

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)

Centrolepis pedderensis (Pedder Centrolepis)

2. Description

Pedder Centrolepis is a small summer-growing perennial herb (or annual in less favourable sites), forming loose tufts up to 7cm in diameter. Individual tufts are composed of densely packed, narrow leaves up to 3cm long, topped by solitary flower heads (Curtis 1984; Cooke 1992).

Associated plant species include the allied species *Centrolepis monogyna*, *Isolepis sp.* and *Myriophyllum sp.* (Gilfedder 1989). Pedder Centrolepis has been recorded from the sandy alluvium of streams and lakeshores, typically in areas subject to seasonal inundation and drying (Bayly et al. 1972; Cooke 1992; Curtis and Morris 1994). The altitude range of recorded sites is 50–640 m above sea level (Threatened Species Section, Tasmanian Department of Primary Industries, Water & Environment (DPIWE), unpublished data, 2005).

3. National Context

Pedder Centrolepis is endemic to southwestern Tasmania (Curtis 1984). The only known extant subpopulation is on the shores of a lake in the Frankland Ranges, Southwest National Park, a remote part of the Tasmanian Wilderness World Heritage Area. Two previously recorded subpopulations were lost in the development of Middle Gordon hydroelectric power scheme in the 1970s.

The species is currently listed as endangered under the Tasmanian *Threatened Species Protection Act 1995* which is the highest category of threat under Tasmanian legislation.

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

The species is currently known from a single subpopulation of 100-150 clumps at the margins of a lake in a remote part of southwest Tasmania. Since 1972, a number of targeted surveys have been undertaken for Pedder Centrolepis (Bayly et al. 1972; Curtis 1984; Threatened Species Section, DPIWE, unpublished data, 2005). These surveys failed to locate any further subpopulations of the species, however a number of unsurveyed small glacial lakes and tarns in the Frankland, Wilmot and Companion Ranges could potentially support other subpopulations.

Two of the three formerly-known Pedder Centrolepis subpopulations are extinct through activities associated with the development of the Middle Gordon power scheme in the 1960s and 1970s . The Lake Pedder subpopulation was lost through direct inundation in 1972 (McKenry 1972; Bayly et al. 1972). The Gordon River subpopulation is thought to have been lost through regulated river

flows subsequent to the commissioning of the two turbines at the Middle Gordon power station in 1977 (Wilde 1978; Lupton 1999). The construction and operation of the third turbine to support the Basslink Power Scheme is likely to result in further decreased colonisation opportunities for the species along the Gordon River.

There is no information on the size of the extinct subpopulations prior to their loss. However, if an assumption is made that the populations were of a similar size to the existing population, then the number of individuals is likely to have undergone a decline of at least 67% in the 10 years after 1972.

While climate change may be a significant future threat to the remaining subpopulation of this species, the severity of climate change, and its impact upon this species is unknown.

As the true population numbers prior to 1972 are unknown, the generation length of the species is unknown, and the potential threat from climate change is not quantifiable, there are insufficient data available 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 this species is limited. Despite botanical surveys of appropriate habitat, it is currently known to exist only at a single location (Threatened Species Section, DPIWE, unpublished data, 2005). The known extent of occurrence of this species is 0.006 km², and its area of occupancy is less than 0.001 km² (Threatened Species Section, DPIWE, unpublished data, 2005).

There is no evidence that the Pedder *Centrolepis* is subject to continuing decline or to extreme fluctuations in its extent or numbers. The species occurs at a remote locality entirely within a conservation reserve and is largely protected from human effects. However, its limited geographic distribution makes the species amenable to catastrophic events. Its geographic distribution is, therefore, precarious for its survival and the species is **eligible** for listing as **vulnerable** 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

Pedder *Centrolepis* is known from a single subpopulation of approximately 100–150 clumps, where each clump may contain one or several plants. The total number of mature individuals is therefore likely to be very low. However, despite past declines, there is no evidence of a continuing decline in this species. As such, the species is **not eligible** for listing under this criterion.

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

Pedder *Centrolepis* is known from a single subpopulation of approximately 100–150 clumps, where each clump may contain one or several plants. The total number of mature individuals is therefore likely to be very low. Therefore, the species is **eligible** for listing as **endangered** under this criterion.

Criterion 5 – Probability of extinction in the wild

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

5. CONCLUSION

Pedder *Centrolepis* is endemic to southwestern Tasmania (Curtis 1984), where it is currently known from a single population of 100-150 clumps. Two previously recorded subpopulations were lost in the development of Middle Gordon hydroelectric power scheme in the 1970s. The known extent of occurrence of this species is 0.006 km², and its area of occupancy is less than 0.001 km². Its limited geographic distribution and very low number of mature individuals make Pedder *Centrolepis* vulnerable to human effects or catastrophic events. Therefore the species is **eligible** for listing as **vulnerable** under criterion 2 and as **endangered** under criterion 4.

6. Recommendation

The recommended change in conservation status for this species takes into account recent survey information about its geographic distribution and total population size. The Committee recommends that the list referred to in section 178 of the EPBC Act be amended by **transferring** from the **vulnerable** category to the **endangered** category:

Centrolepis pedderensis (Pedder *Centrolepis*)

Associate Professor Robert J.S. Beeton

Chair

Threatened Species Scientific Committee

References cited in the advice

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