

The concept of *Leucopogon* sp. Busselton (Ericaceae: Styphelioideae: Styphelieae) expanded to include *L.* sp. D Perth Flora

Michael Hislop

Western Australian Herbarium, Biodiversity and Conservation Science,
Department of Biodiversity, Conservation and Attractions,
Locked Bag 104, Bentley Delivery Centre, Western Australia 6983
Email: Michael.Hislop@dbca.wa.gov.au

SHORT COMMUNICATION

In the treatment of *Leucopogon* R.Br. for *Flora of the Perth Region*, Wheeler (1987) recognised two putatively undescribed taxa for the Swan Coastal Plain that she referred to by the informal names, ‘*L.* sp. B’ and ‘*L.* sp. D. aff. polymorphus’ (as *L.* sp. B Perth Flora (R.D. Royce 4360) and *L.* sp. D Perth Flora (aff. polymorphus) respectively on *Florabase*: Western Australian Herbarium 1998–). For many years afterwards, the application of these names was uncertain because, shortly after publication of the *Flora*, the relevant specimens formed part of an interstate loan. In the meantime, the phrase-name *L.* sp. Busselton (D. Cooper 243) was added to *Florabase* in March 2006 to accommodate a taxon from Group C (*sensu* Hislop & Chapman 2007; Hislop 2014) that occurs in wetlands from the Dardanup area to south-west of Busselton. When the loan material was returned in 2009 it was established that *L.* sp. Busselton matched Wheeler’s concept of *L.* sp. B.

In her key to species, Wheeler (1987) distinguished *L.* sp. B from *L.* sp. D by the presence of petiolate leaves with narrowed bases (*cf.* sessile and not tapered in *L.* sp. D). The associated descriptions also indicated that *L.* sp. B had longer leaves (7–12 mm long *cf.* 3–5 mm) and a usually hairy ovary (*cf.* glabrous). In addition to the localities of Cannington and Mundijong in the Perth region, Wheeler recorded *L.* sp. D from Mt Barker and Donnybrook. The reference to Donnybrook is based on a collection by Cecil Andrews from August 1903 (PERTH 05700558); however, this specimen in every respect other than locality appears to be a duplicate of another Andrew’s collection from Mundijong (PERTH 05700574). It seems very likely that the Donnybrook locality is an error as the *L.* sp. D morphotype has otherwise not been recorded from that area whereas there have been several subsequent collections from Mundijong. The Mt Barker occurrence was based on a collection by Col. Goadby from 1900 (PERTH 05700566), the identity of which is still not satisfactorily resolved. The taxonomy of Group C includes subgroups of considerable taxonomic complexity (Hislop 2014: 72–73) in which the circumscription of individual taxa is often very challenging. This is especially the case in the Stirling Range–Albany area where numerous collections with apparent affinity to *L. polymorphus* Sond., *L. assimilis* R.Br. and/or *L. cucullatus* R.Br. cannot at this stage be confidently assigned to any species. The Goadby collection is one such specimen.

While there are strong similarities between the *L.* sp. D morphotype and a number of collections from the Stirling Range–Albany area, subtle foliar differences, a different habitat preference, and a wide geographical disjunction suggest that they are unlikely to be conspecific. Relative to the *L.* sp. D morphotype, plants from the Stirling Range–Albany area can usually be distinguished by their leaves having a sub-glaucous aspect, a more pronounced mid-rib abaxially and/or distinct grooves on either side of the midrib. Furthermore, they are plants of dry rather than wetland habitats. With the removal of Mt Barker and Donnybrook from its putative distribution it has become clear that, like *L.* sp. Busselton, the *L.* sp. D morphotype is a plant restricted to winter-wet habitats on the Swan Coastal Plain.

Leucopogon sp. D was removed from Western Australia's plant census in 1995, with specimens treated under a broad circumscription of *L. polymorphus*. In retrospect, this decision was less than satisfactory because the *L. sp. D* morphotype is consistently distinguishable from *L. polymorphus* by its glabrous or sometimes slightly scabrous, un-grooved to very shallowly grooved abaxial leaf surfaces and wetland habitat (*cf.* usually distinctly hairy, deeply grooved leaves and dry habitat preference for *L. polymorphus*). The status of the *L. sp. D* morphotype has remained unresolved until now.

Since the publication of *Flora of the Perth Region*, numerous additional collections from wetlands on the Swan Coastal Plain have become available for study at PERTH. These have had the effect of shrinking the putative morphological differences between *L. sp. Busselton* and the *L. sp. D* morphotype to a point where it now seems reasonable to treat the two as representing variation within a single species. Similarly, the apparent geographical disjunction between the Perth region and the Busselton–Dardanup area has been filled to a significant degree by collections from near North Dandalup (*F. Hort* 1831) and west of Yarloop (*A. Webb* AW 09043). Although there is a tendency for southern populations (*i.e.* those referred to *L. sp. Busselton* in its original sense) to have longer leaves than those in the Perth region (the *L. sp. D* morphotype) there is now no disjunction evident in leaf length, and while the latter always has more or less sessile, broad-based leaves, this feature is variable in the southern populations with some having clearly petiolate leaves (*D. Cooper* 243) and others quite sessile (*G.J. Keighery* 8286). A similar situation applies to ovarian hairs: southern populations may have either hairy or glabrous ovaries while only glabrous ovaries have been recorded further north. Furthermore, there is no correlation evident in the southern populations between the presence of a petiole and ovarian hairs, for example both *D. Cooper* 243 and *G.J. Keighery* 8286 have hairy ovaries.

While the morphological evidence for combining the *L. sp. D* morphotype with *L. sp. Busselton* now appears strong, formally circumscribing a species derived from such a combination without resolving the status of the various morphotypes in the Stirling Range–Albany area would be premature. It would also be necessary to consider a morphologically similar but unplaced entity that occurs in dry habitats in the Wannamal area of the northern Darling Range (*e.g.* *M. Hislop* 4455). Ideally, a focussed molecular study of Group C should be a part of future studies in Western Australian *Leucopogon*. This would help to resolve some of the many taxonomic difficulties in the group resulting from the frequently complex patterns of morphological variation.

Prior to the expanded circumscription adopted here, *L. sp. Busselton* had been assessed as Priority Two under Conservation Codes for Western Australian Flora. The inclusion of the northern populations significantly expands the distribution of this taxon, with several of these occurring in nature reserves, and it has therefore been downgraded to Priority Three (Western Australian Herbarium 1998–). Its preferred wetland habitat is particularly vulnerable both to the ongoing effects of climate change and to significant weed incursions.

References

- Hislop, M. & Chapman, A.R. (2007). Three new and geographically restricted species of *Leucopogon* (Ericaceae: Styphelioideae: Styphelieae) from south-west Western Australia. *Nuytsia* 17: 165–184. <https://doi.org/10.58828/nuy00480>
- Hislop, M. (2014). New species from the *Leucopogon pulchellus* group (Ericaceae: Styphelioideae: Styphelieae). *Nuytsia* 24: 71–93. <https://doi.org/10.58828/nuy00706>
- Western Australian Herbarium (1998–). *Florabase—the Western Australian Flora*. Department of Biodiversity, Conservation and Attractions. <https://florabase.dbca.wa.gov.au/> [accessed 10 April 2025].
- Wheeler, J.R. (1987). Epacridaceae. In: Marchant, N.G., Wheeler, J.R., Rye, B.L., Bennett, E.M., Lander, N.S. & Macfarlane, T.D. *Flora of the Perth region* Part 1. pp 172–196. (Western Australian Herbarium, Department of Agriculture: South Perth.)