

Prasophyllum olidum

pungent leek-orchid

TASMANIAN THREATENED FLORA LISTING STATEMENT



Image by Viv Muller

Scientific name: *Prasophyllum olidum* D.L.Jones, *Austral. Orchid Res.* 3: 108 (1998)

Common name: pungent 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: **North**

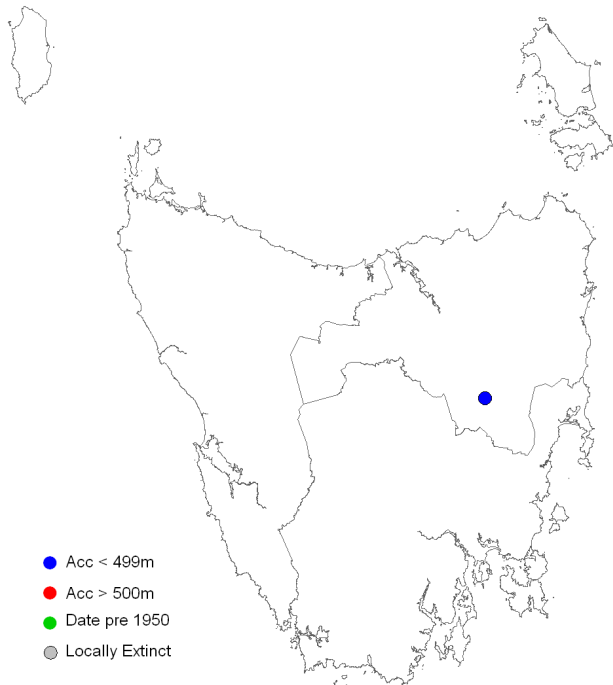


Figure 1. Distribution of *Prasophyllum olidum*, showing Natural Resource Management regions



Plate 1. *Prasophyllum olidum*: flower detail (image by Viv Muller)

SUMMARY: *Prasophyllum olidum* is a terrestrial orchid endemic to Tasmania's Northern Midlands. It is known from a single site at Campbell Town golf course, where it grows in the native grassland 'roughs'. The total population in any given year consists of fewer than 200 plants in an area of just 60 by 40 m. The species is at risk from inappropriate management activities (timing and extent of slashing) and weed invasion, with a high risk of local extinction due to the population's small size.

IDENTIFICATION AND ECOLOGY

Prasophyllum olidum is a terrestrial leek orchid endemic to Tasmania (Jones et al. 1999). It grows within native grassland and is known from a single population in the Northern Midlands. The species flowers freely in the absence of fire (Jones et al. 1999).

Prasophyllum olidum 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.

Survey techniques

Surveys for *Prasophyllum olidum* should be undertaken during its peak flowering period, late November to early December (Wapstra et al. 2012).

Description

The leaf of *Prasophyllum olidum* is green to yellowish-green with a pinkish-red base; the leaf is 20 to 45 cm long, the free part 12 to 22 cm long. Flowering plants are up to 45 cm tall, with 10 to 30 flowers in a dense spike 6 to 12 cm long. The ovary is green. The flowers are very strongly fragrant, 14 to 16 mm long and 7 to 9 mm wide, and are bright green or yellowish-green to brownish-green. The lateral sepals are free throughout, parallel or slightly divergent. The petals are 7 to 9 mm long and 1 mm wide. The labellum is elliptical and abruptly contracted near the middle into a tail-like portion; it is abruptly recurved at right angles near the middle, then erect or shallowly recurved. The labellum has irregular margins. The shiny, fleshy green callus on the labellum is broadly channeled at the base and extends nearly to the labellum apex (Jones 1998 & Jones et al. 1999).

Confusing Species

Prasophyllum olidum can be distinguished from the allied *Prasophyllum rostratum* by its stronger fragrance, and petals and sepals that are thin-textured. The callus on the labellum of *Prasophyllum rostratum* is thicker and almost bulbous (Jones et al. 1999).

DISTRIBUTION AND HABITAT

Prasophyllum olidum is endemic to Tasmania's Northern Midlands. It is known only from the native grassland 'roughs' at Campbell Town golf course (Plate 2), growing in relatively damp conditions on sandy loam. The altitude of the site is 200 m above sea level, and the mean annual rainfall about 500 mm. The linear range of the species is just 70 m, extent of occurrence 0.002 km², and area of occupancy 0.25 ha.

Native grassland dominated by *Themeda triandra* (kangaroo grass) is a facies of the ecological community 'Lowland Native Grasslands of Tasmania' that is listed as Critically Endangered on the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*.

Table 1. Population summary for *Prasophyllum olidum*

	Subpopulation	Tenure	NRM Region *	1:25000 mapsheet	Year last (first) seen	Area occupied (ha)	Number of mature plants
1	Campbell Town golf course	Private ^	North	Campbell Town	2016 2015 2014 2013 2012 2011 2010 2009 2008 1999 (1995)	0.22 – – 0.08 0.05 0.002 0.22 0.14 0.02 (0.5)	98 0 0 41 8 3 53 130 8 28 (200)

^ = covered by a conservation covenant under the Tasmanian *Nature Conservation Act 2002*;

* NRM Region = Natural Resource Management region.



Plate 2. *Prasophyllum olidum*: native grassland habitat (image by Richard Schahinger)

Associated species include *Themeda triandra* (kangaroo grass), *Austrodanthonia* spp. (wallabygrasses), *Chrysocephalum apiculatum* (common everlasting), *Drosera foliosa* (grassland sundew), *Bulbine glauca* (bluish bulbine-lily), *Dianella amoena* (grassland flaxlily), mosses and lichens, as well the introduced species *Hypochoeris glabra* (smooth catsear), *Aira caryophyllea* (silvery hairgrass), *Briza minor* (lesser quaking-grass) and, increasingly, *Anthoxanthum odoratum* (sweet vernal-grass).

Another threatened leek-orchid (*Prasophyllum incorrectum*), virtually restricted to the golf course in Tasmania, is prolific some 30 m away, but does not co-occur with *Prasophyllum olidum* and flowers three or four weeks earlier. Unknown but very specific habitat requirements are suspected to be the cause of the species' different distributions.

POPULATION ESTIMATE

Prasophyllum olidum is known from a single subpopulation, with a total population size of fewer than 200 mature plants spread over a 60 by 40 m area (Table 1). Plant numbers are known to fluctuate considerably from year to year in response to poorly known climatic factors. Only 8 plants were recorded from the site in 2008 after several years of drought, with 130 recorded in 2009 following a winter of above average rainfall; no plants were recorded in the extremely dry years of 2014 and 2015 (Figure 2).

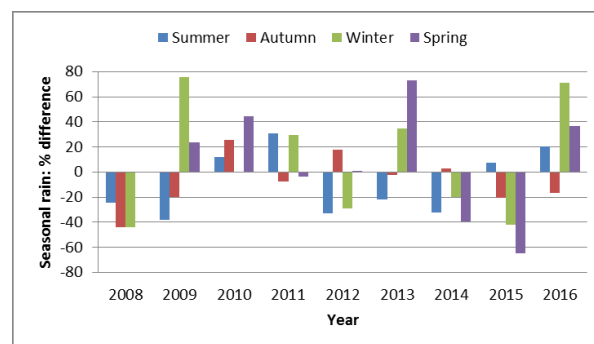


Figure 2. Seasonal rainfall 2008–2016.

Frequent inspections of the golf course since 1995 have confirmed the species' restricted distribution. In addition, the negative results of extensive grassland surveys in Tasmania's Midlands in the years since 1999 make it unlikely that additional subpopulations will be found in the future.

RESERVATION STATUS

The single known subpopulation occurs on land covered by a conservation covenant under the Tasmanian *Nature Conservation Act 2002*.

CONSERVATION ASSESSMENT

Prasophyllum olidum was listed on the schedules of the Tasmanian *Threatened Species Protection Act 1995* in 2001. It satisfies criterion D1:

- total population estimated to number fewer than 250 mature individuals.

THREATS, LIMITING FACTORS AND MANAGEMENT ISSUES

Much of the potential habitat for *Prasophyllum olidum* in Tasmania's Midlands has been lost or degraded due to past agricultural practices, especially ploughing and the application of fertilisers to which orchids are extremely sensitive. Although there is only a slim chance of other subpopulations being found, its potential habitat remains under pressure from continued adverse land use practices, especially conversion to cropping as part of farm diversification.

Changes in fire frequency or grazing/slashing regimes are also likely to have had an adverse impact on orchid persistence; as herbs requiring light and some space, orchids may be shaded out in tussock grasslands that are allowed to grow rank without some form of disturbance. While leek orchids do possess tubers, and might therefore be expected to persist in a dormant state during unfavourable conditions, the longer the period without flowering and fresh seed production, the less likely must be the long-term persistence of a species in an area (Jones et al. 1999, Coates et al. 2006).

Campbell Town Golf Course is subject to a conservation covenant under the Tasmanian *Nature Conservation Act 2002* and an associated management plan that aims to protect its threatened flora species (Nicholson 2000). However, a number of significant risks to the species remain, especially as the colony is so small in extent. The frequency and timing of slashing is a significant long-term risk factor, while the practice of planting shrubs and trees for aesthetic reasons and shelter, if continued,

may alter the nature of the grassland environment to the species' detriment. These and other matters are addressed in the management plan but they remain significant long-term risks to *Prasophyllum olidum* and other listed species found on the golf course. The localised occurrence of *Prasophyllum olidum* on the golf course suggests a strong sensitivity to unknown environmental conditions, and hence there is a risk of even minor management changes having a major effect on the species.

MANAGEMENT STRATEGY

What has been done?

- *Prasophyllum olidum* was included in a project to manage and recover Tasmanian grassland orchids, with extension survey work carried out in 1998–1999;
- Campbell Town golf course is subject to a covenant and associated plan of management (Nicholson 2000);
- *Prasophyllum olidum* was included in the *Flora Recovery Plan: Threatened Tasmanian Orchids 2006–2010* (Threatened Species Section 2006) and in the draft *Tasmanian Threatened Orchids Recovery Plan* (Threatened Species Section 2017);
- Demographic monitoring of the species was established by DPIPWE personnel in 2008 (Ing et al. 2009) and has been re-scored annually with the assistance of volunteers with Wildcare's Threatened Plants Tasmania group (Table 1);
- Seed and mycorrhizae were collected from the Campbell Town subpopulation in 2009 for long-term storage at the Tasmanian Seed Conservation Centre (Royal Tasmanian Botanical Gardens, Hobart), with three plants germinated successfully by 2016;
- Two interpretation panels focusing on the golf course's flora values were erected in late 2015, with funding from NRM North;
- Control of woody weeds (gorse and briar rose) in and adjacent to the area known to support the species was undertaken in 2015 and 2016, the latter with assistance from a Green Army team.

Management Objectives

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

What is needed?

- monitor the known subpopulation annually to determine the level of recruitment and/or plant loss to better inform management prescriptions;
- monitor covenant compliance at Campbell Town golf course and review management prescriptions to maintain suitable habitat for the species;
- undertake extension surveys of native grasslands in Tasmania's Northern Midlands;
- provide information and extension support to relevant Natural Resource Management committees, local councils, Government agencies and the local community on the location, significance and management of known subpopulations and areas of potential habitat.

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