



# *Prasophyllum milfordense*

milford leek-orchid

TASMANIAN THREATENED SPECIES LISTING STATEMENT

Image by Oberon Carter

**Scientific name:** *Prasophyllum milfordense* D.L. Jones *Austral Orch. Res.* 3:107 (1998)

**Common name:** milford leek-orchid (Wapstra et al. 2005)

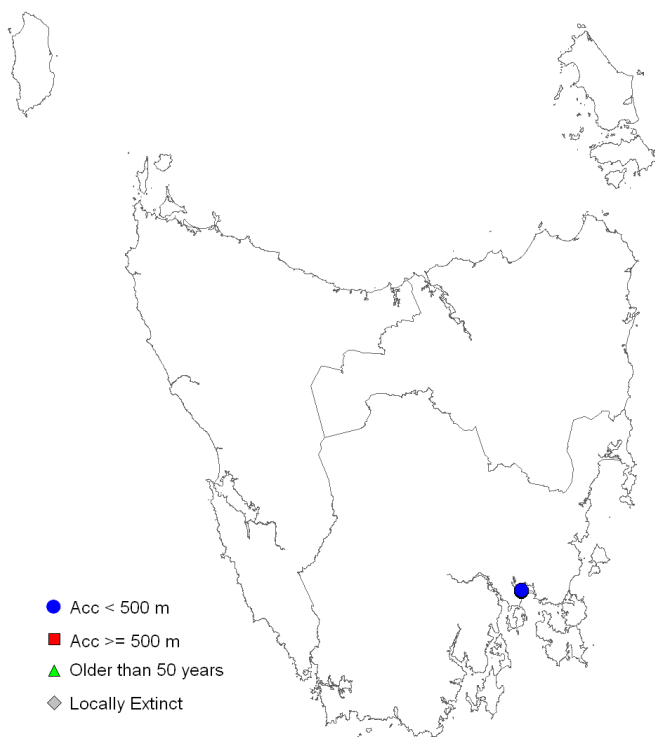
**Group:** vascular plant, monocotyledon, family **Orchidaceae**

**Status:** *Threatened Species Protection Act 1995:* **endangered**

*Environment Protection and Biodiversity Conservation Act 1999:* **Critically Endangered**

**Distribution:** Endemic status: **Endemic to Tasmania**

Tasmanian NRM Region: **South**



**Figure 1.** Distribution of *Prasophyllum milfordense*, showing Natural Resource Management regions



**Plate 1.** *Prasophyllum milfordense* (image by Richard Schahinger)

**SUMMARY:** *Prasophyllum milfordense* is a terrestrial orchid endemic to southern Tasmania. It is known from a single site on private property near Cambridge, with the population consisting of up to 350 mature plants in any given year. The species grows in *Eucalyptus viminalis* (white gum) woodland on deep sands, with a ground layer dominated by the *Lomandra longifolia* (sagg). The species is at risk from land clearance, an inappropriate fire regime and disturbance by rabbits.

#### IDENTIFICATION AND ECOLOGY

*Prasophyllum milfordense* 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 deciduous 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* spp.). 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, often with prominent wavy or frilly margins, produces quantities of nectar on which a wide range of insects feed. Some of these, particularly native bees, wasps and beetles, are effective pollinators.

*Prasophyllum milfordense* has been reported to respond favourably to ground disturbance by animals, and is known to flower freely in the absence of fire (Jones et al. 1999).

#### Survey techniques

Surveys should be undertaken for *Prasophyllum milfordense* during its flowering period, early to late November (Wapstra et al. 2012), the precise timing being dependent upon seasonal conditions.

#### Description

*Prasophyllum milfordense* has a dark green leaf with a red to purple base; the leaf is 30 to 65 cm long, the free part 6 to 12 cm long. Flowering plants are up to 80 cm tall, with 5 to 30 flowers

in a narrow, loose spike 6 to 22 cm long. The flowers are slightly fragrant, 9 to 12 mm long and 8 to 10 mm wide, and have greenish brown sepals, white petals with greenish or purplish markings and a white labellum. The lateral sepals are widely divergent. The petals widen towards the apex and are 6 to 8 mm long and 2.2 mm wide; they are upswept, 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).

#### Confusing species

*Prasophyllum milfordense* may be confused with two other species: *Prasophyllum apoxychilum* and *Prasophyllum truncatum*. *Prasophyllum milfordense* 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, and from *Prasophyllum truncatum* by its wider petals, less sharply recurved labellum and callus without papillae (Jones et al. 1999).

#### DISTRIBUTION AND HABITAT

*Prasophyllum milfordense* is endemic to Tasmania and is known from a single site close to Hobart Airport (Figure 1, Plate 2). 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 to 10 m above sea level, and the mean annual rainfall is about 500 mm.

#### RESERVATION STATUS

*Prasophyllum milfordense* is not formally reserved.

#### POPULATION PARAMETERS

The single known population of *Prasophyllum milfordense* supports up to 350 plants (Table 1). The number of emergent plants varies greatly from year to year in response to poorly known climatic conditions; no plants were recorded in 2008 following several years of drought.

**Table 1.** Population summary for *Prasophyllum milfordense*

	Subpopulation	Tenure	NRM region *	1:25000 mapsheet	Year last (first) seen	Area occupied (ha)	Number of mature plants
1a	Cambridge	Private property	South	Carlton	2016 2015 2014 2013 2012 2011 2010 2009 2008 2007 (1994)	6.5	c. 350 13 c. 65 c. 200 c. 230 c. 40 c. 50 c. 200 0 c. 20 (c. 200)
1b	Cambridge	Commonwealth of Australia	South	Carlton	1995 (1995)		1

\* NRM region = Natural Resource Management region



**Plate 2.** Habitat at the Cambridge site (image by Richard Schahinger, November 2009)

The species has a linear range of 0.7 km, extent of occurrence of 0.08 km<sup>2</sup>, and an area of occupancy of less than 5 ha (Table 1).

Almost the entire population occurs on a single private property (Table 1). In 1995 a solitary plant was found a few hundred metres from the main patch on land owned by the Commonwealth of Australia, 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 also considered unlikely that the species will be found beyond the immediate vicinity of the known sites, as targeted searches of apparently suitable habitat over the past two decades by orchid enthusiasts and DPIWE personnel have failed to locate further plants.

#### CONSERVATION ASSESSMENT

*Prasophyllum milfordense* was listed as endangered on the schedules of the *Tasmanian Threatened Species Protection Act 1995* in 2001. It meets the following criteria:

- area of occupancy less than 10 hectares;
- known to exist at no more than 5 locations;
- extreme fluctuations in the number of mature individuals.

#### THREATS AND LIMITING FACTORS

**Clearance:** The species 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 subpopulations.

*Prasophyllum milfordense* 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 subpopulation occurs in *Eucalyptus viminalis* – *Eucalyptus globulus* coastal forest and woodland (Harris & Kitchener 2005), a vegetation

community listed as threatened under the Tasmanian *Nature Conservation Act 2002*. The current landowners of the main site are sympathetic to and appreciate the conservation needs of *Prasophyllum milfordense*. However, if the property were to change into less conservation-minded hands there is a risk of inappropriate management or even clearance.

**Fire and drought:** It is presumed that fire is required to maintain habitat suitable for *Prasophyllum milfordense*. A prolonged lack of fire may lead to the formation of a dense understorey, with a deleterious impact on the species. 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 irregularly as a part of the property management (property owner, pers. comm.).

Low numbers of flowering plants were observed following two different fuel reduction burns at the Cambridge site in the 1990s. 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.

**Rabbit grazing and other browsers:** Rabbits pose an ongoing threat to the species, occurring in high numbers throughout the Cambridge property. Rabbits have been observed digging 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). The impacts of native browsers, such as brushtail possums and bandicoots are unknown. Gated fencing to reduce rabbit grazing and other browsing in dry years or at specific times of the year was considered necessary to prevent a decline in the subpopulation.

**Stochastic risk:** Due to the localised nature of the known subpopulation the species is considered to be at risk of decline from unforeseen human activities or chance events.

**Climate change:** *Prasophyllum milfordense* 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.

#### MANAGEMENT STRATEGIES

The main objectives for the recovery of *Prasophyllum milfordense* are to prevent the inadvertent destruction of the known population and promote conditions for its successful recruitment.

#### What has been done?

**Recovery Plan:** *Prasophyllum milfordense* is included in the *Threatened Tasmanian Orchid Flora Recovery Plan 2006–2010* (Threatened Species Section 2006) and also the *Draft Flora Recovery Plan: Tasmanian Threatened Orchid* (Threatened Species Section 2017).

**Fencing:** A rabbit-proof fence enclosing about 2 ha of prime habitat was erected at the Cambridge site in 2007 to afford the species' densest occurrences some protection.

**Fire management:** A fire management plan was developed for the Cambridge site in 2008 with the aim of promoting suitable habitat for the species. The first of a series of proposed burns was conducted in April 2009, with a 5.8 ha area burnt successfully and according to prescription; colonisation of this area by the species was recorded in 2012. Further burns were undertaken in April 2013 and April 2015 with the assistance of the Tasmanian Fire Service's Cambridge crew.

**Seed collection:** Seed and mycorrhizal fungi were collected in 2008 as part of the Millennium Seed Bank Project; germination testing is being conducted at the Royal Tasmanian Botanical Gardens (Hobart) with the aim of establishing an ex situ holding.

**Monitoring:** Baseline surveys were undertaken at the Cambridge site in 2009. A 100-m long demographic transect has been re-scored annually by DPIPWE personnel with the assistance of volunteers with the Wildcare group Threatened Plants Tasmania, and the extent of the population mapped (Table 1).

#### What is needed?

The following management actions are proposed for *Prasophyllum milfordense*:

- pursue increased security of the main site through a vegetation management agreements or conservation covenant;
- monitor the subpopulation for fluctuations in abundance, especially after fire or changed management in order to determine the effectiveness of actions and to inform future management needs;
- finalise the *Recovery Plan for Tasmanian Threatened Orchids* and implement actions as appropriate;
- provide information and extension support to relevant Natural Resource Management committees, local councils, government agencies and the local community on the locality, significance and management of known subpopulations and areas of potential habitat;
- continue to implement the fire management plan for the Cambridge site;
- establish an ex situ holding at the Royal Tasmanian Botanic Gardens;
- search for new subpopulations in suitable habitat in the vicinity of the known site.

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**Permit:** It is an offence to collect, disturb, damage or destroy this species unless under permit.