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Leucopogon longipes (Ericaceae: Epacridoideae: Styphelieae), a remarkable, new, short-range endemic from the Great Southern district of Western Australia

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SHORT COMMUNICATION

Among the epacrids of Western Australia a high percentage of taxa have narrow and/or very sporadic distributions and are hence of conservation concern. Illustrative of this is the fact that of 48 new Western Australian epacrids published in the last five years, 36 or 3/4 of them, have been assessed as Priority or Threatened Flora. A significant number of such species have very restricted distributions indeed with new examples of this phenomenon still coming to light with some regularity. The latest to be discovered was found by the second author during a brief assessment of the conservation values of a remnant on private property in the Great Southern district.

Leucopogon longipes Hislop, *sp. nov.*

Typus: east of Mount Barker, Western Australia [precise locality withheld for conservation reasons], 19 September 2023, *S. Barrett* SB 2380 (*holo*: PERTH 09626271; *iso*: CANB, CNS, MEL, NSW)

Erect, slender *shrubs* to *c.* 80 cm high and 60 cm wide, single-stemmed at ground level with a fire-sensitive rootstock. Young *branchlets* with a sparse indumentum of very short hairs, to 0.05 mm long, or glabrous. *Leaves* helically arranged, most steeply antrorse; apex acuminate with a very fine, brittle tip; base cuneate to rounded; petiole 0.4–0.7 mm long, well-defined, red or purple, glabrous or with a few hairs on the margins; lamina very narrowly ovate to very narrowly elliptic, 5.0–18 mm long, 0.7–2.0 mm wide, ± concolorous, strongly concave adaxially to involute, longitudinal axis ± straight but usually becoming incurved towards the apex; adaxial surface glabrous with the mid-vein and sometimes the pair of veins on either side evident at least in the lower half; abaxial surface glabrous, with 5–7 rather conspicuous, pale, primary veins, the mid-vein no wider than the others, the surface flat between the veins; margins long-ciliate with hairs to *c.* 1 mm long, sometimes becoming glabrescent on older leaves. *Inflorescence* terminal and axillary, erect, unit inflorescences often grouped together to form dense head-like conflorescences; axis 3.0–8.0 mm long, 3–10-flowered, with a dense indumentum of patent hairs, terminating in a bud-rudiment; flowers erect, pedicellate above and below the bracteoles, the pedicels below the bracteoles, 0.2–0.6 mm long, those above often longer, 0.4–1.0 mm long. *Fertile bracts* ovate to narrowly ovate, always well-differentiated from the leaves, 0.8–1.7 mm long, 0.5–0.9 mm wide, with 2–5 sterile bracts on the axis below. *Bracteoles* narrowly ovate, 1.0–1.8 mm long, 0.4–0.6 mm wide, acute to acuminate, keeled; abaxial surface glabrous; margins irregularly ciliolate. *Sepals* narrowly ovate, 2.0–3.0 mm long, 0.5–0.8 mm wide, acuminate; abaxial surface glabrous, green, usually flushed red-purple in the upper half or throughout, with the mid-vein and one or sometimes two pairs of veins on

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either side strongly demarcated; margins irregularly ciliate with hairs to 0.2 mm long. *Corolla tube* white or occasionally flushed pink in the upper half, ± cylindrical, or sometimes narrowly ovoid, shorter than the sepals, 1.2–2.0 mm long, 0.8–1.2 mm wide, glabrous externally, internal surface glabrous except for an apical zone of retrorse hairs just below the lobes. *Corolla lobes* white, variably flushed pink, longer than the tube, 2.0–2.5 mm long, 0.4–0.6 mm wide at base, spreading from close to the base and recurved, glabrous externally, internal surface with a dense indumentum of ± straight, terete, white hairs. *Anthers* partially exserted from the tube, by *c.* 1/3 of their length, 1.2–1.6 mm long, including elongate sterile tips, slightly recurved towards the apex. *Filaments* terete, 0.3–0.5 mm long, attached to the anther about 3/4 above base, adnate to the tube just below the sinuses. *Nectary* partite, the scales, 0.2–0.3 mm long, 0.2–0.3 mm wide, rather thick, glabrous. *Ovary* globose, 0.4–0.5 mm long, 0.4–0.5 mm wide, glabrous, 5-locular. *Style* 0.20–0.35 mm long, abruptly differentiated from ovary apex, included within the corolla tube; stigma enlarged and 5-lobed. *Fruit* much shorter than the calyx, depressed-obovoid, 0.7–0.8 mm long, 1.3–1.4 mm wide, with 5 sharply defined, broad, flat ridges alternating with sunken areas of similar width; apex truncate with rounded shoulders, the surface glabrous, ± dry (mesocarp not developed), descending steeply to the base of the style which is wholly included within a central depression. (Figure 1)

Diagnostic characters. Easily recognised by the following character combination: leaves long-ciliate, very narrowly ovate to very narrowly elliptic, 5.0–18 mm long, 0.7–2.0 mm wide, strongly concave adaxially to involute; flowers pedicellate above and below the bracteoles, the pedicels above the bracteoles, 0.4–1.0 mm long; nectary partite; fruit 5-locular, depressed obovoid, with 5 sharply defined, broad, flat ridges alternating with sunken areas of similar width, the apical surface descending steeply to the base of the wholly included style.

Other specimens examined. WESTERN AUSTRALIA: [localities withheld for conservation reasons] 19 Sep. 2021, *S. Barrett* SB 2368 (PERTH); 19 Sep. 2023, *S. Barrett* SB 2381 (PERTH); 27 Nov. 2023, *S. Barrett* SB 2382 (PERTH).

Distribution and habitat. Known only from an area east of Mount Barker in the far south of the Jarrah Forest bioregion, where it grows in low woodland in shallow, sandy loam over laterite on the lower slopes of a granite hill. Associated species include *Eucalyptus marginata*, *Banksia grandis*, *Xanthorrhoea platyphylla*, *Agonis theiformis*, *Tetratheca affinis*, *Sphaerolobium alatum*, *Bossiaea ornata*, *Daviesia preissii*, *Leucopogon obovatus* subsp. *revolutus*, *Conostylis setigera*, *Desmocladus fasciculatus* and *Drosera lasiantha*.

Phenology. To judge from the very few specimens available, peak flowering is likely to be in September and October. Mature fruit has been collected in late November.

Etymology. From the Latin *longus* (long) and *pes* (foot), a reference to the long pedicels that are characteristic of the species.

Conservation status. Currently known only from a single population on private property of some 500 plants in two sub-populations. To be listed as Priority One under Conservation Codes for Western Australian Flora (Tanya Llorens, pers. comm.).

Affinities. *Leucopogon longipes* is a very distinctive species which seems likely to occupy a relatively isolated position within the Western Australian members of the genus. It has a particularly gracile habit which it shares with a number of species belonging to the following small species groups, mostly from the wettest parts of the south-west of the state: the *L. gracilis* group, or Group E (refer Hislop 2009); *L. extremus* Hislop & Puente-Lel. and *L. incisus* Hislop (refer Hislop *et al.* 2012 & Hislop 2015); *L. alternifolius* R.Br. and *L. wheelerae* Hislop (refer Hislop 2008) and *L. gilbertii* Stschegl. Phylogenetic relationships within *Leucopogon* are still poorly understood but their respective morphologies do not suggest that any of these groups are closely related to each other. Similarly, it seems unlikely that *L. longipes* has close affinities with any of the above, despite a superficial similarity to some member species.

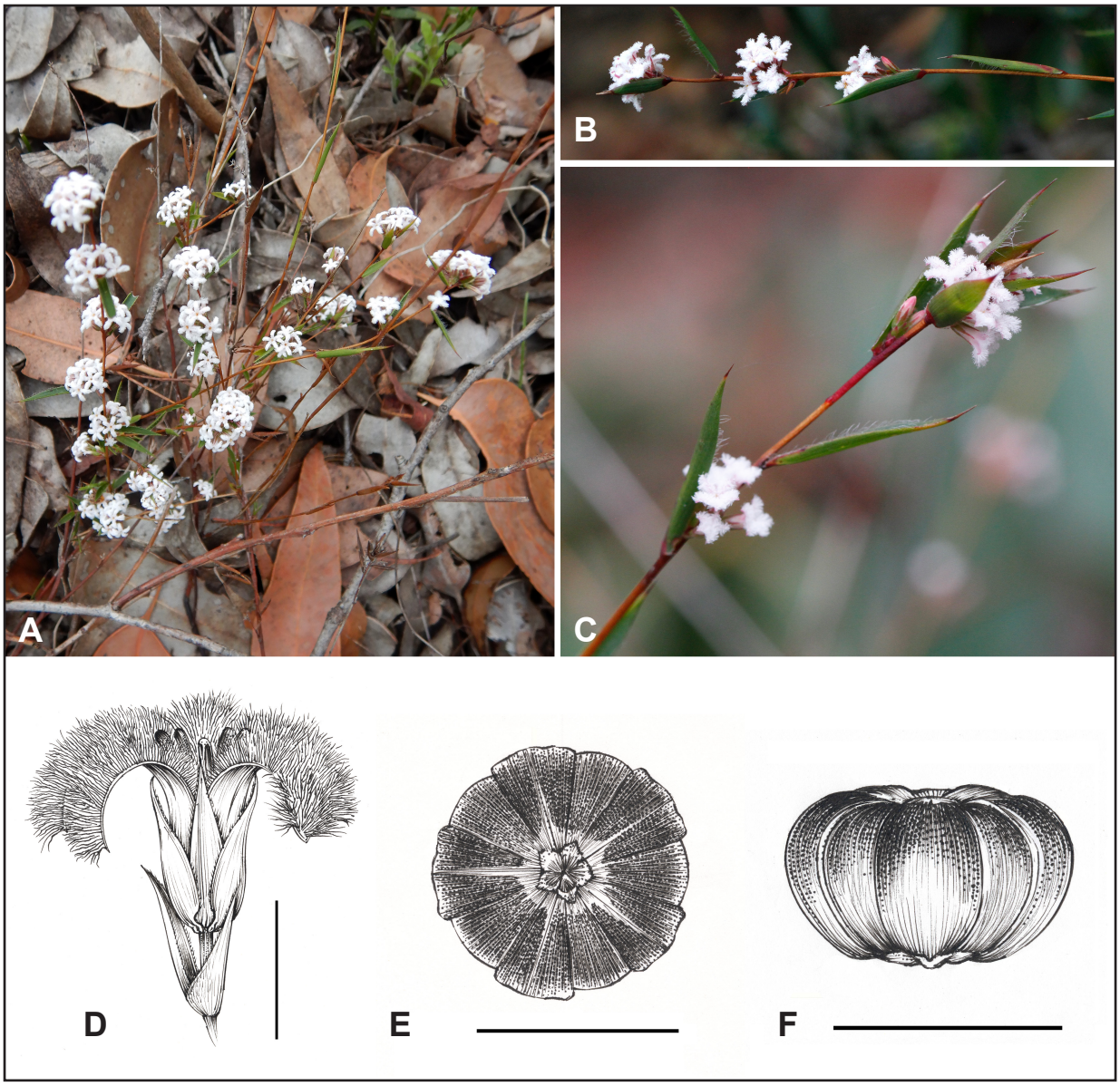

Figure 1. *Leucopogon longipes*. A – flowering plant *in situ*; B – flowering branchlet *in situ*; C – flowering branchlet showing long-ciliate leaf margins; D – flower, external view; E – fruit, top view; F – fruit, lateral view. Scale bars C = 2 mm; D, E = 1 mm. Vouchers *S. Barrett* SB 2381 (A, B), *S. Barrett* SB 2380 (C), *S. Barrett* SB 2382 (D, E). Photographs by Sarah Barrett (A), Bayley Castlehow (B). Drawings by Hung Ky Nguyen.

Perhaps the species most similar to *L. longipes* in gross morphology is *L. tenuicaulis* Hislop from the *L. gracilis* group. It shares with *L. longipes* relatively long branchlet internodes, leaves that are comparable in size and shape (although usually wider in *L. tenuicaulis*), inflorescences that extend down the flowering branchlets for many nodes, as well as pedicellate flowers, an unusual feature in the genus. However, *L. tenuicaulis* differs in having a 2-locular, hairy and slightly compressed ovary (*cf.* 5-locular, glabrous and circular in cross section in *L. longipes*), an annular rather than partite nectary, and sepals that are shorter than, rather than longer than the corolla tubes. *Leucopogon longipes* also has some similarities with *L. paradoxus* Hislop, an anomalous species currently placed tentatively in the *L. gracilis* group. Like *L. longipes* the latter has narrow, often involute leaves and unit inflorescences that are frequently grouped closely together to form dense, head-like conflorescences. But again, closer examination reveals obvious differences, with *L. paradoxus* having the 2-locular, hairy ovaries typical of the *L. gracilis* group, sessile rather than pedicellate flowers, sepals and corolla lobes that are much shorter than (*cf.* longer than) the corolla tubes and a narrow, deciduous style 0.3–0.5 (*cf.* thick, persistent and 2.5–3.5 mm long).

Of the other gracile species listed above that might conceivably be confused with *L. longipes* all can be distinguished by their 2- or 3-locular rather than 5-locular ovaries. Other easily interpreted differences are as follows: *L. alternifolius* and *L. wheelerae* can be further differentiated by their ovate or broadly ovate leaves with cordate bases, *L. extremus* by its glabrous corolla lobes, *L. incisus* by its recurved leaf margins and compressed, narrowly ellipsoid ovaries and *L. gilbertii* by its pale brown elliptic or obovate sepals, annular nectaries and hairy compressed ovaries.

A particularly remarkable feature of the new species is the fruiting character (Fig. 1E, 1F) which is quite unlike that of any other Western Australian species, being more or less dry, strongly depressed-obovoid with the upper surface descending steeply to the style base. The lateral surfaces comprise 5 sharply defined broad ridges that alternate with sunken areas of a similar width. This fruit type is unique within the genus.

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