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 crebriflorum (Crowded Leek-orchid)

2. Description

The Crowded Leek-orchid is a small fleshy terrestrial orchid with a single green onion-like leaf which grows to 26 cm long. The flowering stem emerges from the end of the leaf and has a spike of crowded, widely opening reddish-brown flowers. Flowering occurs in late November and December.

The species' montane grassland habitat is dominated by the grass *Poa labillardierei*; associated herbs include *Herpolirion novae-zelandiae*, *Trachymene humilis* and *Diuris monticola*, with the woody shrub *Hakea microcarpa* an occasional presence.

3. National Context

The Crowded Leek-orchid is endemic to north-western Tasmania, where it is known from two sites in the Surrey Hills area to the southeast of Hellyer Gorge (Jones, 2003).

The Crowded Leek-orchid is not currently listed under the Tasmanian *Threatened Species Protection Act 1995*, however the Tasmanian government is preparing to list it as **endangered**.

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 Crowded Leek-orchid is now confined to two subpopulations within montane grassland habitat in the Surrey Hills area of north-western Tasmania. The estimated total number of mature individuals of the Crowded Leek-orchid is between 125 and 135 mature individuals. It is likely that this represents the remnant of a once more widespread population that has been fragmented since European settlement.

Considerable areas of potential habitat for the Crowded Leek-orchid in Tasmania's northwest are thought to have been lost through land clearance and associated activities since European settlement, with the demise of an unknown number of plants. Montane grasslands in the area have been impacted upon by conversion to *Eucalyptus nitens* and *Pinus radiata* plantation since the 1950s, a process that has accelerated over the past 20 years (Kirkpatrick & Duncan, 1987). In addition, at least some of the native grasslands in the key Surrey Hills area are known to have been aerially fertilised to improve grass quality (for cattle grazing) in the post–1950s period, and have also been subjected to regular spring burns (Craven, 1998).

However, there is insufficient evidence to quantify the degree to which the Crowded Leek-orchid has undergone a reduction in numbers. Due to the threats outlined above, the species may undergo a further decline in the number of individuals in the future, however there is insufficient information

to quantify this 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 Crowded Leek-orchid is endemic to north-western Tasmania, where it is known from two subpopulations, 2.7 km apart, in the Surrey Hills area to the southeast of Hellyer Gorge (Jones, 2003). The species has an area of occupancy of 0.007 km^2, consisting of two discrete subpopulations that occur within an area of 100 by 50 m and 80 by 20 m, respectively (DPIWE, 2005).

The species' montane grassland habitat in north-western Tasmania has been the subject of increasing botanical interest over the past 25 years (Kirkpatrick & Duncan, 1987), with a particular focus on private land in the species' known stronghold at Surrey Hills (Gilfedder, 1995; Craven, 1998). Targeted surveys for the Crowded Leek-orchid were undertaken in the Surrey Hills grasslands in December 2000 and January 2001 (DPIWE, 2005). Grasslands on land managed by Forestry Tasmania in adjacent areas have also been subject to recent surveys (e.g., Craven *et al.*, 2000; Johnson, 2003).

Estimates of area of occupancy are based on field observations and are considered a close representation of the actual geographic distribution. The likelihood of additional Crowded Leek-orchid subpopulations being discovered outside its currently known extent of occurrence is considered to be low given past survey efforts.

The species occurs on private land, and changes to current land management practices have the potential to adversely impact the species. Potential threats to the species include inappropriate fire frequencies, land clearance and conversion of the species' montane grassland habitat.

In addition, at least some of the native grasslands in the key Surrey Hills area are known to have been aerially fertilised to improve grass quality (for cattle grazing) in the post–1950s period, and have also been subjected to regular spring burns (Craven, 1998). The addition of fertilisers to native grasslands may dramatically change the soil of an area, usually to the detriment of orchids. Not only are orchids hampered by the increased competition created by invigorated growth of pasture plants and weeds, but they also suffer as their mycorrhizal fungus takes up phosphorus and quickly concentrates phosphates to a toxic level (Jones *et al.*, 1999).

The Crowded Leek-orchid has a restricted geographic distribution which due to the threats to the species' grassland habitat, makes it 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 Crowded Leek-orchid is confined to two subpopulations within montane grassland habitat in the Surrey Hills area of north-western Tasmania. The estimated total number of mature individuals of the Crowded Leek-orchid is between 125 and 135 mature individuals.

The species occurs on private land, and changes to current land management practices have the potential to adversely impact the species. Potential threats to the species include inappropriate fire frequencies, land clearance and conversion of the species' montane grassland habitat. In addition, at least some of the native grasslands in the key Surrey Hills area are known to have been aerially fertilised to improve grass quality (for cattle grazing) in the post–1950s period, and have also been subjected to regular spring burns (Craven, 1998).

However, there is insufficient evidence to determine the degree to which the Crowded Leek-orchid has undergone a reduction in numbers. Due to the threats outlined above, the species may undergo a further decline in the number of individuals in the future, however there is insufficient information to quantify this decline. Therefore the species is **not eligible** for listing in any category under this criterion.

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

The Crowded Leek-orchid is confined to two subpopulations within montane grassland habitat in the Surrey Hills area of north-western Tasmania. The estimated total number of mature individuals of the Crowded Leek-orchid is between 125 and 135 mature individuals. The estimated total number of mature individuals of the species is very low, and therefore the species is **eligible** for listing as **endangered** 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 Crowded Leek-orchid is endemic to north-western Tasmania, where it is known from two sites in the Surrey Hills area to the southeast of Hellyer Gorge. The estimated total number of mature individuals of the Crowded Leek-orchid is between 125 and 135 mature individuals. The species occurs on private land, and changes to current land management practices have the potential to adversely impact the species. Potential threats to the species include inappropriate fire frequencies, land clearance and conversion of the species' montane grassland habitat. The Crowded Leek-orchid is **eligible** for listing as **endangered** under criteria 2 and 4.

Recovery Plan

The Committee recommends that the Crowded Leek-orchid not have a recovery plan at this time. Local actions are being undertaken to assist the species, therefore the approved Conservation Advice for the species provides sufficient direction to implement priority actions and manage key threats. However, at the time the Tasmanian Government's Tasmanian Orchids Recovery Plan is revised, the Minister could make a subsequent decision to have a recovery plan for the species.

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 crebriflorum* (Crowded Leek-orchid)**

ii) The Committee recommends that there not be a recovery plan for this species at this time.

Associate Professor Robert J. S. Beeton

Chair

Threatened Species Scientific Committee

References cited in the advice

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