



Thelymitra improcera

coastal sun-orchid

TASMANIAN THREATENED SPECIES NOTESHEET

Image by Richard Schahinger

Scientific name: *Thelymitra improcera* D.L.Jones & M.A.Clem., *Austral. Orchid Res.* 3: 187 (1998)

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

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

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

Distribution: Endemic status: **not endemic to Tasmania**
Tasmanian NRM Regions: **Cradle Coast**

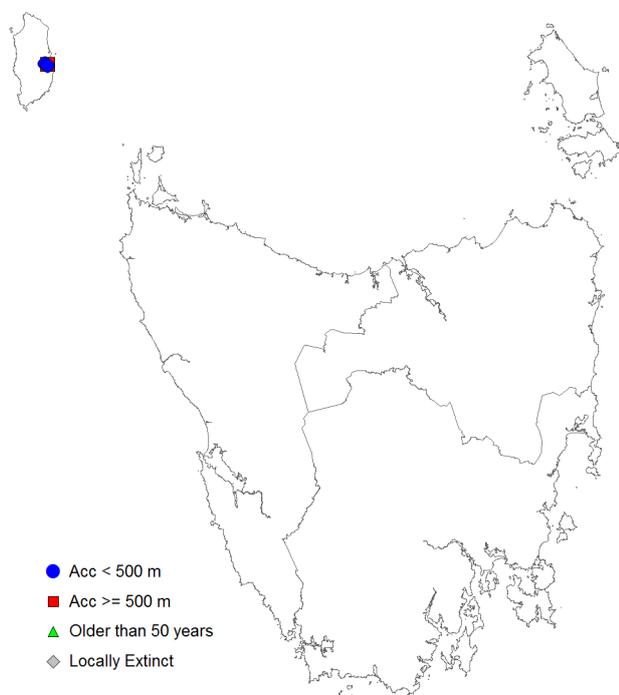


Figure 1. Distribution of *Thelymitra improcera* within Tasmania, showing NRM regions



Plate 1. *Thelymitra improcera*
(image by Richard Schahinger; scale bar = 1 cm)

SUMMARY: *Thelymitra improcera* is a deciduous terrestrial orchid known in Tasmania from just a few sites on King Island, all restricted to an area of about one square kilometre. While abundance data is scarce, it is likely that the species occupies less than 1 ha and consists of fewer than 250 individuals, putting the species at a high risk of local extinctions due to the small size of sites. The species grows within a few kilometres of the coast on peaty or sandy loams in heathland or woodland, as well as dry scrub. Vegetation clearance represents the main threat to the species, additional threats including a lack of disturbance, stochastic events and climate change.

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 identification. In all species the column has two arm-like projections that flank the anther (pollen-holding structure).

Flowers of *Thelymitra* species 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 improcera* is believed to be self-pollinating (Jones & Clements 1998).

The flowering of many sun-orchids is promoted by disturbance. Jones (2006) notes that the flowering of *Thelymitra improcera* is enhanced by summer fires, and indeed, the first recorded site for the species on King Island dating to November 1991 was in burnt heathland.

Survey techniques

Surveys for *Thelymitra improcera* should be undertaken during its peak flowering period,

early to late November, ideally in hot weather when its flowers are most likely to be open (Jones & Clements 1998).

Description

Thelymitra improcera has a leaf that is 10 to 20 (–30) cm long and 8 to 12 mm wide. The leaf is linear to linear-lanceolate, fleshy, and channelled. The flower stems are 15 to 25 (–30) cm tall. The inflorescence usually consists of 1 to 8 flowers, which are 20 to 25 mm across, and pale blue. The sepals and petals are 12 to 15 mm long and 5.5 to 8 mm wide (the labellum being the narrowest), and are sharply pointed. The column is 5 to 6 mm long and 2.5 to 3 mm wide, and is cream or bluish with a dark apical collar and a yellowish apex. The post-anther lobe is short with short side flanges, the dorsal surface with a few irregular bumps, yellow-tipped, deeply and irregularly lobed. The column arms are obliquely erect and 1 to 2 mm long, with a mop-like tuft of white hairs about 1 mm long (Plate 1).

[description based on Jones et al. 1999 and Jones 2006]

Confusing species

Thelymitra improcera is characterised by its unspotted blue flowers, a short post-anther lobe with irregular bumps, and the presence of auxiliary column lobes and forward-projecting column arms with short white hairs. *Thelymitra longiloba* shares these characters (Jones 2006), but its auxiliary column lobes are much longer than the post-anther lobe (these are about as long as for *Thelymitra improcera*), and are usually smooth (they are toothed or lobed for *Thelymitra improcera*). *Thelymitra longiloba* is currently known in Tasmania from the mainland, mostly along the northern and western coasts.

DISTRIBUTION AND HABITAT

Thelymitra improcera occurs in Victoria and Tasmania (Jones 2006). Within Tasmania the species is known from the Sea Elephant Road area on King Island (Figure 1), where it grows in low-lying moist areas in heathland and heathy open forest and woodland on sandy or

Table 1. Population summary for *Thelymitra improcera* in Tasmania

	Subpopulation	Tenure	NRM region	1:25 000 mapsheet	Year last (first) seen	Area of occupancy (ha)	Number of plants
1	Sea Elephant Road (3.5 km NNW of Naracoopa)	private land	Cradle Coast	Sea Elephant	1991	unknown	unknown
2	Sea Elephant Road (2.5 km NNW of Naracoopa)	Crown or private land	Cradle Coast	Sea Elephant	1993	unknown	unknown
3	4.5 km NW of Naracoopa	private land	Cradle Coast	Sea Elephant	2015 (2012)	0.01 0.03	c. 10 c. 15

NRM Region = Natural Resource Management region

peaty loams (Jones et al. 1999). It has also been found growing in tall dry scrubs dominated by *Leptospermum scoparium*, with little at ground level aside from woody debris and leaf litter (Plates 2 & 3). Co-occurring orchids in the latter habitat included *Caladenia vulgaris*.



Plates 2 & 3. Dry scrub habitat of *Thelymitra improcera* (images by Richard Schahinger, November 2015)

The species' habitat falls within the vegetation mapping unit 'Scrub complex on King Island' (Kitchener & Harris 2013). The known sites on King Island are within 2 km of the coast and in the altitude range 10 to 30 m above sea level.

POPULATION PARAMETERS

Thelymitra improcera is known in Tasmania from three subpopulations, where subpopulations have been defined as occurrences separated by at least 1 km (Table 1). The species has a linear range of about 2 km and an extent of occurrence of less than 1 km². Based on the limited abundance data available the area of occupancy is estimated to be less than 1 ha, with fewer than 250 mature individuals

Population figures are available for only one of the three subpopulations, the one recorded in late November 2012, with about 15 plants seen in an area of 20 by 15 metres. The two sites recorded in the early 1990s are believed to have supported just a few plants (Hans Wapstra, pers. comm.).

Extensive botanical surveys of areas in the vicinity of Sea Elephant Road to the north of Naracoopa have been undertaken over the past decade as part of mineral exploration linked to a sand-mining operation near Naracoopa, with one subpopulation of *Thelymitra improcera* uncovered. The areas surveyed included both Crown and private land. In addition, surveys by orchid enthusiasts along Sea Elephant Road over the past 20 years have failed to locate the species, as have repeated surveys by DPIWWE personnel of similar habitat in nearby Lavinia State Reserve. The likelihood of additional subpopulations being found is thus considered

to be low, with any new subpopulations found unlikely to support significant numbers.

RESERVATION STATUS

Thelymitra improcera is not known to occur in any formal reserve.

CONSERVATION ASSESSMENT

Thelymitra improcera is in the process of being listed as endangered on the Tasmanian *Threatened Species Protection Act 1995* meeting the following criterion:

(D) Total population extremely small or area of occupancy very restricted, and:

1. total population estimated to number fewer than 250 mature individuals;
2. total population with an area of occupancy less than 1 hectare, and typically in five or fewer locations that provide an uncertain future due to the effects of human activities or stochastic events, and thus capable of becoming extinct within a very short time period.

THREATS, LIMITING FACTORS AND MANAGEMENT ISSUES

Within Tasmania *Thelymitra improcera* has been recorded from just a few sites, only one of them with any precision, making the species vulnerable to inadvertent destruction and stochastic events.

Land clearing: Any clearing activities in the vicinity of the known sites of *Thelymitra improcera* have the potential to deleteriously affect the subpopulations. Poor planning may result in the inadvertent disturbance and even local elimination of subpopulations. Historically, significant areas of potential habitat on King Island have been cleared (Barnes et al. 2002, Finzel 2004). Clearance of potential habitat, be it for agricultural, mining or residential purposes, has the capacity to disturb or eliminate as yet undetected subpopulations. The site found in 2012 (subpopulation 3 in Table 1) is within an area covered by an existing Forest Practices Plan, and is at risk from imminent land clearance.

Inappropriate disturbance: Species of *Thelymitra* require light and some space to allow annual emergence, growth and seed-set. Orchid

species may be out-competed as their heathland habitat becomes dense over time in the absence of disturbance. While sun-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, the less likely must be the long-term persistence of a species in an area (Jones et al. 1999). The species' highly localised distribution and low population sizes also complicates designing and implementing an appropriate disturbance regime (e.g. fire and/or slashing), as any one event might result in local extinction. However, refraining from active management might equally result in extinction, albeit over a longer period.

Stochastic events: The uncertainty over the location of records from the early 1990s means that the risk of inadvertent destruction due to chance events is high.

Climate change: The potential impact of climate change on *Thelymitra improcera* is difficult to quantify but it is possible that even minor shifts in average seasonal conditions may have an adverse impact on such a locally restricted species, especially if other ecological factors such as appropriate fire or disturbance regimes are absent.

MANAGEMENT STRATEGY

What has been done?

Targeted surveys for *Thelymitra improcera* were undertaken in November 2015 by DPIPWE and Forest Practices Authority personnel; subpopulation 3 was relocated (Plate 3), but no new sites were found.

Management objectives

- prevent the loss or degradation of known subpopulations;
- undertake active management of subpopulations, including monitoring, to ensure their long-term viability;
- identify new subpopulations.

What is needed?

Agencies, groups or individuals may assist with some or all of the following recovery actions.

Coordinated efforts will achieve the best and most efficient results.

- 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;
- negotiate with relevant land managers for sites supporting the species to ensure their long-term viability;
- undertake extension surveys of potential habitat within the vicinity of known subpopulations;
- establish a monitoring program for known subpopulations, designed to report on health and recruitment, and gauge the response of the species to disturbance events and seasonal or annual conditions;
- collect seed and mycorrhizae for long-term storage at the Tasmanian Seed Conservation Centre based at the Royal Tasmanian Botanical Gardens, Hobart.

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