

THREATENED SPECIES SCIENTIFIC COMMITTEE

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

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

Conservation Advice

Prasophyllum olidum

pungent leek-orchid

Conservation Status

Prasophyllum olidum (pungent 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 the very restricted extent of occurrence, area of occupancy, single population, and its very low number and extreme fluctuations of mature individuals (TSSC 2001).

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

Description

The pungent leek-orchid belongs to a group of orchids commonly known as leek-orchids because the erect hollow leaf resembles 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* 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 pungent leek-orchid leaf is green to yellowish-green with a pinkish-red base. The leaf is 20–45 cm long, the free part 12–22 cm long. When in flower plants are up to 45 cm tall, with 10–30 flowers in a dense spike 6–12 cm long. The ovary is green. The flowers are very strongly fragrant, 14–16 mm long and 7–9 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 7–9 mm long and 1 mm wide. The labellum is elliptical and abruptly narrows 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 channelled at the base and extends nearly to the labellum apex (Jones 1998; Jones et al. 1999).

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

Distribution

The pungent leek-orchid is endemic to Tasmania, occurring in the Northern Midlands at an altitude of 200 m above sea level. It is known only from the native grassland 'roughs' at Campbell Town golf course (TSS 2013), which is privately owned and covered by a conservation covenant under the Tasmanian *Nature Conservation Act 2002* (Nicholson 2000).

Numbers of mature individuals have fluctuated between 200 in 1995, and three in 2011. In 2009 there were 130 mature individuals (TSS 2013), a presumed consequence of higher winter rainfall (Schahinger 2009), whilst in 2012, there were eight individuals. The linear range of the

species is 70 m, with an extent of occurrence and area of occupancy of less than 2 km² (TSS 2013).

Frequent inspections of the golf course since 1995 have confirmed the species' restricted distribution, and extensive surveys undertaken since 1999 in Tasmania's Midlands grasslands have not found any further populations, making it unlikely that additional populations will be found in future (TSS 2013).

Relevant Biology/Ecology

The pungent leek-orchid grows in relatively damp conditions on sandy loam. The area receives a mean annual rainfall of 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).

Native grassland dominated by kangaroo grass (*Themeda triandra*) is typical of the 'Lowland Native Grasslands of Tasmania Ecological Community', which is listed as Critically Endangered under the EPBC Act (TSS 2013).

Associated species include *Themeda triandra*, *Austrodanthonia* species, *Drosera foliosa*, *Bulbine glauca*, *Dianella amoena*, mosses and lichens. Introduced species include smooth catsear (*Hypochoeris glabra*), silvery hairgrass (*Aira caryophyllea*), lesser quaking grass (*Briza minor*), and increasingly, sweet vernal-grass (*Anthoxanthum odoratum*) (TSS 2013).

Another threatened leek-orchid, *Prasophyllum incorrectum*, which is virtually restricted to the Campbell Town golf course, is prolific only 30 m away, but does not co-occur with the pungent leek-orchid and flowers earlier (TSS 2013).

Threats

Table 1 – Threats

Threat factor	Threat type	Threat status	Evidence base
Habitat loss, disturbance and modifications			
Habitat loss	known	past current	Much of the potential habitat for the pungent leek-orchid in Tasmania's Midlands has been lost or degraded due to past agricultural practices, especially ploughing and fertiliser application to which orchids are extremely sensitive. Its potential habitat remains under pressure from continued adverse land use practices, especially conversion to cropping as part of farm diversification (TSS 2013). The localised occurrence of the pungent leek-orchid 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 (TSS 2013).
Slashing frequency	known	past	Changes in slashing regimes are likely to have had an impact on orchid persistence. The frequency and timing of slashing is a significant long-term risk factor. 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, long-term persistence of the species in an area is less likely (Jones et al. 1999; Coates et al. 2006).
Plantings	potential	future	The practice of planting shrubs and trees within the golf course for aesthetic reasons and shelter, if continued, may alter the nature of the grassland environment to the species' detriment (TSS 2013).
Fire			
Fire frequency	known	past	Changes in fire frequency are likely to have had an adverse impact on orchid persistence. The frequency and timing of fire is a significant long-term risk factor (Jones et al. 1999; Coates et al. 2006).

Conservation Actions

Conservation and Management priorities

Habitat loss disturbance and modifications

- Campbell Town golf course is subject to a conservation covenant and associated plan of management. Continue protection and management measures under the plan.
- Ensure that land managers of farmland are aware of the species and threats.

Fire

- 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 (e.g. weed control based on sound scientific evidence).
- Provide a map of the known occurrence 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.

Stakeholder Engagement

- Continue to 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 populations and areas of potential habitat.

Survey and Monitoring priorities

- Continue annual monitoring of the known population to determine the level of recruitment and/or plant loss to better inform management prescriptions as established by DPIPW personnel in 2008 (Tng et al. 2009). This monitoring has been recored annually with the assistance of volunteers with Wildcare's Threatened Plants Tasmania group (TSS 2013).

- Continue to monitor covenant compliance at Campbell Town golf course and review management prescriptions to maintain suitable habitat for the species.
- Continue to undertake extension surveys of native grasslands in Tasmania's Northern Midlands.

Information and research priorities

- Continue, if required, to collect seed and mycorrhizae from the Campbell Town population for long-term storage at the Tasmanian Seed Conservation Centre (Royal Tasmanian Botanical Gardens, Hobart).
- Undertake seed germination and/or vegetative propagation trials to determine the requirements for successful translocation.
- 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.

References cited in the advice

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Other sources cited in the advice

- TSSC Listing Advice (Threatened Species Scientific Committee) (2001). *Prasophyllum olidum* (pungent leek-orchid).

Viewed: 31 March 2016.

Available on the Internet at: <http://www.environment.gov.au/node/16464>

TSS (Threatened Species Section) (2013) *Listing Statement for Prasophyllum olidum (pungent leek-orchid)*. Department of Primary Industries, Parks, Water and Environment, Tasmania.

Viewed: 10 December 2015.

Available on the internet at: <http://dpiwwe.tas.gov.au/Documents/Prasophyllum-olidum-listing-statement.pdf>