

**Approved Conservation Advice for  
*Corybas sulcatus* (grooved helmet-orchid)**  
(s266B of the *Environment Protection and Biodiversity Conservation Act 1999*)

This Conservation Advice has been developed based on the best available information at the time this Conservation Advice was approved; this includes existing plans, records or management prescriptions for this species.

### Description

*Corybas sulcatus* (grooved helmet-orchid), Family Orchidaceae, is a small, deciduous, tuberous terrestrial orchid that forms small clonal colonies. Leaves are solitary, circular (12–20 mm diameter) and flat to shallowly concave. They are light green above and silvery green beneath, with a thick-textured blade and fleshy leaf stalk 12–16 mm long. Flowers are 25–30 mm long and 10–14 mm wide, mostly dark red and held erect on a fleshy, green stalk that is 5–7 mm long (Clements and Jones, 2007).

### Conservation Status

The grooved helmet-orchid is listed as **critically endangered**. This species is eligible for listing as critically endangered under the *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth) (EPBC Act) as it has a very restricted geographic distribution which is precarious for its survival given several known and potential threats, the limited number of sites and presumed low genetic diversity (TSSC, 2012).

The species is also listed as endangered under the Tasmanian *Threatened Species Protection Act 1995*.

### Distribution and Habitat

The grooved helmet-orchid is endemic to Macquarie Island. It is known from four sites on the plateau uplands at 80–150 m in elevation (Skotnicki et al., 2009). The species grows in wet grassy seepage areas (Clements and Jones, 2007) along the eastern side of the Sawyer Creek valley, beside drainage lines in the Green Gorge North basin, and in the Red River basin near drainage lines leading into a small lake and Red River (Skotnicki et al., 2009). The total number of individuals is estimated to be greater than 12 600; however as the species propagates vegetatively, the number of genetically distinct individuals is likely to be considerably less (Skotnicki et al., 2009).

The species mainly occurs in short herb vegetation dominated by *Festuca contracta*, *Agrostis magellanica* and *Luzula crinita* (Skotnicki et al., 2009) with mosses and liverworts (Clements and Jones, 2007).

The grooved helmet-orchid has an estimated area of occupancy of less than 1 km<sup>2</sup>. Recent data and maps (Skotnicki et al., 2009) indicate that the extent of occurrence of the grooved helmet-orchid is less than 10 km<sup>2</sup>. The distribution of this species is not known to overlap with any EPBC Act-listed threatened ecological community.

### Threats

The main identified threats to the grooved helmet-orchid are rabbits and other introduced species. Rabbits dig and scratch at the vegetation, deposit faeces that can smother plants and disturb the soil. Introduced slugs have been observed eating the leaves of the grooved helmet-orchid (Bryant and Shaw, 2007; DPIPWE, 2011).

The main potential threat to species is the drying effect of climate change, given its preferred habitat of wet, grassy seepage sites (DPIPWE, 2011).

## Research Priorities

Research priorities that would inform future regional and local priority actions include:

- Design and implement a monitoring program for known populations, to report on health, recruitment, population size, ecological requirements and the response of the species to threatening processes (including rabbits and other introduced species, and seasonal conditions).
- Undertake survey work in suitable and potential habitat to locate any additional populations.
- Undertake seed germination and/or vegetative propagation trials to determine the requirements for successful establishment, including mycorrhizal association trials.
- Undertake genetic analyses to identify populations with low genetic diversity that might benefit from artificial introduction of genetic material from other populations on Macquarie Island.

## Priority Actions

The following priority recovery and threat abatement actions can be undertaken to support the recovery of the grooved helmet-orchid:

### Habitat Loss, Disturbance and Modification

- Monitor the progress of recovery, including the effectiveness of management actions and the need to adapt them if necessary.
- Ensure there is no disturbance in areas where the grooved helmet-orchid occurs, excluding necessary actions to manage the conservation of the species.
- Manage any changes to hydrology that may result in changes to water table levels.
- Manage any other known, potential or emerging threats including introduced species that may have a deleterious impact on the grooved-helmet orchid.

### Trampling, Browsing or Grazing

- Continue to implement the Macquarie Island Pest Eradication Program for the eradication of introduced rabbits and rodents on Macquarie Island.
- Until rabbits are successfully eradicated, manage grazing pressure at important sites through exclusion fencing.

### Enable recovery of additional sites and/or populations

- Monitor populations for the appearance of seeds and if found, undertake appropriate seed collection for long-term storage at the Tasmanian Seed Conservation Centre.
- Undertake appropriate mycorrhizal fungi collection and storage.
- Investigate options for linking known populations or establishing additional populations on Macquarie Island.
- Implement national translocation protocols (Vallee et al., 2004) if establishing additional populations is considered necessary and feasible.

This list does not necessarily encompass all actions that may be of benefit to the grooved helmet-orchid but highlights those that are considered to be of highest priority at the time of preparing the Approved Conservation Advice.

## Existing Plans/Management Prescriptions that are Relevant to the Species

- Macquarie Island Pest Eradication Plan - Part A Overview March 2007 (DPIPWE, 2009).
- Macquarie Island Nature Reserve and World Heritage Area Management Plan 2006 (DPIPWE, 2008a).
- Macquarie Island Pest Eradication Project Plan July 2008 (DPIPWE, 2008b).

These prescriptions were current at the time of publishing; please refer to the relevant agency's website for any updated versions.

## References cited in the advice

Bryant S and Shaw J (2007). Threatened species assessment on Macquarie Island, Voyage 5, April 2007. Biodiversity Conservation Branch, Department of Primary Industries and Water.

Viewed: 11 August 2011

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[http://www.dpiw.tas.gov.au/inter.nsf/Attachments/LJEM-76C89W/\\$FILE/Macquarie%20Island%20Report%202007.pdf](http://www.dpiw.tas.gov.au/inter.nsf/Attachments/LJEM-76C89W/$FILE/Macquarie%20Island%20Report%202007.pdf)

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Skotnicki ML, Copson GR, Doube J, Gadd L, Selkirk-Bell JM and Selkirk PM (2009). Biology and population studies of two endemic *Nematoceras* (orchid) species on sub-antarctic Macquarie Island. Papers and proceedings of the Royal Society of Tasmania 143(1): 1–11.

Threatened Species Scientific Committee (TSSC) (2012). Listing Advice for *Corybas sulcatus* (grooved helmet-orchid).

Vallee L, Hogbin T, Monks L, Makinson B, Matthes M and Rossetto M (2004). Guidelines for the translocation of threatened plants in Australia – second edition, Australian Network for Plant Conservation, Canberra.