

Advice to the Minister for the Environment, Heritage and the Arts from the Threatened Species Scientific Committee (the Committee) on Amendments to the list of Threatened Species under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act)

1. Scientific name (common name)

Sagina diemensis (Pearlwort)

2. Description

Pearlwort is a low, cushion-forming perennial herb in the family Caryophyllaceae (Adams 1996).

The stems of Pearlwort are stoloniferous (trailing with roots forming at the nodes) and up to 10 cm long. The leaves are small and linear with a pointed apex. The flowers have four white petals and are borne singly on an erect stem near the ends of the branches. Flowering has been observed in December and January (Threatened Species Section, Department of Primary Industries and Water (DPIW) 2006; Balmer & Lambourne 2005). The fruit is an egg-shaped capsule bearing numerous, dark seeds. The plant is covered in small hairs with glandular tips (Adams 1996).

Pearlwort occurs in cracks and crevices on exposed dolomite outcrops within subalpine shrublands (Adams 1996), and on sparsely vegetated dolomite ledges close to rivers (Balmer & Lambourne 2005). The altitude range is 340–1050 m above sea level (Threatened Species Section, DPIW 2006). Associated species include: *Austrodanthonia diemenica*, *Oreomyrrhis gunnii*, *Oreoporanthera petalifera*, *Galium australe*, *Senecio leptocarpus*, *Australina pusilla*, *Carex brevifolius*, *Cardamine* sp. and *Poa* sp. (Adams 1996; Balmer & Lambourne 2005). The dolomite outcrops occur in close proximity to *Athrotaxis selaginoides* (King Billy pine) subalpine scrub. The surrounding vegetation includes low subalpine shrubberies or rainforest with thick carpets of mosses and ferns.

3. National Context

Pearlwort is endemic to southwestern Tasmania (Adams 1996). It is known only from two locations: near Mt Anne and the Weld River (Threatened Species Section, DPIW 2006). Both locations occur within the Southwest National Park and the Tasmanian Wilderness World Heritage Area.

Pearlwort is listed as endangered under the Tasmanian *Threatened Species Protection Act 1995*.

4. How judged by the Committee in relation to the EPBC Act criteria

The Committee judges the species to be **eligible** for listing as **endangered** under the EPBC Act. The justification against the criteria is as follows:

Criterion 1 – It has undergone, is suspected to have undergone or is likely to undergo in the immediate future a very severe, severe or substantial reduction in numbers

Survey efforts for Pearlwort are limited by the remote and difficult terrain of its habitat in southwestern Tasmania and the plant being inconspicuous. A survey in 2005 recorded a total of 34 mature individuals. However, this is likely to be a conservative estimate because not all suitable habitat was surveyed.

No estimates of past population size are available from which to reliably determine trends in population size. As the species occurs wholly within a reserve and World Heritage Area, it is

likely to be protected from most human-mediated impacts in the immediate future. The main threats to Pearlwort are trampling by bushwalkers and the potential impacts of fire in dry periods and climate change (Threatened Species Section, DPIW 2006). These threats are likely to be of low risk given the low rate of visitation, the poor flammability of the sites and the fact that most plants are protected in cracks in the dolomite outcrops.

There are insufficient data to assess the species against this criterion.

Criterion 2 – Its geographic distribution is precarious for the survival of the species and is very restricted, restricted or limited

The Committee considers that the geographic distribution of Pearlwort is restricted. The extent of occurrence and area of occupancy are estimated to be 5 km² and less than 0.001 km², respectively (Threatened Species Section, DPIW 2006). The known population of Pearlwort is fragmented and occurs as two subpopulations located about 9 km apart. The geographic distribution of the species also makes it susceptible to stochastic events.

The geographic distribution and fragmentation of Pearlwort are precarious for the survival of the species. Therefore, the species is **eligible** for listing as **endangered** under this criterion.

Criterion 3 – The estimated total number of mature individuals is limited to a particular degree and: (a) evidence suggests that the number will continue to decline at a particular rate; or (b) the number is likely to continue to decline and its geographic distribution is precarious for its survival

The estimated total number of mature individuals is very low. No quantitative data are available to indicate past or future trends in population size (Threatened Species Section, DPIW 2006). Therefore there are insufficient data available to assess the species against this criterion.

Criterion 4 – The estimated total number of mature individuals is extremely low, very low or low

The estimated total number of mature individuals is likely to be very low. In 2005 a total of 34 mature individuals were recorded: 24 at the Mt Anne locality plus ten at the Weld River locality (Balmer & Lambourne 2005; Threatened Species Section, DPIW 2006). However, not all suitable habitat was surveyed: for instance, about half the suitable habitat at the Mt Anne locality was not surveyed. If this is taken into account, the Mt Anne locality is likely to support 50-100 mature individuals (Threatened Species Section, DPIW 2006). In addition, about 90 immature plants, in addition to the ten mature individuals, were recorded at the Weld River locality. When unsurveyed suitable habitat and the continued survival of immature plants are taken into account, the population is likely to number between 60 and 200 plants. Therefore, the species is **eligible** for listing as **endangered** under this criterion.

Criterion 5 – Probability of extinction in the wild

There are no data available to assess the species against this criterion.

5. CONCLUSION

Pearlwort is a small, cushion-forming perennial herb that grows on outcrops or ledges of dolomite. It has a restricted distribution that occurs entirely within the Southwest National Park. Pearlwort is known from only two locations and the total number of mature individuals is estimated to be very low. The species is, therefore, eligible for listing as endangered under criteria 2 and 4.

6. Recommendation

The recommended change in conservation status for the species is due to recent surveys indicating that the total population size is greater than previously recorded. The Committee recommends that the list referred to in section 178 of the EPBC Act be amended by **transferring** from the **critically endangered** category to the **endangered** category:

Sagina diemensis (Pearlwort)

Associate Professor Robert J.S. Beeton

Chair

Threatened Species Scientific Committee

References cited in the advice

Adams, L. (1996). Two new endemic species of *Sagina* L. (Caryophyllaceae) from Australia. *Muelleria* 9:63-66

Balmer, J., and Lambourne, M. (2005). *Sagina diemensis* population report for Weld River Arch. Unpublished report, Biodiversity Conservation Branch, Department of Primary Industries, Water and Environment, Hobart.

Threatened Species Section (2006). Unpublished survey data for *Sagina diemensis*. Held by the Tasmanian Department of Primary Industries and Water, Hobart.