Image by Bob and Penny Tyson

Caladenia prolata

white fingers

TASMANIAN THREATENED SPECIES LISTING STATEMENT

Scientific name: ***Caladenia prolata*** D.L.Jones, *Austral. Orchid Res.* 2: 30 (1991)
Common name: white fingers (Wapstra et al. 2005)
Group: vascular plant, monocotyledon, family **Orchidaceae**
Name history: *Petalochilus prolata*

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**

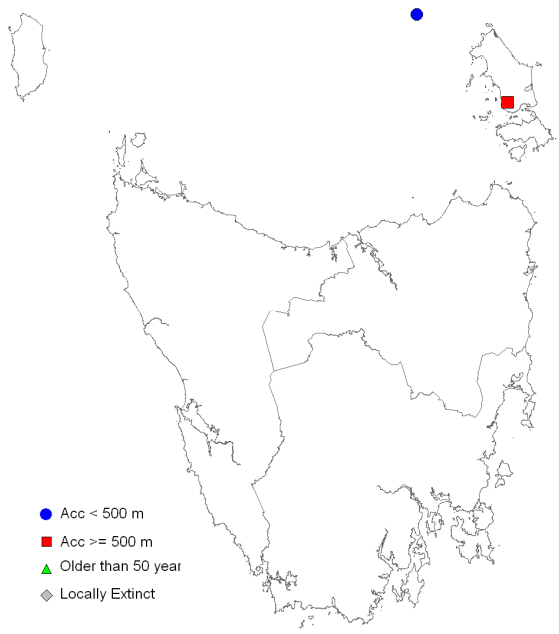

Figure 1. Distribution of *Caladenia prolata* within Tasmania, showing NRM regions

Plate 1. *Caladenia prolata* from Deal Island (images by Bob and Penny Tyson)

IDENTIFICATION AND ECOLOGY

Caladenia prolata 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 not well marked in *Caladenia sylvicola* (Jones et al. 2001).

Plants grow singly or in loose groups. Flowering plants usually have a single narrow hairy dark green basal leaf, a thin wiry hairy flower stem (although in *Caladenia prolata* the leaf is relatively longer and the scape moderately stouter than in other species in the section) 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 mid-lobe that is ornamented with short marginal teeth. The calli are stalked and clubbed, often with yellow to orange heads and usually arranged in two rows, sometimes four 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 prolata* is one of the smaller-flowered species and is self-pollinating, with some flowers self-pollinating without opening (Jones et al. 1999).

On mainland Australia, the flowering period of *Caladenia prolata* is October to November and the Tasmanian collections are from late October to mid 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). The precise response of *Caladenia prolata* to fire is unknown but its habitat is generally considered to be fire-prone. However, *Caladenia prolata* may be intolerant of high fire frequency and high intensity fire because of its microhabitat preferences (i.e. grows in thin soil and detritus on boulders in open forest).

Description

Plants are 12 to 24 cm tall, making *Caladenia prolata* one of the taller small-flowered *Caladenia* species in Tasmania. The scape is relatively thick and sparsely hairy. The leaf is linear, dark green with a red base, sparsely hairy, and is 12 to 20 cm long and 3 to 4.5 mm wide. The inflorescence is 1 or 2 flowered, and the flowers are on long swollen ovaries (even in bud). Flowers are 15 mm across. The flowers are dull white internally, and greenish with red bands and densely hairy externally. The labellum is pink with narrow dark red transverse bars, a pale yellow mid-lobe, yellow basal calli, and white main calli. The dorsal (upper) sepal is narrowly oblanceolate, incurved, and 11 to 14 mm long and 2.5 to 3.5 mm wide. The lateral (lowermost) sepals are narrowly lanceolate, slightly divergent, and 11 to 14 mm long and 3 to 3.5 mm wide. The petals are narrowly lanceolate, spreading or slightly incurved, and 10 to 13 mm long and 3 to 3.5 mm wide. The labellum is broadly ovate, and 5 to 6 mm long and 5.5 to 6.5 mm wide. The lateral lobes are erect and embrace the column, and have 2 to 3 pairs of calli on the extreme distal margin near the base of the mid-lobe. The mid-lobe projects forward and has 3 to 6 pairs of marginal calli. The lamina calli are in 2 rows and extend to the base of the mid-lobe. The column is greenish with red bars, and 5.5 to 6.5 mm long and 2.5 mm wide.

[description from Jones 1991, Jones et al. 1999, Jones 2006]

Confusing species

Caladenia prolata is a member of the *Caladenia carnea* complex (Jones 1991) but is distinctive and easily recognised because of its relatively tall habit with proportionately long leaves and small, dull greenish-white, heavily glandular flowers on unusually long ovaries that are long and prominently swollen even when in bud. *Caladenia prolata* is similar in many of its features to *Caladenia vulgaris* and *Caladenia atrochila* but both these species are smaller, lack the distinctive elongate ovaries, are less glandular and differ in floral colouration.

DISTRIBUTION AND HABITAT

Caladenia prolata occurs in Victoria (west and southwest), South Australia and northeast Tasmania. Within Tasmania it known from a Flinders Island and Deal Island in eastern Bass Strait (Figure 1).

On Flinders Island *Caladenia prolata* is restricted to the surface of granite boulders and seems to be absent from nearby ground (but this may be due to extensive ground disturbance by feral pigs). On Deal Island the species has been recorded from the slopes of two gully systems dominated by *Allocasuarina verticillata* (with sparse *Eucalyptus nitida*) and a *Poa labillardierei* and light bracken understorey (Plate 2).

Plate 2. Habitat of *Caladenia prolata* on Deal Island (image by Bob and Penny Tyson)

It is probable that the subpopulations of *Caladenia prolata* on the eastern Bass Strait islands represent the southern limit of the species' distribution and that it was never widespread and/or common in the Furneaux Group.

POPULATION ESTIMATE

The total population of *Caladenia prolata* is probably less than 250 mature individuals as all sites are represented by very low numbers (Table 1).

Since the formal recognition of *Caladenia prolata* in Tasmania in 1999 (Jones 1999), based on the collection of the species in Strzelecki National Park in 1998, two confirmed subpopulations have been discovered (in 2004), both from Deal Island. Although it is possible that more subpopulations of *Caladenia prolata* exist, given its apparent specific habitat requirements, the attention its broader potential habitat has received in terms of targeted survey effort (e.g. by naturalists on the Bass Strait islands), and the distinctiveness of the species, detection of further subpopulations is likely to be a chance event. For example, while the botany of Deal Island and nearby islands has been described (e.g. Harris and Davis 1995, Kirkpatrick 1995), large parts of the islands remain unexplored botanically and additional localised subpopulations of several threatened species are likely to be serendipitously discovered. However, it seems unlikely that subpopulations of *Caladenia prolata* large enough to influence its conservation status will be discovered in the future.

RESERVATION STATUS

Caladenia prolata occurs in Strzelecki National Park and Kent Group National Park.

CONSERVATION ASSESSMENT

Caladenia prolata was listed in 2001 as endangered on schedules of the Tasmanian *Threatened Species Protection Act 1995*. It meets criterion D as the total population is likely to number fewer than 250 mature individuals.

Table 1. Population summary for *Caladenia prolata* within Tasmania

	Subpopulation	Tenure	NRM Region *	1:25000 Mapsheet	Year first (last) seen	Area occupied (ha)	Number of mature plants
1	Strzelecki Peaks, Flinders Island	Strzelecki National Park	North	Loccotta	2001 (1998)	0.0001 0.0001	c. 10 1
2	Deal Island (Bay south of Winter Cove)	Kent Group National Park	North	Deal Island	2004	c. 0.5–1	10s to low 100s
3	Deal Island (Squally Cove)	Kent Group National Park	North	Deal Island	2004	c. 0.2	c. 50

* NRM region = Natural Resource Management region

THREATS, LIMITING FACTORS AND MANAGEMENT ISSUES

Caladenia prolata is known from highly localised sites, and in consequence is at risk of extinction through stochastic events. The small size of subpopulations may lead to inbreeding problems, possibly in combination with insufficient maintenance of populations of pollinating insects and associated mycorrhizal fungi.

Inappropriate fire regime: The ecological requirements of *Caladenia prolata*, especially in relation to the frequency, timing and intensity of fires, is largely unknown but it may be adversely affected by frequent high intensity fires that affect the litter and soil conditions.

Known sites are subject to infrequent wildfires (usually deliberately lit). Fire management on the eastern Bass Strait islands known to support *Caladenia prolata* (or potential habitat elsewhere on other islands) is likely to be focused on preventing widespread wildfires. The potential impact of controlled burns (e.g. autumn fuel reduction burns), should they be undertaken, on subpopulations of *Caladenia prolata* is unknown. The combination of fire events and other risk factors (e.g. increased grazing pressure and weed invasion after fire) probably presents a greater risk than the actual fire event itself.

Weed invasion: Deal Island has several locations supporting potentially invasive weeds (Parks & Wildlife Service 2005) and these have the potential to spread to sites supporting *Caladenia prolata*. In the first instance, weeds may out-compete more delicate orchids and locally eliminate subpopulations. However, weed management activities, if undertaken without taking into account the presence of threatened species, also has the potential to deleteriously affect localised subpopulations of delicate herbs. Sites of *Caladenia prolata* (on Deal Island) are presently free from invasive weeds.

Inappropriate disturbance regime: The subpopulation on the Strzelecki Peaks is potentially subject to extensive ground disturbance by feral pigs. Anecdotal evidence indicates that the subpopulation is presently restricted to the surface of outcropping granite but absent from open ground under shrubs. On mainland Australia *Caladenia prolata* occurs on the ground, which indicates that ground disturbance by feral pigs may have already limited the extent and abundance of the subpopulation of *Caladenia prolata* on Strzelecki Peaks, and possibly elsewhere on Flinders Island.

Localised inadvertent disturbance by visitors to the subpopulation on Strzelecki Peaks is possible and is known to have occurred in the past. The boulder supporting *Caladenia prolata* has been disturbed by a fire lit at its base and by people scrambling over it, disturbing the delicate layer of lithophytic plants.

The subpopulations on Deal Island are relatively secure from inadvertent disturbance, although it is noted that a recently established walking track to Squally Cove passes through the gully supporting *Caladenia prolata*. However, the presence of the track itself probably presents little risk to the subpopulation, provided that track maintenance activities take appropriate account of the species.

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). The sites supporting *Caladenia prolata* are infrequently visited by people and deliberate or inadvertent (e.g. for the purpose of identification) picking of flowers is a low, but genuine, risk to a species with low population numbers at highly localised sites.

MANAGEMENT STRATEGY

What has been done?

No sites within gazetted reserves are actively managed to maintain and/or enhance the habitat for the species. There is a management plan for Kent Group National Park but it does not make any specific recommendations on relation to *Caladenia prolata*, which is not noted in the table of threatened species present in the reserve (Parks & Wildlife Service 2005).

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

Management objectives

What is needed?

The main objective for the management of *Caladenia prolata* is to ensure that there is no decline in the known subpopulations.

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

- undertake additional surveys of the subpopulations to determine their precise extent and condition. Such information is important to developing an appropriate management strategy for each of the sites. Surveys on Deal Island could be undertaken by volunteer lighthouse keepers;
- undertake surveys for the species in potential habitat in the Furneaux Group during the predicted flowering period (late October to mid November);
- incorporate the management requirements of *Caladenia prolata* into updated management plans for the Kent Group National Park and any associated action plans such as fire and weed management plans.

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