Image by Richard Schahinger

Corunastylis nudiscapa

bare midge-orchid

TASMANIAN THREATENED SPECIES LISTING STATEMENT

Scientific name:	***Corunastylis nudiscapa*** (Hook.f.) D.L.Jones & M.A.Clem., *Orchadian* 13(10): 461 (2002)
Common name:	bare midge-orchid (Wapstra et al. 2005)
Group:	vascular plant, monocotyledon, family **Orchidaceae**
Name history:	*Genoplesium nudiscapum, Prasophyllum nudiscapum*
Status:	*Threatened Species Protection Act 1995*: **endangered** *Environment Protection and Biodiversity Conservation Act 1999*: **Not listed**
Distribution:	Endemic status: **Endemic to Tasmania** Tasmanian NRM Region: **South**

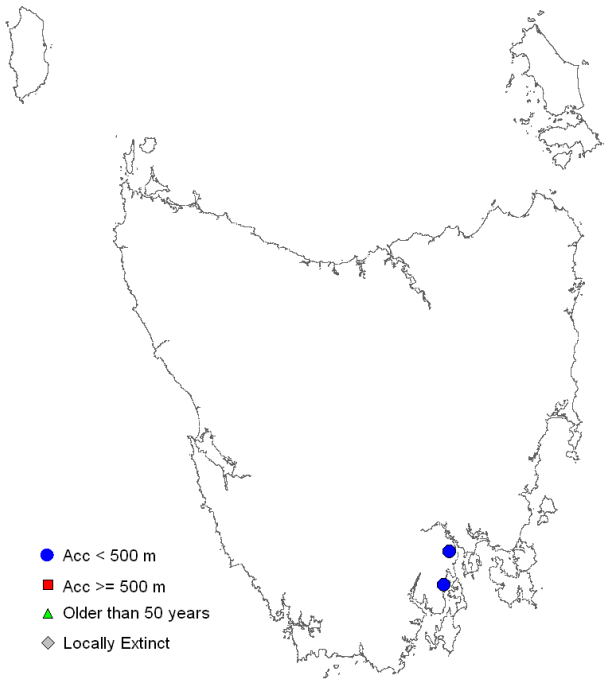

Figure 1. Distribution of *Corunastylis nudiscapa*

Plate 1. *Corunastylis nudiscapa:* inflorescence (image by Peter Fehre)

IDENTIFICATION AND ECOLOGY

Corunastylis nudiscapa belongs to a group of orchids commonly known as midge orchids because of their insect-like appearance. *Corunastylis* species are deciduous terrestrials with a round, fleshy tuber partly enclosed by a persistent fibrous sheath, and a single thin cylindrical leaf. The leaf is solid in the basal part, with a short free apical part, and is inseparable from the stalk supporting the inflorescence, as they are fused and emerge from the soil together. The upside-down flowers of *Corunastylis* species are crowded in a dense terminal spike.

Species of *Corunastylis* are mostly pollinated by small vinegar flies (drosophilids) attracted to the flowers by fruit perfumes and hairy segments (Jones 2006), although *Corunastylis nudiscapa* is one of the hairless species. Some species are self-pollinating. Reproduction is solely from seed and like all orchids this species relies on associations with mychorrizal fungi for germination and growth.

It is unlikely that *Corunastylis nudiscapa* specifically requires fire to stimulate flowering, but it is probably favoured by disturbance to the understorey that maintains open patches of bare soil, as evidenced by plants growing close to tracks and on loose soil on steeper slopes.

Survey techniques

Surveys for *Corunastylis nudiscapa* should be undertaken during its peak flowering period February to mid April (Wapstra et al. 2008), whilst noting that fertilised plants can be identified as late as August due to the species' distinctive leaf character (Plate 1). Leaves have been observed as early as December. The species is difficult to detect due to its diminutive nature, especially where shrubs become denser (Plate 2), and usually occurs in low numbers within loose groups at any one site.

Description

Corunastylis nudiscapa was described by Hooker (1858) from limited Tasmanian material. Descriptions of the species in other texts (e.g. Jones et al. 1999, Jones 2006) are based largely on Victorian material. However, the Tasmanian entity, which was rediscovered in 2008 after collections in 1840 and 1852 (Bonham 2008, Wapstra 2008), is now regarded as endemic to the State (Baker & de Salas 2012), so the following is a simplified description pending further studies.

Corunastylis nudiscapa is a small terrestrial orchid, about 5 to 14 cm tall. It has a slender green leaf, in which the free apical portion of the leaf (usually up to 10 mm long) extends into the dense inflorescence and projects out through the middle of the flower spike. The almost wholly green scape is about 4 to 12 cm tall, ending in a dense flower spike that is 8 to 15 mm long. The flower spike is comprised of between 3 and 15 flowers. The flowers are nodding, about 3.5 mm across and are variable in colour, mainly hues of green and reddish brown. The plant is entirely glabrous. The dorsal sepal has a sharply pointed apex, the lateral sepals are decurved and divergent, the apex with a small white gland. The petals are ovate and also have an apical gland. The labellum is stiffly hinged, narrowly oblong to narrowly elliptical, thick and fleshy, the margins entire and the apex pointed.

Confusing species

Corunastylis nudiscapa is unlikely to be confused with any other species because of its distinctive leaf, which projects through the flower spike (Plate 1). No other Tasmanian species of *Corunastylis* has this feature.

DISTRIBUTION AND HABITAT

Corunastylis nudiscapa has been recorded from two locations in Tasmania, Oyster Cove and South Hobart (Figure 1 & Table 1). The species' linear range is about 25 km, the extent of occurrence 13.5 km^2, and area of occupancy 4 to 5 ha (Table 1).

Plants grow in open forests and woodlands dominated by *Eucalyptus tenuiramis* (silver peppermint) or *Eucalyptus obliqua* (stringybark), with a heathy ground layer of varying density (Plate 2).

Table 1. Population summary for *Corunastylis nudiscapa*

	Subpopulation	Tenure	NRM Region	1:25000 Mapsheet	Year last (first) seen	Area occupied (ha)	Number of plants**
1	Old Farm Road	Private property	South	Hobart	2011 (2011)*	1.7	106
2a	Huon Road (below road)	Private property	South	Taroona	2011 (2008)*	1.0 0.1	94 22
2b	Huon Road (above road)	Hobart City Council	South	Taroona	2011 (2008)*	1.7 0.9	32 27
3	Manuka Hills, Oyster Cove	Kingborough Council & private property	South	Barnes Bay	2012 (2012)*	0.2	c. 30–40

NRM region = Natural Resource Management region;
* species first collected in the Huon Road/Old Farm Road area in 1840, and in the Oyster Cove area in 1852;
** includes flowering and vegetative plants.

Plate 2. Habitat of *Corunastylis nudiscapa* below Huon Road (image by Richard Schahinger)

Associated shrubs may include *Pultenaea gunnii* var. *baeckioides* (delicate golden bushpea), *Pultenaea juniperina* (prickly beauty), *Aotus ericoides* (golden pea), *Acacia myrtifolia* (redstem wattle), *Epacris impressa* (common heath), *Tetratheca labillardierei* (glandular pinkbells), *Acacia terminalis* (sunshine wattle) and *Exocarpos cupressiformis* (native cherry). Co-occurring orchids include *Eriochillus cucullata* (autumn orchid), *Chiloglottis reflexa* (autumn bird-orchid) and *Pterostylis aphylla* (leafless greenhood), and also *Corunastylis nuda* (tiny midge-orchid) and *Corunastylis tasmanicum* (tasmanian midge-orchid).

Corunastylis nudiscapa occurs on Permian mudstones on well-insolated slopes and crests with northwest to northeast aspects, at elevations between 100 to 250 m above sea level. Mean annual rainfall at the known sites is about 750 to 850 mm.

POPULATION ESTIMATE

The *Corunastylis nudiscapa* population is estimated to consist of at least 250 plants (Table 1), following targeted surveys since its rediscovery in 2008 (Bonham 2008, Wapstra 2008). However, this figure is likely to be an underestimate given the difficulties in detecting plants.

Open eucalypt forests in southeastern Tasmania have been surveyed extensively by orchid enthusiasts as they are widely recognised as hotspots. Indeed, the wider South Hobart area, including sites such as nearby Knocklofty and Waterworks, had been searched repeatedly in the hope of re-discovering *Corunastylis nudiscapa*. Although it is possible that more subpopulations of *Corunastylis nudiscapa* exist, given its apparent specific habitat requirements, the attention its broader potential habitat has received in terms of targeted survey effort, the distinctiveness of the species and its relatively wide identification window, detection of further subpopulations is likely to be a chance event.

RESERVATION STATUS

Corunastylis nudiscapa occurs on unreserved private property, although the land managed by Hobart City Council above Huon Road and by Kingborough Council at Oyster Cove, forms part of the respective Council's bushland reserve network.

CONSERVATION ASSESSMENT

Corunastylis nudiscapa was listed as extinct on the original schedules of the Tasmanian *Threatened Species Protection Act 1995* (under the name *Genoplesium nudiscapum*). The species was down-listed to endangered in 2009, at which time fewer than 50 mature individuals were known to be extant. The species qualifies for endangered under criterion D:

- Total population estimated to number fewer than 250 mature individuals.

THREATS, LIMITING FACTORS AND MANAGEMENT ISSUES

The highly localised and disjunct distribution of *Corunastylis nudiscapa* renders the species particularly vulnerable to stochastic events and accidental destruction.

Clearance and track maintenance: The vegetation community supporting much of the Huon Road and Oyster Cove subpopulations, *Eucalyptus tenuiramis* forest and woodland on sediments, is classified as threatened under the Tasmanian *Nature Conservation Act 2002*, meaning that there are significant controls on further clearance of known sites and potential habitat. Localised clearing activities such as maintaining vehicle tracks for land management purposes (e.g. fire trails) have the potential to inadvertently disturb individuals and potential habitat at the extant sites. However, it is noted that tracks close to individual plants have been maintained in recent years, suggesting that some level of ground disturbance is acceptable and perhaps even beneficial.

Weed invasion and management: Woody weeds are present close to the extant sites below Huon Road, including gorse (*Ulex europaeus*) and broom (*Cytisus scoparius*). These weeds have the potential to displace *Corunastylis nudiscapa* through modifications to the understorey and soil structure. Weed management activities have the potential to disturb individuals of *Corunastylis nudiscapa* if not conducted with careful consideration of the potential impacts of the method used and the time of year activities are undertaken.

Inappropriate fire regimes: *Corunastylis nudiscapa* is unlikely to require fire to promote flowering, as evidenced by the lack of fire for several years at the Huon Road sites. However, an extended absence of fire may result in the understorey becoming densely shrubby and ultimately unsuitable for the species. While most species of *Corunastylis* respond positively to fire, the lack of ecological information on *Corunastylis nudiscapa* and its highly restricted distribution means that any fire regime has an inherent risk attached to it.

Inadvertent destruction: The extant sites occur in close proximity to urban areas and are therefore at risk from human activities. Several individuals occur almost immediately adjacent to open tracks regularly used for recreation, e.g. mountain biking. Even accidental trampling by walkers (and dogs) is a potential risk to individual plants.

Climate change: *Corunastylis nudiscapa* occurs at sites of naturally low rainfall, but minor shifts in average seasonal conditions have the potential to exacerbate the species' precarious position, particularly if the rainfall pattern changes, which in turn could lead to altered fire regimes.

MANAGEMENT STRATEGY

What has been done?

Awareness: *Corunastylis nudiscapa* was included in the *Flora Recovery Plan: Threatened Tasmanian Orchids 2006–2010* (Threatened Species Unit 2006). The re-discovery of *Corunastylis nudiscapa* in 2008 led to significant media attention and formal discussions between the Threatened Species Section and the managers of the properties supporting the species.

Surveys: Extension surveys targeting potential habitat of *Corunastylis nudiscapa* in the greater Hobart area were undertaken in April and May 2008, though no additional sites were recorded (Janes 2008). Surveys by orchid enthusiasts in March 2011 extended the range of the Huon Road (lower) subpopulation by several hundred metres, and also unearthed the Old Farm Road subpopulation some 700 m to the north. This lead to an increase in the number of known plants from 49 to 230, and extant extent of occurrence from 4 ha to 75 ha.

Management objectives

The main objectives for the recovery of *Corunastylis nudiscapa* are to maintain the viability

of subpopulations and promote conditions for the species' successful recruitment.

What is needed?

- encourage owners of private land supporting *Corunastylis nudiscapa* to enter into formal land management agreements that incorporate longer-term habitat maintenance objectives and actions as a high priority;
- monitor the South Hobart sites on an annual basis to obtain information on population demographics and phenology;
- provide information and extension support to relevant Natural Resource Management Committees, local councils, government agencies, development proponents and the local community on the locality, significance and management of the known subpopulations and potential habitat;
- undertake targeted surveys of potential habitat in the Oyster Cove area during the species' flowering period;
- collect seed and lodge for long-term conservation storage at the Tasmanian Seed Conservation Centre (Royal Tasmanian Botanical Gardens);
- implement the threatened orchid Recovery Plan (Threatened Species Unit 2006) and include the species in any revision.

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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.