



## *Solanum singulare* (Solanaceae), a new species from the Boonah area of south-eastern Queensland

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### Abstract

*Solanum singulare* A.R.Bean, a new species from the Boonah area of south-eastern Queensland, is described, illustrated and compared to allied species.

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### Introduction

*Solanum* L. is one of the largest genera of flowering plants in Australia. It is particularly diverse in the Moreton district of south-eastern Queensland, where 44 native or naturalized species are currently known (Bean 2024). Taxonomic and descriptive treatments of *Solanum* in south-eastern Queensland have been provided by Symon (1981), Ross (1986) and Bean (2002a, 2002b, 2004). A further new *Solanum* species has recently come to light from the Boonah area. While the first known herbarium collection was made in 2003, the species has been known for five decades by graziers Errol and Deb Stenzel, on whose properties several populations occur. In 2023, they alerted me to this *Solanum* which they could not identify. It is described below.

### Taxonomy

#### ***Solanum singulare* A.R.Bean, sp. nov.**

Type: Queensland. Moreton district: Southern end of Stenzel property, Coochin, S of Boonah, 29 June 2024, A.R. Bean 35461, E. Stenzel & D. Stenzel (holo: BRI; iso: BM, CANB, E, MEL, NE, NSW, NY, P).

Figs. 1, 2.

Sprawling to procumbent, rhizomatous perennial shrub, 0.2–0.4 m high and up to 1.2 m across. Branchlets green or brown; prickles 3–16 per decimetre, straight, acicular, 3–7 mm long, 10–20 times longer than wide, glabrous; stellate hairs dense, 0.3–0.5 mm diameter, stalks 0–0.3 mm long, lateral rays 3–7, porrect, central ray 1–2 times as long as laterals, not gland-tipped, small glandular hairs absent. Juvenile leaves with 2–4 pairs of shallow obtuse lobes, prickles 15–30, straight, acicular, present on midvein and lateral veins. Adult leaves with lamina ovate, entire, 5.0–8.8 cm long, 2.1–3.4 cm wide, 1.7–2.6 times longer than broad, apex obtuse, base cuneate or obtuse, oblique part 1–4 mm long; petioles 0.6–1.4 cm long, 12–23% length of lamina, prickles absent. Upper leaf surface green; prickles absent or present on midvein only, 0–3, straight, acicular, 3–5 mm long; stellate hairs distributed throughout, hair density very sparse,



**Figure 1.** *Solanum singulare*. A. branchlet with flowers and immature fruit. B. adult leaf, upper surface. C. stellate hair from upper leaf surface. D. flower. E. ovary and style. F. pedicel and calyx. G. fruit, close to maturity. H. transverse section of fruit. (B, C from *Bean 35358 & Stenzel*; A, D–H from *Hines HBH\_P0104*).

1–4 mm apart, 0.4–0.5 mm across, stalks 0–0.2 mm long, lateral rays 4–7, central ray 1–2.5 times as long as laterals, not gland-tipped, simple hairs absent; small glan-

dular hairs absent. Lower leaf surface greenish-white, prickles absent; stellate hairs moderately dense to dense, 0.2–0.5 mm apart, 0.5–0.8 mm diameter, stalks



**Figure 2.** *Solanum singulare*. a. Habit. b. Branch with flowers and immature fruit. c. Flower. d. Fully mature fruits. (a–c, photos A.R. Bean 35461 *et al.*; d, photo D. Stenzel).

0.1–0.3 mm long, lateral rays 6–8, porrect, central ray 1–1.5 times as long as laterals, not gland-tipped, simple hairs absent, small glandular hairs absent. Inflorescence 1- or 2-flowered, supra-axillary, cymose, common peduncle 0–3 mm long, rachis 0–2 mm long, prickles absent; flowers all bisexual, 5-merous; pedicels at anthesis 10–20 mm long, same thickness throughout, prickles absent. Calyx tube at anthesis 3.0–4.0 mm long; calyx lobes at anthesis deltate, 2–4 mm long, apices recurved, calyx prickles absent; calyx stellate hairs moderately dense to dense, white or brown, 0.25–0.5 mm across, stalks 0–0.3 mm long, lateral rays 6–8, central ray 1–1.5 times as long as laterals, not gland-tipped, simple hairs absent, small glandular hairs absent. Corolla white, mauve or purple, 17–21 mm across, shallowly to deeply lobed, inner surface glabrous; stamens 5, anthers 4.2–4.5 mm long, filaments c. 0.8 mm long; ovary with small glandular hairs and stellate hairs; style 5.5–7.5 mm long, protruding between anthers, glabrous or with stellate hairs near base. Fruiting calyx lobes less than half length of mature fruit, prickles absent, apices recurved; mature fruits 1 per infructescence, globular,

16–23 mm diameter, 2-locular, dull yellow at maturity, interior moist but not juicy, pericarp 2–2.5 mm thick; placenta stalked, anvil-shaped; pedicels 10–27 mm long. Seeds lenticular, pale yellow, 2.0–2.2 mm long.

Queensland. Moreton district: Ivory Rock lookout, Ipswich shire, 6 Jul 2003, *M. Bennett* 5 (BRI); Ballow View Nature Refuge boundary gate on Carneys Creek Rd, S of Boonah, 25 May 2014, *H. Hines* HBH40 (BRI); Stenzel property, c. 15 km S of Boonah, 24 Jun 2023, *A.R. Bean* 35358 & *E. Stenzel* (BRI, MEL); Ballow View Nature refuge, east of Boonah-White Swamp road, Carneys Creek, 30 Dec 2023, *H.B. Hines* HBH\_P0104 (BRI).

**Diagnostic features.** *Solanum singulare* is characterised by its procumbent habit, prickly stems, unarmed calyx, inflorescences with only 1 or 2 flowers, and the quite large solitary fruits that are dull yellow at maturity. It is morphologically close to *S. rixosum* but differs by the much smaller stature of fertile plants (0.2–0.4 m high vs. 1–2 m high for *S. rixosum*); the obtuse leaf apex (acute for *S. rixosum*); the 1- or 2-flowered inflorescences (2–15-flowered for *S. rixosum*); the deltate calyx

lobes 2–4 mm long at anthesis (calyx lobes attenuate, 5–9 mm long for *S. rixosum*); the style 5.5–7.5 mm long (7.5–10 mm long for *S. rixosum*); and the corolla glabrous on the inner surface (sparsely stellate-hairy for *S. rixosum*). *Solanum singulare* could be confused with *S. ellipticum* as it is similar in habit, leaf shape and in having a reduced inflorescence, but *S. singulare* differs by the calyx that lacks prickles, the upper leaf surface stellate hairs with 4–7 lateral rays and the central ray 1–2.5 times as long as laterals (vs. calyx bearing numerous prickles, lateral rays 7–8, central ray 0.5–1 times for *S. ellipticum*).

*Phenology.* Flowers have been recorded in June and December; fruits in May, June and December.

*Distribution & habitat.* Endemic to Queensland and apparently confined to the Boonah area, extending from Ivorys Rock to Carneys Creek. It grows on brown clay-loam basaltic soils on ridges or hillslopes (or occasionally on creek banks), in association with *Eucalyptus biturbinata*, *E. crebra*, *E. moluccana*, *Corymbia intermedia* or *Blakella citriodora*, with a usually grassy understorey.

*Conservation status.* There is no evidence of decline in numbers of individuals or number of subpopulations. The number of individuals is difficult to determine for this rhizomatous species, but is almost certainly fewer than 1000, hence it would qualify for "Vulnerable" under the IUCN Red List criterion D1 (IUCN 2012).

*Etymology.* From the Latin *singularis* meaning 'solitary, alone', in reference to the solitary fruits found in this species.

*Notes.* The specimen from Ivory Rock lookout is sterile, but it matches the other collections in leaf shape, stellate hair morphology and plant habit.

## Disclosures

No conflict of interest

## Acknowledgments

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