

## A revision of *Justicia* section *Rostellaria* (Acanthaceae) in Australia

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### Abstract

*Justicia* sect. *Rostellaria* T.Anderson (formerly known as *Rostellularia* Rchb.) is revised for Australia, with the recognition of 14 species. Seven new species (*J. elliptica* A.R.Bean, *J. hadrophylla* A.R.Bean, *J. lissophylla* A.R.Bean, *J. occulta* A.R.Bean, *J. polytricha* A.R.Bean, *J. sparsa* A.R.Bean and *J. wondecla* A.R.Bean) are described. Two new combinations are made, namely *J. pogonanthera* (F.Muell.) A.R.Bean and *J. dallachyi* (R.M.Barker) A.R.Bean. Each species is fully described with notes on distribution, habitat and diagnostic features. Photographic images are provided for all species. The distribution of each species has been mapped, and a dichotomous identification key is presented.

### Introduction

Robert Brown named three species of *Justicia* L. from northern Australia (Brown 1810), namely *J. adscendens* R.Br., *J. juncea* R.Br. and *J. media* R.Br. Nees von Esenbeck (Nees 1832) described the genus *Rostellaria* Nees for 10 Asian *Justicia* species with a terminal spicate inflorescence and the fifth calyx lobe greatly reduced. This name is illegitimate (a later homonym of *Rostellaria* C.F.Gaertn.) and Reichenbach (1837) replaced it with *Rostellularia* Rchb. Nees (1847) transferred two of Brown's species to *Rostellularia*; the third, *J. adscendens*, he included under the Asian species *R. procumbens* (L.) Nees.

Bentham (1868) did not accept *Rostellularia* as distinct from *Justicia*, and he included all of Brown's species under the Asian species *Justicia procumbens* L. Subsequently, *J. procumbens* was used for many years in Australia as the accepted name for nearly all of the taxa covered by this revision. Domin (1929) described two new species, *Justicia glaucoviolacea* Domin and *J. clementii* Domin, and named two new varieties: *J. procumbens* var. *latifolia* Domin and *J. procumbens* var. *hispida* Domin.

The Dutch taxonomist, C.E.B. Bremekamp, accepted *Rostellularia* as a distinct genus, and in his 1962 paper (Bremekamp 1962), he resurrected *Rostellularia pogonanthera* F.Muell.

Barker (1986) also accepted *Rostellularia* and included all taxa except one as varieties or subspecies of *Rostellularia adscendens* (R.Br.) R.M.Barker.

Graham (1988) determined that the distinguishing morphological features of *Rostellularia* (simple spicate inflorescence, conspicuous anther appendage, fifth calyx lobe often greatly reduced) occur in several taxonomic groups of *Justicia*, and hence she reduced *Rostellularia* to a section of *Justicia*. Subsequent molecular studies (Scotland & Vollesen 2000; Kiel et al. 2017, 2018; McDade et al. 2021) have all supported the recognition

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of a broadly defined *Justicia* with *Rostellularia* subsumed. Manziotto-Tripp et al. (2022) in their worldwide classification of Acanthaceae, a synthesis of systematic work over the last few decades, further reinforced this by listing *Rostellularia* as a synonym of *Justicia*. Recent Asian and African Floras accept *Justicia* but not *Rostellularia* (e.g. Darbyshire et al. 2010; Hu et al. 2011; Anon. 2025).

This paper revises all Australian taxa of *Justicia* sect. *Rostellaria*. 14 species are accepted, including seven new species and two new combinations. Distribution maps and a dichotomous identification key are provided. For an extensive discussion of the morphological features of the Australian Acanthaceae, see Barker (1986).

## Material and methods

This paper is based on a morphological study of herbarium specimens from BRI, DNA, CANB and PERTH, and an examination of high-resolution images of specimens housed at NSW, L, MEL, GZU and WAG. Herbarium acronyms follow Thiers (2025-onwards). I have used the “morphological cluster” species concept, i.e. “assemblages of individuals with morphological features in common and separate from other such assemblages by correlated morphological discontinuities in a number of features” (Knapp 2008). All measurements are based on dried material. For the leaf measurements, I have measured one or two of the largest and best developed leaves from each specimen. In the “Specimens examined”, National Park is abbreviated as “N.P.” Distribution maps have been compiled using Diva GIS 7.50 and are based solely on specimens observed by the author (either in person or via an image). Species are treated in alphabetical order.

## Taxonomy

**Justicia** sect. **Rostellaria** T.Anderson, *J. Linn. Soc. Bot.* 7: 38 (1863); *Rostellaria* Nees, *Pl. Asiat. Rar.* (Wallich) 3: 76 (1832), *nom. illeg. non* C.F.Gaertn. (1807); *Rostellularia* Rchb., *Handb.* 190 (1837). *Type: Rostellularia procumbens* (L.) Nees, designated by Bremekamp, *Index Nom. Gen.*, card edition (1956).

Prostrate to ascending herbs, stems obscurely to strongly 4–6-angled. Leaves opposite, sessile or petiolate, isophyllous, broadly-ovate to linear, cystoliths usually prominent in dried material, especially on the upper surface. Inflorescence a terminal dense spike of numerous flowers, two at each node (in Australian species), each flower attended by a bract and two bracteoles. Bracts ovate, elliptical or lanceolate, green on and adjacent to midrib, lateral portions membranous, often white in colour. Bracteoles 2, often similar to the bract in size and shape. Calyx lobes 5, four of them equal in size but the fifth lobe greatly reduced in size (in Australian species). Corolla with tube widening from base, 2-lipped; upper lip erect, entire or notched; lower lip spreading, 3-lobed, the 2 lateral lobes narrower than middle lobe; indumentum on other parts variable. Stamens 2, exserted; filaments flattened, glabrous; anther cells 2, strongly superposed, lower one with long white basal spur, anther backs glabrous or with eglandular hairs; staminodes absent. Ovary 2-celled, with 2 ovules per cell; style pubescent in lower half, glabrous above; stigma obscurely notched. Capsule ± ellipsoid, each cell distally with 2 seeds and 2 hooks. Seed compressed, elliptical or circular in outline, glabrous, brown to black when mature, surface papillose or muricate.

This section is distributed in eastern Africa, southern Asia, Malesia and Australia. There are 14 species indigenous to Australia (this paper), and 25 accepted non-Australian species (Graham 1988).

## Key to the species of *Justicia* sect. *Rostellaria* in Australia

1. Leaf lamina broad (1.3–3 times longer than wide)..... 2
- 1: Leaf lamina narrower (3–26 times longer than wide) ..... 8
2. Bracts 0.9–3.8 mm wide, 1.5–4 times wider than calyx lobes..... 3
- 2: Bracts 0.5–0.9 mm wide, 0.8–1.5 times the width of the calyx lobes..... 5
3. Bracts 0.9–2.0 mm wide; lateral veins of leaf obscure; petioles 0.5–2 mm long..... **J. pogonanthera**
- 3: Bracts 2.0–3.8 mm wide; lateral veins of leaf readily visible; petioles 2–7 mm long..... 4
4. Bracts 4.5–5.8 mm long, apex obtuse; style 3.7–4.2 mm long; erect shrub ..... **J. elliptica**
- 4: Bracts 7.0–10.2 mm long, apex acute; style 5.5–6.5 mm long; procumbent shrub ..... **J. occulta**
5. Lamina surfaces glabrous, margins glabrous or with small hairs..... 6
- 5: Lamina hairy on both surfaces..... 7
6. Cystoliths near lamina margin 0.3–0.4 mm long; 2–3 pairs of lateral veins faintly visible, flush with surface; leaf lamina 8–21 mm long ..... **J. lissophylla**
- 6: Cystoliths near lamina margin 0.4–0.6 mm long; 4–5 pairs of lateral veins readily visible, raised above surface; leaf lamina 22–50 mm long ..... **J. dallachyi**
7. Leaf lamina 25–47 mm long, with hairs 0.5–0.7 mm long; cystoliths near lamina margin 0.6–0.9 mm long; erect shrub 45–60 cm high ..... **J. hadrophylla**
- 7: Leaf lamina 7–26 mm long, with hairs 0.2–0.4 mm long; cystoliths near lamina margin 0.4–0.6 mm long; procumbent shrub 6–20(–30) cm high ..... **J. polytricha**
8. Leaf lamina 11–26 times longer than wide ..... 9
- 8: Leaf lamina 3–11 times longer than wide ..... 10
9. Stems and bract surfaces (excluding margins) conspicuously hairy; leaves shortly petiolate ..... **J. juncea**
- 9: Stems and bract surfaces (excluding margins) glabrous; leaves sessile ..... **J. sparsa**
10. Leaf lamina glabrous throughout or with small hairs along the margin only..... 11
- 10: Leaf lamina at least sparsely hairy on lower surface..... 15
11. Leaves with petioles 1–10 mm long; outer surface of bracts hairy..... 12
- 11: Leaves sessile; outer surface of bracts (excluding margins) glabrous..... 14
12. Bracts 5.0–8.2 mm long, 1.4–1.8 mm wide, 1.5–2.5 times wider than calyx lobes, membranous outer part broadest at or above middle ..... **J. clementii**
- 12: Bracts 3.0–4.8 mm long, 0.5–1.0 mm wide, 0.9–1.3 times wider than calyx lobes, membranous outer part broadest near the base ..... 13
13. Cystoliths near leaf margin 0.3–0.4 mm long; 2–3 pairs of lateral veins faintly visible, flush with surface; leaf lamina 8–21 mm long ..... **J. lissophylla**
- 13: Cystoliths near leaf margin 0.4–0.6 mm long; 4–5 pairs of lateral veins readily visible, raised above surface; leaf lamina 22–50 mm long ..... **J. dallachyi**
14. Leaves 10–35 mm long; bracts 3.7–4.3 mm long; inflorescence spikes 3–7 cm long; style 2.8–3.3 mm long..... **J. sparsa**
- 14: Leaves 35–73 mm long; bracts 4.5–7.0 mm long; inflorescence spikes 5–15 cm long; style 4.6–6.3 mm long ..... **J. glaucoviolacea**

15. Bracts 2.6–5.0 mm long..... **J. adscendens**  
 15: Bracts 5.2–8.8 mm long..... 16  
 16. Bracts broadest near base, 0.8–1.5 times wider than calyx lobes; lower lip of corolla 5.1–6.2 mm long; cystoliths of upper leaf surface (near margin) 0.6–1.0 mm long..... **J. wondecla**  
 16: Bracts broadest at or above the middle, 1.5–2.5 times wider than calyx lobes; lower lip of corolla 2.5–5.3 mm long; cystoliths of upper leaf surface (near margin) 0.3–0.5 mm long..... 17  
 17. Style 4.0–5.5 mm long; lower corolla lip 2.6–5.3 mm long; habit slender, upright; membranous part of bracts often brownish..... **J. media**  
 17: Style 1.8–3.8 mm long; lower corolla lip 2.5–3.3 mm long; habit sprawling; membranous part of bracts yellow, white or translucent..... **J. clementii**

**Justicia adscendens** R.Br., *Prodr.* 476 (1810); *Justicia procumbens* var. *adscendens* (R.Br.) Domin, *Biblioth. Bot.* 22(89): 1158 (1929); *Rostellularia adscendens* (R.Br.) R.M.Barker, *J. Adelaide Bot. Gard.* 9: 250 (1986); *Rostellularia adscendens* (R.Br.) R.M.Barker subsp. *adscendens*, *J. Adelaide Bot. Gard.* 9: 255 (1986); *Rostellularia adscendens* (R.Br.) R.M.Barker var. *adscendens*, *J. Adelaide Bot. Gard.* 9: 257 (1986). Type: Queensland: Thirsty Sound, 26 August 1802, R. Brown s.n. [Iter Austral. 2948] (lecto: BM [001041228](#), designated by Barker (1986: 250); isolecto: BM [001041229](#); MEL [601994](#)).



**Figure 1.** *Justicia adscendens*. A, B. Representative specimen from Homevale Station, Queensland, I.G. Champion 1032 et al. (BRI, AQ 638294). C, D. Living plant from Livingstone, Queensland. Photos C, D by Geoffrey Sinclair, posted on iNaturalist: [122391939](#) (CC-BY-NC).

Erect shrub 10–50 cm high; stems 4–6-angled, sulcate, with sparse to dense spreading or retrorse hairs 0.2–0.9 mm long. Leaves petiolate (petioles 0.5–2 mm long), green above, paler underneath; lamina elliptical to narrowly lanceolate, 16–43 × 3.0–8.5 mm, 3.0–10 times longer than wide, apex acute or obtuse, base cuneate or obtuse; upper surface sparsely to densely hairy with hairs 0.3–1.2 mm long, cystoliths transverse near margin, 0.3–0.6 mm long, elsewhere transverse or ± parallel to lateral veins, 0.2–0.5 mm long; lower surface with sparse to dense hairs 0.2–0.7 mm long, lateral veins 2–4 pairs, at 30–45 degrees to midrib, readily visible, raised from lamina surface; cystoliths multidirectional, 0.2–0.5 mm long; lamina margins hairy. Inflorescence spikes 20–110 mm long, 5–10 mm wide, the lowest node sometimes remote from the more distal nodes; bracts lanceolate to deltate, 3.2–5.0 mm long, 0.7–1.2 mm wide, with membranous outer part 0.1–0.4 mm wide, broadest towards the base, apex acute, 0.8–1.5 times wider than calyx lobes; bract surface with few to many eglandular hairs throughout, sometimes also with tiny glandular hairs, margins ciliate throughout; calyx lobes narrow-lanceolate, 4.0–6.0 mm long, 0.5–1.0 mm wide, 1.0–1.5 times longer than the bract. Corolla white, mauve, purple or pink, upper lip 2.5–3.5 mm long, lower lip 2.8–4.2 mm long; anther backs glabrous or hairy; style 2.5–4.2 mm long; capsules hairy near the apex, 4.5–8.0 mm long; seeds circular in outline, 1.0–1.7 mm long, surface papillose. Fig. 1.

**Selected specimens examined: Queensland.** Bruce Highway, c. 13.5 km due W of Apple Tree Creek township, 29 Nov 1995, *K.M. Sparshott KMS692 & G.P. Turpin* (BRI); Stockyard Creek, on the Herveys Range Development road, 15 Apr 1997, *B.S. Wannan 439* (BRI); summit of Mount Owen, “Mt Owen” station, N of Mitchell, 23 Nov 2011, *A.R. Bean 31334 & D. Halford* (BRI); on side track leading from Charleville–Augathella road, c. 14 km from Augathella, 24 Mar 1976, *R.W. Purdie & D.E. Boyland 128* (BRI); near Anglewood Road, c. 6.3 km from St Lawrence road, 13 Oct 2022, *L.B. Ngugi LBN343 & G.P. Turpin* (BRI); Just NE of Krankeet Mtn peak, Pine Mountain sector, Shoalwater Bay, 29 Apr 1997, *J. Brushe JB1474 & R. Hendry* (BRI); 2 km S of Deerabungy Creek bridge, S of Mundubbera, 9 Nov 1997, *A.R. Bean 12591* (BRI, MEL); Butler Rd, Bunburra, 8.5 km S of Boonah, 23 Jan 2021, *P.I. Forster PIF47122 et al.* (BRI); Caves Creek Rd, SW section of Carnarvon Station reserve, c. 1.6 km from the boundary, 10 Oct 2014, *B.M. Collins 243 & E.J. Toms* (BRI, CANB); 72 km along eastern road from Quilpie to Adavale, adjacent to Hoomooloo Park station, 8 Aug 2009, *P.I. Forster PIF35702A & M.B. Thomas* (BRI); Olive River Environmental Reserve, 0.5 km W by road of ‘Bromley’ HS, Cape York Peninsula, 14 Jun 2007, *P.I. Forster PIF32580 & K.R. McDonald* (BRI); Kings Plain station, W of Cooktown, 23 Mar 2015, *K.R. McDonald KRM16663 & T. Hughes* (BRI); Holmes Creek, 3.5 km WNW of Mt Carbine on the Peninsula Development road, 19 Jan 1984, *J.R. Clarkson 5106* (BRI, DNA, PERTH); Cape Cleveland, Bowling Green Bay N.P., 40 km SE of Townsville along AIMS road, 28 Feb 1996, *P.R. Williams 475* (BRI); 24 km along May Downs–Carfax road, W from Fitzroy Development road, 10 Jul 1998, *S.L. Thompson 1015 & I.D. Fox* (BRI). **New South Wales.** Barra Trail E Phantom Trail, Deriah State Forest, 2 Dec 1986, *D.F. Mackay 715* (NSW); 4 km S of Currotha homestead, c. 80 km W of Moree, 28 Dec 2000, *B.S. Wannan 2011 & J.T. Wannan* (BRI). **Papua New Guinea.** Tavai Creek area, c. 43 miles SE of Port Moresby, 5 May 1967, *R. Pullen 6913* (CANB); Rigo, Aug 1928, *J. Jeswiet 245* (WAG).

**Distribution and habitat:** *Justicia adscendens* is widespread in Australia extending from Cape York Peninsula, Queensland to around Dubbo in New South Wales (Fig. 2). It is also recorded from Papua New Guinea. It grows in eucalypt forest or woodland on sandy to clay-loam soils, on flat or hilly terrain.

**Recognition:** *Justicia adscendens* is recognised by the leaf lamina sparsely to densely hairy, 3–10 times longer than broad; bracts hairy on outer surface, 3.2–5.0 mm long, about the same width as calyx lobes.

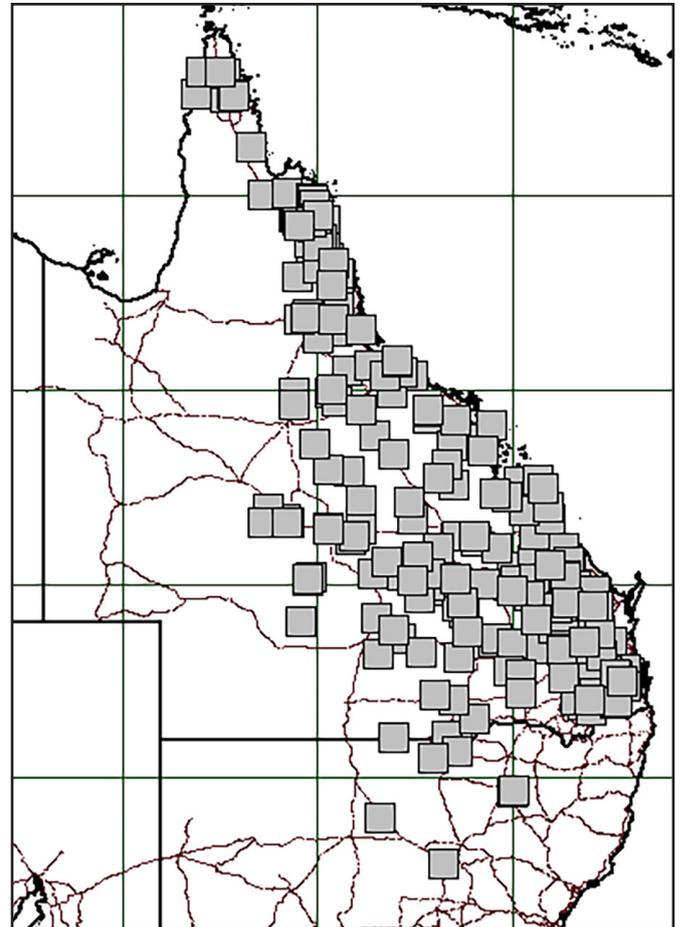


Figure 2. Distribution of *Justicia adscendens*.

**Notes:** This is one of the most widespread and variable of the species in the group. Plants from Cape York Peninsula and nearby areas are readily distinguished from southern Queensland plants by the longer and more prominent transverse cystoliths in the leaves, but this character seems to change gradually on a north-south gradient without any discontinuity.

**Justicia clementii** Domin, *Biblioth. Bot.* 22(89): 1159 (1929); *Rostellularia adscendens* subsp. *clementii* (Domin) R.M.Barker, *J. Adelaide Bot. Gard.* 9: 267 (1986); *Rostellularia adscendens* var. *clementii* (Domin) R.M.Barker, *J. Adelaide Bot. Gard.* 9: 269 (1986). *Type:* Western Australia: between Ashburton and De Grey Rivers, undated, *E. Clement s.n.* (holo: PR 531032).



**Figure 3.** *Justicia clementii*. A. Representative specimen from near Hughenden, Queensland, D.C. Johnson & G. Turpin s.n. (BRI, AQ 742463). B, C. Living plants from De Grey River, Pilbara, Western Australia, R.L. Barrett RLB 8280 (PERTH). D. Living plant from Stamford, Queensland, K.R. McDonald KRM24927 (BRI). Photos: B, C, by Russell Barrett. D. by Keith McDonald.

Heavily branched erect or sprawling shrub 20–40 cm high; stems 4–6-angled, sulcate, glabrous or with very sparse retrorse hairs 0.1–0.2 mm long. Leaves petiolate (petioles 1–2 mm long), green above, paler below; lamina elliptical to lanceolate, 19–47 × 4–10 mm, 3.0–6.0 times longer than wide, apex acute or obtuse, base cuneate or attenuate; upper surface glabrous or sparsely hairy, cystoliths transverse near margin, 0.3–0.5 mm long, elsewhere ± parallel to lateral veins, 0.2–0.4 mm long; lower surface glabrous or sparsely hairy, lateral veins 2–3 pairs, at about 30 degrees, readily visible and slightly raised from lamina surface, cystoliths mostly parallel to lateral veins, 0.3–0.4 mm long; lamina margins sparsely hairy, hairs 0.2–0.6 mm long. Inflorescence spikes 20–55 mm long, 9–12 mm wide, the lowest node not remote from the more distal nodes; bracts oblanceolate to obovate,

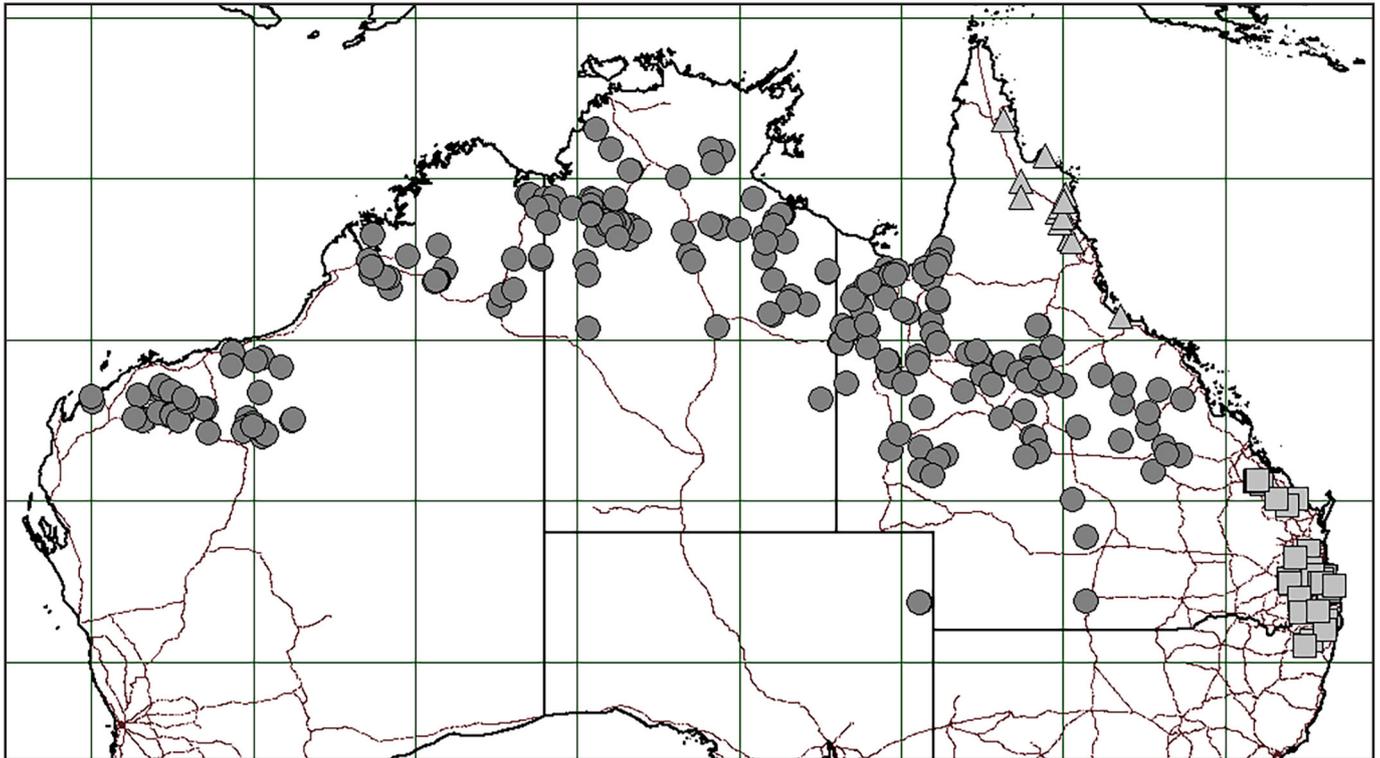
5.0–8.2 mm long, 1.4–1.8 mm wide, with membranous outer part 0.3–0.6 mm wide, broadest at or above middle; bract surface with glandular hairs and/or eglandular hairs or rarely glabrous, margins ciliate throughout, 1.5–2.5 times wider than calyx lobes; calyx lobes narrow-lanceolate, 5.5–7.0 mm long, 0.6–0.9 mm wide, 0.9–1.2 times longer than the bract. Corolla purple, pink or mauve, upper lip 1.8–2.4 mm long, lower lip 2.5–3.3 mm long; anther backs glabrous or hairy; style 1.8–3.8 mm long; capsules hairy near apex, 4.8–6.0 mm long; seeds circular in outline, 1.1–1.5 mm long, surface papillose. Fig. 3.

**Selected specimens examined: Western Australia.** East branch Wolf Creek, c. 60 km S of Halls Creek, 13 Jul 1974, G.W. Carr & A.C. Beaglehole 3570 (BRI, DNA, PERTH); Christies

Crossing, Oakover River, 6 May 2006, *K.L. Wilson 10372 et al.* (AD, BRI, CANB, PERTH); 10 miles [16 km] E of Millstream HS, 4 Mar 1962, *A.S. George 3553* (PERTH); 12km S of Barowana Hill, 24 Mar 1984, *K. Newbey 9948* (PERTH); 9.9 km NW of Erallinga Pool, Hamersley Ranges, 22 Apr 1997, *M. Trudgen MET15343* (PERTH). **Northern Territory.** 53.0 km E of Victoria River Downs HS, 8 Jun 2005, *A.R. Bean 24147* (BRI); McArthur River crossing, Borrooloola, 27 Jun 1977, *J. Must 1541* (BRI, DNA); Flora River, 15 Mar 1989, *J. Russell-Smith 7846 & Lucas* (AD, BRI, DNA); Gregory N.P., 8 km NW of Bullita out-station, 7 Feb 1986, *B.G. Thomson 1052* (DNA); Mataranka Reserve, 4 May 1977, *J. Must 1473* (DNA). **South Australia.** Strzelecki overflow, 28 Apr 1994, *R.J. Bates 37466* (BRI). **Queensland.** Malvon Vale station, 52 km S of Mount Isa on Duchess road, *R.M. Barker 616* (AD, BRI, DNA, NSW); 3km

SSE of Lawn Hill N.P. ranger station on Lawn Hill station, 6 Apr 2006, *E.J. Thompson LAW165 & M. Edginton* (BRI); channels of Diamantina River, Diamantina N.P., 8.9 km from ranger station at bearing 348 degrees below Janet's Leap lookout, 9 Jun 2016, *C. Pennay CP668 & D. Richter* (BRI); 1.8 km from Richmond Post Office, on Croydon road, 30 Jun 1998, *A.R. Bean 13380* (BRI).

**Distribution and habitat:** *Justicia clementii* is widespread and is found in the Pilbara and southern Kimberley regions of Western Australia, much of Northern Territory, the northernmost parts of South Australia, and in much of Queensland away from the east coast (Fig. 4). It often grows on cracking clay soil plains in grassland or open eucalypt or acacia woodland but is also found on lighter soils in hilly terrain.



**Figure 4.** Distribution of *Justicia clementii* (circles), *J. elliptica* (squares), and *J. hadrophylla* (triangles).

**Recognition:** *Justicia clementii* is diagnosed mainly by the broad bracts in which the membranous part is broadest at or above the middle. Also, both leaf surfaces are glabrous throughout much of its range (but hairy in the tropical parts of N.T. and W.A.), while the margins are sparsely hairy; the spikes of the inflorescence are short (20–55 mm long); plants are typically heavily branched and often broader than high.

***Justicia dallachyi*** (R.M.Barker) A.R.Bean, *comb. et stat. nov.*

Basionym: *Rostellularia adscendens* subsp. *dallachyi* R.M.Barker, *J. Adelaide Bot. Gard.* 9: 274 (1986). Type: Queensland: Coast Range, Rockingham Bay, 8 February 1866, *J. Dallachy s.n.* (holo: MEL [101182](#)).

Erect shrub 30–50 cm high; stems 4–6-angled, almost terete, with sparse retrorse hairs 0.15–0.3 mm long. Leaves petiolate (petioles 1–10 mm long), green above, paler below; lamina broadly ovate to narrow-lanceolate, 22–50 × 4.5–26 mm, 1.9–9 times longer than wide, apex obtuse, base cuneate; upper

surface glabrous, cystoliths transverse near margin, 0.4–0.6 mm long, elsewhere ± parallel to lateral veins, 0.25–0.4 mm long; lower surface glabrous, lateral veins 4–5 pairs, readily visible and slightly raised from lamina surface; cystoliths mostly parallel to lateral veins, 0.3–0.4 mm long; lamina margins glabrous or sparsely hairy. Inflorescence spikes 40–90 mm long, 7–8 mm wide, the lowest node not remote from the more distal nodes; bracts narrow-lanceolate, 3.5–4.8 mm long, 0.7–0.9 mm wide, with membranous outer part 0.2–0.3 mm wide, broadest towards the base, 0.8–1.5 times wider than calyx lobes; bract surface with glandular hairs and/or eglandular hairs, margins ciliate throughout; calyx lobes narrow-lanceolate, 5.0–5.8 mm long, 0.8–0.9 mm wide, 1.2–1.4 times longer than the bract. Corolla purple, creamy-white or mauve, upper lip 2.5–2.9 mm long, lower lip 3.2–4.0 mm long; anther backs glabrous or hairy; style 3.2–3.9 mm long; capsules hairy near the apex, 4.7–6.0 mm long; seeds elliptical-truncate in outline, 1.1–1.5 mm long, surface muricate to papillose. Figs 5, 6.



**Figure 5.** *Justicia dallachyi*. Representative specimen of narrow-leaved form from Lizard Island, Queensland, N. Byrnes 3134 (BRI, AQ 79495). A. Sheet. B. Leaves and inflorescences.

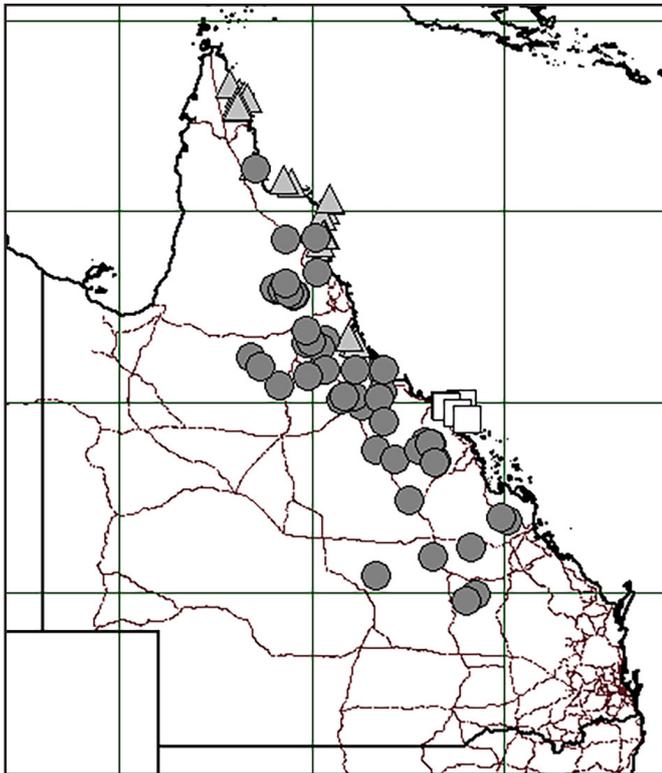


**Figure 6.** *Justicia dallachyi*. Representative specimen of broad-leaved form from Stanley Island, Queensland, K.R. McDonald KRM18001 et al. (BRI, AQ 980233). A. Sheet. B. Leaves and inflorescences.

**Selected specimens examined: Queensland.** Lizard Island (Great Barrier Reef), in low saddle crossing SW third of island, 26 Jun 1973, *F.R. Fosberg 55011* (BRI); c. 16 km S of Cardwell, south of Dampier Creek in vicinity of old Dalrymple track, 16 Feb 1975, *A. Thorsborne 5* (BRI); 2 km NW of Bolt Head, Temple Bay, 12 Jul 1991, *P.I. Forster PIF8942* (BRI); Flinders Group N.P., Stanley Island, 4 Mar 2016, *K.R. McDonald KRM18001 et al.* (BRI); 2 km west of Archer Point, 17 Jun 1996, *B. Gray 6804* (BRI); Captain Billy Landing, 26 Feb 1992, *R.W. Johnson 4937* (BRI); 0.5 km from the beach on the track from Starke Station to the mouth of the McIvor River, 2 Feb 1984, *J.R. Clarkson 5192* (BRI); 3 miles from Point Archer towards Cooktown, 17 Jun 1972, *J. Wrigley & I. Telford NQ1290* (CANB).

**Distribution and habitat:** *Justicia dallachyi* is endemic to Queensland, extending from Olive River, Cape York Peninsula to Cardwell, including continental islands (Fig. 7). It inhabits sandy soils on coastal lowlands, sometimes just behind the frontal dune.

**Recognition:** Leaves are glabrous, highly variable in shape, and with an obtuse apex; stems sparsely hairy; cystoliths small, 0.2–0.4 mm long, mostly parallel to lateral veins, but transverse near lamina margins. Bracts sparsely hairy, acute, narrow, membranous margins broadest near base, tapering distally.



**Figure 7.** Distribution of *Justicia dallachyi* (triangles), *J. occulta* (squares), and *J. polytricha* (circles).

***Justicia elliptica* A.R.Bean, sp. nov.**

*Type:* Queensland: Canterbury Park, Strathpine, c. 20 km N of Brisbane, 7 January 1995, *A.R. Bean 8182* (holo: BRI AQ0634198; iso: AD 99527080, K, MEL 0287827, NSW672927).

[*J. media* auct. non R.Br.: Nees (1847).]

[*Rostellularia peploides* auct. non (Nees) Nees: Benth (1868).]

[*Rostellularia obtusa* auct. non Nees: Barker (1986).]

Erect shrub 20–30 cm high; stems 4–6-angled, sulcate, with moderately dense retrorse hairs 0.2–0.3 mm long or spreading septate hairs 0.6–1.1 mm long. Leaves petiolate (petioles 3–7 mm long), green above, paler underneath; lamina ovate to elliptical, 17–44 × 6–17 mm, 2.2–3.1 times longer than wide, apex obtuse, base cuneate or obtuse; upper surface sparsely to densely hairy with hairs 0.25–1.1 mm long, cystoliths transverse near margin, 0.3–0.5 mm long, elsewhere multidirectional, 0.15–0.3 mm long; lower surface with sparse to dense hairs 0.25–1.0 mm long, lateral veins 3–4 pairs, at 45–60 degrees, readily visible and slightly raised from lamina surface; cystoliths multidirectional, 0.2–0.3 mm long; lamina margins hairy. Inflorescence spikes 20–40(–50) mm long, 8–11 mm wide, the lowest node not remote from the more distal nodes; bracts elliptical to obovate, 4.5–5.8 mm long, 2.0–3.4 mm wide, with membranous outer part 0.4–0.8 mm wide, broadest towards the base, apex obtuse, 2.5–4 times wider than calyx lobes; bract surface glabrous or with a mixture of eglandular and glandular hairs, margins ciliate throughout or only on the upper half; calyx lobes narrow-lanceolate, 4.4–5.1 mm long, 0.6–0.8 mm wide, 0.9–1.2 times longer than the bract. Corolla purple, white or pink, upper lip 2.3–3.5 mm long, lower lip 3.3–5.0 mm long; anther backs glabrous or occasionally with a few hairs; style 3.7–4.2 mm long; capsules hairy near the apex, 4.6–5.5 mm long; seeds circular in outline, 1.2–1.4 mm long, surface muricate to faintly ribbed. Fig. 8.

**Selected specimens examined: Queensland.** Brisbane River, Jul 1855, *F. Mueller s.n.* (MEL); Dry Creek, close to forestry barracks, Kroombit Tops, 64 km SW of Calliope, 16 Dec 1983, *P.R. Sharpe 3465* (BRI); Raspberry Creek, via Monal, N of Monto, 10 Feb 1995, *A.R. Bean 9710* (BRI, MEL); Little Yabba State Forest Reserve, 7 Apr 1939, *D.A. Goy & L.S. Smith 646* (BRI); Alberton cemetery, c. 8 km E of Beenleigh, 7 May 2003, *A.R. Bean 20355* (BRI); Indooroopilly, Brisbane, 17 Jun 1930, *C.E. Hubbard 3038* (BRI, K); Mt Gravatt university site, 12 Feb 1967, *R.J. Henderson H179* (BRI). **New South Wales.** At road junction, Bungabee State Forest, NE of Casino, 29 Dec 2011, *A.R. Bean 31426* (BRI).

**Distribution and habitat:** *Justicia elliptica* is distributed from Kroombit Tops (SW of Gladstone) in Queensland to Grafton in New South Wales (Fig. 4). It grows on creekbanks, creek flats or lower hillslopes on clayey or clay-loam soils, often in association with *Eucalyptus tereticornis*, *Melaleuca quinquenervia* or *E. moluccana*.

**Recognition:** *Justicia elliptica* differs from all other Australian species except *J. occulta* by its broad elliptical bracts that are 2.5–4 times broader than the calyx lobes. *J. elliptica* is related to the Javan species *Rostellularia obtusa* Nees, but differs by the narrower leaves (2.2–3.1 times longer than wide vs 1.5–2 times for *R. obtusa*), the obtuse leaf apex (vs acute for *R. obtusa*), the cystoliths of the upper leaf surface (away from the margins) moderately dense, 0.15–0.3 mm long, multidirectional (vs very dense, c. 0.4 mm long, mostly transverse for *R. obtusa*), the upright habit (vs procumbent for *R. obtusa*), and the inflorescences 20–40(–50) cm long (vs 30–80(–100) cm long for *R. obtusa*).

**Etymology:** The species epithet refers to the shape of the bracts in this species.



**Figure 8.** *Justicia elliptica*. A, B. Representative specimen from near Blackbutt, Queensland, A.R. Bean 24469 (BRI, AQ 725097). B. Leaves and inflorescences. C, D, Living plants from Chermside, Brisbane, Queensland. Photos C, D, by Sylvia Haworth, posted on iNaturalist: [198278216](https://www.inaturalist.org/observations/198278216) (CC-BY-NC).

**Notes:** Barker (1986) expressed doubt about the origin status of Australian populations of what she called '*Rostellularia cf. obtusa*', dependent on its taxonomic status. A resultant comment is made in the APC (2025), saying "the status, whether native or introduced, of this species is not clear". *Justicia elliptica* was collected by Allan Cunningham from Moreton Bay in the 1820s, with subsequent collections in the Brisbane area by F. Mueller, C. Stuart, S. Eaves and D. Henne (Bentham 1868; Barker 1986), and since it does not match any non-Australian taxon, it is clearly indigenous.

***Justicia glaucoviolacea*** Domin, *Biblioth. Bot.* 22(89): 1159 (1929), as "glauco-violacea"; *Rostellularia adscendens* subsp. *glaucoviolacea* (Domin) R.M.Barker, *J. Adelaide Bot. Gard.* 9: 272 (1986). Type: Queensland: Walsh River near Chillagoe, February

1910, *K. Domin s.n.* [catalogue number 8421] (lecto: PR 531034, designated by Barker 1986: 272).

Erect shrub 40–60 cm high; stems sulcate to almost terete, glabrous. Leaves sessile, green, but often drying black or purplish; lamina elliptical, lanceolate or narrow-lanceolate, 35–73 × 8–22 mm, 3.0–6.7 times longer than wide, apex acute, base obtuse; upper surface glabrous, with cystoliths transverse near margin, 0.8–1.1 mm long, ± parallel to lateral veins close to midrib, 0.4–0.7 mm long; lower surface glabrous, lateral veins 2–5 pairs, faint and sometimes almost invisible, flush with lamina surface; cystoliths multidirectional, 0.4–0.8 mm long; lamina margins glabrous. Inflorescence spikes 60–150 mm long, 7–13 mm wide, the lowest node remote from the more distal nodes (bracts and calyx lobes not overlapping); bracts narrowly deltate to

lanceolate, 4.5–7.0 mm long, 1.0–1.3 mm wide, with membranous outer part 0.2–0.3 mm wide, broadest towards the base, apex acute, 0.8–1.5 times wider than calyx lobes; bract surface glabrous, margins with a few eglandular hairs towards the distal end; calyx lobes narrow-lanceolate, 5.0–8.3 mm long, 0.6–1.4 mm wide, 1.0–1.3 times longer than the bract. Corolla white or sometimes mauve, upper lip 2.6–3.9 mm long, lower lip 4.0–5.5 mm long; anther backs sparsely hairy, style 4.6–6.3 mm long; capsules hairy near the apex, 5.6–6.5 mm long; seeds elliptical, 1.4–1.5 mm long, surface muricate to papillose. Fig. 9.

**Selected specimens examined: Queensland.** c. 14 km (by road) S of Mutchilba, towards Stannary Hills, 28 May 1983, *B.J. Conn* &

*J. De Campo* 1232 (BRI, MEL); 2 km S of the Big Coleman River on the Coen to Musgrave road, 9 May 1987, *J. Clarkson* 7120 & *B.K. Simon* (BRI, CNS); Crystal Creek, O'Briens Creek gemfields, N of Mount Surprise, 21 May 2004, *K.R. McDonald* KRM2542 (BRI); 16 km NW of Mt Garnet, on road to Lappa, 19 Jan 1993, *A.R. Bean* 5465 & *P.I. Forster* (BRI, DNA, MEL); Dimbulah – Wolfram road, 4.4 km from Parise Road, 5 Mar 2002, *A. Ford* AF3301 & *J. Holmes* (BRI, K, MEL, NSW); Stannary Hills, May 1962, *C.H. Gittins* 516 (BRI, CANB); Minnamoolka Station about 35 km south of Mt. Garnet, 14 Apr 1991, *G.N. Batianoff* & *A.J. Franks* MM9104015 (BRI, CANB); Near Telecom tower, Blackbraes N.P., N of Hughenden, 23 Apr 2002, *A.R. Bean* 18812 (BRI).



**Figure 9.** *Justicia glaucoviolacea*. A, D. Representative specimen from Lappa, Queensland, *P.I. Forster* PIF18477 & *T. Ryan* (BRI, AQ 602768). B, C. From Herberton, Queensland. Photos by Linda Rogan, posted on iNaturalist: [91086628](https://www.inaturalist.org/observations/91086628) (CC-BY-NC).

**Distribution and habitat:** *Justicia glaucoviolacea* is endemic to Queensland. It is mainly found from Dimbulah to Blackbraes National Park, but with outlying populations in the Coen area on Cape York Peninsula, and north of Charters Towers (Fig. 10). It inhabits shallow sandy soil, often derived from granite, in open eucalypt woodland.

**Recognition:** A distinctive species with glabrous sessile leaves 3.0–6.7 times longer than wide, often purplish when dry; narrow bracts with glabrous outer surface and usually quite long inflorescence spikes; corolla usually white. It is related to *J. sparsa* (for differences, see that species).

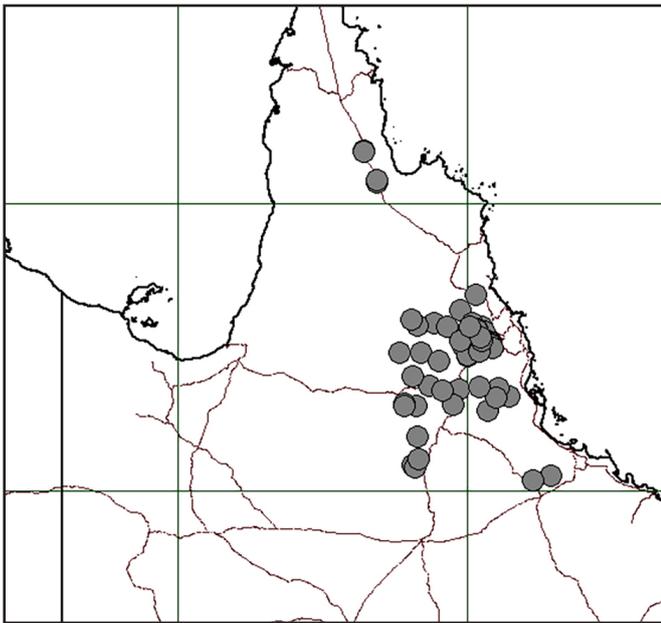


Figure 10. Distribution of *Justicia glaucoviolacea*.

***Justicia hadrophylla* A.R.Bean, sp. nov.**

*Type:* Queensland: Watershed mine site, 35 km NW of Mount Carbine, 22 April 2008, B.S. Wannan 5131 (holo: BRI AQ0864641; iso: NSW 835049).

Erect shrub 45–60 cm high; stems sulcate to almost terete, with dense spreading eglandular hairs 0.5–1.0 mm long. Leaves petiolate (petioles 3–9 mm long), green, but often drying black; lamina elliptical to broadly elliptical, 25–47 × 13–20 mm, 1.8–2.9 times longer than wide, apex acute or apiculate, base cuneate or obtuse; upper surface sparsely to moderately hairy, with hairs 0.5–0.7 mm long; cystoliths transverse near margin, 0.6–0.9 mm long, elsewhere ± parallel to lateral veins close to midrib, 0.3–0.7 mm long; lower surface sparsely to moderately hairy, with hairs 0.5–0.7 mm long, lateral veins 4–5 pairs, readily visible and raised from lamina surface; cystoliths mostly parallel to lateral veins, 0.3–0.4 mm long; lamina margins hairy. Inflorescence spikes 30–105 mm long, 7–11 mm wide, the lowest node sometimes remote from the more distal nodes (bracts and calyx lobes not overlapping); bracts narrowly lanceolate, 3.5–5.2 mm long, 0.7–0.9 mm wide, with membranous outer part 0.2–0.4 mm wide, broadest towards the base, apex acute, 0.8–1.5 times wider than

calyx lobes; bract surface with eglandular hairs along the midrib or with glandular and eglandular hairs throughout, margins ciliate throughout; calyx lobes narrow-lanceolate, 4.0–6.0 mm long, 0.6–1.0 mm wide, 1.0–1.3 times longer than the bract. Corolla cream, lilac, mauve or pink, upper lip 2.7–3.3 mm long, lower lip 3.3–4.3 mm long; anther backs sparsely hairy; style 4.0–5.0 mm long; capsules hairy near the apex, 4.0–5.2 mm long; seeds orbicular in outline, 0.9–1.1 mm long, surface papillose. Fig. 11.

**Selected specimens examined: Queensland.** Alkoomie Station, Dickson Range, W of Cooktown, 28 Jun 2015, K.R. McDonald KRM17263 (BRI); Southern end of Hann Tableland, 25 Feb 2006, B.S. Wannan 4178 *et al.* (BRI); Beside Cooktown Road, 7 km N of East Normanby River, 16 Apr 2005, B.S. Wannan 3940 (BRI); Nookai Creek, Cape Melville N.P., 9 May 2014, K.R. McDonald KRM15764 (BRI); 2.8 km along Peninsula Development Road from Mary Valley Station turnoff, 14 Mar 2012, S.L. Thompson ST12025 (BRI); Hann Tableland N.P., northern end, west of Mareeba, 10 May 2010, P.I. Forster PIF36979 & M.B. Thomas (BRI); Southern approach to Townsville, 14 Feb 1980, T. Stanley 80228 (BRI).

**Distribution and habitat:** *Justicia hadrophylla* is endemic to Queensland, and extends from Orchid Creek station, Cape York Peninsula, to Hann Tableland west of Mareeba, and with an outlier just south of Townsville (Fig. 4). The majority of collections are from eucalypt forest on shallow sandy soils on or adjacent to outcropping granite boulders, but a few collections are from sandy plains.

**Recognition:** This species can be recognised by its relatively long and broad petiolate leaves with raised venation on the lower surface, and cystoliths longer than most other species. The hairs on the stems and leaves are relatively long. The bracts are narrow and about as wide as the calyx lobes.

**Etymology:** The epithet is from the Greek *hadros*, meaning 'large, well developed' and *phyllon* (leaf). This refers to the leaves of this species which are larger than most other Australian species.

***Justicia juncea* R.Br., Prodr. 476 (1810); *Rostellularia juncea* (R.Br.) Nees in A.DC., Prodr. 11: 376 (1847); *Justicia procumbens* var. *juncea* (R.Br.) Domin, Biblioth. Bot. 22(89): 1158 (1929); *Rostellularia adscendens* var. *juncea* (R.Br.) R.M.Barker, J. Adelaide Bot. Gard. 9: 258 (1986). *Type:* Queensland: Shoalwater Bay and Broad Sound, 3 September 1802, R. Brown s.n. [Iter Austral. 2946] (lecto: BM 001217076, designated by Barker (1986: 258); isolecto: MEL 601995; K 000884269 [lower 3 specimens only]).**

*Justicia procumbens* var. *hispida* Domin, Biblioth. Bot. 22(89): 1158 (1929); *Rostellularia adscendens* var. *hispida* (Domin) R.M.Barker, J. Adelaide Bot. Gard. 9: 261 (1986). *Type:* Queensland: near Mareeba, February 1910, K. Domin s.n. [catalogue number 8417] (lecto: PR 531022, designated by Barker (1986: 261)).



**Figure 11.** *Justicia hadrophylla*. A, B. Holotype specimen from near Mount Carbine, Queensland, B.S. Wannan 5131 (BRI, AQ 864641). C, D. Living plant from Bellevue, Queensland. Photos C, D, by Rene Raders, posted on iNaturalist: [301138008](https://www.inaturalist.org/observations/301138008) (CC-BY-NC).

Few-branched erect shrub 25–40 cm high; stems 4–6-angled, sulcate, with very sparse to moderately dense retrorse hairs 0.2–0.4 mm long. Leaves sessile or petiolate (petioles 0–1 mm long), green above, paler below; lamina linear, 17–62 × 1.5–5.0 mm, 11–26 times longer than wide, apex acute or obtuse, base cuneate; upper surface glabrous or sparsely hairy, hairs 0.2–0.4 mm long, cystoliths transverse near margin, 0.2–0.6 mm long, elsewhere ± parallel to lateral veins or transverse, 0.2–0.4 mm long; lower surface glabrous to moderately densely hairy, hairs 0.2–0.4 mm long, lateral veins 2–4 pairs, at about 30 degrees, readily visible and slightly raised from lamina surface, cystoliths mostly parallel to lateral veins or multidirectional, 0.2–0.4 mm long; lamina margins sparsely hairy, hairs 0.2–0.4 mm long. Inflorescence spikes

40–100 mm long, 6–8 mm wide, the lowest node usually remote from the more distal nodes; bracts lanceolate to narrowly deltate, 2.6–3.7 mm long, 0.5–0.8 mm wide, with membranous outer part 0.1–0.2 mm wide, broadest towards the base, 0.8–1.5 times wider than calyx lobes; bract surface with eglandular hairs and usually with abundant glandular hairs, margins ciliate throughout; calyx lobes narrow-lanceolate, 4.3–5.2 mm long, 0.6–0.9 mm wide, 1.2–1.5 times longer than the bract. Corolla purple, pink or mauve, upper lip 3.1–4.5 mm long, lower lip 3.8–5.5 mm long; anther backs hairy or rarely glabrous; style 3.0–5.5 mm long; capsules glabrous or hairy near apex, 3.6–5.8 mm long; seeds circular in outline, 1.2–1.5 mm long, surface papillose. Fig. 12.



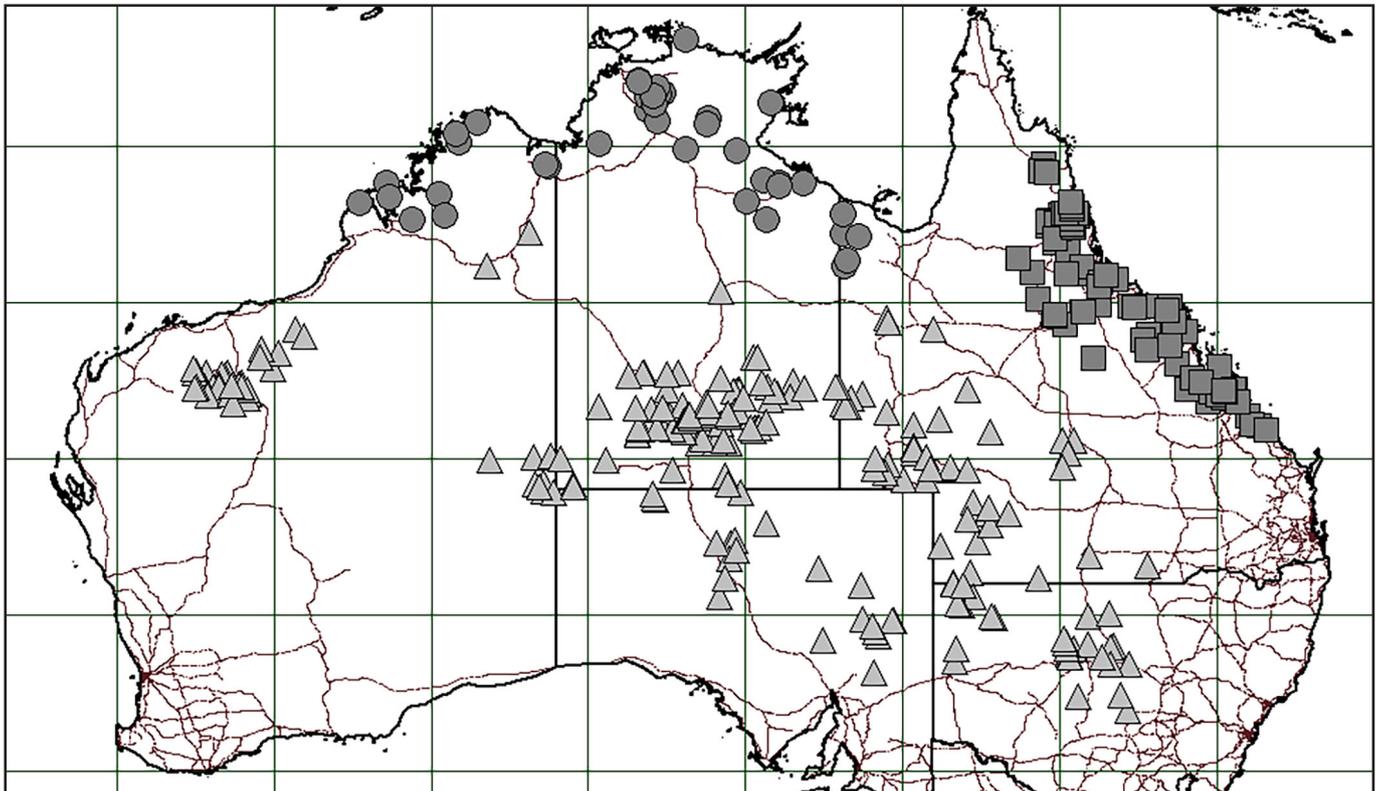
**Figure 12.** *Justicia juncea*. A, B. Representative specimen from Homevale National Park, Queensland, A.R. Bean 30615 (BRI, AQ 822613). C, D. Living plants from Shoalwater, Queensland. Photos by Darren Fielder, posted on iNaturalist: [104088094](https://www.inaturalist.org/observations/104088094); [104174106](https://www.inaturalist.org/observations/104174106) (CC-BY-NC).

**Selected specimens examined: Queensland.** Road to Quinkan art site, 8 km SE of Laura, 9 Jul 1990, A.R. Bean 1813 (BRI); 10km from Homestead towards Charters Towers, 27 Feb 1994, A.R. Bean 7476 & P.I. Forster (BRI, L, MEL); 1.5 km (by road) W of Herberton on Herberton-Petford road, 26 May 1983, B.J. Conn & J. Clarkson 1137 (AD, BRI, CANB, MEL); Herberton, 6 Jan 1912, J.H. Kenny s.n. (BRI); East of Warang, White Mountains N.P., 30 Mar 2000, B.S. Wannan 1634 & C. Martindale (BRI); 4 km S of Mareeba on the Kennedy Highway, 21 Dec 1983, J.R. Clarkson 5071 (BRI, CNS, K); Carrington Falls, SSW of Atherton, 29 Jan 1993, A.R. Bean 5705 (BRI, DNA); Glen Geddes/Canoona area, 17 km NW of Yaamba, 1 May 1991, G.N. Batianoff GG9105016 & A. Franks (BRI); The Springs, Shoalwater Bay Military Area, N of Rockhampton, 8 May 2014, D.A. Halford QM1485 (BRI); Track

to Graham's Lagoon, Dipperu N.P., S of Nebo, 16 Dec 1993, I.G. Champion 943 & S.G. Pearson (BRI).

**Distribution and habitat:** *Justicia juncea* is endemic to Queensland, extending from Laura to Gladstone, and inland as far as the White Mountains National Park (Fig.13). It usually inhabits hills and ridges in eucalypt woodland, often on rather sandy soils, but can also grow in alluvial plains with clayey soil.

**Recognition:** *Justicia juncea* is an upright plant with very narrow leaves, 11–26 times longer than wide; the bracts are 2.6–3.7 mm long, sometimes glandular hairy. It is allied to *J. adscendens* and *J. wondecla*.



**Figure 13.** Distribution of *Justicia juncea* (squares), *J. media* (circles), and *J. pogonantha* (triangles).

**Notes:** Specimens of *J. juncea* (including from around the type locality) have relatively small corollas and short styles. The large corolla and long style measurements attributed to *J. juncea* by Barker (1986) are seemingly referable to *J. wondecla*.

Specimens matching the type of *J. procumbens* var. *hispidula* Domin cannot be consistently distinguished from *J. juncea*, and so the former is here regarded as a synonym.

***Justicia lissophylla* A.R.Bean, sp. nov.**

*Type:* New South Wales: Dangar's Falls, 20 km S of Armidale, 31 January 1995, A.R. Bean 8291 (holo: BRI AQ0582828).

Erect shrub 15–30 cm high; stems 4–6-angled, sulcate, glabrous or with sparse retrorse hairs 0.1–0.2 mm long. Leaves petiolate (petioles 0.5–3.5 mm long), green above, paler underneath; lamina broadly ovate to narrowly lanceolate, 8–21 × 2–8 mm, 1.9–9 times longer than wide, apex obtuse, base cuneate; upper surface glabrous, cystoliths transverse near margin, 0.3–0.4 mm long, elsewhere ± parallel to lateral veins, 0.25–0.4 mm long; lower surface glabrous or rarely with sparse hairs 0.2–0.4 mm long, lateral veins often obscure, otherwise 2–3 pairs faintly visible and flush with lamina surface; cystoliths mostly parallel to lateral veins, 0.15–0.25 mm long; lamina margins sparsely hairy. Inflorescence spikes 15–60 mm long, 5–8 mm wide, the lowest node sometimes remote from the more distal nodes; bracts lanceolate, 3.0–3.9 mm long, 0.5–0.8 mm wide, with membranous outer part 0.1–0.2 mm wide, broadest towards the base, apex acute, 0.8–1.5 times wider than calyx lobes; bract surface with sparse to moderately dense eglandular hairs, and sometimes also with very short glandular hairs, margins ciliate throughout; calyx lobes narrow-lanceolate to linear, 4.0–6.2 mm long, 0.5–0.6 mm wide, 1.3–1.8 times longer than the bract.

Corolla purple, upper lip 2.2–3.3 mm long, lower lip 3.0–4.2 mm long; anther backs hairy; style 2.8–4.5 mm long; capsules hairy near the apex, 5.0–5.8 mm long; seeds circular in outline, 1.3–1.5 mm long, surface muriculate. Fig. 14.

**Selected specimens examined: Queensland.** 3.7 km along Lyndley Lane, N of Jimbour, 6 Dec 1997, A.R. Bean 12617 (BRI); 12.4 km W of 'Wyaga', on Milmerran-Goondiwindi road, 22 Feb 1996, A.R. Bean 9918 (BRI, MEL); Yelarbon town common reserve, 19 Nov 2020, P.I. Forster PIF47101 et al. (BRI); SW corner of racecourse, Goondiwindi, 12 Dec 2001, D.A. Halford Q7884 (BRI); Sundown N.P., junction of Sundown Rd and Red Rock Gorge access road, 7 Dec 2021, N.A. Fechner & N.A. Yates NAY2021086 (BRI). **New South Wales.** 37.7 km from Barraba towards Gunnedah, 24 Dec 1995, A.R. Bean 9388 (BRI); Wollomombi Falls, E of Armidale, 30 Dec 2000, A.R. Bean 17235 (BRI); Dungay Creek, 8 km SW of Sherwood, via Kempsey, 20 Dec 2007, A.R. Bean 27176 (BRI); Pykes Gap, Sandy Hollow to Denman Road, 28 Jan 1982, R. Medd 160206 (NSW); 'Iolanthe', 26 km W of Garah, 28 Mar 1975, K.L. Wilson 1305 (NSW); Towarri N.P., NW of Scone, Upper Hunter Valley, 16 May 2000, S.A. Bell s.n. (NSW); Binnaway near Coonabarabran, May 1933, J. Rodway 6736 (NSW); Mount Dangar, Goulburn River N.P., 29 Nov 1993, M. Kennedy 764 et al. (NSW); 'Molonga' via Whitbys Road, 5.5 km W of Mt Watermark and 28 km directly SSE of Gunnedah, 9 Nov 2010, I. Crawford 8726 (CANB).

**Distribution and habitat:** *Justicia lissophylla* is found in the Darling Downs of southern Queensland and in north-eastern New South Wales, as far south as Mudgee and Bogan Gate (Fig. 15). It grows in eucalypt woodland, usually on rocky hillsides or creekbanks with sandy-loam or loam soil. A few sites are flat, with heavy clay soil.

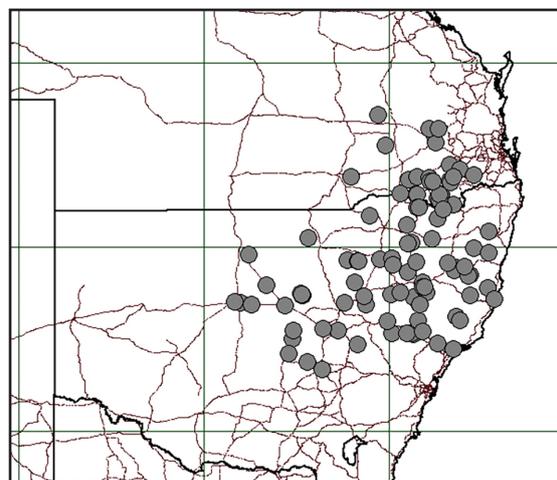


**Figure 14.** *Justicia lissophylla*. A, B. Representative specimen from South Nobby, Queensland, J.E. Flesser & R. Fensham s.n. (BRI, AQ 667551). C, D. Living plants from Gunnedah, New South Wales. Photos C, D, by Luke Hardy, posted on iNaturalist: [276348530](https://www.inaturalist.org/observations/276348530) (CC-BY-NC).

**Recognition:** The leaves are glabrous on both surfaces, but small hairs usually occur along the margin; calyx lobes much longer than bracts but about the same width, membranous part of bract very narrow; and the seed surface is muriccate.

**Etymology:** From the Greek *lissos* meaning smooth and *phylon* meaning leaf. The leaves of this species are glabrous except for the margins.

**Notes:** Plants from the more easterly areas (tablelands and coast) have broad leaves, while plants from the western slopes and plains have much narrower leaves.



**Figure 15.** Distribution of *Justicia lissophylla*.



**Figure 16.** *Justicia media*. A, B. Representative specimen from Black Jungle, Northern Territory, K. Brennan 1674 (DNA, D142165). C, D. Living plants from Mary River National Park, Northern Territory. Photos C, D, by Thomas Mesaglio, posted on iNaturalist: [255286074](https://www.inaturalist.org/observations/255286074) (CC-BY).

***Justicia media*** R.Br., *Prodr.* 476 (1810); *Rostellularia media* (R.Br.) Nees in A.DC., *Prodr.* 11: 376 (1847). Type: Northern Territory: Mainland opposite Groote Eylandt, 4 January 1803, R. Brown s.n. [*Iter Austral.* 2947] (holo: BM [001041225](https://www.biodiversitylibrary.org/page/1001041225)).

*Rostellularia adscendens* var. *largiflorens* R.M.Barker, *J. Adelaide Bot. Gard.* 9: 270 (1986). Type: Northern Territory: 8 miles [13 km] E of Pine Creek, 9 January 1969, N. Byrnes 1270 (holo: DNA [A0014807](https://www.biodiversitylibrary.org/page/10014807); iso: BRI [AQ0006148](https://www.biodiversitylibrary.org/page/100006148)).

Erect shrub 30–40 cm high; stems 4–6-angled, sulcate, with sparse to dense spreading hairs 0.8–2.0 mm long or retrorse hairs 0.2–0.3 mm long. Leaves petiolate (petioles 1–4 mm long), green above, paler underneath; lamina elliptical to linear, 20–53

× 3.0–9.0 mm, 5–11 times longer than wide, apex obtuse, base cuneate; upper surface glabrous to densely hairy with hairs 0.6–1.5 mm long, cystoliths almost transverse near margin, 0.35–0.5 mm long, elsewhere ± parallel to lateral veins, 0.2–0.4 mm long; lower surface with sparse to dense hairs 0.2–1.5(–2.0) mm long or occasionally glabrous, lateral veins 3–5 pairs, at about 30 degrees to midrib, readily visible, raised from lamina surface; cystoliths obscure, multidirectional, 0.2–0.3 mm long; lamina margins sparsely hairy. Inflorescence spikes 20–55(–80) mm long, 8–11 mm wide, the lowest node sometimes remote from the more distal nodes; bracts elliptical, 5.8–7.3 mm long, 1.1–1.8 mm wide, with membranous outer part 0.2–0.5 mm wide, broadest at or above the middle, apex acute, 1.5–2.5 times wider than calyx

lobes; bract surface with few to many eglandular hairs on midrib, and often with tiny glandular hairs, margins ciliate throughout; calyx lobes narrow-lanceolate, 5.5–9.8 mm long, 0.4–1.2 mm wide, 0.9–1.3 times longer than the bract. Corolla white, mauve or purple, upper lip 2.2–3.5 mm long, lower lip 2.6–5.3 mm long; anther backs hairy or rarely glabrous; style 4.0–5.5 mm long; capsules hairy near the apex, 4.5–7.2 mm long; seeds circular in outline, 1.3–1.8 mm long, surface papillose. Fig. 16.

**Selected specimens examined: Western Australia.** Kimberley Research Station, 30 Jan 1952, *E. Langfield 251* (CANB); Bell's Point, Pender Bay, Dampierland peninsula, 23 Feb 1986, *J.B. Martin JBM070* (PERTH); Camp Creek, Mitchell Plateau, N. Kimberley, 26 Jan 1982, *K.F. Kenneally 7988* (PERTH). **Northern Territory.** 12 miles from Stuart Highway along Edith Falls road, 24 Oct 1971, *C.L. Gunn 1* (CANB, DNA); Chara Chara hills, Kakadu N.P., 16 Dec 1994, *J. Russell-Smith 9018 & D. Lucas* (DNA); along track to Black Jungle Springs, 11 Dec 1991, *K. Brennan 1674* (DNA); East coast road, Murganella, Arnhem Land, 9 Feb 1984, *G.M. Wightman 1068* (DNA). **Queensland.** 42.8 km SW of Hells Gate roadhouse on Bowthorn station, 4 Apr 2006, *E.J. Thompson WES352 & M. Edginton* (BRI).

**Distribution and habitat:** *Justicia media* is found in the Kimberley region of Western Australia, the Top End of Northern Territory and far north-western Queensland (Fig.13). It occurs on sandstone or quartzite hills and gullies, and on alluvial flats in eucalypt woodland. The soils are most often sandy, but it can grow in clay soil.

**Recognition:** *Justicia media* is closely related to *J. clementii* and possibly intergrades with it in the Top End of the Northern Territory where they overlap in distribution. *Justicia media* is best distinguished from *J. clementii* by the style 4.0–5.5 mm long (1.8–3.8 mm long for *J. clementii*) and the corolla lower lip 2.6–5.3 mm long (2.5–3.3 mm long for *J. clementii*). Other useful characters are the often brown colouration on the membranous part of the bracts in *J. media* (yellow, white or translucent for *J. clementii*), the habit more upright (often sprawling in *J. clementii*), and the changing leaf shape of *J. media* from the base of the plant (5–9 times longer than wide) to the upper part of the plant (8–11 times).

**Notes:** The indumentum of the leaves and stems of *J. media* is variable. A minority of specimens (including the type) have long, spreading hairs up to 2 mm long, while most specimens have short retrorse hairs on the stems, lower leaf surface and leaf margin.

***Justicia occulta*** A.R.Bean, *sp. nov.*

*Type:* Queensland: Mount Rooper walking track, Conway Range National Park, east of Airlie Beach, 29 April 2000, *A.R. Bean 16279* (holo: BRI AQ0679610; iso: BM, CANB, DNA, MEL, MO, NSW, PERTH, to be distributed).

Procumbent shrub 20–30 cm high; stems 4-angled, sulcate, with sparse retrorse hairs 0.2–0.3 mm long, or moderately dense spreading septate hairs 0.8–1.0 mm long. Leaves petiolate (petioles 2–4.5 mm long), green above, often purple underneath;

lamina ovate to narrowly ovate, 14–40 × 8.5–14 mm, 1.3–2.9 times longer than wide, apex acute or obtuse, base cuneate or obtuse; upper surface glabrous or sparsely hairy with hairs 0.2–0.4 mm long, cystoliths transverse near margin, 0.5–0.6 mm long, elsewhere ± parallel to lateral veins, 0.2–0.4 mm long; lower surface glabrous or with sparse hairs 0.2–0.4 mm long, sometimes also with septate hairs 1.0–1.2 mm long, lateral veins 3–4 pairs, readily visible and slightly raised from lamina surface; cystoliths mostly parallel to lateral veins, 0.2–0.3 mm long; lamina margins hairy. Inflorescence spikes 25–75 mm long, 10–15 mm wide, the lowest node not remote from the more distal nodes; bracts elliptical to obovate, 7.0–10.2 mm long, 2.8–3.8 mm wide, with membranous outer part 0.3–0.7 mm wide, broadest towards the middle, apex acute, 2.5–4 times wider than calyx lobes; bract surface glabrous or with a few eglandular hairs along the midrib, margins ciliate throughout; calyx lobes narrow-lanceolate, 6.8–9.0 mm long, 0.6–0.9 mm wide, 0.9–1.2 times longer than the bract. Corolla purple, lilac or pink, upper lip 3.4–4.1 mm long, lower lip 5.7–6.1 mm long; anther backs glabrous or sometimes sparsely hairy; style 5.5–6.5 mm long; capsules hairy near the apex, 5.5–6.5 mm long; seeds elliptical-truncate in outline, 1.3–1.9 mm long, surface muricate. Fig. 17.

**Specimens examined: Queensland.** Road to Sinclair Bay, Cape Gloucester, 16 Mar 1994, *G.N. Batianoff 940340* (BRI); Shute Harbour, bay facing Daydream Island, 27 Mar 1994, *G.N. Batianoff 9403469 & H.A. Dillewaard* (BISH, BRI, K); Hayman Island, 11 Jun 1934, *C.T. White 10165* (BRI); 4 km SSE of Dingo Beach, N of Proserpine, 30 Apr 2000, *A.R. Bean 16342* (BRI); North-west Hayman Island, c. 1.5 km ENE of helicopter pad, 14 Apr 1999, *J. Kemp TH630 & R. Allison* (BRI); 850 m E of Thumb Point, Lindeman Island, 15 Aug 2006, *J. Kemp JEK8923 & J. White* (BRI).

**Distribution and habitat:** *Justicia occulta* is endemic to Queensland, found only in the Whitsunday region of the central coast (Fig. 7). It grows in eucalypt woodland or vine-thicket on rocky granite hillslopes and ridges. Soils are gravelly and free-draining.

**Recognition:** *Justicia occulta* can be recognised by its broad bracts, 2.5–4 times broader than the calyx lobes. In this regard, *J. elliptica* is the only other similar Australian species. *Justicia occulta* differs from *J. elliptica* by the procumbent habit (erect in *J. elliptica*), the marginal cystoliths 0.5–0.6 mm long (0.3–0.5 mm long for *J. elliptica*), the bracts 7.0–10.2 mm long with acute apex (4.5–5.8 mm long, apex obtuse for *J. elliptica*), the style 5.5–6.5 mm long (3.7–4.2 mm long for *J. elliptica*), and the leaves often purple underneath (invariably green for *J. elliptica*).

**Etymology:** From the Latin *occultus* meaning “secret”. This is in reference to the restricted distribution of the species and the relatively few herbarium collections.

**Note:** Five collectors have independently noted that the leaves are frequently purple on the lower surface.



**Figure 17.** *Justicia occulta*. A, B. Representative specimen from Lindeman Island, Queensland, J. Kemp JEK8923 & J. White (BRI, AQ 856774).



**Figure 18.** *Justicia pogonantha*. A. Representative specimen from Cravens Peak Station, Queensland, C.J. Nicholson CJN406 (BRI, AQ 1004202). B, C. Living plants from Gammon Ranges, South Australia. Photos by Kirrily Blaylock, posted on iNaturalist: [324309327](https://www.inaturalist.org/observations/324309327) (CC-BY-NC). D, E. Living plants from Ashburton region, Western Australia. Photos by Jonas Mitchell, posted on iNaturalist: [215463107](https://www.inaturalist.org/observations/215463107) (CC-BY-NC).

***Justicia pogonantha* (F.Muell.) A.R.Bean, *comb. nov.***

*Rostellularia pogonantha* F.Muell., *Linnaea* 25: 431 (1853);  
*Rostellularia adscendens* var. *pogonantha* (F.Muell.)  
R.M.Barker, *J. Adelaide Bot. Gard.* 9: 264 (1986). *Type:* South  
Australia: near Akaba [Arkaba], October 1851, *F. Mueller s.n.*  
(lecto: MEL [601993](https://www.inaturalist.org/observations/601993), designated by Barker (1986: 264); isolecto:  
MEL [601992](https://www.inaturalist.org/observations/601992), MEL [601991](https://www.inaturalist.org/observations/601991)).

Erect to procumbent shrub 15–30 cm high; stems 6-angled,  
sulcate, with dense spreading or retrorse hairs 0.3–1.1 mm  
long. Leaves petiolate (petioles 0.5–2.0 mm long), green above,  
concolorous or slightly paler underneath; lamina elliptical to  
obovate, 8–24 × 4–10 mm, 1.5–3.3 times longer than wide,  
apex acute or obtuse, base cuneate; upper surface sparsely

to densely hairy with hairs 0.3–1.0 mm long, cystoliths often  
obscure even in dried material, transverse immediately next to  
margin, 0.25–0.40 mm long, elsewhere ± parallel to lateral veins,  
0.25–0.40 mm long; lower surface with sparse to dense hairs  
0.3–1.0 mm long, lateral veins 2–4 pairs, at about 45 degrees  
to midrib, obscure, flush with or slightly raised from lamina  
surface; cystoliths mostly parallel to lateral veins, 0.15–0.35  
mm long; lamina margins hairy. Inflorescence spikes 40–140 mm  
long, 9–13 mm wide, the lowest node not remote from the more  
distal nodes; bracts broadly lanceolate, 5.2–8.0 mm long, 0.9–  
2.0 mm wide, with membranous outer part 0.2–0.3 mm wide,  
broadest towards the base, apex acute, 1.5–2.5 times wider than  
calyx lobes; bract surface with few to many eglandular hairs  
throughout, sometimes also with tiny glandular hairs, margins

ciliate throughout; calyx lobes narrow-lanceolate, 4.6–8.8 mm long, 0.6–1.0 mm wide, 0.8–1.2 times longer than the bract. Corolla purple, mauve or pink, upper lip 3.3–4.1 mm long, lower lip 4.8–5.1 mm long; anther backs hairy; style 3.9–4.8 mm long; capsules hairy near the apex, 5.4–6.8 mm long; seeds circular in outline, 1.6–1.8 mm long, surface papillose. Fig. 18.

**Selected specimens examined: Western Australia.** 3.6 km ESE of Balbina Bore, Hamersley Station, 25 Apr 1997, *M. Trudgen* ASW20220 (PERTH); Mt Aloysius, E of Blackstone Range, 21 Jul 1963, *A.S. George* 5239 (PERTH); 108 km ESE of Mungaroo Range Nature Reserve, 123.5 km E of Tom Price and 43.7 km WNW of Marillana homestead, 2 May 2012, *R. Butler & C. Cole* BES00374 (PERTH); c. 4 km S of Weeli Wolli Creek road, 60 km WNW of Newman, 18 Jan 2009, *J. Bull* SPR 8 (PERTH); c. 6.6 km due E of the Marble Bar road (between Marble Bar and Nullagine), and 13.5 km NW of the Nullagine River, 28 May 2013, *A. Saligari* MCC 36-02 (PERTH); Warrawagine Station, 6 May 1965, *J.S. Beard* 4005 (PERTH). **Northern Territory.** 20 miles E of Alcoota Station, 11 Mar 1953, *R.A. Perry* 3323 (BRI, CANB); 44 miles SW of Lucy Creek Station, 8 May 1955, *M. Lazarides* 5218 (BRI, CANB); Stuart Bluff Range, 5 Apr 1983, *P.E. Conrick* 1420 (AD, BRI). **South Australia.** Chapman's Creek, Dulkaninna Station, 9 Apr 1997, *H.T. Smyth* 271 (AD, BRI); E of North Mulga, 27 Apr 1994, *R.J. Bates* 37116 (AD, BRI, NSW); 7 km SE of Netting Dam, Andamooka Station, 26 Jul 1989, *F.J. Badman* 3193 (AD, BRI); North-eastern part of Flinders Range, Big Moro Gorge, c. 15 km SW of Wertaloona Station, 5 Apr 1966, *H. Eichler* 18618 (CANB); Woorong Creek, Mt Clarence area, WNW of Coober Pedy, 7 Oct 1966, *A.C. Beauglehole* 20155 (CANB). **Queensland.** c. 16 km N of Morney homestead, 7 Jun 2010, *D. Richter* DR108 & *G.P. Turpin* (AD, BRI, NSW); Malvern Hills, c. 25 miles W of Blackall, 28 May 1949, *S.L. Everist* 3810 (BRI); Cravens Peak reserve, north-eastern Simpson Desert, 24 Jun 2015, *R.W. Purdie* 10075 (BRI, CANB). **New South Wales.** Fowlers Gap, Gorge Bore, 14 Sep 1973, *G.M. Cunningham & P.L. Milthorpe* s.n. (CANB); 8.3 km S of Mt Wood Gorge on Gorge Loop Road, Sturt N.P., 6 Sep 1989, *B.M. Wiecek* 337 et al. (NSW); Mount Grenfell, new annex to reserve near N boundary on Pullapull Road, Mount Grenfell Historic Site, 21 Apr 2010, *B.M. Wiecek* 894 & *M.F. Porteners* (NSW); Mount Druid (Mount Yarracomba) c. 17 miles W of Brewarrina, 10 Apr 1970, *J.C. De Nardi* 420 (NSW).

**Distribution and habitat:** *Justicia pogonantha* is widely distributed in low rainfall parts of Western Australia, Northern Territory, South Australia, Queensland and New South Wales (Fig.13). It grows in drainage lines of clay plains where Mitchell grass (*Astrelba* spp.) is often dominant, or on rocky hillsides or red sandy-loam with various *Acacia* spp.

**Recognition:** *Justicia pogonantha* has small broad leaves with sparse to dense hairs (of variable length) on both sides, and bracts 1.5–2.5 times broader than the calyx lobes. The cystoliths are small and usually difficult to see, even on dried material. It is perhaps closest to *J. polytricha*, but differs by the inflorescence spikes 40–140 mm long and 9–13 mm wide (20–50 mm long and 6–9 mm wide for *J. polytricha*); bracts 5.2–8.0 mm long and 1.5–2.5 times wider than calyx lobes (3.7–4.8 mm long and 0.8–1.5 times for *J. polytricha*); the capsules 5.4–6.8 mm long (4.4–5.0 mm long for *J. polytricha*) and seeds 1.6–1.8 mm long (1.1–1.4 mm long for *J. polytricha*).

**Notes:** The Pilbara occurrences of *J. pogonantha* are apparently highly disjunct from occurrences in central Australia. This may be due to the lack of suitable habitat in the intervening areas. Specimens from the two areas do not differ significantly in their morphology.

***Justicia polytricha*** A.R.Bean, *sp. nov.*

*Type:* Queensland: Forty Mile Scrub, south of Mount Garnet, 30 January 1992, *P.I. Forster* PIF9645 (holo: BRI AQ0541028; iso: AD 99851042, CNS 153273, MEL).

*Justicia procumbens* var. *latifolia* Domin, *Biblioth. Bot.* 22(89):1158 (1929); *Rostellularia adscendens* var. *latifolia* (Domin) R.M.Barker, *J. Adelaide Bot. Gard.* 9: 266 (1986). *Type:* Queensland: Smelling Bluff, near Chillagoe, February 1910, *K. Domin* s.n. [catalogue number 8418] (lecto: PR 531024), designated by Barker (1986: 266).

Procumbent shrub 6–20(–30) cm high; stems 6-angled, sulcate, with moderately dense retrorse or spreading hairs 0.3–0.5 mm long. Leaves petiolate (petioles 1–5 mm long), green above, paler underneath; lamina elliptical to broadly ovate, 7–26 × 3–11 mm, 1.3–2.3 times longer than wide, apex acute or obtuse, base cuneate or obtuse; upper surface sparsely to densely hairy with hairs 0.2–0.4 mm long, cystoliths transverse near margin, 0.4–0.6(–0.9) mm long, elsewhere ± parallel to lateral veins, 0.25–0.4 mm long; lower surface with sparse to dense hairs 0.2–0.4 mm long, lateral veins 2–4 pairs, readily visible and flush with or slightly raised from lamina surface; cystoliths multidirectional, 0.2–0.3 mm long; lamina margins hairy. Inflorescence spikes 20–50 mm long, 6–9 mm wide, the lowest node not remote from the more distal nodes; bracts lanceolate to narrow-lanceolate, 3.7–4.8 mm long, 0.6–0.9 mm wide, with membranous outer part 0.2–0.35 mm wide, broadest towards the base, 0.8–1.5 times wider than calyx lobes; bract surface with sparse eglandular hairs and sometimes also with short glandular hairs, margins ciliate throughout; calyx lobes narrow-lanceolate, 5.1–6.6 mm long, 0.7–0.9 mm wide, 1.2–1.4 times longer than the bract. Corolla purple, lilac, white or pink, upper lip 2.8–3.3 mm long, lower lip 3.5–3.8 mm long; anther backs glabrous or slightly hairy; style 3.6–4.5 mm long; capsules hairy near the apex, 4.4–5.0 mm long; seeds circular in outline, 1.1–1.4 mm long, surface papillose. Fig. 19.

**Selected specimens examined: Queensland.** 6 km E of Mungana on Burke Development Rd, c. 4 km W of Chillagoe, 3 Jun 1983, *B.J. Conn* 1354 (BRI); Burdekin River, 40 km N of Charters Towers, S of Keelbottom Mtn, 9 Jul 1981, *P.R. Sharpe* 2913 (BRI); Dilly Pinnacle, 7 km NNE of Springsure, 13 Oct 1998, *A.R. Bean* 14183 (BRI); on road from Mt Coolon to Belyando crossing 18.9 km W of Mt Coolon, 31 Jan 1997, *S. Thompson* 115 (BRI); Coorumbura Station 5 km SW of Marlborough, 13 May 1998, *G.N. Batianoff* 9805302 & *T. Ryan* (BRI); Rolleston-Injune road, 9 km N of Carnarvon Gorge turnoff, 4 Sep 2003, *A.R. Bean* 20754 (BRI); 25 km SSE of Laura, 7 Mar 2017, *B.S. Wannan* 6891 (BRI); Glenlofty Nature Refuge adjacent to Kinrara N.P., ca 83.1 km SSE of Mt Garnet, 17 Apr 2022, *R. Jensen* 4552 & *J.E. Kemp* (BRI).



**Figure 19.** *Justicia polytricha*. A, B. Representative specimen from Magnetic Island, Queensland, P.I. Forster PIF12768 & A.R.Bean (BRI, AQ 563934). Living plants from Dalrymple, Queensland. Photos by Geoffrey Sinclair, posted on iNaturalist: [160888613](https://www.inaturalist.org/observations/160888613) (CC-BY-NC).

**Distribution and habitat:** *Justicia polytricha* is endemic to Queensland and extends from near Cooktown to Injune (Fig. 7). It frequently inhabits vine thickets and dry rainforests and adjacent areas, but several records are from open eucalypt woodland with sandy loam soil.

**Recognition:** *Justicia polytricha* is recognisable by its procumbent habit, the small broad leaves that are hairy on both surfaces, and the bracts that are approximately the same width as the calyx lobes.

**Etymology:** The species epithet is derived from the Greek *poly-*, many, and *-tricha*, having hairs. This refers to the presence of numerous hairs on both leaf surfaces in this species.

**Note:** *Justicia procumbens* var. *latifolia* cannot be raised to species rank because the name *Justicia latifolia* has already been validly published, viz. *Justicia latifolia* Vahl, *Symb. Bot.* 2: 4 (1791).

***Justicia sparsa* A.R.Bean, sp. nov.**

*Type:* Queensland. 2.5 km from Lappa on Petford road, 13 February 1996, P.I. Forster PIF18567 & T. Ryan (holo: BRI AQ0603428; iso: CNS QRS118953, MEL)

*Rostellularia adscendens* subsp. "Irvinebank", Barker (1986: 275).

*Rostellularia adscendens* subsp. (Irvinebank A.R.Bean+ 5461), Bean (2025: 10).

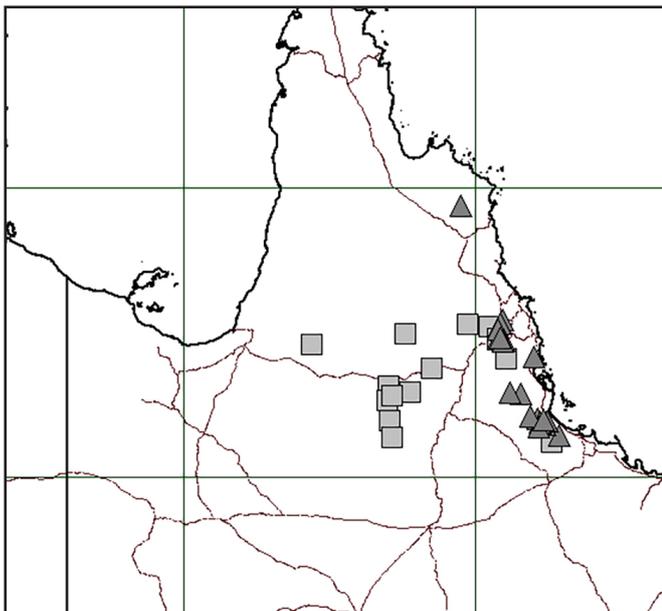


Figure 20. *Justicia sparsa*. A, B. Representative specimen from near Ravenshoe, Queensland, R.L. Jago 5802 B & B. Wannan (BRI, AQ 550218).

Erect shrub 20–40 cm high; stems sulcate, 4–6-angled, glabrous. Leaves sessile, green; lamina linear to lanceolate, 10–35 × 1.5–5.0 mm, 4.6–14 times longer than wide, apex acute, base obtuse or truncate; upper surface glabrous, cystoliths near margin transverse, 0.3–0.5 mm long, cystoliths close to midrib ± parallel to lateral veins, 0.25–0.3 mm long; lower surface glabrous, lateral veins invisible, or 2–3 pairs faintly visible, raised from lamina surface; cystoliths multidirectional, 0.2–0.4 mm long; lamina margins glabrous. Inflorescence spikes 30–100 mm long, 5–9 mm wide, the lowest node sometimes remote from the more distal nodes (bracts and calyx lobes not overlapping); bracts narrowly deltate to lanceolate, 3.7–4.3 mm long, 0.8–1.0 mm wide, with membranous outer part 0.2–0.4 mm wide, broadest towards the base, apex acute, 0.8–1.5 times wider than calyx lobes; bract surface glabrous, margins with a few eglandular hairs towards the distal end; calyx lobes narrow-lanceolate, 3.8–6.4 mm long, 0.6–0.9 mm wide, 1.0–1.3 times longer than the bract. Corolla white, mauve or dark pink, upper lip 2.5–3.3 mm long, lower lip 3.5–4.4 mm long; anther backs hairy, style 2.8–3.3 mm long; capsules glabrous or hairy near the apex, 4.0–5.1 mm long; seeds elliptical, c. 1.5 mm long, surface muricate to papillose. Fig. 20.

**Selected specimens examined: Queensland.** Bulleringa N.P., 80 km NW of Mt Surprise, 26 Apr 1998, *P.I. Forster PIF22677* & *R. Booth* (BRI); 2.5 km from Lappa on Petford road, 13 Feb 1996, *P.I. Forster PIF18567* & *T. Ryan* (BRI); Catchment of Six Mile Creek, Rungulla N.P., S of Georgetown, 4 May 2022, *A.R. Bean 34833* & *N. Cuff* (BRI); Herberton-Irvinebank Road, 6 km by road E of Irvinebank, 8 Jun 1974, *I.B. Staples s.n.* (BRI); Kennedy Highway, c. 13 km W of Ravenshoe, 11 Dec 2000, *R.L. Jago 5802B* & *B. Wannan* (BRI, DNA).

**Distribution and habitat:** *Justicia sparsa* is endemic to Queensland. It is distributed sporadically from Rungulla National Park to Bulleringa National Park and east to Irvinebank (Fig. 21), on shallow sandy soils derived from granite or sandstone, in eucalypt woodland.



**Figure 21.** Distribution of *Justicia sparsa* (squares) and *J. wondecla* (triangles).

**Recognition:** *Justicia sparsa* may be recognised by its glabrous stems, leaves and bract surfaces, and the relatively short leaves. It is related to *J. glaucoviolacea*, but differs by the leaves 10–35 mm long (35–73 mm long for *J. glaucoviolacea*), the marginal cystoliths on the upper leaf surface 0.4–0.5 mm long (0.8–1.1 mm long for *J. glaucoviolacea*), the bracts 3.7–4.3 mm long (4.5–7 mm long for *J. glaucoviolacea*), the style 2.8–3.3 mm long (4.6–6.3 mm long for *J. glaucoviolacea*), and the capsule 4.0–5.1 mm long (5.6–6.5 mm long for *J. glaucoviolacea*).

**Etymology:** The epithet refers to the sparse and sporadic geographical distribution of this species.

**Justicia wondecla** A.R.Bean, *sp. nov.*

**Type:** Queensland: 17 km past Paluma on road to Hidden Valley, 22 January 1992, *P.I. Forster PIF9484* (holo: BRI AQ0541284; iso: MEL).

Erect shrub 30–50 cm high; stems 6-angled, sulcate, with very sparse to sparse retrorse or spreading hairs 0.2–0.6 mm long. Leaves petiolate (petioles 1–4 mm long), green above, paler underneath; lamina narrow-lanceolate to elliptical, 39–79 × 3.5–10.5 mm, 4.0–11 times longer than wide, apex acute, base cuneate; upper surface sparsely hairy with eglandular hairs 0.4–1.2 mm long, cystoliths transverse near margin, 0.6–1.0 mm long, elsewhere mostly transverse, 0.5–0.8 mm long; lower surface with sparse hairs 0.4–1.2 mm long, lateral veins 3–5 pairs, at about 30 degrees, readily visible and slightly raised from lamina surface; cystoliths multidirectional, 0.4–0.7 mm long; lamina margins hairy. Inflorescence spikes 55–105 mm long, 10–14 mm wide, the lowest node occasionally remote from the more distal nodes; bracts linear to narrowly deltate, 5.2–8.8 mm long, 0.8–1.2 mm wide, with membranous outer part 0.2–0.3 mm wide, broadest towards the base, apex acute, 0.8–1.5 times wider than calyx lobes; bract surface sparse to dense eglandular and eglandular hairs, margins ciliate throughout; calyx lobes narrow-lanceolate to linear, 5.8–9.7 mm long, 0.7–1.2 mm wide, 1.0–1.4 times longer than the bract. Corolla purple, white or pink, upper lip 3.7–5.5 mm long, lower lip 5.1–6.2 mm long; anther backs hairy; style 5.2–7.2 mm long; capsules hairy near the apex, 6.2–7.2 mm long; seeds circular in outline, 1.2–1.6 mm long, surface muricate. Fig. 22.

**Selected specimens examined: Queensland.** 9.5 km E of Tully, 27 Nov 1967, *D.E. Boyland 572* (BRI); 5.6 km WNW of Ravenshoe in Ravenshoe S.F. on May's Road, 28 Apr 2013, *R. Jensen 2812* & *J. Kemp* (AD, BRI, MEL); Near Garrawalt Creek, 400 m W of forestry track and 7.0 km NNW of Wallaman Falls, 30 Apr 2013, *J. Kemp JEK18481* & *M. Newton* (BRI); Kennedy Hwy, c. 13 km W of Ravenshoe, 11 Dec 2000, *R.L. Jago 5802A* & *B. Wannan* (AD, BRI); 5 km SSW of Wondecla, near Herberton, *B.S. Wannan 2047* & *T. Daniel* (BRI); Seven Sisters near Atherton, 21 Feb 1962, *L.J. Webb* & *J.G. Tracey 5854* (BRI); Battle Camp Range, 9 Jun 2011, *L.J. Roberts* & *J.A. Covacevich s.n.* (BRI).



**Figure 22.** *Justicia wondecla*. A, B. Representative specimen from Wallaman Falls, Queensland, J. Kemp JEK18461 & M. Newton (BRI, AQ 922211). C. Living plant from Millstream Falls National Park, Queensland. Photo by Ryan Hughes, posted on iNaturalist: [171913467](https://www.inaturalist.org/observations/171913467) (CC-BY-NC). D. From Atherton, Queensland. Photo by James Peebles, posted on iNaturalist: [271628460](https://www.inaturalist.org/observations/271628460) (CC-BY-NC).

**Distribution and habitat:** *Justicia wondecla* is endemic to Queensland, mainly distributed on or near the coastal ranges between Paluma and Atherton, but with an outlier on the Battle Camp Range near Cooktown (Fig. 21). It often grows in forest with tree species such as *Syncarpia glomulifera*, *Corymbia intermedia* or *Casuarina torulosa* on basalt or granite.

**Recognition:** An erect shrub with narrow-lanceolate to elliptical leaves, bracts 5.2–8.8 mm long, and corolla lower lip 5.1–6.2 mm long. It has previously been misidentified as either var. *juncea* or var. *adscendens*. *Justicia wondecla* differs from *J. juncea* in the leaves 4–11 times longer than wide (11–26 times for *J. juncea*);

bracts 5.2–8.8 mm long (2.6–3.7 mm long for *J. juncea*); capsules 6.2–7.2 mm long (3.6–5.8 mm long for *J. juncea*) and petioles 1–4 mm long (0–1 mm long for *J. juncea*). *Justicia wondecla* differs from *J. adscendens* by the inflorescence spikes 10–14 mm wide (5–10 mm wide for *J. adscendens*), the bracts 5.2–8.8 mm long (3.2–4.6 mm long for *J. adscendens*), the style 5.2–7.2 mm long (2.5–4.2 mm long for *J. adscendens*) and the corolla lower lip 5.1–6.2 mm long (2.8–4.2 mm long for *J. adscendens*).

**Etymology:** The epithet refers to the town of Wondecla on the Atherton Tableland, near which this species has been collected. The epithet is treated as a noun in apposition.

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