



Thelymitra antennifera

rabbit ears

TASMANIAN THREATENED SPECIES LISTING STATEMENT

Image by Matthew Larcombe

Scientific name: *Thelymitra antennifera* (Lindley) Hook.f., *Fl. Tasm.* 2: 4, t.101A (1858)

Common name: rabbit ears (Wapstra et al. 2005)

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

Status: *Threatened Species Protection Act 1995:* **endangered**
Environment Protection and Biodiversity Conservation Act 1999: **Not listed**

Distribution: Endemic status: **Not endemic to Tasmania**
Tasmanian NRM Regions: **Cradle Coast, North, South**

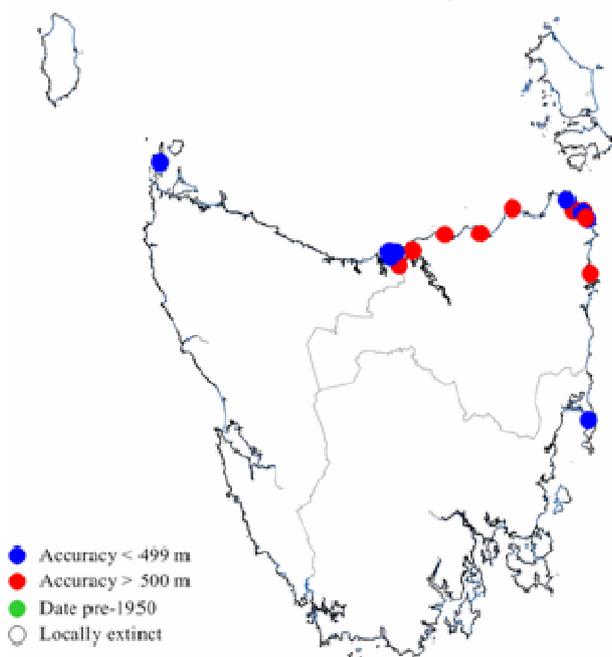


Figure 1. Distribution of *Thelymitra antennifera* within Tasmania



Plate 1. Flower detail of *Thelymitra antennifera* (image by Matthew Larcombe)

IDENTIFICATION AND ECOLOGY

Species of *Thelymitra* are commonly called sun-orchids because the flowers of most species open only in warm to hot weather, particularly on bright, sunny days. *Thelymitra* species are terrestrial orchids that die back after flowering to fleshy subterranean tubers. They are all spring or summer flowering. Most species have a single narrow basal leaf. Unlike most orchids, the labellum (lip) of the flower is generally similar in shape and size to the petals. Features of the column in the centre of the flower are important in the identification of most species. In all species the column has two arm-like projections that flank the anther (pollen holding structure).

The yellow flowers of *Thelymitra antennifera* are thought to mimic flowers of species of *Hibbertia* and *Goodenia*, thus attracting a similar suite of pollinating insects. Small native bees of the genus *Lasioglossum* and a hoverfly, *Syrphus damaster* are the probable pollinators (Dafni & Calder 1987), which attempt to collect pollen and often bring about pollination (Jones et al. 1999). *Thelymitra antennifera* has long-lasting flowers that open freely, even on cool days (Jones 2006). The flowering of many sun-orchids is enhanced by disturbance, and *Thelymitra antennifera* is reported to respond positively to summer fires. For similar reasons, some *Thelymitra* species may be prominent in disturbed sites such as slashed areas, or along track verges and road embankments.

Thelymitra antennifera flowers in Tasmania from late September to late October. The two weeks either side of 1 October is the recommended timing for surveys (Wapstra et al. 2008).

Description

Thelymitra antennifera has a leaf that is terete or channelled, 5 to 12 cm long and 2 to 3 mm wide, and is dark green with a reddish base. The flower stems are 10 to 25 cm tall and are wiry, zig-zagged (only one other Tasmanian *Thelymitra* has a zig-zagged stem), brownish to pinkish with two sterile bracts. The inflorescence comprises 1 to 4 flowers, which are 20 to 40 mm across, and pale yellow to deep yellow. The flowers open freely, even in

cool weather, are long lasting and have a lemon-like or vanilla fragrance. The sepals and petals are 12 to 20 mm long and 4 to 6 mm wide. The outer surface of the sepals have a broad reddish brown band (which sometimes stains the inner surface reddish). The perianth segments spread readily and are reflexed in hot weather. The column is yellow, and 5 to 6 mm long and 2 to 3 mm wide. The apex of the column is narrowed and smooth, and the column arms are dark brown, ear-like, held high above the column or bent forward or sideways, usually notched, the surface minutely roughened or hairy. The anther is yellow to orange (Jones & Clements 1998, Jones et al. 1999, Jones 2006).

Confusing species

Thelymitra antennifera is unlikely to be confused with any other Tasmanian species because of its highly distinctive scented yellow flowers with prominent brown ear-like lobes on the column.

DISTRIBUTION AND HABITAT

Thelymitra antennifera occurs in Victoria, South Australia, Western Australia and in northern and eastern Tasmania. Within Tasmania it is known from several locations along the north and northeast coast (Figure 1), occurring in heathland on poorly to moderately drained peaty and sandy soils (Plate 2), sometimes in mossy skeletal soils on granite bedrock (Jones et al. 1999).



Plate 2. *Thelymitra antennifera* habitat at Archers Knob, with vegetation impacted by *Phytophthora* in the foreground (image by Richard Schahinger)

Table 1. Population summary for *Thelymitra antennifera* within Tasmania

| | Subpopulation | Tenure | NRM Region | 1:25000 Mapsheet | Year last seen | Area occupied (ha) | Number of mature plants |
|----|-------------------------------------|---------------------------------|--------------|------------------|-----------------------|--------------------|---------------------------|
| 1 | Hunter Island | Hunter Island Conservation Area | Cradle Coast | Cuvier | 1975 | | 1 or 2 |
| 2 | Archers Knob | Narawntapu National Park | Cradle Coast | Greens Beach | 1987 2008 | 1 c. 10–15 | c. 25 c.1000* (117) |
| 3 | George Town | | North | | 1843, early 1900s? | | |
| 4 | Lulworth | Private property | North | Tam O'Shanter | 1995 | | |
| 5 | Bridport | Granite Point Conservation Area | North | Bridport | | | |
| 6 | Blizzards Landing | Waterhouse Conservation Area | North | Waterhouse | 1986 | | 1 or 2 |
| 7 | Great Musselroe Bay | Musselroe Bay Conservation Area | North | Musselroe | 1986 | | |
| 8 | Great Musselroe Bay near Tree Point | Private property | North | Lyme Regis | 2008 | c. 85–270 | c. 1000* (185) |
| 9 | Cape Naturaliste | Mount William National Park | North | Naturaliste | 1983 | Localised | Rare to abundant |
| 10 | Boulder Point | Mount William National Park | North | Naturaliste | 1980 | | |
| 11 | Track to Cobler Rocks | Mount William National Park | North | Naturaliste | 2002 | 0.05 | c. 10 |
| 12 | Round Hill Point | Mount Pearson State Reserve | North | Binalong | 1976 | | 1 or 2 |
| 13 | Wineglass Bay walking track | Freycinet National Park | South | Coles Bay | 1992 | 0.0001 | 2 |

* The actual count (in brackets) refers to the number of plants observed during the surveys of Schahinger (2008) and Larcombe (2008); based on the extent of potential habitat the total number of plants was estimated to be about 1000.

POPULATION ESTIMATE

Thelymitra antennifera is represented by 13 subpopulations in Tasmania, with possibly around 2000 individuals. Most subpopulations, when reported, only supported 1 or 2 plants, but the majority of these subpopulations have not been monitored in subsequent years and their present status is unknown. Some recently located subpopulations are of similarly low densities (e.g. Cobler Rocks), but others support in the order of low 100s to 1000s (Larcombe 2008, Schahinger 2008).

Historically, the species may have been more abundant and formed locally dense colonies. Recent surveys at Archers Knob and Great Musselroe Bay support this supposition.

RESERVATION STATUS

Thelymitra antennifera is well reserved, with most subpopulations occurring in gazetted reserves (Table 1). One of the largest subpopulations occurs in Narawntapu National Park.

CONSERVATION ASSESSMENT

Thelymitra antennifera was listed in 2001 as endangered on schedules of the Tasmanian *Threatened Species Protection Act 1995*. At the time of listing, the total population of the species was estimated to be less than 250 and there was a projected decline due to changes in quality of habitat. However, recent surveys have indicated that some subpopulations are relatively extensive and that the total population may now exceed 2000 individuals.

THREATS, LIMITING FACTORS AND MANAGEMENT ISSUES

Stochastic risk: The highly localised distribution of subpopulations of *Thelymitra antennifera*, combined with a usually very low abundance, makes the species subject to stochastic risk at many of its known sites. The precise extent of each of the subpopulations is also not formally documented, so disturbance (e.g. from nearby activities) has the potential to impact or even eliminate the sites supporting the species e.g. (e.g. walking track re-alignments). This is exacerbated by the ephemeral nature of the species. Also, the relationship with mycorrhizal fungi may make the species susceptible to additional factors.

Land clearance: Any clearing activities in the vicinity of subpopulations of *Thelymitra antennifera* have the potential to deleteriously affect the subpopulations. While most subpopulations are within gazetted reserves, poor planning, combined with the low precision of many of the records, may result in inadvertent disturbance (and even local elimination) of subpopulations. Historically, significant areas of potential habitat (i.e. coastal heathland) have been cleared, and this may explain the highly disjunct contemporary distribution of the species. Any clearing of coastal heathland has the potential to disturb and/or eliminate as yet undetected subpopulations.

Inappropriate fire regimes: The flowering of *Thelymitra antennifera* is enhanced by summer fires. Most collections of the species have been made after fires in preceding years and no further collections are made in subsequent years at most sites (the Archers Knob subpopulation being a notable exception). Fire management at the known sites and in potential habitat for *Thelymitra antennifera* is usually directed towards preventing the type of fires considered ideal to stimulate flowering. A more frequent lower intensity fuel reduction fire regime is unlikely to benefit the species and in the long term may reduce habitat quality.

Vegetation changes due to infection by *Phytophthora cinnamomi*: While *Thelymitra antennifera* is not directly susceptible to *Phytophthora cinnamomi*, the coastal heathland vegetation supporting the species is highly

susceptible to the effects of this exotic soil-borne plant pathogen. Some sites are already infected with the pathogen (e.g. Mount William National Park, Narawntapu National Park – see Plate 2). It is possible that changes to the structure and composition of heathy vegetation may have deleterious flow-on impacts on subpopulations of *Thelymitra antennifera*.

Climate change: *Thelymitra antennifera* occurs in parts of Tasmania with naturally low rainfall, but warming associated with climate change has the potential to further exacerbate the precarious position of the species, particularly if rainfall patterns change. This may be particularly the case for some subpopulations already represented by few individuals in more drought-prone habitats (e.g. moss-covered granite slabs at Freycinet).

MANAGEMENT STRATEGY

What has been done?

There have been few targeted surveys for *Thelymitra antennifera* in Tasmania. No sites within gazetted reserves are actively managed to maintain and/or enhance the habitat for the species. The subpopulations in Narawntapu National Park, in the vicinity of Archers Knob, and on private property near Great Musselroe Bay have recently been assessed (Schahinger 2008 and Larcombe 2008, respectively). The needs of the species have been addressed for the Musselroe wind farm proposal.

Thelymitra antennifera was formally included in the *Flora Recovery Plan: Threatened Tasmanian Orchids 2006–2010* (TSU 2006), with a high priority noted for baseline surveys.

Management objectives

The main objectives for the recovery of *Thelymitra antennifera* are to prevent the inadvertent destruction of subpopulations, maintain the viability of existing subpopulations, and promote conditions for successful recruitment.

What is needed?

- determine the precise extent and condition of known subpopulations, and develop

appropriate management strategies for each of the sites;

- undertake targeted surveys of recently burnt areas of coastal heathland, especially in the Mount William and Narawntapu National Parks, to determine the species' distribution;
- monitor a subset of subpopulations (e.g. Archers Knob, Cobler Rocks walking track, Cape Naturaliste, Wineglass Bay walking track) to determine the ecological impacts of events such as fire and disease;
- update individual reserve management plans to include reference to the requirements of *Thelymitra antennifera*;
- 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;
- implement the threatened orchid recovery plan (TSU 2006) and include the species in any revision of the plan.

BIBLIOGRAPHY

- Dafni, A. & Calder, D.M. (1987). Pollination by deceit – floral mimicry in *Thelymitra antennifera* Hook.f. (Orchidaceae). *Plant Systematics and Evolution* 158: 11–22.
- Jones, D. (2006). *A Complete Guide to Native Orchids of Australia including the Island Territories*. New Holland Publishers (Australia), Sydney.
- Jones, D.L. & Clements, M.A. (1998). A taxonomic review of *Thelymitra* in Tasmania. *Australian Orchid Research* 3: 178–203.
- Jones, D., Wapstra, H., Tonelli, P. & Harris, S. (1999). *The Orchids of Tasmania*. Melbourne University Press, Carlton South, Victoria.
- Hooker, J.D. (1858). *The Botany of the Antarctic Voyage of H.M. Discovery Ships Erebus and Terror. Part III. Flora Tasmaniae Volume II*.

Monocotyledones and Acotyledones. Lovell Reeve, London.

Larcombe, M. (2008). *Thelymitra antennifera, Musselroe Bay 21/10/2008*. Unpublished survey note to the Threatened Species Section (DPIW).

Schahinger, R. (2008). *Thelymitra antennifera surveys, Narawntapu, 15–17 October 2008*. Unpublished survey note to the Threatened Species Section (DPIW).

TSU (Threatened Species Unit) (2006). *Flora Recovery Plan: Threatened Tasmanian Orchids 2006–2010*. Department of Primary Industries and Water, Hobart.

Wapstra, M., Roberts, N., Wapstra, H. & Wapstra, A. (2008). *Flowering Times of Tasmanian Orchids: A Practical Guide for Field Botanists*. Self-published by the authors (April 2008 version).

Wapstra, H., Wapstra, A., Wapstra, M. & Gilfedder, L. (2005). *The Little Book of Common Names for Tasmanian Plants*. Department of Primary Industries, Water and Environment, Hobart.

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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.