes slightly longer than upper; standard 4–5 mm long, including claw 2–2.5 mm long, purple except for veins; wings 3–4 mm long, with limb purple throughout; keel 4–5 mm long, greenish-yellow; ovary 6–10-ovulate, style 1–2 mm long. **Pods** with stipe 2.5–4 mm long, body narrow-oblong or lower margin somewhat convex, 20–30 × 4.5–6 mm, mostly 4–8-seeded, base cuneate, beak 0.5–2 mm long, valves not or inconspicuously maculate; seed irregularly globular, 2–3 mm in diam., red and brown, mottled blackish, aril not developed. **Sand pea. Fig. 2.**

S.A.: NW, LE, GT; W.A.; N.T.; Qld; N.S.W. Flowers: Jul.–Oct.

Glabrous forms occur throughout the range of the species but are less common than the hairy form. *Muelleranthus parvalatus* I.Thomps., which occurs near the northern and eastern borders of, but not in, S.A. (incorrectly recorded as occurring in S.A. in Barker *et al.* 2005, as *M. trifoliolatus*), can be distinguished from *M. stipularis* by the following features: flowers are larger, wings are yellow distally, the keel is much longer than the wings and with bands of purple flecks, stipules are narrower (0.5–1.5 mm wide), pods are slightly broader and mostly fewer-seeded, and seeds are not mottled and have a small but distinct aril. *Muelleranthus parvalatus* is almost glabrous and so is also easily distinguished from the hairy form of *M. stipularis*.

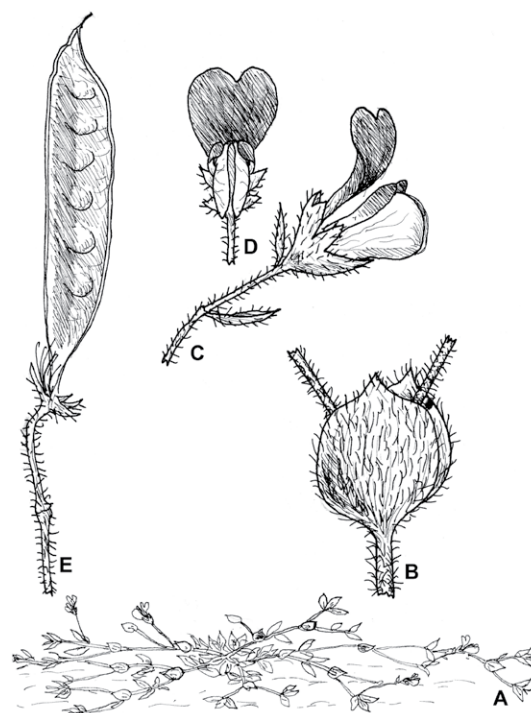


Fig. 2. *Muelleranthus stipularis*: A, habit; B, stipules; C–D, flower; E, fruit. Illustration by G.R.M. Dashorst, from *Flora of South Australia* 2: 694, Fig. 374A (1986).

5. PLATYLOBIUM Sm.

Spec. Bot. New Holland 1: 17, t. 6 (1793).

(From the Greek *platys*, flat and *lobos*, lobe, referring to the shape of the fruit.)

Shrubs or subshrubs; branches terete; leaves opposite or alternate, unifoliolate, sessile or petiolate; lamina entire or occasionally lobate; stipules persistent. **Inflorescences** sessile, solitary or in 2–4-flowered clusters, floral bracts and bracteoles scale-like, persistent, with ciliolate margins, floral bracts several to many; bracteoles mostly inserted strongly distally, often large; calyx mostly hairy, glabrous internally, upper lobes shortly fused, markedly longer than lower lobes; petals yellow with red markings, standard a little longer than wings and keel. **Pods** mostly c. narrow-oblong in profile, hairy all over, or with hairs restricted to sutures, upper suture winged; aril c. half to two-thirds of length of seed. **Flat-peas.**

Endemic to southern and eastern Australia with 4 species currently recognised.

Closely related to *Bossiaea*. In S.A. and E Australia *Platylobium* can be readily distinguished by the wing-like extension of pods, the larger, conspicuously net-veined leaves, the cluster of floral bracts at the base of pedicels, the larger bracteoles, and the large rounded upper calyx lobes. Rolling of the valves at dehiscence is a consistent feature of *Platylobium*, whereas in *Bossiaea* this occurs to varying degrees in species with thinner valves.

References: Ross (1983); Thompson (2011b)..

1. **Platylobium obtusangulum** Hook., *Bot. Mag.* 60, t. 3528 (1833) — *P. obtusangulum* var. *spinulosum* J.H.Willis, *Muelleria* 1: 126 (1967). — **Illustr.:** L.F.Costermans, *Native Trees Shrubs S.E. Austral.*, 194 (1981); J.H.Ross, *Muelleria* 5: 133, fig. 4a–e. (1983); I.R.Thompson, *Muelleria* 29: 156 & 158, figs 1a, 2c (2011).

Sprawling to erect shrub to c. 1 m high; branches with appressed to spreading hairs, glabrescent; leaves opposite, subsessile or petiole to 2 (–3) mm long, a ridge generally marking articulation with petiolule, lamina broad-

ovate to narrow-ovate, rhomboidal, triangular, or trilobate, 10–30 × 5–30 mm, base broad-cuneate to cordate or sagittate, margin hyaline, flat to slightly revolute, apex 0.5–3 mm long, with apiculum 0.5–3 mm long, often pungent (lateral angles and lobes also often with pungent points), upper surface glabrous or minutely scabrid, lower surface with scattered appressed hairs or glabrous; stipules triangular, 1.5–5 mm long. **Flowers** 1–3 per axil; pedicels 3–6 mm long, floral bracts 7–14, with longest 5–7 mm long extending beyond pedicel, bracteoles inserted at summit of pedicel, narrow-ovate, 5–7 mm long, convex, glabrous or with some hairs; calyx 8–12 mm long, clothed in long, loosely appressed hairs; upper lobes 4–8 mm wide; standard 12–14 mm long including claw 3–4 mm long, limb oblate, deeply notched, yellow with a red flare around throat and with red flecks in throat, red abaxially at least towards margin; keel 9–10 mm long, mostly pale, reddish distally; ovary 6–8-ovulate, style 4–6 mm long. **Pod** subsessile, body oblong, 12–30 × 9–15 mm, hairy all over or hairs restricted to sutures, wing 2–4 mm wide, up to 8-seeded; seeds 2.5–3 mm long; aril 1–2 mm long **Common flat-pea, native holly.**

S.A.: MU, SL, KI, SE; Vic.; Tas. Grows in forest, woodland and heathland. Flowers: Oct.–Nov.

Exhibits considerable plasticity in leaf morphology. Plants with more strongly trilobate leaves are more common on Kangaroo Island. Generally, lateral spines on leaves arise markedly proximally; however, several specimens from the Mt Lofty Ranges have leaves more orbicular and often with more numerous and more distally placed pungent points. These are referable to *P. obtusangulum* var. *spinulosum* J.H.Willis described from a single Victorian collection. The variety was not recognised by Ross (1983). It appears to be sympatric with plants with typical leaf morphology and is perhaps due to a congenital mutation. The very large upper lobes of the calyx of *P. obtusangulum* often become pinkish, especially on the inner surface. *Platylobium triangulare* R. Br. is vegetatively similar to *P. obtusangulum* and occurs in Vic. close to the S. A. border. It differs most obviously in having flowers on pedicels that conspicuously exceed the bracts, much smaller bracteoles and a longer-stipitate pod.

TRIBE BRONGNIARTIEAE (Benth.) Hutch.

Prepared by I.R. Thompson

Small trees, shrubs or subshrubs, with branches occasionally armed, sometimes with reddish glandular material in axils; leaves alternate, petiolate or rarely sessile, simple, 1–5-foliolate or sometimes rudimentary or absent; stipules present or not, free or rarely forming a scale, variably persistent; lamina of leaves and leaflets mostly entire; leaflets petiolulate, mostly estipellate. **Inflorescences** axillary, sessile, solitary or of few-flowered clusters, or rarely pedunculate, of few-several-flowered racemes; flowers subsessile or pedicellate; floral bract basal, solitary, bracteoles mostly persistent; calyx with tube similar in length to lower lobes, lobes valvate in bud, imbricate in *Templetonia*, upper lobes moderately to strongly fused, sometimes relatively broad and/or long; petals clawed; stamens forming an adaxially open sheath, anthers alternately long and basifixed, short and versatile; ovary 2–8- or rarely many-ovulate. **Pods** dehiscent, stipitate or sessile, body circular to elliptic or narrow-oblong in profile, plump to mildly compressed, valves mostly fairly rigid, sometimes with internal partitions; seeds with hilum short, subapical, longer and extending laterally in *Hovea*; arillate; aril ± annular, usually with a vertical lobe.

10 genera and c. 150–200 species in Central America, South America and Australia. In Australia 6 endemic genera and c. 60 species.

The two genera in S.A., *Hovea* and *Templetonia*, were placed in the Bossiaceae in Jessop & Toelken (1986).

1. Calyx ± densely hairy externally; standard and wing petals various shades of purple; pods nearly circular in profile or elliptic but then pods hairy; plants with leaves..... 6. **Hovea**
- 1: Calyx glabrous or with scattered hairs externally; standard and wing petals entirely red, or yellow with red-brown markings; pods elliptic to narrow-oblong, glabrous; plants with leaves or leafless 7. **Templetonia**

6. HOVEA R.Br.

in W.T.Aiton, *Hortus Kew.* ed. 2, 4: 275 (1812).

(After A.P. Hove, a Polish collector of plants for the Royal Botanic Garden at Kew.)

Small trees, shrubs or subshrubs, branches terete, smooth, rarely spinescent (not in S.A.), sometimes with glandular material evident in axils, generally moderately to densely hairy on several parts, with hairs often brown basally; leaves simple, mostly short-petiolate. **Inflorescences** 1–7-flowered, predominantly in sessile or short pedunculate clusters,

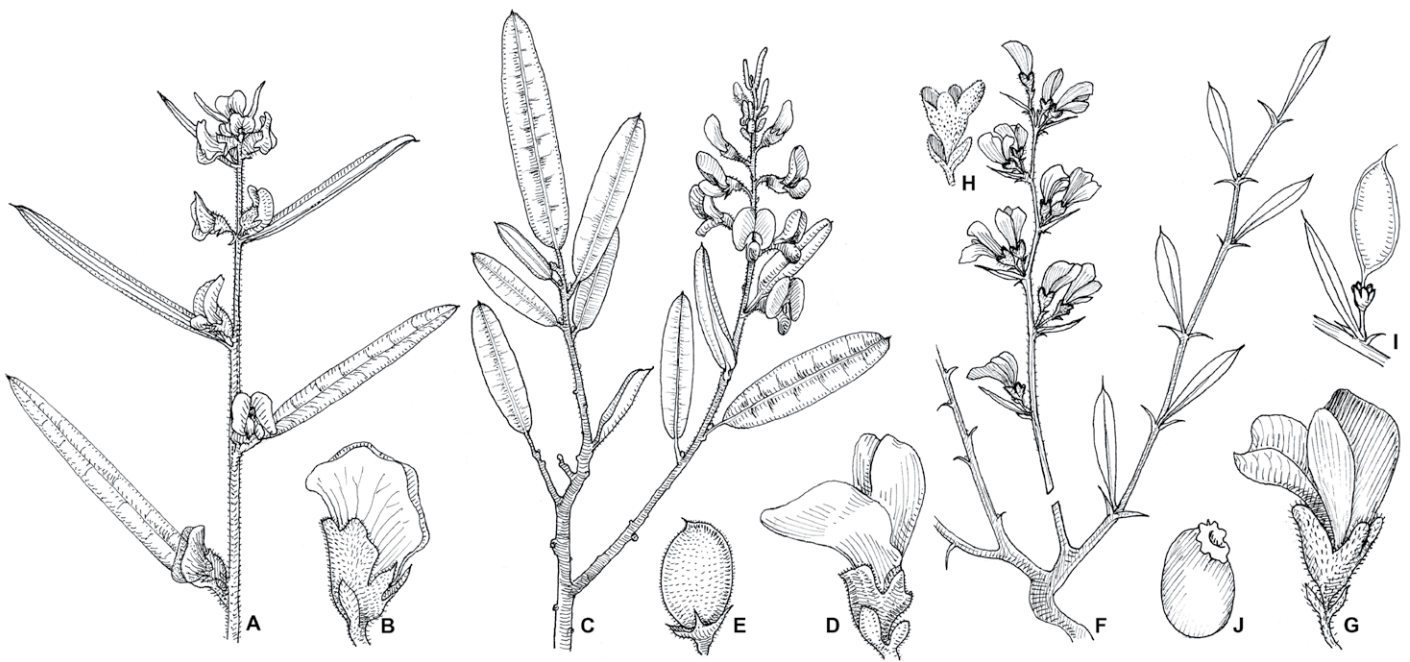


Fig. 3. A–B, *Hovea heterophylla*: A, branch; B, flower. **C–E, *H. purpurea*:** C, branch; D, flower; E, fruit. **F–J, *Templetonia aculeata*:** F, branch; G, flower; H, calyx; I, fruit; J, seed. Illustrations by G.R.M. Dashorst, from *Flora of South Australia* 2: 692, Fig. 374 & 697, Fig. 377A (1986).

or inflorescence sometimes elongated by auxotelic growth, hairy; bracteoles generally inserted \pm at summit of pedicel, mostly slender, \pm flat; calyx densely hairy, with lobes valvate in bud, upper lobes mostly moderately to strongly fused to form lip that generally expands distally and is at least as long as lowermost lobe; standard and wings a mauve- or blue-purple, sometimes rather pale, rarely white, standard longer than wings, wings longer than a dark-purple tipped keel; ovary glabrous or hairy, 2-ovulate or rarely up to 7-ovulate. **Pods** sessile or stipitate, orbicular to broad-elliptic in profile, mostly only slightly compressed, without internal partitions, mostly 2-seeded; seeds plump, hilum short or long; aril circular, elliptic or oblong to narrow-oblong, entire, with lobe small, inserted near apex. **Hoveas**.

A genus of 38 species endemic in Australia, mostly in eastern states, but also in south-western W.A., N.T., and south-eastern S.A.

1. Standard and wings pale purple; ovary and pods hairy (sometimes glabrescent), pods sessile
 2. Sub-shrubs with an indumentum of straight appressed hairs; bract and bracteoles 0.6–1.8 (–2.2) mm long; standard 6–8 mm long; pod sparsely hairy (SE) 1. ***H. heterophylla***
 2. Shrubs with an indumentum of curled hairs; bract and bracteoles 2.2–4.0 mm long; standard 11–17 mm long; pod densely hairy (FR)..... 3. ***H. purpurea***
1. Standard and wings a deep purple-blue; ovary and pods completely glabrous, pods stipitate (garden escapes)
 3. Leaves pungent; stipules setaceous, mostly > 2 mm long 2. ***H. pungens***
 3. Leaves not pungent; stipules lanceolate, to c. 2 mm long..... 4. ***H. trisperma***

1. ***Hovea heterophylla*** A.Cunn. ex Hook.f., *Fl. Tasman.* 1: 93 (1856). — *Hovea heterophylla* f. *decipiens* Domin, *Biblioth. Bot.* 89: 729 (1926). *Hovea linearis* auct. non (Sm.) R.Br.: T.A.James in Harden, *Fl. New South Wales* 2: 514 (1991); J.H.Ross, *Muelleria* 9: 15 (1996); J.H.Ross, in Walsh & Entwisle, *Fl. Victoria* 3: 805 (1996). — **Illustr.:** Corrick & Fuhrer, *Wildfl. Victoria* 93, fig. 333 (2000), as *H. linearis*; I.R.Thomps., *Austral. Syst. Bot.* 14: 45, fig. 18a–h (2001).

Sprawling to weakly erect subshrubs, mostly less than 0.5 m high, with hairs \pm appressed; leaves: petiole 1.5–3 mm long; lamina elliptic, ovate to lanceolate, or narrow-oblong to linear, often varying along a stem, 5–80 \times 1.5–10 (–17) mm, with midrib recessed, margins recurved to revolute, apiculum to c. 0.5 mm long, commonly recurved, upper surface glabrous; lower surface sparsely to moderately hairy; stipules lanceolate, 1–2 mm long, sometimes recurved. **Inflorescences** sessile, (1- or) 2- or 3-flowered, or occasionally shortly pedunculate and 4- or 5-flowered; pedicels 1.5–3 mm long, bract and bracteoles 0.6–1.8 (–2.2) mm long, bract persistent; calyx 3.5–5 (–6) mm long, upper lobes 1.5–2 mm wide; standard 6–8 mm long, moderately emarginate, mauve with a greenish-yellow throat; wings 6–7.5 mm long; keel 4.5–5 mm long; ovary 2-ovulate. **Pods** sessile, suborbicular in profile, 7–10 mm long, with scattered appressed hairs, sometimes glabrescent; seeds 3.5–4.5 mm long, dark-

brown or red-brown, sometimes mottled; aril oblong or narrow-ovate, 2.5–3.5 mm long, orifice 1.5–2.5 mm long.

Common hovea. Fig. 3A–B

S.A.: SE; Qld; N.S.W.; Vic.; Tas. Grows in woodland and forest, often in poorer soils. Flowers: Aug.–Oct.

Treated as a synonym of *H. linearis* by Ross (1996) and in recent state floras, but shown to be distinct by Thompson (2001). *Hovea linearis* is restricted to near-coastal N.S.W. and southern Qld. A feature of *H. heterophylla* is the fine and often minutely recessed reticulate venation of the upper surface of leaves. Pods can superficially appear glabrous and sometimes the valves become glabrous; however, hairs are always evident along the sutures.

2. ***Hovea pungens*** Benth. in Endl. *et al.*, *Enum. Pl.* 37 (1837). — **Illustr.:** J.H.Ross, *Muelleria* 7(1): 34, fig. 5a–d. (1989).

Erect shrubs to 1.8 m high, with hairs \pm straight, antrorse-appressed to divergent; leaves: sessile or subsessile, lamina narrow oblong-elliptic, lanceolate or linear, 5–30 \times 1–3(–4) mm, with midrib not or hardly recessed, margin strongly revolute, apiculum 1–2 mm long, straight, pungent, upper surface glabrous, lower surface glabrous except for midrib; stipules setaceous, 2–5.5 mm long. **Inflorescences** mostly sessile, 1 (or 2 or 3)-flowered, pedicels 3–9 mm long, bract and bracteoles 1.5–3.5 mm long, bract caducous; calyx 5–7 mm long, upper lobes 2.5–3 mm wide; standard 12–17 mm long, deeply emarginate, purplish-blue, with a white throat; wings 9.8–12.5 mm long; keel 4.2–6.7 mm long; ovary 2-ovulate. **Pods** with stipe 4–6 mm long, body suborbicular in profile, 6–9 mm long, glabrous; seeds 4–5.5 mm long, brown with paler mottling; aril c. elliptic, 2 mm long, orifice 0.8–1 mm long. **Devil's pins.**

S.A.: *SL; W.A. Flowers: Jul.–Oct.

A garden escape that is weakly naturalised.

Occasionally cultivated.

3. ***Hovea purpurea*** Sweet, *Fl. Australas.* t. 13 (1827). — *H. beckeri* F.Muell., *Linnaea* 25: 391 (1853). *Hovea longifolia* R.Br. var. *lanceolata* auct. non (Sims) Benth.: J.M.Black, *Fl. S. Austral.* 2: 305 (1924); *Hovea longifolia* R.Br. var. *longifolia* auct. non Benth.: J.Z.Weber in Jessop & Toelken, *Fl. S. Austral.* 2: 693 (1986). — **Illustr.:** I.R.Thomps., *Austral. Syst. Bot.* 14: 71, fig. 26f–k (2001); *Fl. Victoria* 3: 807, fig. 163e (1996).

Erect shrubs, generally forming a short trunk, to 3 m tall, with hairs mostly curled; leaves: petiole 2–6.5 mm long; lamina narrow-elliptic to narrow-oblong, 12–70 \times 4–10 (–17) mm, with midrib not or only slightly recessed, margins flat or recurved, apiculum 0.1–0.5 mm long, straight; upper surface with hairs along midrib; lower surface covered by a dense felted indumentum; stipules narrow-ovate to lanceolate, 1–2 mm long, sometimes recurved. **Inflorescences** sessile, 2-flowered; pedicels 1.5–2.5 mm long, bract and bracteoles ovate, oblong or obovate, 2.2–4 mm long, bract persistent; calyx 5.2–8.5 mm long, with upper lobes c. 2 mm wide; standard 11.5–17 mm long, moderately emarginate, mauve with a greenish-yellow throat; wings 10.3–15.5 mm long; keel 9.6–15.2 mm long; ovary 2-ovulate. **Pods** sessile, body broad-elliptic in profile, 10–17 mm long, densely hairy; seeds 5.5–7 mm long, dark brown; aril narrow-ovate, 3–4 mm long, without a basal expansion, orifice 2–3 mm long. **Fig. 3C–E.**

S.A.: FR, EP, NL; N.S.W., Vic. Grows in forest and woodland, often amongst rocks. Flowers: Oct.–Dec.

As with many species of *Hovea*, occasional white-petalled mutants have been recorded. A species with a relatively long keel and stamen-tube, the latter being evident in fruit. Its broad, rounded bracts and bracteoles are also distinctive. S.A. populations are remarkably disjunct from other populations of the species which occur in eastern N.S.W. and far eastern Vic.

(Rare status in S.A.)

4. ****Hovea trisperma*** Benth. in Endl. *et al.*, *Enum. Pl.* 37 (1837), var. **trisperma.** — *Hovea lanceolata* var. *linearis* Lindl., in *Edwards's Bot. Reg.* 24: t. 1427 (1831); *H. manglesii* Lindl., in *Edwards's Bot. Reg.* 24: t. 62 (1838).

Sprawling to weakly erect subshrubs to c. 0.8 m high, with hairs appressed to spreading; leaves: petiole 1–3 mm long; lamina narrow-ovate to lanceolate, narrow-elliptic or linear, mostly 8–80 \times 3–10 mm, margin recurved, apiculum 0.5–1 mm long, straight or slightly recurved, upper surface \pm glabrous, with midrib recessed; lower surface with scattered hairs; stipules linear-lanceolate, to 2 mm long. **Inflorescences** mostly sessile, 1–6-flowered, pedicels 1–4 mm long, bract and bracteoles 1.5–3 mm long, bract generally persistent; calyx 6–8 mm long,

upper lobes 3–4 mm wide; standard 10–14 mm long, emarginate, deep purplish-blue, with a white throat; wings 9–11 mm long; keel 6–8 mm long; ovary mostly 3- or 4-ovulate. **Pods** with stipe 3–4 mm long, body suborbicular in profile, 8–12 mm long, glabrous; seeds 4–6 mm long, brown, without mottling; aril c. elliptic, 2.5–3.5 mm long, orifice c. 1.2 mm long.

S.A.: *SL; W.A. A garden escape that is naturalised. Flowers: Jul.–Oct.

A species native to W.A. that superficially resembles *H. heterophylla*. In W.A., there is considerable variation in floral and foliar characters, and Bentham (1864) recognised three varieties. Ross (1989) chose not to recognise these formally. Material collected from S.A. is referable to var. *trisperma* and the above description is based on this variety. *Hovea trisperma* became established following plantings in predominantly native bushland in what is now the Engelbrook National Trust Reserve at Bridgewater. The species regenerated strongly from seed following bushfires in the 1980s. Eradication attempts have been successful in reducing numbers.

Occasionally cultivated.

7. TEMPLETONIA R.Br.

in W.T.Aiton, *Hortus Kew.* ed. 2, 4: 269 (1812).

(After J. Templeton, Irish botanist, 1766–1825.)

Shrubs or subshrubs, branches terete or flattened, longitudinally ridged and/or angular, sometimes spinescent, with glandular material in axils, ± glabrous or only sparsely hairy, with hairs pale; leaves simple or compound (not in S.A.), short-petiolate, or rudimentary or absent, sometimes caducous. **Inflorescences** 1- or 2-flowered, sessile, pedicellate, glabrous except for ciliolate margins of bracts, bracteoles and calyx, or sparsely haired in *T. aculeata*; bracteoles inserted from mid-point to summit of pedicel, generally broad, abaxially convex; calyx with lobes imbricate in bud; upper lobes strongly fused to form lip that is tapering and commonly shorter than lowermost lobe; standard and wings yellow with purple-brown marks, or entirely red in *T. retusa*, standard longer than wings; wings as long as a pale or purple-tipped keel; ovary glabrous, 2–8- or rarely many-ovulate. **Pods** subsessile or more often stipitate, body elliptic, oblong-elliptic or narrow-oblong in profile, mostly slightly to moderately compressed, sometimes internally partitioned; seeds mildly compressed or plump, hilum short; aril elliptic or circular, entire or variously frilled, with a vertical lobe moderately large or absent, inserted near apex or somewhat laterally. **Templetonias**.

A genus of thirteen species endemic in Australia; widely distributed in mainland states and territories, except Qld where only in the far SE. A revision of the leafless species has recently been published (Thompson 2010).

References: Ross (1982); Thompson (2010).

1. Stipules recurved, spiny, 2–10 mm long; pedicels and calyces with scattered hairs..... 1. **T. aculeata**
- 1: Stipules not recurved or spiny, < 2 mm long, often not evident; pedicels and calyces glabrous
 2. Plants leafy, lamina mostly > 10 mm long; bracteoles pale green throughout
 3. Shrub; standard 20–45 mm long, red; pods 40–80 mm long, with internal partitions..... 5. **T. retusa**
 - 3: Subshrub; standard to 10–15 mm long, yellow with purplish-brown markings; pods 12–26 mm long, without internal partitions..... 7. **T. stenophylla**
 - 2: Plants leafless or with leaf rudiments to c. 2 mm long; bracteoles brown-scaly at least distally
 4. Branches flattened; bracteoles brown-scaly throughout 6. **T. rossii**
 - 4: Branches terete; bracteoles brown-scaly in distal third to half
 5. Branches markedly divergent, spiny at apex; bracteoles usually with glandular material at apex; seeds 4–5 mm long..... 2. **T. battii**
 - 5: Branches ± erect, not spiny at apex; bracteoles lacking glandular material at apex; seeds 9–14 mm long
 6. Flowering-branch diameter mostly < 1.5 mm, with ridges well-defined; pedicels > 1 mm long at flowering; standard-limb 3–4 times length of claw; pods mostly < 18 mm long..... 3. **T. egena**
 - 6: Flowering-branch diameter mostly > 1.5 mm, with ridges generally poorly defined; pedicels < 1 mm long at flowering; standard-limb c. 2 times length of claw; pods mostly > 18 mm long 4. **T. incrassata**

1. **Templetonia aculeata** (F.Muell.) Benth., *Fl. Austral.* 2: 170 (1864). — *Bossiaea aculeata* F. Muell. *Fragm.* 2: 120 (1861). — **Illustr.:** J.H.Ross, *Muelleria* 5: 17, fig. 9 (1982); *Pl. W. N.S.W.*: 423 (1981).

Subshrubs to c. 0.4 m high, commonly with appressed hairs on most parts; branches moderately divergent, terete, unarmed, commonly with appressed hairs; leaves with petiole to 1 mm long, narrow-elliptic to oblanceolate, narrowing to c. linear upwards, mostly 5–20 × 1–3 mm, pungent; stipules (2–) 3–10 mm long, spiny, recurved, often spreading. **Pedicels** 2–6 mm long, with scattered hairs, bract 1–1.5 mm long, bracteoles 1.5–3.5 long, inserted 1–2 mm below summit of pedicel, sometimes brown-scaly at apex; calyx 3–9 mm long, with scattered hairs, with upper lip ± entire; standard, 12–18 mm long, with limb suborbicular, yellow with purple-brown mark; keel purple distally; ovary 2–6-ovulate, style 6–11 mm long. **Pods** with stipe 5–10 mm long, body elliptic to narrow-oblong in profile, 15–20 mm long, mostly 3–5-seeded, partitioned; seeds 2.5–4 mm long, aril 1–1.5 mm long, margin frilled, lobe 0.5 mm high. **Spiny mallee-pea. Fig. 3F–J.**

S.A.: FR, EA, NL, SL; W.A.; N.S.W. Grows in sandy or loamy soils, in grassland, shrubland and woodland. Flowers: Aug.–Oct.

An easily recognised species because of its spiny stipules. Branches are generally flexuose. Leaves tend to be caducous.

2. **Templetonia battii** F.Muell., *Australas. Chem. Druggist.* 2(2): 31 (1887) — *Bossiaea battii* (F.Muell.) Tate, *Handb. Fl. Extratrop. S. Austral.* 65 (1890). — **Illustr.:** J.H.Ross, *Muelleria* 5: 22, fig. 12 (1982).

Erect shrubs to c. 1.4 m high; branches divaricate, ± terete (slightly flattened at first), forming a terminal spine, glabrous; leaves to c. 1 × 0.4 mm, sometimes persistent; stipules c. 0.5 mm long. **Pedicels** 0.5–1.3 mm long; bract c. 0.5 mm long, membranous; bracteoles 1.5–2 mm long, inserted ± at summit of pedicel, brown-scaly distally, usually with glandular material at apex; calyx 2–3.5 mm long, with upper lip notched, with lower median lobe longest; standard suborbicular, 5.5–7 mm long, yellow with a purple-brown mark; keel purple distally; ovary 6-ovulate, style 1.5–2.5 mm long, stout. **Pods** sessile, body elliptic or oblong-elliptic in profile, 8–15 mm × 4–7 mm, without partitions, valves not gland-dotted, 1- or 2-seeded; seeds 4.5–5 mm long, aril 1.5–2 mm long, margin frilled, lobe c. 0.5 mm high. **Fig. 4A–C.**

S.A.: EP (north-western section); W.A. Grows in sandy and loamy soils, usually on limestone, in shrubland and woodland. Flowers: Jul.–Nov.

Two distinctive floral features of *T. battii* are the gland-tipped bracteoles and the relatively short, stout style. New growth is likely to be needed to identify rudimentary leaves and stipules, as these structures degenerate with age.

(Rare status in S.A.)

3. **Templetonia egena** (F.Muell.) Benth., *Fl. Austral.* 2: 170 (1864). — *Daviesia egena* F.Muell., *Trans. & Proc. Victorian Inst. Advancem. Sci.* 1854–55: 118 (1855); *Bossiaea egena* (F.Muell.) F.Muell. in W.J.Hooker, *Hooker's J. Bot. Kew Gard. Misc.* 8: 43 (1856). — **Illustr.:** J.H.Ross, *Muelleria* 5: 19, fig. 10 (1982); *Pl. W. N.S.W.*, 423(1981).

Shrubs to c. 3 m high; branches erect to suberect, terete, unarmed, glabrous; a single triangular scale at each node 1–1.5 mm long in place of leaves and stipules, becoming eroded. **Pedicels** 1–3 mm long, glabrous, bracts c. 1 mm long, membranous; bracteoles 1–1.5 mm long, inserted ± at summit of pedicel, brown-scaly in distal half to third; calyx 2.5–4 mm long, with upper lip shallowly notched; standard 5.5–9 mm long, with limb suborbicular, yellow with a purple-brown mark; keel pale greenish or tinged purple distally; ovary 5- to 8-ovulate, style 2.5–4 mm long. **Pods** sessile, elliptic in profile, 11–18 (–22) × 5–11 mm, without partitions, valves gland-dotted, 1- or occasionally 2-seeded; seeds 7–9 (–11) mm long; aril 1.5–3.5 mm long, margin frilled, lobe inconspicuous. **Desert broombush, round broombush, desert templetonia. Fig. 4D–F.**

S.A.: FR, EA, EP, NL, MU; W.A.; N.T.; Qld; N.S.W.; Vic. Grows in sandy soils, in grassland and shrubland. Flowers: Aug.–Feb.

Plants from western S.A. formerly included in *T. egena* are now placed in *T. incrassata*.

4. **Templetonia incrassata** I.Thomps., *Muelleria* 28: 60 (2010). — **Illustr.:** I.R.Thompson, *Muelleria* 28: 55, fig. 1i; 56, fig. 2g–h (2010).



Fig. 4. A–C, *Templetonia battii*: A, twig; B, flower; C, fruit. **D–F, *T. egena*:** D, branches; E, flower; F, fruit. **G–H, *T. stenophylla*:** G, branch; H, flower. Illustration by G.R.M. Dashorst, from *Flora of South Australia* 2: 697–699, Figs 377B, 378A, 379A (1986).

Shrubs to c. 2.5 m high; branches suberect, terete, unarmed, glabrous; a single triangular scale at each node 0.6–1.2 mm long in place of leaves and stipules, becoming eroded. **Pedicels** 0.3–1 mm long, glabrous, bracts c. 1 mm long, membranous; bracteoles 1.5–2.2 mm long, inserted \pm at summit of pedicel, brown-scaly in distal third; calyx 3–4.5 mm long, with upper lip shallowly notched; standard 5.5–8 mm long, with limb suborbicular, yellow with a purple-brown mark; keel generally dark purple distally; ovary 6-ovulate, style 2.5–3.5 mm long. **Pods** subsessile, elliptic in profile, 16–25 \times 7–10 mm, without partitions, valves gland-dotted, 1- or occasionally 2-seeded; seeds 9–14 mm long; aril 1.5–3 mm long, margin crenate to deeply lobate, lobe not evident.

S.A.: NW, LE, NU, GT; W.A.. Grows in various soils including sands and calcareous sands, often near lake margins, in woodland, shrubland and grassland. Flowers: Aug.–Oct.

Compared to its closest relative *T. egena*, *T. incrassata* has thicker branches with more widely spaced and often indistinct ridges, shorter pedicels, longer pods and larger seeds. Branches are often glaucous.

5. ***Templetonia retusa*** (Vent.) R.Br.in W.T.Aiton, *Hortus Kew.* ed. 2, 4: 269 (1812). — *Rafnia retusa* Vent., *Jard. Malmaison* 1: t. 53 (1804). — **Illustr.:** L.F.Costermans, *Native Trees Shrubs S.E. Austral.* 196–197 (1981); J.H.Ross, *Muelleria* 5(1): 5, fig. 1 (1982).

Erect shrubs mostly 0.3–4 m high; branches moderately divergent, angular, unarmed, glabrous, sometimes glaucous; leaves with petiole 1–2 mm long, lamina obovate to oblanceolate, mostly 10–40 (–60) \times 4–23 mm, flat, rounded, truncate or emarginate; stipules 0.5–1 mm long. **Pedicels** 6–20 mm long, glabrous, bracts 0.5–1.5 mm long, bracteoles 1.5–2.5 mm long, inserted 2–8 mm below summit of pedicel, pale green throughout; calyx 6–11 mm long, with upper lip not or hardly notched; standard 20–45 mm long, with limb elliptic, red, or occasionally white or yellow; keel red, ovary 10–15-ovulate, style 15–35 mm long. **Pods** with stipe 4–10 mm long; body narrow-oblong, mostly 40–80 \times 8–15 mm, with internal partitions, valves not gland-dotted, up to 12-seeded; seeds 4–7 mm long; aril 2–3 mm long, margin entire or slightly crenulate, lobe 0.5–1 mm high. **Cockies tongue, common templetonia, red templetonia flame bush.**

S.A.: NU, FR, EP, NL, YP, SL, KI; W.A. Grows in sandy or loamy soils, often on limestone, in scrubland, woodland and forest Flowers: Jul.–Oct.

Has a marked divergence in floral form compared to other species of *Templetonia*. Moderately distinct forms of *T. retusa* can be recognised in S.A., including a long-flowered form on Kangaroo Island, a broad-leaved form in the Flinders Ranges, and a long-leaved form near Port Germein Gorge.

Widely cultivated.

6. **Templetonia rossii** (F.Muell.) I.Thomps., *Muelleria* 28: 63 (2010). — *Bossiaea rossii* F.Muell., *Fragm.* 3: 94 (1862). *T. sulcata* auct. non (Meisn.) Benth.: J.H.Ross, *Muelleria* 5(1): 23 (1982); J.H.Ross, *Muelleria* 5(4): 277 (1984); J.Z.Weber in Jessop & Toelken, *Fl. S. Austral.* 2: 699 (1986). — **Illustr.:** *Pl. W. N.S.W.*, p. 424 (1982), as *T. sulcata*; Corrick & Fuhrer, *Wildfl. Victoria* 105, fig. 373 (2000), as *T. sulcata*; I.R.Thompson, *Muelleria* 28: 55, fig. 1f; 56, fig. 2e & 2h (2010);

Erect shrubs to c. 1.4 m high; branches moderately divergent, flattened, longitudinally ridged, tapered but not spiny at apex, glabrous, sometimes glaucous; leaf rudiments to c. 2 × 0.4 mm, mostly caducous; stipules c. 1 mm long. **Pedicels** 0.5–1.5 mm long, glabrous, bracts c. 1 mm long, brown-scaly; bracteoles 1.5–3 mm long, inserted ± at summit of pedicel, largely brown-scaly; calyx 2.5–3.5 mm long, with upper lip not or only shallowly notched; standard 6–7 mm long, with limb broad-obovate, yellow with a purplish-brown mark; wings and keel 4–5 mm long, keel purple distally; ovary 2- or 3-ovulate, style c. 3 mm long. **Pods** with stipe c. 1 mm long, body elliptic or oblong-elliptic in profile, 7–12 (–16) mm long, without partitions, with valves not gland-dotted, 1- or 2- or rarely 3-seeded; seeds 3.5–5 mm long; aril 1.5–2 mm in diam., margin entire, lobe 0.3–0.7 mm high. **Flat templetonia, flat mallee-pea.**

S.A.: EP, NL, MU, YP; W.A.; N.S.W.; Vic. Grows in sandy and loamy soils, in shrubland and woodland. Flowers: Aug.–Oct.

Recently segregated (Thompson 2010) from *T. sulcata* (Meisn.) Benth., a species now considered endemic to western W.A. In S.A. all material previously referred to *T. sulcata* is *T. rossii*. *Templetonia rossii* differs most notably from *T. sulcata* in having non-spinescent branchlets, the upper lip of the calyx with a less distinct sinus, and larger and more completely brown and scaly bracteoles. Sterile specimens have in the past been confused with *Bossiaea walkeri* which has a superficially similar vegetative structure. The latter, however, has branches with a more prominent central zone, and it lacks the glandular material that is seen at nodes in species of *Templetonia*.

7. **Templetonia stenophylla** (F.Muell.) J.M.Black, *Fl. S. Austral.* 2: 304 (1924). — *Bossiaea stenophylla* F.Muell., *Fragm.* 1: 9 (1858); *T. muelleri* Benth., *Fl. Austral.* 2: 169 (1864). — **Illustr.:** J.H.Ross, *Muelleria* 5(1): 10, fig. 5 (1982); Corrick & Fuhrer, *Wildfl. Victoria*, 105, fig. 373 (2000).

Weakly erect or decumbent subshrubs to c. 0.5 m high; branches terete or slightly angular, not spiny at apex, glabrous; leaves with petiole 1–1.5 mm long; lamina narrow-oblong or narrow oblong-elliptic narrowing upwards to linear, 20–50 × 1–8 mm, mostly concave to folded, rounded becoming acute upwards and then sometimes with a small recurved mucro; stipules 1–2 mm long. **Pedicels** 4–8 mm long, glabrous; bract 1–1.5 mm long, green; bracteoles 1.5–2.5 mm long, inserted 1–3 mm below summit of pedicel, pale green throughout; calyx 4–5 mm long, with upper lip shallowly notched; standard 10–15 mm long, with limb orbicular, yellow with a purplish-brown mark; wings and keel to c. 12 mm long, keel pale, sometimes tinged purple; ovary mostly 8-ovulate; style 4–8 mm long. **Pods** with stipe 3–5 mm long, body elliptic to narrow-oblong in profile, 12–26 × 8–11 mm, without partitions, valves not gland-dotted, commonly 6–8-seeded; seeds 3.5–5 mm long; aril c. 1.5 mm long, margin entire, lobe c. 0.4 mm high. **Leafy templetonia. Fig. 4G–H.**

S.A.: MU (near Hartley), SE; Qld; N.S.W.; Vic. Grows in sandy, loamy or clay soils, on slopes and plains, in forest, woodland and grassland. Flowers: Aug.–Oct.

(Vulnerable status in S.A.)

TRIBE INDIGOFERAE Benth.

Prepared by Peter G. Wilson

Herbs, shrubs or small trees with biramous hairs; leaves usually present, simple, unifoliate or imparipinnate; leaflets, when present, opposite, less commonly alternate on the rachis; stipules sometimes persistent and somewhat spinescent; stipels usually absent. **Inflorescence** usually an axillary raceme; flowers usually lacking bracteoles; calyx with teeth often subequal, shorter to longer than the tube; petals commonly pink to red or purplish; keel with lateral spurs; stamens diadelphous with 9 stamens forming a tube (tips of filaments free) and 1, the adaxial one, free; anthers versatile, usually apiculate. **Pods** with short pedicels, mostly straight and cylindrical but subspherical, 4-angled, curved or coiled pods also occur; seeds shortly cylindrical to cuboid, lacking an aril, and often separated in fruit by partitions.

6 genera, largely pantropical and southern temperate in distribution; 2 genera native to Australia.

1. Standard glabrous; keel rostrate; fruit somewhat bilaterally flattened; partitions between seeds membranous; endocarp never spotted..... 8. **Indigastrum**
- 1: Standard with hairs on back; keel not rostrate; fruit \pm round (rarely somewhat tetragonal) in section; partitions between seeds (when present) usually pithy; endocarp often spotted 9. **Indigofera**

8. INDIGASTRUM Jaub. & Spach

Ill. Pl. Orient. 5: 101, t. 492 (1856).

(Neo-Latin *indigo*, an allusion to the genus *Indigofera*, and the suffix *-astrum*, meaning 'incomplete likeness')

Indigofera subg. *Indigastrum* (Jaub. & Spach) Gillett, *Kew Bull., Add. Ser.* 1: 123 (1958).

Annual herbs or subshrubs; hairs equally two-armed, appressed, multicellular and glandular hairs absent; leaves pinnate, rarely 1–3-foliolate (but never exclusively unifoliolate); stipels absent; stipules present, not persistent or spinescent. **Inflorescence** a pedunculate axillary raceme; flowers pedicellate; bracts caducous; calyx lobes 5, equal to or longer than the tube, with a broad u-shaped sinus between the upper lobes; corolla pink, mauve or white; standard glabrous, base narrow, gradually tapering to the claw; wings glabrous; keel glabrous, lateral pockets pouch-like, apex open, \pm spatulate; stamen filaments alternating long and short; anthers apiculate, glabrous or anthers of the shorter stamens rarely with scales at the base; ovary sessile, pubescent; ovules numerous; style shorter than the ovary, incurved; stigma oblique. **Fruit** usually straight and descending, linear, terete to slightly bilaterally flattened; endocarp never spotted; seeds cylindrical to compressed cuboidal, separated by papery outgrowths of the endocarp.

A predominantly African genus with one species extending to India and Australia.

1. **Indigastrum parviflorum** (Wight & Arn.) Schrire, *Bothalia* 22: 168 (1992) — *Indigofera parviflora* Heyne ex Wight & Arn., *Prodr. Fl. Ind. Orient.* 201 (1834). — **Illustr.:** Hacker, *Guide Herbaceous Shrub Legumes Queensl.* 184 (1990); *Fl. Kimberley Reg.* 412, fig. 125B (1992); Milson, *Pl. Ident. Arid Zone* 50 (1996).

Erect, annual herb 0.2–0.75 (–1.5) m high; young stems ridged, green, hairs moderately dense, appressed; leaves with (1–) 5–11 leaflets; petiole (3–) 7–15 (–20) mm long; leaflets linear to narrowly elliptical or ovate, (10–) 20–45 \times 1–6 mm wide; upper surface green, glabrous, or rarely sparsely hairy with appressed hairs; lower surface green, hairs sparse to moderately dense, appressed; apex obtuse and shortly mucronate; stipules narrowly triangular or subulate, 1–1.9 mm long. **Inflorescence** (2–) 10–30 (–40) mm long, shorter than the leaf; bracts ovate, 0.3–1.1 mm long; flowers purplish to pinkish to red or orange; pedicel 0.5–0.9 mm long; calyx 1.5–3 mm long; hairs sparse to moderately dense, white, appressed; lobes equal to or longer than the tube; standard obovate, 5.9–6.5 (–7.2) \times (3.5–) 4.5–5.2 mm; wing narrowly obovate, 6.5–8 \times (2.0–) 2.7–3.5 mm; keel 5.5–7.7 \times 1.2–1.5 mm, glabrous; apex spatulate, drawn out from body of the keel (1–) 1.4–2.2 mm; lateral pockets present but inconspicuous, 0.1–0.3 mm long; staminal tube 3–3.8 mm long; ovary moderately hairy. **Fruit** descending, somewhat bilaterally flattened, (12–) 20–40 (–48) \times 2–3 mm, yellowish or brown; hairs moderately dense, appressed; apex upturned, shortly beaked; seeds 10–14 per fruit. **Smallflower indigo.**

S.A.: LE; Qld; N.T.; W.A. North-eastern to southern Africa and India. Recorded from heavy black or red clay soils, gravelly loams or sand in grasslands and open savanna woodlands. Flowers: Feb.–June.

A variable species that is often found on roadsides and other disturbed sites and has therefore been regarded as a weed (Lazarides *et al.* 1997).

9. INDIGOFERA L.

Sp. Pl. 2: 751 (1753).

(Neo-Latin *indigo*, the colour; *-fera*, 'bearing'; referring to the production of this dye by some species.)

Anil Mill., *Gard. Dict. Abr.* ed. 4: 95 (1754); *Anila* Ludw. ex Kuntze, *Revis. Gen. Pl.* 1: 159 (1891). *Sphaeridiophorum* Desv., *J. Bot.* 1: 125 (1813); *Indigofera* subg. *Sphaeridiophora* Benth. in Benth. & Hook.f., *Gen. Pl.* 1: 494 (1865).

Annuals, subshrubs or shrubs; hairs typically two-armed, sometimes with multicellular and/or gland-tipped hairs present as well; leaves simple, unifoliolate, trifoliolate or pinnate, discolorous; stipels present in some species, persistent. Stipules present, sometimes persistent and \pm spinescent. **Inflorescence** a pedunculate axillary raceme; flowers pedicellate; bracts usually deciduous, occasionally persistent; calyx lobes 5, subequal or the lowermost longer; sinus between upper lobes v- to u-shaped; corolla red or pink to purple; standard hairy on adaxial surface, base

abruptly tapering to the claw; wings variously hairy; keel hairy at apex and upper margin fringed, lateral pockets spur-like; stamens 10, 9 filaments connate and 1 free; filaments alternating long and short; anthers apiculate, glabrous or with tufts of hairs at the apex and/or the base; ovary sessile, usually pubescent; ovules 1, 2 or numerous; style longer, or sometimes shorter, than the ovary, incurved; stigma capitate. **Fruit** straight or curved, spreading to descending, rarely ascending, globose to linear, terete or sometimes angular, usually dehiscent; endocarp very often spotted; seeds globose to cylindrical or cuboidal, separated by papery or pithy outgrowths of the endocarp. **Indigos.**

Indigofera is a large and diverse genus of c. 730 species, of which c. 70 occur in Australia (c. 53 endemic, 7 native and 10 introduced). Phylogenetic studies by Schrire *et al.* (2009) have shown that the species fall into four well-supported groups, which they call the Palaeotropical, Pantropical, Cape and Tethyan subclades. Almost all endemic Australian species are members of the Pantropical subclade, which also contains the type species of the genus, *I. tinctoria* L.

- 1. Leaves apparently simple..... 9. **I. linifolia**
- 1: Leaves pinnate
 - 2. Leaflets alternate or subopposite; pod (1–) 2 (–3)-seeded 10. **I. linnaei**
 - 2: Leaflets opposite on rachis; pod with seeds > 3
 - 3. Gland-tipped hairs always present, at least on the ovary or fruit; pod 1.5–2 mm diameter..... 3. **I. colutea**
 - 3: Gland-tipped hairs absent; pod 2 mm or more in diameter
 - 4. Leaves usually with 5 leaflets (range 3–9)
 - 5. Pod ± tetragonal; flowers pink 5. **I. ewartiana**
 - 5: Pod terete; flowers red..... 6. **I. georgei**
 - 4: Leaves usually with 7 or more leaflets
 - 6. Upper surface of leaflets glabrous or sparsely appressed-hairy; pods ± glabrous
 - 7. Stems ± tetragonal; stipules spinescent 7. **I. helmsii**
 - 7: Stems ± terete or irregularly angular; stipules not spinescent 1. **I. australis**
 - 6: Upper surface of leaflets moderately to densely hairy; pods variously hairy
 - 8. Keel 4–6.5 mm long; staminal tube < 4 mm long
 - 9. Perennial subshrub; flowers pink 12. **I. psammophila**
 - 9: Shrub; flowers deep purplish pink 2. **I. basedowii**
 - 8: Keel 6.5–9 mm long; staminal tube ≥ 4 mm long
 - 10. Leaflets grey-green to grey
 - 11. Leaflets 15–21; calyx lobes longer than the tube..... 11. **I. longibractea**
 - 11: Leaflets 9–15; calyx lobes shorter than or equal to the tube 4. **I. cornuligera**
 - 10: Leaflets densely white-hairy 8. **I. leucotricha**

- 1. **Indigofera australis** Willd., *Sp. Pl.* ed. 4, 3: 1235 (1802). — *Anila australis* (Willd.) Kuntze, *Revis. Gen. Pl.* 2: 938 (1891); *I. sylvatica* Sieb. ex Spreng., *Syst. Veg.* 3: 278 (1826); *I. angulata* Lindl., *Bot. Reg.* t. 991 (July 1826), *nom. illeg.*; *I. lindleyana* Steud., *Nomencl. Bot.* ed. 2, 1: 807 (1841), *nom. illeg.*

Erect shrub, 0.5–2 m high; young stems ridged to terete, glabrous or with sparse, appressed hairs; leaves with (3–) 7–25 leaflets; stipules triangular (often with a broad base swollen by a dense mass of multicellular hairs and narrowing quickly to a narrow, drawn out tip), 1–4 (–5.5) mm long, not thickened or spinescent, not persistent; petiole 3–15 (–19) mm long; rachis furrowed, multicellular hairs between leaflet pairs absent to dense, red to brown, club-shaped; stipels usually absent; leaflets variable, ovate to obovate or elliptical, (3–) 5–40 (–63) × (2–) 2.5–10 (–23) mm; upper surface green, glabrous or hairs sparse, appressed; lower surface green (generally paler than above), glabrous or with sparse appressed hairs; apex acute, emarginate or obtuse and mucronate. **Inflorescence** (5–) 20–100 (–220) mm long, shorter to longer than leaves; bracts triangular, 0.5–1.5 (–3) mm long; flowers pink to purple; pedicel 1.5–4 (–5.5) mm long; calyx (1–) 1.5–3 mm long with short subequal lobes, clothed with sparse appressed hairs; standard ovate, obovate or orbicular, 6–8 (–10.6) × 5.5–9 mm; wings narrowly obovate, 6–11 × 1.7–3.5 mm; keel (5.5–) 6–10 × 2–3 mm; apex rounded to acute; lateral pockets 0.8–1.5 mm long; staminal tube 4–6.5 mm long; ovary glabrous to moderately hairy. **Fruit** ascending to descending, terete, (13–) 25–45 (–52) × 2–4 mm, brown, glabrous or with scattered appressed hairs; endocarp spotted; seeds (4–) 8–10 (–12) per fruit.

Austral indigo, hill indigo, native indigo.

A widespread and variable species with a range that extends from southern Qld, though the southern States (including Tas.) and across to W.A. In N.S.W. and Qld there is marked variation in leaflet number and size, habit and stem morphology (ribbed vs. \pm terete) but there is rarely any readily discernible pattern to the variation. However, the populations found in W.A., and the western part of S.A., are morphologically relatively uniform and are recognised as a separate subspecies (Wilson & Rowe 2010).

1. Leaves usually with 7–15 leaflets; leaflets usually 10–40 mm long; petiole usually 6–15 mm long; stipule-bases not swollen by masses of multicellular hairs; peduncle usually 10–20 mm long..... 1a. **I. australis** subsp. **australis**
1. Leaves usually with 17–25 leaflets; leaflets usually 5–10 mm long; petiole usually 3–6 mm long; stipules usually with bases swollen by masses of multicellular hairs; peduncle usually 4–7 mm long..... 1b. **I. australis** subsp. **hesperia**

- 1a. **Indigofera australis** Willd. subsp. **australis** — *I. australis* var. *gracilis* DC., *Prodr.* 2: 226 (1825); *I. australis* var. *angulata* Benth., *Fl. Austral.* 2: 200 (1864); *I. australis* var. *minor* Benth., *Fl. Austral.* 2: 200 (1864). — **Illustr.:** *Pl. W. N.S.W.* 396 (1982); *Fl. Victoria* 3: 671, fig. 135c (1996).

Shrub, 0.5–2 m high; leaves with (3–) 7–15 (–21) leaflets; stipules 1–2.5 (–5) mm long; petiole (3.5–) 6–15 (–19) mm long; stipels generally absent, rarely 0.3–0.6 mm long; lamina ovate to elliptical or oblong, (5–) 10–40 (–63) \times (2.5–) 5–10 (–23) mm. **Inflorescences** (13–) 30–100 (–220) mm long; peduncle usually 10–20 mm long; bracts 0.5–1 (–2) mm long; pedicels (1.5–) 2–4 (–5.5) mm long; calyx (1–) 1.5–3 mm long, sparsely hairy with white to brown hairs; standard 6–8 (–10.6) \times 6.5–9 mm; wings 6.5–11 \times 2.5–3.5 mm; keel 6.5–10 \times 2.2–3 mm; lateral pockets 0.8–1.5 mm long; staminal tube 4–6.5 mm long; ovary glabrous. **Fruit** (13–) 30–45 (–52) \times 2.5–4 mm, usually glabrous. **Fig. 5A–D.**

S.A.: LE, FR, EA, NL, SL, MU, SE; Qld; N.S.W.; Vic.; Tas. Often found on hills in shallow soil amongst rocks in eucalypt savanna woodland communities. Flowers: Jul.–Dec.

- 1b. **Indigofera australis** subsp. **hesperia** Peter G. Wilson & Rowe, *J. Adelaide Bot. Gard.* 24: 68 (2010). — *I. ervoides* Meisn. in Lehm., *Pl. Preiss.* 1: 88 (1844); *I. australis* var. *angulata* Benth., *Fl. Austral.* 2: 200 (1864), *pro parte*. — **Illustr.:** Grieve, *How to know W. Austral. Wildfl.* 2: 462 (1998).

Shrub, 0.3–1.5 (–2) m high; young stems ridged; leaves with (7–) 17–25 leaflets; stipules 2.5–4 (–5.5) mm long, swollen bases often persistent; petiole 3–6 (–10) mm long; stipels absent or inconspicuous; lamina obovate, (3–) 5–10 (–20) \times (2–) 2.5–4.5 (–6.5) mm. **Inflorescences** (5–) 20–70 (–95) mm long; peduncle usually 4–7 mm long; bracts 0.5–1.5 (–3) mm long; pedicels 1.5–4 mm long; calyx 1.5–3 mm long, clothed with sparse, brown, appressed hairs; standard 6.5–7.5 \times 5.5–7.5 mm; wings 6–8 \times 1.7–3 mm wide; keel (5.5–) 6–7.5 \times 2–2.7 mm; lateral pockets 0.8–1.3 mm long; staminal tube 4–4.8 mm long; ovary glabrous to moderately hairy. **Fruit** (17–) 25–40 \times 2–3 mm deep, glabrescent or very sparsely hairy.

S.A.: GT, FR, EP, NL; W.A. Occurs in shallow soils on rocky substrates in shrubland or low open woodland. Flowers: Aug.–Oct.

2. **Indigofera basedowii** E.Pritz., *Repert. Spec. Nov. Regni Veg.* 15: 356 (1918). — **Illustr.:** Elliott & Jones, *Encyc. Austral. Pl.* 5: 409 (1990); Urban, *Wildfl. & Pl. Centr. Austral.* 95 (1990), as *I. georgei*.

Erect and spreading shrub, 0.3–1 m high; young stems four-angled, grey-green, pubescent with moderately dense to very dense hairs. Leaves with (3–) 7–11 leaflets; stipules narrowly triangular, (2–) 3–7.5 (–9) mm long; petiole 4–12 mm long; stipels conspicuous, 0.3–2.7 (–4.2) mm long; leaflets elliptical to obovate, (5–) 9–23 (–30) \times (3–) 5–14 mm, with both surfaces green or grey-green, but somewhat discoloured; apex obtuse and mucronate or apiculate (some appearing emarginate). **Inflorescences** (30–) 55–145 (–180) mm long, longer than leaves; bracts subulate to linear, (2–) 3–5.5 (–7.5) mm long; flowers deep pink to purple; pedicel 0.2–1.5 mm long; calyx 2.3–4.2 mm long, with lobes equal to or longer than the tube, clothed with moderately dense to dense grey to almost black, shortly spreading hairs; standard broadly obovate to orbicular, 5.5–7.2 \times 5–7.5 mm; wings spatulate, 5.5–7 \times 1.7–2.5 (–3.2) mm; keel 5.2–6.5 \times 1.5–2.2 mm; lateral pockets 0.5–1 mm long; staminal tube 3–3.7 mm long; ovary densely hairy. **Fruit** ascending to descending, terete, 15–42 \times 2.5–5 mm with dense, spreading hairs;

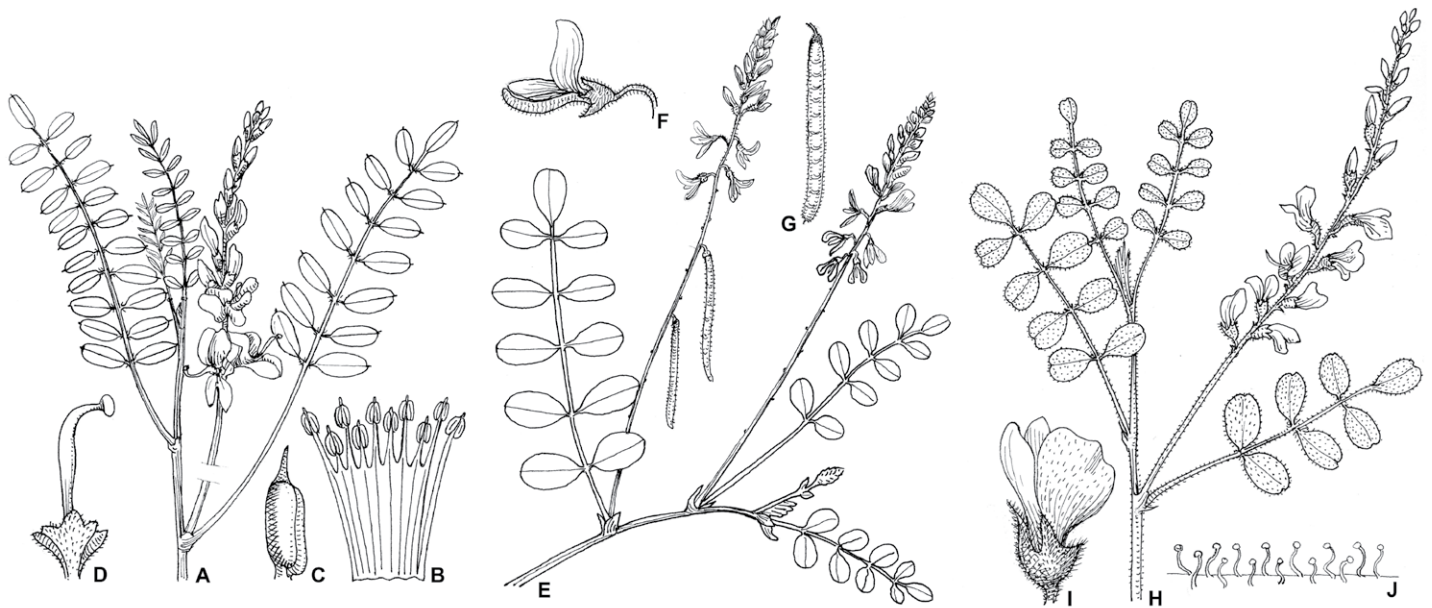


Fig. 5. A–D, *Indigofera australis* subsp. *australis*: A, twig; B, connate stamens; C, anther; D, ovary with calyx. **E–G, *I. psammophila***: E, twig; F, flower; G, fruit. **H–J, *I. colutea***: H, twig; I, flower; J, glandular tomentum. Illustration by B. Chandler, from *Flora of South Australia* 2: 578–579, Fig. 306A, 307 (1986).

endocarp spotted; seeds 5–10 per fruit. **Showy indigo.**

S.A.: NW, LE, FR; N.T. Found on coarse gravel or sand, in skeletal soils of rocky granite, quartz and sandstone hills, on ridges, in creek beds or on flats at the bases of hills. Flowers: (May–) June–Sep.

3. ***Indigofera colutea*** (Burm. f.) Merr., *Philipp. J. Sci.* 19: 355 (1921). — *Galega colutea* Burm. f., *Fl. Ind.* 172 (1768); *I. viscosa* Lam., *Encycl.* 3: 247 (1789). — **Illustr.:** Hacker, *Guide Herbaceous Shrub Legumes Queensl.* 180 (1990); Milson, *Pasture Pl. N.W. Queensl.* 83 (2000).

Erect or occasionally prostrate herb, 0.1–0.5 m high; young stems ridged, appressed-hairy; gland-tipped hairs usually present, dense, spreading; leaves with 7–15 (–21) leaflets; stipules subulate, 1–3 (–5) mm long; petiole 3–10 (–16) mm long; rachis furrowed; stipels absent; leaflets elliptical to obovate, 2.5–9 (–13.5) × 1–4 (–7.5) mm, sparsely to moderately appressed-hairy; lower surface paler than the upper; apex obtuse or acute and shortly mucronate. **Inflorescences** (5–) 15–50 (–90) mm long, shorter to longer than leaves; bracts ovate to linear, 0.5–1.5 (–3) mm long; flowers red; pedicel 0.2–1.3 (–2.5) mm long; calyx 1.5–2.8 mm long, with subequal lobes longer than the tube, clothed with moderately dense, white, appressed hairs; standard red, obovate to elliptical, (2.5–) 3.4–4.2 × 2–2.8 mm; wings narrowly obovate or spatulate, 3.2–4.6 × 0.7–1.2 mm; keel 3–5 × 1–1.5 mm, apex rounded or acute, lateral pockets 0.5–0.7 mm long; staminal tube (1.5–) 2–3 mm long; ovary moderately hairy. **Fruit** ascending or spreading, terete, (5–) 10–20 (–25) × 1.5–2 mm, brown, hairs moderately dense to dense, appressed; glandular hairs present; endocarp spotted; seed (3–) 7–13 per fruit. **Sticky indigo; rusty indigo. Fig. 5H–J.**

S.A.: LE; W.A.; N.T.; Qld; N.S.W. Africa, Arabia, India, Sri Lanka, Burma, Thailand, Vietnam, Indonesia and New Guinea. Recorded from sand dunes, grassy plains, or in open forest or woodland on soils derived from a wide range of substrates. Although a native species, it grows readily in disturbed sites and is now considered to be a weed in Australia (Lazarides et al. 1997). Flowers: year-round, but mostly Feb.–June.

The distribution and density of glandular hairs in this species is rather variable. In some instances, they seem to be found only on the ovary and fruit but in most cases they also occur on the vegetative parts of the plant.

4. ***Indigofera cornuligera*** Peter G. Wilson & Rowe, *J. Adelaide Bot. Gard.* 24: 71 (2010). — *I. lewotricha* auct non E.Pritz.: J.Z.Weber, *Fl. S.Austral.* 2: 581 (1986), partly.

Spreading to erect subshrub or shrub to 1.25 m high; young stems terete or slightly ridged, green or grey to brown, with dense to very dense, appressed and shortly spreading hairs; leaves usually with 9–15 leaflets; stipules triangular, generally distinctly thickened, 1.5–4 mm long, persistent, ± spinescent; petiole 1–4 (–7) mm long;

rachis furrowed, multicellular hairs between leaflet pairs sparse to dense, usually conspicuous, red to dark brown; stipels absent or inconspicuous; leaflets obovate, usually 2–8.5 × 1–5.5 mm; grey to green, with sparse to moderately dense appressed hairs; lower surface generally paler; apex obtuse. **Inflorescences** equal to longer than leaves; bracts triangular to ovate (sometimes thickened and persistent), usually 1–2 mm long; calyx with subequal lobes less than or equal to the tube, clothed with moderately dense to dense, dark, appressed or shortly spreading hairs; petals to c. 9 mm long; staminal tube mostly 4.5–6.5 mm long; ovary moderately hairy. **Fruit** spreading to descending, terete; hairs sparse to dense, appressed to spreading; endocarp spotted; seed usually up to 10 per fruit.

In the previous edition of the *Flora of South Australia*, this taxon, with its two geographically separate subspecies, was included under *Indigofera leucotricha*. However, in S.A., the latter species has a limited range and is only found in the Lake Eyre region.

1. Flowers pink to purplish; sepals ± straight; clusters of multicellular hairs between leaflet pairs distinct, usually also scattered along the rachis 4a. **I. cornuligera** subsp. **cornuligera**
1. Flowers red; sepals mostly with recurved tips; clusters of multicellular hairs between leaflet pairs not strongly developed 4b. **I. cornuligera** subsp. **flindersensis**

4a. **Indigofera cornuligera** subsp. **cornuligera**

Spreading to erect subshrub or shrub, (0.2–) 0.4–1.25 m high; leaves with (7–) 9–15 (–21) leaflets; multicellular hairs in distinct clusters between leaflet pairs and scattered along the rachis; stipules 1.5–4 mm long; petiole 1–4 (–7) mm long; leaflets obovate, 2.5–7 (–11) × 1.5–4 (–5.5) mm; apex obtuse and emarginate. **Inflorescences** (7–) 15–50 (–85) mm long, equal to longer than leaves; bracts 1–2 mm long; pedicel 1–2 mm long; calyx 2–4 mm long, clothed with moderately dense to dense, brown to black (rarely pale) appressed or shortly spreading hairs; sepals ± straight; flowers pink to purplish; standard ovate to orbicular, 6.5–8.3 × 6.5–9.5 mm; wings spatulate, 6.5–8 × 2–4.5 mm; keel 7–8 × 3–3.5 mm deep; apex rounded to acute; lateral pockets 0.5–1.3 mm long; staminal tube (4–) 4.5–6.5 mm long. **Fruit** (15–) 20–30 (–40) × 2.5–4 (–4.5) mm deep, brown, tomentose; hairs sparse to moderately dense, appressed to shortly spreading; seed (4–) 7–10 (–12) per fruit.

S.A.: NW, LE; W.A.; N.T. Found on hillsides, rocky ground, and in gorges and creek outwash areas. Flowers: June–Sep.

4b. **Indigofera cornuligera** subsp. **flindersensis** Peter G. Wilson & Rowe, *J. Adelaide Bot. Gard.* 24: 72 (2009).

Erect and spreading shrub or subshrub, 0.3–1.2 m high, up to 2 m wide; leaves with (5–) 11–15 (–19) leaflets; multicellular hairs not distinctly clustered between leaflet pairs; stipules 1.5–3.5 mm long; petiole 1–4 (–7) mm long; leaflets obovate, 2–8.5 × 1–6 mm; apex obtuse, mucronate and emarginate. **Inflorescences** 25–110 mm long, longer than leaves; bracts 1.8–2.3 mm long; pedicel 1.5–3.5 mm long; calyx 2.5–4 (–5) mm long, clothed with dense, brown to almost black, appressed hairs; sepals mostly with recurved tips; flowers red; standard broadly ovate or orbicular, (5–) 6–9 × 7–10 mm; wings narrowly obovate or spatulate, 6.5–8.5 × (1.7–) 2.5–3.7 mm; keel (5.5–) 6.5–9 × 2.4–3.3 mm; apex acute or rounded; lateral pockets 1–1.7 mm long; staminal tube (4–) 4.5–6 mm long. **Fruit** 18–32 × 2.5–3 mm, grey to brown, tomentose, often glabrescent; hairs sparse to dense, spreading; seed c. 9 per fruit. **Fig. 6H–L.**

S.A.: FR. Found on rocky hillsides or in rocky creek beds on a range of substrates including shale and limestone. Flowers: Jul.–Sep.

5. **Indigofera ewartiana** Domin, *Biblioth. Bot.* 89: 189 (1926). — **Illustr.:** Hacker, *Guide Herbaceous Shrub Legumes Queensl.* 188 (1990), as *I. trita* L.f.

Erect to spreading, short lived perennial herb to subshrub, 0.1–0.5 (–0.9) m high; young stems ridged; hairs moderately dense to dense, appressed; leaves with 3–5 (–7) leaflets; stipules narrowly triangular or subulate, 2–6 mm long, pubescent, generally not persistent; petiole 4–15 mm long; rachis furrowed; stipels absent, or inconspicuous; leaflets ovate to elliptical, (5–) 10–35 (–40) × (4–) 5–15 (–17) mm, grey to green, with sparse to moderately dense, appressed hairs; apex acute or obtuse and mucronate. **Inflorescences** (30–) 60–150 (–240) mm long, longer than leaves; bracts narrowly triangular, 1–2 mm long; flowers pink to purple; pedicel 0.5–1.5 mm long; calyx (1.3–) 2–4 (–5.5) mm long, with subequal to equal lobes longer than the tube and sparse to moderately

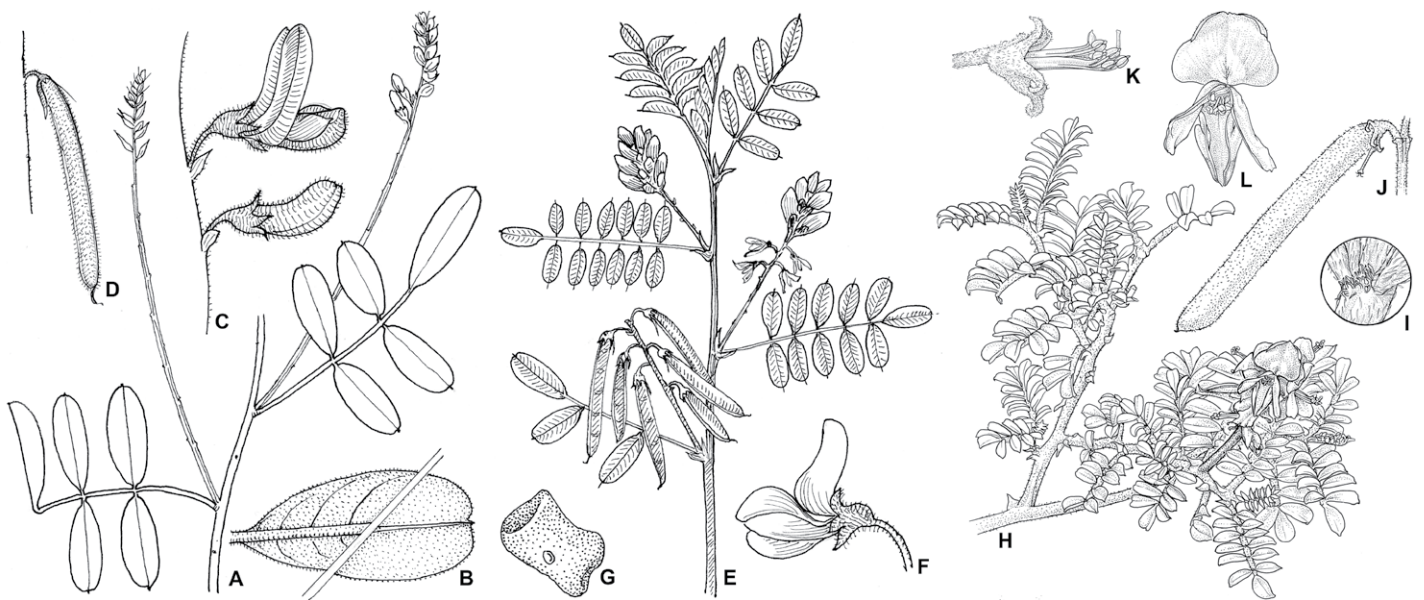


Fig. 6. A–D, *Indigofera georgei*: A, twig; B, leaf upper (right) and lower surface (left); C, flowers; D, fruit. **E–G, *I. helmsii***: E, twig; F, flower; G, seed. **H–L, *I. cornuligera* subsp. *flindersensis***. H, habit; I, details of multicellular hairs on leaf rachis; J, fruit; K, stamens with calyx; L, flower. Illustrations: A–G, by G.R.M. Dashorst, from *Flora of South Australia* 2: 580, Fig. 308A & 583, Fig. 310A (1986); H–J, by C. Wardrop, from P.G. Wilson & R. Rowe, *J. Adelaide Bot. Gard.* 24: 70, Fig. 1 (2011).

dense, appressed hairs; standard obovate to elliptical, (5.5–) 6.5–8 (–9) × (3.5–) 4.5–6 (–8) mm; wings narrowly obovate to spatulate, (5–) 6–8 (–9.5) × (1.8–) 2.5–3.5 mm; keel 5–7.5 × 1.5–2.5 mm; apex acute and beaked; lateral pockets 0.5–1.2 mm long; staminal tube 3.5–4 mm long; ovary sparsely to moderately hairy. **Fruit** spreading to descending, the pedicel deflexed but the base of pod standing out at an angle, distinctly longitudinally ridged on each side to give a four-angled appearance, (10–) 30–50 × 2.5–3 mm, brown; hairs sparse to moderately dense, appressed; apex shortly beaked; endocarp not spotted; seed (2–) 8–10 (–14) per fruit.

S.A.: LE; Qld; N.T. This species is found almost exclusively on heavy loam soils, cracking clays and black soil plains, particularly in grasslands. Flowers: mostly Dec.–Feb.

See Wilson & Rowe (1994) for discussion of the *Indigofera trita* group in Australia.

(Rare in S.A., only collected twice.)

6. ***Indigofera georgei*** E.Pritz., *Bot. Jahrb. Syst.* 35: 268 (1904). — **Illustr.:** Ewart & Morrison, *Proc. Roy. Soc. Victoria* n.s. 26: 156, pl. xiv, fig. 1 (1913) as *I. boviperda*.

Erect or spreading shrub or subshrub, 0.3–1.2 m high; young stems terete (rarely slightly ridged), white or grey to brown; hairs appressed to spreading, moderately to very dense; leaves with 3–7 (–9) leaflets; stipules 1.5–4 (–6) mm long; petiole (3–) 5–10 (–15) mm long; stipels very small, (rarely to 1.1 mm long); leaflets (3–) 9–25 (–33) × (2.5) 5–12 (–17) mm, white, grey or green, hairs usually slightly denser below. **Inflorescences** (30–) 50–150 (–250) mm long, longer than leaves; bracts ovate, 1–2.5 mm long; flowers red; pedicel 1–3.5 mm long; calyx (1.2–) 2–4 mm long, with moderately dense to dense, white or grey to black, appressed to spreading hairs; standard broadly ovate to orbicular, 5.5–8 × 5.5–7 mm; wings narrowly obovate to spatulate, 5–6.5 × 1.8–2.5 mm; keel 6–8.5 mm long, 2.5–3 mm deep; apex rounded; lateral pockets 0.6–1.2 mm long; staminal tube 5.5–7 mm long; ovary glabrous to densely hairy. **Fruit** spreading to descending, terete, (15–) 25–35 (–40) × 3–3.5 mm, clothed with moderately dense to dense, shortly spreading or spreading hairs; endocarp spotted; seed (5–) 8–11 per fruit. **Fig. 6A–D.**

S.A.: NW, LE; Qld.; N.T.; W.A. This species is found primarily on sand dunes and sandy plains. Flowers: June–Sep (–Oct).

7. ***Indigofera helmsii*** Peter G. Wilson, *J. Adelaide Bot. Gard.* 10: 119 (1987). — *I. uncinata* Ewart & L.R.Kerr, *Proc. Roy. Soc. Victoria* n.s. 39: 3 (1926), *nom. illeg., non* G.Don; *I. brevidens* var. *uncinata* Benth., *Fl. Austral.* 2: 201 (1864); *I. uncinata* var. *minor* Ewart & L.R.Kerr, *Proc. Roy. Soc. Vic.* n.s. 39: 3 (1926). — **Illustr.:** Ewart & L.R.Kerr, *Proc. Roy. Soc. Vic.* n.s. 39: 4, fig. 2 (1926); *Flora S. Austral.* 2: 580 (1986), as *I. uncinata*.

Erect subshrub, 0.2–0.7 (–1) m high; young stems four-angled, with moderately dense to dense, appressed hairs;

leaves with (5–) 7–9 (–15) leaflets; stipules triangular, 2–7 mm long, spinescent, persistent; petiole 3–9 mm long; rachis furrowed, multicellular hairs between leaflet pairs dense, conspicuous, red to dark brown; stipels inconspicuous; leaflets obovate or elliptical, (3–) 6–20 (–25) × 3–8 (–9.5) mm; upper surface green, glabrous; lower surface green, paler than above, with sparse appressed hairs; apex obtuse and mucronate, rarely acute. **Inflorescences** 15–40 (–65) mm long, shorter than or equal to leaves; bracts subulate, 1.3–2.5 mm long; flowers pink to purple; pedicel 0.7–2 mm long; calyx 1.9–3.4 mm long, with lobes less than or equal to the tube; hairs appressed, brown to black; standard broadly ovate to orbicular, 5–6.2 × (4.3–) 5–6.5 mm; wings narrowly obovate or spatulate, 5.5–7 × 2–2.6 mm; keel 5–6 × 1.5–2.2 mm; apex acute or rounded; lateral pockets 0.5–0.7 mm long; staminal tube 3–3.5 mm long; ovary moderately hairy. **Fruit** descending, terete, (10–) 18–25 (–30) × 2.5–3.5 mm deep, brown; hairs sparse, appressed; endocarp spotted; seed 7–8 per fruit. **Fig. 6E–G.**

S.A.: NW, GT, FR, EA, EP, NL; W.A.; N.T.; N.S.W. The species is relatively common in South Australia and the Northern Territory but is only recorded from a single area in Western Australia and from a limited area in N.S.W. It occurs in shrubland, open woodland or *Triodia* grassland on red clay loam on quartzite or granite ranges, as well as in sandy or rocky creek beds flowing from ranges or gorges. Flowers: June–Oct.

8. **Indigofera leucotricha** E.Pritz., *Repert. Spec. Nov. Regni Veg.* 15: 357 (1918). — *I. lasiantha* F.Muell., *New S. Wales – Parl. Pap. – Votes & Proc. Legis. Assembly* 2 (159-A): 6 (1859), *nom. illeg. non* Desv. (1826). — **Illustr.**: *Pl. W. N.S.W.* 398 (1982); Elliott & Jones, *Encyc. Austral. Pl.* 5: 419, 420 (1990); Urban, *Wildfl. & Pl. Centr. Austral.* 95 (1990); Hacker, *Guide Herbaceous Shrub Legumes Queensl.* 182 (1990).

Erect or spreading shrub or subshrub, 0.25–1 m high, up to 1.5 m wide; young stems ridged to terete, white or grey, tomentose with very dense, spreading hairs; leaves with 7–11 (–17) leaflets; stipules triangular (rarely slightly thickened), 2–5 mm long; petiole (2.5–) 5–8 (–15) mm long; rachis furrowed, multicellular hairs between leaflet pairs sparse, conspicuous to inconspicuous; stipels absent; leaflets obovate to cuneate, (1.5–) 5–11 (–19) × (1–) 2.5–6 (–11) mm; upper surface white or grey, rarely greenish, with very dense, appressed to shortly spreading hairs; lower surface white or grey, with dense, shortly spreading to spreading hairs; apex obtuse and mucronate. **Inflorescences** (10–) 25–110 mm long, longer than leaves (rarely shorter); bracts triangular, 1.5–3 mm long; flowers pink to purple; pedicel 1.5–3 mm long; calyx (2–) 3–4 mm long; lobes equal to longer than the tube; hairs dense, white or grey to almost black, appressed to spreading; standard orbicular to obovate, 6.5–10 × (5–) 7–9 mm; wings spatulate or narrowly obovate, 6–8.8 × 2.5–3.5 mm; keel 7–9 × (2–) 2.5–3.5 mm; lateral pockets 0.8–1.5 mm long; staminal tube 4.5–6 mm long; ovary moderately hairy. **Fruit** spreading to descending, terete, (10–) 20–35 (–40) × 3–4.5 mm, grey to brown, densely tomentose; endocarp spotted; seed 4–8 per fruit. **Silver indigo.**

S.A.: LE; N.S.W.; N.T.; Qld. This species shows a preference for rocky hill slopes and gullies, but has also been found on stony plains. It has been recorded on various substrates including granite, ironstone, quartzite, sandstone, limestone, and calcrete. Flowers: May–Oct.

In South Australia this species is only known from ranges immediately to the west of the Simpson Desert. References in the *Flora of South Australia* (1986) to this species as occurring in the North-Western region would apply to *I. cornuligera* subsp. *cornuligera* and, in the Flinders Ranges, to *I. cornuligera* subsp. *flindersensis*.

9. **Indigofera linifolia** (L.f.) Retz., *Obs. Bot.* 4: 29 (1786). — *Hedysarum linifolium* L.f., *Suppl. Pl.* 331 (1781). — **Illustr.**: Hacker, *Guide Herbaceous Shrub Legumes Queensl.* 183 (1990); Milson, *Pasture Pl. N.W. Queensl.* 85 (2000); Urban, *Wildfl. & Pl. Centr. Austral.* 96 (1990).

Prostrate or spreading, perennial herb, 0.1–0.3 (–0.5) m high; young stems ridged, with dense, appressed hairs; leaves simple, with no apparent articulation; stipules triangular, 1–3 mm long; petiole 0.5–1 mm long; lamina linear or narrowly lanceolate to narrowly oblanceolate, (6–) 10–35 (–50) × 1–3 (–4.0) mm, green to grey-green, with moderately dense or dense hairs; apex acute and shortly mucronate. **Inflorescences** (2–) 5–15 (–25) mm long, shorter than leaves; bracts ovate with scarious margin, 0.7–1.5 mm long; flowers red; pedicel 0.5 mm long; calyx 1.5–4 mm long, with subequal lobes longer or much longer than the tube, and dense, grey, appressed hairs; standard obovate to orbicular, 2.5–3.5 × 1.7–3 mm; wings narrowly obovate, 2.5–3 × 0.7–1.2 mm; keel 2.5–3.8 × 0.8–1.1 mm; lateral pockets 0.3–0.7 mm long; staminal tube 2.5–3 mm long; ovary densely hairy. **Fruit** ascending, globular, 2–3 × 1.5–1.8 mm, white or grey with dense, appressed hairs; apex shortly beaked; endocarp not spotted or rarely some pale blotches; seed 1 per fruit. **Round-pod indigo; narrow-leaved indigo.**

S.A.: LE; W.A.; N.T.; Qld; N.S.W. North-eastern Africa, through southern Asia to southern China, Ryukyu and

Taiwan, and south through Thailand to Malesia. Recorded from a wide range of habitats, especially on disturbed sites like roadsides but also occurs on sand or rocky ridges in open woodland or grassland; it is considered to be a weed in some areas (Lazarides et al. 1997). Flowers: year-round, but mostly Feb.–June.

10. **Indigofera linnaei** Ali, *Bot. Not.* 3: 549 (1958). — *I. enneaphylla* L., *Mant.* 2: 272 (1771), *nom. illeg.*; *I. dominii* H.Eichler, *Suppl. J.M.Black's Fl. S. Austral.* 190 (1965), *nom. illeg. & superfl.* — **Illustr.:** *Pl. W. N.S.W.* 398 (1982); Hacker, *Guide Herbaceous Shrub Legumes Queensl.* 183 (1990); Milson, *Pasture Pl. N.W. Queensl.* 86 (2000); Urban, *Wildfl. & Pl. Centr. Austral.* 96 (1990).

Prostrate to spreading, perennial herb, 0.05–0.3 × 0.7 m; stems slightly ridged, green to white, with dense, appressed to spreading hairs; leaves with (5–) 7–9 (–13) alternate leaflets; stipules triangular with linear, drawn-out tip and thin scarious margin, (2–) 3–7 mm long; petiole 1–4 mm long; rachis furrowed or flattened; stipels absent; leaflets obovate, (4.5–) 5–15 (–23) × (1.0–) 1.5–7 (–10) mm wide, green to grey, with sparse to dense, appressed to spreading hairs; apex obtuse and mucronate, emarginate or rarely acute. **Inflorescences** (3–) 5–20 (–35) mm long, generally shorter than the leaf; bracts ovate to triangular, 1.5–3.5 mm long, with scarious margins; flowers red; pedicel 0.5 mm long; calyx 2.5–5 mm long; lobes unequal or subequal, longer than the tube, covered with moderately dense to dense, grey, white or pale brown, appressed to shortly spreading, very unequal biramous hairs; standard obovate, 3–5 × 2.3–3.3 mm; wings oblong to spatulate, 3.5–5 × 0.7–1.2 mm wide; keel 3.5–4.5 × 0.7–1.2 mm; lateral pockets 0.3–0.6 mm long; staminal tube (2.0–) 2.5–3.2 mm long; ovary densely hairy. **Fruit** ascending, shortly cylindrical, (2.5–) 4–8 (–10.5) × 2–2.5 mm, white to grey or yellowish and brown, with hairs moderately dense to dense, appressed to spreading; endocarp not spotted; seeds (1–) 2 (–3) per fruit. **Birdsville indigo.**

S.A.: NW, LE; W.A.; N.T.; Qld; N.S.W. Pakistan, India, Sri Lanka, Burma, Thailand, Vietnam, Indonesia and New Guinea. Recorded as growing on most substrates, particularly on sand in open areas, grassland or woodland, and particularly on disturbed sites like roadsides. Flowers: year-round, but mostly Nov.–Mar.

This species is implicated in 'Birdsville Disease' in horses, the symptoms of which include weight loss, general weakness and progressive loss of coordination. *I. linnaei* is a native species that readily colonises disturbed areas like roadsides and has been considered a weed in Australia (Lazarides et al. 1997).

11. **Indigofera longibractea** J.M.Black, *Trans. & Proc. Roy. Soc. South Australia* 47: 369 (1923). — *I. basedowii* subsp. *longibractea* (J.M.Black) Peter G. Wilson, *J. Adelaide Bot. Gard.* 10: 121 (1987). — **Illustr.:** Cunningham et al., *Pl. W. N.S.W.* 397 (1982), as *I. basedowii*; Elliott & Jones, *Encyc. Austral. Pl.* 5: 417 (1990), as *I. basedowii* subsp. *longibractea*.

Erect or spreading subshrub, 0.2–1 m high, to 2 m wide though generally smaller, young stems terete or slightly ridged; hairs dense to very dense, spreading. Leaves with (9–) 15–21 (–23) leaflets; stipules triangular, (2–) 3–5 (–6) mm long, usually not persistent; petiole (1.5–) 3–6 (–9) mm long; rachis terete or slightly furrowed, multicellular hairs between leaflet pairs sparse, conspicuous, red to dark brown; stipels absent; leaflets obovate to oblong, 3–10 (–12) × (1.5–) 2.5–5 mm, green to grey, with moderately dense to dense, appressed hairs; apex obtuse and mucronate or emarginate. **Inflorescences** (15–) 60–120 (–160) mm long, longer than leaves; bracts ovate (often narrowly), (3–) 3.5–4.5 (–5.2) mm long; flowers pink to purple; pedicel 1.5–2.5 mm long; calyx (3–) 3.5–4.5 (–6) mm long, with subequal lobes longer than the tube, clothed with dense, grey or almost black, spreading hairs; standard broadly elliptical or ovate, (7–) 8.5–10 (–11) × (5.5–) 6–8 (–9) mm; wings spatulate, 7–9 × 2.5–4.5 mm; keel 7–8.5 × 2.5–2.8 mm; apex acute; lateral pockets 1–1.5 mm long; staminal tube 4–5 mm long; ovary densely hairy. **Fruit** descending, terete, 22–35 × 2.5–4.5 mm, grey to brown; hairs moderately dense to dense, shortly spreading to spreading; endocarp spotted; seed 4–10 per fruit.

S.A.: NW, LE, FR, EA; N.S.W.; N.T. This species grows on rocky hills, ridges or scree slopes amongst boulders, in creeks or in alluvium of creek banks. Flowers: June–Sep.

Earlier considered to be a subspecies of *I. basedowii*, but field observation has confirmed it as a distinct species. As well as the difference in leaflet number, *I. longibractea* has much larger flowers. The two taxa are closely related and a few intergrades have been noted. Specimens with calyx lobes much longer than the tube were collected in the vicinity of Ernabella, towards the northern limit of the species.

12. **Indigofera psammophila** Peter G. Wilson, *Telopea* 3: 597 (1990). — *I. brevidens* auctt. *Austral. non* Benth.: Jacobs & Pickard, *Pl. N.S. Wales* (1981); J.Z.Weber in Jessop & Toelken, *Fl. S. Austral.* 2: 579 (1986); J.M. Black, *Fl. S.*

Austral. edn. 2, 3: 462 (1948) pro parte. — **Illustr.:** *Pl. W. N.S.W.* 397 (1982), as *I. brevidens* var. *brevidens*.

Erect, spreading, decumbent or prostrate subshrub or perennial herb, 0.15–0.5 m high; young stems ridged or terete, grey, green, yellowish or dark brown, with dense to very dense, appressed to spreading, equally or unequally biramous hairs; leaves with (5–) 7–9 (–13) leaflets; stipules triangular or subulate, 1.5–3.5 mm long, pubescent, not spinescent, not persistent; petiole 3–15 (–22) mm long; rachis furrowed; stipels absent or inconspicuous; leaflets obovate, (2.5–) 4–14 (–22) × 1.5–8 (–9) mm, grey or green, with moderately dense or dense, appressed hairs; apex obtuse and mucronate or apiculate. **Inflorescences** (20–) 50–185 (–280) mm long, longer than leaves; bracts ovate to subulate, 1.3–2.5 mm long; flowers pink to pale purple; pedicel 0.7–1.2 mm long; calyx 1.5–2.7 mm long, with unequal lobes less than or equal to the tube, clothed with moderately dense, white or brown, appressed to shortly spreading hairs; standard ovate, 4.8–6.5 × 3.5–5.2 mm; wings spatulate or narrowly obovate, 4.8–8 × 1.2–2.5 mm; keel 4.3–6.3 × 1.7–2.4 mm deep; apex acute or beaked; lateral pockets 0.7–1 mm long; staminal tube 2.7–3.4 mm long; ovary densely hairy. **Fruit** descending, terete, (9–) 15–33 × 2–3 mm deep, grey to brown, hairs moderately dense to dense, appressed; endocarp spotted; seed 5–10 per fruit. **Desert indigo. Fig. 5E–G.**

S.A.: NW, LE, NU, GT; W.A.; N.T.; N.S.W.; Qld. Occurs in deep sand on dunes and sandplains. *I. psammophila* is widely distributed through the deserts of central Australia. Flowers: mostly Apr.–Nov.

References

- Bentham, G. (1864). *Hovea*. In: *Flora Australiensis* 2: 171–176. (L. Reeve & Co.: London)
- Jessop, J.P. & Toelken, H.R. (1986). *Flora of South Australia*, vol. 2. (Government Printer: Adelaide)
- Lazarides, M., Cowley, K. & Hohnen, P. (1997). *CSIRO Handbook of Australian Weeds*. (CSIRO Publishing: Collingwood)
- Ross, J.H. (1982). A revision of the genus *Templetonia* R.Br. (Papilionaceae), *Muelleria* 5: 1–29
- Ross, J.H. (1989). Notes on *Hovea* R.Br. (Fabaceae): 2. *Muelleria* 7: 21–38
- Ross, J.H. (1996). Notes on *Hovea* R.Br. (Fabaceae): 6. *Muelleria* 9: 15–28
- Schrire, B.D., Lavin, M., Barker, N.P. & Forest, F. (2009). Phylogeny of the tribe Indigofereae (Leguminosae–Papilionoideae): Geographically structured more in succulent-rich and temperate settings than in grass-rich environments. *Amer. J. Bot.* 96: 816–852
- Thompson, I.R. (2001). A Morphometric Analysis and Revision of Eastern Australian *Hovea* (Brongniartieae–Fabaceae). *Austral. Syst. Bot.* 14: 1–99
- Thompson, I.R. (2010). A revision of the leafless species of *Templetonia* (Brongniartieae: Fabaceae). *Muelleria* 28: 53–65
- Thompson, I.R. (2011a). A revision of *Goodia* (Fabaceae: Bossiaceae). *Muelleria* 29: 141–153
- Thompson, I.R. (2011b). A revision of *Platylobium* (Fabaceae: Bossiaceae). *Muelleria* 29: 154–172
- Thompson, I.R. (2011c). A revision of the arid-zone genera of the Bossiaceae (Fabaceae): *Muelleranthus*, *Ptychosema* and *Aenictophyton*. *Muelleria* 29: 173–189
- Wilson, P.G. & Rowe, R. (1994). The *Indigofera trita* complex (Fabaceae: Indigofereae) in Australia. *Telopea* 5: 637–645
- Wilson, Peter G. & Rowe, R. (2010). New taxa and typifications in *Indigofera* (Fabaceae) for South Australia. *J. Adelaide Bot. Gard.* 24: 67–73