

# *Thelymitra benthamiana*

blotched sun-orchid



Image by Hans and Annie Wapstra

TASMANIAN THREATENED SPECIES LISTING STATEMENT

**Scientific name:** *Thelymitra benthamiana* Rchb.f., *Beitr. Syst. Pflanzenk.* 55 (1871)

**Common name:** blotched sun-orchid (Wapstra et al. 2005)

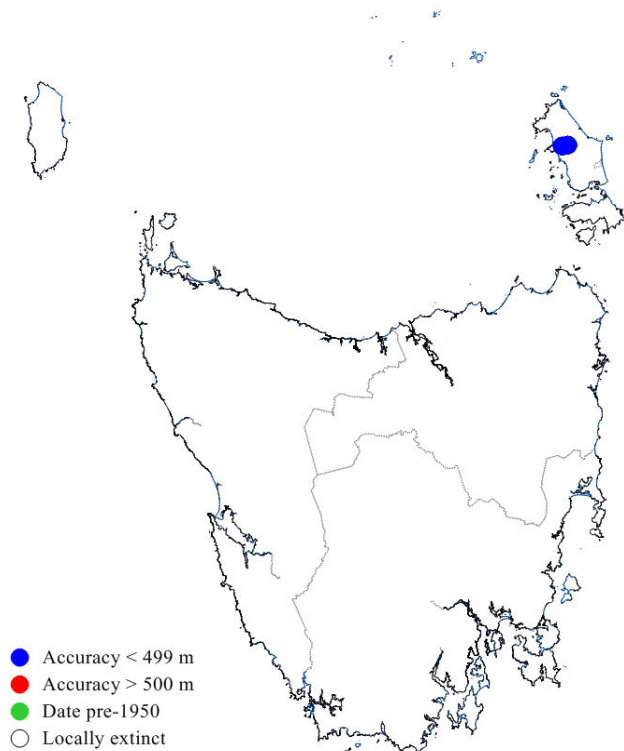
**Group:** vascular plant, monocotyledon, family **Orchidaceae**

**Status:** *Threatened Species Protection Act 1995:* **endangered**

*Environment Protection and Biodiversity Conservation Act 1999:* **Not listed**

**Distribution:** Endemic status: **Not endemic to Tasmania**

Tasmanian NRM Region: **North**



**Figure 1.** The distribution of *Thelymitra benthamiana* within Tasmania



**Plate 1.** *Thelymitra benthamiana* inflorescence (image by Hans and Annie Wapstra)

## 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 although that of *Thelymitra benthamiana* is unique among Tasmanian species in being ovate and leathery making the species identifiable to species level even in the vegetative state. Unlike most orchids, the labellum (lip) of the *Thelymitra* 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).

Flowers of *Thelymitra*, which often open widely in warm weather, are thought to mimic native irises and lilies, thus attracting a similar suite of pollinating insects, such as small native bees, that attempt to collect pollen and often bring about pollination (Jones et al. 1999). *Thelymitra benthamiana* has long-lasting flowers that open freely and can be both insect-pollinated and self-pollinating (Jones 2006). The flowering of many sun-orchids is enhanced by disturbance, and as a result some species may be prominent in disturbed sites such as slashed areas, or along track verges and road embankments. *Thelymitra mucida* is one such species, responding positively to summer fires and the species can be found in disturbed areas.

The flowering period of *Thelymitra benthamiana* on mainland Australia is September to December (Jones 2006). In Tasmania, flowering commences in late October so late October to late December is the likely flowering period in this State and the recommended timing for surveys (Wapstra et al. 2008). Note that identification prior to this period is possible from leaves due to their distinctiveness.

### Description

*Thelymitra benthamiana* has a leaf that is ovate, 5 to 15 cm long and 2 to 3.5 cm wide, bright

green, leathery and obliquely upright. It has the most distinctive leaf of any *Thelymitra* species in Tasmania. The flower stems are 20 to 40 cm tall and are green with several small bracts. The inflorescence comprises 2 to 10 flowers, which are 30 to 40 mm across, greenish yellow with numerous reddish brown to dark brown blotches and suffusions and externally dull greenish brown. The flowers open freely in warm weather and are long lasting. The sepals and petals are 15 to 20 mm long and 6 to 10 mm wide, the labellum being the narrowest of the flower segments. The column is yellow, spotted or blotched, very broadly winged, with the wings spreading like a mantle and also yellow, spotted and deeply fringed. The post-anther lobe is narrow, thick and bulbous.

[description from Jones 2006]

### Confusing species

*Thelymitra benthamiana* is unlikely to be confused with any other Tasmanian species because of its large, bright green, leathery leaf and highly distinctive blotched yellow-brown flowers (it is one of only three yellow-flowered species and easily distinguished from the other species due to its blotchy brown flowers).

### DISTRIBUTION AND HABITAT

*Thelymitra benthamiana* occurs in southern Victoria, South Australia, Western Australia and in northeastern Tasmania. Within Tasmania it is only known from three locations on Flinders Island (Table 1, Figure 1), separated by about 4 km and occupying less than 2 hectares.

On the mainland, *Thelymitra benthamiana* is widespread and common, growing in open forest, heathy forest and heathland in well-drained sandy soil and clay loam (Jones 2006). In Western Australia, the species is often found in association with winter-wet soil and on margins of granite outcrops (Jones 2006). On Flinders Island, *Thelymitra benthamiana* occurs on slopes and hill tops associated with areas of heathy eucalypt woodland, open heathy/scrubby vegetation, bare ground and exposed rock that is sedimentary in origin and unique to this part of Flinders Island.

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

	Subpopulation	Tenure	NRM Region *	1:25000 Mapsheet	Year last seen	Area occupied (ha)	Number of mature plants
1	Centre Hill, Flinders Island	Private property	North	Memana	2005	0.5-1	c. 130
2	Melrose Road, Flinders Island	Private property	North	Memana	2001	0.1?	< 20
3	north of Mulligans Hill, Flinders Island	Private property	North	Memana	2005	0.005	c. 10-20

\*NRM region = Natural Resource Management region

### POPULATION ESTIMATE

*Thelymitra benthamiana* is represented by three subpopulations, totalling fewer than 200 individuals. The first subpopulation discovered on Centre Hill in 1999 supported about 130 individuals (spread over 130 by 60 m). The second subpopulation discovered in 2000 about 3 km to the west of Centre Hill supported fewer than 20 plants (precise extent not documented but indicated as being a small area only). These two subpopulations are separated by unsuitable habitat (i.e. pasture). The third subpopulation occurs about 1 km further west on a ridge north of Mulligans Hill and was also discovered in 2000. It seems unlikely that significant range extensions will be made because the habitat (especially the geology) with which *Thelymitra benthamiana* is associated is relatively restricted and much of Flinders Island has been well surveyed for orchids by local specialists and the species is distinctive. Even if new subpopulations are discovered, the conservation status of the species would likely remain unchanged.

### RESERVATION STATUS

*Thelymitra benthamiana* occurs on unreserved private property.

### CONSERVATION ASSESSMENT

*Thelymitra benthamiana* was listed in 2005 as endangered on schedules of the Tasmanian *Threatened Species Protection Act 1995*, meeting criterion B because there are fewer than 250 mature individuals and its range is severely restricted (it occupies less than 2 hectares, and it occurs in only 3 nearby subpopulations).

### THREATS, LIMITING FACTORS AND MANAGEMENT ISSUES

**Stochastic risk:** Low numbers and the highly localised distribution of *Thelymitra benthamiana* on unreserved private land makes the species susceptible to chance events. This is exacerbated by the relationship with mycorrhizal fungi which may make the species susceptible to additional factors. The precise extent of each of the subpopulations is also not formally documented so disturbance from nearby activities has the potential to impact the sites supporting the species.

**Land clearing:** Any clearing activities conducted near *Thelymitra benthamiana* are likely to deleteriously affect the species through changes to vegetation and soil structure, and associated impacts of altered grazing/browsing regimes. Any clearing of vegetation on similar geology on Flinders Island may result in the further loss of potential habitat for the species.

**Inappropriate grazing and disturbance regime:** The known subpopulations are subject to grazing and stock trampling and there are signs of erosion caused by stock trampling, which could lead to changes in population structure. A change from sheep to cattle grazing is likely to increase impacts to the habitat e.g. from the introduction of weeds. Changes to fertilising practices are also a threat (e.g. even a one-off fertiliser application is likely to eliminate the species). Part of the area supporting *Thelymitra benthamiana* on Centre Hill has been disturbed by heavy machinery, and the site north of Mulligans Hill occurs on disturbed heathland that has been scraped by machinery.

**Inappropriate fire regime:** The flowering of *Thelymitra benthamiana* is likely to be enhanced

by summer fires. For safety reasons, fire management at the known sites and in potential habitat for *Thelymitra benthamiana* 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. Fire may be required to maintain open habitat for the species in the absence of stock grazing.

**Climate change:** While *Thelymitra benthamiana* occurs in a region with naturally low rainfall, climatic warming has the potential to further exacerbate the precarious position of the species, particularly if the rainfall pattern changes. This may be further complicated by changed grazing pressures linked to changes in climatic conditions.

## MANAGEMENT STRATEGY

### *What has been done?*

*Thelymitra benthamiana* was formally included in the *Flora Recovery Plan: Threatened Tasmanian Orchids 2006–2010* (TSU 2006).

### *Management objectives*

The main objective for the management of *Thelymitra benthamiana* is to ensure that there is no decline in the known subpopulations.

### *What is needed?*

- determine the precise extent and condition of known subpopulations, and develop appropriate management strategies for each of the sites;
- pursue a more formal land management agreement with the owners of the properties supporting *Thelymitra benthamiana* that incorporates longer term habitat maintenance objectives and actions including fencing, grazing control, weed management and prescribed burning;
- reduce or exclude stock grazing pressure to reduce the risk of overgrazing, trampling, weed introduction and inadvertent damage;
- implement a fire management regime suitable for dry heathy scrub and woodland should the vegetation become too dense for the species, especially in the absence of stock grazing;
- monitor known sites and nearby similar habitat during the flowering season to determine condition of the habitat (including openness of the vegetation and emerging threats) and population trend including response to altered grazing regimes, fire and climatic conditions;
- undertake extension surveys of potential habitat in nearby areas during the flowering period of the species.
- 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

- Jones, D. (2006). *A Complete Guide to Native Orchids of Australia including the Island Territories*. New Holland Publishers (Australia), Sydney.
- 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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**View:**

[www.dpipwe.tas.gov.au/threatenedspecieslists](http://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.