

This Management Plan for Yellingbo Nature Conservation Reserve is approved for implementation. Its purpose is to direct all aspects of management of the reserve until the plan is reviewed.


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**YELLINGBO NATURE CONSERVATION RESERVE
MANAGEMENT PLAN**



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The plan is also prepared without prejudice to any future negotiated outcomes between the Government/s and Victorian Aboriginal communities. It is acknowledged that such negotiated outcomes may necessitate amendment of this plan.

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Cover: Sedge-rich *Eucalyptus camphora* Swamp Community, Yellingbo Nature Conservation Reserve

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APPROVED MANAGEMENT PLAN

This approved Management Plan has been prepared in accordance with the provisions of the *Wildlife Act 1975* (Vic.), the *Crown Land (Reserves) Act 1978* (Vic.) and the recommendations of the Helmeted Honeyeater Recovery Plan 1999–2003 (Menkhorst *et al.* 1999).

The plan provides the basis for the future management and protection of the reserve's significant natural values. It was finalised

following consideration of submissions from key stakeholders including Friends of the Helmeted Honeyeater, Bird Observers Club of Australia, the inter-agency Helmeted Honeyeater Recovery Team, local government and adjacent landholders.

The plan has been endorsed by the Trust for Nature in respect of the land that is owned by the Trust and included in the planning area.

PROF LYNDSEY NEILSON
Secretary to the
Department of Sustainability and Environment

MARK STONE
Chief Executive
Parks Victoria

In accordance with Section 18 of the *Wildlife Act 1975* (Vic.) this management plan is adopted for implementation.

Hon John Thwaites MP
Minister for Environment

SUMMARY

Yellingbo Nature Conservation Reserve will be managed as an outstanding protected area for habitat and species protection.

The reserve protects a diverse array of flora and fauna including around 285 native flora species and 230 native vertebrate species. The reserve also protects areas of Sedge-rich *Eucalyptus camphora* Swamp Community, which is considered to be of national significance.

The reserve provides habitat for the last wild colonies of the endangered Helmeted Honeyeater, Victoria's rarest bird and its avifaunal emblem. Once widely distributed in the Westernport to mid-Yarra area, the known wild population of the Honeyeater is now around 100 individuals, most of which reside within the reserve. In accordance with recommendations in the Helmeted Honeyeater Recovery Plan 1999–2003 (Menkhorst *et al.* 1999), management aims to protect and enhance habitat to allow this population to survive and expand.

Also of note is the presence of the endangered Leadbeater's Possum, which is the only known occurrence of this possum in lowland forest areas. Other significant vertebrates include the Spotless Crane, Powerful Owl, Southern Emu-wren, Yellow-bellied Glider, Platypus, Mountain Galaxias, Southern Pigmy Perch and Swamp Skink.

An area of freehold land owned by the Trust for Nature that is contiguous with the reserve is also included within the planning area.

Significant management directions for the reserve are summarised below:

- Implementation of comprehensive management strategies to protect and enhance the habitat of the Helmeted Honeyeater, Leadbeater's Possum and other significant faunal species.
- Implementation of strategies to arrest erosion and restore degraded areas with a view to prevent eucalypt dieback, weed invasion, stream erosion and sedimentation.
- Respect and recognition for Indigenous interests and aspirations for the reserve in planning and management, as appropriate.
- Encouragement of volunteers, particularly Friends of the Helmeted Honeyeater and the Bird Observers Club of Australia, to continue their involvement in management of the reserve.
- Maintenance of the current low levels of passive visitor use to ensure natural values are not adversely affected.
- Encouragement of active recreation activities at alternative locations to the reserve.
- Encouragement of co-operative working relationships with local landowners to assist in management of the reserve's natural values.

CONTENTS

| | |
|---|----|
| SUMMARY | iv |
| 1 INTRODUCTION | 1 |
| 1.1 Location and planning area | 1 |
| 1.2 Creation of the reserve | 1 |
| 1.3 Developing the management plan | 1 |
| 2 BASIS | 2 |
| 2.1 Regional context | 2 |
| 2.2 Reserve values and significance | 2 |
| 2.3 Legislation, LCC recommendations and guidelines | 2 |
| 3 STRATEGIC DIRECTIONS | 4 |
| 3.1 Reserve vision | 4 |
| 3.2 Management directions | 4 |
| 4 STRATEGIES FOR NATURAL VALUES CONSERVATION | 6 |
| 4.1 Geological and landform features | 6 |
| 4.2 Streams and catchments | 6 |
| 4.3 Vegetation | 7 |
| 4.4 Fauna | 8 |
| 4.5 Fire management | 9 |
| 4.6 Pest plants and animals, and diseases | 10 |
| 4.7 Natural values research | 11 |
| 5 STRATEGIES FOR CULTURAL VALUES CONSERVATION | 12 |
| 5.1 Aboriginal cultural heritage | 12 |
| 5.2 Post-settlement cultural heritage | 12 |
| 6 STRATEGIES FOR COMMUNITY USE, AWARENESS AND INVOLVEMENT | 13 |
| 6.1 Visitor use | 13 |
| 6.2 Community partnerships | 14 |
| 7 STRATEGIES FOR OTHER ISSUES | 16 |
| 7.1 Management and support services infrastructure | 16 |
| 7.2 Authorised uses | 16 |
| 7.3 Boundaries and adjacent uses | 16 |
| 8 IMPLEMENTATION | 18 |

TABLE

| | | |
|---|----------------------------------|----|
| 1 | Recreation activities management | 14 |
|---|----------------------------------|----|

| | |
|------------|----|
| REFERENCES | 19 |
|------------|----|

APPENDICES

| | | |
|---|---|----|
| 1 | Site of botanical significance | 21 |
| 2 | Threatened flora species recorded for the reserve | 22 |
| 3 | Threatened fauna species recorded for the reserve | 23 |
| 4 | Pest plants and pest animals of major concern | 24 |

FIGURE

| | | |
|---|---------------------------------------|-------------|
| 1 | Yellingbo Nature Conservation Reserve | End of plan |
|---|---------------------------------------|-------------|

1 INTRODUCTION

1.1 Location and planning area

The Yellingbo Nature Conservation Reserve is located in the Upper Yarra Valley, near the townships of Yellingbo and Macclesfield, 50 km east of Melbourne (figure 1).

The reserve preserves wildlife habitat along Woori Yallock, Cockatoo, Macclesfield and Sheep Station Creeks and part of the lower McCrae Creek.

The planning area (figure 1) includes:

- Yellingbo Nature Conservation Reserve (460.5 ha);
- land adjoining Cockatoo Creek owned by the Trust for Nature (178.0 ha).

The plan includes some suggestions for the management of other areas in the reserve's catchment that would benefit the reserve.

1.2 Creation of the reserve

In 1965, following community concern over declining numbers of the Helmeted Honeyeater, certain areas, including sections of public land water frontage along the Woori Yallock, Cockatoo and Sheep Station Creeks, were reserved under the *Land Act 1958* (Vic.) as sites for public purposes (conservation of wildlife). Subsequently a large number of contiguous areas were acquired by the State Government by land purchase or donation. Under Section 5(7) of the *Crown Land (Reserves) Act 1978* (Vic.), most of these areas are deemed to be reserved for the propagation of wildlife or the preservation of wildlife habitat.

In 1994 the Land Conservation Council (LCC) recommended that most of these areas and certain strips of public purposes reserve and contiguous Crown land (section 2.5) as Yellingbo Nature Conservation Reserve. Since 1994, the State Government has acquired several small areas for addition to the reserve.

1.3 Developing the management plan

Parks Victoria has prepared this Management Plan in accordance with the provisions of the *Wildlife Act 1975* (Vic.), *Crown Land*

(Reserves) Act and the recommendations of the Helmeted Honeyeater Recovery Plan 1999 – 2003 (Menkhorst *et al.* 1999). The Recovery Plan was prepared for the former Department of Conservation and Natural Resources (now Department of Sustainability and Environment) to ensure the long-term survival of the Helmeted Honeyeater. The Management Plan has been developed in consultation with the Recovery Team and key stakeholders.

2 BASIS

2.1 Regional context

The Yellingbo Nature Conservation Reserve is located in the Upper Yarra Valley, which is recognised for its special landscape, conservation and tourism values.

In the planning schemes for the Shires of Cardinia and Yarra Ranges, the reserve is zoned 'Public Open Space'. The adjacent private land is mainly zoned 'General Farming', with a minimum lot size of 25 ha. The typical uses of land in the vicinity of the reserve include intensive poultry and pig farming, market gardening, cattle grazing, horse studs and hobby farms. Overlays in the planning schemes protect sites of zoological and botanical significance on private land in the area.

Public land water frontage along the Woori Yallock, Cockatoo, McCrae and Shepherd Creeks provide potential future habitat links between the reserve, Bunyip State Park, Sassafras Creek Nature Conservation Reserve and areas of remnant vegetation on private land. Adjoining landholders hold licences over much of this public land water frontage.

2.2 Reserve values and significance

Yellingbo Nature Conservation Reserve makes a valuable contribution to Victoria's Parks and Reserves system, which aims to protect viable, representative samples of the State's natural environments occurring on public land.

Yellingbo Nature Conservation Reserve has been assigned the International Union for the Conservation of Nature (IUCN) Category 1A (Strict Nature Reserve) for Protected Areas. Category 1A protected areas are managed primarily for science.

The reserve is listed on the Register of the National Estate in recognition of the area's outstanding natural values and its importance as part of our natural heritage.

The significant features of the reserve are summarised below.

- Site of national zoological significance for conservation of the Helmeted Honeyeater (*Lichenostomus melanops cassidix*) and

Leadbeater's Possum (*Gymnobelideus leadbeateri*).

- Eleven vegetation communities including the nationally significant Sedge-rich *Eucalyptus camphora* Swamp Community.
- A high diversity of native flora and fauna including a number of threatened species.
- Only known naturally occurring population of the endangered Helmeted Honeyeater.
- Opportunities for bird watching and nature observation.
- Opportunities for school and community education and interpretation programs focussed around, ecosystem and endangered species conservation, particularly habitat rehabilitation.

2.3 Legislation, LCC recommendations and guidelines

Under Section 14(b) of the Wildlife Act, most areas of the reserve are placed under the control and management of the Secretary to the Department of Sustainability and Environment. In accordance with Section 15(1) the abovementioned areas are known as State Wildlife Reserves. Section 16 outlines how such areas are to be managed. The Crown Land (Reserves) Act is relevant to the management of certain areas of the reserve.

In 1977, the LCC recommended that an area of 160 ha be permanently reserved for wildlife conservation purposes (LCC 1977). In its 1994 review of the Melbourne Area District 2 (LCC 1994), the LCC recommended the area recommended in 1997 and most areas purchased for addition to the reserve since 1977, and the strips of public purposes reserve and contiguous Crown land extending for approximately 1.5 km upstream along Woori Yallock Creek and a short distance downstream as Yellingbo Nature Conservation Reserve. It was recommended that the areas be used for conservation of habitat, education and scientific study, and passive recreation such as nature study and picnicking by small numbers of people, where this is consistent with

environmental aims. The LCC also recommended that protection and preservation of the Helmeted Honeyeater and its habitat, where they exist, be a primary goal of management. The Government accepted these recommendations in 1997.

As the organisation charged with management of the Parks and Reserves System, Parks Victoria manages the whole of Yellingbo Nature Conservation Reserve (section 1.2) in accordance with the LCC recommendations. Under an informal agreement with the Trust for Nature, Parks Victoria also manages freehold land along Cockatoo Creek owned by the Trust as if it were part of the reserve (section 7.3).

Presently, there are no specific regulations for the Yellingbo Nature Conservation Reserve.

Management aims for the reserve consistent with the legislation and the LCC recommendations are as follows.

Resource conservation

- Preserve, protect and enhance the natural environment, with special emphasis on conservation of threatened species and communities.
- Conserve features of archaeological, historical and cultural significance.
- Provide for and encourage scientific research, surveys and monitoring that will contribute to a better understanding of the ecosystems and their management.
- Provide for appreciation, understanding and enjoyment of the reserve's natural and cultural values where this does not adversely affect conservation values.
- Encourage school and community education programs that improve understanding of the natural values of the reserve.

Reserve protection

- Protect soils and stream environments from degradation.
- Protect human life, the reserve and adjacent lands from injury by fire.
- Eradicate or otherwise control introduced plants, animals and diseases.

Other

- Liaise with local, State and interstate government authorities, the community and other interested organisations to assist in the management of the reserve, and to improve management of the natural values of the reserve's catchment.

The planning area is managed in accordance with Parks Victoria's operational policies, LCC recommendations, and other relevant plans and guidelines including:

- The Flora and Fauna Guarantee Action Statement for the Helmeted Honeyeater (Baker-Gabb 1992) and the Helmeted Honeyeater Recovery Plan 1999–2003 (Menkhorst *et al.* 1999).
- East Port Phillip Fire Protection Plan (Draft) (NRE 1999);
- Flora and Fauna Guarantee Action Statement for Leadbeater's Possum (Macfarlane *et al.* 1995) and Leadbeater's Possum Recovery Plan (Macfarlane *et al.* 1998).

3 STRATEGIC DIRECTIONS

3.1 Reserve vision

Future visitors to the Yellingbo Nature Conservation Reserve find a significant refuge for a stable Helmeted Honeyeater population in the wild of around 300 individuals in at least five separate but interconnected colonies, esteemed as the source of the populations whose range expanded and secured the species. Breeding populations of the endangered Leadbeater's Possum and Powerful Owl and other significant species are secure in the reserve. The remnant areas of nationally significant *Eucalyptus camphora* Swamp Community are also thriving.

The reserve is linked to nearby areas of remnant bushland and other conservation reserves by established habitat corridors along streams, enhancing the value of the reserve as habitat.

Ongoing research and active management have arrested the impact on the reserve of threats such as dieback, erosion and pest plant invasion. The reserve is recognised as an integrated management model for the conservation of endangered species and protection of relatively small and fragmented areas of bushland.

The Friends of the Helmeted Honeyeater and other community groups continue to conduct a variety of programs which play an active part in care and management of the reserve, including education programs with schools and community groups.

3.2 Management directions

Major management directions for the reserve are outlined below.

Resource conservation

- The reserve will be managed for conservation of the Helmeted Honeyeater consistent with the Helmeted Honeyeater Recovery Plan and advice from the Helmeted Honeyeater Recovery Team.
- Habitat for significant species including Leadbeater's Possum and Powerful Owl will be protected and enhanced.
- Significant remnant vegetation, particularly the nationally significant *Eucalyptus camphora* Swamp Community, will be protected.
- Previously cleared areas of the reserve will be progressively restored and revegetated to extend habitat for significant species.
- Opportunities for the addition of strategic parcels of land that will further consolidate the reserve's boundaries and buffer critical habitat will be investigated.
- The habitat of Helmeted Honeyeater will be protected from wildfire.
- Pest plants and animals will be controlled or eradicated through a program based on identification of key sites, target species and methods of control.
- Research and survey in the reserve that enhances knowledge of habitat requirements for significant species or threatening processes affecting habitat will be encouraged.
- Aboriginal places, objects and archaeological relics will be protected.

Community use, awareness and involvement

- The Friends of the Helmeted Honeyeater and other groups will assist with reserve management and conduct guided tours of the reserve.
- The Friends of the Helmeted Honeyeater will be supported, where appropriate, in their revegetation and school and community awareness programs.
- A working relationship with the relevant Indigenous communities will be developed.
- Appropriate support will be given to programs, and liaison will be maintained with local government and other public authorities, community groups and landowners to improve catchment management and foster the development of vegetation corridors to areas of remnant bushland.

- The current low level of passive visitor use in the reserve will be encouraged provided natural values are not adversely affected.
- The provision for active recreation activities at alternative locations to the reserve will be encouraged.
- Cooperation will be fostered with local landowners in programs of benefit to the reserve and surrounding land, especially programs for pest plant and animal control, remnant vegetation retention and revegetation.

4 STRATEGIES FOR NATURAL VALUES CONSERVATION

4.1 Geological and landform features

The physiography of the Yellingbo area consists of rolling hills of around 300 m elevation dissected with moderately sloping river valleys. This physiography forms part of the Nillumbik Surface, which extends from Dandenong to Noojee. The Silurian and Lower Devonian siltstones typical of this landform are overlain in river valleys by Quaternary alluvial deposits of gravel, sand and silt (LCC 1991).

The soils derived from these rock types include a sandy clay to a silty clay loam in the riparian zone, with depths of soil greater than 2 m. The drier foothill slopes above the riparian zone have soils that generally consist of silty clay loam to silty clay soils.

The Cockatoo Swamp, formed by a natural constriction in the Cockatoo Creek valley, is an interesting geomorphological feature of the reserve.

Aim

- Protect geological and geomorphological values.

Management strategy

- *Identify and protect sites of geological and geomorphological significance.*

4.2 Streams and catchments

Yellingbo Nature Conservation Reserve is a linear reserve established along Woori Yallock, Cockatoo, Shepherd, Macclesfield and Sheep Station Creeks. The health of the reserve and these streams and their catchments are closely linked.

The streams form part of the Woori Yallock Creek sub-catchment of the Yarra River. The sub-catchment supports a significant amount of agricultural activity including grazing and horticulture. Expansion of these activities together with sub-divisions and loss of native vegetation through clearing is placing pressure on natural resources of the catchment. Resultant high nutrient and turbidity levels in the waterways are contributing to an overall

decline in quality of the riparian zone. The Yarra Catchment Action Plan Working Draft (NRE 1997) proposes a Local Action Program for the Woori Yallock Creek sub-catchment. This program seeks to involve community groups, local government and other government agencies in identifying and addressing a range of catchment management issues including enhancing the habitat of Helmeted Honeyeater.

Melbourne Water has prepared a Waterway Activity Plan for the Woori Yallock Creek sub-catchment, which identifies priority instream and riparian works with the aim of improving stream condition and water quality.

Limited surveys of aquatic fauna have found relatively low numbers of individuals and a low variety of species. Of note is an absence of species that indicate clean water, which suggests pollutants are present.

Levee banks were constructed in the 1950s along the northern section of Cockatoo Swamp and the swamp was drained for agriculture. Cockatoo Creek subsequently formed channels in the floodplain at this location and actively eroded upstream around 1.5 km (Craigie *et al.* 1998). Remedial works were undertaken in 1999.

Sediments from this in-stream erosion, together with sediments from agricultural areas upstream of the reserve, are being deposited in the downstream end of the swamp and appears to be causing severe dieback of a large area of *Eucalyptus camphora* Swamp Community, which was habitat for Helmeted Honeyeater (Craigie *et al.* 1998). Massive weed invasion is also occurring in the area of deposition (Carr 1998) (section 4.6).

Aim

- Restore stream flows that represent natural water flow regimes to protect and enhance stream conservation values.

Management strategies

- *Support preparation and implementation of a Local Action Program for the Woori Yallock Creek sub-catchment.*

- *Support the implementation of the Waterway Activity Plan by Melbourne Water for the Woori Yallock Creek sub-catchment.*
- *Undertake works to arrest erosion and restore degraded areas in Cockatoo Swamp.*
- *Encourage further research and establish monitoring programs into hydrology and the aspects of catchment management that affect the reserve.*

4.3 Vegetation

Surveys have identified over 285 native flora species in the reserve. Of these around 55 are regionally significant (McMahon *et al.* 1991). Three species are classified as threatened in Victoria (appendix 2). Around 125 introduced vascular plants have been found in the reserve (section 4.6).

Eleven vegetation communities have been identified (McMahon *et al.* 1991) including the Sedge-rich *Eucalyptus camphora* Swamp Community. The community is considered to be of national significance and is listed as a threatened community under the *Flora and Fauna Guarantee Act 1998* (Vic.) (appendix 1).

Studies have identified a number of serious, long-term threats facing the vegetation communities in the reserve including dieback and insect attack (McMahon *et al.* 1991), changed hydrology and sedimentation (Craigie *et al.* 1998), and eutrophication and weed invasion (Carr 1998). The linear nature of the reserve makes it particularly susceptible to ‘edge-effect’ disturbances including weed invasion, wind throw, clearing, dieback, and also influx of herbicides and fertilisers.

While the reserve still contains substantial areas of relatively undisturbed and healthy vegetation, these threatening processes appear to be causing an overall decline in the health of the reserve’s vegetation communities. An estimated 25–30% of the eucalypt overstorey is suffering from dieback caused by factors including psyllid infestation and Bell Miner pressures (McMahon *et al.* 1991). Since 1991 a 20 ha area of Sedge-rich *Eucalyptus camphora* Swamp Community in the Cockatoo Swamp has suffered apparently irreversible dieback and conversion to a weed-dominated

community (Craigie *et al.* 1998; Carr 1998). This area was previously important Helmeted Honeyeater habitat.

The priority for management of the reserve’s vegetation has been the protection of remaining Helmeted Honeyeater habitat and revegetation of acquired areas to extend habitat (section 4.4). A habitat restoration strategy, prepared in 1992, has been guiding this work (McMahon and Carr 1992). This strategy has largely been implemented and now needs to be revised to provide a framework for future works.

Sections of adjoining private land that are being revegetated will complement reserve management (section 4.2).

Aims

- Maintain, protect and enhance the structural and floristic diversity of the vegetation.
- Increase knowledge of the causes, distribution and management of dieback.
- Restore degraded vegetation and, where appropriate, enhance and extend Helmeted Honeyeater habitat.

Management strategies

- *Develop a vegetation management strategy for the reserve based on requirements of the reserve’s threatened flora and fauna and an assessment of works completed under the previous habitat restoration strategy. Ensure:*
 - *vegetation management accords with the provisions of the Helmeted Honeyeater Recovery Plan and advice from the Helmeted Honeyeater Recovery Team;*
 - *ongoing monitoring;*
 - *accurate and timely identification and assessment of threats facing the reserve’s values;*
 - *identification of priority actions to maintain and restore the reserve’s values including threatened species habitat.*
- *Ensure all species records are included on the Parks Victoria Environmental*

Information System (EIS), which is linked to the DSE flora database.

4.4 Fauna

Around 230 native vertebrate species have been recorded in the reserve including 11 considered threatened in Victoria (appendix 3).

Birds

The reserve supports 170 native species. Seventy-three native species have been recorded nesting in the reserve. Approximately 60 species are resident all year.

Many bird species have declined in the region due to loss of suitable habitat. These include Baillon's Crake (*Porzana pusilla*), Little Grassbird (*Megalurus gramineus*), Clamorous Reed Warbler (*Acrocephalus stentoreus*), Southern Emu-wren (*Stipiturus malachurus*) and the little-known Lewin's Rail (*Rallus pectoralis*).

The Helmeted Honeyeater

The most significant bird found in the reserve is the Helmeted Honeyeater (*Lichenostomus melanops cassidix*), a sub-species of Yellow-tufted Honeyeater. Yellingbo supports the last known wild population of this sub-species, which is one of the State's faunal emblems. Within its territories, Helmeted Honeyeater requires a healthy canopy of Swamp Gum, Mountain Swamp Gum or Manna Gum and the food sources provided by these species.

The sub-species uses dense shrubbery for nesting such as thickets of Prickly Currant Bush and Prickly Tea-tree and, in the Cockatoo Swamp, dense thickets of Woolly Tea-tree and Scented Paperbark. Dense reed beds are also occasionally utilised for nesting.

The Helmeted Honeyeater feeds on carbohydrates (in the form of manna, honeydew, lerp and nectar) and arthropods such as insects and spiders. Its specialty is to monopolise and defend areas with rich year-round supplies of manna and honeydew as provided by healthy stands of Mountain Swamp Gum, Manna Gum and Swamp Gum.

The Helmeted Honeyeater population is under ongoing pressure arising from several factors including competition from aggressive colonies of Bell Miners invading Helmeted Honeyeater territories, a shortage of high

quality breeding areas in close proximity to existing colonies and rapidly spreading dieback at one major colony site (Menkhorst *et al.* 1999).

The Helmeted Honeyeater populations in the reserve are managed according to the provisions of the Helmeted Honeyeater Recovery Plan and the advice of the Helmeted Honeyeater Recovery Team. The Bell Miner population in the reserve is controlled as a measure to reduce competition pressure upon the Helmeted Honeyeater.

DSE is currently reviewing the Helmeted Honeyeater Recovery Plan. The Helmeted Honeyeater Recovery Team, which is multidisciplinary team that includes officers from the Department of Sustainability and Environment, Parks Victoria, Healesville Sanctuary, tertiary education institutions, Birds Australia, Bird Observers Club of Australia, and Friends of the Helmeted Honeyeater, oversees implementation of the Helmeted Honeyeater Recovery Plan. Management of the bird involves monitoring the population, refining revegetation techniques, releasing birds reared in captivity to create new populations in separate catchments to those at Yellingbo, controlling Bell Miner populations, purchasing land to provide further habitat, and educating the community to create new populations in a separate catchment to those at Yellingbo.

Other fauna

The reserve contains a variety of locally significant mammal species including Platypus (*Ornithorhynchus anatinus*), Short-beaked Echidna (*Tachyglossus aculeatus*), Yellow-bellied Glider (*Petaurus australis*), Water Rat (*Hydromys chrysogaster*), Swamp Rat (*Rattus lutreolus*) and Black Wallaby (*Wallabia bicolor*).

The occurrence of the endangered Leadbeater's Possum (*Gymnobelideus leadbeateri*) in the reserve is highly significant. This is an unusual lowland population of a species which is normally restricted to high altitude (>500 m) ash forests and some Snow Gum forests (Smales 1994). Research has shown the Leadbeater's Possum denning in nest boxes that have been placed along Cockatoo and Macclesfield Creeks (Harley 2003). The high psyllid infestation, which provides a ready

supply of carbohydrate-rich lerps and honeydew, may be of dietary significance to Leadbeater's Possum (Thomas 1989). Tea-tree thickets in the reserve may support a number of nocturnal arthropod species large enough to meet the protein requirements of the possum.

Two species of bandicoot – Southern Brown Bandicoot (*Isodon obesulus*) and Long-nosed Bandicoot (*Perameles nasuta*) – have been recorded in the reserve. Further research on these and other species is required so that appropriate management actions can be identified. Three native fish species of note are found in the reserve: River Blackfish (*Gadopsis marmoratus*), Southern Pigmy Perch (*Nannoperca australis*) and Mountain Galaxias (*Galaxias olidus*). These native fish are threatened by predation from introduced species such as Brown Trout, stream barriers (e.g. weirs) which restrict fish passage and pollution.

Nine species of amphibians and 16 species of reptiles have been recorded in the reserve (Smales 1981). Of note is the Swamp Skink (*Egernia coventryi*), which is listed as vulnerable in Victoria (DSE 2003c).

The abundance of fallen timber in the reserve provides habitat for other reptiles such as Black Rock Skink (*Egernia saxatilis intermedia*), Southern Water Skink (*Eulamprus tympanum*) and McCoy's Skink (*Nannoscincus maccoyi*). In the past some fallen timber has been removed as a source of firewood.

A variety of invertebrate species have been recorded in the reserve. In addition to these intrinsic values, some invertebrate species are important as food sources for Leadbeater's Possum and Helmeted Honeyeater.

Aims

- Protect and conserve native fauna, particularly threatened and locally significant species.
- Maintain and enhance habitat for significant species.

Management strategies

- Assist DSE with management of the Helmeted Honeyeater according to the Helmeted Honeyeater Recovery Plan and advice from the Recovery Team.

- Ensure vegetation is managed to promote and enhance habitat for the Helmeted Honeyeater and other significant faunal species (section 4.3).
- Continue the program of Bell Miner removal in accordance with advice from the Helmeted Honeyeater Recovery Team, and assess associated changes in psyllid population levels and vegetation health.
- Incorporate the recommendations from current research on Leadbeater's Possum into future management strategies for the species.
- Encourage surveys of the mammal (including bandicoot), reptile, amphibian, fish and invertebrate fauna of the reserve.
- Prohibit firewood collection and leave fallen timber as habitat for reptiles and other vertebrates and invertebrates.
- Maintain and enhance native fish habitat by ensuring streams within the reserve are not de-snagged and in-stream barriers such as weirs are removed or are designed to permit free movement of fish species.

4.5 Fire management

The range of vegetation types and the varied topography suggests the reserve's natural fire regime may have involved a complex burning mosaic. The use of fire by Aboriginals may also have influenced vegetation patterns. The burning pattern changed significantly with European settlement.

Prior to the 1960s the swamp was burnt regularly to improve grazing. However most of the reserve has not been burnt since its establishment in 1965.

With no burning for more than 30 years, the floristic diversity of some vegetation communities may be declining (Quin B. pers. comm. 2002). Fire may be advantageous for regeneration of these communities, however potential adverse effects such as weed invasion and changed ecological patterns need to be considered before re-introducing fire into the reserve.

Severe wildfire is a major threat to the survival of threatened species within the reserve. Fire protection needs to include measures to protect habitat of threatened species, particularly that

of Helmeted Honeyeater. In the absence of a controlled burning regime, fire protection is based around maintenance of vehicle access tracks, slashing of firebreaks and liaison with the Country Fire Authority (CFA) about fire management on private land.

The reserve falls within DSE's East Port Phillip Fire Protection Area. The draft East Port Phillip Fire Protection Plan (NRE 1999) is currently being reviewed by DSE.

Aims

- Protect human life, threatened species, the reserve and adjacent land and property from injury by fire.
- Minimise the adverse effects of wildfire and fire suppression methods on the reserve.
- Maintain where possible fire regimes appropriate to the conservation of native flora and fauna.

Management strategies

- *Protect the reserve from wildfire in accordance with the East Port Phillip Fire Protection Plan (Draft) (NRE 1999) and the Code of Practice for Fire Management on Public Land (CNR 1995).*
- *Develop a fire protection plan for the reserve, consistent with the East Port Phillip Fire Protection Plan (Draft) (NRE 1999) and approved by the DSE Fire Management Officer, which includes site-specific measures to protect Helmeted Honeyeater, Leadbeater's Possum and other significant environmental values from wildfire.*
- *Maintain management tracks and gates to a standard suitable for access for fire protection purposes by vehicles carrying 'slip-on' units.*
- *Liaise with CFA to co-ordinate fire protection planning and operations.*
- *Investigate the requirement for and practicality of ecological burning in the reserve, including possible research projects.*

4.6 Pest plants and animals, and diseases

Around 125 weed species have been found within the reserve; almost one-third of the reserve's known plant species. Yellingbo Nature Conservation Reserve, being a linear streamside reserve within an agricultural area, is exposed to ongoing weed infestation via water, air and animal vectors. Carr (1998) identified that without proper management important vegetation and Helmeted Honeyeater habitat will be destroyed by weed invasion, which is being assisted by environmental changes such as hydrological modification, sedimentation, eutrophication and overstorey dieback.

Recent control programs have focused on Blackberry, Willow, Ragwort and St Peter's Wort. Species of major concern are listed in appendix 4.

Weed control has been guided to date by a vegetation plan prepared in 1992 (McMahon and Carr 1992). A current, accurate survey of the extent of weed infestation is required to enable preparation of a comprehensive, targeted pest plant control strategy.

Twenty-one introduced vertebrate species have been recorded in the reserve. Introduced animals present a threat to the native animals by predation, competition for habitat and food and dispersal of seeds of weeds. Pest species in the reserve include Red Fox, Dog, Cat, European Rabbit, Sambar Deer, Fallow Deer, Spotted Turtle-dove, European Blackbird, Song Thrush, Common Starling, Common Mynah, European Wasp, European Honey Bee, Brown Trout and Redfin. A list of pest animals of major concern in the reserve is given in appendix 4.

The fox population in the reserve appears to be high and further research is necessary to assess the impact of foxes on significant bird and mammal species in the reserve.

Domestic dogs are occasionally seen in the reserve. A trapping program for feral cats is undertaken periodically with moderate success.

Rabbits are common in the reserve and tend to move between the adjacent farmland and the dense vegetation of the reserve. Rabbits may constitute a major food source for foxes and

feral cats. Rabbit control needs to be part of a co-ordinated feral animal control program.

Sambar and Fallow Deer populations are increasing. The deer create tracks and wallows, facilitating weed invasion and increasing sedimentation of waterways, and could attract hunters to the area. The situation is rapidly worsening and a deer management strategy is urgently required.

Limited research appears to rule out fungal pathogens as the cause of vegetation dieback in the Cockatoo Swamp, however further survey is required to determine the actual status of *Phytophthora* spp. and other pathogens in the reserve (Wright 1998).

Aims

- Monitor, control and where possible eradicate pest plants and animals in the reserve.
- Avoid the introduction and spread of pest plants and animals, and pathogens.

Management strategies

- *Record and map observations of pest plants in the Environmental Information System.*
- *Develop and implement a pest plant control strategy based upon:*
 - *updated pest plant survey data for the reserve;*
 - *priorities for the control of regionally prohibited and regionally controlled weeds;*
 - *priorities for protection of Helmeted Honeyeater and other threatened species habitat and communities.*
- *Establish monitoring programs to assess the effectiveness of pest plant and animal control programs.*
- *Liaise with adjoining landholders and the Macclesfield Landcare group to combine pest control within the reserve with control programs on adjoining private land.*
- *Maintain a record of pest animal observations and encourage research to provide an indication of relative abundance (section 4.7).*

- *Prepare a pest animal control strategy, including deer management, to prioritise pest animal control works.*

4.7 Natural values research

The ecological complexities of the reserve and the reserve's relative proximity to Melbourne make it an ideal place for research projects that could support management. The Helmeted Honeyeater Recovery Team oversees a number of endangered species research projects conducted in the reserve by tertiary institutions and other researchers.

Reserve management would be improved by integrating the data and research results into reserve management systems.

Aim

- Encourage research programs that can assist in reserve management and conservation of reserve values.

Management strategy

- *Encourage tertiary and research institutions to collect adequate data and develop research projects to support and improve reserve management, where appropriate in consultation with the Helmeted Honeyeater Recovery Team.*

5 STRATEGIES FOR CULTURAL VALUES CONSERVATION

5.1 Aboriginal cultural heritage

The reserve lies within the traditional lands of the Wurundjeri-balluk Clan of the Woiwuring language speaking group. Their lifestyle involved, among other things, seasonal exploitation of available food. The wetlands in the reserve may have been an important food source. While there are no records of any Aboriginal sites in the Yellingbo Nature Conservation Reserve, the reserve is considered to be of potential archaeological significance (du Cros 1988).

Aboriginal sites, places and values are protected under the *Archaeological and Aboriginal Relics Preservation Act 1972* (Vic.) and the *Aboriginal and Torres Strait Islander Heritage Protection Act 1984* (Cwlth). The Commonwealth legislation identifies the local Aboriginal communities from whom consent is required for certain specific activities.

Aim

- Identify, protect and conserve Aboriginal cultural sites.

Management strategies

- *Work with Wurundjeri to ensure the protection of Indigenous places and sites from management and fire protection works.*
- *Encourage systematic survey and research into the distribution, significance and status of any Aboriginal sites, places and values.*
- *Consult with the State Minister for Aboriginal Affairs prior to undertaking any works which may disturb Aboriginal cultural sites. The Minister will seek recommendations from the relevant Indigenous community prior to determining the matter.*

5.2 Post-settlement cultural heritage

Timber milling in the area accelerated after World War I. Horses were used to transport timber along a wooden tramline that followed Sheep Station Creek through the area (Miller and Buckland 1992).

Aim

- Identify, protect and conserve historic sites.

Management strategy

- *Encourage systematic survey and research into the distribution, significance and status of any historic sites.*

6 STRATEGIES FOR COMMUNITY USE, AWARENESS AND INVOLVEMENT

6.1 Visitor use

Access

Public vehicle access is limited to the car park at Parslows Bridge on Beenak Road (figure 1). About 50 km of vehicular tracks provide access for management and research vehicles only. Except in emergencies or for essential works, these tracks will be closed to all vehicles during winter and wet periods to minimise damage to the reserve.

A number of adjacent landholders have gates in boundary fences (section 7.3). Some gates are essential to provide access for fire protection.

Information, interpretation and education

The reserve receives about 1500 visits each year from visitors attending education and revegetation activities conducted by the Friends of the Helmeted Honeyeater.

Local schools are encouraged to be actively involved in management of the reserve through revegetation projects and education programs.

The Friends of the Helmeted Honeyeater and the Bird Observer's Club of Australia run guided tours for birdwatchers. The Friends have erected and maintain an information board at Parslows Bridge.

Recreation

The reserve's current low levels of recreational use are considered compatible with reserve management aims. Walkers are currently permitted to use the existing management vehicle track network. Fishing is permitted in the reserve.

No commercial tours currently operate within the reserve.

Presently, Parks Victoria's capacity to manage visitor use is limited by the lack of specific regulations for the reserve and the Trust for Nature land (section 2.3).

Aims

- Limit increases in visitation to preserve reserve values.
- Provide suitable information, interpretation and education programs at the reserve or in partnership with regional attractions.
- Promote sustainable recreation consistent with reserve management aims.

Management strategies

- *Maintain public access to the reserve at Parslows Bridge.*
- *Continue to allow guided special interest tours by the Friends of the Helmeted Honeyeater and Bird Observers Club of Australia provided natural values are protected.*
- *Support Healesville Sanctuary's development of public interpretation and education programs for the Helmeted Honeyeater.*
- *Assist the Friends of the Helmeted Honeyeater to maintain the current schools and community education programs and the visitor information shelter at Parslows Bridge.*
- *Allow a limited number of commercial tours for nature observation and bird watching, only where it can be shown there will be no adverse impacts to reserve values and there is a contribution to management aims.*
- *Permit recreational activities in accordance with table 1.*
- *Allow walking and bird watching on vehicular tracks only.*
- *Monitor the occurrence and impact of recreational activities upon the reserve's values and take action as appropriate.*

TABLE 1 RECREATION ACTIVITIES MANAGEMENT

| ACTIVITY | ACTIVITY PERMITTED | CONDITIONS AND COMMENTS |
|------------------------|--------------------|---|
| Bird observing | Yes | Organised groups require ranger's permission. |
| Camping* | No | - |
| Commercial tours | Yes | Subject to permit. |
| Dog walking | No | - |
| Filming | Yes | Subject to permit. |
| Fishing | Yes | Bait collection not permitted. |
| Horse riding | No | - |
| Hunting | No | - |
| Feeding wildlife | No | - |
| Nature study | Yes | - |
| Bicycle riding | No | - |
| Scenic viewing | Yes | - |
| Orienteering/Rogaining | No | - |
| Picnicking* | Yes | - |
| Trail bike riding | No | - |
| Walking | Yes | Organised groups require Ranger's permission. |

* Use of solid fuel fires, chainsaws, and generators are not permitted.

- *Limit increases in visitation to protect the reserve's values by:*
 - *not providing further visitor facilities within the reserve;*
 - *encouraging visitors to use alternative nearby parks and reserves such as Bunyip State Park, Dandenong Ranges National Park, Yarra Ranges National Park and Healesville Sanctuary for active recreation.*
- *Maintain the vehicle track network for management and research purposes only and maintain the winter closure policy.*
- *Encourage DSE to develop appropriate regulations for the reserve.*

6.2 Community partnerships

The reserve lies within the traditional homeland of the Wurundjeri or Yarra Yarra Clan (section 5.1).

The Friends of the Helmeted Honeyeater was formed in 1989. The Friends objectives are to:

- encourage people to participate in activities designed to increase public awareness of the endangered status of the Helmeted Honeyeater;
- improve the status of the Helmeted Honeyeater in the wild;
- assist the conservation of the Helmeted Honeyeater in the wild.

The Friends of the Helmeted Honeyeater publish a quarterly newsletter and hold regular meetings and activities such as tree planting, seed collection and weeding in the reserve and adjoining properties. Members of the group are involved in revegetation works, bird surveys, supplementary feeding rosters, observation of captive birds at Healesville Sanctuary, field days and producing information sheets and lists of indigenous plants suitable for the Yellingbo area.

The Friends of the Helmeted Honeyeater manage a plant nursery in the reserve to raise stock for revegetating Helmeted Honeyeater habitat.

The Bird Observer's Club of Australia and Victorian Ornithological Research Group have played a significant role in management of the reserve in the past.

Land for Wildlife is a voluntary scheme that aims to encourage and assist private landholders in Victoria to provide habitat for wildlife on their property. There are currently about 40 registered Land for Wildlife properties in the Yellingbo area, which enhances the actual habitat of the district. On-ground works such as tree planting by the Friends of the Helmeted Honeyeater has raised awareness in the local community and encouraged landowners to undertake conservation works on their properties.

Several Landcare groups are active in the catchments upstream of the reserve and their programs are assisting to improve the environmental quality of the reserve.

Aim

- Encourage and support working partnerships among community groups and with Parks Victoria to assist in reserve management and achieve common reserve management goals.
- Encourage awareness of the reserve's values.
- Encourage management practices on adjoining land which complement the reserve's management aims.

Management strategies

- *Foster and develop opportunities for reserve staff, and relevant Indigenous communities to share their knowledge with a view to improving the management of the reserve.*
- *Assist the Friends of the Helmeted Honeyeater to undertake revegetation works, school and community education programs and other beneficial activities.*
- *Encourage incorporation of the skills and interests of volunteer groups in the reserve's management activities.*
- *Assist the Friends of the Helmeted Honeyeater to undertake activities which raise community awareness of the reserve's values and increase community involvement in the reserve.*
- *Liaise with local community groups and landowners and, as appropriate, involve them in relevant aspects of planning and managing the reserve.*
- *Apply, and encourage the application of, the Good Neighbour Policy to management issues on or near the boundary of the reserve.*
- *Encourage the activities of Landcare groups in the catchment which complement the reserve's management aims.*
- *Encourage adjoining landholders to plant indigenous species, particularly Helmeted Honeyeater habitat species, and protect remnant vegetation around the perimeter of the reserve.*
- *Encourage Land for Wildlife extension efforts in the Yellingbo and Macclesfield area.*

7 STRATEGIES FOR OTHER ISSUES

7.1 Management and support services infrastructure

The former depot, office and residence (figure 1) serve as a field station and community centre. Key users of these facilities include Parks Victoria and DSE staff, Friends of the Helmeted Honeyeater, Bird Observer's Club of Australia and school groups.

Aim

- Maintain adequate management facilities at the reserve.

Management strategies

- *Review and identify the future requirements for management facilities and structures in the reserve in consultation with Friends of the Helmeted Honeyeater, Bird Observer's Club of Australia and other stakeholders.*
- *Remove the old bird observers' building and the nearby shed and non-indigenous trees and shrubs at the site of the depot, and restore a cover of the relevant indigenous vegetation community.*

7.2 Authorised uses

A range of public utilities infrastructure is found within the reserve including power lines, pipelines, drains and tele-communication cables. A TXU Australia transmission line crosses the Sheep Station Creek section of the reserve at two locations. TXU maintains a 40 metre wide strip of land including towers, access track and gates, and ensures vegetation does not reach the transmission cables. TXU liaises with Parks Victoria prior to carrying out any work in the reserve.

Melbourne Water issues permits for the extraction of water from the streams within the reserve for irrigation, stock and domestic water supply on adjacent private land.

Requests to conduct activities such as nature filming and commercial tours are received occasionally. To minimise potential impacts, such activities should be encouraged in alternative parks or reserves.

Aim

- Ensure that public utilities and occupancies are consistent with the conservation objectives of the reserve and authorised in accordance with relevant legislation.

Management strategies

- *Permit nature filming and commercial tours in the reserve only if this benefits the aims for the reserve and cannot more appropriately be conducted elsewhere.*
- *Liaise with public authorities managing facilities within the reserve to ensure their operations and facilities do not adversely affect the reserve.*
- *Document existing occupations including establishment dates and seek authorisations and removals as appropriate.*

7.3 Boundaries and adjacent uses

The Trust for Nature freehold land along Cockatoo Creek carries native bushland including Helmeted Honeyeater habitat. The land was acquired by the Trust for Nature in 1993 and 1995 with the intention that the land be considered for addition to the reserve. Under an informal agreement with the Trust, Parks Victoria manages the Trust's land as if it were part of the reserve.

The Yellingbo Nature Conservation Reserve comprises a large number of parcels of land most of which are temporarily or permanently reserved as State Wildlife Reserves (section 2.3). However, the reserve also includes some strips of public purposes reserve and contiguous strips of Crown land along certain stream sections, and small areas of Crown land (section 1.2). The disparate, and in some cases inappropriate, status of areas within the planning area will be an impediment in developing appropriate regulations (section 6.1). The disparate land status and lack of regulations are substantial impediments to its efficient management.

Some substantial sections of the reserve's boundaries are undefined and unfenced or

poorly fenced, and are at risk of degradation over time by livestock, weeds, stream bank damage, illegal tracks and dumping of rubbish. A number of adjacent landholders use gates in their boundary fences to gain access to occupations in the reserve and for other private purposes. Some gates also provide essential access for fire protection. In some areas management access is inadequate. With the consolidation of areas within the reserve, it will be important to investigate and resolve these boundary issues by appropriate means such as survey and fencing.

Aims

- Enhance conservation of reserve values through consolidation of the reserve area and boundary.
- Encourage development of habitat linkages between Yellingbo Nature Conservation Reserve and other reserves and sites of remnant habitat in the broad catchment area.

Management strategies

- *Liaise with DSE to seek the appropriate reservation of all public land within the Yellingbo Nature Conservation Reserve.*
- *Continue to liaise with Trust for Nature and manage their land as though the land were part of the reserve. Support any proposal to have this land incorporated into the reserve.*
- *Liaise with the Shire of Yarra Ranges in relation to preparation of planning scheme reforms with the aim of minimising adverse effects on the reserve of private land developments.*
- *Liaise with adjacent landowners to address issues that may affect the reserve and in particular their responsibilities under the Fences Act 1968 (Vic.).*
- *Encourage the removal of gates in adjoining private fences where not required for a legal or management purpose.*

8 IMPLEMENTATION

This plan provides the strategic framework that governs the development and delivery of all management programs and actions affecting the Yellingbo Nature Conservation Reserve.

The management programs for the reserve are prepared annually, in accordance with Parks Victoria's Corporate Plan and as a part of statewide, prioritised programs.

The performance of the plan's implementation will be measured and reported as part of these statewide programs as implemented to June each year.

Amendments may be made to this plan from time to time consistent with an authorised approval process. A review of the plan will be considered from five to ten years after its publication.

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APPENDIX 1 SITE OF BOTANICAL SIGNIFICANCE

Sedge-rich *Eucalyptus camphora* Swamp Community

This community features a canopy of Mountain Swamp Gum (*Eucalyptus camphora*) of moderate cover (20–25%). The shrub stratum is sparse and dominated by Woolly Tea-tree (*Leptospermum lanigerum*) and an understorey of diverse sedges and rushes including Fen Sedge (*Carex gaudichaudiana*), Tassel Sedge (*C. fascicularis*), Tall Sedge (*C. appressa*), Leafy Flat-Sedge (*Cyperus lucidis*) and Soft Twig-Sedge (*Baumea rubiginosa*), and grasses and herbs including Showy Willow-Herb (*Epilobium pallidiflorum*). The community varies in structure from open woodland to closed Shrubland, and where it has been highly disturbed, Common Reed (*Phragmites australis*) dominated grassland.

The community is considered to be of national significance (McMahon *et al.* 1991) and is listed under the Flora and Fauna Guarantee Act as a community in a demonstrable state of decline, and prone to future threats which are likely to result in extinction.

Around one-third of the community has been cleared in the past for agriculture and about 200 hectares remain, largely within the Yellingbo Nature Conservation Reserve. The eucalypt canopy within the reserve (approximately 25–30%) is suffering from dieback caused by psyllid infestation, Bell Miner (*Manorina melanophrys*) colonisation, and altered hydrological regimes. Severe weed invasion of disturbed sites is choking ground storey regrowth.

APPENDIX 2 THREATENED FLORA SPECIES RECORDED FOR THE RESERVE

| SCIENTIFIC NAME | COMMON NAME | THREATENED STATUS IN VICTORIA |
|---|----------------------|-------------------------------|
| <i>Agrostis avenacea</i> var. <i>perennis</i> | Wetland Blown-grass | k |
| <i>Bossiaea cordigera</i> | Wiry Bossiaea | r |
| <i>Cardamine tenuifolia</i> | Slender Bitter-cress | k |

Source: DSE Database 2003a.

Threatened status in Victoria

r rare

k poorly known

APPENDIX 3 THREATENED FAUNA SPECIES RECORDED FOR THE RESERVE

| SCIENTIFIC NAME | COMMON NAME | THREATENED STATUS | |
|--|-------------------------|-------------------|-----------|
| | | VICTORIA | AUSTRALIA |
| <i>Ardea alba</i> | Great Egret | Vul, L | |
| <i>Aythya australis</i> | Hardhead | Vul | |
| <i>Egernia coventryi</i> | Swamp Skink | Vul, L | |
| <i>Gymnobelideus leadbeateri</i> | Leadbeater's Possum | End, L | End |
| <i>Haliaeetus leucogaster</i> | White-bellied Sea-Eagle | Vul, L | |
| <i>Lichenostomus melanops cassidix</i> | Helmeted Honeyeater | CEn, L | End |
| <i>Ninox strenua</i> | Powerful Owl | Vul, L | |
| <i>Platalea regia</i> | Royal Spoonbill | Vul | |
| <i>Porzana pusilla</i> | Baillon's Crake | Vul, L | |
| <i>Pseudemoia rawlinsoni</i> | Glossy Grass Skink | NT | |
| <i>Rallus pectoralis</i> | Lewin's Rail | Vul, L | |

Source: DSE 2003b.

Threatened status:

Victoria

CEn Critically endangered

End Endangered

Vul Vulnerable

NT Near threatened

L Flora and Fauna Guarantee listed

Australia:

End Endangered

APPENDIX 4 PEST PLANTS AND PEST ANIMALS OF MAJOR CONCERN

| SCIENTIFIC NAME | COMMON NAME | CATEGORY |
|------------------------------|--------------------|----------------------------|
| PEST PLANTS | | |
| <i>Acacia decurrens</i> | Early Black Wattle | Environmental Weed |
| <i>Cirsium arvense</i> | Perennial Thistle | Regionally Controlled Weed |
| <i>Cirsium vulgare</i> | Spear Thistle | Environmental Weed |
| <i>Erica lusitanica</i> | Spanish Heath | Environmental Weed |
| <i>Hypericum tetrapterum</i> | St Peter's Wort | Regionally Prohibited Weed |
| <i>Ranunculus repens</i> | Creeping Buttercup | Environmental Weed |
| <i>Rubus discolor</i> | Blackberry | Regionally Controlled Weed |
| <i>Senecio jacobaea</i> | Ragwort | Regionally Controlled Weed |
| PEST ANIMALS | | |
| <i>Canis familiaris</i> | Dog | |
| <i>Canis vulpes</i> | Red Fox | |
| <i>Cervus unicolor</i> | Sambar Deer | |
| <i>Felis catus</i> | Cat | |
| <i>Oryctolagus cuniculus</i> | European Rabbit | |
| <i>Rattus rattus</i> | Black Rat | |
| <i>Vespula germanica</i> | European Wasp | |

Sources:

DSE (database) 2003a.

DSE (database) 2003b.