Image by Hans & Annie Wapstra

Orthoceras strictum

horned orchid

TASMANIAN THREATENED SPECIES LISTING STATEMENT

Scientific name: ***Orthoceras strictum*** R.Br., *Prod.* 317 (1877)

Common Name: horned orchid (Wapstra *et al.* 2005)

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

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

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

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

Tasmanian NRM Region: **Cradle Coast, North, South**

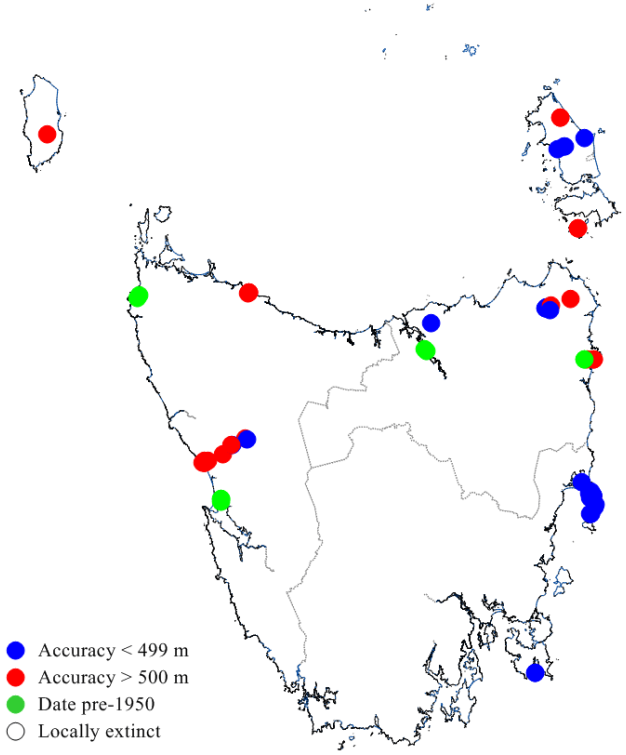

Figure 1. The distribution of *Orthoceras strictum* within Tasmania

Plate 1. *Orthoceras strictum* flowers (Image by Hans & Annie Wapstra)

IDENTIFICATION AND ECOLOGY

Orthoceras strictum belongs to a small genus of poorly-studied orchids with 1 named Australian species, about 3 undescribed Australian species, and 1 species in New Zealand and 1 in New Caledonia.

Species of *Orthoceras* are deciduous terrestrials with elongate tubers, a tuft of erect grass-like leaves, and a tall sturdy multi-flowered inflorescence. Plants are dormant from late summer to early winter and the leaves are well developed by spring. Flowering takes place over summer. The dull-coloured flowers have a strongly hooded dorsal sepal, slender lateral sepals and tiny vestigial petals. The erect horn-like lateral sepals give rise to the common name of horned orchid. The labellum, which is three-lobed, has a prominent yellow central callus (Jones *et al.* 1999, Jones 2006).

Species of *Orthoceras* are self-pollinating and do not reproduce vegetatively.

The flowering period of *Orthoceras strictum* on the mainland is October to January (Jones 2006) but in Tasmania most collections are from December to February (Wapstra *et al.* 2008). There is some evidence that plants from the west coast may flower later in this period (Wapstra *et al.* 2008). Despite the highly distinctive appearance of *Orthoceras strictum*, flowering plants are difficult to spot as they simply blend into to the dense vegetation in which they usually grow. Detecting non-flowering plants is virtually impossible.

The response of *Orthoceras strictum* to fire is not well understood. The habitat of the species is relatively fire-prone but the species does not appear to require regular fire for its life cycle, as flowering plants can emerge from dense vegetation (Jones *et al.* 1999).

Description

Orthoceras strictum has 2 to 5 linear-filiform leaves that are 15 to 30 cm long and 2 to 3 mm wide. The leaves are channelled and in a loose, erect, grass-like tuft. The scape is 30 to 60 cm tall, rigid, and yellowish or blackish. The inflorescence has 1 to 9 flowers that are widely spaced. The flowers are 8 to 10 mm across, yellowish green, brownish or blackish, with a prominent yellow patch on the labellum. The dorsal sepal is broadly ovate, and 9 to 12mm long and 8 to 10 mm across. It is strongly hooded over the column. The lateral sepals are filiform, 19 to 25 mm long and 1 mm wide, spreading to obliquely erect (horn-like), and sometimes thickened towards the apex. The petals are oblong-lanceolate with blunt or notched tips. They are 8 to 10 mm long and 3 mm wide, and hidden within the dorsal sepal. The labellum is up to 12 mm long and 10 mm wide. It is three-lobed and decurved. The lateral lobes are 5 to 6 mm long. The mid-lobe is ovate, 6 to 7.5 mm long and 5 to 6 mm wide with shallowly incurved margins. The callus consists of 3 small basal swellings.

[description from Jones *et al.* 1999, Jones 2006]

Confusing Species

There are no confusing species.

DISTRIBUTION AND HABITAT

Orthoceras strictum occurs in Queensland, New South Wales, ACT, Victoria, South Australia and Tasmania. Within Tasmania it is widespread (Figure 1) but uncommon and localised.

Orthoceras strictum occurs in a wide range of habitat types including buttongrass moorland, sedgy and scrubby heathland, sedgy eucalypt shrubland and open forest, usually on poorly to moderately drained peaty, sandy and clay soils that are at least seasonally moist. It can also occur on thin mossy soils at soaks on and below rock faces. The species has a wide elevation range from sea level to 1000 m (on the mainland) but it generally occurs at lower elevations in coastal and near-coastal Tasmania).

POPULATION ESTIMATE

Virtually all herbarium collections and database records are unaccompanied by demographic information, making estimating the total population within Tasmania difficult. Most subpopulations are small (usually in the order of less than 20 mature individuals over less than 1 hectare).

Table 1. Population summary for *Orthoceras strictum*.

	Subpopulation	Tenure	NRM Region *	1:25000 Mapsheet	Year last seen	Area occupied (ha)	Number of mature plants
1	King Island	Unknown	Cradle Coast	Naracoopa	1976	Unknown	Unknown
2	Marrawah	Unknown	Cradle Coast	Marrawah	1911	Unknown	Unknown
3	Irby Flats near Sisters Beach (2 sites)	Rocky Cape National Park?	Cradle Coast	Rocky Cape	1989 1991	Unknown	Unknown
4	Trial Harbour	Unknown	Cradle Coast	Trial	1968	Unknown	Unknown
5	Wakefield Creek near Trial Harbour	Unknown	Cradle Coast	Trial	1973	Unknown	Unknown
6	Cumberland Creek near Trial Harbour	Unknown	Cradle Coast	Trial	1973	Unknown	Unknown
7	near Zeehan	Unknown	Cradle Coast	Dundas	?	Unknown	Unknown
8	Serpentine Hill (2 sites)	Unknown	Cradle Coast	Dundas	1973 1991	Unknown	Unknown
9	near Rosebery	Unknown	Cradle Coast	Rosebery	1968	Unknown	Unknown
10	Mount Read Road	Unknown	Cradle Coast	Rosebery	2003	Unknown	Unknown
11	near Strahan	Unknown	Cradle Coast	Strahan	1929	Unknown	Unknown
12	Wingaroo area, Flinders Island	Foochow Conservation Area	North	Wingaroo	1975	Unknown	Unknown
13	Stony Lagoon, Flinders Island	Private sanctuary	North	Patriarchs	1993	Unknown	Unknown
14	Pats River, Flinders Island	Crown	North	Leventhorpe	2001	Unknown	Unknown
15	Memana Road (east of), Flinders Island	Darling Range Conservation Area	North	Leventhorpe	1993	Unknown	Unknown
16	Gambles Creek (west tributary), Flinders Island	Unknown	North	Leventhorpe	1993	Unknown	Unknown
17	Clarke Island	Unknown	North	Preservation	1970	Unknown	Unknown
18	Eddystone Road east of Gladstone	Unknown	North	Gladstone	1974	Unknown	Unknown
19	Blue Lake near South Mount Cameron	Crown	North	Pioneer	2008	nom. 1	9
20	Gibton Creek near South Mount Cameron	Cameron Regional Reserve	North	Gladstone	1970	Unknown	Unknown
21	South Mount Cameron	Unknown	North	Lanka	1986	Unknown	Unknown
22	St Helens/Georges Bay (3 sites)	Unknown	North	St Helens	1931? pre-1900	Unknown	Unknown
23	Lefroy Road	Lefroy Forest Reserve	North	Retreat	1987	Unknown	Unknown
24	Paper Beach Road, West Tamar	Unknown	North	Beaconsfield	1942	Unknown	Unknown
25	Gravelly Beach, West Tamar	Unknown	North	Beaconsfield	1942	Unknown	Unknown

	Subpopulation	Tenure	NRM Region *	1:25000 Mapsheet	Year last seen	Area occupied (ha)	Number of mature plants
26	Mount Paul (west of), Freycinet Peninsula	Unknown	South	Friendly	2002	Unknown	Unknown
27	Tin works dam (near spillway), Freycinet Peninsula	Unknown	South	Coles Bay	?	Unknown	Unknown
28	Coles Bay – "Recreation Ground", Freycinet Peninsula	Crown	South	Coles Bay	1980	Unknown	Unknown
29	Sleepy Bay, Freycinet Peninsula	Freycinet National Park	South	Coles Bay	1991	c. 1	c. 50
30	Mount Parsons, Freycinet Peninsula (4 sites)	Freycinet National Park	South	Coles Bay	1982 1986 1991	Unknown	< 5
31	Mount Amos, Freycinet Peninsula	Freycinet National Park	South	Coles Bay	1987	Unknown	Unknown
32	Mount Graham (northeast), Freycinet Peninsula	Freycinet National Park	South	Graham	1990	Unknown	Unknown
33	Lone Rock Ridge, Freycinet Peninsula	Freycinet National Park	South	Graham	1990	Unknown	Unknown
34	Cooks Beach, Freycinet Peninsula	Freycinet National Park	South	Graham	2006	-	1
35	near east branch of Jimmys Rivulet, Freycinet Peninsula	Freycinet National Park	South	Graham	1988	Unknown	Unknown
36	Schouten Island, Freycinet Peninsula	Freycinet National Park	South	Schouten	1986	Unknown	Unknown
37	Mount Brown, Tasman Peninsula	Tasman National Park	South	Tasman	1980	-	1

* NRM region = Natural Resource Management region.

The broad vegetation type (i.e. lowland near-coastal poorly drained habitats) potentially supporting *Orthoceras strictum* is widespread in Tasmania and also well surveyed by orchid enthusiasts and botanists because of its tendency to support orchids and its floristic richness. In particular, recently burnt sites in near-coastal areas along the north, east and west coasts are often targeted by orchid enthusiasts and specialists, and several sites in the Rocky Cape National Park, Freycinet National Park and Arthur-Pieman Conservation Area have been particularly well surveyed due to the presence of other threatened orchids.

While a limited number of new subpopulations have been detected since 1995, most previously known sites have not been monitored. The discovery of a new colony in 2008 (which essentially confirms the presence of the species from sites of much older records) suggests that there may be other opportunities for discovery. However, it seems unlikely that subpopulations of *Orthoceras strictum* large enough to influence its conservation status will be discovered in the future. The relatively high number of subpopulations (Table 1) and widespread distribution (Figure 1) gives a false picture of the highly localised and disjunct nature of the distribution of *Orthoceras strictum* in Tasmania.

RESERVATION STATUS

Orthoceras strictum is represented by several sites within the Freycinet National Park. There is one site in the Tasman National Park. Due to the precision of most other records and the lack of detailed collection information, it is difficult to associate a tenure with most records for *Orthoceras strictum*. However, records are likely to lie within the following reserves: Coles Bay Conservation Area, Cameron Regional Reserve, Lefroy Forest Reserve, Rocky Cape National Park, Foochow Conservation Area, Darling Range Conservation Area, a private sanctuary on Flinders Island and various Crown land blocks managed for different reasons including conservation.

CONSERVATION ASSESSMENT

Orthoceras strictum was listed in 1995 as rare on schedules of the Tasmanian *Threatened Species Protection Act 1995*, due to the occurrence of the species in very small and/or localised subpopulations wherever they occur in Tasmania.

THREATS, LIMITING FACTORS & MANAGEMENT ISSUES

Clearing of potential habitat: Clearing of near-coastal native vegetation may have resulted in, and may still be contributing to, the loss of potential habitat for *Orthoceras strictum*. The low precision of many records, combined with the practical limitations of detecting the species (limited to the flowering season and seasons after fire), means that even dedicated surveys have likely overlooked subpopulations.

Historically, significant areas of potential habitat (i.e. lowland near-coastal heathland and heathy woodland) have been cleared and this may explain the disjunct contemporary distribution of the species. Any clearing of potential habitat has the potential to disturb and/or eliminate as yet undetected subpopulations.

The recently recorded sites near South Mount Cameron (Blue Lake area) are threatened by proposed mining activities.

One site at Coles Bay occurs in an area proposed for a caravan park development. This development has been stalled for some time partly because of threatened species issues identified at the site. However, the future of the project is unknown.

Inappropriate fire regime: The flowering of *Orthoceras strictum* is unlikely to be strongly related to fire regime because the species is known from several sites that are long unburnt. However, many sites are also associated with vegetation that is burnt relatively frequently. Frequent low intensity fires (e.g. fuel reduction burning for management purposes) may eventually render habitat unsuitable through loss of the dense understorey and reduction in soil moisture. More intense fires of a more natural frequency may not be directly deleterious to the species but if combined with a frequent low intensity fire regime and/or localised disturbance (e.g. fire-fighting activities), such events may cause local extinctions.

Climate change: While *Orthoceras strictum* occurs in parts of the State with relatively 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 fire regime pressures linked to changes in climatic conditions.

MANAGEMENT STRATEGY

What has been done?

No sites within gazetted reserves are actively managed to maintain and/or enhance the habitat for the species.

Orthoceras strictum was formally included in the *Flora Recovery Plan: Threatened Tasmanian Orchids 2006–2010* (TSU 2006), with a priority (albeit low) noted for the requirement for baseline surveys of subpopulations.

Management objectives

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

What is needed?

- undertake additional surveys of known sites to determine the precise location, extent, condition and management needs of subpopulations, and to enable reassessment of the conservation status of the species;
- include the ecological requirements of *Orthoceras strictum* in any management plans for the reserves known to support the species, including the Freycinet National Park;
- undertake extension surveys of potential habitat close to known sites during the

flowering period of the species, especially in the years after fire events;

- 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.