



**BEACONSFIELD FLORA AND FAUNA
RESERVE**

MANAGEMENT PLAN

DRAFT

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for the Cardinia Shire Council

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BEACONSFIELD FLORA AND FAUNA RESERVE MANAGEMENT PLAN

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1. INTRODUCTION

1.1 LOCATION AND PLANNING AREA

The Beaconsfield Flora and Fauna Reserve is located approximately 47 kilometres south-east of Melbourne, and is bordered by Inglis and Beaconsfield-Emerald Roads, the Beaconsfield Recreation Reserve and Cardinia Creek (see Figure 1). The reserve covers an area of 38.3 hectares and is linear in shape, with a north-south length of 1.6 km., and an east-west width varying from 120 metres to 300 metres. The Brisbane Creek, a tributary to the Cardinia Creek also runs through the reserve, but only flows during the winter months. A number of billabongs and swamp areas are also scattered through out the reserve.

The reserve is Crown land managed by the Cardinia Shire Council with the assistance of the Friends of Cardinia Creek Sanctuary. The Cardinia Creek is fed by waters from the Cardinia Reservoir as well as the local catchment area. It flows to Westernport Bay. The creek bed and banks are managed by the Melbourne Water Corporation, and 30 metres of land on either side of the creek by the Department of Natural Resources and Environment. The reserve will eventually become part of the proposed linear Cardinia Creek Parklands, a regional park most of which will be managed by Parks Victoria however the Beaconsfield Flora and Fauna Reserve is likely to continue to be managed by Cardinia Shire Council. High voltage powerlines managed by GPU Powernet P/L and Texas Utilities P/L run across one section of the reserve. Vegetation has been heavily pruned from underneath these lines to allow for maintenance and protection of the transmission towers and power lines.

1.2 REGIONAL CONTEXT

The reserve is centrally situated in the Berwick - Pakenham growth corridor at the base of the foothills. It is currently a small reserve, but is an important conservation zone as it forms part of a wildlife corridor linking bushland on public and private land. In the future it will become a noteworthy feature of the proposed Cardinia Creek Parklands. While there are a number of reserves in the district, the reserve is significant due to a scarcity of riparian vegetation in the Berwick - Pakenham region and the reserves strategic location as a wildlife corridor.

The reserve is 500 metres north-west of the Beaconsfield township and two kilometres east of the Berwick GPO. The Cardinia Creek forms the boundary between the two townships and the Casey and Cardinia councils. The reserve is primarily visited by local residents who walk into the reserve from the surrounding suburbs. Bridges over Cardinia Creek provide walker access from Akoonah Park in the City of Casey, and limited car parking is available at the reserve entrance opposite Holm Park Road on the Beaconsfield-Emerald Road and at the end of Cardinia Street.

1.3 SIGNIFICANCE OF THE SANCTUARY

The Beaconsfield Flora and Fauna Reserve provides an important resource for the local community, providing an area for passive recreational activities such as walking and

birdwatching. The reserve attracts local visitors from the surrounding suburbs and it is expected that the subdivision of neighbouring farmland and development of the Cardinia Creek Parklands will further increase visitor numbers.

The reserve contains a variety of remnant vegetation communities which provide habitat for a diverse range of native animals, including birds, possums, fish, frogs and wallabies. The area south of the powerlines has been designated a site of Regional Zoological Significance by the Department of Natural Resources and Environment (RZ13-Lower Cardinia Creek). In addition the area north of the powerlines has been designated a site of National Zoological Significance (ZN3-Cardinia Creek) due to the presence prior to the Ash Wednesday bushfires in 1983 of the endangered Helmeted Honeyeater and threatened Beautiful Firetail. Botanically, the reserve is of State Significance due to the presence of Hookers Fescue (*Austrofestuca hookeriana*) and vegetation communities which are seriously depleted elsewhere in Victoria.

Natural Values

- Remnant example of riparian, dry sclerophyll forest with a dominant open canopy of Manna Gum (*Eucalyptus viminalis*);
- Occurrence of a plant species and vegetation communities of State Significance;
- Many plant species and vegetation communities of Regional Significance;
- Small remnant fern gully, unusual at this altitude and climate;
- High bio-diversity values;
- Contains one plant of State Significance (Hookers Fescue - *Austrofestuca hookeriana*);
- Forms part of a significant wildlife corridor to the north and south along Cardinia Creek

Cultural and Heritage Values

- It is a remnant of the forest that once occurred throughout the area;
- The area was home to the Bunurong Aboriginal people, and there are sites of Aboriginal Significance scattered along the Cardinia Creek;
- Many plants and animals occurring in the reserve today were used by the Aborigines for food, medicines etc.

Recreational Values

- Opportunities for walking and observation;
- Tranquil bushland setting close to residential areas.

Educational Values

- Provides local educational institutions and community groups with a 'living classroom' for learning about ecology, environmental management and human impacts on the environment.

1.4 CREATION OF THE BEACONSFIELD FLORA AND FAUNA RESERVE

The earliest record of the reserve, according to Department of Natural Resources and Environment (DNRE) files, was in 1930 when the Shire of Berwick relinquished control of the land to the Crown after being prohibited from clearing the land for crops. Leases were

granted between 1933 and 1953 for the grazing of stock, including pigs. Sand and gravel extraction took place in the late 1930's in the northern section and a rubbish tip was located in the northeast corner of the reserve for many years and remnants from these activities still remain. The southern section of the reserve was gazetted in 1945, with the northern section being added in 1953. It was then known as Cardinia Park.

Significant species of fauna had been observed in the reserve from as early as 1944, including the Helmeted Honeyeater and koalas. Noxious weeds such as blackberries, pine trees, boneseed, holly, honeysuckle and smilax were also noted from as early as 1973. In 1978, the Land Conservation Council recommended that the Sanctuary become a permanent 'bushland reserve'. At this time the reserve was managed by the Pakenham Shire Council.

Stumps in the reserve indicate that some control of Sweet Pittosporum took place around 10 to 15 years ago. It has been suggested that the work was undertaken by a local scout group, however in many areas the stumps have re-sprouted and continue to be a threat to the indigenous vegetation. It has also been mentioned by past members of the Beaconsfield CFA that cool burns were attempted through the late 1970's to reduce fuel levels and control weed invasion, but these attempts were unsuccessful and met with objection from local residents.

Most management activity within the reserve has taken place over the past 7 years, with the Cardinia Shire Council organising weed control and community tree planting activities. The Friends of Cardinia Creek Flora and Fauna Sanctuary formed in March 1998 to assist in the continuation of this work.

1.5 LAND CONSERVATION COUNCIL (LCC) RECOMMENDATIONS AND GUIDELINES

The Park is a Crown Land reserve, designated as a Nature Conservation Reserve (C39), by the LCC in 1994. The LCC recognised the representative occurrences of swampy riparian forest and swamp scrub, the latter community being particularly depleted, but recommended that the area not be permanently reserved pending decisions on the development of a regional park along Cardinia Creek by the then Melbourne Parks and Waterways. The LCC did however recommend that the Beaconsfield Reserve be managed to protect its values. Their recommendations for appropriate uses of the area are summarised below:

- conserve and protect species, communities or habitats of indigenous animals and plants;
- provide for educational and scientific study in ways that minimally affect the area;
- provide for passive recreational activities such as nature study and picnicking by small numbers of people, where consistent with the conservation aim;
- no grazing, harvesting of forest products, hunting or use of firearms.

1.6 PARK MANAGEMENT AIMS

The Cardinia Shire Council's general management aim for the Beaconsfield Flora and Fauna Reserve, consistent with LCC recommendations and Victoria's Bio-diversity Strategy (1997), is to preserve the natural and cultural values of the park (flora, fauna, heritage), and to provide for passive recreational use and enjoyment of nature.

The following management aims broadly govern all aspects of park management.

Resource Management

- preserve and protect the natural environment;
- allow natural environmental processes to function with a minimum of disturbance;
- maintain bio-diversity;
- conserve and protect features of historical and cultural significance;
- protect adjacent land from injury by fire;
- control introduced plants, animals and diseases.

Visitor Management

- provide opportunities for appropriate recreation and tourism;
- promote and encourage an appreciation, understanding and enjoyment of the reserve's natural and cultural values and recreational opportunities;
- encourage appropriate park use and foster a conservation ethic;
- take reasonable steps to ensure a safe visit for users
- provide for and encourage scientific research, surveys and monitoring that will contribute to a better understanding and management of the reserve.

2. STRATEGIC DIRECTIONS

2.1 PARK VISION

A future visitor to Beaconsfield Flora and Fauna Reserve will find a forested haven surrounded by agricultural land to the north-east and residential development to the west and east of Cardinia Creek.

The reserve will continue to be a representative sample of swampy riparian forest and swamp scrub.

The reserve will provide opportunities for passive recreation such as bushwalking, bird watching etc. It is not envisaged that the reserve will be used for picnicking or horse riding due to lack of suitable areas and facilities. Such facilities are better located and provided for in the adjacent Allan Street Reserve and Akoonah Park. Once the regional Cardinia Creek Parklands are developed, additional facilities will become available.

2.2 MANAGEMENT DIRECTIONS

Major management directions for the reserve are as follows:

Resource Conservation

- protect and conserve the indigenous flora and fauna values of the reserve
- protect and conserve significant natural features
- protect and conserve significant cultural features;
- re-establish indigenous vegetation in degraded areas;
- avoid development outside day visitor areas;

Park Protection

- protect indigenous plant and animal communities from pest plants and animals;
- protect visitors and adjacent land from uncontrolled wildfire;

The Sanctuary Visit

- provide and maintain a network of walking tracks to facilitate visitor exploration of the reserve;
- conduct surveys so as to best provide for the needs and expectations of visitors;
- improve interpretative facilities for the reserve;
- encourage school and community groups to use the reserve.

Community Awareness and Involvement

- promote awareness and pride in the reserve, its natural, cultural and recreational values;
- encourage public support and involvement in the reserve management program;

- encourage neighbours and volunteers to actively participate in monitoring and maintaining the reserve;
- educate surrounding landowners about the dangers of environmental pest animals and plants.

2.3. ZONING

Paget (1999) has proposed that the reserve be divided into management zones which will:

- provide a geographic framework for management;
- indicate management directions and priorities;
- assist with the orderly implementation of the management plan;
- assist in minimising conflict between different users and activities.

The following management zones (See Figure 2) are proposed based on Paget's recommendations:-

1. Conservation zone – to protect and improve natural and cultural values and to provide a refuge for wildlife.
2. Low intensity use zone – to protect less sensitive natural environments and provide for sustainable passive recreation activities.
3. Buffer zone – to provide a buffer between natural and agricultural or residential development for the more active management of weed invasion and fire protection.
4. Powerline zone – maintained as a generally cleared area with fingers of remnant vegetation to protect creek bed and banks and continue wildlife corridor across the easement.

Paget (1999) details management objectives and management practices suitable for each zone. The strategies detailed in this plan are consistent with and complimentary to Paget's recommendations.

3. RESOURCE CONSERVATION

3.1 GEOLOGICAL AND LANDFORM FEATURES

The soil within the reserve was formed by the Kooweerup Swamp which occupied the Westernport region prior to European settlement and was eventually drained to provide rich agricultural land. The region surrounding the reserve formed the north-west boundary of the swamp, and contains swamp-fringe alluvium soils dating back to the Quaternary period. The soil type is classified as 'narre clay loam', with surface soils ranging from sandy loam to light to medium/ heavy clay with poor drainage and permeability.

The land surrounding the Cardinia Creek is part of a floodplain that extends from just north of Inglis Road to Westernport Bay along the Cardinia Creek. Water running into the creek as it passes through the reserve is collected in a catchment zone created by ridgelines found to the east of Emerald Road and to the west near 'Clover Cottage' hill. Surrounding the reserve to the north is farmland mostly cleared of vegetation, and to the west residential areas. The creek banks have become vulnerable to erosion and care must be taken to retain indigenous vegetation here so as to prevent further breakdown.

Aims

- to maintain soil stability through retention of the indigenous vegetation;
- to protect the banks of the Cardinia Creek from erosion.

Management Strategies

- stabilise the creek banks through revegetation;
- maintain the current creek morphology;
- create exclusion zones with fencing to speed regeneration of vegetation;
- minimise access to the creek banks by users of the reserve.

3.2 FAUNA

The reserve which is surrounded by agricultural pasture land and urban development, provides a haven for wildlife. Most indigenous vegetation remaining on surrounding farms is affected by grazing and is too fragmented to provide useful habitat for native animals. A range of aquatic habitats including ephemeral wetlands, permanent wetlands, flowing water, riparian and swampy habitat provides a valuable ecological resource for a diverse range of native fauna such as swamp wallabies, birds, wombats, possums, fish, frogs, reptiles and bats. A large number of hollow bearing trees exist in the reserve on which many birds and mammals rely for nesting and shelter. There also exists suitable habitat for the endangered Helmeted Honey Eater (*Lichenostomus melanops cassidix*). Unfortunately introduced species such as Starlings and Common Mynah birds compete for resources rendering hollows unsuitable for indigenous birds by lining them with artificial material. The presence of Bell Miner birds is also a major impediment to the reintroduction of the Helmeted Honey Eater.

As farms and residential areas surround the reserve there is predation and competition pressure on wildlife populations from both domestic pets and feral animals such as foxes. Urban development adjacent to the reserve will increase this pressure.

A fauna survey was conducted by Ed McNab from the Department of natural Resources and Environment in 2001 and the results and management recommendation arising from this report are integrated with this plan. The results of the survey show that the reserve supports a diverse population of native terrestrial and aquatic fauna including a number of threatened species (see Figure 3). Sixty-three indigenous and six introduced bird species were recorded. The areas closest to the creek bank showed the greatest diversity of species. Of special interest was the identification of the Powerful Owl (*Ninox strenua*) listed as rare and endangered in Victoria.

Three aboreal mammal species were recorded, the Brushtail and Ringtail Possums (*Trichosurus vulpecula* & *Pseudochierus peregrinus*) and the Sugar Glider (*Petaurus breviceps*). Three species of rat were trapped, the introduced Black Rat (*Rattus rattus*) and the indigenous Bush and Swamp Rat (*Rattus fuscipes*, *R. lutreolus*). A small Swamp Wallaby (*Wallabia bicolor*) community lives within the reserve. Occasionally Eastern Grey Kangaroos (*Macropus giganteus*) visit the pass through the reserve traversing the remnant vegetation along the Cardinia Creek system. Also noted were European rabbits (*Oryctolagus cuniculus*), red foxes (*Vulpes vulpes*) and cats (*Felis catus*).

There appeared to be five species of bats living in the reserve but only two could be given positive identification. These were the White-striped Freetail Bat (*Tadarida australis*) and Gould's Wattled Bat (*Chalinolobus gouldii*).

Found throughout the reserve in abundant numbers was the common Garden Skink (*Lampropholis guichenoti*), while three frog species were heard calling. In addition six species of fish, and Short Finned Eels (*Anguilla australis*), were recorded from the study area. The discovery of the Gippsland spiny Cray (*Euastacus kershawi*) has extended the distribution boundary of this species significantly with the Cardinia Creek most western location recorded. During this survey dwarf galaxias (*Galaxias pusilla*) previously observed in the creek (Koster 1999) were not sighted. This species has been listed on the Flora and Fauna Guarantee as endangered

The report concludes that the continuing ability of the reserve to support this fauna depends on protection of the reserve and enhancement of the stream and forest habitats.

Aims

- protect native fauna from disturbance by reserve visitors;
- prevent predation by domestic and feral animals;
- maintain the genetic diversity of native fauna within the reserve;
- increase knowledge of the distribution, habitat requirements and management of native fauna within the reserve;
- increase community knowledge of local fauna and its protection.

Management Strategies

- undertake further surveys for the following:

1. to investigate the possible occurrence of the threatened swamp skink;
 2. to determine the local status of the endangered powerful owl;
 3. to determine the local status of the threatened dwarf galaxias;
- manage wildlife populations and habitats according to their specific requirements;
 - monitor wildlife populations to identify any management issues, eg. population declines;
 - undertake appropriate pest management measures to reduce predation of fauna;
 - produce educational materials and on-site interpretation to educate local residents and landholders on indigenous fauna and its protection, including pet control and dealing with 'unwanted visitors' such as possums;
 - provide wildlife corridors between isolated remnants to allow for recruitment and variability in fauna populations and safe movement of transient animals;
 - further investigate the effect of the bell miner populations on canopy dieback and avian fauna species diversity and investigate strategies to minimise or control such impacts.

3.3 VEGETATION

A flora survey of the reserve was undertaken by botanist, Andrew Paget during 1998/9 (Paget, 1999). The results of his survey showed that even though the reserve is small, it is species rich, partly due to the range of habitat types that occur within it (see Figure 4).

A number of significant species occur within the reserve. One species, Hooker's Fescue, *Austrofestuca hookeriana*, is of State Significance. Another 42 species are of Regional Significance.

The survey identified a number of vegetation communities, both natural and anthropogenic, ranging from riparian forest to slashed understorey and swamps. The following botanical significance has been assigned to vegetation communities within the reserve:

| | |
|---|--|
| Manna Gum (<i>Eucalyptus viminalis</i>) Riparian Forest | <u>State Significance</u> Depleted State-wide Cleared or Weedy |
| Swamp Gum (<i>E. ovata</i>) Riparian Woodland | <u>State Significance</u> Depleted State-wide Cleared or Weedy |
| Messmate Stringybark (<i>E. obliqua</i>) / Narrow - leaf Peppermint (<i>E. radiata</i>) Forest | <u>Regional Significance</u> |
| West Gippsland Scentbark (<i>E. spp. ingnorabilis</i>) Forest | <u>State Significance</u> |
| Heathy Woodland | <u>Rare State-wide</u> |
| Scented Paperbark (<i>Melaleuca squarrosa</i>) Swamp | <u>Regional Significance</u> |
| Perennial and Seasonal Swamps, Open Water Billabongs | All of <u>Regional and State Significance</u> |

The occurrence of these significant species and vegetation communities gives the reserve State Botanical Significance.

The biggest threat to the botanical values of the reserve is weed invasion. Paget has identified a number of species (including Sweet Pittosporum) which are a major threat in the reserve and has recommended strategies for their control. This is discussed in a separate section of the plan.

Aims

- conserve and enhance genetic and community diversity of within the reserve;
- minimise disturbance of indigenous vegetation;
- restore degraded indigenous vegetation.

Management Strategies

- restrict water and nutrient flow into the reserve to maintain current overall low weed infestation;
- control other invasive weed species, using minimal disturbance techniques such as the Bradley Method;
- give special consideration to the management of significant plant species and vegetation communities, especially those of State Significance.
- Restrict or control public access to areas where significant species such as orchids or Hooker's Fescue (*Austrofestuca hookeriana*) occur to avoid accidental or other physical or mechanical damage.

3.4 LANDSCAPE

The Beaconsfield Flora and Fauna Reserve contains remnants of riparian and dry sclerophyll forest once common throughout the region. Vegetation in the drier areas is dominated by Manna Gums, Messmates and Silver Wattles which grow in association with a rich variety of understorey species. Low lying areas are dominated by Swamp Gums, thick stands of Swamp Paperbark, reeds and rushes. In this reserve, species such as tree ferns and clematis occur at their lowest natural altitude. The area has high landscape value for the Beaconsfield - Berwick area due to the close proximity of both townships.

Aims

- to maintain the landscape character of the area;

Management Strategies

- to rehabilitate degraded areas, and limit undesirable visual intrusions;
- encourage retention of roadside vegetation to reduce the visual impact of surrounding subdivisions;
- control weed invasion and rehabilitate degraded areas through regeneration or revegetation;
- remove litter from the reserve.

3.5 CULTURAL HERITAGE

The Bunurong aboriginal tribe were the first people to live in the area surrounding Cardinia Creek and Westernport Bay according to historical records. The name 'Cardinia' comes from the aboriginal word 'Kar - Din - Yar' which means 'looking at the rising sun'. The Bunurong people lived in camps along the creek, hunting for food in nearby swamps and grasslands. Many of the plants and animals found in the reserve today, including Kangaroo Apple, Bracken, Common Reed, wallabies, possums and native berries were used as food or medicines by these aboriginal people. The neighbouring tribe, the Wurundjeri are also known to have camped along the creek when visiting members of the Bunurong. The two tribes traded and inter-married with each other. An archaeological survey of the Berwick – Pakenham Corridor conducted by Laura Jane Smith in 1989 identified artefact scatters at a number of sites along the Cardinia Creek.

The first white man to settle in the area was Captain Robert Gardiner who in 1837 established a pastoral run on the west side of Cardinia Creek between the creek and the Gippsland Road (now Princes Highway). The Mt. Misery and Mt. Pleasant pastoral leases-holds were taken up to the east of the creek shortly after. The area was quickly settled and became a rich farming area and a popular overnight stop for people travelling into Gippsland or the goldfields. Timber production became a booming industry as vegetation was cleared to provide land for cattle and crops. Swamps along Cardinia Creek were drained for farmland, as was the great Kooweerup Swamp. The Cardinia Creek became an important water resource for irrigation and watering of stock.

Aims

- to identify, protect and interpret sites of cultural significance;
- to raise visitor awareness of the reserve's history.

Management Strategies

- identify sites or aspects of cultural heritage within the reserve;
- manage these sites in accordance with recommendations from the Cardinia Shire Council and other appropriate authorities.

4. PARK PROTECTION

4.1 FIRE MANAGEMENT

Protection of life and property from bushfires within the park and adjacent areas is a management priority. Fire is a natural event in the ecosystems of south eastern Australia and its plant and animal species have evolved many strategies to both cope with and utilise fire. However fragmentation of the natural environment into remnant reserves means that natural fire cycles may no longer be appropriate in terms of public safety and providing opportunities for the viability of plant and animal communities within the modified environment.

The slashing of the easement underneath the 22,000 volt transmission line forms a buffer zone or fire-break between the north and south sections of the park. A strip of approximately 20m along the Beaconsfield-Emerald Road is also slashed as a part of the Cardinia Shire's annual fire prevention works. Bollards have been placed between the established vegetation and the slashed area to prevent incremental widening of the break.

A sign has been placed at the entrance to the reserve near the Beaconsfield Emerald Road, warning visitors about the risks associated with using the reserve on High Fire Danger Days. The Municipal Fire Prevention Officer also patrols the reserve on these days.

Walking tracks traversing both north-south and east-west through the southern section of the park serve as fire access tracks when necessary. Access into the reserve through locked gates can be made in three places along Beaconsfield-Emerald Road and the Beaconsfield Fire Brigade have been supplied with keys to these gates.

Fire both natural and prescribed has been excluded from the park for many decades despite recommendations for controlled burns throughout the park to reduce populations of fire sensitive introduced weeds such as *Pittosporum undulatum*. Over the past three years a number of ecological burns have been attempted unsuccessfully. A fire management plan for the Reserve has been prepared by consultants and adopted by Cardinia Shire Council (1999). The plan suggests that due to the linear nature of the reserve and the high moisture content of the vegetation throughout most of the year, fuel reduction burning would be potentially damaging to the environment adjacent to the creek while providing limited benefit to fire prevention elsewhere. However for ecological purposes, three areas have been recommended for a prescribed burn program along the drier eastern edge of the Reserve. (see Figure 5). The plan is to be flexible, subject to seasonal changes and conditions as well as input from the Cardinia Shire Council, Friends of Cardinia Creek Sanctuary, the CFA, Parks Victoria or the Department of Natural Resources and Environment.

In the future, residential development to the east of the reserve may require fire protection strategies to avoid any increase in fire hazard. Increased visitor numbers may also serve to elevate fire risk in the reserve and this situation will have to be considered when developing on-going fire management strategies.

Aims:

- protect human life, property and park values from fire damage;
- minimise the adverse affects of fire suppression methods;
- maintain fire regimes appropriate to the conservation of native flora and fauna.

Management Strategies:

- maintain internal tracks of a sufficient width and condition so as to allow fire vehicle access;
- continue the annual slashing program along the Beaconsfield-Emerald Road prior to the fire season;
- develop a management agreement with PowerNet and TXU which allows for small fingers of vegetation to remain intact along the slash break under the power lines and next to Cardinia Creek. These areas will serve as a wildlife corridor for small mammals and birds. Machinery access to the creek bed and bank should be restricted so as to assist in protecting water quality and in stream habitat in Cardinia Creek;
- install signs at pedestrian entrances to the reserve warning of fire dangers and risks;
- ensure that all contactors abide by the Cardinia Shire 'Duty of Care' principles and procedures for slashing;
- implement a long term prescribed burn plan as per recommendations of the Fire Management Plan for the reserve;
- prior to a controlled burn, an individual burn plan should be submitted to the Shire by the authority conducting the burn. The burn plan should allow for recording and monitoring of biotic and abiotic parameters within the burn areas. This will be carried out prior to the burn and at regular post fire intervals;
- review the effectiveness of the overall burn plan at appropriate intervals.

4.2 PEST PLANTS, ANIMALS AND DISEASES.

The reserve, as a remnant area of indigenous vegetation surrounded by rural/agricultural land and urban development, is subject to a variety of edge effects associated with its isolation, fragmentation and linear shape.

A number of agricultural and environmental weeds occur throughout the reserve at varying densities, with the most invasive being Sweet Pittosporum (*Pittosporum undulatum*), Blackberry (*Rubus fruticos*), Spanish Heath (*Erica lusitanica*), Japanese Honeysuckle (*Lonicera japonica*), Bridal Creeper (*Myrsiphyllum asparagoides*), Boneseed (*Chrysanthemoides monilifera*), Cape Ivy (*Deliarea odorata*), Winter Cherry (*Solanum pseudocapsicum*), Wandering Jew (*Tradescantia albiflora*), pasture grasses and several species of Broom (*Genista spp*). Sweet Pittosporum has been particularly invasive. Gleadow (1991) warned that action needed to be taken immediately to halt the colonisation by weeds, in particular Sweet Pittosporum, or the reserve would become seriously degraded.

The weed infestations are the result of pest plants growing on adjacent agricultural, residential and public property, and being carried by water, wind and animal vectors into

the reserve. Illegal dumping of domestic green waste / garden waste also contributes to the problem.

Introduced animals found in the reserve include domestic and feral dogs, rats, cats, foxes, rabbits and a variety of introduced avian species including the Common Myna Bird and the Common Starling who compete for and pollute hollows used by indigenous birds. The close proximity of new and existing residential areas to the west of the reserve means that domestic animals have relatively unrestricted access to the park and are having adverse effects (mainly predation) on the fauna within. Foxes (*Vulpes vulpes*) which may either live permanently there or only occasionally visit the reserve, may exert a similarly predatory pressure. Rabbit (*Oryctolagus cuniculus*) populations within the reserve vary seasonally and compete with native fauna for shelter while also grazing on indigenous seedlings or regrowth. Although horse-riding has been restricted in the reserve for some time, horses frequently travel through prohibited areas facilitating the spread of weed species, most notably grasses and herbs.

It is not known if any natural or introduced diseases currently exist in the reserve. However Cinnamon fungus (*Phytophthora cinnamomi*) and other fungal diseases are a potential problem and dieback is evident on the eucalypts due to large populations of bell miner (*Manorina melanophrys*) birds which foster lerp (*Psyllid spp.*) infestations.

Aims

- control, and where possible, eradicate pest plants and animals;
- minimise the impact of any control programs on native flora and fauna;
- minimise the potential for the introduction and spread of diseases such as Cinnamon fungus;
- take steps to prevent the introduction of any new pest plants or animals;
- restore native vegetation to areas previously infested with introduced plants.

Management Strategies

- create a list of weed species to be given priority for control and map extent of infestations;
- divide the reserve into sectors for weed control of targeted species and integrate control activities in each sector between contract labour and volunteer work;
- ensure weed control and subsequent revegetation is complementary to other activities such as fire management;
- ensure that sections considered 'controlled' are monitored for weed regrowth or new infestations, particularly after disturbances such as fire;
- Encourage natural regeneration of indigenous species in section following weed control. In heavily degraded areas or where natural regeneration is reluctant consider supplementing with revegetation;
- promote responsible pet ownership in the local community and among adjacent landowners;
- Carry out random cat trapping within the reserve in accordance with council's local laws.
- liaise with neighbouring landowners to coordinate pest plant and animal control efforts;
- publicly promote alternatives for the disposal of garden waste such as composting, while also discouraging the dumping of such wastes in public space;

- produce a public education leaflet explaining the ‘good’ and ‘bad’ plant species used in domestic garden cultivation and encourage adjacent landowners not to plant weed species.

4.3 DRAINAGE

A key factor with the potential to adversely affect the reserve’s values is the nature of stormwater and waste draining into it. The local drainage catchment area is composed of urban areas with sealed roads and farmland. Increased urban development is likely to occur to the east of the reserve which could impact on both stormwater quality and quantity.

Drainage from the upstream catchment area often results in flooding, soil erosion, soil deposition, litter and weed invasion. Runoff from rural areas enters the reserve via open creeks and surface flow from roadways. There is little likelihood of erosion in the Brisbane Creek due to the amount of growth in and on the creek bank. The rapid flow of water in the Cardinia Creek is somewhat retarded by vegetation and rubbish when the water level is low.

Aims

- to minimise the quantity and quality impacts of urban and rural stormwater inputs

Management Strategies

- prepare drainage strategies for both existing and proposed residential developments, including measures for retardation of flow and stormwater quality treatment;
- provide incentives and education to upstream landowners so as to encourage them to undertake measures that prevent erosion and sedimentation of the creek;
- install appropriately sized litter and sediment traps at major drainage input points;
- prevent flow concentration along tracks by ensuring stormwater flows are removed off tracks and diverted into the adjacent bush at regular intervals.

5. THE VISITOR

5.1 THE VISITOR

The Beaconsfield Flora and Fauna Reserve offers visitors an experience which differs from that obtained in other reserves in the Berwick - Pakenham area. It is appreciated by many local residents for its tranquil, relatively natural atmosphere.

It has been observed that many people like to walk a circuit through the reserve and Akoonah Park. The majority of visitors walk to the park from surrounding residential areas, although some park cars in existing facilities at Allan Street reserve and Akoonah Park. A few people use the parking area at the reserve entrance opposite Holm Park Road.

Observations show that people walking dogs are the most common visitors to the reserve, and that the highest rate of usage is experienced on weekends and during daylight savings time.

Vandalism is also on the rise, as the district is home to a growing population of young people. Peaks of vandalism activity occur just after school hours. Responses to vandalism include the repair of affected structures as well as 'vandal proofing' strategies such as the installation of graffiti resistant surfaces. It has been suggested that education of park users about the values and aesthetic qualities of the reserve will also reduce this anti-social activity.

Use of the reserve is expected to increase significantly with the development of the Berwick Views estate to the east of the reserve. The reserve will also eventually form part of the Cardinia Creek Parklands and it is anticipated the area will become a major tourist attraction in the future.

Aims

- to ensure that increased visitor use does not adversely impact on the reserve;

Management Strategies

- control access to vegetation by clearly defining tracks and blocking unwanted tracks;
- conduct regular visitor surveys and observations to record visitor opinions, attitudes and activities, etc.
- remove graffiti, repair vandalised infrastructure

5.2 PROVIDING FOR THE VISITOR

The reserve's principal strength is as a natural setting for passive recreation use by mainly local residents. The reserve is accessible from the Beaconsfield-Emerald Road on its eastern boundary and through the Allan Street Reserve on the western boundary. As previously mentioned, limited carparking is available.

Existing walking tracks within the reserve include a short track running east to west from the Holm Park Road entrance into Allan Street Reserve. Another track runs approximately one kilometre from the Beaconsfield Recreation Reserve to Beaconsfield-Emerald Road. There is potential to further develop a track which exists in parts along the eastern boundary but is presently impassable in several sections due to drainage problems.

An interpretive guided walk circuit has been developed beginning and ending at the information board at the junction of the main track. The walk follows the theme of survival with points of interest marked with numbered posts. Due to incidences of vandalism the interpretive leaflets are currently unavailable to the public.

There are several other short tracks developing at random due to people wishing to gain access to areas such as the creek bank and these should be closed as soon as possible. The present facilities are suitable for low visitor usage. Track upgrades and maintenance are required to cope with the increased use anticipated in the future, a result of residential development occurring in the area.

Aims

- develop visitor profile data
- establish and maintain day visitor facilities that enhance visitor enjoyment of the reserve and are consistent with protecting the reserve's values.

Management Strategies

- provide and maintain facilities which highlight but are in keeping with the areas distinctive character;
- conduct visitor surveys to assess visitor profiles, expectations, preferences and patterns of behaviour so as to assist in reserve management;
- encourage visitors to adopt minimum impact practices and adhere to a Code of Conduct appropriate to their activity;
- re-introduce access to the interpretive guided walk following adequate control of vandalism;
- rationalise walking tracks and close inappropriate tracks.

5.3. EQUESTRIAN ACCESS

Access to the reserve was granted to equestrians by the Cardinia Shire Council in February 1999 for a one year trial period. Although this trial period has elapsed, an independent assessment of this use has not yet been undertaken. This access enables horse riders from Emerald Road to safely travel through the reserve to equestrian facilities at Akoonah Park. Access is restricted to the East-West track only and a number of conditions are currently in place to ensure that the reserve's values and other users are not in danger. These conditions are:

- the track is an access track only and is to be used exclusively by pony and riding club members
- horse rider use of the reserve is to be subject to regular review. This use should be independently reviewed, taking into account the level of use, the behaviour of riders, the effect on flora, fauna and infrastructure as well as other reserve users,

- horse riding will continue to be prohibited in other areas of the reserve,
- riders must proceed along the track at walking pace and in single file,
- the track is not available for Riding of the Bounds and similar events or large numbers of horses,
- restricted equestrian access elsewhere in the reserve will be noted in municipal local laws.

It is acknowledged that the reserve is set aside for the conservation of flora and fauna, as well as passive recreation, and that equestrian access will only be allowed to continue if the values of the reserve and other reserve users are not adversely affected.

Aims

- to review equestrian access through the reserve,
- to protect the values and passive recreational uses of the reserve.
- to ensure the safety of all reserve users

Management Strategies

- construct signs at either end of the east-west track detailing track and conditions of use eg. walking pace, single file,
- restrict equestrian access elsewhere in the reserve
- establish contacts between equestrian groups, Council and the Friends group to discuss management issues and problems arising,
- educate horse riders on the reserve's values and how to protect them,
- have the trial access to the east-west track by equestrians evaluated by an independent body mutually agreed on by all parties.

5.4 VISITOR INFORMATION

Visitor information is provided in the form of an information board and a self guided nature note tour. Consideration needs to be given as to ways of increasing awareness of the reserve within the wider community.

Aims

- provide interpretation to enhance visitor understanding and appreciation of the reserve and provoke interest in its natural and cultural environment.

Management Strategies

- hold information activities (eg stalls, displays) at local events;
- make information about the reserve available at local and regional tourist information centres.
- publicise activities of the Friends of Cardinia Creek Sanctuary.

5.5 PUBLIC SAFETY

Potential hazards within the reserve which pose a risk to the public include fire, dangerous trees, uneven topography, the creek and accidents resulting from inappropriate use eg. motorbikes, horse riding off the designated track etc.

Aims

- to promote public safety in the use of the reserve.

Management Strategies

- inform summer visitors of fire danger and emergency management strategies in the event of a wildfire;
- inspect and manage trees which are deemed to be potentially dangerous to visitors;
- ensure that rules applying to reserve usage eg. horse riding and motorbikes, are obeyed and deal with infringements accordingly.

6. COMMUNITY AWARENESS AND INVOLVEMENT

6.1 FRIENDS AND VOLUNTEERS

Valuable contributions to the Beaconsfield Flora and Fauna Reserve are made by the Friends of Cardinia Creek Sanctuary, which formed in March 1998 to assist the Cardinia Shire Council in management of the area. The Friends of Cardinia Creek Sanctuary are involved in a range of activities including:

- preparation and implementation of this Management Plan;
- nature conservation activities such as weeding, revegetation and seed collection;
- assistance in conducting flora, fauna and visitor surveys;
- community education activities such as the preparation of information displays, brochures and interpretive materials;
- provision of formal and informal advice on the continuing management of the reserve.

The Dandenong Office of Correction Services also assist the Cardinia Shire Council with maintenance of the reserve through the provision of people performing community service orders. Activities undertaken by these teams include weeding, revegetation, fencing, minor construction works and rubbish collection. On occasion these activities allow participants to obtain T.A.F.E. qualifications in bushland care.

Other organisations also conduct physical conservation works within the reserve at various times including local Scouts and Cubs, Work for the Dole and the Conservation Volunteers Australia.

Aims

- to encourage volunteer involvement from members of the community in managing the reserve as a member of the Friends of Cardinia Creek Sanctuary.

Management Strategies

- encourage and support membership of the Friends group;
- develop and evaluate a long term volunteer strategy that incorporates the skills and interests of volunteers in reserve management.

6.2 COMMUNITY EDUCATION AND AWARENESS

The Beaconsfield Flora and Fauna Reserve experiences a number of problems because of its close proximity to residential areas such as dumping of rubbish and garden waste, removal of firewood and vandalism. Local gardens also provide a seed source for many problem weeds within the reserve which enter via dumped garden clippings, or vectors such as birds, wind and animals. With the local population set to grow exponentially over the next 10-20 years there is a need to create a community education program to eliminate these threats to the area's natural values.

The potential of the reserve as an area for environmental education has been realised by many local schools, universities and community groups who use the area frequently. The reserve provides a living classroom for students to learn about ecology, environmental management, and the human impacts on the environment that arise from urbanisation and recreation use. Use of the reserve for educational and scientific study should be encouraged as it can provide vital information which council employees and the Friends group may not have the time or expertise to undertake.

Aims

- to increase community awareness of the reserve and its values;
- to encourage the conservation of the local environment;
- to educate the community on threats to the reserve and how they can be minimised.

Management Strategies

- produce a brochure about the reserve and the Friends group for distribution to local residents, schools, community groups etc.
- promote practices within the community which will reduce the impact of urban development eg. responsible waste management;
- educate the community on local weeds and encourage the planting of indigenous/non-invasive native species;
- utilise the local media as a tool for community education;
- make information on the reserve readily available to the public;
- encourage scientific and educational research into the reserve's environment and maintain contact between the Cardinia Shire Council/Friends group and study groups to ensure that study is appropriate and sustainable.

7. OTHER ISSUES

7.1. BOUNDARIES AND ADJACENT ISSUES

Cardinia Creek Parklands

The Cardinia Creek Parklands is currently being established by the Victorian Government to service the recreational needs of the south-eastern metropolitan region. The park will be linear in shape covering approximately 474 hectares along the Cardinia Creek from Guys Hill to Officer South. Most of the Parklands will be managed by Parks Victoria and it will provide areas for active and passive recreation as well as nature conservation. Areas within the boundaries of the proposed parklands currently under management by other State or Local Government bodies and Committee's of Management will retain their management responsibility.

The Beaconsfield Flora and Fauna Reserve has been zoned for conservation under the draft Future Directions Plan for the Cardinia Creek Parkland released by Parks Victoria in May 2002. Significant areas within the parklands to the north of the reserve have also been zoned as conservation with other areas to the north-west and the south have been zoned as Conservation and Recreation. It is hoped that the creation of the parklands protect surrounding areas with important flora and fauna values so as to contribute to the reserves values as a wildlife corridor as well as enhance connectivity between islands of remnant vegetation.

Aims

- To ensure that management within the Beaconsfield Flora and Fauna Reserve is consistent with conservation and recreation objectives of the Cardinia Creek Parklands.

Management Strategies

- Negotiate for the transfer of management responsibility of reserve to Parks Victoria in the future as Cardinia Creek Parklands are developed.

Possible Acquisition of Land

An area of land adjoining the reserve is of interest to Council and the Friends. It runs by the Cardinia Creek alongside the Beaconsfield Recreation Reserve to the west of the football ground, netball and tennis courts. The land is part of a Crown Land Reserve managed by a Committee of Management made up of representatives from the clubs. Although this area is infested with weeds such as Cape Ivy, it contains many remnant Manna Gums and an area of the creek bank with good botanical values.

It is hoped that negotiation can be entered into with Crown Land Management for the maintenance of these areas.

Berwick Views Estate

The establishment of the Berwick Views Estate across from the reserve on the Emerald-Beaconsfield Road poses a number of potential threats to the values inherent in the reserve. These threats include elevated nutrient levels from urban run-off, an increase in the use of the facility, a potential increase in rubbish and garden waste dumping and added predation on wildlife by domestic pets.

Fortunately the issue of increased nutrient levels has been largely addressed by the creation of wetland systems within the development. These wetlands use physical and biophysical methods of removing rubbish and reducing nutrient levels before water is allowed to reach the reserve and Cardinia Creek. The wetland includes litter and sediment traps and macrophyte communities to trap leaf litter and dissolved contaminants.

Aim

- to reduce the impact of urban development at Berwick Views on the reserve.

Management Strategy

- increase signage within the reserve to make visitors aware of ‘conditions of use’,
- develop interpretive facilities to increase visitor understanding and appreciation of the reserve,
- develop an educational brochure on the reserve which informs new residents of:
 - the natural values of the area and how to protect them
 - the Friends of Cardinia Creek Sanctuary
 - how to deal with household wastes and create compost
 - environmental weeds and how they spread
 - how to use indigenous plants in the home garden.

Akoonah Park and Allen Street Reserve

Immediately to the west of the Beaconsfield Flora and Fauna Reserve lies the Allan Street Reserve managed by the City of Casey. The reserve is primarily open parkland with playground, picnic and B.B.Q. facilities. Remnant indigenous vegetation grows along the creek and the Friends of Cardinia Creek Sanctuary also collect rubbish, remove weeds and replant local vegetation in this area. On occasion Casey and Cardinia councils work in tandem to achieve environment goals for the entire area.

Akoonah Park is located to the south and is a continuation of the Allen Street Reserve. It is managed by a Committee of Management who administers the area primarily for equestrian interests and major public events such as a weekly Sunday market and the annual Berwick Agricultural Show. The area of Akoonah Park is a mostly modified environment. The creek-bank retains some indigenous vegetation however some sections are highly degraded and suffer from erosion and the occurrence of environmental weeds. The park area does support a number of mature Manna Gums (*Eucalyptus viminalis*) however these trees may become senescent.

Allen Street Reserve and Akoonah Park plan an important role in providing visitor facilities and activities not appropriate in the Flora and Fauna Reserve.

8. IMPLEMENTATION OF MANAGEMENT STRATEGIES

A considerable number of management strategies are proposed throughout this management plan. Obviously they cannot all be implemented immediately, nor is this necessary even if adequate resources were available. The priority recommendations summarised in section 8.1 have been drawn from management strategies mentioned in previous chapters and are regarded as being of high priority in managing the Reserve for both conservation and recreation. Their implementation should commence as soon as possible following the adoption of the Management Plan.

A number of recommendations proposed by this Management Plan may involve capital works. General reserve maintenance activities such as track maintenance, slashing and drainage are included in the Parks and Gardens Contract that Cardinia Shire maintains with Standard Roads. Currently there is an additional recurrent budget for the management of all bushland reserves. Works over and above that deemed to be maintenance need to be itemised and prioritised with works from reserves. Specific capital programs will need to have money set aside in the annual Shire capital works program. Clearly the implementation of this plan requires money to be set aside over several years. Wherever possible it has been recommended that alternative sources of funding and labor be sought. Currently the Cardinia Shire and Friends of Cardinia Creek Sanctuary are completing works funded from the Natural Heritage Trust Bushcare Program and the Parks Victoria Community Grants Program. Some options for further funding include Australian Conservation Volunteers, the use of Green Corps Teams, and local community initiatives, and the Crown Land Reserves Improvement Program.

The aim of this management plan is to provide a framework in which to guide management decisions. It is therefore not considered appropriate to carry out a detailed estimate of costs at this stage prior to public consultation.

It is apparent from the following priority recommendations that much of the responsibility for the Reserve's management will be with the Cardinia Shire. However, in order to promote the reserve as a place for nature conservation and low impact recreation, community involvement will be of great importance. While the initial costs of implementing these recommendations will be greater than the ongoing costs, they are necessary and will be off set by the future value of the reserve in terms of its conservation significance and its use by the community.

8.1. PRIORITY MANAGEMENT STRATEGIES

| Management Strategy | Implementation By | Sect-ion | Time Frame |
|--|--|----------|------------|
| FAUNA | | | |
| <ul style="list-style-type: none"> undertake appropriate pest management measures to reduce predation of fauna; | Cardinia Shire Council Parks Victoria | 3.2 | On going |
| VEGETATION | | | |
| <ul style="list-style-type: none"> eradicate environmental weeds and control other invasive weed species, using minimal disturbance techniques such as the Bradley Method; | Friends of Cardinia Creek. Cardinia Shire – Environmental Ranger. | 3.3 | On going |
| LANDSCAPE | | | |
| <ul style="list-style-type: none"> control weed invasion and rehabilitate degraded areas through allowing for regeneration or revegetating; | Friends of Cardinia Creek. Cardinia Shire – Environmental Ranger | 3.4 | On -going |
| CULTURAL HERITAGE | | | |
| <ul style="list-style-type: none"> identify sites or aspects of cultural heritage within the reserve; | Consultant. | 3.5 | 2004 |
| FIRE MANAGEMENT | | | |
| <ul style="list-style-type: none"> Maintain internal tracks at a sufficient width and condition so as to allow fire vehicle access. | Municipal Fire Prevention Officer. Standard Roads. | 4.1 | On going |
| <ul style="list-style-type: none"> Develop an agreement with Power Corps and TXU to leave small fingers of vegetation intact along the slash break under the power lines to serve as a wildlife corridor for small mammals and birds and next to Cardinia Creek and assist in protecting water quality in Cardinia Creek. | Texas Utility. Environment Managt. Officer | | 2003 |
| PEST PLANTS AND ANIMALS | | | |
| <ul style="list-style-type: none"> create a list of weed species to be given priority for control and map extent of infestations; | Cardinia Shire – Environmental Ranger | 4.2 | 2003 |
| <ul style="list-style-type: none"> divide the reserve into sectors for weed control of targeted species and integrate control activities in each sector between contract labour and volunteer work; Encourage natural regeneration of indigenous species in section following weed control. In | Environmental Ranger | | On going |

| | | | |
|---|---|-----|-------------|
| heavily degraded areas or where natural regeneration is reluctant consider supplementing with revegetation;; | Friends of Cardinia Creek Sanctuary | | On going |
| DRAINAGE | | 4.3 | |
| <ul style="list-style-type: none"> prevent flow concentration along tracks by ensuring stormwater flows are removed off tracks and diverted into the adjacent bush at regular intervals. | Standard Roads | | 2003 |
| THE VISITOR | | 5.2 | |
| <ul style="list-style-type: none"> control access to vegetation by clearly defining tracks and blocking unwanted tracks; | Friends of Cardinia Creek Sanctuary. Cardinia Shire Council. | | 2004 |
| EQUESTRIAN ACCESS | | | |
| | To be decided | 5.3 | 2004 |
| <ul style="list-style-type: none"> Equestrian use of track to be evaluated by an impartial authority | | | |
| PUBLIC SAFETY | | | |
| | Cardinia Shire Council Standard Roads | 5.5 | As Required |
| <ul style="list-style-type: none"> inspect and manage trees which are deemed to be potentially dangerous to visitors; | | | |
| COMMUNITY INVOLVEMENT | AWARENESS AND | | |
| | The Friends of Cardinia Creek Sanctuary | 6.0 | TBA |
| <ul style="list-style-type: none"> develop an educational brochure on the reserve which informs new residents on its values, how to protect them, the Friends groups, protecting wildlife, dealing with wastes and compost, weeds and their introduction to the reserve and planting native gardens. | Cardinia Shire Council | | |

REFERENCES

Calder, W. (1972) *Ecological Survey of Cardinia Creek and Environs*. A report prepared for Pakenham Shire Council, December 1972

Cardinia Shire Council (1999), *Fire Management Plan for Cardinia Creek Flora and Fauna Reserve* August 1999

Koster, W. M. (2000) *Surveys of dwarf galaxias (Galaxiella pusilla) at selected sites throughout the Dandenong, Cardinia and Tuerong Creek systems*. A report prepared for Waterways and Drainage, Melbourne Water.

Gleadow, R. M. (1991), *Management Recommendations for the Beaconsfield Sanctuary for Flora and Fauna, Shire of Pakenham, Victoria*

Land Conservation Council *District 2 Review, Final Recommendations* (Melbourne Area 1994)

McNabb E, Koster, N. C. & Duffy, A. (2001); *Terrestrial and Aquatic Fauna Values of Beaconsfield Flora and Fauna Reserve*; Arthur Rylah Institute for Environmental Research, Department of Natural Resources & Environment, Victoria.

Paget, A. N. (1999), *Botanical Survey of Beaconsfield Flora & Fauna Reserve, Beaconsfield, Victoria* Ausbotany Pty.Ltd. July 1999.

Parks Victoria (2002) *Draft Future Directions Plan – Cardinia Creek Parklands*.

Smith, L. (1989) *The Berwick-Pakenham Corridor: The Archaeological Survey of Aboriginal Sites*. Prepared for the Ministry of Planning and Environment.