



## Two new species of *Justicia* L. (Acanthaceae) from Queensland

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### Abstract

Two new species of *Justicia* L. are described: *Justicia aprica* A.R.Bean and *Justicia densipila* A.R.Bean. Both species are endemic to tropical Queensland. A distribution map and illustrations are provided and they are compared with related species.

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### Introduction

The two species described here have been known for a number of years and both are of limited distribution in tropical Queensland. Their formal description has been delayed because of uncertainty about the correct generic placement. Barker (1986) adopted the genus name *Calophanoides* (Clarke) Ridl. for *Justicia hygrophiloides* F.Muell. and later (Barker 1996) she adopted the genus name *Harnieria* Solms for the same species, and also highlighted the presence of an undescribed Queensland species, which she called *Harnieria* "Mt Garnet" (Myers s.n.).

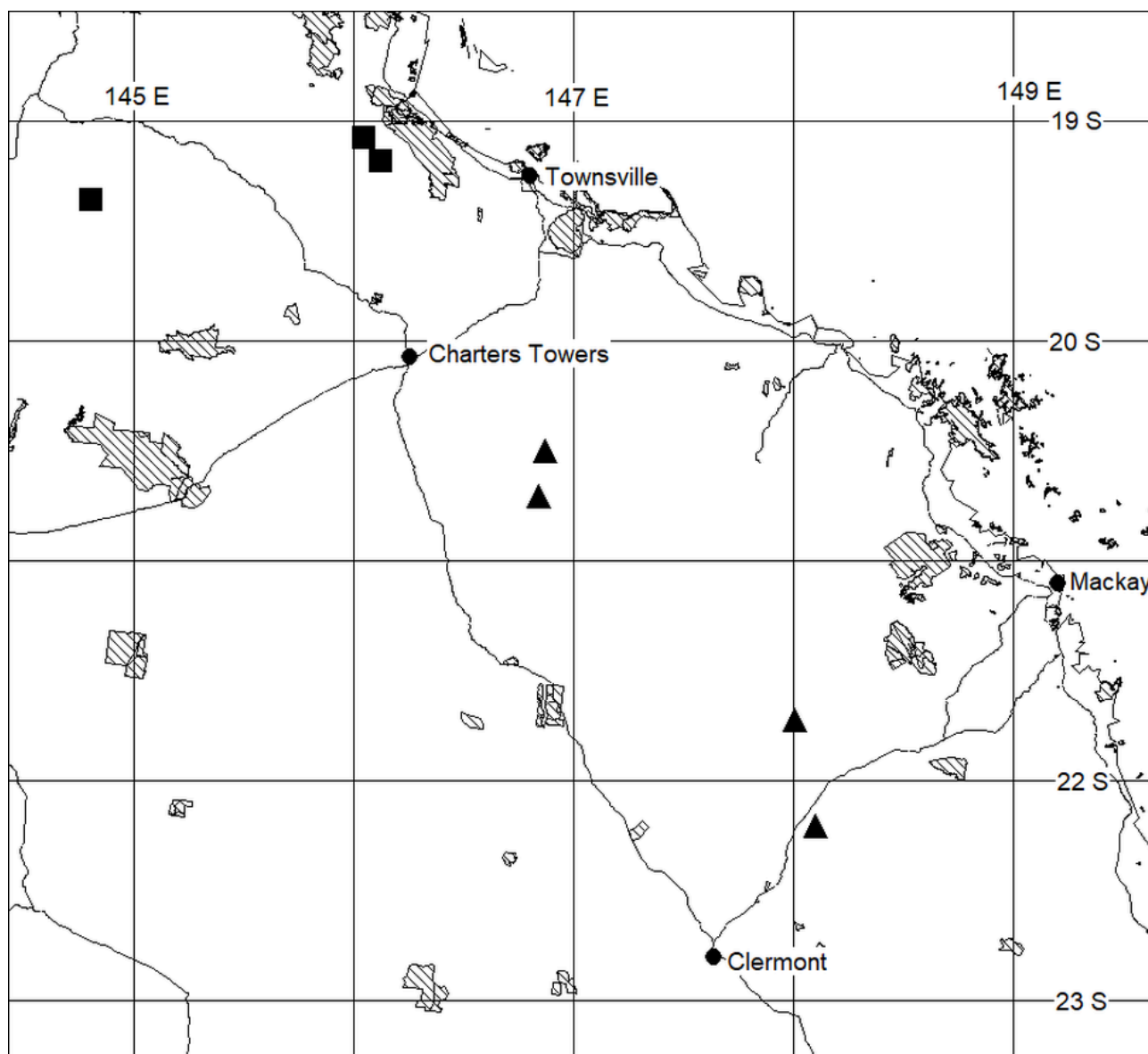
Graham (1988) advocated a broad circumscription for *Justicia* L. and placed *Harnieria* at sectional rank under *Justicia*, with *Calophanoides* and *Sarojusticia* Bremek. synonymised under that section.

The Justicioid Lineage (Kiel et al. 2017; Kiel et al. 2018; McDade et al. 2021) is characterised by the presence of a medial furrow on the upper corolla lip, and superposed anthers, in which the lower anther is spurred.

These characters are possessed by all Australian taxa that have variously been placed under *Rhaphidospora* Nees, *Rostellularia* Rchb., *Harnieria*, *Sarojusticia* or *Calophanoides*.

The recent worldwide Acanthaceae classification (Manzitto-Tripp et al. 2022) lists *Calophanoides*, *Sarojusticia* and *Harnieria* as synonyms of *Justicia*, and no new species outside of Australia have been described under these generic names since 1979.

Kiel et al. (2017) stated that only 12–15% of justicioid species have been sampled for DNA. This means there is still much uncertainty about generic limits. Darbyshire & Goyder (2019) mooted the potential reinstatement of *Monechma* Hochst. for a potentially large number of African justicioid species, but because of the taxonomic uncertainty, they opted to retain the name *Justicia* for two new species. Similarly, I believe that the use of *Justicia* is the best option for the Australian species.



Map 1. Distribution of *Justicia* spp. *Justicia aprica* (triangles); *Justicia densipila* (squares).

## Methods

This paper is based on a study of herbarium specimens at BRI, supplemented by field observations. Measurements given herein are taken from dried material, except for those of the flower parts, which are based on material preserved in spirit or reconstituted with boiling water.

## Taxonomy

### *Justicia aprica* A.R.Bean sp. nov.

**Type:** Queensland. About 8km E of Lake Dalrymple, 19 June 1998, E.J. Thompson CHA545 & G.P. Turpin (holo: BRI (1 sheet + spirit); iso: MEL).

*Harnieria* sp. (Lornesleigh E.J. Thompson+ CHA75) in Bean (2025)

Fig. 1A–E.

Erect shrub 10–25 cm high; stems 4–6-angled, sulcate or more or less terete, with moderately dense retrorse hairs 0.05–0.1 mm long. Leaves opposite, sessile, green above, paler underneath; lamina elliptical to narrowly obovate, 12–27 x 3.5–6.0 mm, 2.8–4.5 times longer than wide, apex acute or obtuse, base cuneate to attenuate; upper surface glabrous or rarely with dense spreading hairs 0.05–0.1 mm long, cystoliths circular throughout or some linear ones (to 0.1 mm long) near the margin; lower surface glabrous or rarely with dense spreading hairs 0.05–0.1 mm long, lateral veins 3–4 pairs, at c. 30 degrees to midrib, often obscure, flush with lamina surface; cystoliths both circular and linear, up to 0.1 mm long; lamina margins sparsely hairy. Inflorescence axillary, 1–2-flowered; bracts elliptical to narrowly obovate, indistinguishable from leaves, bracteoles elliptical, 2.8–8.8 mm long, 0.8–1.8 mm wide, green throughout,



Fig. 1. A--E *Justicia aprica* A. leaf B. corolla and stamens C. ovary and style D. capsule and seeds E. fruiting calyx. F--K *Justicia densipila* F. portion of stem G. leaf H. corolla and stamens I. ovary and style J. capsule and seeds K. fruiting calyx. A--E from Wiley s.n. (AQ1014626); F--I, K from Bean 28860 & Jensen; J from Cumming 22914.

apex obtuse; bracteole surface glabrous or rarely with dense spreading hairs; calyx lobes 5, all equal, linear to narrow-lanceolate, fused at the base for c. 0.5 mm, 3.0–3.8 mm long, 0.3–0.5 mm wide at anthesis, 5.3–9.6

mm long, 0.2–0.6 mm wide at fruiting stage, 1.1–2.0 times longer than the bracteole. Corolla pink with maroon spots, pubescent on outer surface, upper lip entire, 3.0–4.4 mm long, lower lip 3-lobed, 3.5–4.8 mm

long; stamens 2, slightly exerted, anthers superposed, lower one with white basal spur; style 6.2–7.2 mm long, pubescent near base; capsules ellipsoidal, glabrous, 6.5–7.6 mm long, bearing 4 seeds; seeds compressed, glabrous, circular in outline, 1.7–1.8 mm long, brown to black when mature, surface papillose.

**Queensland.** Harrow Range, c. 20 km S of Moranbah, 29 Mar 2020, C.J. Wiley s.n. (BRI, AQ1014626); 11.5 km N of Lornesleigh HS, 17 Jun 1992, E.J. Thompson CHA75 & P.R. Sharpe (BRI); Mt Cooper station, c. 80 km SE of Charters Towers, 30 Mar 1999, R.J. Cumming 18625 (BRI); Goonyella Riverside mine lease near Moranbah, May 1998, J. Elsol 6 (BRI).

**Diagnostic features.** *Justicia aprica* is allied to *J. hygrophiloides* (syn. *Harnieria hygrophiloides*), but differs by the small size, 10–25 cm high (*J. hygrophiloides* 70–150 cm high), the leaves 12–27 mm long (60–130 mm long for *J. hygrophiloides*), the bracts elliptical to narrowly obovate, indistinguishable from the leaves (bracts circular or obcordate, very different from leaves for *J. hygrophiloides*), the conspicuous bracteoles 2.8–8.8 mm long (inconspicuous bracteoles c. 0.5 mm long for *J. hygrophiloides*), inflorescences 1–2-flowered (3–5-flowered for *J. hygrophiloides*), the corolla pubescent on outer surface (glabrous for *J. hygrophiloides*), the cystoliths predominantly or all circular (cystoliths all linear for *J. hygrophiloides*) and the sunny woodland habitat (rainforest habitat for *J. hygrophiloides*).

*Justicia aprica* differs from *J. kempeana* F.Muell. subsp. *kempeana* by the entire leaves 2.8–4.5 times longer than wide (lobed leaves 1.3–1.7 times longer than wide for *J. kempeana* subsp. *kempeana*), the glabrous capsules (shortly hairy throughout for *J. kempeana* subsp. *kempeana*), the style 6.2–7.2 mm long (9–11 mm for *J. kempeana* subsp. *kempeana*) and the corolla upper lip 3–4.4 mm long (5–7 mm long for *J. kempeana* subsp. *kempeana*).

*Justicia aprica* differs from *Harnieria kempeana* subsp. *muelleri* by its capsules 6.5–7.6 mm long (9–10 mm long for *H. kempeana* subsp. *muelleri*), the corolla tube and upper lobe pink (white for *H. kempeana* subsp. *muelleri*), and its small size, 10–25 cm high (up to 1 m high for *H. kempeana* subsp. *muelleri*).

**Phenology.** Flowers and fruits are recorded for March, May and June.

**Distribution & habitat.** *Justicia aprica* is endemic to Queensland. It extends from Moranbah to Charters Towers (Map 1) and possibly to the Mount Garnet area. It usually grows in *Acacia shirleyi* woodland on hillslopes, sometimes with *Eucalyptus howittiana* or *E. thozetiana*.

**Etymology.** From the Latin *apricus* meaning ‘lying open, uncovered, exposed to the sun’. This is given in reference to the sunny woodland habitat of this species, contrasting with the rainforest habitat of *Justicia hygrophiloides*.

**Note.** I am unable to confirm the identity of *Harnieria* sp. (Mt Garnet R.J. Myers AQ6301) because the specimen upon which it is based is still on loan to AD.

## ***Justicia densipila* A.R.Bean sp. nov.**

**Type:** Queensland. Near lookout, Return Creek Falls, Taravale, NW of Townsville, 16 May 2009, A.R. Bean 28860 & R. Jensen (holo: BRI).

Fig. 1F–K.

Erect to sprawling shrub 25–40 cm high; stems more or less terete, with very dense spreading hairs 0.3–0.7 mm long. Leaves opposite, petiolate (petioles 2–3 mm long), green above, paler underneath; lamina elliptical to ovate, 13–19 x 7–9 mm, 1.7–2.3 times longer than wide, apex obtuse, base cuneate; upper surface with dense spreading hairs 0.1–0.4 mm long, cystoliths circular throughout, c. 0.05 mm diameter; lower surface with dense spreading hairs 0.1–0.4 mm long, lateral veins 2–3 pairs, at 30–45 degrees to midrib, readily visible, raised above lamina surface; cystoliths not visible; lamina margins densely hairy. Inflorescence axillary, 1-flowered; bracts indistinguishable from leaves, bracteoles elliptical to obovate, 6.5–8.6 mm long, 1.7–3.2 mm wide, green throughout, apex obtuse; bracteole surface with dense spreading hairs; calyx lobes 5, all equal, linear, fused at the base for c. 1.0 mm, 6.2–8.2 mm long, 0.5–0.8 mm wide at anthesis, 9.1–12 mm long, 0.5–0.7 mm wide at fruiting stage, 1.3–1.9 times longer than the bracteole. Corolla purple or pink-purple, upper lip shortly bifid, 5.0–5.5 mm long, lower lip 3-lobed, 6.5–7.0 mm long; stamens 2, slightly exerted, anthers superposed, lower one with short white basal spur; style 7.5–9.8 mm long, pubescent almost throughout; capsules ellipsoidal, hairy throughout or hairs confined to apical part, 6.5–11.2 mm long, bearing 4 seeds; seeds compressed, glabrous, circular in outline, 1.7–2.3 mm long, brown to black when mature, surface papillose or muricate.

**Queensland.** 50.6 km SW of Gregory Development Road at Greenvale towards Wando Vale, 17.7 km S of Gray Creek, 3 Jun 2000, R. Cumming 19721 (BRI, NSW); Deception Creek, Mount Zero property, 95 km WNW of Townsville, 17 May 2004, R. Cumming 22914 (BRI).

**Diagnostic features.** *Justicia densipila* is similar to *J. aprica*, but differs by the dense spreading hairs on the stems (very short retrorse hairs for *J. aprica*), the leaves 1.7–2.3 times longer than wide (2.8–4.5 times for *J. aprica*); the calyx 9.1–12 mm long at fruiting stage (5.3–9.6 mm long for *J. aprica* at fruiting stage) and the style 7.5–9.8 mm long (6.2–7.2 mm long for *J. aprica*).

*Justicia densipila* differs from *J. kempeana* subsp. *kempeana* by the entire leaves 13–19 mm long (lobed leaves 6–12 mm long for *J. kempeana* subsp. *kempeana*), the stem hairs 0.3–0.7 mm long (0.05–0.1 mm long for *J. kempeana* subsp. *kempeana*), and the calyx 9.1–12 mm long at fruiting stage (vs 5.0–8.6 mm long for *J. kempeana* subsp. *kempeana*).

*Phenology.* Flowers and fruits are recorded for May and June.

*Distribution & habitat.* *Justicia densipila* is endemic to Queensland. It is known from Mount Zero-Taravale Wildlife Sanctuary, NW of Townsville and from a site near Greenvale (Map 1). It grows on granitic or lateritic ridges in sandy soil, in eucalypt woodland with shrubby understorey.

*Etymology.* The Latin epithet *densipila* means 'dense soft hairs'. It refers to the abundant spreading hairs on the stems and leaves of this species.

*Note.* The specimen from near Greenvale differs from those near the type locality by the significantly shorter capsules that are glabrous except near the apex, and the smaller seeds. More collections are needed to determine whether this form is taxonomically distinct.

### Disclosures

No conflict of interest.

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