Image by Richard Schahinger

Prasophyllum taphanyx

graveside leek-orchid

TASMANIAN THREATENED SPECIES LISTING STATEMENT

Scientific name: ***Prasophyllum taphanyx*** D.L.Jones, *Orchadian* 14(8): 373 (2004)
Common name: graveside 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**

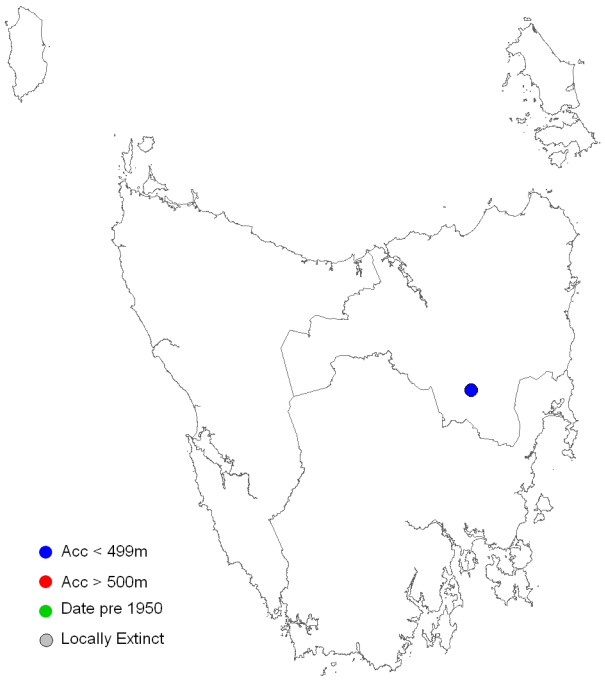

Figure 1. Distribution of *Prasophyllum taphanyx*

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

IDENTIFICATION AND ECOLOGY

Species of *Prasophyllum* are 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.

The flowering of many leek-orchids is strongly dependent on hot summer fires, with large numbers of flowering plants often being produced a year later but few or none in subsequent years. For similar reasons some species may be prominent in disturbed sites such as slashed areas, or along track verges and road embankments (Jones et al. 1999). *Prasophyllum taphanyx* is unlikely, however, to be wholly reliant on fire to stimulate flowering as other grassland-dependent species in the Midlands (e.g. *Prasophyllum tunbridgense*) also do not require fire events. Species such as these are more likely to respond to different disturbance events such as grazing and slashing.

Prasophyllum taphanyx can only be identified with certainty when in flower. The flowering period of the species is late October to early November.

Description

Prasophyllum taphanyx was described by Jones (2004) from a very small number of specimens so if additional subpopulations are discovered some variation from the following description is likely.

Prasophyllum taphanyx has a leaf that is erect, terete, dark green and 20 to 30 [to 34] cm long and 3 to 5 mm wide.

The base of the leaf is 2 to 4 mm wide and white or purplish. The free part of the leaf blade is suberect, about 16 [to 20] cm long and [may be] partly withered at flowering. The inflorescence is 23 to 33 cm tall, the spike 5 to 6.5 [to 10] cm long. The spike is moderately dense with 15 to 25 [to 35] flowers, 7 to 8 mm long and 5 to 6 mm wide, opening widely. The flowers are light green and pinkish cream with pinkish to purplish petals and labellum. The flowers are strongly scented. The dorsal sepal is 3.5 to 4 mm long and 2.5 mm wide. The lateral sepals are free, 4 to 4.5 mm long and 1.5 mm wide, straight and divergent. The petals are 3 to 3.5 mm long and 1.2 mm wide, and spread widely. The labellum is sharply reflexed and constricted above the middle, 2.8 to 3 mm long and 2.6 to 3 mm wide. The labellum ends in a short tapered papillate tail. The callus of the labellum is very broad, fleshy, green to purplish, shiny, papillate, and extends nearly to the labellum apex.

[description from Jones 2003, Jones 2006; Threatened Species Section observations in 2009 as indicated by square brackets above].

Confusing Species

Prasophyllum taphanyx is unlikely to be confused with any other Tasmanian species because of its very small flowers that are light green with pinkish cream or purplish markings (Jones 2004). *Prasophyllum taphanyx* bears a strong superficial similarity to *Prasophyllum morganii*, which is restricted to northeastern Victoria (Jones 2004).

DISTRIBUTION AND HABITAT

Prasophyllum taphanyx is known only from the type location at the Uniting Church Campbell Town Cemetery on the southern outskirts of Campbell Town in the Tasmanian Midlands (Table 1, Figure 1).

The cemetery supports a remnant patch of native grassland occurring on well-drained basaltic soils. The grassland is dominated by kangaroo grass *Themeda triandra*. The graveside location is reflected in the specific epithet (Greek *taphos*, grave, and *antyx*, edge or border, literally 'edge of the grave'), which also reflects the perilous predicament of the species (Jones 2004).

Table 1. Population summary for *Prasophyllum taphanyx*

	Subpopulation	Tenure	NRM Region *	1:25000 Mapsheet	Year last (first) seen	Area occupied	Number of mature plants
1	Campbell Town cemetery #	Private	North	Campbell Town	2009 (2001)	4 x 0.5 m (10 x 10 m)	2 (3)

Note that the formal type locality citation in Jones (2004) is 'St Michael's Catholic Cemetery, Campbell Town' but the site is now named 'Uniting Church Campbell Town Cemetery'.

POPULATION ESTIMATE

Prasophyllum taphanyx has only been observed flowering in 2001 and 2009. Three specimens were detected in 2001 and two in 2009. Surveys of the cemetery during the peak flowering period in the intervening years failed to detect further individuals (Larcombe 2008), a presumed consequence of drought. It seems unlikely that significant range extensions will be made as many remnant native grasslands in the broader area have been well surveyed.

RESERVATION STATUS

Prasophyllum taphanyx occurs on unreserved private property.

CONSERVATION ASSESSMENT

Prasophyllum taphanyx was listed in 2005 as endangered on schedules of the Tasmanian *Threatened Species Protection Act 1995*. It meets criterion B because there are fewer than 250 mature individuals and its range is severely restricted (it occupies less than 1 hectare, and it occurs in only 1 subpopulation).

THREATS, LIMITING FACTORS AND MANAGEMENT ISSUES

Prasophyllum taphanyx occurs as a highly localised subpopulation in a privately managed cemetery. At the time of discovery, management of the cemetery involved annual mowing (in mid summer) and occasional herbicide spraying around individual graves (Leonard 2002, Lyall 2008). Land managers are currently sympathetic to the conservation requirements of the remnant grassland patch associated with the cemetery, which also supports several other threatened flora species (*Dianella amoena*, *Pterostylis ziegeleri*, *Vittadinia gracilis*).

The main management concern is centred on weed removal and control (Leonard 2002, Lyall 2008). Threats and associated issues are detailed below.

Stochastic risk: Because of its localised distribution, and low numbers, stochastic events can lead to extinction. This is exacerbated by the ephemeral nature of the species and reliance on mychorrizal fungi which can make it sensitive to additional factors such as application of fertilisers. Events associated with maintenance activities for the cemetery have the potential to impact the species, if not carefully managed, e.g. fuel spills when refilling mowers, spray drift. With prolonged drought, plants may not flower and if they do, conditions may be too dry for germination and establishment, and atrophy and mortality of the few remaining tubers may result.

Land clearing/pasture improvement: The highly localised distribution of *Prasophyllum taphanyx* in a patch of remnant grassland is probably indicative of a once wider distribution reduced by extensive historical development of native grassland for intensive grazing. Much of the species' habitat in Tasmania is thought to have been lost or fragmented through agricultural development since European settlement in the early 1800s (Fensham 1989).

Expansion of the existing cemetery capacity (i.e. new grave sites) has the potential to clear the localised subpopulation of *Prasophyllum taphanyx*, or deleteriously disturb the site supporting the species by such events as machinery movements. Clearing and/or pasture improvement (such as use of superphosphate fertiliser, irrigation and altered drainage) of native grasslands in the Tasmanian Midlands has probably led to the present localised distribution of *Prasophyllum taphanyx*.

Such land management continues to occur, although this affects only potential habitat (and not the known site). Tasmanian lowland native grasslands are now afforded protection from such activities under the *Environment Protection and Biodiversity Conservation Act 1999*, though composition, condition and area limit which areas are covered by the Act.

Weed control: The cemetery site has localised infestations of invasive weed species (Leonard 2002, Lyall 2008) such as broom (*Genista monspessulana*), hawthorn (*Crataegus monogyna*), sweet briar (*Rosa rubiginosa*) and periwinkle (*Vinca major*), and historical plantings of elms (*Ulmus* sp.). Careful weed control undertaken to take account of the subpopulations of threatened flora, including *Prasophyllum taphanyx*, is unlikely to deleteriously impact on the species. However, because of the highly localised occurrence of *Prasophyllum taphanyx*, even well-meaning management activities carry an inherently high risk to the subpopulation (e.g. unexpected drift of herbicide, poor placement of vegetation debris, etc.). Localised burning of debris from weed control activities also has the potential to create patches of bare ground suitable for weed establishment, which in turn could spread further through the cemetery.

Inappropriate grazing and slashing regime: The only known site for *Prasophyllum taphanyx* is not subject to formal stock grazing, although the site would be grazed by rabbits and wallabies and bandicoots possibly forage and disturb tubers. While an inappropriate grazing regime would be detrimental to the subpopulation, a regime that aims to maintain the grassland as an open habitat is likely to benefit the species by limiting competition and providing recruitment opportunities.

The current mowing regime for the cemetery is an annual slashing in mid summer. This mowing regime is favourable to *Prasophyllum taphanyx* as it occurs after the species has emerged and set seed (i.e. by end November) and provides and maintain open habitat potentially suitable for further establishment of new plants. Mowing during the fertile period of the species (i.e. October to November) would limit recruitment opportunities and jeopardise persistence.

An unfortunate example of this took place in early November 2009 when an area of the cemetery supporting two flowering plants was mown (Plate 2).

Inappropriate fire regime: The flowering of *Prasophyllum taphanyx* is unlikely to require fire because it has flowered in the long absence of fire within the cemetery and other grassland-dependent leek-orchids such as *Prasophyllum tunbridgense* do not require fire to stimulate flowering. While burning of the native grassland in the cemetery is not suggested as a management tool, lack of burning may have contributed to the present restricted distribution of the species.

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

Plate 2. Grassland habitat, 14 November 2009 (image by Richard Schahinger)

MANAGEMENT STRATEGY

What has been done?

A management plan for the conservation of native grassland in the cemetery was prepared in 2002 (Leonard 2002) and revised in 2008 (Greening Australia 2008). Some aspects of this management plan (e.g. localised weed management) have been implemented. The 2002 management plan noted the location of individuals of *Prasophyllum taphanyx* (at that time referred to as *Prasophyllum* aff. *morganii*).

It is noted that these management plans are generic in nature and provide a low level of detail on the specific risks and management requirements for the subpopulation of *Prasophyllum taphanyx*.

Many parts of the Midlands' remnant grasslands have been subject to targeted surveys for threatened flora species (e.g. Kirkpatrick et al. 1988, Fensham 1989). In the period since there have been numerous extension surveys of private property in the Midlands (e.g. as part of potential conservation covenant options under different conservation programs), as well as roadside surveys (reports held by the Biodiversity Conservation Branch, DPIW, Hobart). It is noted, however, that such surveys often fail to detect highly localised subpopulations of species, particularly for species such as orchids that have narrow identification windows and may not emerge in drought years.

Prasophyllum taphanyx was formally included in the *Flora Recovery Plan: Threatened Tasmanian Orchids 2006–2010* (TSU 2006), with a high priority given to the need to negotiate with land managers.

Management objectives

The main objective for the management of *Prasophyllum taphanyx* is to ensure that there is no decline in the only known subpopulation.

What is needed?

- continue implementation of the management plan for the cemetery (Leonard 2002 & Greening Australia 2008) and ensure that the location of the presently known individuals of *Prasophyllum taphanyx* are advertised to all people involved in management of the site;
- revise the management plan for the cemetery to make it specific to the subpopulation of *Prasophyllum taphanyx* (and other threatened flora species);
- erect temporary fencing to avoid accidental mowing when *Prasophyllum taphanyx* is in flower;
- continue to assess the original site of collection and nearby similar habitat for the species during late October to early November;
- undertake extension surveys of potential habitat in nearby areas during the flowering period of the species;
- undertake demographic monitoring of plants in the known or any new subpopulation to determine the true size of the subpopulation and response of the species to climatic conditions;
- pursue a more formal land management agreement that incorporates longer term habitat maintenance objectives and actions with the owners of the site supporting *Prasophyllum taphanyx*;
- collect seed for long-term storage at the Tasmanian Seed Conservation Centre, contingent on locating the species again and sufficient fertile material being available;
- 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 potential habitat;
- implement the threatened orchid recovery plan (TSU 2006) and include the species in any revision of the plan.

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View:
www.dpipwe.tas.gov.au/threatenedspecieslists

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