



Prasophyllum tunbridgense

tunbridge leek-orchid

TASMANIAN THREATENED FLORA LISTING STATEMENT

Image by H&A Wapstra

- Scientific name:** *Prasophyllum tunbridgense* D.L.Jones, *Austral. Orchid Res.* 3: 117 (1998)
- Common name:** tunbridge 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: **Endangered**
- Distribution:** Endemic status: **Endemic to Tasmania**
Tasmanian NRM Region: **North & South**

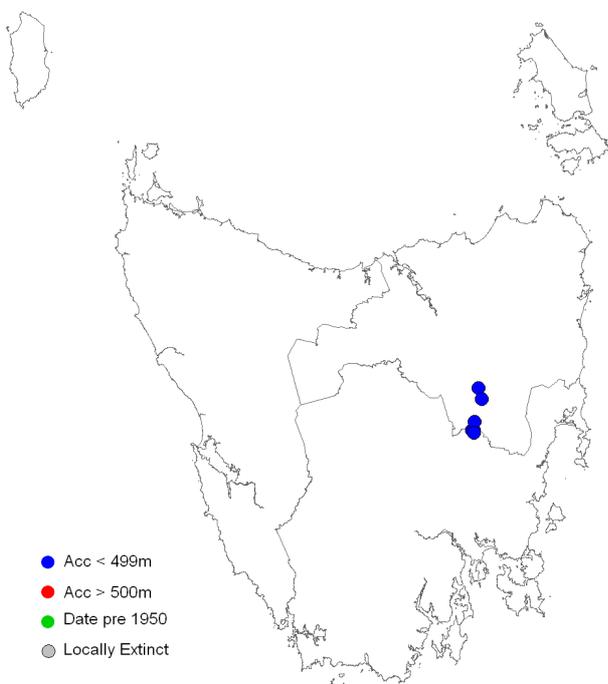


Figure 1. Distribution of *Prasophyllum tunbridgense*



Plate 1. *Prasophyllum tunbridgense*. flower detail (image by H&A Wapstra)

IDENTIFICATION AND ECOLOGY

Prasophyllum tunbridgense is a terrestrial leek orchid endemic to Tasmania's Midlands (Jones et al. 1999). It grows within native grassland and is known from a just a few populations. The species may be identified during its flowering period, October to early November (Wapstra et al. 2008).

Prasophyllum tunbridgense 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 as in onion orchids (*Microtis*). 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 tunbridgense is known to flower freely in the absence of fire (Jones et al. 1999).

Description

The leaf of *Prasophyllum tunbridgense* is bright green with a reddish–purplish base, the free part 10 to 15 cm long. In flower the plants are 30 to 40 cm tall. They have 10 to 25 flowers in a dense spike 6 to 9 cm long. The ovary is shiny green. Flowers are fragrant, 16 to 20 mm long and 17 to 25 mm wide, and are green to light greenish brown, with prominent white petals and a white labellum. The lateral sepals are free, widely divergent and obliquely erect. The petals are 10 to 12 mm long and 3 mm wide with flared upper margins. The labellum is curved back at right angles below the middle, and the apex is usually curved back through the lateral sepals. The labellum has intensely crinkled margins. The greenish yellow to yellow callus

on the labellum has a square to notched apex (Jones 1998 & Jones et al. 1999).

Confusing Species

Prasophyllum tunbridgense is part of the *Prasophyllum patens/truncatum* complex. It can be confused with two other members of this complex, *Prasophyllum milfordense* and *Prasophyllum truncatum*, but has larger flowers than both these species and the flowers are more crowded. The petals are also longer and wider, with the upper margins flared and are more widely spreading. The labellum is not curved back as sharply as in *Prasophyllum truncatum* (Jones et al. 1999).

DISTRIBUTION AND HABITAT

Prasophyllum tunbridgense is restricted to the Tunbridge – Campbell Town area in Tasmania's Midlands, one of the driest regions of the State with an annual rainfall of about 500 mm. The altitude range of recorded sites is 200 to 240 m above sea level. The linear range of the species is 30 km, extent of occurrence 66 km², and area of occupancy about 2 to 3 ha.

The species grows in native grassland on well-drained loams derived from basalt. Associated species include *Themeda triandra* (kangaroo grass), *Austrodanthonia* spp. (wallabygrasses), *Austrostipa* spp. (speargrasses), and a range of herbs, lilies, mosses and lichens.

Threatened flora species associated with *Prasophyllum tunbridgense* include the EPBC-listed *Dianella amoena*, *Glycine latrobeana*, *Leucochrysum albicans* and *Pterostylis commutata*, and the State-listed *Pultenaea prostrata*, *Stackhousia subterranea*, *Velleia paradoxa* and *Vittadinia cuneata*.

POPULATION ESTIMATE

There are six known subpopulations, defined as occurrences separated by at least one km, with the total number of mature individuals recorded in any given year less than 140 (Table 1).

Table 1. Population summary for *Prasophyllum tunbridgense*

	Subpopulation	Tenure	NRM Region	1:25000 mapsheet	Year last (first) seen	Area occupied (ha)	Number of mature plants
1a	Tunbridge	Township Lagoon Nature Reserve	South	Tunbridge	2009 2008 2007 1999 (1995)	0.1 0.4 0.8 1.0	4 10 14 40
1b	Tunbridge	Private	South	Tunbridge	1999 (1999)	0.5	45
2	Tunbridge Tier Road	Private	North	Tunbridge	2001 (2001)	?	?
3	Tunbridge (cutting)	DIER	North	Tunbridge	1988 (1988)	?	?
4	North of Tunbridge	Private *	North	Ellinthorp	2007 (1999)	0.8 1–1.5	9 45
5	Campbell Town Golf Course	Private *	North	Campbell Town	2000 (1998)	0.0001	2
6	North of Campbell Town	DIER	North	Conara	1996 (1996)	0.0001	1

Data source: unpublished data held by the Threatened Species Section, Department of Primary Industries, Parks, Water and Environment, Hobart; DIER = Department of Infrastructure, Energy and Resources; * = covered by a conservation covenant under the Tasmanian *Nature Conservation Act 2002*.

Plants have not been recorded at three of the smaller sites in recent years despite targeted surveys (3, 5 and 6 in Table 1), while there has been a marked decline in numbers at the larger subpopulations, a presumed consequence of drought. The lack of plants at the Township Lagoon site in 2009 is at odds with the response of the allied species *Prasophyllum incorrectum* and *Prasophyllum olidum* at Campbell Town golf course, both showing a significant increase in numbers following above-average autumn and winter rains (Schahinger 2009).

The scarcity of records for *Prasophyllum tunbridgense* is not likely to be a result of a spasmodic flowering pattern in response to disturbance such as fire, as it is known to flower freely in the absence of fire and extensive searches have been undertaken of potential habitat since 1999. The likelihood of additional sites being uncovered is low.

RESERVATION STATUS

Part of one subpopulation occurs in Township Lagoon Nature Reserve. Two subpopulations

are on land covered by conservation covenants under the Tasmanian *Nature Conservation Act 2002*.

CONSERVATION ASSESSMENT

Prasophyllum tunbridgense was listed as endangered on the schedules of the Tasmanian *Threatened Species Protection Act 1995* in 2001, satisfying criterion D1:

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

THREATS, LIMITING FACTORS AND MANAGEMENT ISSUES

Land clearance, conversion and grazing: Large scale conversion of native grasslands to pasture in the Midlands would have reduced the habitat of *Prasophyllum tunbridgense* in the past and has most likely resulted in the restricted distribution it has today. In particular, topdressing with superphosphate in the 1950s could have caused local extinctions, rendering potential grassland habitat uninhabitable for this species and other orchids.

The ecological community 'Lowland Native Grasslands of Tasmania' was listed as Critically Endangered under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* in 2009, affording the species' remaining habitat notional protection.

Grazing by stock during the species' flowering and fruiting period poses a threat to those subpopulations on private land; all flowering plants in subpopulation 2a are known to have been grazed by sheep in early November 1999 — there have been with no recent records from this site.

Climate change: While *Prasophyllum tunbridgense* occurs in a region of naturally low rainfall, climatic warming has the potential to further exacerbate the precarious position of the species, particularly if the rainfall pattern changes.

Stochastic risk: *Prasophyllum tunbridgense* is known to be extant at only two of its six recorded sites, with an apparent decline in numbers at the two extant sites to just a few plants. The very low plant numbers and small area of occupancy expose the species to a high risk of extinction through chance events.

MANAGEMENT STRATEGY

What has been done?

- *Prasophyllum tunbridgense* was included in a project to manage and recover Tasmanian grassland orchids, with survey work carried out in 1998–1999;
- Campbell Town Golf Course is subject to a covenant and associated management plan that address the needs of threatened species (Nicholson 2000), though the species has not been recorded in recent years;
- *Prasophyllum tunbridgense* was included in the *Flora Recovery Plan: Threatened Tasmanian Orchids 2006–2010* (Threatened Species Section 2006) — a number of the known sites were assessed in 2007 and 2008 during the Plan's implementation phase;
- a conservation covenant has been negotiated for private land supporting the subpopulation to the north of Tunbridge, with an associated management plan in

place. The agreement was realised by DPIPW's Private Land Conservation Program in 2009;

- two of the roadside sites (3 & 6) have been managed by Department of Infrastructure, Energy and Resources since 2005 under an agreement with DPIPW, though again, plants have not been recorded in recent years (Corbett 2010).

Management Objectives

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

What is needed?

- monitor the known subpopulations annually to determine the level of recruitment and/or plant loss to better inform management prescriptions;
- monitor covenant compliance and review management prescriptions to maintain suitable habitat for the species;
- undertake extension surveys of native grasslands in Tasmania's Midlands;
- collect seed and mycorrhizae for long-term storage at the Tasmanian Seedbank Conservation Centre (Royal Tasmanian Botanical Gardens)
- 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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Prepared in 2000 under the provisions of the Tasmanian *Threatened Species Protection Act 1995*. Reviewed August 2010.

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View:

www.dpipwe.tas.gov.au/threatenedspecieslists

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