

GADS SUGARLOAF NATURE RESERVE
PLAN OF MANAGEMENT

NSW National Parks and Wildlife Service

September 2003

This plan of management was adopted by the Minister for the Environment on 16 September 2003.

Cover photograph of dry rainforest by Geoff Biddle, NPWS.

NSW National Parks and Wildlife Service

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FOREWORD

Gads Sugarloaf Nature Reserve is located 35 km north west of Kempsey, on the southern side of the Macleay River.

The vegetation of Gads Sugarloaf Nature Reserve is mainly dry open eucalypt forest with a significant area of dry rainforest on the steep southerly aspect. Although there have been no flora or fauna surveys undertaken in the nature reserve, five plant species and 17 animal species of significance are predicted to occur in the reserve. Gads Sugarloaf and Gads Creek are of cultural significance to the local Aboriginal community.

There is no public access to Gads Sugarloaf Nature Reserve and, as a result, the reserve does not have a history of recreational use and no facilities are provided.

The New South Wales *National Parks and Wildlife Act 1974* requires that a plan of management be prepared for each nature reserve. A plan of management is a legal document that outlines how a reserve will be managed in the years ahead.

A draft plan of management for Gads Sugarloaf Nature Reserve was placed on public exhibition for three months 26th July until 28th October 2002. The exhibition of the plan of management attracted 4 submissions which raised 5 issues. All submissions received were carefully considered before adopting this plan of management.

This plan of management aims conserve the biodiversity and maintain ecosystem functions within Gads Sugarloaf Nature Reserve. The cultural significance of Gads Sugarloaf and Gads Creek, as well as any other places, objects, features or landscapes found to be of cultural value, will be conserved.

This plan of management establishes the scheme of operations for Gads Sugarloaf Nature Reserve. In accordance with section 76 of the *National Parks and Wildlife Act 1974*, this plan of management is hereby adopted.

Bob Debus
Minister for the Environment

1 NATURE RESERVES IN NEW SOUTH WALES

1.1 LEGISLATIVE AND POLICY FRAMEWORK

The management of nature reserves in New South Wales (NSW) is in the context of the legislative and policy framework, primarily the *National Parks and Wildlife Act 1974* (NPW Act), the *Threatened Species Conservation Act 1995* (TSC Act), and the policies of the NSW National Parks and Wildlife Service (NPWS). The policies arise from the legislative background, the NPWS corporate goals and internationally accepted principles of park management. They relate to nature conservation, Aboriginal and historic heritage conservation, recreation, commercial use, research and communication. Other legislation, international agreements and charters may also apply to management of the area. In particular, the *Environmental Planning and Assessment Act 1979* requires the assessment and mitigation of environmental impacts of any works proposed in this plan.

This plan applies both to the land currently reserved as Gads Sugarloaf Nature Reserve and to any future additions to the reserve. Once a plan has been adopted by the Minister it must be implemented, and no operations may be undertaken except in accordance with the plan. If management strategies or works are proposed for Gads Sugarloaf Nature Reserve or for any additions that are not consistent with this plan, an amendment to the plan will be required.

1.2 MANAGEMENT PURPOSES AND PRINCIPLES

Nature reserves are reserved under the NPW Act to protect and conserve areas containing outstanding, unique or representative ecosystems, species, communities or natural phenomena.

Under the Act, nature reserves are managed to:

- conserve biodiversity, maintain ecosystem functions, and protect geological and geomorphological features and natural phenomena;
- conserve places, objects, features and landscapes of cultural value;
- promote public appreciation, enjoyment and understanding of the reserve's natural and cultural values; and
- provide for appropriate research and monitoring.

Nature reserves differ from national parks in that they do not have as a management principle to provide for visitor use.

2 GADS SUGARLOAF NATURE RESERVE

2.1 LOCATION, GAZETTAL AND REGIONAL SETTING

Gads Sugarloaf Nature Reserve (referred to hereafter as “the reserve”) is located 35km north west of Kempsey, on the southern side of the Macleay River. The reserve was gazetted on 5 March 1999 and covers an area of 477 ha (see map). The name is derived from Gads Sugarloaf, a prominent peak that lies within the reserve.

Much of the surrounding land has been extensively cleared for grazing, apart from the steeper ridgeline country, which forms a vegetative corridor linking the Macleay Valley floor to the Carrai Plateau and Oxley Wild Rivers National Park.

The reserve is wholly within the Kempsey Local Government Area, the Mid North Coast Catchment Management Board area and the Kempsey Rural Lands Protection Board (RLPB) area.

2.2 LANDSCAPE CONTEXT

Natural and cultural heritage and on-going use are strongly inter-related and together form the landscape of an area. Much of the Australian environment has been influenced by past Aboriginal and non-Aboriginal land use practices, and the activities of modern day Australians continue to influence the environment through recreational use, cultural practices, the presence of introduced plants and animals and in some cases air and water pollution.

Both Aboriginal and non-Aboriginal people place cultural values on natural areas, including aesthetic, social, spiritual, recreational and other values. Cultural values may be attached to the landscape as a whole or to individual components, for example to plant and animal species used by Aboriginal people. This plan of management aims to conserve both natural and cultural values. For reasons of clarity and document usefulness natural and cultural heritage, non-human threats and on-going use are dealt with individually, but their inter-relationships are recognised.

2.3 NATURAL AND CULTURAL HERITAGE VALUES

Landform, Geology and Soils

Elevations in the reserve range from 150m to 484m above sea level. The reserve is part of a mid-altitude forested range that runs from Mount Mystery via Hogmans Gap, Gads Sugarloaf to Kerrs Hill. Side slopes are steep to precipitous.

The parent rocks of the reserve are Permian lithic sandstones and siltstones of the Parrabel beds.

The soils are typically shallow, stony, infertile and easily eroded by water.

Catchment values

The Mount Mystery to Kerrs Hill range is the watershed between Mackenzies Creek and Warbro Brook. Both of these streams run into the Macleay River above the water intake for the domestic water supply for the town of Kempsey. Water from the reserve also supplies streams used for watering domestic stock on adjacent properties.

Native Plants

The vegetation is dry open eucalypt forest of grey gum (*E. punctata*), white mahogany (*E. acmenoides*) and grey ironbark (*E. siderophloia*) with a significant area of dry rainforest on the steep southerly aspect. There has been no flora survey carried out within the reserve, however models developed as part of the comprehensive regional assessment (CRA) process have predicted a number of significant plant species in the reserve (refer table 1).

Table 1. Significant plants predicted by modelling to occur within the reserve.

Common name	Scientific name	Significance
Silkpod	<i>Parsonsia dorrigoensis (sp B)</i>	Vulnerable #
Boronia	<i>Boronia chartacea</i>	Regionally significant
Acomis	<i>Acomis acoma</i>	Regionally significant
Vine	<i>Cynanchum elegans</i>	Endangered
Ravine orchid	<i>Sarcochilus fitzgeraldii</i>	Southern limit

also listed as endangered under the *Environment Protection and Biodiversity Conservation Act 1999*

Native Animals

The reserve forms a part of the Macleay Link sub regional wildlife corridor (NPWS 2001) which connects the Carrai plateau to the New England National Park.

There has been no fauna survey carried out within the reserve, however, suitable habitat exists for a number of regionally significant or threatened species that are predicted to occur in the reserve (refer table 2).

Table 2. Significant animals predicted by modelling to occur within the reserve.

Common name	Scientific name	Significance
Mammals		
common bent-wing bat	<i>Miniopterus schreibersii</i>	Vulnerable
little bent-wing bat	<i>Miniopterus australis</i>	Vulnerable
greater broad-nosed bat	<i>Scoteanax rueppellii</i>	Vulnerable
eastern horseshoe-bat	<i>Rhinolophus megaphyllus</i>	Regionally significant
eastern forest bat	<i>Vespadelus pumilus</i>	Regionally significant
golden-tipped bat	<i>Kerivoula papuensis</i>	Regionally significant
eastern pygmy-possum	<i>Cercartetus nanus</i>	Vulnerable
brush-tailed phascogale	<i>Phascogale tapoatafa</i>	Vulnerable ^r

Common name	Scientific name	Significance
Birds		
sooty owl	<i>Tyto tenebricosa</i>	Vulnerable
paradise riflebird	<i>Ptiloris paradiscus</i>	Regionally significant
pale-yellow robin	<i>Tregellasia capito</i>	Regionally significant
Reptiles		
burrowing skink	<i>Ophioscincus truncatus</i>	Regionally significant
skink	<i>Eulamprus tenuis</i>	Regionally significant
leaf-tailed gecko	<i>Saltuarius swaini</i>	Regionally significant
pale-headed snake	<i>Hoplocephalus bitorquatus</i>	Vulnerable
Amphibians		
green-thighed frog	<i>Litoria brevipalmata</i>	Vulnerable
giant barred frog	<i>Mixophyes iteratus</i>	Endangered #

r recovery plan in preparation

also listed as endangered under the *Environment Protection and Biodiversity Conservation Act 1999*

Aboriginal Heritage

The reserve is within the Dunghutti-Kempsey and Thunghutti-Bellbrook tribal area and Kempsey Local Aboriginal Land Council area. Gads Sugarloaf and Gads Creek are mythological and ritual Aboriginal sites for the Dunghutti people (NPWS site register). No other Aboriginal sites have been recorded in the reserve, however no systematic studies for cultural heritage sites have been undertaken. The tablelands area provided resources for year-round occupation by the Dunghutti and Thunghutti people, including a rich variety of foods, medicines, shelter and utensils.

Non-Aboriginal Heritage

There are no recorded historic places or other European historic sites known within the reserve. Early land holders shot brush turkeys and white headed pigeons in the rainforest areas as a source of food (Pers com Hodgson and Powick 2002).

Recreation

There is no public road access to the reserve, consequently the reserve does not have a history of recreational use and no recreation facilities are provided.

2.4 THREATS TO THE RESERVE'S VALUES

Introduced Plants

There has been no comprehensive study of weeds undertaken in the reserve, however casual observation indicates that lantana (*Lantana camara*) is common throughout the reserve, particularly in moist and semi moist areas where it appears to be affecting the diversity of native plant species.

Introduced Animals

Wild dogs (*Canis familiaris*), foxes (*Vulpes vulpes*) and feral cats (*Felis catus*) were reported in survey of landholders in the vicinity of the reserve in 1998 (RLPB/NPWS 1998).

Other pest animals likely to occur in the reserve are the rabbit (*Oryctolagus cuniculus*), house mouse (*Mus musculus*), black rat (*Rattus rattus*), and the brown hare (*Lepus capensis*).

A 1080 aerial baiting program for wild dogs was carried out in 1999 cooperatively with the Kempsey RLPB. Ground baiting is now the preferred method of pest animal control. This will require a cooperative approach between neighbours, the Kempsey RLPB and the NPWS.

Fire

The fire history of reserve is poorly known. The 2001/02 fire season severely burnt the whole of the reserve and the areas of dry rainforest which are sensitive to fire were severely damaged. Anecdotal reports suggest that in the past 50 – 80 years the dry rainforest has declined significantly, possibly due to frequent burning. Because of the steep nature of the reserve it is impracticable to construct fire advantages or conduct contained hazard reduction.

The NPWS uses a zoning system for bushfire management in its reserves. NPWS zones are compatible with the zones adopted by the Bushfire Coordinating Committee for use in District Bushfire Management Committee bushfire risk management plans.

NPWS has assessed the reserve for fire management planning purposes and has zoned the reserve as a Heritage Management Zone (HAMZ). The primary fire management objectives within this zone are to prevent the extinction of all species that are known to occur naturally within the reserve, and to protect culturally significant Aboriginal and non-Aboriginal sites. The reserve has been designated as a HAMZ because it is not adjacent to built assets which are exposed to a high level of bushfire risk and does not require strategic hazard reduction.

NPWS is an active member of the Kempsey District Bushfire Management Committee.

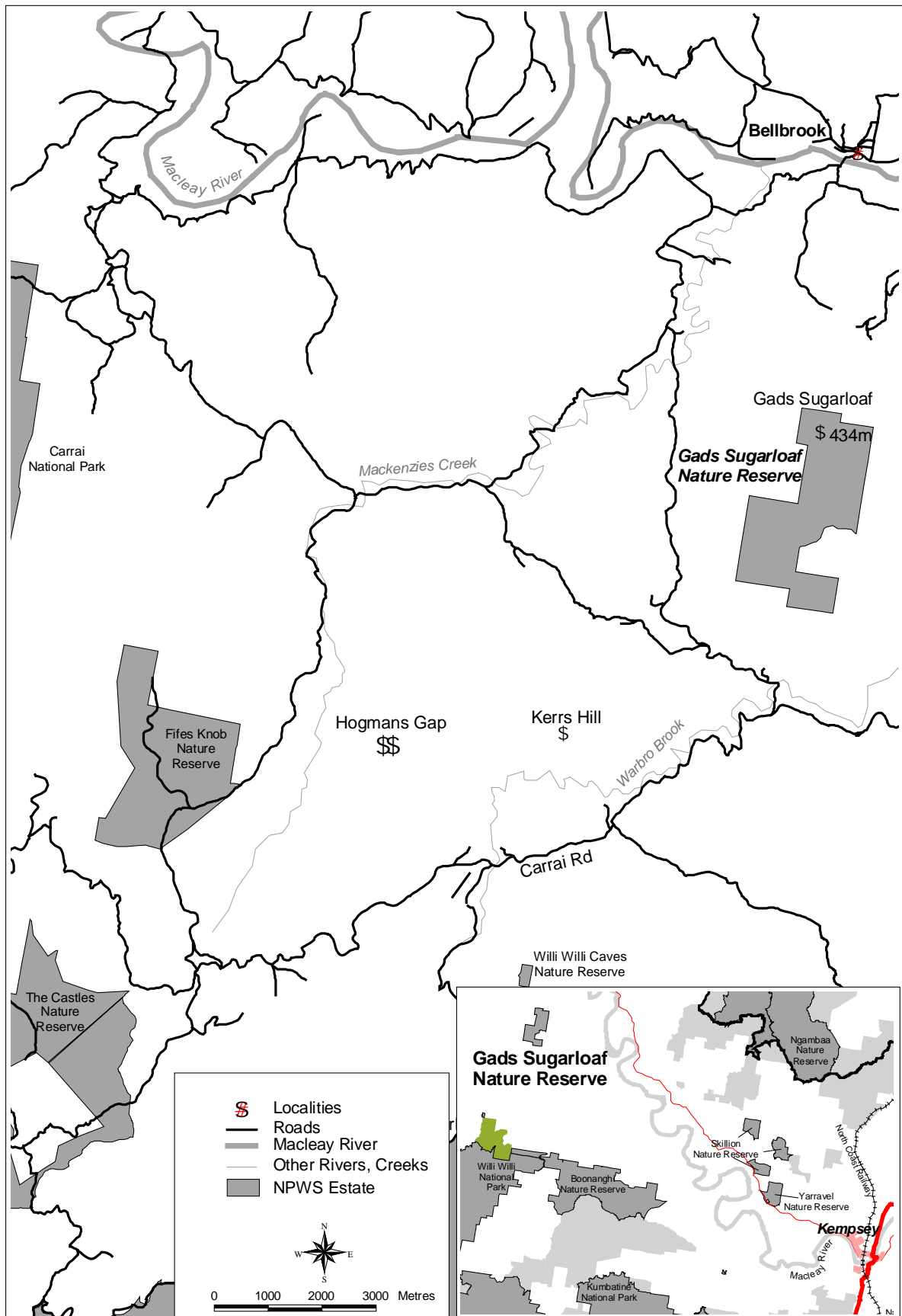
Modification of surrounding lands

Most of the surrounding lower lying lands have been cleared for grazing. The long term conservation of biodiversity of the reserve will be enhanced by the protection, enhancement and connection of remaining habitat on private land along the steep ridgeline adjoining the reserve to the east.

2.5 MANAGEMENT OPERATIONS

Access to the reserve is required for control of introduced pest species and other management activities. Existing road reservations to the reserve are impracticable for road construction due to steep slopes and construction of trails within the reserve would cause very significant environmental damage. Vehicle access to the reserve is entirely through private property and is currently subject to verbal access agreements between adjacent landholders and NPWS.

3 RESERVE MAP



4 MANAGEMENT ISSUES AND STRATEGIES

Current Situation	Desired Outcomes	Strategies	Priority
<p>Soil and water conservation</p> <p>There are currently no major problems with erosion or water quality, although the soils are highly erodable if exposed.</p>	<ul style="list-style-type: none"> • Soil erosion is minimised. • Water quality and health of reserve's streams is maintained. 	<ul style="list-style-type: none"> • Undertake all works in a manner that minimises erosion and water pollution. 	High
<p>Native plant and animal conservation</p> <p>Flora and fauna have not been surveyed but modelling has predicted a number of significant species.</p>	<ul style="list-style-type: none"> • All native animal and plant species and communities are conserved. • Increased knowledge of native plant and animals in the reserve and their ecological requirements. 	<ul style="list-style-type: none"> • Undertake or encourage flora and fauna surveys, in particular to determine occurrence of significant species. • Encourage research into the ecological requirements of significant species in the reserve. • Work with relevant neighbours, Landcare groups and others to encourage retention of remnant vegetation in the vicinity of the reserve. 	<p>Medium</p> <p>Medium</p> <p>Medium</p>

Current Situation	Desired Outcomes	Strategies	Priority
<p>Introduced species</p> <p>Lantana is the main weed species in the reserve. Other than lantana, introduced species are not currently a problem on the reserve.</p> <p>Wild dogs have been seen on grazing lands about the reserve. Aerial wild dog baiting has been undertaken in the past.</p>	<ul style="list-style-type: none"> The impact of pest species on the reserve and neighbouring lands is minimised. 	<ul style="list-style-type: none"> Seek the cooperation of Kempsey RLPB and other relevant authorities and neighbours in implementing weed and pest animal control programs. Prepare and implement pest management programs in the reserve as part of the Regional Pest Management Strategy. Control of wild dogs and lantana will be a priority. Assist the Kempsey RLPB in ground baiting for wild dogs in the vicinity of the reserve. Carry out baiting within the reserve if required on foot or by horse. 	<p>High</p> <p>High</p> <p>High</p> <p>High</p>
<p>Fire management</p> <p>The fire history is unknown. There are no fire trails in or around the reserve. Some native vegetation communities such as dry rainforest are fire sensitive.</p>	<ul style="list-style-type: none"> Persons and property are protected from bushfire. Unplanned fires do not enter into or exit from the reserve. Fire regimes are appropriate for the conservation of plant and animal species and communities. 	<ul style="list-style-type: none"> Participate in district Bush Fire Management Committees and maintain coordination and cooperation with local Rural Bush Fire Service brigades and neighbours with regard to fuel management and fire suppression. Manage the reserve as a Heritage Management Zone. No trails will be established in the reserve. Prescribed burning will not be undertaken on the reserve unless research indicates that fire is necessary to protect biodiversity values. Exclude fire from dry rainforest communities. 	<p>High</p> <p>High</p> <p>High</p> <p>High</p> <p>High</p>

Current Situation	Desired Outcomes	Strategies	Priority
<p>Cultural heritage</p> <p>The reserve is of mythological and ritual significance to the Dunghutti people. No cultural heritage surveys have been undertaken in the reserve.</p>	<ul style="list-style-type: none"> Cultural features and values are identified, recorded and appropriately conserved and managed. 	<ul style="list-style-type: none"> Consult with the Dunghutti and Thunghutti elders and the Kempsey Local Aboriginal Land Council about cultural heritage management and provide copies of any research findings on Aboriginal cultural heritage to the Land Council. Undertake an archaeological survey and cultural assessment prior to all works with the potential to impact on Aboriginal or non Aboriginal sites and values. 	<p>High</p> <p>Low</p>
<p>Visitor use</p> <p>There is no vehicle access or visitor facilities in the reserve. There is no known current recreational use of the reserve.</p>	<ul style="list-style-type: none"> Visitor use of the reserve is nature based and ecologically sustainable and is maintained at a low level. 	<ul style="list-style-type: none"> Maintain the reserve for a low level of use with no visitor facilities and no camping, horse riding or vehicular use. Visitors must obtain permission from NPWS before entering the reserve. Access will also be subject to visitors obtaining permission from private land holders to traverse private property. 	<p>High</p> <p>High</p>
<p>Research</p> <p>Further information is needed to improve understanding of the reserve's natural heritage and the processes that affect them.</p>	<ul style="list-style-type: none"> Research enhances the information base and assists management of the reserve. 	<ul style="list-style-type: none"> Encourage research that improves knowledge and management of natural and cultural heritage, and in particular further research into appropriate burning regimes for vegetation communities in the reserve. Liaise with neighbours about allowing access through private property for research in the reserve. 	<p>Low</p> <p>Low</p>

Current Situation	Desired Outcomes	Strategies	Priority
<p>Management operations</p> <p>Vehicle access to the reserve boundaries is required by NPWS for control of pest species, fire control and other management purposes. Access to the reserve is currently via private property with the agreement of a landholder. There are no management trails in the reserve.</p>	<ul style="list-style-type: none"> • Suitable vehicle access is available for NPWS management purposes. • There are no management trails or facilities constructed in the reserve. 	<ul style="list-style-type: none"> • Liaise with neighbours to seek a formal agreement for NPWS vehicle access through private property to the reserve. 	High

High priority activities are those imperatives to achievement of the objectives and desired outcomes. They must be undertaken in the near future to avoid significant deterioration in natural, cultural or management resources.

Medium priority activities are those that are necessary to achieve the objectives and desired outcomes but are not urgent.

Low priority activities are desirable to achieve management objectives and desired outcomes but can wait until resources become available.

For additional information or enquiries on this plan, contact the Service's Mid North Coast Regional Office at 152 Horton Street, Port Macquarie or by phone on (02) 6586-8300.

5 REFERENCES

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6 GLOSSARY

ACRONYMS USED

NPW Act	NSW <i>National Parks and Wildlife Act</i> (1974)
NPWS	NSW National Parks and Wildlife Service
TSC Act	NSW <i>Threatened Species Conservation Act</i> (1995)
RLPB	Rural Lands Protection Board

SELECTED DEFINITIONS

Biodiversity	Biological diversity, namely the variety of life forms: the different plants, animals and microorganisms, the genes they contain, and the ecosystems they form. It is usually considered at three levels: genetic diversity, species diversity and ecosystem
Cultural heritage	Encompasses past and present cultural associations of all people in Australia, including tradition, knowledge and customs. It can be tangible (i.e. have physical manifestations in the form of art, buildings etc.) or intangible (i.e. spiritual or social associations, songs, stories and cultural practices). Cultural significance includes values that are social, spiritual, aesthetic, historic and scientific. When natural resources acquire meaning for a particular group, they become cultural resources as well.
Fauna	Any mammal, bird, reptile or amphibian. NPWS has responsibility for the conservation of fauna. Note this definition excludes fish or invertebrates.
Fire Management	Includes all activity associated with the use and control of fire in bushland designed to achieve stated objectives for the protection of life and property, and the maintenance of wildlife communities.
Historic places	Landscapes, sites buildings or other works together with pertinent contents and surroundings and include structures, ruins, archaeological sites and areas
Introduced species	A species occurring in an area outside its historically known natural range as a result of intentional or accidental dispersal by human activities. Also known as exotic or alien species.
Policy	A statement of attitude and courses of action, directed toward the attainment of NPWS corporate goals and/or objectives.
Recovery plan	A document, prepared under the <i>TSC Act</i> , that identifies the actions to be taken to promote the recovery of a threatened species, or endangered population or ecological community.