

# Myosotis ultramafica

## SYNONYMS

Previously specimens of *Myosotis ultramafica* have been annotated with the tag names *Myosotis* sp. "West Dome", *M. aff. lyallii* or *M. sp.* "Mossburn".

## FAMILY

Boraginaceae

## AUTHORITY

Meudt, Prebble & Rance

## FLORA CATEGORY

Vascular – Native

## ENDEMIC TAXON

Yes

## ENDEMIC GENUS

No

## ENDEMIC FAMILY

No

## STRUCTURAL CLASS

Herbs - Dicotyledons other than Composites

## NVS CODE

MYOut

## CHROMOSOME NUMBER

Unknown

## INTERIM CONSERVATION STATUS

2022 | Threatened – Nationally Vulnerable | Qualifiers: DPT, RR | Interim |  
Meudt, H. M., & Prebble, J. M. 2022

## PREVIOUS CONSERVATION STATUSES

2017 | Not Evaluated  
2012 | At Risk – Naturally Uncommon | Qualifiers: Range Restricted

## DISTRIBUTION

New Zealand. South Island: Southland (West Dome, Bald Hill, Livingstone Mountains and Black Ridge).

## HABITAT

On ultramafic substrates including serpentinite, mainly in stonefield and gravel pavements; also within tussockland and mānuka shrubland on hill slopes, spurs, terraces and summit ridges; most commonly associated with *Gingidia decipiens*, *Gentianella serotina*, *Carex uncifolia* and *Wahlenbergia albomarginata*. It also extends into areas dominated by *Poa colensoi*, with *Schoenus concinnus*, *S. pauciflorus*, and *Leptospermum scoparium*, where it is associated with other endemic ultramafic species *Celmisia spedenii*, *Cardamine serpentina*, *Pimelea suteri* and *Brachyscome aff. humilis* (West Dome). Other associated species include *Anisotome aromatica* var. *flabellifolia*, *Celmisia gracilentia*, *Chaerophyllum basicola*, *Chionochloa rubra*, *Colobanthus strictus*, *Craspedia* sp., *Pentapogon avenoides*, *Dracophyllum longifolium*, *Anthosachne* sp., *Epilobium alsinoides*, *Euphrasia zelandica*, *Kelleria dieffenbachii*, *Leptecophylla juniperina*, *Styphelia nesophila*, *Melicytus alpinus*, *Racomitrium lanuginosum*, *Rytidosperma setifolium*, *R. ?buchananii*, *Trisetum* sp., and *Viola cunninghamii*. Elevation: 605–1300 m.



Plants growing on open ultramafic rock field on ridge, Southland Coal Hill. Photographer: Marley Ford, Date taken: 13/03/2023, Licence: CC BY.



Plants growing on open ultramafic rock field on ridge, Southland Coal Hill. Photographer: Marley Ford, Date taken: 13/03/2023, Licence: CC BY.

## DETAILED DESCRIPTION

Single rosette with fibrous roots, sometimes stoloniferous, sometimes clustered with other rosettes forming loose clumps. Rosette leaves 8–12, petiolate; petioles not sheathing, 2.6–16.6 mm long, 0.6–1.6 mm wide; lamina 4.5–11.8 mm long, 1.5–3.8 mm wide (length:width ratio 1.4–4.3:1), widest point above middle, oblanceolate or narrowly obovate, rarely obovate or broadly obovate; apex obtuse (rarely acute), with hydathode on abaxial side; trichomes 0.3–1.1 mm long, straight mostly, some flexuous, adaxially antrorse, appressed, sometimes patent, oriented mostly parallel to the midrib, densely distributed, sometimes overlapping, marginally antrorse, appressed, rarely few patent at base of petiole, densely distributed and overlapping, abaxially antrorse, appressed (sometimes also mixed with some patent), oriented parallel to the midrib, patchily distributed distally and on midrib, or rarely sparsely to densely distributed throughout (Bald Hill); ratio of rosette-leaf trichome length to rosette-leaf length ~0.1:1. Inflorescences 1–9 per rosette, ascending to erect, unbranched, up to 22–71 mm long, partially bracteate (rarely wholly bracteate), with up to 4–7 cauline leaves per inflorescence, and of these, 1–3 associated with flowers; adventitious roots lacking at tips; scape 0.5–0.8 mm wide; trichomes 0.2–1.0 mm long, mostly straight, some flexuous, rarely curved, antrorse, appressed to patent, densely distributed and sometimes overlapping. Lowest cauline leaves generally petiolate; petioles 2.0–5.1 mm long, 0.7–1.2 mm wide; lamina 3.6–7.7 mm long, 1.3–2.6 mm wide (length:width ratio 1.9–3.0:1), widest at or above middle, oblanceolate or narrowly obovate; apex obtuse (rarely acute), with hydathode; trichomes as on rosette leaves. Uppermost cauline leaf sessile; lamina 4.4–8.1 mm long, 1.1–2.3 mm wide (length:width ratio 2.3–5.1, 3.9:1), widest at, below or above middle, lanceolate, narrowly ovate, narrowly oblanceolate or oblanceolate; apex acute; trichomes as on rosette leaves. Flowers up to 3–7 per inflorescence. Internodes up to 3.7 mm long at flowering and up to 8.6 mm long at fruiting. Pedicels up to 1.8 mm at flowering and up to 4.1 mm at fruiting; trichomes 0.2–0.6 mm long, mostly flexuous, some curved or straight, antrorse, appressed to patent, densely distributed and overlapping. Calyx 3.8–5.4 mm long at flowering, 5.4–9.1 mm long at fruiting, 2.2–4.6 mm wide at the top at fruiting; calyx lobes 1.8–3.3 mm long, 0.4–1.1 mm wide at fruiting, lobed to 0.3–0.4× the length of the calyx; trichomes 0.2–0.9 mm long, mostly flexuous, some straight or curved, antrorse only (Bald Hill, Livingstone Mountains) or mix of antrorse and retrorse (West Dome, Black Ridge), appressed to patent, densely distributed and overlapping, and inside densely distributed. Corolla 5.0–6.9 mm wide in diameter (measured) or 6.1–8.4 mm (calculated), white with yellow faucal scales; corolla lobes 2.4–3.2 mm long, 1.4–2.5 mm wide (length:width ratio 1.3–1.7:1), obovate or rarely narrowly obovate, rarely ovate; corolla tube 3.8–6.9 mm long from base to faucal scales, 1.2–2.0 mm wide at faucal scales. Stamens 7.7–7.8 mm long; filaments 0.2–0.4 mm long, attached to corolla tube at base of faucal scales or 0.3–0.7 mm below base of faucal scales, 5.7–6.1 mm from base of corolla tube; anthers 1.4–1.7 mm long, partly exerted, only the tips surpassing faucal scales. Style 6.3–9.2 mm long at flowering and at fruiting. Nutlets 4, 1.4–1.9 mm long, 0.8–1.1 mm wide (length:width ratio 1.8–1.9:1), narrowly ovoid or ovoid, keeled, scarcely rimmed, dark brown.

## SIMILAR TAXA

Plants of the new species often have brown or reddish coloured leaves (although colour is generally not well preserved on herbarium specimens) but populations can have plants with either green or brown colour variants. Differs from *Myosotis lyallii*, *M. brevis*, *M. antarctica*, and *M. umbrosa* in its straight and appressed trichomes on the adaxial side and margins of rosette leaves, unbranched inflorescences, fewer cauline leaves and fewer cauline leaves with flowers; differs from *M. cheesemaniae*, *M. bryonoma*, *M. colensoi*, *M. glabrescens* and *M. glauca* by its partially bracteate inflorescences, and flexuous to curved trichomes on the pedicels and calyces; differs from *M. glauca*, *M. glabrescens* and *M. bryonoma* in its longer anthers (>1.4 mm); differs from *M. glauca* and *M. glabrescens* in its partially included anthers, and densely distributed calyx trichomes. Further *Myosotis ultramafica* by the ultramafica habitat in which it inhabits.

## FLOWERING

Flowering December–February, fruiting January–February.

## THREATS

*Myosotis ultramafica* was listed as At Risk – Naturally Uncommon, Range Restricted, Species by de Lange et al. (2013; as *M. aff. lyallii* (Mossburn, CHR 320240); *Myosotis* (a) (CHR 320240; Mossburn). It was not included in the most recent threat assessment of de Lange et al. (2018) because it was considered synonymous with *M. lyallii* subsp. *elderi* on the basis of the results from Meudt and Prebble (2018). In the recent description of this species it is recommended listing it as Threatened, Nationally Vulnerable B(1) with the qualifiers 'Data Poor Trend' (DPT) and 'Range Restricted' (RR). Because EOO is very low (estimated to be ~32 km<sup>2</sup>) and this species is restricted to ultramafic substrates from only four nearby locations, all in close proximity, RR is recommended as a qualifier. It is estimated that there are in excess of 1000 plants on each of Bald Hill and West Dome (i.e. several to many hundred plants), whereas Black Ridge has a population of a few hundred plants and Livingstone Mountains has a population estimated at less than 100 plants (B. Rance, pers. comm.). However, the qualifier DPT is relevant because it is currently unknown how the population sizes change over time. The major threats to the ultramafic habitat of *M. ultramafica* are fire and weeds (particularly gorse, broom and wilding conifers) (B. Rance, pers. comm., 2021).

More surveys are needed of this species to allow determination of the extent of its geographic range, and collection of additional specimens (particularly of flowering individuals).

## ETYMOLOGY

**myosotis:** Mouse-eared

**ultramafica:** The epithet ultramafica comes from the Latin word 'ultra', meaning 'beyond', and the composite word 'mafic', which was coined for modal ferromagnesian minerals.

## ATTRIBUTION

Fact sheet prepared by Marley Ford (23 March 2023). Distribution, Habitat, features and similar taxa sections copied from Meudt & Prebble (2022).

## REFERENCES AND FURTHER READING

- de Lange P. J., Rolfe J. R., Champion P. D., Courtney S. P., Heenan P. B., Barkla J. W., Cameron E. K., Norton D. A., Hitchmough R. A. 2013. Conservation status of New Zealand indigenous vascular plants, 2012. New Zealand Threat Classification Series 3, 1–70.
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- Meudt H. M., Prebble J. M. 2018. Species limits and taxonomic revision of the bracteate–prostrate group of southern hemisphere forget-me-nots (*Myosotis*, Boraginaceae), including description of three new species endemic to New Zealand. *Australian Systematic Botany* 31, 48–105. doi:10.1071/SB17045
- Meudt, H. M., & Prebble, J. M. 2022. Morphological analyses support recognition of three new threatened species of bracteate–prostrate *Myosotis* (Boraginaceae) endemic to the South Island of Aotearoa New Zealand. *Australian Systematic Botany*, 35(5), 364–394.

## MORE INFORMATION

<https://www.nzpcn.org.nz/flora/species/myosotis-ultramafica/>