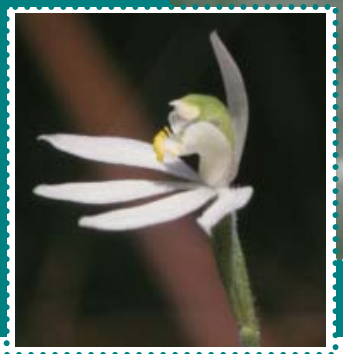

Image by Hans & Annie Wapstra

Caladenia sylvicola

forest fingers

TASMANIAN THREATENED SPECIES LISTING STATEMENT

Scientific name: ***Caladenia sylvicola*** D.L.Jones, *Austral. Orchid. Res.* 3: 40 (1998)

Common Name: forest fingers (Wapstra *et al.* 2005)

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

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

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: **South**

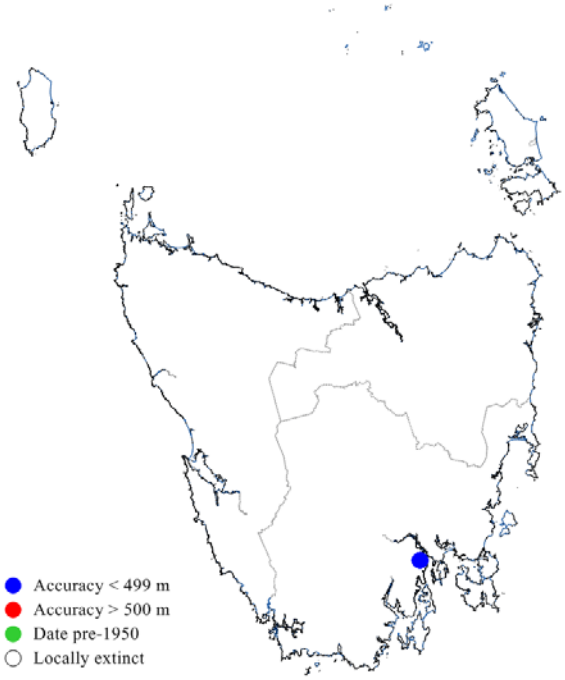

Figure 1. The distribution of *Caladenia sylvicola*

Plate 1. *Caladenia sylvicola*
(Image by Hans & Annie Wapstra)

IDENTIFICATION AND ECOLOGY

Caladenia sylvicola belongs to one of the small-flowered sections of the genus *Caladenia*, sometimes included in the genus *Petalochilus* (Jones *et al.* 2001). This group of *Caladenia* species is distinguished morphologically from other sections by the labellum calli being separate from each other (not on a plate-like structure) and usually arranged in two rows. The heads of individual calli are enlarged and the basal calli are larger than and usually of a different colour to the other labellum calli. The labellum and column are usually ornamented with prominent red transverse bars, although these are absent in *Caladenia sylvicola* (Jones *et al.* 2001).

Plants grow singly or in loose groups. Flowering plants have a single narrow hairy dark green basal leaf, a thin wiry hairy flower stem and 1 to 5 flowers that are usually white or pink. The perianth segments are all of a similar size although the dorsal sepal can be shorter in some species. The dorsal sepal is erect or recurved away from the column and labellum. The lateral sepals and petals project forward or spread like the fingers of a hand. The labellum is hinged and 3-lobed with erect lateral lobes and a projecting or recurved midlobe that is ornamented with short marginal teeth. The calli are stalked and clubbed, often with yellow to orange heads and usually arranged on 2 rows, sometimes 4 in some species (Jones 2006).

All *Caladenia* species are deciduous and die back after flowering to small subterranean tubers enclosed by a fibrous sheath or tunic. The basal leaf appears above ground in late autumn or early winter following rains. The larger-flowered species in the *Petalochilus* group of species are pollinated by small native bees and the smaller-flowers species are mostly self-pollinating, sometimes without opening (Jones 2006). *Caladenia sylvicola* is one of the smaller-flowered species but its method of pollination is not known.

While *Caladenia sylvicola* has not been observed for many years, its flowering time is well known from several precise observations and is a few days either side of 1 November (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). However, *Caladenia sylvicola* is probably sensitive to fire because it has not been detected since a relatively intense fire swept through its habitat, removing much of the litter layer and well-developed humus layer.

Description

Caladenia sylvicola plants are 10 to 16 cm tall with a very slender wiry, sparsely hairy stalk bearing a single flower. The leaf is sparsely hairy, and is 10 to 15 cm long and 2 mm wide. Flowers are 17 to 22 mm across. They are white internally and greenish externally. The dorsal (upper) sepal is narrowly obovate, erect to slightly incurved, and 9 to 11 mm long and 1.8 mm wide. The lateral (lowermost) sepals are narrowly oblanceolate, porrect to drooping and slightly divergent, and 9.5 to 11.5 mm long and 2.5 to 2.8 mm wide. The petals are narrowly obovate, widely spreading to drooping, and 10.5 to 11.5 mm long and 2.5 mm wide. The labellum is ovate, and 5.5 to 6.5 mm long and 6.5 to 7 mm wide. The labellum is almost wholly white but the apex and calli are yellow to orange. The lateral lobes are erect and embrace the column. They are entire and the mid-lobe is narrowly ovate-triangular with 3 to 5 pairs of marginal calli that are up to 0.8 mm long. The lamina calli are in 2 rows and extend to the base of the mid-lobe. The column is green and white, and 5 to 6.5 mm long and 3 mm wide.

[description from Jones 1998, Jones *et al.* 1999, Jones 2006]

Confusing Species

White forms of *Caladenia carnea* and *Caladenia fuscata* could be mistaken for *Caladenia sylvicola* at first glance but the combination of the small white flowers with narrow perianth segments, small labellum with angular lateral lobes and the yellow to orange labellum apex and calli are distinctive.

DISTRIBUTION AND HABITAT

Caladenia sylvicola is endemic to Tasmania. It is known only from the site of first collection (in 1992) and a small colony in the same vicinity discovered 2 years later (Table 1, Figure 1).

The first site is located in well-drained gravelly loam overlying mudstone in heathy/shrubby *Eucalyptus tenuiramis* forest on a highly insolated hillside at about 240 m elevation (Plate 2). The small additional colony occurs at a slightly lower elevation (160 m) on a moist, sheltered slope (on a similar substrate), growing among leaf litter and dense shrubs in tall open dry sclerophyll forest dominated by *Eucalyptus obliqua* (Jones *et al.* 1999).

Open eucalypt forests in southeastern Tasmania have been extensively surveyed by orchid specialists and enthusiasts as they are widely recognised as "hotspots". Indeed, the wider Huon Road area (including sites such as nearby Knocklofty and Waterworks) have been long searched in the hope of re-discovering species such as *Corunastylis nudiscapa*, which occurs at approximately the site of first discovery of *Caladenia sylvicola*. It is likely that *Caladenia sylvicola* has quite specific habitat requirements, at least at the micro-habitat scale (e.g. leaf litter and soil characters), although potential habitat (dry open eucalypt forest on mudstone-derived soils) are widespread in the vicinity of the known sites and the wider Hobart area.

Although it is possible that more subpopulations of *Caladenia sylvicola* exist, given its apparent specific habitat requirements, the attention its broader potential habitat has received in terms of targeted survey effort, and the distinctiveness of the species, detection of further subpopulations is likely to be a chance event. However, even if new subpopulations are discovered, the conservation status of the species would likely remain unchanged.

Plate 2. Habitat of *Caladenia sylvicola* at Huon Road (upper side of road on ridge) (Image by Mark Wapstra)

POPULATION ESTIMATE

Caladenia sylvicola is extremely restricted, known from 2 sites approximately 500 m apart (Table 1), with the total population estimated in 1997 at less than 20 mature individuals. The species has not been sighted since 1997 despite regular searches in the vicinity of known sites and in other suitable habitat.

RESERVATION STATUS

Caladenia sylvicola does not occur in any gazetted reserves, although it is present wholly on land managed by Hobart City Council as part of its bushland reserve network.

Table 1. Population summary for *Caladenia sylvicola*.

Sub-population	Site	Tenure	NRM Region *	1:25000 Mapsheet	Year last seen* (sighted)	Area occupied (ha)	Number of mature plants
1.1	Huon Road	Hobart City Council Bushland Reserve	South	Taroona	1992	0.0001	1
1.2	Ridgeway Park (Waterworks)	Hobart City Council Bushland Reserve	South	Taroona	(1992) (1994) (1996) 1997	0.005	12-15

NRM region = Natural Resource Management region.
* searched for regularly in subsequent years

CONSERVATION ASSESSMENT

Caladenia sylvicola was listed in 1995 as endangered on schedules of the Tasmanian *Threatened Species Protection Act 1995*. It meets criterion D 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, represented by 2 sites close together).

THREATS, LIMITING FACTORS & MANAGEMENT ISSUES

Caladenia sylvicola occurs in highly localised sites within one of Hobart's most accessible recreational bushland reserves. Because of its localised distribution, stochastic events can lead to extinction. In addition, the small population size may lead to inbreeding problems possibly in combination with insufficient maintenance of populations of pollinating insects and associated mycorrhizal fungi.

Land clearing and habitat fragmentation: Historical land clearing has probably resulted in substantial areas of potential habitat within the greater Hobart area being eliminated. It is unknown whether *Caladenia sylvicola* was ever more widespread because there are no historical herbarium collections prior to 1992. Clearing in the vicinity of the known sites is not likely under Hobart City Council's management of its bushland reserve network.

Inappropriate fire regime: While many species of *Caladenia* respond positively to fire, *Caladenia sylvicola* is unlikely to benefit in a similar way. While the higher elevation site near Huon Road is relatively fire-prone, the lower slope site is on a more sheltered aspect. The species has not been detected since a fire passed across the slope, affecting the leaf litter and humus layer, perhaps rendering it unsuitable for the species (and mycorrhizal fungi) for many years. Any frequent fire regime is likely to be detrimental to the species, which may be at odds with fire management requirements, which are aimed at preventing severe wildfires (which are also likely to be detrimental to *Caladenia sylvicola*).

Inadvertent destruction and/or disturbance: The extant sites occur in close proximity to urban areas and are therefore at risk from human activities. Both sites are close to walking and vehicle tracks used for reserve management activities, recreational bushwalking and mountain bike riding. Even accidental trampling by walkers (and dogs) is a risk to individual plants. The site on the lower slopes is located about 3 m from a walking track and may be threatened by track management activities. Any such management activities also have the potential to introduce woody weeds to the area, which may make the understorey unsuitable for *Caladenia sylvicola*.

Climate change: Changes in the rainfall pattern may lead to the 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 sylvicola* 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 such low population numbers.

MANAGEMENT STRATEGY

What has been done?

The precise sites supporting *Caladenia sylvicola* have been informally monitored by orchid specialists and enthusiasts since the discovery of the species. Informal extension surveys have been undertaken in the wider Waterworks-Huon Road area over many years.

Caladenia sylvicola 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.

Management objectives

The main objective for the management of *Caladenia sylvicola* is to ensure that there is no decline in the only known subpopulation.

What is needed?

- continue to monitor the known sites and nearby similar habitat during the flowering period;
- conduct extension surveys of potential habitat within the greater Hobart area;
- collect seed for long-term storage at the Tasmanian Seed Conservation Centre. This is noted as a possible action but would be contingent on sufficient fertile material being present;
- supplement the population *in situ* and/or *ex situ* with seedlings grown from stored plants;
- manually pollinate flowers to enable seed set to encourage recruitment from seed and monitor seed set and recruitment;
- provide information and extension support to the Southern Natural Resource Management committee, 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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Cite as: Threatened Species Section (2010). *Listing Statement for* Caladenia sylvicola *(forest fingers)*, Department of Primary Industries. Parks, Water and Environment, Tasmania.

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.