

The occurrence of *Convolvulus crispifolius* (Convolvulaceae) in Western Australia

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SHORT COMMUNICATION

The distribution of *Convolvulus crispifolius* F.Muell. is centred on eastern South Australia, the far north-west of Victoria and the far south-west of New South Wales, with a major outlying occurrence at the West Macdonnell Range, west of Alice Springs in the Northern Territory (*D.E Albrecht* 10320: BRI, NT). The species is not listed on Western Australia's vascular plant census, although a specimen collected from Norseman and housed at the State Herbarium of South Australia (*R. Bates* 24889: AD) was identified as this species in 2002 by Helmut Toelken. Two additional Western Australian specimens (*M. Lewis* 77/92, *R.J. Cranfield* 2563: PERTH), erroneously referred to the genus *Polymeria* R.Br. at the Western Australian Herbarium but with affinity to *C. crispifolius*, have recently come to my attention. Remarkably, both are from the Shark Bay area in the state's midwest region and would represent a significant range extension if confirmed as this species.

To confirm whether the species occurs in Western Australia, 16 specimens of *C. crispifolius*, including the Norseman collection, were loaned from the State Herbarium of South Australia. Both the Norseman and Shark Bay collections were found to be closely comparable in all respects to the loaned specimens of South Australian origin with the exception of the seeds, which are slightly smaller (to 2.5 mm long *cf.* mostly *c.* 3 mm long). Although noteworthy, the sample size is clearly too small to draw any taxonomic conclusions from this observation.

There is a degree of uncertainty as to whether the outlying populations in central Australia and Western Australia form part of the natural distribution of *C. crispifolius* or whether it has been introduced to these jurisdictions. Norseman is on the main road route between eastern and Western Australia and so it is conceivable that seed may have been caught up in the undercarriages or wheel arches of one of the very numerous heavy haulage vehicles that ply that route and transported over many hundreds of kilometres. An accidental introduction of this nature seems a less satisfactory explanation for its appearance in the West Macdonnell Range, although this population was recorded from within a hundred metres or so of a camping site (*D. Albrecht* pers. comm.), and is a rather improbable explanation for its occurrence in the Shark Bay area.

It is perhaps more likely that *C. crispifolius* has a wider natural distribution and is under-collected due to it being a disturbance opportunist. It has been noted as more common after fire in Victoria (*Jeanes* 1999) and the population in the West Macdonnell Range was collected from a recently burned site, with recent efforts to relocate plants unsuccessful (*D. Albrecht* pers. comm.). Plants with this biology have seeds with often complex dormancy factors and have the capacity to 'disappear' for extended periods of time between disturbance events (*Baker et al.* 2005). Indeed, the recently described *C. pyrophilus* *O.Nazarova*

& Hislop from southern Western Australia (Nazarova & Hislop 2021) is an excellent example of this phenomenon. Ascertaining the native distribution of such species is inherently problematic without genomic comparison of populations across the species' range.

Convolvulus crispifolius F.Muell., *Linnaea* 25: 423 (1853), as *C. crispifolias* orth. var. *Type*: 'In montibus nudis petraeis aliquot milliaria Anglica directione boreali-orientali a Cudnaka' [South Australia], October 1851, *F. Mueller s.n.* (syn: MEL 1544962 image!, MEL 689518 image!, P 03543958 image!).

Specimens examined. WESTERN AUSTRALIA [localities withheld for conservation reasons]: 29 Sep. 1990, *R. Bates* 24889 (AD); 11 Nov. 1982, *R.J. Cranfield* 2563 (PERTH); 19 Dec. 1992, *M. Lewis* 77/92 (PERTH).

SOUTH AUSTRALIA: Lincoln Hwy, Hundred of Hawker, 16 km S of Elbow Hill, 25 July 1965, *C.R. Alcock* 652 (AD, BRI *n.v.*, PERTH); *c.* 9 km by road SE of Red Tank Dam, *c.* 13 km by road N of 3LO Dam, *c.* 41.5 km direct N of Hypurna HS, Danggali Conservation Park, 12 Sep. 1980, *W.R. Barker* 4323 (AD); 23 km NE of Poochera directly N of Karaultaby, 20 Oct. 1975, *R.J. Chinnock* 2915 (AD); Berri, Jan. 1921, *J.B. Cleland s.n.* (AD); Northern Yorke Peninsula, Hundred of Wiltunga, NW corner of section 168, 31 Aug. 1966, *B. Copley* 571 (AD, K *n.v.*); Eyre Peninsula, Gawler Ranges, Mt Ive, 28 Sep. 1969, *N.N. Donner* 3242 (AD, CANB *n.v.*); Murray District, between Overland corner and Barmera, 25 Sep. 1965, *Hj. Eichler s.n.* (AD); Lower Eyre Peninsula, boundary of reserve at junction of sections 24 & 14, Hundred of Verran, *c.* 95 km NNE of Port Lincoln, 23 Oct. 1963, *R.H. Kuchel* 1470 (AD); Eyre Peninsula, Carriewerloo Station, 500 m NW of Birthday Bank, 10 Oct. 1992, *D.J. Michael* 422 (AD); Hambidge Conservation Park, 30 Sep. 2000, *D.E. Murfet* 3783 (AD *n.v.*, PERTH); Murray [district], Cooltong Conservation Park, junction of main track and W fence, 13 Oct. 1993, *A.G. Spooner* 14529 (AD); Eyre Peninsula, on roadside of Swallows Nest Rd, 76 m W of junction with main Cowell–Whyalla Rd, *c.* 7 km from Cowell, 30 Mar. 2011, *R. Taylor* 1354 (AD, BRI *n.v.*); Eyre Peninsula, sand dunes on E part of Price Beach, 24 Oct. 1983, *H.R. Toelken* 7741 (AD, BRI *n.v.*).

Distribution and habitat. Eastern South Australia, north-western Victoria, south-western New South Wales and a single record from the Northern Territory. In Western Australia there is a record from Norseman and two from the Shark Bay area. The only habitat information associated with the Western Australian specimens is from *R.J. Cranfield* 2563: 'Occasional on degraded paddock. Brown sandy clay.' In his revision of the genus Johnson (2001: 17) gives the following description of its habitat preference elsewhere across the species' range: 'sandy and sandy-loam, sometimes rocky, soils, commonly in mallee scrubs and on sandhills'.

Conservation status. Although there remains some doubt whether the species is native to Western Australia, to take a precautionary approach the species is to be listed as Priority One under Conservation Codes for Western Australian Flora (Tanya Llorens pers. comm.).

Typification. Johnson (2001: 15) cited MEL 1544962 as the holotype and MEL 689518 as an isotype; however, no holotype was designated by Mueller (1853) and, unlike the former, the latter bears his descriptive annotations. These specimens are therefore regarded as syntypes. P 03543958 is also considered a probable syntype despite being dated 1852, which is likely to be date the specimen was received at P.

Identification. *Convolvulus crispifolius* is a highly distinctive species on account of its dense, silvery indumentum and is unlikely to be confused with any other Western Australian species. It can be accommodated in Nazarova and Hislop's (2021) key to the Western Australian species by a modification to the second lead of couplet 1 and the addition of a new couplet, 1a:

- 1: Leaves on individual plants usually variously shaped, basal lobes often further divided into secondary lobes, sometimes the central lobes itself with secondary lobes, or margins undulate-crenate throughout

- 1a.** Leaf margins undulate-crenate throughout; leaf surfaces completely obscured by a dense, appressed, silvery indumentum.....**C. crispifolius**
- 1a:** All or at least some leaves deeply lobed, the individual lobes often further divided; leaf surfaces always readily discernible beneath a sparse to moderately dense indumentum **5**

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References

- Baker, K.S., Steadman, K.J., Plummer, J.A. & Dixon, K.W. (2005). Seed dormancy and germination responses of nine Australian fire ephemerals. *Plant and Soil* 277: 345–358. <https://doi.org/10.1007/s11104-005-7971-9>
- Jeanes, J.A. (1999). Convolvulaceae In: Walsh, N.G. & Entwistle, T.J. (eds) *Flora of Victoria*. Vol. 4. pp. 365–375. (Inkarta Press: Melbourne.)
- Johnson, R.W. (2001). A taxonomic revision of *Convolvulus* L. (Convolvulaceae) in Australia. *Austrobaileya* 6: 1–39. <https://doi.org/10.5962/p.299649>
- Mueller, F.J.H. von (1853). Diagnoses et descriptiones plantarum novarum, quas in Nova Hollandia australi praecipue in regionibus interioribus. *Linnaea: ein Journal für die Botanik in ihrem ganzen Umfange, oder Beiträge zur Pflanzenkunde* 25: 367–445. <https://www.biodiversitylibrary.org/page/112746>
- Nazarova, O. & Hislop, M. (2021). *Convolvulus pyrophilus* (Convolvulaceae), a new post-fire ephemeral, and an updated illustrated key to the Western Australian species. *Nuytsia* 32: 159–165. <https://doi.org/10.58828/nuy01011>

