

# THREATENED SPECIES SCIENTIFIC COMMITTEE

Established under the *Environment Protection and Biodiversity Conservation Act 1999*

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The Minister's delegate approved this Conservation Advice on 01/04/2016.

## Conservation Advice

### *Prasophyllum milfordense*

Milford leek-orchid

#### Conservation Status

*Prasophyllum milfordense* (Milford leek-orchid) is listed as Critically Endangered under the *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth) (EPBC Act). The main factors that are the cause of the species being eligible for listing in the Critically Endangered category are its very restricted geographic distribution that is precarious for its survival due to its very restricted extent of occurrence and area of occupancy, single population, and its very low number of mature individuals (TSSC 2001).

*Prasophyllum milfordense* (Milford leek-orchid) is listed as Endangered in Tasmania under the *Threatened Species Protection Act 1995*.

#### Description

The Milford leek-orchid belongs to a group of orchids commonly known as leek-orchids because the erect hollow leaf has some resemblance to that of a leek. *Prasophyllum* species are herbaceous perennial terrestrials with small, fleshy, round or oval tubers and a few fleshy, irregular roots. Most species are dormant over summer and autumn and begin growth in early winter. The single leaf is reddish at the base as opposed to green in onion orchids (*Microtis* species). The flower spike emerges through the side of the leaf above the middle, with the portion of leaf above the point of emergence being free and often withered by the time the flowers open. The flower spike bears many flowers that are held upside-down and are often fragrant. The labellum (lower petal) often has prominent wavy or frilly margins (TSS 2013).

The Milford leek-orchid has a dark green leaf with a red to purple base; the leaf is 30–65 cm long, the free part 6–12 cm long. When in flower, plants are up to 80 cm tall, with 5–30 flowers in a narrow, loose spike 6–22 cm long. The flowers are slightly fragrant, 9–12 mm long and 8–10 mm wide, and have greenish-brown sepals, white petals with greenish or purplish markings and a white labellum. The lateral sepals spread widely. The petals widen towards the apex and are 6–8 mm long and 2.2 mm wide; are upswept and spreading to incurved. The labellum is sharply recurved at right angles near the middle, the apex level with the lateral sepals or protruding through them; it has irregularly crinkled margins. The fleshy green callus on the labellum is channelled centrally and extends just beyond the bend on the labellum (Jones 1998, Jones et al. 1999).

The Milford leek-orchid is similar to two other species: *Prasophyllum apoxychilum* and *Prasophyllum truncatum*. The Milford leek-orchid is taller than these species when in flower. It can be distinguished from *Prasophyllum apoxychilum* by its wider petals, blunt labellum and callus without papillae (small projections), and from *Prasophyllum truncatum* by its wider petals, less sharply recurved labellum and callus without papillae (TSS 2013).

#### Distribution

The Milford leek-orchid is endemic to Tasmania and is known from a single site on private property at Cambridge, close to Hobart Airport. The species has a linear range of 0.7 km, with an extent of occurrence and area of occupancy of less than 2 km<sup>2</sup> (TSS 2013).

In 2012 the single known population of the Milford leek-orchid was estimated to be 240 plants. The number of emergent plants varies greatly from year to year; no plants were recorded in 2008 following several years of drought (TSS 2013).

Most plants have been observed within an area of 0.05-0.06 km<sup>2</sup> (5–6 ha). A single plant was found in 1995 a few hundred metres from the main patch, on land owned by the Hobart Airport, but has not been observed since. The habitat is overgrown and the orchids, if present, are unlikely to become apparent without a fire. It is considered unlikely that the species will be found beyond the immediate vicinity of the known sites, as targeted searches over several years by orchid enthusiasts and Department of Primary Industries, Parks, Water and Environment (DPIPWE) personnel in apparently suitable habitat have failed to locate further plants (TSS 2013).

The Milford leek-orchid is afforded some protection from clearing through the forest practices system, with a Forest Practices Plan required for the clearing of any trees in habitat containing threatened species or threatened vegetation communities. The Cambridge population occurs in *Eucalyptus viminalis* – *Eucalyptus globulus* coastal forest and woodland (Harris and Kitchener 2005), a vegetation community listed as threatened under the *Tasmanian Nature Conservation Act 2002* (TSS 2013).

### Relevant Biology/Ecology

The species grows in open woodland dominated by white gum (*Eucalyptus viminalis*), with a dense ground cover of sagg (*Lomandra longifolia*). Soils are well-drained, grey sandy loams. The altitude of the site is 5–10 m above sea level, and the mean annual rainfall is about 500 mm (TSS 2013).

The labellum produces quantities of nectar on which a wide range of insects feed. Some of these insects, particularly native bees, wasps and beetles, are effective pollinators (TSS 2013). Reproduction is solely from seed (D.L. Jones 2001, pers. comm.).

Prior to European settlement the species' habitat is likely to have experienced irregular hot summer fires. Since European settlement, the Cambridge site has been burned as a part of the property management (Property owner, pers. comm.). Fire is suspected to have played a role in maintaining habitat for the Milford leek-orchid. However, low numbers of flowering plants were observed following two different fuel reduction burns at the Cambridge site. This has been attributed to the timing of the burns, as lower than average rainfall occurred for the following two seasons. Drought following fire may limit recruitment and reduce plant health, resulting in plant mortality (TSS 2013).

### Threats

Table 1 – Threats

Threat factor	Threat type	Threat status	Evidence base
Invasive species			
Rabbits	known	current	Rabbits pose an ongoing threat to the species, occurring in high numbers throughout the Cambridge property. Rabbits dig up orchid tubers during dry seasons. While their digging may help to maintain an open habitat suitable for the species' growth or germination, the destructive impacts of rabbits are likely to result in a net loss of plants over time, as observed by other researchers (Scade et al. 2006).

Habitat loss, disturbance and modifications			
Land clearance	known potential	past future	<p>The Milford leek-orchid is likely to have been severely fragmented by past clearing. Loss of habitat in the Cambridge area as a result of residential and/or commercial development remains a threat to any potential populations (TSS 2013).</p> <p>The current landowners of the Cambridge site are sympathetic to, and appreciate the conservation needs of the Milford leek-orchid. However, if the property were to change hands there may be a real threat of inappropriate management or even clearing if new owners are unaware of the presence of the species on the property (TSS 2013).</p>
Unforeseen disturbance events	potential	future	Due to the localised nature of the known population the species is considered to be at risk of decline from unforeseen human activities or chance events (TSS 2013).
Change to Rainfall patterns	potential	future	The Milford leek-orchid occurs at a site of naturally low rainfall. However, even minor shifts in average seasonal conditions have the potential to exacerbate the species' precarious position by increases in the severity and frequency of drought (TSS 2013).
Fire			
Fire frequency	potential	future	Prolonged lack of fire may lead to a dense understorey that potentially out-competes the species (TSS 2013).

## **Conservation Actions**

### **Conservation and Management priorities**

#### Invasive species

- Maintain rabbit-proof fencing enclosing the Cambridge site.
- Control rabbits at the Cambridge site.

#### Habitat loss disturbance and modifications

- Prevent habitat disturbance. Control access routes by installing fencing and gates to manage access on private land.
- Ensure land managers are aware of the species' occurrence and provide protection measures against key and potential threats.

#### Fire

- Continue to implement a fire management plan for the Cambridge site, promoting suitable habitat for the Milford leek-orchid.
- Critically, any use of prescribed or experimental fires must be very well justified, and is typically an action of last resort. There must be a carefully planned weed management strategy and demonstrated funding to ensure post-fire monitoring and control actions

occur (eg weed control based on sound scientific evidence). Burning should occur only when the plants are dormant.

- Provide maps of known occurrences to local and state Rural Fire Services and seek inclusion of mitigation measures in bush fire risk management plan/s, risk register and/or operation maps.

#### Breeding, propagation and other exsitu recovery actions

- Continue collecting seed and mycorrhizal fungi.
- Continue conducting germination testing with the aim of establishing an ex situ holding at the Royal Tasmanian Botanic Gardens.

#### Stakeholder Engagement

- Continue to liaise with private landowner/s to pursue and/or implement increased security of the known site through vegetation management agreements or conservation covenants.
- Continue to liaise with DPIPWE personnel and Wildcare group volunteers to undertake survey and monitoring of the Milford leek-orchid.
- Continue to provide information and extension support to relevant Natural Resource Management committees, local councils, government agencies and local communities on the locality, significance and management of known populations and areas of potential habitat.
- Prepare and implement a management strategy with input from local experts.

#### **Survey and Monitoring priorities**

- Continue to undertake surveys during its flowering period, early to late November, with the precise timing being dependent upon seasonal conditions.
- Continue annual monitoring baseline surveys at the Cambridge site using the 130 m long demographic transect established in 2009.
- Undertake survey work in suitable habitat and potential habitat to locate any additional populations/occurrences/remnants.

#### **Information and research priorities**

- Investigate options for linking, enhancing or establishing additional populations.
- Fire trials should only be undertaken as a last resort when all other means of regeneration of the species has been investigated and, in addition, all weed management and fire impacts including the timing of fire impacts are fully understood.
- Undertake seed germination and/or vegetative propagation trials to determine the requirements for successful translocation.
- Implement an annual census to monitor emergence and resprouting success.

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