

Stylidium milleri (Stylidiaceae), a striking discovery from south-western Australia

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SHORT COMMUNICATION

The novel species of *Stylidium* Sw. ex Willd. (Stylidiaceae) described below was unearthed at the Western Australian Herbarium (PERTH) while sorting specimens and compiling information for an account of Stylidiaceae for the *Flora of Australia*. It was recently relocated in the wild, at which time the first collections for more than 30 years were made. It is remarkable that such a large-flowered and attractive triggerplant has remained unrecognised until now and suggests that botanical surveys of remnant vegetation on the Dandaragan Plateau may yield additional botanical treasures.

Stylidium milleri Wege, *sp. nov.*

Type: south-west of Moora, Western Australia [precise locality withheld for conservation reasons], 3 October 2021, *J.A. Wege* 2137 (*holo*: PERTH 09389091; *iso*: AD, CANB, MEL, NSW).

Stilted perennial herb (10–)20–40 cm high. *Indumentum* of glandular hairs 0.2–0.6(–1) mm long with a red or red-black, ellipsoid head and simple, ± straight or sinuate hairs 0.8–4 mm long. *Stem* contracted or shortly elongated, unbranched or branched, glabrous, nodes clothed with persistent leaf bases; stilt roots papillose. *Leaves* basal, those of the present season's growth subtended by papery scale leaves, linear, (60–)120–350 mm long, 0.5–1.3 mm wide, glabrous or with fibrous papillae abaxially (especially towards the base), apex with a fibrous mucro 0.2–0.3 mm long; margins involute, stomata confined to either side of midrib on adaxial surface. *Scapes* 1–6 per plant, (9–)15–37 cm long including inflorescence, 0.9–2.3 mm wide, with simple hairs below inflorescence (denser in the lower portion) and glandular hairs throughout (i.e. including inflorescence axis) or absent towards base. *Inflorescence* determinate, botryoid or more rarely thyrsoid, corymbiform, 4–10-flowered, flowers rotated 180°; primary bracts 4–8 mm long, glandular-hairy (very rarely with the odd simple hair); pedicels 5–32 mm long, glandular-hairy. *Hypanthium* ellipsoid to ± globose, 4–7.5 mm long, 2.5–5 mm wide, glandular-hairy. *Calyx lobes* free, 4–8 mm long, glandular-hairy (sometimes including the inner surface near tip), apex acute or apiculate. *Corolla* white with pink-red markings towards base of lobes (often faint or absent from lower pair), undersurface and tube creamy yellow with dark pink-red speckled markings; lobes paired vertically, glandular-hairy abaxially and on anterior margin of anterior lobes; anterior (upper) lobes ± oblong with a constriction below a flared and rounded apex, markedly incurved, slightly longer than the posterior pair, 9–14 mm long, 5.3–8.5 mm wide; posterior (lower) lobes basally connate for 1.5–3 mm, ± obovate, scarcely incurved, 7–11 mm long, 4.3–8.5 mm wide;

tube 7–9 mm long, longer than the calyx lobes, glabrous except for sparse glandular hairs and dense papillae near anterior sinus. *Labellum* at sinus base, elliptic, 1–1.5 mm long with a papillose beard 0.4–1.2 mm long, sometimes with a few glandular hairs abaxially; lateral appendages 1–1.5 mm long, forward-projecting, papillose. *Throat appendages* 4 (1 on each corolla lobe), dimorphic, papillose; anterior appendages white, wing-like, 1.7–3 mm high; posterior appendages white with a dark pink-red tip, ± oblong, distally recurved, c. 1.5–2.5 mm high. *Column* 12–14 mm long, straight when extended, with a strong bend below the anthers, glabrous; anther locules 1.2–1.5 mm long, corona present, pollen pale blue-green; stigma sessile, bilobed. *Capsules* ellipsoid to ± globose, c. 6–10 mm long excluding calyx lobes; halves detaching distally, often also with irregular, lateral or basal splits, not recurved. *Seeds* not seen. (Figure 1)

Diagnostic features. *Stylidium milleri* can be recognised by the following key features: a stilted habit; linear leaves subtended by papery scale leaves; a mixture of simple hairs and shorter glandular hairs on the scape; a determinate, corymbiform, glandular-hairy inflorescence with pedicels 5–32 mm long; a long corolla tube (exserted beyond the calyx lobes); white corolla lobes with pink-red speckled markings on the undersurface, the upper pair with a rounded apex; 4 throat appendages (one on each corolla lobe); and a column with a conspicuous corona (i.e. prominent hairs surrounding the anthers).

Other specimens examined. WESTERN AUSTRALIA: [localities withheld for conservation reasons] Sep. 1946, *Miss A. Ashby* 103 (PERTH); 25 Sep. 1965, *A.S. George* 6846 (PERTH); 10 Sep. 1988, *E.A. Griffin* 4981 (PERTH); 7 Oct. 1967, *W.A. Loneragan* 67.110 (PERTH); 4 Oct. 1971, *R.D. Royce* 9524 (PERTH); 5 Oct. 1971, *R.D. Royce* 9588 (PERTH); 3 Oct. 2021, *J.A. Wege* 2133 (PERTH, MEL).

Flowering period. September–October.

Distribution and habitat. *Stylidium milleri* is endemic to south-western Australia and has a distribution centred on the Dandaragan Plateau, occurring from the Regans Ford area to Watheroo National Park. It favours upland habitats, growing in grey sand with lateritic gravel in *Allocasuarina* and *Lambertia* shrubland with *Xanthorrhoea* and scattered mallees, Proteaceous and Myrtaceous shrubland with *Allocasuarina* and scattered *Banksia attenuata*, or *B. carlinoides* heath.

Conservation status. To be listed as Priority Two under Conservation Codes for Western Australian Flora (T. Llorens pers. comm.). This species is represented by few collections from a heavily cleared landscape and appears to have specific habitat requirements. It was collected from Watheroo National Park by Bob Royce in the 1970s on two separate occasions (presumably from two different sites), and a small population was recently discovered in a nature reserve north-west of Regan's Ford. The type locality is a small, unmanaged reserve that is (or has been) subject to gravel extraction. Surveys are needed to better understand the species' distribution and abundance, and any additional threats.

Etymology. Named for Dr Ben Paul Miller (1970–) who has steadfastly supported my taxonomic research for some 20 years, frequently assisting me on collecting trips thinly disguised as holidays. Ben is a highly respected ecologist who continues to make a broad contribution to flora conservation in Western Australia, most notably through his collaborative fire science research and mentoring of students and early career researchers.

Vernacular name. Miller's Triggerplant.

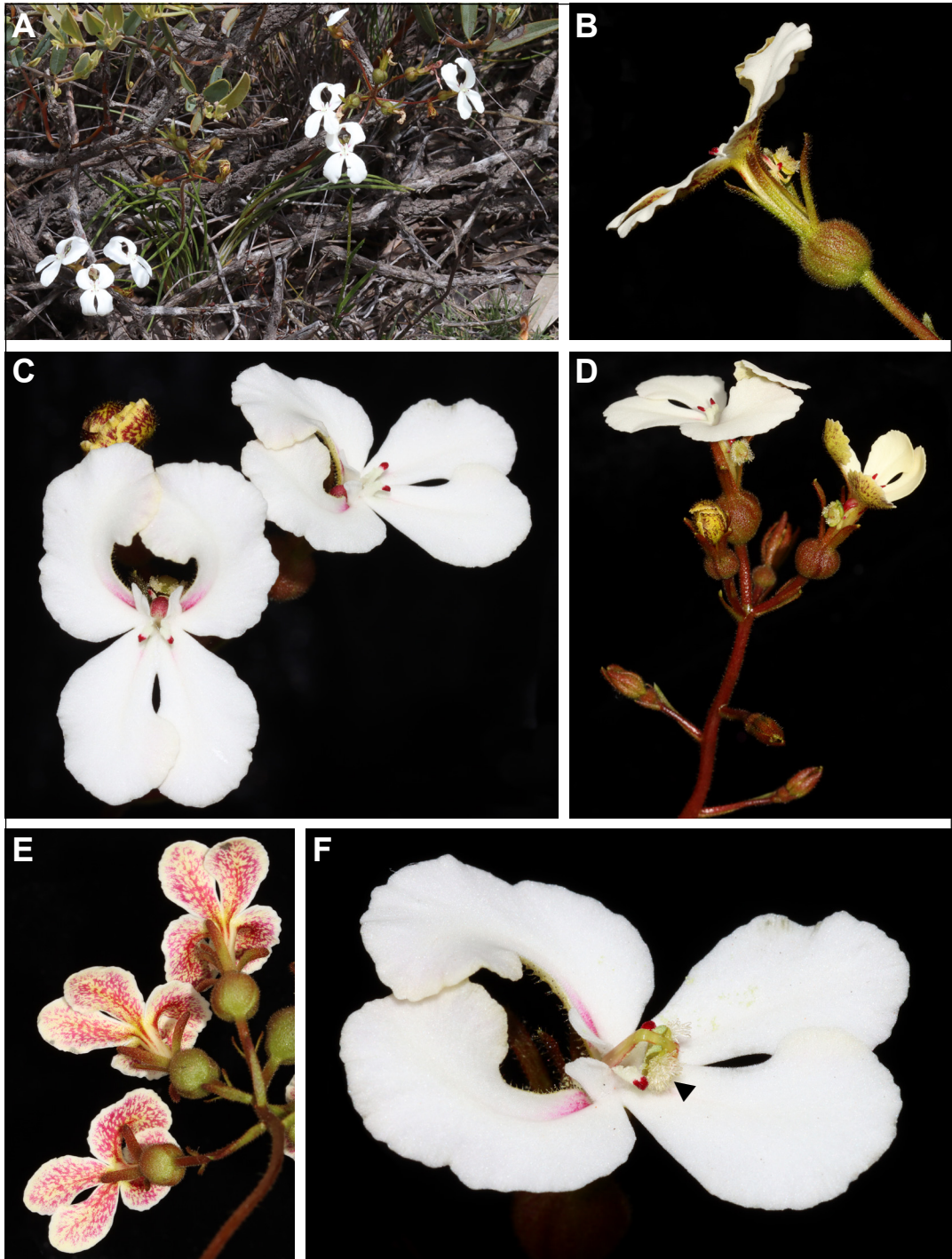


Figure 1. *Stylidium milleri*. A – habit, with plants growing under shrubs; B – side view of flower, showing the ellipsoid hypanthium, slender calyx lobes and long corolla tube; C – inflorescence, showing the distinctive shape and colouration of the corolla face and throat appendages; D – inflorescence, showing the determinate, corymbiform structure; E – distinctive patterning on the corolla undersurface; F – flower with column released, showing the conspicuous corona (black arrow). Photographs from J.A. Wege 2133 (A, D, E) and J.A. Wege 2137 (B, C, F).

Notes. *Stylidium milleri* is akin to *S. macranthum* Carlquist, a species that occurs from Munglinup to Israelite Bay on Western Australia's south coast. The two species have a comparable habit, leaf morphology, indumentum and inflorescence architecture but can be readily separated by their flowers. In *S. milleri*, the anterior (upper) corolla lobes are oblong with a constriction below a flared and rounded apex (i.e. more or less pandurate) whereas in *S. macranthum* they are lanceolate and taper to an obtuse or acute apex. The corolla face is predominantly white in *S. milleri* (cf. mauve-pink in *S. macranthum*, although a rare white form (PERTH 01206168) has been recorded from Cape Arid National Park), and there is one rather than two throat appendages on each posterior (lower) corolla lobe. The labellum of *S. milleri* also tends to have shorter lateral appendages (1–1.5 mm long cf. 1.5–3 mm long in *S. macranthum*), although relatively few measurements have been made for me to be confident of this difference.

Stylidium milleri is perhaps more likely to be confused with *S. diplotrichum* Wege, a poorly known species from the Lesueur Sandplains with a somewhat similar corolla. Unlike *S. diplotrichum*, *S. milleri* has leaves with involute margins and stomata confined to either side of the midrib on the adaxial surface (cf. with entire margins and stomata confined to two longitudinal furrows on each surface), longer pedicels (5–32 mm long cf. 1–4 mm), and a strictly glandular-hairy indumentum on the pedicels and hypanthium (cf. with both glandular and simple hairs). *Stylidium diplotrichum* also lacks the coloured markings near the base of the upper corolla lobes and on the undersurface of the corolla that are characteristic of *S. milleri*.

Stylidium schoenoides DC. and *S. stenosepalum* E.Pritz. have both been observed growing with *S. milleri* and may cause confusion. Pressed material of *S. schoenoides* is remarkably like the new species on account of its comparable leaf morphology, indumentum and inflorescence structure, but can be diagnosed by the absence of stilt roots (i.e. the stem stock is buried rather than elevated above the substrate), shorter corolla tube (3–5 mm long cf. 7–9 mm in *S. milleri*), and unusually stout column with an inconspicuous corona and an entire (cf. bilobed) stigma that expands between and below the lower anther thecae. *Stylidium stenosepalum* has a stilted habit and large flowers like *S. milleri* but is readily differentiated by its strictly glandular-hairy scapes, racemose inflorescences (i.e. flowers open sequentially from the base to the apex), and mostly longer calyx lobes (7.4–15 mm long cf. 4–8 mm in *S. milleri*) that exceed the length of the corolla tube (cf. corolla tube longer than the calyx lobes).

Acknowledgements

This research was supported by the Australian Government's Australian Biological Resources Study National Taxonomy Research Grant Programme for the project 'Time to pull the trigger – an eFlora account of Stylidiaceae'. I thank Ben Miller for his assistance during our initial, unsuccessful hunt for this species.