Caladenia aurantiaca

orangetip fingers

TASMANIAN THREATENED SPECIES LISTING STATEMENT

Image by Gail Pollard

Scientific name: ***Caladenia aurantiaca*** (R.S.Rogers) Rupp, *Proc. Linn. Soc. N.S.W.* 71: 280 (1947)

Common name: orangetip fingers (Wapstra et al. 2005)

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

Name history: *Petalochilus aurantiacus*

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**

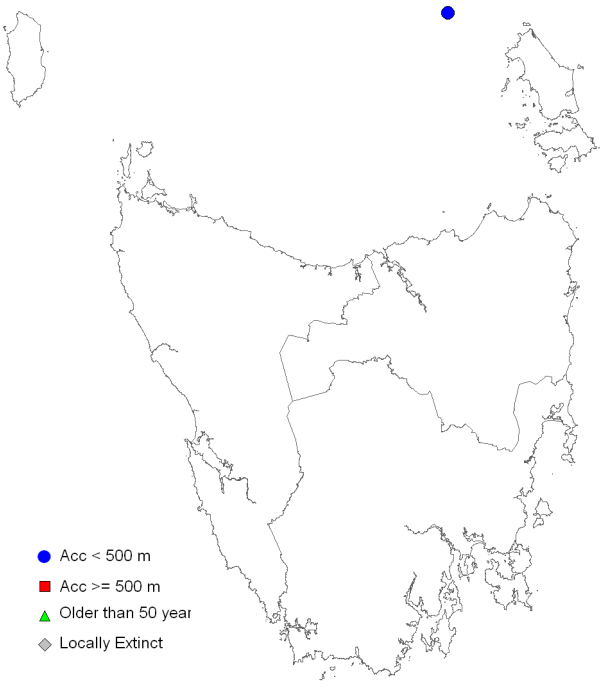

Figure 1. Distribution of *Caladenia aurantiaca* within Tasmania, showing NRM regions

Plate 1. *Caladenia aurantiaca* from Deal Island (image by Gail Pollard)

IDENTIFICATION AND ECOLOGY

Caladenia aurantiaca 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 aurantiaca* (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 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 on 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 aurantiaca* is one of the smaller-flowered species and has short-lived flowers that are self-pollinating (Jones et al. 1999).

On mainland Australia, the flowering period of *Caladenia aurantiaca* is August to November but the Tasmanian collections are from early to mid October and early 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 aurantiaca* to fire is unknown but its habitat is generally considered to be fire-prone.

Description

Plants are 5 to 17 cm tall. The scape is very thin, wiry, and sparsely hairy. The leaf is erect and narrowly linear, and is 4 to 8 cm long and 2 mm wide. The inflorescence is 1 or 2 flowered, with the flowers being short-lasting (only 2 to 4 days before self-pollinating). Flowers are 15 to 20 mm across. The flowers are white internally, greenish externally lacking any other coloration. The labellum is white with a bright orange mid-lobe, and orange calli. The dorsal (upper) sepal is oblong, erect to incurved (closely hooding the column), and 7 to 10 mm long and 2 mm wide. The lateral (lowermost) sepals are narrowly lanceolate, parallel and obliquely deflexed, and 7 to 10 mm long and 2.5 mm wide. The petals are narrowly lanceolate, spreading or obliquely deflexed, and 7 to 10 mm long and 2 mm wide. The labellum is broadly ovate, and 4.5 to 5 mm long and 5 to 5.5 mm wide. The lateral lobes are erect and embrace the column, and have entire or slightly irregular margins. The mid-lobe is triangular and recurved, with 1 to 3 pairs of short, broad, orange marginal calli. The lamina calli are in 2 rows and extend to the base of the mid-lobe. The column is pale green, and 4.5 to 5 mm long and 2 mm wide.

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

Confusing species

Caladenia aurantiaca is a member of the *Caladenia carnea* complex (Jones et al. 1999) but is distinctive and easily recognised because of its distinctive white flowers with bright orange labellum tip and calli. It is somewhat similar to *Caladenia alata* and white-flowered forms of the *Caladenia carnea* species-complex but a combination of characters make identification relatively simple.

DISTRIBUTION AND HABITAT

Caladenia aurantiaca occurs in Victoria and Tasmania (Jones et al. 1999). Within Tasmania the species is known from a small number of sites on Deal Island in eastern Bass Strait (Figure 1).

On mainland Australia *Caladenia aurantiaca* occurs in well-drained peaty sand and sandy loams in heathland, heathy forest and coastal scrub at elevations below 80 m (Jones 1998, Jones 2006). On Deal Island *Caladenia aurantiaca* occurs in *Allocasuarina verticillata* forest, sometimes on the edge of *Eucalyptus nitida* woodland, with a *Poa labillardierei* and light *Pteridium esculentum* understorey (Plate 2). Elevation varies from around 100 to 150 m.

Plate 2. Habitat of *Caladenia aurantiaca* on Deal Island (image by Gail and John Pollard)

It is probable that the subpopulations of *Caladenia aurantiaca* 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 aurantiaca* is probably less than 250 mature individuals as all sites are represented by very low numbers (Table 1).

Although it is possible that more subpopulations of *Caladenia aurantiaca* 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 & 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 aurantiaca* large enough to influence its conservation status will be discovered in the future.

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

	Subpopulation	Tenure	NRM Region *	1:25000 Mapsheet	Year last seen	Area occupied (ha)	Number of mature plants
1	Deal Island (gully northwest of highest eastern peak)	Kent Group National Park	North	Deal Island	1992	unknown	31
2	Deal Island (base of Mount Fugi)	Kent Group National Park	North	Deal Island	2004	0.0001	c. 20
3	Deal Island ('Peg Leg Saddle')	Kent Group National Park	North	Deal Island	2008	0.0001	c. 20

* NRM region = Natural Resource Management region

RESERVATION STATUS

Caladenia aurantiaca occurs in Kent Group National Park.

CONSERVATION ASSESSMENT

Caladenia aurantiaca was listed as rare on the schedules of the Tasmanian *Threatened Species Protection Act 1995* in 1995 and uplisted to endangered in 2001. It meets criterion D for endangered: total population estimated to number fewer than 250 mature individuals.

THREATS, LIMITING FACTORS AND MANAGEMENT ISSUES

Caladenia aurantiaca occurs in highly localised sites. Because of its localised distribution, stochastic events can lead to extinction. In addition, 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 aurantiaca*, 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 aurantiaca* (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 aurantiaca* 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 aurantiaca*. 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. One subpopulation of *Caladenia aurantiaca* (Peg Leg Saddle) is already close to an occurrence of ragwort (*Senecio jacobaea*).

Inappropriate disturbance regime: The subpopulations on Deal Island are relatively secure from inadvertent disturbance. However, grazing pressure on the island is very high from species such as rabbits, possums and wallabies and invertebrates such as snails. The impact of this disturbance on subpopulations of *Caladenia aurantiaca* is unknown.

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 aurantiaca* 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 aurantiaca* (Parks & Wildlife Service 2005).

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

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