



# Recovery Plan for the East Lynne Midge Orchid *Genoplesium vernale*



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**Cover illustration:** East Lynne Midge Orchid. The flower spike is at a scale of x0.6, whilst the two flowers are 11 times their natural size.

**Illustrator:** John Riley

This Plan should be cited as following:

NSW National Parks and Wildlife Service (2002). *Recovery Plan for the East Lynne Midge Orchid* (*Genoplesium vernale*). NSW National Parks and Wildlife Service Hurstville NSW.

ISBN 0731364546



# Recovery Plan for the East Lynne Midge Orchid (*Genoplesium vernale*)

## Executive Summary

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

The East Lynne Midge Orchid is listed as Vulnerable under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and Vulnerable (Schedule 2) on the NSW *Threatened Species Conservation Act 1995* (TSC Act). It is a small terrestrial orchid that flowers in late spring to early summer. This species occurs in NSW and on Commonwealth land at Jervis Bay, and is confined to a narrow band extending from approximately 17 km south of Batemans Bay to 24 km north of Ulladulla. The populations in NSW are almost equally distributed between State Forest and National Park.

The first actions to recover this species commenced 1998. Since then surveys have been conducted and discussions with officers from State Forests have taken place regarding the ongoing recovery program. These previous actions are described in this Plan.

The future Recovery Actions detailed in this Recovery Plan include; (i) further survey to locate additional populations, (ii) sites are afforded appropriate long term protection, (iii) monitoring of selected sites, (iv) investigating the general ecology of the species, (v) encouraging community involvement in the conservation of the species, and (vi) maintenance of an active and effective Recovery Team.

It is intended that this Recovery Plan will be implemented over a period of five years. Much of the Plan will be implemented using the existing resources of the NSW National Parks and Wildlife Service and Commonwealth Natural Heritage Trust funding already provided for this purpose. An additional \$21,200 will be required to implement some currently unfunded actions.



**BRIAN GILLIGAN**  
Director-General



**BOB DEBUS MP**  
Minister for the Environment

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Climate Change & Water NSW  
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## Acknowledgments

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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.

John Briggs (NSW NPWS, Southern Directorate)  
Mike Crowley (State Forests of NSW)  
David Cunningham (NSW NPWS, Ulladulla Area)  
Robert Evans (State Forests of NSW)  
David Jones (CPBR CSIRO)  
Terry McCoy (RTA)  
Genevieve Wright (NSW NPWS, Southern Directorate)

Robert Evans of State Forests of NSW is particularly thanked for his efforts with the 1998 and 2000 surveys for the species, which greatly increased knowledge of its distribution. Warwick Smith (NSW NPWS, Southern Directorate) is thanked for his assistance in preparing an early draft of the Recovery Plan and for assistance with field surveys in 1998.

Environment Australia has provided funding for the preparation of the Recovery Plan and the implementation of some interim actions.

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

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REC Recovery plan for the East  
Lynne Midge Orchid  
(*Genoplesium vernale*) :

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## 1 Introduction

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The East Lynne Midge Orchid (*Genoplesium verrale* D. L. Jones) is a small ground orchid found only in a narrow belt of dry sclerophyll forest from about 17 km south of Batemans Bay to 24 km north of Ulladulla on the NSW South Coast.

This document constitutes the formal National and State Recovery Plan for the East Lynne Midge Orchid. It considers the requirements of the species across its known range, identifies the actions to be taken to ensure its the long-term viability 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 this Plan is based on is accurate to May 2002.

## 2 Legislative Context

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### 2.1 Legal Status

The East Lynne Midge Orchid is listed as Vulnerable under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and Vulnerable (Schedule 2) 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;
- consideration must be given to the species in 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 ensures 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 preparing Recovery Plans.

This Recovery Plan has been prepared to satisfy both the requirements of the TSC Act and the EPBC Act and therefore will be the only Recovery Plan for the species. 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 has 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 a Recovery Plan. The Government agencies relevant to this Plan are the New South Wales National Parks and Wildlife Service (NPWS), State Forests of NSW (SFNSW), Shoalhaven City Council (SCC) and the Roads and Traffic Authority (RTA). 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 an approved Recovery Plan.

### 2.4 Relationship to Other Legislation

The lands on which the East Lynne Midge Orchid occurs include those that are owned or managed by NPWS, SFNSW, SCC, RTA and the Commonwealth. 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 *Forestry Act 1916*
- NSW *Forestry and National Parks Estate Act 1998*
- 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 NSW *Forestry and National Parks Estate Act 1998* integrates the various regulatory regimes for threatened species conservation, environmental planning and assessment, and the protection of the environment. Approval for the carrying out of forestry operations on State Forests is granted under this Act via the Integrated Forestry Operations Approval. The Integrated Forestry Operations Approval for the Southern Region (IFOA) (New South Wales Government 2001 – see Appendix B ‘Terms of Licence under the Threatened Species Conservation Act 1995’) includes measures that protect the known populations of the East Lynne Midge Orchid.

In those instances where the activities or actions planned to be carried out in State Forest do not come under the IFOA then the provisions of the Environmental Planning and Assessment Act 1979 (EP&A Act) must be considered. Further, any action not requiring approval under the EP&A Act, and which is likely to have a significant impact on the East Lynne Midge Orchid requires a Section 91 licence from the NPWS under the provisions of the TSC 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. Decision-makers must consider known and potential habitat, biological and ecological factors and the regional significance of individual populations.

The following public authorities are currently known to have a decision making function in relation to the East Lynne Midge Orchid:

- State Forests of NSW

- SCC as the manager of a road easement which has the species present and which is vested in SCC under section 145 of the *Roads Act, 1993*;
- The NPWS as the land manager and determining authority where populations occur 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 sale) (under the NPW Act) is required (all tenures).

Additional 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 East Lynne 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.

### 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 East Lynne 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 East Lynne 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, endangered population or endangered ecological community occurring on NSW lands.

Given that the East Lynne Midge Orchid is listed as Vulnerable, Critical Habitat cannot be declared for this species under the TSC Act.

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 on Commonwealth land (unless the EPBC Act specifically exempts the action). Any action that is likely to have a significant impact on a listed species occurring within registered Critical Habitat on other areas is still subject to referral and approval under the EPBC Act. Proposed actions within registered Critical Habitat on non-Commonwealth areas are likely to receive additional scrutiny by the Commonwealth Minister.

This Plan identifies those habitat features and the location (sections 3.2 & 3.4) currently known to be critical to the survival of the East Lynne Midge Orchid, as required by the EPBC Act.

This Plan does not specifically identify habitat that is critical to the survival of the East Lynne Midge Orchid. However, NPWS considers that the areas critical to the survival of this 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 East Lynne Midge Orchid is from a group of orchids known as the Midge Orchids. The species is a ground dwelling herb which produces an underground tuber.

Jones (2001) described the East Lynne Midge Orchid as follows:

Leaf 10-18 cm long, 0.15-0.3 cm wide, terete, dark green, reddish at the base; with a small sheathing bract, ending 5-20 mm below the first flower. Inflorescence 15-25 cm tall, bearing 10-25 flowers in a densely crowded spike 2-4 cm long. Flowers 3.5-4.5 mm diam., dark purplish black, semi-nodding; lateral sepals obliquely erect. Dorsal sepal hooded, broadly ovate, 3-3.5 mm long, 2-2.3 mm wide, concave; margins with minute glandular hairs; apex pointed. Lateral sepals narrow 4-4.5 mm long, 1.2-1.3 mm wide, obliquely erect, nearly parallel; apex narrowly pointed, sometimes with a vestigial gland. Petals c. 3 mm long, c. 1.2 mm wide; margins with minute glandular hairs;

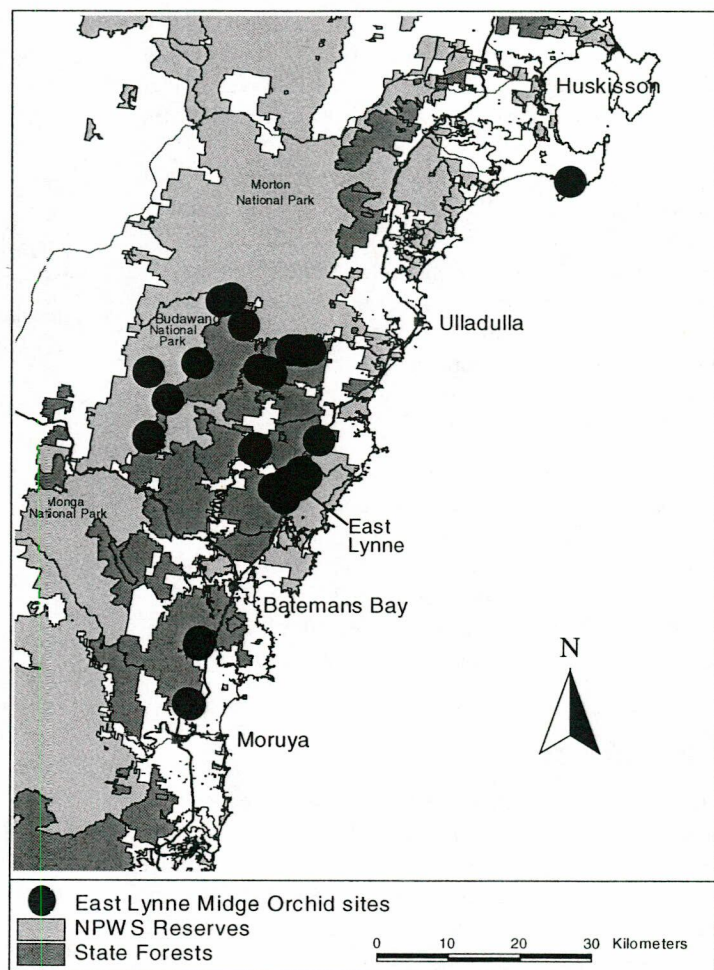


Figure 1. The distribution of the East Lynne Midge Orchid.

apex pointed. Labellum attached by its base directly to the apex of the column foot; lamina narrowly oblong, 2.5-2.8 mm long, 1.2-1.5 mm wide, gently curved throughout, suddenly contracted to a pointed apex, margins slightly irregular. Callus oblong, sometimes constricted above the middle, fleshy, occupying most of the ventral surface of the lamina, dark purple to brownish black, base yellow, extending nearly to the labellum apex. Column c. 2 mm long, c. 1.8 mm wide. Wings lobed about halfway to the base, the lobes not divergent; posterior lobe linear, whitish, obtuse; anterior lobe ovate-lanceolate, dark red, acute, the margins irregularly toothed. Capsules narrowly obovoid, 4-5 mm long, c. 0.3 mm wide, erect (See illustration on front cover).

### 3.2 Distribution

The East Lynne Midge Orchid is currently known from only a narrow belt (approx. 12 km wide) of predominantly dry sclerophyll forest from approximately 17 km south of Batemans Bay to 24 km north of Ulladulla.

For three years following its discovery in 1995, the East Lynne Midge Orchid was only known from the Type locality at East Lynne, a small town located approximately 17 km north of Batemans Bay. However, surveys by members of the Recovery Team in the 1998 and 2000 flowering seasons recorded the orchid from 28 additional sites (see Figure 1). The survey conducted in 2000 found a total of 436 individuals within all known sites. This number, however, is thought to be an underestimate of the total population size, as all suitable habitat within the distribution of the species has not been surveyed and some known populations have not been thoroughly counted. The species appears to occur at low densities at all known sites, but indications are that it extends over large areas of forest within its known range.

A new record for the East Lynne Midge Orchid has recently been reported (June 2001) for a site in Booderee National Park, near Jervis Bay in Commonwealth Territory. This specimen was collected in November 1996. This area was re-surveyed in 2001, but the species was not located. It is proposed to include this site in subsequent survey seasons.

### 3.3 Land Tenure

The Type locality of the East Lynne Midge Orchid occurs across two portions of land. One is owned by SCC, the other is within National Park. Until recently, the species did not occur on any reserves or land managed specifically for conservation, however some SF sites supporting the species have now been transferred to NPWS as a result of the recent NSW Southern Regional Forest Agreement (RFA).

**Table 1:** Numbers of plants of the East Lynne Midge Orchid on each land tenure

Tenure	No. Sites	No. Plants	% of total population
SCC	1	14	4 %
National Park	12	212	48 %
State Forest	13	183	42 %
State Forest road easement	3	27	6 %
<b>Total</b>	<b>29</b>	<b>436</b>	

Twelve of the known sites now occur within NPWS Reserves (see Table 1), representing 48% of the total number of East Lynne Midge Orchids counted in the November-December 2000 survey. Most of the other known sites occur in State Forest. There are known small areas of suitable habitat on private land, however these have not yet been surveyed.

### 3.4 Habitat

The East Lynne Midge Orchid grows in 'poorer' Dry Sclerophyll woodland / forest on the south coast of NSW between Mogo and Ulladulla. It is confined to areas with good drainage and shallow, low fertility soils. Most sites have a 'sandy-clay' soil, usually with associated quartzite gravel. Individuals are usually found where the groundcover is sparse and there is little competition for light.

Sites are usually dominated by Yertchuck (*Eucalyptus consideniensis*), Sydney Peppermint (*E. piperita*), White Stringybark (*E. globoidea*) and Silvertop Ash (*E. sieberi*) with one site dominated by Blackbutt (*E. pilularis*). Other associated species include Red Bloodwood (*Corymbia gummifera*) which is present in the majority of sites, and Blue-leaved Stringybark (*E. agglomerata*) and Large-fruited Red Mahogany (*E. scias*), with a reliable indicator species being the Sedge/Grass (*Cyathochaeta diandra*). Two atypical sites southwest of Mogo are dominated by White Stringybark (*E. globoidea*) and have Spotted Gum (*Corymbia maculata*) present as well as Red Bloodwood and Ironbark (*E. fibrosa*).

Other understorey species occurring at many of these sites include an Egg and Bacon Pea (*Pultanea villosa*), Golden Glory Pea (*Gompholobium latifolium*), Gorse Bitter Pea (*Daviesia ulicifolia*), a Tetratheca (*Tetratheca bauerifolia*), Prickly Shaggy Pea (*Oxylobium ilicifolium*), Pale Wedge Pea (*Gompholobium huegelii*) Hairpin Banksia (*Banksia spinulos*) Saw Banksia (*B. serrata*), Sunshine Wattle (*Acacia terminalis*), Black She-oak (*Allocasuarina littoralis*), Narrow Leafed Geebung (*Persoonia linearis*), a Conestick (*Petrophile pedunculata*), Bushy Needlewood (*Hakea sericea*), Broad-leaved Geebung (*P. laevis*), Tea Trees (*Leptospermum polygalifolium* & *L. trinervium*), Dotted Sun Orchid (*Thelymitra ixioides*), Large Duck Orchid (*Caleana major*), Small



Duck Orchid (*C. minor*), Sundew (*Drosera* sp.), *Tetraria capillaris*, *Lepidosperma laterale*, *Poranthera microphylla*, *Conospermum tenuifolium* and *Pomax umbellata*.

### 3.5 Ecology

#### *Life Cycle*

Very little is known about the biology of the East Lynne Midge Orchid. Midge orchids in general die back to a dormant tuber over the winter. During spring they will produce a single erect leaf. The leaf and flower spike develop simultaneously with the flower emerging through the leaf near the apex (D. Jones, CSIRO, pers. comm.). Midge orchids will not necessarily flower every year, often skipping years. The proportion of the population that flowers in any year is not known and appears to vary from year to year. Flowering may be dependent on the previous seasonal conditions.

The East Lynne Midge Orchid flowers from mid November to late December. Observations at known sites in 1998, 2000 and 2001 indicate that, as with other midge orchids, only a proportion of the population of the East Lynne Midge Orchid will flower in any one year. At one site orchids were observed and marked in 1998. A survey of this same site in 2000 found no orchids present in the previously marked locations, but found new clusters of orchids within 15 metres of the original location.

While the pollination biology of the species is not known, most midge orchids are pollinated by viregar flies, although some are self-pollinating (Jones 1988).

#### *Population Structure*

At present virtually nothing is known about the age structure of plants in the population nor the longevity of individuals. 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. It is known that seedlings of Midge Orchids take between 3-5 years to flower, this timing being dependent on tuber size, which is influenced by the conditions in the previous season (D. Jones, pers. comm.).

#### *Disturbance Regimes*

The sites where this species grows are not prone to frequent fire, however they may burn occasionally.

Fire is more likely to have a short-term impact on the East Lynne Midge Orchid if the habitat is burnt whilst the species is in flower or fruit. Such a fire event would destroy a season's reproductive effort and perhaps weaken the tubers by reducing the

photosynthetic period for the growing season, possibly resulting in reduced flowering the following season.

There is no information on the long-term response of the species to fire. It is possible that fire may assist the species in the long-term by opening up the ground cover and reducing competition for light. The impact of fire can be only determined through long term monitoring of populations pre- and post-fire events, and the response may be affected by the season in which a fire occurs.

The East Lynne Midge Orchid has been found growing on various previously disturbed sites, including old forestry snig tracks and old log dumps, firebreaks and also mounds left following gravel extraction. It is not known whether the plants growing in these situations have arisen from existing tubers that survived these soil disturbances or have re-colonized the areas from seed dispersed from elsewhere.

### 3.6 Ability of Species to Recover

There are no immediate threats to most known populations of the East Lynne Midge Orchid. It seems that most potential threats within State Forests can be controlled with the cooperation of SFNSW. Monitoring to date suggests the species is reproducing adequately and has an ability to re-colonize previously disturbed sites. There appears to be no biological reason why the East Lynne Midge Orchid cannot be maintained in the wild in the long term.

## 4 Management Issues

There is no evidence to suggest that the distribution of the East Lynne Midge Orchid extended beyond its current known range. It is apparent, however, that localised activities such as the construction of roads, forestry tracks and utility easements have destroyed habitat and individuals within this distribution in the past. For example, at the Type locality at East Lynne, road works and the laying of a communication cable directly impacted on that population. The clearing of vegetation for farming and other developments may have also removed some habitat.

Until recently, the species did not occur on any reserves or land that was managed specifically for conservation, however twelve of the known sites are now known to occur within NPWS Reserves, representing approximately half of the total number of East Lynne Midge Orchid sites. Of the known sites in State Forest, 41% occur in non-harvesting areas (Forestry Management Zone (FMZ) 2) where there appears to be little immediate threat, and 59% occur in harvesting areas (FMZ 4). Forestry land designated

FMZ 2 is for the specific management and protection of natural and cultural conservation values, i.e. non-harvesting areas and Forestry land designated FMZ 4 is for management of timber production, i.e. harvesting areas. The terms of the Integrated Forestry Operations Approval (IFOA) for the Southern Region and any Species Specific Management Plan that may arise under the auspices of that approval should ensure the longer term protection of the East Lynne Midge Orchid where it occurs on State Forests in FMZ 4 areas.

The IFOA includes the following species specific prescriptions aimed at protecting the East Lynne Midge Orchid (listed in section 6.16.2 of the licence):

*Where there is a record of the species within the compartment or within 20 metres outside the boundary of the compartment, the following must apply:*

- a) A 10 metres radius exclusion zone must be implemented around all individuals.
- b) An additional 10 metres width buffer zone must be implemented around all the exclusion zones established above. Limited operations (snigging and selective tree removal) may be conducted within the buffer zone. Hazard reduction burning must be excluded from the buffer zone.

This prescription may in some circumstances affect road upgrades that come within 20 metres of known East Lynne Midge Orchid populations. If these activities cannot meet the required conditions, there are mechanisms available to vary the licence conditions. These mechanisms include formulating either a Species Specific Management Plan or Site Specific Management Plan. Such Plans must be approved by the NPWS. This approval would be considered only after consultation with the Recovery Team.

## 5 Previous Recovery Actions

- A Recovery Team was established by the NPWS and met for the first time on 30 July 1998.
- Officers of SFNSW and NPWS conducted surveys for the species in November and December 1998. An additional 18 populations were found.
- Two signs were erected by the RTA to identify the type locality as a significant native vegetation area.
- A survey was conducted in November and December 2000 by an NHT-funded botanist and an Officer from SFNSW. An unpublished report has been compiled which details all data obtained, including the nine additional sites supporting the East Lynne Midge Orchid discovered during this survey.

- Four permanent monitoring sites were established in November 2000 across the range of known populations and all individuals in these plots have been marked and will be monitored for at least the next five years. In addition, eight research plots were established in recent extensions to the Murrumbidgee National Park to assist in determining the response of this species to fire. The four control plots at this site will also serve as permanent monitoring plots.
- On the 14<sup>th</sup> April 2001, four of the eight plots established to assist in determining the response of this species to fire were burnt by NPWS staff.
- A nomination was prepared and submitted for listing the East Lynne Midge Orchid as Vulnerable on Schedule 2 of the TSC Act. This nomination was successful and the East Lynne Midge Orchid was preliminarily listed as Vulnerable on the TSC Act by the Scientific Committee on the 1<sup>st</sup> June, 2001.
- A nomination was prepared for down-listing the East Lynne Midge Orchid from Endangered to Vulnerable on the EPBC Act. This nomination was successful and the East Lynne Midge Orchid was listed as Vulnerable on the EPBC Act by the Commonwealth Scientific Committee on the 4<sup>th</sup> October, 2001.



## 6 Proposed Recovery Objectives, Actions and Performance Criteria for 2001-2005

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

### Specific Objective 1: Further survey

*Action 1.1: Determine the geographic range of the East Lynne Midge Orchid.*

Further survey will be carried out to detect additional populations beyond the known distribution of the species and to locate new populations within the known range.

#### *Performance Criterion 1.1*

Within two years the geographic range of the species will be established.

*Action 1.2: Undertake accurate counts of the numbers of flowering individuals, and determine the extent of local populations at each of the known sites.*

Further survey work is needed to more accurately determine the size and extent of the known populations. The first stage of this process, completed in 2000, was to record the number of flowering plants within each population and the area that each population covered. This survey work will be repeated in the next favourable flowering season to confirm the accuracy of the previous work. Due to the limited time available for the 2000 survey, further work will provide a more accurate measure of population size. Such counts should be repeated for all populations in 2005-6, providing seasonal conditions are favourable.

#### *Performance Criterion 1.2*

Within three years (providing suitable conditions are experienced in this period) accurate counts of flowering plants and the area occupied for known populations will be obtained.

### Specific Objective 2: Sites are afforded appropriate long term protection

*Action 2.1: Develop appropriate management strategies for the various populations on State Forests through a Species Specific Management Plan.*

The NPWS and SFNSW will develop a Species Specific Management Plan under the auspices of the IFOA for the Southern Region in order to implement appropriate management regimes/protection levels for

the various populations of the species on State Forests.

The Management Plan will establish the types of activities appropriate, and area of protection required around each site. Such a plan would allow greater management flexibility across the various sites than is possible under the current IFOA licence conditions. For example, sites of high significance might be afforded greater levels of protection whilst others of lesser significance might be permitted to have higher levels of disturbance.

#### *Performance Criterion 2.1*

Within four years a Species Specific Management Plan will have been established to afford appropriate levels of protection for sites on State Forest.

*Action 2.2: Advise Shire Councils and the RTA of sites that occur on roadsides and provide information on appropriate management of those sites.*

The NPWS will notify Eurobodalla Shire Council, Shoalhaven City Council and the RTA in writing of any East Lynne Midge Orchid sites found to occur on roadsides owned/managed by these agencies and advice will be provided on the appropriate management of these sites. The NPWS will also investigate erecting signs that will assist in the protection of each of these sites.

#### *Performance Criterion 2.2*

Within three years the NPWS has notified the appropriate agencies of sites that occur on roadsides and provided information on their appropriate management.

### Specific Objective 3: Monitoring

*Action 3: Monitoring.*

It is recommended that a minimum of four selected sites be monitored annually to establish the extent of year to year variation in such attributes as the extent and timing of flowering and leaf production, and to record the incidence of browsing. All individuals in these monitoring plots should be marked and monitored. The monitoring sites should be selected to sample the species across its geographic range.

It is important to intensively monitor some sites to determine the conditions which induce flowering, the percentage of the population flowering in individual

years, how long individuals live and the percentage of flowers that produce seed.

#### *Performance Criterion 3*

Within one year a monitoring program will have been developed by NPWS in consultation with the Recovery Team and conducted annually for the life of this Plan.

### **Specific Objective 4: Investigate the general ecology of the East Lynne Midge Orchid**

#### *Action 4.1: Investigate the response of the East Lynne Midge Orchid to fire.*

In order to determine the response of this species to fire, eight plots were established in December 2000. Experimental burns of four of these plots were undertaken in April 2001. The response of the marked individuals within the burnt and unburnt plots will be monitored annually during the flowering period for the life of this Plan.

#### *Performance Criterion 4.1*

Monitoring of the eight monitoring plots will be conducted annually for five years from December 2001. Information on the initial response of the East Lynne Midge Orchid to fire will be obtained within one year, providing favourable flowering conditions prevail.

#### *Action 4.2: Consider the need for external research into the ecology of the East Lynne Midge Orchid.*

As necessary, the Recovery Team and NPWS will encourage relevant institutions to carry out research into the East Lynne Midge Orchid. At this stage it is not clear what specific issues relating to the ecology of the species might require research. The need, or otherwise, for research may become clearer once trends from the monitoring program become available.

#### *Performance Criterion 4.2*

If required, within five years contact will be made with research institutions to investigate and promote research projects on the species.

### **Specific Objective 5: Encourage community involvement in the conservation of the East Lynne Midge Orchid**

#### *Action 5: Investigate options to involve community groups in the Recovery*

#### *Program for the East Lynne Midge Orchid, where appropriate.*

Local community groups may be interested in being involved in survey and/or monitoring actions. These groups will be contacted, provided with information about the East Lynne Midge Orchid Recovery Program and encouraged to participate in appropriate actions.

#### *Performance Criterion 5*

Within three years of the approval of this Plan a species profile of the East Lynne Midge Orchid, including information about the Recovery Program will be produced by NPWS with the assistance of the Recovery Team and distributed to relevant interested parties. Invitations to participate in appropriate actions to be made within three years.

### **Specific Objective 6: Maintenance of an effective Recovery Team**

#### *Action 6: 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 those new owners are likely to be invited to participate on the Recovery Team.

#### *Performance Criterion 6*

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 Recovery Actions specified in this Plan amongst relevant government agencies and/or parties for a period of five years from the time this Recovery Plan is adopted, and identifies the costs associated with each action. The total estimated cost for the implementation of the Plan is \$67,250. The majority of the funds will be provided from existing resources within the NPWS and SF with a contribution of \$6,700 from the NHT funding already received from Environment Australia. The majority of the funds provided from the NHT (\$18,127) has already been used in undertaking the previous Recovery Actions listed in the Plan.

An additional \$ 21,200 is 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 East Lynne Midge Orchid occurs 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.

It is not envisaged that State Forests of NSW will be asked to apply management restrictions beyond those already imposed by the IFOA licence conditions on areas that contain the East Lynne Midge Orchid. Also, most of the known sites occur in currently non-production State Forest, and it is therefore considered that protection of the East Lynne Midge Orchid will have minimal economic impact on current operations.

## 9 Biodiversity Benefits

In protecting the East Lynne Midge Orchid, the plant community in which it is found will also be conserved.

## 10 Preparation Details

This Recovery Plan was prepared by John Briggs and Genevieve Wright of the NPWS, and edited by Michael Saxon of the NPWS.

It has been formulated with the advice and assistance of the East Lynne 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 East Lynne 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

- Briggs, J.D. & Leigh J.H. (1996). Rare or Threatened Australian Plants. (CSIRO: Melbourne).
- Jones, D.L. (1988). Native Orchids of Australia. Reed Books Pty. Ltd., Frenchs Forest NSW.
- Jones, D.L. (2001). Six New species and a new combination in *Genoplesium* R.Br. (Orchidaceae) from eastern Australia. *The Orchadian*, Volume 13, Number 7 pp 293-207.



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

Action No.	Action Description	*Priority	^Feasibility	Responsible Party	Fund Source	Cost Estimate (\$/year)					Total Cost (\$'s)
						01-02	02-03	03-04	04-05	05-06	
1.1	Determine the geographic range of the East Lynne Midge Orchid	1	100%	SFNSW	'in kind'	700	700	0	0	0	1,400
				NPWS	'cash'	0	700	0	0	0	700
					'NHT' <sup>1</sup>	700	0	0	0	0	700
1.2	Undertake accurate counts of the numbers of flowering individuals, and determine the extent of local populations at each of the known sites	1	100%	SFNSW	'in kind'	1,400	1,400	1,400 <sup>▲</sup>	0	0	1,400
				NPWS	'cash'	0	3,500	3,500 <sup>▲</sup>	0	4,200	7,700
					'NHT' <sup>1</sup>	1,400	0	0	0	0	1,400
2.1	Develop appropriate management strategies for the various populations on State Forests through a Species Specific Management Plan.	1	100%	SFNSW	'in kind'	0	1,400	1,050	0	0	2,450
				NPWS	'in kind'	0	1,750	1,750	0	0	3,500
				Recovery Team	'in kind'	0	1,050	1,050	0	0	2,100
2.2	Advise Shire Councils and the RTA of sites that occur on roadsides and provide information on appropriate management of those sites	2	100 %	NPWS	'in kind'	700	0	0	0	0	700
3.0	Monitoring		100%	SFNSW	'in kind'	700	700	700	700	700	3,500
				NPWS/ Recovery Team	'cash'	0	1,800	1,800	1,800	1,800	7,200
					'NHT' <sup>1</sup>	1,800	0	0	0	0	1,800
4.1	Investigate the response of the East Lynne Midge Orchid to fire	1	100%	NPWS	'cash'	0	1,400	1,400	1,400	1,400	5,600
					'NHT' <sup>1</sup>	1,400	0	0	0	0	1,400
				SFNSW	'in kind'	700	700	700	700	500	3,300
4.2	Consider the need for external research	2	100%	NPWS/Recovery Team	'in kind'	0	350	350	350	0	1,050
5.0	Community participation / education	1	100%	NPWS/Recovery Team	'in kind'	0	700	700	700	700	2,800
6.0	Maintenance of Recovery Team	1	100%	NPWS	'in kind'	0	1,400	1,400	1,400	1,400	5,600
					'NHT' <sup>1</sup>	1,400	0	0	0	0	1,400
				Recovery Team	'in kind'	1,750	1,750	1,750	1,750	1,750	8,750
<b>Total</b>					'cash'	<b>0</b>	<b>7,400</b>	<b>3,200</b>	<b>3,200</b>	<b>7,400</b>	<b>21,200</b>
<b>Total</b>					'in kind'	<b>5,950</b>	<b>11,900</b>	<b>10,850</b>	<b>5,600</b>	<b>5,050</b>	<b>39,350</b>
<b>Total</b>					'NHT' <sup>1</sup>	<b>6,700</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>6,700</b>
<b>Total</b>	<b>Annual cost of East Lynne Midge Orchid Recovery Program</b>				<b>All sources</b>	<b>12,650</b>	<b>17,200</b>	<b>14,050</b>	<b>8,800</b>	<b>8,250</b>	<b>67,250</b>

**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 salary and on-costs, provision of office space, vehicles, administration and staff management.

<sup>1</sup> Actions already approved for funding 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%.

▲ The expenditure of funding in 02/03 may be delayed if it is not possible to survey in this year due to unfavourable seasonal conditions.

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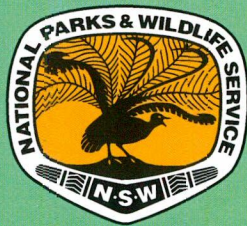
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