Image by Mark Clements

Corybas fordhamii

swamp pelican-orchid

TASMANIAN THREATENED SPECIES LISTING STATEMENT

Scientific name: ***Corybas fordhamii*** (Rupp) Rupp, *Victorian Naturalist* 59: 61 (1942)
Common name: swamp pelican-orchid (Wapstra et al. 2005)
Group: vascular plant, monocotyledon, family **Orchidaceae**
Name history: *Anzybas fordhamii*

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**

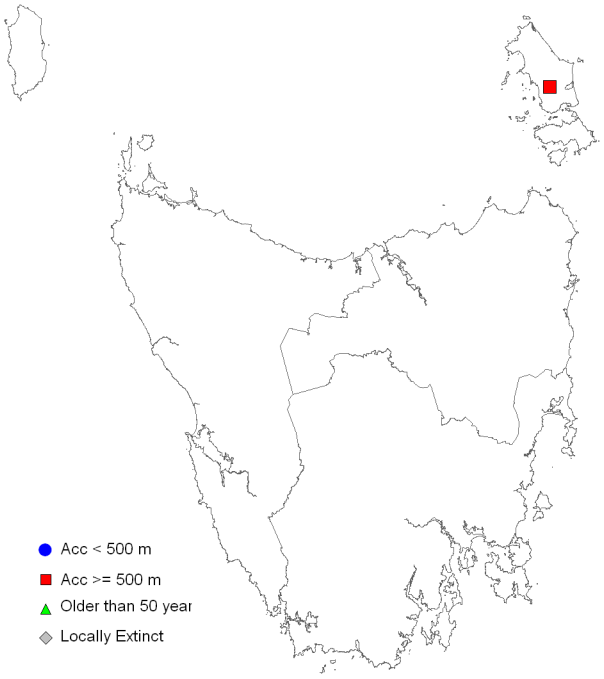

Figure 1. The distribution of *Corybas fordhamii* within Tasmania

Plate 1. *Corybas fordhamii* from Appin Road in New South Wales (image by Mark Clements)

IDENTIFICATION AND ECOLOGY

Corybas species are deciduous terrestrials with a single ground-hugging leaf arising from a tiny subterranean tuber. The single flower, which is hooded, is borne on a short stalk and sits in the base of the leaf. The flowers are small and squat, and mostly coloured in tones of green, red or purple. The flower is dominated by the helmet-shaped dorsal sepal and labellum, with the petals and lateral sepals being reduced to vestigial appendages in most species. The labellum lamina narrows to a tubular base that contains the short squat column.

Corybas fordhamii was segregated into the genus *Anzybas* in the recent treatment recognising six genera within the *Corybas* alliance (Jones et al. 2002). However, this change has not been widely accepted.

Corybas species grow in association with mycorrhizal fungi. They reproduce freely by forming new tubers on the end of long lateral roots, and thus often grow in colonies. They also reproduce sexually, with the flowers being pollinated by fungus gnats of the family Mycetophilidae (Jones 1970). The flowers are believed to mimic the small fruiting bodies of some fungi that are the larva food of the fungus gnats. Pollination is achieved as the female gnats are deceived into attempting to lay their eggs in the flower. To aid in seed dispersal, the short flower stalk elongates considerably after pollination to raise the capsule 10 to 20 cm or more above the ground surface.

Many species of *Corybas* occur in habitats with moderate to high fire frequencies, and flowering can be stimulated by summer fires. *Corybas fordhamii* appears to flower strongly in response to summer fires (Jones 2006). One subpopulation was reported to greatly increase flowering in response to a spring fire in Victoria, followed by a rapid decline in subsequent years (Gordes & Gordes 1992). The Tasmanian site was re-found in 2005 when 33 of the 142 plants were in flower following a wildfire in January 2003. By 2009 only a few flowers could be found amongst the 102 plants counted, with all but 1 browsed (Whinray 2011). After the fire the species appeared to be restricted to areas that would have been wet when the fire went through.

Survey techniques

The flowering period for mainland subpopulations of *Corybas fordhamii* is July to October (Jones 2006) but in Tasmania its only known observations have been between 10 to 20 September, so late August to early October is the likely flowering period in this State and the recommended timing for surveys (Wapstra et al. 2008) as flowers are required for identification of the species. Surveys in the first 1 to 3 flowering seasons following summer fires are recommended due to the increased flowering response and because the vegetation is more open and more easily penetrated.

Description

Corybas fordhamii plants have a cordate (heart-shaped) leaf that is 5 to 20 mm wide by 4 to 16 mm long, green on both sides, and held above the soil level. The flower is usually nodding, 12 to 14 mm long, reddish purple and translucent white and is held erect on a slender stalk about 12 mm long. The dorsal sepal is 14 to 16 mm long by 7 to 8 mm wide, curved, narrow at the base and then expanded and hooded in the upper half. The lateral sepals and petals are linear-filiform. The lateral sepals are about 8 mm long and the petals about 4 mm long. The labellum is 12 to 15 mm long, tubular with prominent reddish bands and incurved margins. The apex of the labellum is often notched. The labellum lamina has 5 to 7 irregular rows of needle-like calli. The auricles (ear-like structures at the base of the labellum) are short and tubular, and open at the apex.

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

Confusing species

Corybas fordhamii could be confused with *Corybas unguiculatus* (Jones et al. 1999) but in *Corybas fordhamii* the dorsal sepal is longer than the labellum (rather than shorter), the flower is reddish and conspicuously striped (rather than dark purple and not striped), and the labellum has several rows of needle-like calli (rather than one central row of congested calli).

DISTRIBUTION AND HABITAT

Corybas fordhamii has been recorded from Queensland (where it is now extinct), New

Table 1. Population summary for *Corybas fordhamii* within Tasmania

	Subpopulation	Tenure	NRM Region	1:25000 Mapsheet	Years seen	Area occupied (ha)	Number of plants
1	Southern gully of Darling Range, Flinders Island	Darling Range Conservation Area	North	Whitemark	2009 2005 1972	unknown	102 142 40 to 50

NRM region = Natural Resource Management region

South Wales, southern Victoria, southeastern South Australia and northeastern Tasmania. Within Tasmania the species is known with certainty from a single location from Flinders Island (Table 1, Figure 1; Whinray 2011). It occurs with breaks along approximately 170 m of a gully.

The habitat of *Corybas fordhamii* on mainland Australia is described as moist to wet sites in dense shrubby heathland and swamps, often in association with *Melaleuca squarrosa* (Jones 2006), and in the raised hummocks of sedges and shrubs in winter-wet areas (Jones *et al* 1999). On Flinders Island *Corybas fordhamii* grows in association with *Melaleuca squarrosa*, occurring in the bed of a seasonal stream in a gully. It is found in naturally clear areas at the edges of runnels and where vegetation is kept short by browsing. On the mainland the species is widespread but often localised (Jones 2006).

POPULATION ESTIMATE

Up to 142 plants of *Corybas fordhamii* have been recorded at any one time from the known site on Flinders Island (Table 1). While much of Flinders Island has been surveyed for orchids by local specialists, and the species is distinctive, the fact there are large areas of potential habitat on the Furneaux Group suggests that discovery of additional subpopulations is a possibility. Whinray (2011) suggests that the most likely places for the species to be found on Flinders Island include very wet gullies further north from high in the Darling Range that support *Melaleuca squarrosa*. He suggests two 1 km long gullies, the first draining north-eastern slopes of Mount Counsel and the other on the south-western side of Mount Leventhorpe.

RESERVATION STATUS

The species is believed to be reserved in Darling Range Conservation Area.

CONSERVATION ASSESSMENT

Corybas fordhamii was first protected as rare in 1995 on schedules of the Tasmanian *Threatened Species Protection Act 1995*. It was uplisted to endangered in 2001, meeting criterion B because there are fewer than 250 mature individuals and its range is severely restricted (1 subpopulation occupying less than 1 hectare).

THREATS, LIMITING FACTORS AND MANAGEMENT ISSUES

It is likely that the Flinders Island site represents the southern limit of the distribution of *Corybas fordhamii* and that it was never widespread and/or common in Tasmania. However, it is possible that other subpopulations exist in similar habitat in the Furneaux Group and perhaps on the northeastern coast of mainland Tasmania. The lack of precision of the only recorded location contributes significantly to the threat from activities in the area. Some generic threats, which are probably applicable to many threatened orchid species, can be identified.

Clearing of potential habitat: Clearing of offshore island vegetation may result in the further loss of potential habitat for *Corybas fordhamii*.

Inappropriate fire regime: The flowering of *Corybas fordhamii* is likely to be enhanced by spring or summer fires. The known site on Flinders Island was burnt by wildfire in January 2003, with 142 plants recorded in 2005 (of which 'many' were flowering), with 102 recorded in 2009 (with only 4 in flower). Fire management in the vicinity of the known

location, or potential habitat elsewhere on Flinders Island, is generally focused on preventing the type of fires that are suitable for enhancing flowering (i.e. summer fires of relatively high intensity). A more frequent lower intensity fuel reduction fire regime is unlikely to benefit the species and in the long term may reduce habitat quality.

Erosion: Whinray (2011) suggests that the erosion he observed in the narrow gully just upstream of the only known location will soon reach the bed supporting the majority of plants potentially resulting in a lowering of the water table and rendering the habit unsuitable for the species.

Weeds: Whinray (2011) suggests that seeds of weeds such as *Cirsium vulgare* and *Hypochoeris radicata* blowing in from pasture to the west and southwest pose a threat to the only known location of the species.

Climate change: Following the fire in January 2003 Whinray (2011) observed the species to be restricted to areas that would have been wet when the fire went through. Climatic changes resulting in a drying of the habitat may expose the species to greater losses from fire.

MANAGEMENT STRATEGY

What has been done?

Corybas fordhamii was included in the *Flora Recovery Plan: Threatened Tasmanian Orchids 2006–2010,* with the need for further survey noted (TSU 2006).

Management objectives

The main objectives for the management of *Corybas fordhamii* in Tasmania are to ensure that there is no decline in the known subpopulation and to detect further subpopulations.

What is needed?

- record the precise location of and assess and address threats to the Darling Range subpopulation;
- undertake surveys for the species in potential habitat (winter-wet areas and swampy heathlands, especially areas associated with shrubs such as *Melaleuca squarrosa* in the Furneaux Group (focussing on very wet gullies in the Darling Range further north of the known location) and possibly the northeastern coast of mainland Tasmania) during the predicted flowering period in late August to early October, particularly in first 1 to 3 flowering seasons after high intensity spring or summer fires;
- provide information and extension support to relevant Natural Resource Management committees, local councils, Government agencies, development proponents 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

Gordes, C. & Gordes, F. (1992). Effects of slashing and burning on orchids in French Island State Park. *Victorian Naturalist* 109(2): 53–54.

Jones, D.L. (1970). The pollination of *Corybas diemenicus* (H.M.R.) Rupp and W.H. Nicholls ex H.M.R. Rupp. *Victorian Naturalist* 87: 372–274.

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

Jones, D., Wapstra, H., Tonelli, P. & Harris, S. (1999). *The Orchids of Tasmania.* Melbourne University Press, Carlton South, Victoria.

Jones, D.L., Clements, M.A., Sharma, I.K., Mackenzie, A.M. & Molloy, B.P.J. (2002). Nomenclatural notes arising from studies into the tribe Diuridae (Orchidaceae). *The Orchadian* 13(10): 437–468.

Rupp, H.M.R. (1941). A new species of *Corysanthes* (Orchidaceae) *C. Fordhamii. Victorian Naturalist* 58: 83–84.

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

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.

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).

Whinray, J. (2011). The Tasmanian records of the swamp helmut-orchid *Corybas fordhamii* (Rupp) Rupp. *The Victorian Naturalist* 128(1): 18-22.

Prepared in October 2008 under the provisions of the Tasmanian *Threatened Species Protection Act 1995*. Approved by the Secretary and published in May 2011.

Cite as: Threatened Species Section (2011). *Listing Statement for* Corybas fordhamii *(swamp pelican-orchid).* Department of Primary Industries, Parks, Water and Environment, Tasmania.

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

Contact details: Threatened Species Section, Department of Primary Industries, Parks, Water and Environment, GPO Box 44, Hobart, Tasmania, Australia, 7001. Ph (03) 6233 6556; fax (03) 6233 3477.

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