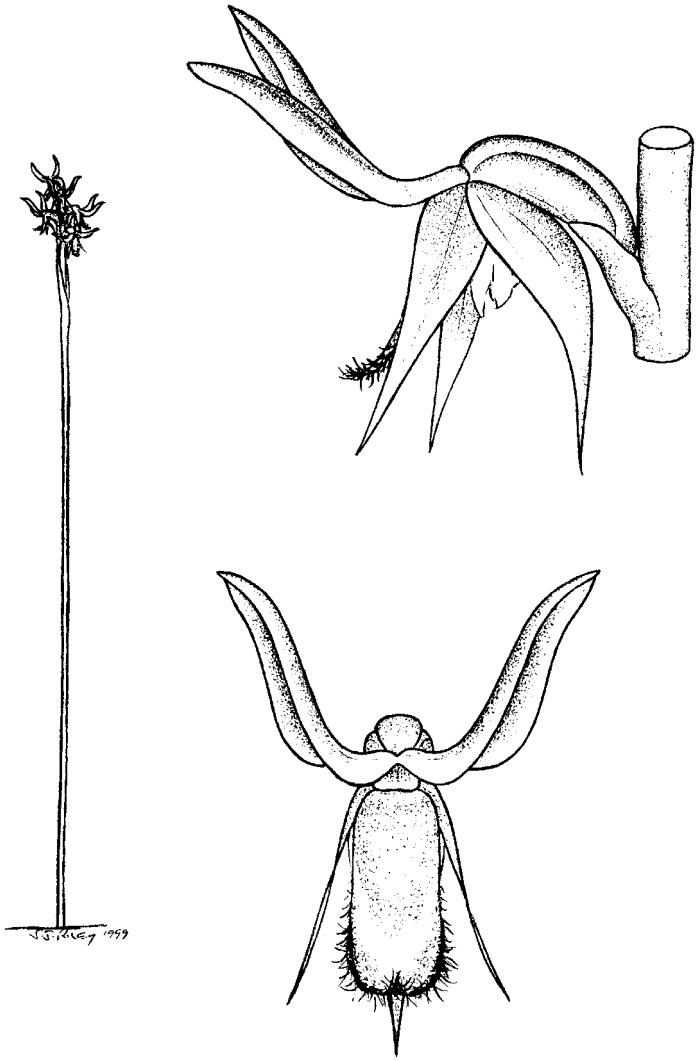
Approved Recovery Plan

Recovery Plan for the Tallong Midge Orchid (*Genoplesium plumosum*)



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Natural Heritage Trust
Helping Communities Helping Australia

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Photographer: John Briggs

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Recovery Plan for the Tallong Midge Orchid (*Genoplesium plumosum*)

Executive Summary

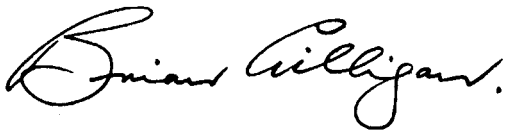
This document constitutes the formal National and New South Wales State Recovery Plan for the Tallong Midge Orchid *Genoplesium plumosum*. It considers the conservation requirements of the species across its known range, identifies the future actions to be taken to ensure its long-term viability and the parties who will carry these out.

The Tallong Midge Orchid is listed as Endangered under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* and as Endangered (Schedule 1, Part 1) on the NSW *Threatened Species Conservation Act 1995*. It is a small ground orchid which flowers between February and early April. This species occurs only in NSW, where all sites other than a recently discovered small population are within three kilometres of the township of Tallong. The recently discovered site is 8.5 km south-east of the township of Wingello on the NSW Southern Tablelands.

The first actions to recover this species commenced in 1998. Several Recovery Actions have been undertaken since then, mostly with the financial assistance of the Commonwealth provided under its Endangered Species Program. These previous actions are described in this Plan.

The future Recovery Actions detailed in this Recovery Plan include; (i) accurately determining the size and extent of known populations and survey of potential habitat, (ii) monitoring known populations, (iii) involving the community in the conservation of the species, (iv) encouragement of community involvement in the conservation of the species, (v) maintenance of an effective Recovery Team.

It is intended that this Recovery Plan will be implemented over a five-year period. Much of the Plan will be carried out using the existing resources of NSW Government agencies, community based groups, and Commonwealth NHT funding already provided for this purpose. An additional $2,800 will be required to implement some of the actions.



BRIAN GILLIGAN
Director-General

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Minister for the Environment

Acknowledgments

The following members of the Recovery Team and their respective agencies/organisations are thanked for their assistance with the preparation of this Recovery Plan and with the implementation of Recovery Actions to date. Particular thanks is owed to Ron Tunstall for his investigations and monitoring of the Tallong Midge Orchid prior to the formation of the Recovery Team and for providing information about the species for inclusion in this Plan.

Keith Allen (Mulwaree Shire Council)
Graeme Bradburn (ANOS)
John Briggs (NPWS, Southern Directorate)
Paul Holmes (Santa Sabina College, Tallong Campus)
Russ Ayers (Tallong Park Resident)
Maggie Thatcher (Wingello Reserve Trust)
Tim Wilkinson (DLWC)
Genevieve Wright (NPWS, Southern Directorate)

Warwick Smith (NPWS, Southern Directorate) is thanked for his co-ordination of the survey work in 1999 and for his input into the early drafts of this Recovery Plan.

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The following previous members of the Recovery Team are thanked for their contribution to the Recovery Program for the Tallong Midge Orchid; John Riley (ANOS), Jackie Taylor (NPWS), Doug Tipping (Tallong Park Association) and Ron Tunstall (ANOS).

Environment Australia is thanked for providing funding which enabled the preparation of this Recovery Plan and which will assist with the implementation of future Recovery Actions.

Special thanks to John Riley for providing the illustrations of *Genoplesium plumosum* used on the cover of this Plan.

1 Introduction

The Tallong Midge Orchid (*Genoplesium plumosum* (Rupp) D. L. Jones and M. A. Clements) occurs only in New South Wales and is currently known from a few sites in and near the town of Tallong, and one site south-east of Wingello. Both towns are located east of Marulan on the Southern Tablelands. The species is a small ground orchid that is only readily visible for about a month when flowering between late summer and autumn.

This document constitutes the formal National and State Recovery Plan for the Tallong Midge Orchid. It considers the requirements of the species across its known range, identifies the actions to be taken to ensure its long-term viability in nature and the parties who will carry these out.

The attainment of the objectives of this Recovery Plan is subject to budgetary and other constraints affecting the parties involved. It is also subject to amendments, if necessary. The information in this Plan is accurate to May 2002.

2 Legislative Context

2.1 Legal Status

The Tallong Midge Orchid is listed as Endangered under the Commonwealth's *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and Endangered (Schedule 1, Part 1) on the NSW *Threatened Species Conservation Act 1995* (TSC Act).

Among the consequences of listing a threatened species on the TSC Act are:

- A Recovery Plan must be prepared for the species;
- consideration must be given to the species when assessing the impacts of developments and activities, with the aim of minimising adverse impacts; and
- other actions that are likely to result in the harming or picking of that species or damage its habitat are licensed.

2.2 Recovery Plan Preparation

The TSC Act provides a legislative framework to protect and encourage the recovery of threatened species, endangered populations and endangered ecological communities in NSW. Under this legislation the Director-General of National Parks and Wildlife (NPW) has a responsibility to prepare Recovery Plans for all species, populations and ecological communities listed as Endangered or Vulnerable on the TSC Act schedules. Similarly, the EPBC Act requires the Commonwealth Minister for the Environment ensure the preparation of a Recovery Plan for nationally listed species and communities or adopt Plans prepared by others including those developed by State agencies. Both Acts include specific requirements for the matters to be addressed by Recovery Plans and the administrative process for their preparation.

This Recovery Plan has been prepared to satisfy both the requirements of the TSC Act and the EPBC Act. It is the intention of the Director-General of NPW to forward the final version of this Recovery Plan to the Commonwealth Minister of the Environment for adoption, once it has been approved by the NSW Minister for the Environment.

2.3 Recovery Plan Implementation

The TSC Act requires that a public authority must take any appropriate measures available to implement actions included in a Recovery Plan for which it agreed to be responsible. Public authorities and councils identified as responsible for the implementation of Recovery Plan Actions are required by the TSC Act to report on measures taken to implement those actions. In addition, the Act specifies that public authorities must not make decisions that are inconsistent with the provisions of the Plan. The main Government agencies relevant to this Plan are the New South Wales National Parks and Wildlife Service (NPWS), the Department of Land and Water Conservation (DLWC) Mulwaree Shire Council (MSC) and the State Rail Authority (SRA). Consequently, the actions outlined for each of these agencies must be implemented as described in the Plan.

The EPBC Act specifies that a Commonwealth agency must not take any action that contravenes a Recovery Plan.

2.4 Relationship to Other Legislation

The lands on which the Tallong Midge Orchid occurs include those that are owned or managed by MSC, DLWC, NPWS, the Tallong Park Association, Santa Sabina College, SRA and other private landowners. Relevant NSW and Commonwealth legislation includes:

- NSW *National Parks and Wildlife Act 1974*
- NSW *Environmental Planning and Assessment Act 1979*
- NSW *Local Government Act 1993*
- NSW *Rural Fires Act 1997*

- NSW *Native Vegetation Conservation Act 1997*
- NSW *Crown Lands Act 1989*
- Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*

The interaction of these Acts with the TSC Act legislation is varied. The most significant implications are described below and in Section 2.5.

The clearing of native vegetation in NSW is subject to consent from the Department of Land and Water Conservation (DLWC) in accordance with the NSW *Native Vegetation Conservation Act 1997* (NVC Act). The NVC Act is integrated with the *Environmental Planning and Assessment Act 1979* (EP&A Act), and requires that threatened species are taken into account when considering clearing applications under Part 4 of the EP&A Act. There are however, a series of exemptions and the NVC Act does not apply to certain types of land, including land zoned as 'residential', 'township', 'village', 'industrial', or 'business'. Some of the fragments of the population of Tallong Midge Orchid occur on land zoned 2(v) 'village' and thus the NVC Act does not apply. However the other fragments are located within 'rural' zones and thus are subject to the NVC Act.

The Rural Fires Act 1997 requires that all parties involved in fire suppression and prevention must have regard to the principles of Ecologically Sustainable Development (ESD) when exercising their functions and when preparing Draft Operational Plans and Draft Bush Fire Risk Management Plans. Consideration of the principles of ESD must include the conservation of biological diversity and ecological integrity. Within this, consideration must be given to the impact on threatened species and their habitats.

2.5 Environmental Assessment

New South Wales

The New South Wales *Environmental Planning and Assessment Act 1979* (EP&A Act) requires that consent and determining authorities, and the Director-General of National Parks and Wildlife, as a concurrence authority, consider relevant Recovery Plans when exercising a decision-making function under Parts 4 and 5 of the EP&A Act. In relation to threatened species, decision-makers must consider known and potential habitat, biological and ecological factors and the regional significance of individual populations when undertaking s.5A (eight-part test) assessments.
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Currently the following public authorities have a decision making function in relation to the Tallong Midge Orchid:

- MSC as both a consent authority and the owner of land which has the species present;
- the NPWS as the land manager and determining authority for the population on NPWS estate; where a concurrence or consultation role under the EP&A Act is required (all tenures) or where a Section 91 Licence (under the TSC Act) or a Section 132 Licence (Licence to grow protected or threatened plants for the purposes of sale) is required (all tenures);
- the SRA as the owner of land which has the species present; and
- the DLWC in relation to Crown land, subject to the provisions of the *Crown Lands Act 1989*, and in relation to private land under the requirements of the NVC Act.

Additional public authorities may have responsibilities if the species is located in other areas in the future.

Any other activity not requiring development consent under the EP&A Act, and which is likely to have a significant impact on the Tallong Midge Orchid, requires a Section 91 licence from the Director-General of NPW under the provisions of the TSC Act. Such a licence can be issued with or without conditions, or can be refused. Routine agricultural activities however, are exempt from the provisions of the TSC Act. This means, for example, that if populations of the Tallong Midge Orchid occur on private rural land, in some circumstances they can legally be subject to grazing by domestic stock under the provisions of the TSC Act.

Commonwealth of Australia

The EPBC Act regulates actions that may result in a significant impact on nationally listed threatened species and ecological communities. It is an offence to undertake any such actions in areas under State or Territory jurisdiction, as well as on Commonwealth-owned areas, without obtaining prior approval from the Commonwealth Environment Minister. As the Tallong Midge Orchid is listed nationally under the EPBC Act, any person proposing to undertake actions likely to have a significant impact on this species should refer the action to the Commonwealth Minister for the Environment for consideration. The Minister will then decide whether the action requires EPBC Act approval.

Administrative guidelines are available from Environment Australia to assist proponents in determining whether their action is likely to have a significant impact. In cases where the action does not require EPBC Act approval, but will result in the death or injury of an individual Tallong Midge Orchid and the individual is in, or on a Commonwealth area, a permit issued by the Commonwealth Minister under the EPBC Act, will be required.

The Environment Minister can also delegate the role of assessment and approval to other Commonwealth Ministers under a Ministerial Declaration and to the States and Territories under bilateral agreements. The development of a bilateral agreement between NSW and the Commonwealth is not yet complete, but when in place will avoid the need for duplication of environmental assessment.

2.6 Critical Habitat

The TSC Act makes provision for the identification and declaration of Critical Habitat. Under the TSC Act, Critical Habitat may be identified for any endangered species, population or ecological community occurring on NSW lands. Once declared, it becomes an offence to damage Critical Habitat (unless the action is exempted under the provisions of the TSC Act) and a Species Impact Statement is mandatory for all developments and activities proposed within declared Critical Habitat.

To date, Critical Habitat has not been declared for this species under the TSC Act. However, declaration of Critical Habitat for the Tallong Midge Orchid will be considered within the life of this Plan.

Under the EPBC Act, Critical Habitat may be registered for any nationally listed threatened species or ecological community. When adopting a Recovery Plan the Federal Minister for the Environment must consider whether to list habitat identified in the Recovery Plan as being critical to the survival of the species or ecological community. It is an offence under the EPBC Act for a person to knowingly take an action that will significantly damage Critical Habitat (unless the EPBC Act specifically exempts the action). Although this offence only applies to a Commonwealth area, any action that is likely to have a significant impact on a listed species on other areas is still subject to referral and approval under the EPBC Act. Further, it is likely that such actions will be subject to additional scrutiny by the Commonwealth Minister where they are to occur within registered Critical Habitat.

This Plan does not specifically identify habitat that is critical to the survival of the Tallong Midge Orchid. However, NPWS considers that the areas critical to the survival of the species must include as a minimum all habitat currently occupied by it. The distribution, habitat and ecological information included in this Plan (sections 3.2 – 3.6) would assist the Federal Minister for the Environment in identifying habitat that is critical to the survival of this species. NPWS does not consider it appropriate that this Recovery Plan identifies or maps the occurrences of this species in the detail that would be required to define the Critical Habitat.

3 Species Information

3.1 Description and Taxonomy

The Tallong Midge Orchid was first discovered on the Kurnell Peninsula in January 1928, and subsequently described by Rupp in November 1947. The species was not seen again until it was found at Tallong in 1988 by R. Tunstall. It was originally named *Prasophyllum plumosum*, but Jones and Clements changed this to *Genoplesium plumosum* in 1989.

The Tallong Midge Orchid is from the group of terrestrial orchids known as Midge Orchids. The species produces a single flowering stem 10 - 20 cm

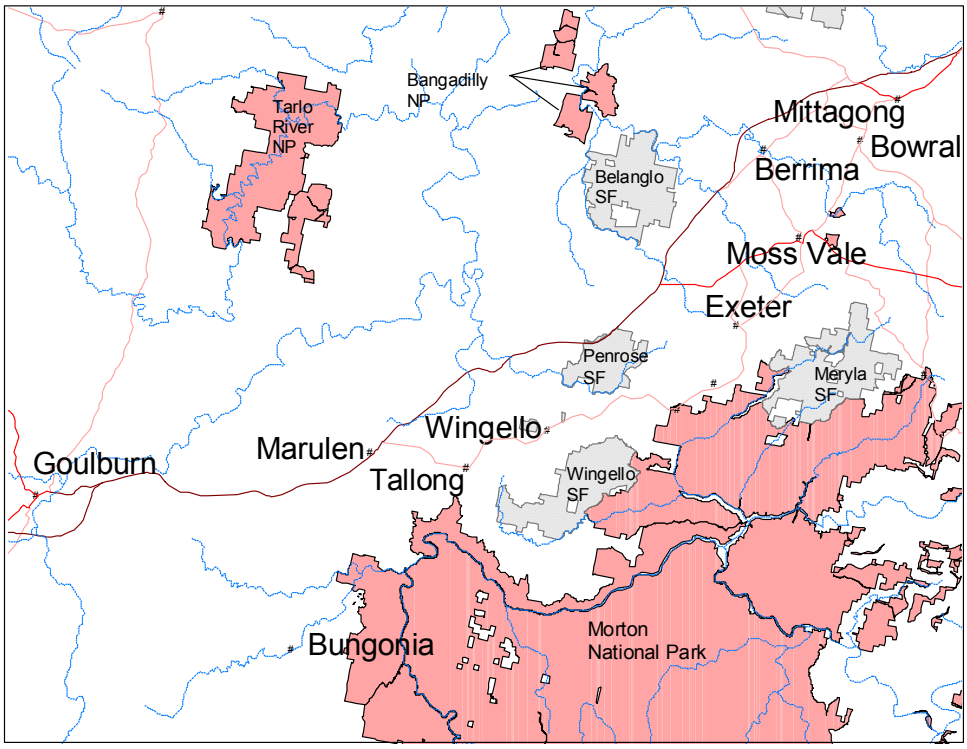

Figure 1. Location of the villages of Tallong and Wingello on the Southern Highlands of NSW. With the exception of a single population to the SE of Wingello, all Tallong Midge Orchids have been recorded within three kilometres of Tallong.

tall which bears 1-8 small flowers clustered at the top of the stem. The following description is based on a description given in Jones (1998) and field observations in 2001.

Flowers about 8 mm across, green with purple stripes and a reddish purple tongue (labellum). Dorsal sepal narrow-ovate, 6-7 mm long, 2-3 mm wide, apex gradually tapering to a point, margins entire. Lateral sepals linear to lanceolate, 7.5–9 mm long, c. 1 mm across. Petals narrow-ovate 5.5-6.5 mm long, c. 1.5 mm wide, apex long-acuminate, margins entire. Labellum oblong, 5-5.5 mm long, c. 2mm wide, apex curved backwards, margins with small hairs c. 0.6 mm long; callus narrow-ovate to lanceolate, extending nearly to the labellum apex.

The almost leafless stems of the Tallong Midge Orchid are very thin, usually 10-15 cm long, and are superficially like the stem of a small sedge. Each stem produces a single leaf that is reduced to a stem-clasping bract-like structure located near the base of the flower cluster. The species is almost impossible to detect except when flowering. The front cover of this Recovery Plan includes an illustration of the flowering plant and enlargements of an individual flower.

3.2 Distribution

The Tallong Midge Orchid is currently only known from two areas, the village of Tallong and its immediate environs, and the other approximately 8.5 km south-east of the town of Wingello.

At Tallong, the Midge Orchid occurs extends no more than three kilometres north and east of the town centre. The largest percentage of the species occurs in a single large patch of about 80 ha of uncleared habitat. This patch consists of private land, Crown and SRA owned land. The remainder of the population is distributed within several small remnants of native vegetation, the largest of these being only about 0.5 ha in area and the others much smaller in size.

South-east of the town of Wingello, the Tallong Midge Orchid is also found at one site located in Morton National Park. This site was discovered in 2001 and is less than 0.2 hectares in area. Further survey is desirable to identify other possible new sites, particularly in the Wingello area. The distribution of the species near Tallong, however, is not likely to be much larger than that currently known, since there appears to be little additional suitable habitat which is yet to be searched.

The type locality for this species is the Kurnell Peninsula, but there have been no collections there since 1928. Since there is a considerable difference in the climate at Tallong compared to that at Kurnell, there is some doubt that the plants that grew at Kurnell were of the same species as that currently known from Tallong. Several orchid enthusiasts have searched extensively in the Kurnell area in recent years for this species, but without success. Only the re-discovery at, or near Kurnell of *Genoplesium* plants matching the original (Type) collection will enable this uncertainty to be resolved.

3.3 Land Tenure

At Tallong, several sites, including the largest population, are on private freehold land. The species also occurs on one Crown land block, on the Tallong Campus of Santa Sabina College, SRA land, two Crown road reserves, one block of land owned by MSC and on three privately owned housing blocks in Tallong village. Until recently, the species did not occur on any reserves or land managed specifically for conservation, however the site near Wingello now occurs within Morton National Park, as it was an area of State Forest that was transferred to NPWS as a result of the NSW Southern Regional Forest Agreement (RFA) in 2001.

3.4 Habitat

The known locations of this species are characterised by having very shallow soils overlying flat to gently sloping sheets of sandstone. The vegetation is low scrub/heath dominated by Violet Kunzea (*Kunzea parvifolia*), Common Fringe-myrtle (*Calytrix tetragona*) and Eggs and Bacon (*Dillwynia* sp.), with scattered shrubs of Hairpin Banksia (*Banksia spinulosa*), Black She-oak (*Allocasuarina littoralis*), Bitter Cryptandra (*Cryptandra amara*), Slender Wattle (*Acacia elongata*), Narrow-leaf Geebung (*Persoonia linearis*), Coral Heath (*Epacris microphylla*) and a Beard Heath (*Leucopogon* sp.) Other herbaceous species also present include Kangaroo Grass (*Themeda australis*), Wallaby Grasses (*Austrodanthonia* spp.), Purple Wire Grass (*Aristida racemosa*), a Spear Grass (*Stipa* sp.), a Crab Grass (*Digitaria breviglumis*), Rock Fern (*Cheilanthes sieberiana*), Spiny-headed Mat-rush (*Lomandra longifolia*), a Purple Flag (*Patersonia* sp.), Rock Isotome (*Isotoma axillaris*), Matted St John's Wort (*Hypericum japonicum*), Grass Triggerplant (*Stylidium gramminifolium*), *Lepyrodia scariosa*, two *Lepidosperma* spp. and *Isolepis* sp. Five other autumn flowering Midge Orchids, *Genoplesium sagittiferum*, *G. apostasioides*, *G.* aff. *ciliatum*, *G. oliganthum* and *G. fimbriatum*, with which the Tallong Midge Orchid could be confused, also grow at the same sites, as do several other orchid species, including Purple Donkey Orchid (*Diuris punctata*), A Midge Orchid (*Genoplesium* aff. *morrisii), Eriochilus* aff. *cucullata, Lyperanthus suaveolens, Microtis parviflora, Orthocerus* aff. *strictum, Pterostylis parviflora*,

P. truncata and a Sun Orchid (*Thelymitra* aff. *pauciflora.*). At all sites the habitat is surrounded by Brittle Gum (*Eucalyptus mannifera*) and Scribbly Gum (*E. rossii*) low woodland, with Argyle Apple (*E. cinerea*) present at some sites.

3.5 Ecology

Life Cycle

Very little is known about the biology of the Tallong Midge Orchid. Midge orchids in general die back after flowering and fruiting and exist only as a dormant tuber for much of the year. During either spring or autumn (depending on the species), they will produce a single erect stem. The flower spike emerges through the leaf near the apex of the stem (Jones 1988). Midge orchids will not necessarily flower every year and all the factors that affect flowering are not currently known.

In the case of the Tallong Midge Orchid, initial observations suggested the species flowers 4-6 weeks following good autumn rains. However, flowering behaviour is now known to vary. In autumn 2000, even though there had been plentiful autumn rains, no flowering specimens of the Tallong Midge Orchid were found despite several searches at sites where the species was observed flowering the previous year. In contrast, despite only average rainfall in late summer / early autumn 2001, numerous plants of the Tallong Midge Orchid were observed to flower at most previously known sites. The proportion of the population that will flower in any individual year is not known and varies from year to year. Successful flowering and reproduction are likely to be dependent on favourable weather conditions, however other factors may also influence flowering.

While the pollination biology of the Tallong Midge Orchid is not known, most Midge Orchids are pollinated by vinegar flies, although some are self-pollinating (Jones 1988).

Population Size and Structure

At present virtually nothing is known about the age structure of plants in the population, the longevity of individuals, nor the time required for seedlings to reach a reproductive stage. Current recruitment rates have not been determined, and it is not known whether recruitment occurs at a steady rate or occurs in pulses influenced by seasonal conditions.

During March 2001 the eight previously known sites were re-surveyed and accurate population counts obtained. The results are prsented in Table 1. Until the results of several years of detailed monitoring are available it will not be possible to know what the true total population at each site might be. This cannot be determined until the proportion of plants flowering in each year over several years is known.

Table 1: Number of individual Tallong Midge Orchids observed in 2001 and tenure for each site.

Site/Tenure	No. of individuals
Santa Sabina College	1
Crown Reserve	88
State Rail Authority	36
Tallong Park	81
Private Residential blocks	25
Roadside (East side of Tallong)	None found
Mulwaree Shire Council	20
Crown road reserves (adjacent to Railway)	21
Morton NP	12
Total	**293**

Disturbance Regimes

Most of the areas where this species occurs have significant patches of exposed sandstone rock and support stunted woodland with an open-heath understorey with much bare ground also present. Such sites would not be prone to frequent fire, however they may burn occasionally.

There is no specific information on the response of the Tallong Midge Orchid to fire. Fire may assist the species by opening up the ground cover and reducing competition for light, but on the other hand fire could also kill some of the orchid tubers and destroy the mossy ground cover which might be important to the survival of the species.

Fire may have a greater impact on the Tallong Midge Orchid if the habitat is burnt whilst the species is flowering or in fruit. Such a fire event would destroy the reproductive effort for that year and perhaps weaken the tubers by reducing the photosynthetic period for the growing season, possibly also resulting in reduced flowering the following season.

During autumn 1999 it was observed that a large proportion of the fruiting stems had been eaten, presumably by native herbivores, but possibly also by rabbits. NPWS monitoring data collected in 2002 confirmed a high level of predation, with 26% of all plants (both flowering and in leaf) were found to be browsed. If this browsing occurs every year then it is likely to result in a substantial reduction in the amount of seed being produced compared to that otherwise expected. At this stage the impact of such browsing is unknown. However, should the monitoring program reveal that browsing is a common occurrence then an investigation of recruitment and mortality rates under browsed and unbrowsed conditions will be considered.

3.6 Ability of Species to Recover

NPWS monitoring data collected so far shows that many flowering plants develop mature fruit (37% of all plants marked on the plots in 2002 produced mature fruits despite the high levels of browsing) and there is no evidence to suggest that recruitment does not occur in the field. Given that there are no immediate threats to most of the populations and providing that other potential threats can be controlled with the cooperation of the landowners, there appears to be no reason that the Tallong Midge Orchid cannot be maintained in the wild in the long term.

4 Management Issues

Apart from the apparent disappearance of this species from Kurnell Peninsula, there is no evidence of a substantial decline in its currently known area of occupancy. It must be noted, however, that most of the known sites were only discovered in 1999 and it is difficult to determine how many sites around Tallong were lost to farming, road construction and urban development prior to the surveys. It is possible that there are other small populations of this species in the Tallong and Wingello areas which have not yet been located.

Sensitive design of any building development on the residential blocks in Tallong is required to protect the population on these sites. Careful management of a housing development located up-slope of the population located on Council land in the township of Tallong is required to minimise potential indirect impact (such as nutrient run-on or habitat trampling through increased pedestrian usage of the area) to that population. Appropriate protection of the roadside populations is also required by MSC during any road maintenance or road construction works.

The largest populations are those located on Tallong Park Housing Estate, the Tallong Recreation Reserve and on SRA land. These appear to be secure providing the habitat there is retained as open space and the current low levels of recreational use are maintained.

5 Previous Recovery Actions

- A Recovery Team was established by the NPWS and met for the first time on 28 November 1998.
- Initial surveys for the species were conducted in late March/April 1999. These surveys increased the number of known sites, but confirmed the distribution to be extremely restricted and apparently confined to within three kilometres of Tallong.
- In 1999 the Tallong Park Association withdrew a proposed site for the construction of a golf course at Tallong Park Estate from consideration. This action was taken once it became known that the Tallong Midge Orchid occurred adjacent to the site and that its habitat could have been adversely affected by indirect impacts from such a development. An alternative site has since been developed.
- In 1999 a short article was published in the MSC Newsletter describing the predicament of this species and inviting landholders to contact NPWS if they believed they had this species or suitable habitat on their properties.
- In March 2001, a detailed population count was conducted at all known sites of the Tallong Midge Orchid. Three permanent monitoring plots were established, two in Tallong Park and one in the Wingello Recreation Reserve. One new site supporting the Tallong Midge Orchid was also discovered by NPWS staff approximately 8.5 km south-east of the town of Wingello. Surveys for the Tallong Midge Orchid were also conducted in several other sites of potential habitat, but no other occurrences were found.
- Three permanent monitoring plots were established in 2001. These were selected as representative samples of the core populations at Tallong. The plots range from eight to ten square metres in area and included a minimum of 30 flowering individuals in each plot at the time of establishment. All plants in these plots have been marked and will be monitored for at least five consecutive years. The second year of monitoring was conducted by NPWS in March and April 2002.

6 Proposed Recovery Objectives, Actions and Performance Criteria for 2001-2006

The overall objective of this Recovery Plan is to ensure that all natural populations are stable or increasing in size.

Specific Objective 1: Accurately determine the size and extent of known populations and survey potential habitat

Action 1.1: Undertake accurate counts of flowering plants within known populations.

Further survey work is needed to more accurately determine the size of the known populations. The first stage of this process was to record the number of flowering plants in a favourable season within each population. This task was undertaken in March 2001. However, due to the late stage of flowering of some Midge Orchids found during the 2001 survey, there was difficulty in confidently determining the identification of some individuals. This difficulty was due to the presence of other very similar Midge Orchids flowering and fruiting at the same time as the Tallong Midge Orchid. Thus, it is desirable this survey work be repeated in the next favourable flowering season to confirm the accuracy of the previous count.

Performance Criterion 1.1

Within two years, providing suitable conditions are experienced in this period, accurate counts (based on two seasons of survey) of flowering plants for known populations will be obtained.

Action 1.2: Survey additional sites of potential habitat.

Further surveys are desirable in an effort to locate additional populations, and to determine the limits of the range of the species. Such surveys should be conducted in seasons when recorded populations are known to have many individuals flowering. An assessment of any threats operating at any new populations will be made during this process.

The Tallong Midge Orchid Recovery Team will liaise with the *Pterostylis* sp. 15 (Botany Bay) Recovery Team who are conducting surveys at Kurnell Peninsula. It is expected that the *P.* sp. 15 Recovery Team will be able to include searches for the Tallong Midge Orchid when they are conducting their surveys.

Performance Criterion 1.2

Within three years, providing suitable conditions are experienced in this period, all accessible additional sites of potential habitat will have been surveyed.

Action 1.3: NPWS continue to advocate that adequate surveys of sites of proposed developments or activities should be undertaken.

Surveys should be conducted within any potential habitat that has not already been surveyed as part of Action 1.2 and is likely to be affected by a proposed development or activity (sensu EP&A Act), or will be affected by an application to clear native vegetation. Potential habitat is as described in section 3.4.

The presence of individuals of the Tallong Midge Orchid on known sites is highly dependent on seasonal conditions. Therefore, to be confident about the presence or absence of the Tallong Midge Orchid on a site of potential habitat it is essential to undertake the survey at the correct time of year (and preferably in a known good flowering season). Whether survey conditions are appropriate is best determined by monitoring the timing and extent of flowering at the known sites.

NPWS advises that if sites have been surveyed at the correct time of year and in a known good flowering season, and no Tallong Midge Orchid flowering plants or *Genoplesium* leaves are found, then it is reasonable to conclude the species is not present. If no flowering plants are found but *Genoplesium* leaves are present, then it will be necessary to re-survey in a subsequent season to identify the species previously present in leaf only. This procedure is necessary as in the Tallong area several *Genoplesium* species co-occur. If surveys for the Tallong Midge Orchid are conducted in potential habitat at the wrong time of year or in a poor flowering season, then one could not safely conclude that the species was absent from the site. In such circumstances, a precautionary approach should then be taken by consent and determining authorities in that they should ensure protection of any potential habitat. Alternatively, approval should be delayed until such time as correctly timed surveys can be conducted.

Performance Criterion 1.3

NPWS can demonstrate that it has advocated to Consent Authorities that all developments or activities likely to affect potential habitat of the Tallong Midge Orchid should have surveys conducted in an appropriate flowering season prior to the granting of approval or consent.

Specific Objective 2: Monitor known populations

Action 2: Monitoring

Selected sites will be monitored (initially annually) by the NPWS, with the assistance of the Recovery Team members, to increase the ecological knowledge of the species and establish the extent of year to year variation in the size of the observable population.

It is important to intensively monitor some sites to determine the conditions which induce flowering, the proportion of the population that flowers each year, and through this obtain an estimate of the total population size. The extent of browsing will also be recorded during this monitoring.

Performance Criterion 2

A monitoring program, including detailed demographic studies using the three established permanent plots, will have commenced within one year and conducted annually for the life of this Plan.

Specific Objective 3: Ensure known sites are afforded medium and long term protection

Action 3.1: Promote the establishment of medium and long-term protection of all known sites.

The medium and long-term security of all known sites is a major priority in protecting this species. The NPWS will promote with landowners the development of formal protection mechanisms for all sites. Measures to ensure the medium term protection of this species could include registering the areas as Wildlife Refuges or participating in the Land for Wildlife Scheme. Options for long-term formal protection of these sites include Joint Management Agreements between NPWS and public authorities, either Voluntary Conservation Agreements or Property Management Plans between NPWS and private landowners, and Property Management Agreements between DLWC and private landowners.

Performance Criterion 3.1

Within five years NPWS will have promoted medium and long term protection for all known sites.

Action 3.2: Erection of signs to protect Tallong Midge Orchid habitat within roadside vegetation.

The NPWS will liaise with MSC regarding the erection of signs along all sections of roadside vegetation that contain the Tallong Midge Orchid. The signs will identify the vegetation as significant roadside vegetation and instruct that work should not to be undertaken within the vegetation without the approval of MSC in consultation with NPWS.

Performance Criterion 3.2

Within two years signs are erected to identify all sections of roadside vegetation which contain the Tallong Midge Orchid.

Action 3.3: NPWS to recommend to MSC the need for comprehensive impact assessment of proposed developments or activities.

Given the rarity of the Tallong Midge Orchid, NPWS recommends that consent and determining authorities take a precautionary approach and assume that any likely direct or indirect negative impact on a population resulting from a proposal being carried out will be significant (*sensu* s.5A of the EP&A Act). In those cases where it is deemed there is likely to be a significant impact the proponents of such developments and activities will have to provide a Species Impact Statement and the concurrence or consultation requirements of s.79B and s.112C of the EP&A Act will also take effect. Discretion in fulfilling this recommendation will clearly be necessary in certain cases, such as where the affected population is extremely small, or the development is very minor. The advice of the NPWS should be sought in such instances.

Performance Criterion 3.3

NPWS can demonstrate that it has advised MSC that Species Impact Statements should be prepared for all proposed developments and activities that are likely to have a direct or indirect negative impact on a population of the species.

Action 3.4: NPWS to request MSC to include an advisory note recording the presence of occurrences of this species on Section 149 Certificates for the relevant properties.

Although most of the current landowners are aware, and are supportive of the protection of these species on their land, it is important that future potential purchasers of the properties are also made aware of the presence of these species at an early stage. Council staff also change over time and it is important that MSC is automatically alerted to the presence of the Tallong Midge Orchid should any Development Applications be submitted which might affect it. It is important that MSC record the

presence of any additional populations that may be discovered in the future.

Performance Criterion 3.4

Within one year NPWS has requested MSC to record the presence of populations of the Tallong Midge Orchid on s.149 Certificates for the relevant properties.

Action 3.5: NPWS to request DLWC to dedicate the Crown land site as a reserve for Environmental Protection

To improve the long term protection of the Tallong Midge Orchid on the Crown land site, NPWS will request DLWC to investigate the possibility of dedicating the area as a reserve for Environmental Protection under the *Crown Land Act, 1989*. Currently the Crown land site is reserved for public recreation, preservation of native flora and preservation of flora.

Performance Criterion 3.5

Within one year NPWS has requested DLWC to dedicate the Crown land site where the Tallong Midge Orchid occurs to a reserve for Environmental Protection.

Action 3.6: Identification and nomination of Critical Habitat.

The NPWS will consider the benefits of nominating Critical Habitat and, if appropriate, make a recommendation to the Minister regarding what area should be listed.

Performance Criterion 3.6

Within five years the NPWS will have made a recommendation to the Minister regarding what area, if any, should be declared Critical Habitat.

Specific Objective 4: Involve the community in the conservation of the Tallong Midge Orchid

Action 4.1: Prepare pamphlet describing the species, its management and the monitoring program.

Landholders and adjoining land managers in particular would benefit from information about the identification and ecology of the Tallong Midge Orchid. A pamphlet will be prepared to provide this information, as well as information about appropriate management of the habitat of the species. This pamphlet will be distributed to all landholders with populations of the species on their property and to other interested parties.

Performance Criterion 4.1

Within one year of the approval of this Plan a pamphlet will be produced and distributed to relevant landholders and other interested persons.

Action 4.2: Involve local community members in detecting when the species begins flowering.

It has proven difficult to predict the precise flowering period and to know when to conduct survey and monitoring programs. Local residents could assist the proposed survey and monitoring program by regularly visiting known sites prior to the expected flowering period to check for the presence of flower buds or the commencement of flowering. NPWS could then be kept advised of the situation and this would enable the amount of time available for survey/monitoring to be maximised.

Performance Criterion 4.2

Within one year of the approval of this Plan at least one local Tallong resident has agreed to monitor the sites to determine when flowering begins.

Action 4.3: Provide opportunities to landowners to be involved in monitoring and recovery efforts.

Interested landowners that have the Tallong Midge Orchid on their property will be encouraged to participate in recovery and monitoring activities on their property.

Performance Criterion 4.3

Within one year of the approval of this Plan all landowners and managers have been informed of the recovery and monitoring program on their property and invited to participate.

Action 4.4: NPWS and the Recovery Team to foster the inclusion of the conservation of the Tallong Midge Orchid in the education program at the Tallong Campus of Santa Sabina College.

The Tallong campus of Santa Sabina College is in an excellent position to use this species as a case study in teaching students about some of the issues relating to the conservation of threatened species. The college will be encouraged to include this species as a part of the curriculum for students who visit the centre.

Performance Criterion 4.4

Within three years the Santa Sabina College, Tallong Campus has included the Tallong Midge Orchid conservation program as part of the Centre's education program.

Specific Objective 5: Maintenance of an effective Recovery Team

Action 5: NPWS to continue to hold Recovery Team meetings at least annually.

Recovery Team meetings will be required on a regular basis (at least annually) to review progress of the recovery program and ensure all interested parties are fully informed. If significant new populations are found on land under different ownership, then the new owners are likely to be invited to participate on the Recovery Team.

Performance Criterion 5

A Recovery Team meeting is convened by NPWS at least annually for the life of this Plan.

7 Implementation

Table 2 shows the allocation of responsibilities for the implementation of the Recovery Actions specified in this Plan amongst NPWS and other relevant government agencies and/or parties for a period of five years from the time this Recovery Plan is adopted. It also identifies the costs associated with each action. The total estimated cost for their implementation is $36,800. The majority of the funds will be provided from existing resources within the NPWS and MSC, with a contribution of $11,250 from the NHT funding already received from Environment Australia. Some ($2,314) of the total funds provided from the NHT have already been used in undertaking the previous actions listed in this Recovery Plan.

An additional $2,800 of unsecured funds are required to implement some of the actions. These additional funds will be sought from various sources, including corporate sponsorship and other external funding sources.

8 Social and Economic Consequences

The main social benefit of conserving the habitat in which the Tallong Midge Orchid survives is in meeting the desire of many in the community that further loss of species and the ecological communities in which they occur should be prevented.

There is an opportunity at the Santa Sabina College to illustrate to students threatened species conservation issues using the Tallong Midge Orchid population growing on and adjacent to its own field station.

There are some potential social and economic costs associated with conserving the Tallong Midge Orchid habitat. These include:

- Any developments proposed for the MSC and private house block sites will need to be designed to minimise impact on the Tallong Midge Orchid. The impact of this cannot be quantified until any development proposals have been formulated.
- Where development proposals and activities cannot be designed to minimise impact there will be a cost resulting from the preparation of a Species Impact Statement. In some instances there may be additional costs to a proponent resulting from a decision by public authorities to not give consent to a development or give approval to an activity.
- Some potential recreational uses for sites on both the Tallong Park Estate and the Santa Sabina College's Tallong Campus may not be appropriate for the conservation of the species. This does not appear likely to cause major inconveniences and both landowners are sympathetic to leaving the habitat of this endangered orchid undisturbed.

9 Biodiversity Benefits

In protecting the Tallong Midge Orchid the unusual sandstone shrub and moss community in which it is found would also be conserved. While the associated species present are not uncommon, the particular plant community structure and composition growing on these sandstone sheets appear to be highly restricted in distribution.

10 Preparation Details

This Recovery Plan was prepared by Genevieve Wright and John Briggs of the NPWS, and edited by Michael Saxon of the NPWS. It has been formulated with the advice and assistance of the Tallong Midge Orchid Recovery Team. The Recovery Team is a non-statutory group of expert biologists, landowners/managers and other stakeholders. The Team has been established by the NPWS to discuss and resolve issues relating to the conservation and management of the species.

11 Review Date

In relation to its status as the State endorsed Recovery Plan for the Tallong Midge Orchid, any major changes to this Recovery Plan will require the revised Plan to be placed on public exhibition in NSW and re-approval by the NSW Minister for the Environment. The NPWS, Environment Australia or other Recovery Team members should be contacted if it is believed any change to the Recovery Plan or to the Recovery Program should be considered. This Recovery Plan is to be formally reviewed by the NPWS in conjunction with the Recovery Team within five years from the date of its publication.

12 References

Jones, D.L. (1988), *Native Orchids of Australia*. Reed Books Pty. Ltd. Frenchs Forest NSW.

13 Acronyms Used in this Document

DLWC – Department of Land and Water Conservation

EP&A Act – NSW *Environmental Planning and Assessment Act 1979*

EPBC Act – Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*

ESD – Ecologically Sustainable Development

MSC – Mulwaree Shire Council

NPW Act – NSW *National Parks and Wildlife Act 1974*

NPWS – NSW National Parks and Wildlife Service

NVC Act – NSW *Native Vegetation Conservation Act 1997*

SRA – State Rail Authority

TSC Act – NSW *Threatened Species Conservation Act,1995*

Table 2: Estimated costs, funding source and responsible parties for implementing the actions identified in the Tallong Midge Orchid Recovery Plan.

Action No.	Action Description	*Priority	^Feasibility	Responsible Party	Fund source	Cost Estimate ($'s/year) 01/02	02/03	03/04	04/05	05/06	Total Cost ($'s)
1.1	Undertake accurate counts of flowering plants within known populations	1	100%	NPWS & Recovery Team	NHT[1]	1,400	0	0	0	0	**1,400**
					Cash	0	1,400[*]	0	0	0	**1,400[*]**
1.2	Survey additional sites of potential habitat	1	100%	NPWS & Recovery Team	NHT[1]	1,750	0	0	0	0	**1,750**
					Cash	0	700	700	0	0	**1,400**
1.3	NPWS continue to advocate that adequate surveys of sites of proposed developments or activities should be undertaken	1	100%	NPWS	Any proponent of development or activities						**Uncosted**
2	Monitoring	1	100%	NPWS& Recovery Team	NHT[1]	1,400	0	0	0	0	**1,400**
					In kind	0	1,050	1,050	1,050	1,050	**4,200**
3.1	Promote the establishment of medium and long-term protection of all sites	1	80%	NPWS	NHT[1]	700	0	0	0	0	**700**
					In kind	0	1,400	1,400	1,400	1,400	**5,600**
3.2	Erection of signs to protect Tallong Midge Orchid habitat within roadside vegetation.	2	100%	NPWS	NHT[1]	1,500	0	0	0	0	**1,500**
3.3	NPWS to recommend to MSC the need for Comprehensive impact assessment of proposed developments or activities	1	100%	NPWS	In kind						**Uncosted**
				Consent Authorities	In kind						**Uncosted**
3.4	NPWS to request MSC to include advisory note recording the presence of occurrences of this species on s.149 certificates	1	100%	NPWS	In kind	350	0	350	0	350	**1,050**
3.5	NPWS to request DLWC to dedicate the Crown Land site	1	80%	NPWS	In kind	700	350	0	0	0	**1,050**
3.6	Identification and nomination of Critical Habitat	2	100%	NPWS	In kind	0	0	0	700	700	**1,400**
4.1	Prepare pamphlet describing the species, its management and monitoring program	2	100%	NPWS	NHT[1]	1,000	0	0	0	0	**1,000**
					In kind	700	0	0	0	0	**700**
4.2	Involve local community members in detecting when the species begins flowering	2	80%	NPWS & Recovery Team	NHT[1]	700	0	0	0	0	**700**
					In kind	0	700	350	350	350	**1,750**
4.3	Provide opportunities for monitoring and recovery efforts to landholders	2	80%	NPWS	NHT[1]	700	0	0	0	0	700
					In kind	0	350	350	350	350	1,400
4.4	Include the conservation of the Tallong Midge Orchid in the education program at the Tallong Campus of Santa Sabina College	2	100%	NPWS	NHT[1]	1,050	0	0	0	0	**1,050**
					In kind	0	350	350	350	350	**1,400**
				Santa Sabina College	In kind						**Uncosted**
5	Maintenance of an effective Recovery Team	1	100%	NPWS	NHT[1]	1,050	0	0	0	0	**1,050**
					In kind	0	1,050	1,050	1,050	1,050	**4,200**
	Annual and total cost of the Tallong Midge Orchid Recovery Program				**Cash**	**0**	**2,100**	**700**	**0**	**0**	**2,800**
					In kind	**1,750**	**5,250**	**4,900**	**5,250**	**5,600**	**22,750**
					'NHT'[1]	**11,250**	**0**	**0**	**0**	**0**	**11,250**
					TOTAL	**13,000**	**7,350**	**5,600**	**5,250**	**5,600**	**36,800**

Table 2 Costing Explanations:

Where fund source is listed as Cash, funding will be sought from sources such as Natural Heritage Trust, industry sponsors, the NSW State Biodiversity Program and NPWS annual provisions for implementation of threatened species programs.

Salary for 'in-kind' contributions is calculated at $350 per day, which includes officer salary and on-costs, provision of office space, vehicles, administration support and staff management.

[1] Funding already allocated from the Commonwealth Natural Heritage Trust Endangered Species Program.

* Priority ratings as defined by Commonwealth Recovery Plan guidelines: 1 - action critical to prevent extinction, 2 - action prevents negative impact short of extinction,

^ Feasibility assessment reflects estimated chance of success of the action on a scale of 0-100%.

[*] Funding only required if the 2002 survey is not possible due to unfavourable seasonal conditions.

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