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Styphelia undulata (Ericaceae: Epacridoideae: Styphelieae), a distinctive, short-range endemic from the Geraldton Sandplains

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SHORT COMMUNICATION

Styphelia undulata Hislop, *sp. nov.*

Typus: Badgingarra National Park, Western Australia [precise locality withheld for conservation reasons], 20 January 2007, *M. Hislop* 3688 (*holo*: PERTH 07703856; *iso*: CANB, CNS, HO, K, MEL, NSW 832208).

Leucopogon sp. Badgingarra (R. Davis 421), Western Australian Herbarium, in *Florabase*, https://florabase.dpaw.wa.gov.au/ [accessed 21 July 2021].

Erect, open, rather straggly *shrub*, to *c.*1.5 m high and 1.5 m wide, mostly single-stemmed at ground level, with a fire-sensitive rootstock. Young *branchlets* with a sparse to moderately dense indumentum of very short hairs < 0.05 mm long. *Leaves* spirally arranged, steeply antrorse; apex long-mucronate, pungent, the mucro ± straight, 0.7–1.1 mm long; base attenuate to cuneate; petiole conspicuous, 1.2–2.0 mm long, sparsely hairy on the adaxial surface, glabrous on abaxial surface, margins glabrous or very shortly hairy; lamina narrowly elliptic to narrowly ovate, 9–15 mm long, 1.8–3.2 mm wide, discolorous, concave adaxially; longitudinal axis usually ± straight or gently incurved, occasionally gently recurved; adaxial surface slightly shiny or not, usually sparsely hairy towards the base, venation not evident or very obscure towards the base only; abaxial surface paler, shiny, glabrous, with 5–7 primary veins, the midrib no broader than the others, shallowly grooved to ± flat between the veins; margins noticeably pale and hyaline in the first leaves produced during a growth flush, ± glabrous or with stiff, antrorse hairs < 0.05 mm long. *Inflorescence* axillary, erect; axis 2.5–5.5 mm long, (1)2–6-flowered, with a dense, spreading indumentum, ± terete below the lowest fertile bract, bluntly angular above, terminating in a bud-rudiment; flowers erect, sessile. *Fertile bracts* ovate to broadly ovate, 0.6–1.0 mm long, 0.6–1.0 mm wide, with 4–7 sterile bracts on the axis below. *Bracteoles* broadly ovate, 1.5–1.7 mm long, 1.3–1.7 mm wide, keeled, obtuse or acute; abaxial surface glabrous or with a few hairs about the keel, striate; margins ciliolate. *Sepals* ovate to elliptic, 2.6–3.0 mm long, 1.7–1.9 mm wide, acute or subacute, often ± apiculate, distinctly recurved; abaxial surface glabrous or very shortly and sparsely hairy, straw-coloured or pale green in central portion, becoming white and conspicuously undulate towards the margins, markedly striate; adaxial surface very shortly hairy; margins ciliolate, hairs < 0.05 mm long. *Corolla tube* white, depressed-obovoid, shorter than the sepals, 1.6–2.1 mm

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long, 2.0–2.3 mm wide, external and internal surfaces glabrous. *Corolla lobes* white, longer than the tube, 2.3–2.6 mm long, 1.0–1.2 mm wide at base, erect in basal 1/4–1/3 of length then spreading and recurved, external surface papillose, internal surface with a dense white indumentum of terete, straight, scarcely ornamented hairs, the basal hairs projecting into the top of the tube. *Anthers* partially exserted from the tube (by 1/4–1/3 of their length), 1.7–2.2 mm long, apex shallowly emarginate. *Filaments* terete, 0.3–0.5 mm long, attached to the anther *c.* 7/8 above the base, adnate to the tube just below the sinuses. *Nectary* annular, 0.2–0.3 mm long, ± truncate to shallowly lobed, the rim ciliolate. *Ovary* broadly ovoid to ± conical, 0.7–1.1 mm long, 0.8–1.0 mm wide, glabrous, 5-locular, pale green. *Style* 0.5–0.7 mm long, scabrous, slightly narrower than the raised ovary apex, included within the corolla tube; stigma not or scarcely expanded. *Fruit* ellipsoid, 3.7–5.5 mm long, 2.0–2.8 mm wide, much longer than the sepals, circular in section with a distinct gynophore; surface glabrous, ± dry, smooth (mesocarp poorly developed) or with obscure longitudinal ribs; apex truncate, but with the surface then raised slightly towards a central conical elevation; style usually shed at maturity (note the apical conical elevation may be mistaken for a style base at fruiting stage). (Figure 1)

Diagnostic characters. Distinguished from all other species of Western Australian *Styphelia* by the following character combination: leaves narrowly elliptic to narrowly ovate, adaxially concave, with a long-mucronate, pungent apex; inflorescences erect, (1)2–6-flowered; sepals markedly striate, with recurved apices and undulate margins; corolla tube shorter than the sepals; corolla lobes longer than the tube, papillose on external surfaces; style included within the corolla tube; fruit ellipsoid, ± dry with a distinct gynophore, apex truncate.

Other specimens examined. WESTERN AUSTRALIA: [localities withheld for conservation reasons] 25 Oct. 2017, *D. Coultas* DC-OPP01 (PERTH); 10 Jan. 2008, *A. Crawford* ADC 1753 (K, PERTH); 18 Dec. 1995, *R. Davis* RD 421 (CANB, PERTH); 15 Mar. 2007, *K. Himbeck s.n.* (PERTH); 6 Dec. 1999, *M. Hislop* 1940 (MEL, NSW, PERTH); 26 July 2008, *M. Hislop* 3791 (CANB, CNS, PERTH); 7 Nov. 2013, *B. Phillips s.n.* (PERTH); 15 Mar. 2007, *B. Todd* 13 (PERTH).

Distribution and habitat. Known only from a small area near Badgingarra in the far south of the Geraldton Sandplains bioregion where it grows in white sand with laterite at depth, in species-rich heath or open woodland. Commonly associated species include *Eucalyptus todtiana*, *Banksia attenuata*, *B. menziesii*, *Adenanthos cygnorum* and *Hypocalymma xanthopetalum*.

Phenology. Flowers are produced through the summer months, at least between December and March. Collections with abundant mature fruit have been made in August and October although most of the flowering collections also have a few fruit present.

Etymology. From the Latin *undulatus* (wavy), a reference to the distinctly wavy sepal margins.

Conservation status. Listed as Priority Two (Smith & Jones 2018) under Conservation Codes for Western Australian Flora, under the name *Leucopogon* sp. Badgingarra (R. Davis 421). Apparently restricted to a single national park where it is highly localised but locally common.

Affinities. *Styphelia undulata* is a member of Group X and, in the phylogenetic analysis of Puente-Lelièvre *et. al* (2016), was placed in a polytomy with *S. kingiana* F.Muell., *S. crassiflora* F.Muell. and a group of eastern Australian species. Among Western Australian *Styphelia*, it only shows clear morphological affinity to *S. crassiflora* (Figure 2), a species with which it sometimes co-occurs (the pair key out at the first lead of couplet 14 (Group X) in Hislop (2021: 31). The two species share some

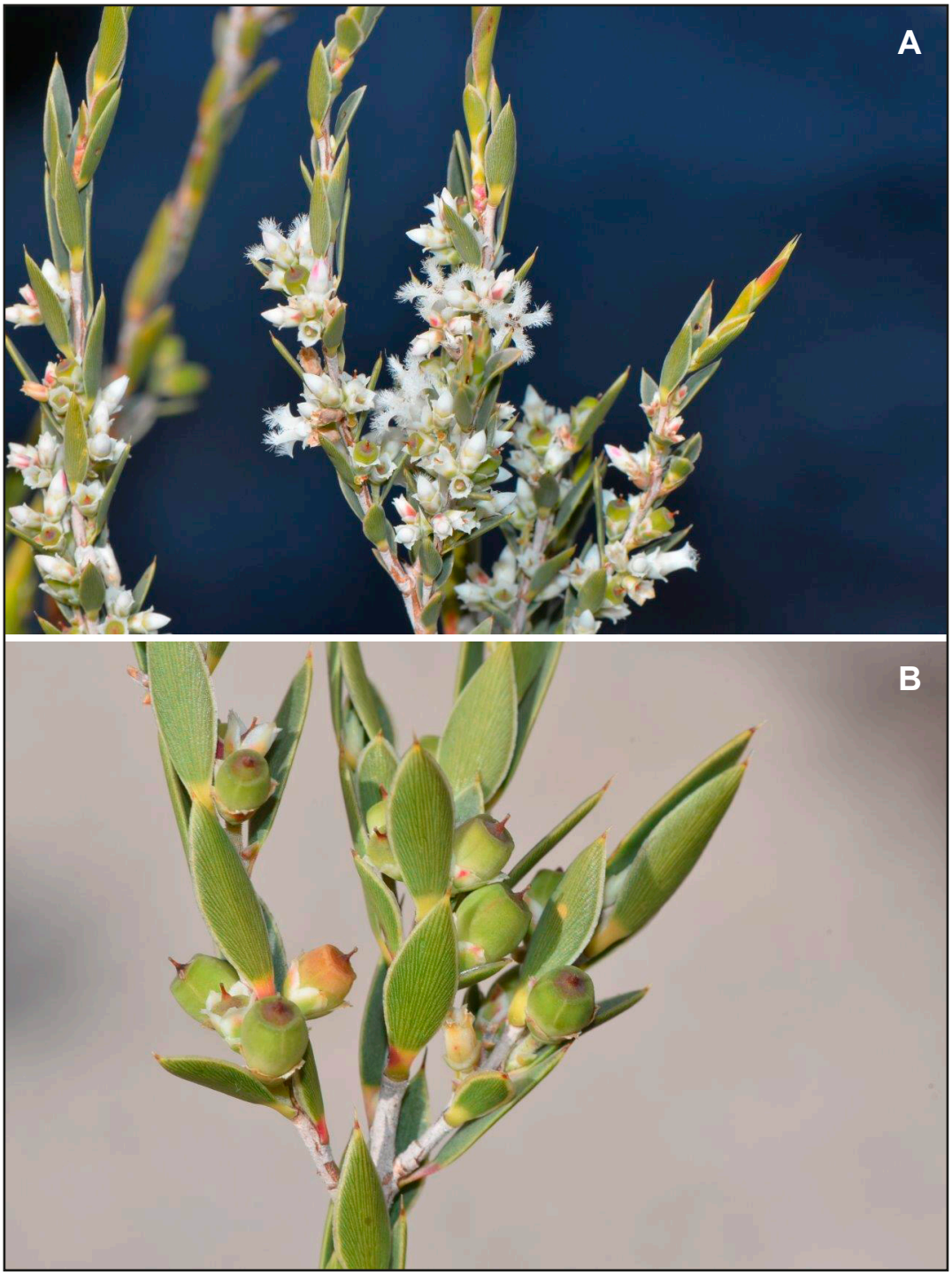

Figure 1. *Styphelia undulata*. A – flowering branchlets *in situ*; B – fruiting branchlet *in situ*. Photographs by Fred and Jean Hort from *F. & J. Hort* 4230.

Figure 2. *Styphelia crassiflora*. A – flowering branchlet *in situ*; B – branchlet with flowers and immature fruit *in situ*. Photographs by Fred and Jean Hort from *F. & J. Hort* 4233.

unusual features including a more or less dry drupe with a truncate apex (Figure 1B; 2B), and distinctly striate sepals with undulate margins. However, they can be easily distinguished by differences in their leaves, inflorescence and style length. Whereas *S. undulata* has narrowly elliptic to narrowly ovate leaves terminating in a pungent mucro, multi-flowered inflorescences, and a style that is included within the corolla tube, *S. crassiflora* has broadly elliptic to broadly obovate and obtuse leaves, single-flowered inflorescences, and a well-exserted style.

Acknowledgements

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