

**Recovery Plan
For
Brindabella Midge Orchid
(*Corunastylis ectopa*)**

**Prepared under the provisions of the
*Environment Protection and Biodiversity Conservation Act 1999***



Australian Government



Prepared by Kevin Frawley for the ACT Department of Territory and Municipal Services.

Published by the ACT Department of Territory and Municipal Services, Canberra.

Adopted under the EPBC Act: July 2010

ISBN: 978-0-9806848-5-8

© Australian Capital Territory (June 2010)

This work is copyright. Apart from any use as permitted under the Copyright Act 1968, no part may be reproduced by any process without the written permission from Customer Services and Information, ACT Department of Territory and Municipal Services, ACT Government, PO Box 158, Canberra ACT 2601.

Disclaimer:

The Australian Government, in partnership with the ACT Government, facilitates the publication of recovery plans to detail the actions needed for the conservation of threatened native wildlife. The attainment of objectives and the provision of funds may be subject to budgetary and other constraints affecting the parties involved, and may also be constrained by the need to address other conservation priorities. Approved recovery actions may be subject to modification due to changes in knowledge and changes in conservation status.

Citation:

This plan should be cited as follows: Frawley K 2010. National Recovery Plan for the Brindabella Midge Orchid (*Corunastylis ectopa*). ACT Department of Territory and Municipal Services, Canberra.

Cover illustration: M. Maconachie. Brindabella Midge Orchid (*Corunastylis ectopa*).

A Recovery Plan adopted under the Commonwealth *Environment Protection and Biodiversity Conservation Act* 1999.

Funding for the preparation of this plan was provided by the Australian Government.

1. Species Information and General Requirements

1.1 Species Name and Description

Corunastylis ectopa (D.L.Jones) D.L.Jones & M.A.Clem. (Brindabella Midge Orchid, also known as the Ectopic Midge Orchid) is endemic to the Australian Capital Territory and was originally described as *Genoplesium ectopum* (Jones 1999). A revision of the genus *Genoplesium* has resulted in the species being renamed as *Corunastylis ectopa* (Jones *et al.* 2002). It was first collected in 1992.

Corunastylis ectopa is a terrestrial orchid that grows to a height of 10 to 25 cm from an underground tuber. The flowers (15–35) are densely crowded, 5–5.5 mm in diameter and are either green and reddish-purple or wholly reddish-purple. For a complete description refer to Jones (1999).

1.2 Conservation Status

The Brindabella Midge Orchid is declared a Critically Endangered species under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) (6 June 2005). The species is also declared an Endangered species in the Australian Capital Territory under the *Nature Conservation Act 1980* (ACT). This recovery plan has been prepared under the provisions of the EPBC Act taking into account the objects of that Act.

1.3 International Obligations

There are no international obligations in relation to this species.

1.4 Affected Interests

The known location of the orchid is on Public Land (National Park) under the *Planning and Development Act 2007* (ACT) in an area declared as Namadgi National Park. Prescribed management objectives for this land under the Act (Schedule 3) are: (a) to conserve the natural environment; and (b) to provide for public use of the area for recreation, education and research. Implementation of the recovery plan will be the responsibility of Parks, Conservation and Lands (ACT Department of Territory and Municipal Services). The plan will have minimal impact on public recreational use of the national park. The recovery plan has implications for ACT Roads, the agency responsible for maintaining the unsealed road adjacent to the orchid population.

1.5 Role and Interests of Indigenous People

Aboriginal association with the area now included in Namadgi National Park is recognised in the Agreement between the Territory Government and ACT Native Title Claim Groups (April 2001). This provides for co-operative management of the park. Involvement of the Ngunnawal Aboriginal community in the management of the park is outlined in section 1.7 of the *Namadgi National Park Plan of Management 2010* (ACT Government 2010).

All Aboriginal signatories to the Agreement between the Territory Government and ACT Native Title Claim Groups were contacted and provided with a draft of the recovery plan (April 2007). None of the signatories made comment or expressed concern about the contents of the plan.

1.6 Benefits to Other Species/Ecological Communities

Actions to conserve the species will be undertaken in the context of the ecological community of which it is a part; however, little is currently known about its relationship with the surrounding forest. Broader biodiversity benefits have not been identified at this stage. No adverse effects on other species or the ecological community as a whole are envisaged.

1.7 Social and Economic Impacts

No significant adverse social or economic impacts are envisaged from implementation of the recovery plan. The species is located in a national park in which biodiversity conservation is a primary management objective (ACT Government 2010).

2. Distribution and Location of the Brindabella Midge Orchid.

2.1 Distribution and Importance

Currently, *Corunastylis ectopa* is known from a single site of less than one hectare in the Brindabella Range in the ACT at an altitude of 980 m. No other plants were located in a search of nearby suitable habitat in 2004 and the species is unknown from outside the ACT (Milburn and Rouse 2004).

Given that this is the only known location of the species, it is considered to be an important population in terms of the EPBC Act.

2.2 Habitat Critical to the Survival of the Species

The Brindabella Midge Orchid grows on a steep slope with a northerly aspect in tall *Eucalyptus robertsonii* – *Eucalyptus viminalis* Montane Forest. The plants grow in an open area with sparse shrub cover. The soil is stony brown loam over shale derived from the Nungar Beds (Milburn and Rouse 2004). The site is subject to erosion.

As this site is the only habitat where the species is known to occur, it is considered habitat critical for the maintenance and recovery of the species.

2.3 Mapping of Habitat Critical to the Survival of the Species

The location of the only known population of the Brindabella Midge Orchid has been defined (GPS coordinates) and mapped (Milburn and Rouse 2004), but this information is not included in the recovery plan due to the need to protect the site from unauthorised collection of plants.

3. Known and Potential Threats

3.1 Ecology (relevant to threats)

Corunastylis ectopa is a seasonal perennial, shooting from a dormant underground tuber after summer rain. In the absence of rain at the appropriate season the plants remain dormant. The buds develop rapidly and flowering is in progress about six weeks after the initialising rain event, typically from late January to March. The details of pollination are not known, but small flies pollinate other members of the genus. Seeds require interaction with a mycorrhizal fungal host for germination and this requirement probably persists in order for mature plants to receive an adequate carbon and nutrient supply. After setting seed, the aerial portion of the plant withers, and the tubers remain dormant over the subsequent seasons until the next substantial summer rainfall (Milburn and Rouse 2004).

3.2 Identification of Threats

Corunastylis ectopa has an extremely small population located at one site. The population occurs within 10 m of a road embankment on which plants have been dislodged and lost due to small landslides. The species was discovered in 1992 and the type specimen collected in 1993. No data are available on the population number prior to 1999 when Jones (1999) described a population of about 70 plants and noted that several searches in adjacent areas of the Brindabella Range had failed to locate any other populations. Flowering appears to be highly variable, related to seasonal conditions. The site was examined in February 2004 to determine whether the population had been impacted by the high intensity fire of January 2003. Thirty-five plants were located and the site appeared to have been undisturbed by erosion following the fire and subsequent rainfall. Given the relatively dry season, the total of 35 plants suggests that the population has continued to survive since its discovery in 1992 (Milburn and Rouse 2004). Numbers of plants recorded in monitoring from 2008 to 2010 are: 2008 (14 plants); 2009 (nil); 2010 (78 plants) (Parks Conservation and Lands, unpubl. data). The 2010 flowering followed late summer rain.

The effects of fire on *Corunastylis ectopa* and/or its adaptation to a particular fire regime are unknown. Throughout Australia, the most important habitats for terrestrial orchids are burnt regularly, and for some species summer bushfires have become an integral part of their life cycle (Jones 1988). The population count of *Corunastylis ectopa* in 2004 suggests that the species is able to withstand high intensity bushfire.

There has been little weed invasion of the *Corunastylis ectopa* site to date; however, it has been necessary to control shrub growth. This has been undertaken using carefully targeted herbicide application.

Because of its restricted distribution, location near an eroding road embankment, small population, characteristics of its life cycle (period of dormancy when its presence is not evident, short flowering period, and association with soil fungi) the species is highly vulnerable to disturbance.

Threats to the population of *Corunastylis ectopa* are:

- (a) **Erosion:** The embankment near where the population is located has eroded in the past with the loss of plants (Jones 1999). The embankment appears to have been relatively stable following the bushfire of 2003 and subsequent rainfall (Milburn and Rouse 2004).
- (b) **Roadworks:** The site of the orchid is close to a road. Roadworks such as widening, realignment, new drainage, regrading of the embankment and bulldozing of firebreaks could have serious impacts on the population or even result in its destruction.
- (c) **Shrub growth, weed invasion:** The orchid grows in a disturbed roadside area subject to shrub regrowth. Weed invasion has not been significant to date. (Careful use of herbicides to control shrub growth has been undertaken at the site.)
- (d) **Herbicides:** Herbicides used to treat shrub regrowth (and potentially roadside weeds) at the *Corunastylis ectopa* site should not come into contact with the orchid plants.
- (e) **Illegal collection:** Though there is no evidence for this having occurred to date, it is a potential threat.

3.3 Areas and Populations under Threat

The threats outlined in s. 3.2 apply to the only known population of *Corunastylis ectopa*.

4. Objectives, Performance Criteria and Actions

4.1 Conservation Objectives

The overall objective of this recovery plan is to preserve in perpetuity, in the wild, the only known population of *Corunastylis ectopa*.

A supporting objective is that the habitat of *Corunastylis ectopa* is conserved and managed so that natural ecological processes continue to operate.

Conservation of habitat involves, in particular, management actions to deal with or avoid the potential threats outlined above e.g. ensuring that the site is not deleteriously affected by road works.

While these objectives relate to the five year term of this recovery plan, they are long-term and ongoing.

4.2 Performance Criteria

The following performance criteria are pertinent to the objectives in s. 4.1:

- (a) The population of *Corunastylis ectopa* is monitored annually (see below) and is maintained. (Long-term monitoring is required, as the flowering population fluctuates with seasonal conditions.) (Annual/ongoing)
- (b) Habitat conditions are monitored annually and are maintained or improved by management or avoidance of potential threats. (Annual/ongoing)

Recovery Plan For Brindabella Midge Orchid (*Corunastylis ectopa*)

The site of the Brindabella Orchid has been monitored annually since 2008. Monitoring has been a systematic search of the full area where the orchid has been found and counts made of plants observed. The monitoring system was expanded in 2010 into a more systematic transect method. A tape measure was used along the full location of the orchid site and any plants found were recorded along with their life stage. The life stage is the current observation of the plant as: shoot only, with buds, flowers or old flowers. This method will be used again each year.

The survey in 2010 found the highest number of plants ever recorded. This is due to the high rainfalls in the area since January 2010. The number of plants that flower each year is highly seasonally variable.

Parks, Conservation and Lands has primary responsibility for implementation of the recovery plan and will review progress of the plan initially after three years, using the Performance Criteria above. The review will be reported to the ACT Flora and Fauna Committee.

The primary criterion for the success or failure of this recovery plan is the maintenance *in situ* of the population of *Corunastylis ectopa* in the ACT.

4.3 Recovery and Threat Abatement Actions (including Management Practices)

Management of the site of the population of *Corunastylis ectopa* will be undertaken in the context of the *Namadgi National Park Plan of Management 2010* (ACT Government 2010), in particular, its native vegetation objective and strategies (Chapter 5, Objective 5.9: *Vegetation is managed to retain a high level of ecological integrity across representative communities, successional stages and age classes*).

With regard to vegetation management, the plan of management gives the highest priority to vegetation communities of regional significance, especially threatened communities and species. The plan notes that Action Plans (ACT) and Recovery Plans (Commonwealth) for threatened species provide authoritative guidelines. Actions for vegetation management include: (a) the use of environmental assessment to manage development activities that have a potential to affect native vegetation; (b) undertaking a systematic research and monitoring program to identify specific management requirements for species and communities; and (c) avoidance of disturbance to sensitive vegetation communities and species by visitors and management activities.

Actions in this recovery plan will provide guidance as to the requirements for the conservation management of *Corunastylis ectopa*.

Parks, Conservation and Lands (PCL) in the ACT Department of Territory and Municipal Services has responsibility for all the actions listed below. The involvement of ACT Roads is noted for specific actions.

Information: Survey, Monitoring, Research

1. Maintain alertness to the possible presence of *Corunastylis ectopa* while conducting vegetation surveys in appropriate habitat.
2. Continue to monitor flowering of the orchid to provide information and guidance for management.
3. Encourage and support research into the biology and ecology of the species, the potential for the propagation of *ex situ* populations, and potential for translocations.

Protection and Management

1. Ensure that the orchid population is protected from the impacts of roadworks such as widening, realignment, new drainage, regrading of the embankment and bulldozing of firebreaks. (PCL and ACT Roads)
2. Prepare a management plan for the species based on accurate mapping of the location of the plants.
3. Investigate and, if desirable and practicable, undertake appropriate works to stabilise the embankment near the *Corunastylis ectopa* population. (PCL and ACT Roads)
4. Coordinate, and provide guidance for management actions undertaken as part of the management of Namadgi National Park.
5. Undertake shrub and weed control in the orchid habitat, as required. Provide advice to contractors and park staff on appropriate herbicide use at the site. Herbicides should not come into contact with the orchid plants.
6. As the area is located on a roadside, maintain and update, as required, existing 'Roadside Conservation Area' signs, without identifying specific details about the site.
7. Based on the results of research, evaluate and, if feasible, undertake the establishment of *ex situ* populations of the species.

5. Duration of the Recovery Plan and Estimated Costs

The recovery plan is for a period of five years. The estimated costs of implementing actions outlined above are shown in Table 1.

Recovery Plan For Brindabella Midge Orchid (*Corunastylis ectopa*)

Table 1 Estimated Costs of Implementing Actions Outlined in Recovery Plan

ACTION	EXPENSES	COST	RESPONSIBILITY	TIME FRAME	PRIORITY
Information		(Total for five years)			
1. Surveys (alertness to presence).	Salary ² (0.5 day p.a. for 5 yrs)	\$750	Parks, Conservation and Lands (ACT)	Yr 1–5	High
2. Annual monitoring and reporting	Salary ² (2 days p.a. for 5 yrs)	\$3000	Parks, Conservation and Lands (ACT)	Yr 1–5	High
3. Encourage and support research (biology, ecology, propagation potential).	Yr 1–3: Salary ¹ (3 days p.a. for 3 yrs); Consultant (1 day p.a. for 3 yrs) Yr 4–5: Salary ¹ (2 days p.a. for 2 yrs); Consultant (1 day p.a. for 2 yrs)	\$3780 \$3000 —— \$1680 \$2000	Parks, Conservation and Lands (ACT)	Yr 1–3 (Review) Yr 4–5	Ongoing
Protection and Management					
1. Protection from damaging impacts.	Salary ^{1,3} (1 day p.a. for 5 yrs);	\$3225	Parks, Conservation and Lands (ACT)	Yr 1–5	High
2. Embankment stabilisation investigation/works if required.	<u>Investigation:</u> Salary ¹ (2 days); consultant (2 days) <u>Works:</u> If required	\$2840 Not costed	Parks, Conservation and Lands (ACT), ACT Roads	Yr 1–2	Ongoing
3. Preparation of management plan.	Salary ¹ (4 days yr 3); consultant (2 days yr 3)	\$3680	Parks, Conservation and Lands (ACT)	Yr 3	High
4. Coordination of management actions.	Salary ¹ (1 day p.a. for 5 yrs)	\$2100	Parks, Conservation and Lands (ACT)	Yr 1–5	Ongoing
5. Shrub and weed control and advice re: herbicide use.	Salary ³ (1 day p.a. for 5 yrs)	\$1225	Parks, Conservation and Lands (ACT)	Yr 1–5	Ongoing
6. Maintenance of Roadside Cons. Area signs.	Salary ⁴ (0.5 day p.a. for 5 yrs)	\$625	Parks, Conservation and Lands (ACT)	Yr 1–5	Ongoing
7. Evaluate /undertake the establishment of <i>ex situ</i> populations of the species.	Consultant (2 days); salary ¹ (1 day p.a. for 4 yrs); salary ² (2 days p.a. for 4 yrs) <u>Site works, maintenance:</u> To be determined	\$6080 \$4000	Parks, Conservation and Lands (ACT)	Yr 2–5	High
TOTAL		\$37 985		5 years	

Notes:

¹ Salary based on ACT SOG 'C' (\$420) per day.

² Salary based on ACT PO 1 (\$300) per day.

³ Salary based on ACT Ranger 1 (\$225) per day.

⁴ Salary based on ACT Ranger 2 (\$250) per day.

Consultant fee based on \$1000 per day.

* Includes costs for weeding.

6. References

- ACT Government 2010. *Namadgi National Park Plan of Management 2010* (Department of Territory and Municipal Services, Canberra).
- Jones DL 1988. *Native Orchids of Australia* (Reed Books, Frenchs Forest, NSW).
- Jones DL 1999. *Genoplesium ectopum* (Orchidaceae), an Endangered New Species from the Australian Capital Territory, *The Orchadian* 12(12): 570–573.
- Jones DL, Clements MA, Sharma IK, Mackenzie AM and Molloy BPJ 2002. Nomenclatural Notes Arising from Studies into the Tribe Diurideae (Orchidaceae), *The Orchadian* 13(10): 437–468.
- Milburn PJ and Rouse DT 2004. Nomination of *Corunastylis ectopa* (D.L. Jones) D.L. Jones *et* M.A. Clements for consideration as an endangered species in the Australian Capital Territory under the *Nature Conservation Act 1980* (A1980–20) (Unpublished, nomination to ACT Flora and Fauna Committee, Environment ACT, Canberra).