

Caladenia cardiochila

heartlip spider-orchid

TASMANIAN THREATENED SPECIES LISTING STATEMENT



Image by Phil Collier

Scientific name: *Caladenia cardiochila* Tate, *Trans. Roy. Soc. S. Austral.* 9: 60, t.2 (1887)

Common name: heartlip spider-orchid (Wapstra et al. 2005)

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

Name history: *Arachnorchis cardiochila*

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

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

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

Tasmanian NRM Region: **North**

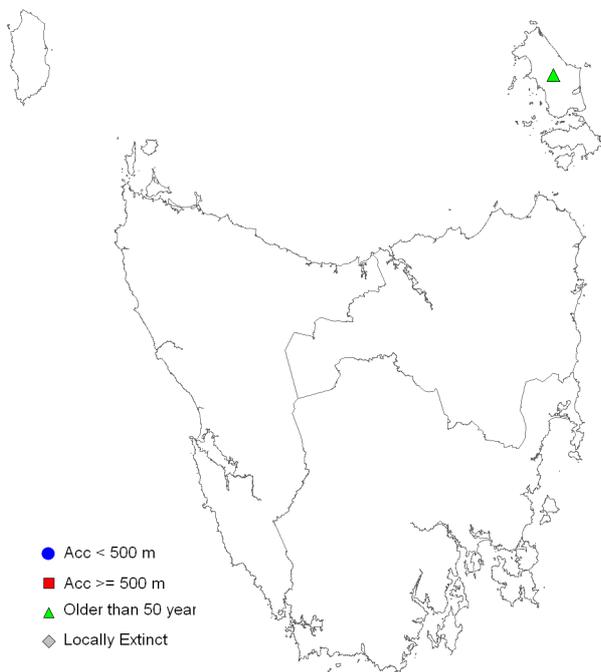


Figure 1. Distribution of *Caladenia cardiochila* within Tasmania, showing NRM regions



Plate 1. *Caladenia cardiochila* flower from Anglesea, Victoria (image by Phil Collier)

IDENTIFICATION AND ECOLOGY

Caladenia cardiochila belongs to the large-flowered section of the genus *Caladenia*, sometimes included in the genus *Arachnorchis* literally meaning ‘spider-orchid’ (Jones et al. 2001). Spider-orchids generally have large flowers with long tapered or filamentous segments (although *Caladenia cardiochila* is one of the smallest flowered species of spider-orchid). They are mostly pollinated by male thynnine wasps that attempt to mate with the labellum. The wasps are attracted by scents resembling pheromones of the female wasps. These scents are produced by glands on the flowers. In South Australia *Caladenia cardiochila* is known to be pollinated by the thynnine wasp *Phymatothynnus victor* (Bates & Weber 1990) and it is possible that this pollinator occurs on Flinders Island as part of a southern Australian insect fauna that does not extend to mainland Tasmania (Jones et al. 1999).

All *Caladenia* species are deciduous and die back after flowering to small subterranean tubers enclosed by a fibrous sheath or tunic. Plants have a single narrow basal leaf that appears above ground in late autumn or early winter following rains. The flowers have a labellum (lip) which is hinged at the base and bears rows of conspicuous, variously shaped and coloured calli on the upper surface. The labellum margins often also bear calli or may be deeply lobed or toothed. Members of this genus have hairs on most above-ground organs.

The flowering period of *Caladenia cardiochila* on mainland Australia is August to November (Jones et al. 1999, Jones 2006) but in Tasmania its only known collection was in October 1947, so late September to early November is the likely flowering period in this State and the recommended timing for surveys (Wapstra et al. 2008).

The response of species of *Caladenia* to fire varies but most species respond vigorously to high intensity fires during the preceding summer (Jones et al. 1999). The likely habitat of *Caladenia cardiochila* in Tasmania is fire-prone and in mainland states the species occurs in habitat with varying fire frequencies (Jones et al. 1999) so it is likely that the flowering response of the species is enhanced by fires.

Description

Caladenia cardiochila plants are 10 to 30 cm tall with a slender and wiry, sparsely hairy stalk bearing 1 to 2 flowers. The leaf is also sparsely hairy, and is 6 to 10 cm long and 7 to 10 mm wide. Flowers are 20 to 30 (occasionally to 50) mm across, making the species the smallest spider-orchid in Tasmania. They are generally greenish pink to reddish with red stripes though can be occasionally wholly reddish. The dorsal (upper) sepal is 18 to 22 mm long and 3 mm wide and incurved to recurved. The lateral (lowermost) sepals are also 18 to 22 mm long but 3.5 to 4 mm wide, and decurved, parallel or divergent. The petals are 17 to 20 mm long and 2 mm wide, spreading or decurved behind the ovary and divergent. The labellum is prominently heart-shaped, cream with reddish margins (occasionally wholly red) and a dark maroon apex, the margins lacking teeth. The column behind the labellum is green with red markings. The tip of the labellum projects and has thickened black margins. The calli on the lamina of the labellum are purple-black and shiny, and in 2 or 4 rows in the basal half of the labellum.

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

Confusing species

None in Tasmania (Jones et al. 1999).

DISTRIBUTION AND HABITAT

Caladenia cardiochila occurs in western Victoria, South Australia and in northeastern Tasmania. Within Tasmania it is only known with certainty from a collection in 1947 from an unknown location on Flinders Island (Figure 1).

On mainland Australia *Caladenia cardiochila* is a widespread and often common species found in a wide range of forested and shrubby habitats on well-drained soils (Jones 2006). While there is no detailed information on the Flinders Island collection, the habitat is likely to be consistent with the mainland sites.

Table 1. Population summary for *Caladenia cardiochila* in Tasmania

	Subpopulation	Tenure	NRM Region *	1:25000 Mapsheet	Year last seen	Area occupied (ha)	Number of mature plants
1	Flinders Island	Unknown	North	Unknown	1947	Unknown	Unknown

* NRM region = Natural Resource Management region

POPULATION ESTIMATE

There is no reliable population estimate available for *Caladenia cardiochila* in Tasmania. The only formal recording of the species in is from 1947, represented by a single collection of a single plant (Table 1). The subpopulation is now presumed to be extinct.

There are large areas of lowland near-coastal heathy forest, woodland and scrub over much of the Furneaux group (and perhaps other Bass Strait islands) and along the north, northeast and east coast of mainland Tasmania that would appear suitable for the species. However, the species is unlikely to be represented by many undetected subpopulations as this is a distinctive species and large areas of potential habitat have been well surveyed by orchid enthusiasts.

RESERVATION STATUS

The reservation status of *Caladenia cardiochila* in Tasmania is unknown due to the imprecise collection details.

CONSERVATION ASSESSMENT

Caladenia cardiochila was listed in 1995 as extinct on the schedules of the Tasmanian *Threatened Species Protection Act 1995*. It is eligible for listing as extinct on the ground that no occurrence of the taxon in the wild can be confirmed for the past 50 years (last record in 1947).

THREATS, LIMITING FACTORS AND MANAGEMENT ISSUES

With only one site known, now presumed to be extinct, it is difficult to identify specific threats and limiting factors to *Caladenia cardiochila*.

It is possible that the Flinders Island site represents the southern limit of the distribution of the species and that it was never widespread and/or common on the island. However, it is possible that there were (perhaps still are) other

subpopulations elsewhere on Flinders Island in similar habitat. As such it is possible to identify some generic threats, which are probably applicable to many threatened orchid species.

Clearing of potential habitat: Clearing of near-coastal native vegetation may result in the further loss of potential habitat for *Caladenia cardiochila*.

Inappropriate fire regime: The flowering of *Caladenia cardiochila* is likely to be enhanced by summer fires. Fire management in potential habitat for *Caladenia cardiochila* is usually directed towards preventing the type of high intensity broad-scale 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.

MANAGEMENT STRATEGY

What has been done?

Caladenia cardiochila is included in the *Flora Recovery Plan: Threatened Tasmanian Orchids 2006–2010* (Threatened Species Section 2006).

Management objectives

The development of a management strategy for *Caladenia cardiochila* is limited by the imprecise location details of the only known site and the likely extinct status of the species in Tasmania.

While the available evidence suggests that *Caladenia cardiochila* is extinct, the possibility of re-discovering the species should not be discounted, considering the recent re-discoveries of several plant species in Tasmania (e.g. Wapstra et al. 2006, Bonham 2008).

What is needed?

The following general guidelines may improve the opportunities for detecting further subpopulations:

- undertake surveys for the species in potential habitat (heathland, heathy woodland, open forest and scrub on well drained sandy soils and loams in the Furneaux Group and possibly the northeastern coast of mainland Tasmania) during the predicted flowering period (late September to early November);
- consider undertaking extension surveys of potential habitat one to three flowering seasons after high intensity summer fires.

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