

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)

Prasophyllum incorrectum (Golfers Leek-orchid)

2. Description

The Golfers Leek-orchid is a small fleshy terrestrial orchid with a single erect green onion-like leaf up to 30 cm (Jones, 2003). The flowering stem has a spike of widely opening reddish-brown, fragrant flowers (Jones, 2003). The Golfers Leek-orchid can be distinguished from the closely allied species *Prasophyllum correctum* on the basis of flower colour, which is reddish-brown for the former and yellowish-green for the latter.

The Golfers Leek-orchid occurs in relatively damp native grasslands on grey sandy loam soils dominated by *Themeda triandra* (Kangaroo Grass), and in grassy woodland with eucalypts and *Banksia marginata* (Jones, 2003).

3. National Context

The Golfers Leek-orchid is endemic to Tasmania where it is restricted to three subpopulations in the state's Northern Midlands region. These subpopulations are believed to represent the last remains of a once more widespread population that has been destroyed by clearance of native grassland habitat. One subpopulation is confined to a few hectares on the 'rough' of a privately owned golf course, and the other two subpopulations are represented by one to two plants found during surveys on private properties to the north of the golf course (Department of Primary Industries, Water & Environment (DPIWE), 2000a).

The Golfers Leek-orchid was first discovered in Tasmania in 1995. It was initially thought to be *Prasophyllum correctum*, however it has now been recognised as a separate species (Jones, 2003; Orthia *et al.*, 2003).

The Golfers Leek-orchid 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 **critically 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

Based on available data, collected in 1995 and 1999, there are three subpopulations of Golfers Leek-orchid known from Tasmania's Northern Midlands. Extensive survey efforts over the last 20 years, which had a particular focus on orchids, have failed to find additional populations (Fensham, 1989; Kirkpatrick *et al.*, 1989; Gilfedder & Kirkpatrick, 1993).

Native grasslands in Tasmania's Midlands have been extensively cleared and/or converted to exotic pasture since European settlement. Remnants are largely confined to small areas on private property, roadsides, rail reserves and rural cemeteries (Kirkpatrick *et al.*, 1989; McDougall &

Kirkpatrick, 1994). It is likely that the remaining Golfers Leek-orchids represent the last remnants of a once more widespread population.

Remaining populations of Golfers Leek-orchids are subject to a number of potential threats, including inappropriate grazing and slashing regimes, inappropriate fire regimes, use of recycled effluent for irrigation purposes, use of herbicides and fertilisers, competition from exotic pasture and invasion by weeds.

However, a lack of historical survey information means there are no quantitative data available to indicate past trends in the population size of the species, nor any current information on the likelihood or rate of future decline. Therefore the species is **not eligible** for listing in any category under this criterion.

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

The geographic distribution of this species is very restricted, occurring at three sites, with a linear extent of 27 km, in Tasmania's Northern Midlands. The extent of occurrence of this species is 60 km² and the area of occupancy is 0.03 km² (DPIWE, 2000a, 2000b, 2005).

Tasmania's Midlands have been the subject of extensive botanical survey over the past 20 years with particular focus on threatened orchids. The likelihood of additional populations of the Golfers Leek-orchid being discovered outside its currently known extent is low given past survey efforts.

The habitat of the Golfers Leek-orchid is severely fragmented. The species has persisted in the native grasslands of the 'rough' of a golf course due to a fortuitous combination of regular slashing, lack of fertiliser application and a relatively light grazing regime. The golf course is now covered by a Conservation Covenant under the Tasmanian *Nature Conservation Act 2002* which prohibits any activity which may be considered detrimental to the area's native grasslands and threatened plants. However, changes in management practices, particularly burning, grazing and slashing regimes, use of recycled effluent for irrigation and fertiliser use are considered the most serious potential threat to the survival of the Golfers Leek-orchid and would likely result in a decline in geographic distribution. The status of the other two subpopulations, which consist of one to two individuals, is unclear but the habitat of one subpopulation is believed to have been degraded in the past through fertiliser application (DPIWE, 2000b).

Based on studies of the closely related *Prasophyllum correctum*, it is reasonable to expect year to year fluctuations in the number of flowering plants in response to uncertain environmental triggers and particular life cycle characteristics (Jones *et al.*, 1999).

As a result of these potential threats, a decline in the quality of the Golfers Leek-orchid's habitat is likely to occur. The very restricted area of occupancy of this species, when combined with likely ongoing habitat declines, population structure and population fluctuations makes the geographic distribution of this species precarious for its survival. Therefore the species is **eligible** for listing as **critically 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 population of the Golfers Leek-orchid was estimated at 1500 mature individuals in 1995 and 1000 mature individuals in 1999, with the decrease in numbers being attributed to unspecified seasonal conditions (DPIWE, unpubl. data, 2005). Plants may not appear every year and may survive under the ground in a dormant state for up to 5 years (Coates *et al.*, 1999).

Plant longevity and age at reproductive maturity have yet to be determined for the species. Coates *et al.* (1999) concluded that it was virtually impossible to correlate life history stages with plant age for the closely allied *Prasophyllum correctum*, due to the difficulty in observing seedling recruitment and the fact that ‘plants may return to a sterile state resembling very young plants after flowering the previous year.’

It is therefore difficult to determine the total number of mature individuals in the population, though it is not likely to be substantially larger than 1500 plants. It is also difficult to determine whether the changes in population size are indicative of longer term trends or simply reflect natural fluctuations in above-ground population size.

One subpopulation of the Golfers Leek-orchid is found at a golf course, with only one to two plants recorded from the other two known subpopulations.

In addition, reductions in the number of mature individuals are likely in the future, due to a range of potential threats to all subpopulations.

Despite some uncertainty regarding the exact number of mature individuals of the Golfers Leek-orchid, the total number of mature individuals is likely to be low and its geographic distribution is precarious for its survival in the light of potential threats. Therefore the species is **eligible** for listing as **endangered** under this criterion.

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

The population of the Golfers Leek-orchid has been estimated at between 1000 and 1500 (DPIWE, 2000a). The estimated total number of mature individuals is not considered low for the purposes of Criterion 4. Therefore the species is **not eligible** for listing in any category under this criterion.

Criterion 5 — Probability of extinction in the wild

No quantitative (statistical) analyses have been carried out to estimate a probability of extinction of the species in the wild over a relevant timeframe. Therefore the species is **not eligible** for listing in any category under this criterion.

5. CONCLUSION

Conservation Status

The Golfers Leek-orchid is known to occur at three locations in Tasmania’s Northern Midlands. The species has an estimated extent of occurrence of 60 km² and an estimated area of occupancy of 0.03 km². The primary subpopulation occurs in the ‘rough’ of a golf course on native grasslands dominated by Kangaroo Grass, whilst only one to two individuals occur at each of the other two subpopulations to the north.

Potential threats to the subpopulation at the golf course include a change in management practices affecting the native grassland habitat of the species, particularly changes to grazing and slashing regimes, the use of recycled effluent for irrigation and the use of fertilizers. The status of the other two subpopulations, which consists of only a few individuals, is uncertain but they are likely to be subject to similar potential threats. Therefore, as a result of its very restricted geographic distribution which is precarious for its survival, and the low number of individuals which is likely to decline, the Golfers Leek-orchid is **eligible** for listing as **critically endangered** under criterion 2 and **endangered** under criterion 3.

Recovery Plan

The Committee recommends that there be a recovery plan for the species. The Tasmanian Government's Tasmanian Orchids Recovery Plan addresses this species and may be suitable for adoption after minor variation.

6. Recommendations

- i) The Committee recommends that the list referred to in section 178 of the EPBC Act be amended by **including** in the list in the **critically endangered** category:

Prasophyllum incorrectum (Golfers Leek-orchid)

- ii) The Committee recommends that there be a recovery plan for this species

Associate Professor Robert J. S. Beeton

Chair

Threatened Species Scientific Committee

References cited in the advice

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