Image by Terry Butler

Caladenia pallida

rosy spider-orchid

TASMANIAN THREATENED SPECIES LISTING STATEMENT

Scientific name:	***Caladenia pallida*** Lindley, *Gen. Sp. Orchid* Pl. 421 (1840)
Common name:	rosy spider-orchid (Wapstra et al. 2005)
Group:	vascular plant, monocotyledon, family **Orchidaceae**
Name history:	*Arachnorchis pallida*
Status:	*Threatened Species Protection Act 1995*: **endangered** *Environment Protection and Biodiversity Conservation Act 1999*: **Critically Endangered**
Distribution:	Endemic status: **Endemic to Tasmania** Tasmanian NRM Region: **Cradle Coast, North, South**

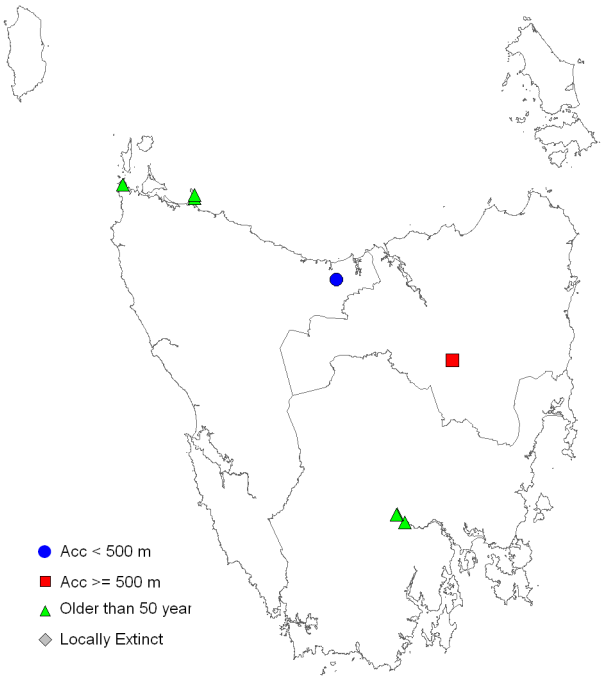

Figure 1. Distribution of *Caladenia pallida,* showing NRM regions

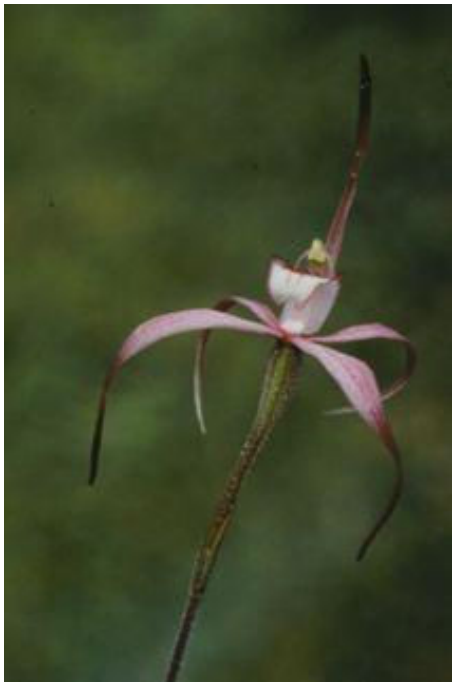

Plate 1. *Caladenia pallida* from Epping Forest (image by Terry Butler)

IDENTIFICATION AND ECOLOGY

Caladenia pallida 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. They are often 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.

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 pallida* is poorly known due to scant records with little collection details but it has been collected in October, November and December, with the most recent collections (in 1979 and 1987) during early to mid November, so late October to early December is the likely flowering period 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). While the likely habitat of *Caladenia pallida* in Tasmania is fire-prone, the response of the species to fire is wholly unknown due to lack of records.

Description

Caladenia pallida plants are 15 to 40 cm tall with a wiry and densely hairy stem bearing 1 to 2 flowers. The leaf is densely hairy, and is 8 to 14 cm long and 7 to 8 mm wide. Flowers are about 45 mm across. They are yellowish to bright rosy pink, with darker sepaline osmophores, a ream to pink labellum with cream, whitish or reddish calli. The perianth segments are oblong-lanceolate to obovate-lanceolate in the basal quarter and then tapered. The dorsal (upper) sepal is 30 to 45 mm long and 3 to 3.5 mm wide, and held erect. The lateral (lowermost) sepals are also 30 to 45 mm long but 3.5 to 4.5 mm wide, divergent and spreading widely with drooping tips. The petals are 20 to 25 mm long and 2 mm wide, obliquely erect to widely spreading, also with drooping tips. The labellum is ovate-lanceolate, 9 to 11 mm long and 5 to 6 mm wide, with lateral lobes held erect with 5 to 8 pairs of linear, spreading, straight or curved marginal calli to 2 mm long. The mid-lobe of the labellum is triangular with numerous small marginal calli. The lamina calli are up to 1.3 mm long and in 4 rows, the central ones extending to the base of the mid-lobe. The column is 8 to 10 mm long and 5 mm wide, with 2 obovoid yellow basal glands.

[description from Lindley 1840, Jones et al. 1999, Jones 2006]

Confusing species

Caladenia pallida is not likely to be confused with other Tasmanian spider-orchids (Jones et al. 1999). Once recognised as a variety within the *Caladenia patersonii* complex, *Caladenia pallida* can be distinguished by the following combination of characters: late-spring flowering; relatively small flowers that are yellowish to bright rosy plink; stiffly spreading tepals; sepals with prominent terminal osmophores; relatively small labellum and a small column (Jones 1998).

Caladenia pallida has been a long confused entity but there are abundant early collections that clearly show the taxon to be distinctive (Jones 1998). Similar mainland taxa are now recognised as unique (Carr 1991, Jones 1991) and a closely related Tasmanian taxon, *Caladenia helvina*, has also been described (Jones 1991). This latter species may once have been confused with *Caladenia pallida* but it flowers in summer and is larger-flowered species with droopier segments (Jones et al. 1999).

Table 1. Population summary for *Caladenia pallida*

	Subpopulation	Tenure	NRM Region *	1:25000 Mapsheet	Year last seen	Area occupied (ha)	Number of mature plants
1	Woolnorth	Private property?	Cradle Coast	Grim?	1842	Unknown	Unknown
2	Circular Head	Private property?	Cradle Coast	Stanley?	1837	Unknown	Unknown
3	Railton	Private property	Cradle Coast	Latrobe	1987	Unknown	Unknown
4	Epping Forest	Private property?	North	Cleveland	1979	Unknown	Unknown
5	Ouse	Private property?	South	Ouse?	1921	Unknown	Unknown
6	Glenora	Private property?	South	Bushy Park?	1893	Unknown	Unknown
7	'Glen Leith' (near Plenty)	Private property?	South	Uxbridge?	1840	Unknown	Unknown

* NRM region = Natural Resource Management region

DISTRIBUTION AND HABITAT

Caladenia pallida is endemic to Tasmania. In recent years it has only been recorded from the northern Midlands at Epping Forest and in the central north at Railton (Jones et al. 1999). However, it appears that the species was once more widespread, with several 19th century collections from the Circular Head area and from the lower Derwent Valley between Hobart and New Norfolk (Figure 1).

There is little known about the habitat of *Caladenia pallida* but it appears to be restricted to lowland areas with an annual rainfall of less than 1000 mm, growing in open eucalypt forest (Jones 1998, Jones et al. 1999). The historical distribution may have included more diverse habitats.

The Epping Forest subpopulation probably occurred in heathy/grassy *Eucalyptus amygdalina* forest on ironstone gravels on gently undulating terrain, while the Railton subpopulation is likely to have been in fairly open heathy/shrubby *Eucalyptus amygdalina* forest on well-drained sandy and gravelly soils.

POPULATION ESTIMATE

There is no reliable population estimate available for *Caladenia pallida* (Table 1), with most subpopulations considered to be locally extinct. Jones (1998) suggested that the species was once probably abundant in the Circular Head area, based on the number of specimens collected in the mid 19th century.

RESERVATION STATUS

Caladenia pallida is formally unreserved but does occur in Henry Somerset Orchid Conservation Area, a private sanctuary (site of the most recent collection in 1987).

CONSERVATION ASSESSMENT

Caladenia pallida was listed in 1995 as rare on the schedules of the Tasmanian *Threatened Species Protection Act 1995* and uplisted to endangered in 2001. The species meets criteria B, C and D: low number of subpopulations, a continuing decline in the extent and quality of potential habitat, and total population likely number fewer than 250 mature individuals.

THREATS, LIMITING FACTORS AND MANAGEMENT ISSUES

With just two 'recent' sites for *Caladenia pallida*, where it has not been sighted since the dates of collection, it is difficult to identify specific threats and limiting factors.

Clearing of potential habitat: It is apparent that *Caladenia pallida* has suffered a drastic decline in available habitat through agricultural clearing during the 1800s and 1900s, especially in the lower elevation parts of the northwest and north coasts and hinterlands, extensive parts of the Midlands and lower Derwent valley. While it seems that the species is now

extinct from sites where it was apparently once abundant, e.g. Circular Head and Woolnorth areas (Jones 1998), continued clearing of near-coastal native vegetation may result in the further loss of potential habitat for *Caladenia pallida*.

Inappropriate disturbance regime: The response of *Caladenia pallida* to fire is unknown but it may be similar to many other forest-dependent spider-orchids in which summer fires can enhance flowering. Long periods without fire may be deleterious, which may explain the apparent absence of the species from the Henry Somerset Orchid Conservation Area (where it was last collected in 1987), as this site remained long unburnt (recent ecological burning has resulted in a strong flowering response of other threatened *Caladenia* species including *Caladenia caudata* and *Caladenia tonellii* but *Caladenia pallida* has not been detected). Inappropriate grazing and fertilising regimes may have resulted in habitat becoming unsuitable for *Caladenia pallida*.

Climate change: Changes in rainfall patterns may lead to habitat becoming unsuitable for the species and associated pollinators and mycorrhizal fungi.

Stochastic events: While stochastic events are by definition unpredictable, in this case such events are most likely to be associated with events such as unintended fires (e.g. arson, lightning strikes). In addition, the bushland patches supporting *Caladenia pallida* are frequented by many people and deliberate or inadvertent (e.g. for the purpose of identification) picking of flowers is a genuine risk to a species with low population numbers (if the species were to be re-discovered).

MANAGEMENT STRATEGY

The development of a management strategy for *Caladenia pallida* is limited by the imprecise location details of the known sites and the long period since the detection of the species.

The available evidence suggests that *Caladenia pallida* is verging on extinction (Jones 1998); however, the possibility of new subpopulations being discovered should not be discounted, as evidenced by the recent re-discoveries of several plant species in Tasmania (e.g. Wapstra et al. 2006, Bonham 2008).

What has been done?

Caladenia pallida was included in a recovery plan for forest-dependent Tasmanian orchids (Ziegeler 1997); targeted searches associated with that report were unsuccessful. The Tom Gibson Nature Reserve (immediately adjacent to the 1979 record for *Caladenia pallida*) and the Henry Somerset Orchid Conservation Area (the 1987 site for the species) have been subject to regular surveys by botanists and naturalists, and it is unlikely that *Caladenia pallida* would have been overlooked if present.

Caladenia pallida was included in the *Flora Recovery Plan: Threatened Tasmanian Orchids 2006–2010* (Threatened Species Unit 2006).

Management objectives

What is needed?

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

- undertake surveys for the species in potential habitat (open eucalypt forest) during the predicted flowering period (late October to early December), targeting the most recent collection sites near Railton and Epping Forest.

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Prepared under the provisions of the Tasmanian *Threatened Species Protection Act 1995*. Approved by the Secretary and published in May 2013.

Cite as: Threatened Species Section (2013). *Listing Statement for* Caladenia pallida *(rosy spider-orchid)*. Department of Primary Industries, Parks, Water and Environment, Tasmania.

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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.