Caladenia brachyscapa

short spider-orchid

TASMANIAN THREATENED SPECIES LISTING STATEMENT

Image by David Jones

Scientific name: ***Caladenia brachyscapa*** G.W.Carr, *Muelleria* 6(6): 439 (1988)

Common Name: short spider-orchid (Wapstra *et al.* 2005)

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

Name History: Recent taxonomic revisions re-classified many *Caladenia* species as *Arachnorchis* (including *Caladenia brachyscapa*) but this has not gained wide acceptance.

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

Environment Protection and Biodiversity Conservation Act 1999: **Extinct**

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

Tasmanian NRM Region: **North**

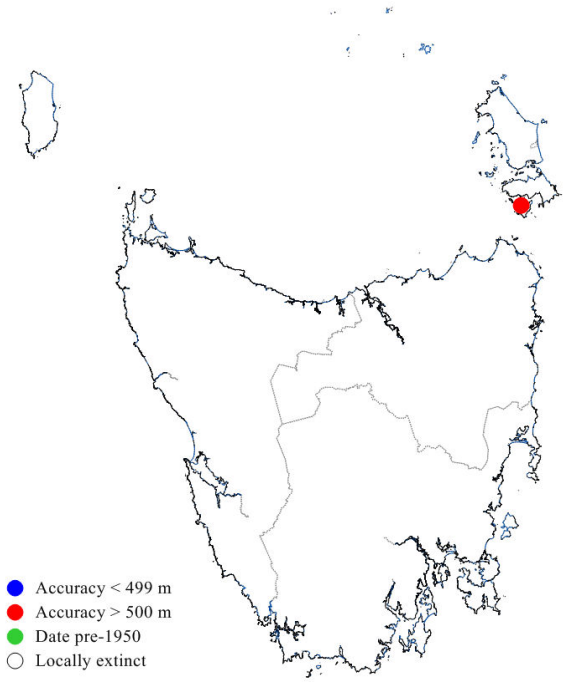

Figure 1. The distribution of *Caladenia brachyscapa* within Tasmania.

Plate 1. *Caladenia brachyscapa* flower. (Image by David Jones)

IDENTIFICATION AND ECOLOGY

Caladenia brachyscapa 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 have large flowers with long tapered or filamentous segments. 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. A few spider-orchids may also be pollinated by native bees. The successful germination and growth of orchids in the wild is dependent on mycorrhizal fungi.

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 brachyscapa* is poorly known because the species is probably extinct in Victoria (Carr 1988, Jones 2006) and is known with certainty from a single collection in Tasmania (Jones *et al.* 1999). In Victoria, collections have been made in late September and mid October (Carr 1988) but in Tasmania its only known collection was on 7 November 1979, so late October to early November is the likely flowering period in this State and the recommended timing for surveys (Wapstra *et al.* 2008).

Little is known of the ecology of *Caladenia brachyscapa* because of the small number of sites known in Victoria and Tasmania. In Victoria, it used to occur in partially cleared and grazed forest, now totally cleared (Carr 1988). 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 habitat of *Caladenia brachyscapa* is fire-prone and presumably the flowering response of the species is enhanced by summer fires.

Description

Caladenia brachyscapa plants are 3 to 15 cm tall (one of the shortest spider-orchids) with a wiry hairy stalk bearing a single flower. The leaf is densely hairy underneath, purple-blotched at its base, and is 4.5 to 10.5 cm long and 3 to 6 mm wide. The flower is 40 to 50 mm across, and reddish pink with thick black osmophores (fleshy club-like swellings) on all the segments. The dorsal (upper) sepal is 24 to 33 mm long, 1 to 1.8 mm wide and is erect to incurved. The lateral (lowermost) sepals are also 24 to 33 mm long but 2 to 3 mm wide, and obliquely reflexed and divergent. The petals are 20 to 25 mm long and 1 to 2 mm wide, also obliquely deflexed. The labellum is white to reddish with a maroon apex, the margins with numerous narrow reddish purple teeth. The tip of the labellum is recurved. The lateral lobes of the labellum are erect with 5 to 7 pairs of spreading marginal teeth to 2 mm long, the mid lobe is acute to acuminate with short, blunt white marginal teeth. The calli on the lamina of the labellum are in 4 or 6 rows extending onto the mid-lobe.

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

Confusing Species

Caladenia brachyscapa is part of the *Caladenia reticulata* complex, but it is not likely to be confused with other Tasmanian spider-orchids (Jones *et al.* 1999).

DISTRIBUTION AND HABITAT

Caladenia brachyscapa is presumed extinct from southern Victoria (previously known from the Warrnambool area in the late 1950s) and is also possibly extinct from its only Tasmanian locality of Clarke Island, since it was only identified from herbarium material collected in 1979 (Table 1, Figure 1).

The habitat of *Caladenia brachyscapa* is described as heathland and sparse coastal scrub on well drained sandy loam (Jones *et al.* 1999).

Table 1. Population summary for *Caladenia brachyscapa.*

	Subpopulation	Tenure	NRM Region *	1:25000 Mapsheet	Year last seen	Area occupied (ha)	Number of mature plants
1	Robin Hill area, Clarke Island	Aboriginal land	North	Preservation	1979	0.001 (10 x 10 m)	1-5

* NRM region = Natural Resource Management region.

POPULATION ESTIMATE

There is no reliable population estimate available for *Caladenia brachyscapa*. The only formal recording of the species in Tasmania is from 1979, represented by a single collection of a single plant, with a possible 2nd site nearby (John Whinray, pers comm.). The exact location is unknown. *Caladenia brachyscapa* was previously known from a few subpopulations in Victoria but was already believed extinct in the wild at the time it was described by Carr (1988). The species is best regarded as presumed extinct in Tasmania because its habitat is subject to heavy grazing and this has probably eliminated the species locally. This is a distinctive species and, given the considerable survey effort of orchid enthusiasts, it is unlikely to be represented by many additional previously undetected subpopulations. However, 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).

There are large areas of lowland near-coastal heathland 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. However, this does not imply that there are large areas of potential habitat for the species because much of this coastal strip has been surveyed by orchid enthusiasts and there are no other records.

RESERVATION STATUS

Caladenia brachyscapa is not known from reserved land.

CONSERVATION ASSESSMENT

Caladenia brachyscapa was listed in 2001 as endangered on schedules of the Tasmanian *Threatened Species Protection Act 1995*. It meets criterion B because there are fewer than 250 mature individuals and its range is severely restricted (it occupies less than 1 hectare, and it occurs in only 1 subpopulation). If the species is not re-discovered in the next 20 years, it would qualify as presumed extinct because it will not have been observed in the wild for 50 years.

THREATS, LIMITING FACTORS & MANAGEMENT ISSUES

With only one location known, now presumed to be extinct, it is difficult to identify specific threats and limiting factors to *Caladenia brachyscapa*. The species may be limited by the distribution of suitable mycorrhizal fungi and the development of a management strategy for *Caladenia brachyscapa* is limited by the imprecise location details of the only known site in Tasmania.

It is possible that the Clarke Island occurrence represents the southern limit of the distribution of the species and that it was never widespread and/or common on the island (or elsewhere in the Furneaux Group). However, it is possible that there were and perhaps still are other subpopulations elsewhere in the Furneaux Group 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 offshore island vegetation may result in the further loss of potential habitat for *Caladenia brachyscapa*.

Inappropriate fire regime: The flowering of *Caladenia brachyscapa* is likely to be enhanced by summer fires. However, for safety reasons, fire management in the vicinity of the location of *Caladenia brachyscapa* (or potential habitat elsewhere on Clarke Island) is likely to be

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.

Inappropriate grazing regime: The only site of *Caladenia brachyscapa* occurs on an island used, at least in part, for cattle grazing. Its habitat on Clarke Island is subject to heavy grazing. Uncontrolled grazing is likely to deleteriously impact the species i.e. intensive grazing that results in removal of fertile plants and disturbance to the tubers.

MANAGEMENT STRATEGY

What has been done?

The species was not found during extensive surveys of Clarke Island by the Parks and Wildlife Service in 1989, conducted during the flowering time of the species.

Caladenia brachyscapa was formally included in the *Flora Recovery Plan: Threatened Tasmanian Orchids 2006–2010* (TSU 2006), with a high priority given to refinding the species given its imminent risk of extinction.

What is needed?

- undertake surveys for the species in potential habitat (near-coastal heathland and open scrub on sandy loams in the Furneaux Group and possibly the northeastern coast of mainland Tasmania) during the predicted flowering period (late October to early November);
- continue to assess the original site of collection and nearby similar habitat during the week or two either side of 7 November;
- undertake extension surveys of potential habitat 1 to 3 flowering seasons after high intensity summer fires;
- should the species be rediscovered, manually pollinate flowers, protect them from browsing and if sufficient fertile material is available, collect seed and mycorrhizal fungi for long-term storage at the Tasmanian Seed Conservation Centre, and propagation, to supplement the population *in situ* and/or *ex situ* with seedlings;
- provide information and extension support to the Northern Natural Resource Management committee, the Aboriginal community, 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.

BIBLIOGRAPHY

Bonham, K. (2008). Rediscovery of *Corunastylis nudiscapa* (Hook.f.) D.L.Jones & M.A.Clem. in Tasmania. *The Tasmanian Naturalist* 130: 100-102.

Carr, G.W. (1991). New species of *Caladenia* R.Br. (Orchidaceae) from Victoria and New South Wales, Australia. *Muelleria* 6(6): 439-447.

Jones, D.L. (1998). A taxonomic review of *Caladenia* in Tasmania. *Australian Orchid Research* 3: 16-60.

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

Jones, D.L., Clements, M.A., Sharma, I.K. & Mackenzie, A.M. (2001). A new classification of *Caladenia* R.Br. (Orchidaceae). *The Orchadian* 13(9): 389-419.

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

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

Wapstra, M., Duncan, F., Buchanan, A. & Schahinger, R. (2006). Finding a botanical Lazarus: tales of Tasmanian plant species

'risen from the dead'. *The Tasmanian Naturalist* 128: 61-85.

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).

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