MOUNT BUNINYONG SCENIC RESERVE

FINAL
MANAGEMENT PLAN

CITY OF
BALLARAT

NOVEMBER 1997

prepared by
Centre for Environmental Management

PREPARATION PROCESS

The City of Ballarat formed the Mount Buninyong Management Plan Steering Committee in September 1996. The Committee initially developed a brief for a consultant to undertake the preparation of the management plan, then selected a consultant after a public tender process was undertaken in January and February 1997. The University of Ballarat Centre for Environmental Management have undertaken the project which commenced in April 1997.

The Steering Committee membership is :

Cr. Newell Barrett	City of Ballarat (Chairperson)
Mr. Frank Ritchie	Mount Buninyong Conservation Group
Ms. Ann Beggs-Sunter	Mount Buninyong Conservation Group
Ms. Janine Lucato	Mount Buninyong Conservation Group
Mr. Peter Hiscock	Mount Buninyong Conservation Group
Ms. Marcia Johns	Parks Victoria
Ms. Meg Prout	Ballarat Bushwalking Club
Mr. Mark Brand	Austar Pty Ltd
Mr. Tim D'ombrain	City of Ballarat Strategic Planning
Mr. Ian Rossiter	City of Ballarat Strategic Planning

The consultants initially conducted a literary search for all previous studies in relation to the Reserve and made contact with adjacent landholders and stakeholder groups. A public meeting was held at Buninyong Town Hall on 7 May 1997 following advertisement and media coverage. "Have Your Say" forms were made available at a number of locations in Ballarat and Buninyong to ensure that any groups which may have been overlooked had the opportunity to identify issues or make suggestions about the management of the Reserve.

The Draft Management Plan was released for public comment in June 1997. Seven submissions relating to the proposals contained in the Draft Plan were received. The points raised in those submissions were considered by the Steering Committee and, where appropriate, have been included in this Final Plan.

The Mount Buninyong Scenic Reserve Management Plan was produced by the University of Ballarat Centre for Environmental Management under the supervision of the Steering Committee.

Copies of the Final Management Plan are available for viewing at:

Customer Service Reception Area
Town Hall
Sturt Street
Ballarat

The Robert Clark Centre
Ballarat Botanical Gardens
Wendouree Parade
Ballarat

SUMMARY

Mount Buninyong Scenic Reserve protects an important example of native vegetation occurring on a geologically significant scoria cone.

Natural and cultural values, spectacular views and close proximity to Ballarat make the Reserve attractive for a range of activities including sightseeing, picnicking, walking, and nature study.

The Reserve will be managed for conservation and recreation. Protection and enhancement of the Reserve's natural environment will be an important management goal, as will be maintaining its distinctive character.

Visitors will enjoy the Reserve's attractions through quality low-key visitor facilities. The Reserve makes an important contribution to nature-based tourism in the Ballarat region.

Major management directions are summarised below.

Significant flora, fauna and other natural and cultural features will be protected, and where appropriate interpreted.

Pest plants and animals will be controlled or eradicated with co-operation from local land owners and community groups.

The Reserve and neighbouring assets will be protected against fire. Conservation of native vegetation and habitat interlinking the Reserve and adjoining forest will be fostered.

The Mount Buninyong Scenic Reserve will be promoted for its conservation values, panoramic views and quality passive recreational opportunities.

CONTENTS

1 INTRODUCTION

1.1 Location and planning area

Mount Buninyong Scenic Reserve is located approximately 12 km south-east of Ballarat and approximately 90 km west of Melbourne. The Reserve consists of 98 ha of eucalypt open forest on the upper slopes and summit of Mount Buninyong.

1.2 Regional context

The Ballarat urban region is the third largest population concentration in Victoria. In this area there is a high demand for recreation in a bushland setting. The Ballarat area is well served by public bushland for recreation and conservation purposes, with the Proposed Creswick Regional Park to the north, the Enfield Regional Park to the south and a number of smaller public reserves throughout the region.

Mount Buninyong Scenic Reserve, however, offers an opportunity to experience a different bushland setting than is generally found in the region. It's scoria cone carries a unique vegetation type and provides spectacular views of the surrounding landscape. The Reserve is a popular recreation setting for the residents of the adjacent township of Buninyong. The nearby Mount Warrenheip Flora Reserve carries a similar vegetation type to that of Mount Buninyong but has limited recreation opportunities.

Mount Buninyong and its twin peak Mount Warrenheip are major landmarks in the region.

1.3 Significance of the Reserve

Mount Buninyong Scenic Reserve makes a valuable contribution to the region's system of natural bushland reserves while providing opportunities for visitors to enjoy and appreciate its natural and cultural values.

Mount Buninyong has been listed on the Register of the National Estate, in recognition of the area's outstanding values and its importance as part of our heritage.

Natural values

- Vegetation of regional and state importance as one of the few scoria cones in Western Victoria which has retained native vegetation.
- Important site as a refuge for flora and fauna in an area which has been partly cleared for agriculture. The Mount provides important opportunities for links to be developed to nearby remnant vegetation.
- High geological and geomorphological significance as the most notable example in Victoria of a breached scoria cone.

Cultural values

- Important regional landmark associated with the early settlement of the district.
- Important landmark for the local community of Buninyong.
- Important site for the recognition of the ongoing connection of Aboriginal people with the area.

Tourism and recreational values

- Panoramic views of the surrounding landscape.
- A peaceful setting in which to enjoy bushwalking, horse riding and nature study.
- Accessible site for viewing koalas in their natural habitat.
- Opportunity to interpret the Reserve's natural and cultural values as well as those of the surrounding region.

1.4 Creation of the Reserve

The summit of Mount Buninyong was permanently reserved and gazetted as a Public Park in 1866 after having been initially classified as a Timber Reserve in 1860.

In 1874 local government authorities were appointed as the Committee of Management.

The Reserve was recommended as a Scenic Reserve by the Land Conservation Council in 1982.

1.5 Legislation, LCC recommendations and guidelines

Mount Buninyong Scenic Reserve is reserved under the *Crown Land (Reserves) Act 1978* (Vic.) and is managed by the City of Ballarat as the appointed Committee of Management.

The Reserve was recommended as a Scenic Reserve by the Land Conservation Councils Final Recommendations for the Ballarat study area. 'Scenic Reserves are set aside to preserve scenic features and lookouts of particular significance. An aim of management of these areas should be to maintain the character and quality of the landscape, to maintain the native vegetation, and where necessary to protect water quality' (LCC 1982, p. 74).

1.6 Reserve management aims

Resource conservation

- Preserve and protect the natural environment.
- Maintain biodiversity.
- Maintain the character and quality of the landscape.
- Conserve features of archaeological, historical and cultural significance.

Reserve protection

- Protect human life and the Reserve from injury by fire.
- Eradicate or otherwise control introduced plants and animals.
- Protect the Reserve's landscape from unsympathetic intrusions.

The Reserve visit

- Provide opportunities for appropriate recreation and tourism.
- Promote and encourage an appreciation, understanding and enjoyment of the Reserve's natural and cultural values.
- Encourage appropriate Reserve use and visitor behaviour, and foster a conservation ethic in visitors.
- Take reasonable steps to ensure the safety of visitors.

Other

- Provide for and encourage scientific research, surveys and monitoring that will contribute to a better understanding and management of the Reserve.
- Co-operate with local, state and interstate government authorities, the community and other interested organisations to assist in the management of the Reserve.

2 STRATEGIC DIRECTIONS

2.1 Reserve vision

A future visitor to the Mount Buninyong Scenic Reserve finds a Reserve of National Estate significance which contains unique vegetation communities, significant geology and spectacular views which are all well interpreted. Restoration of indigenous plant species and of links to other areas of remnant vegetation ensure the viability of fauna populations in the Reserve.

Visitors enjoy a range of managed recreation activities and appropriate facilities. High quality interpretation of the Reserve's natural and cultural values and of the surrounding landscape enhances visitor experience and nurtures an interest in the natural and cultural features of the surrounding region.

The Reserve is carefully and sensitively managed in co-operation with the local community with regard to pest plant and animal control. Volunteer groups and community organisations participate in the Reserve's development and protection.

The Reserve is being managed with an increased understanding of the natural environment. Future visitors will be able to enjoy a largely intact example of a vegetation type that was once common on volcanic cones in the region.

2.2 Management directions

Major management directions for the Reserve are outlined below.

Resource conservation

- Biological surveys to identify all significant flora and fauna will be conducted.
- A vegetation management program will be introduced to restore understorey species and to protect significant species and communities.
- Monitoring programs will be established to evaluate vegetation management techniques.
- Linkages will be developed from the Reserve to nearby remnant vegetation.

Reserve protection

- Pest plant and animal control will be undertaken. Emphasis will be placed upon control of species that threaten Reserve values through co-operative control programs with adjacent land holders.
- Fire management will be undertaken using a combination of slashing and the development of an ecological burning program for the Reserve.

The Reserve visit

- New visitor facilities will be developed at the entrance to the Reserve and will include orientation information for the Reserve and its adjoining linkages. Existing visitor facilities will be rationalised.
- The existing walking track system will be upgraded and improved to enable return loop walking opportunities.
- The Mount Buninyong Access Road will be managed to ensure visitor safety.
- Visitor enjoyment will be enhanced by the provision of interpretation of the Reserve's natural and cultural features as well as those of the surrounding region.

Community awareness and involvement

- Co-operation will be fostered with public authorities, commercial users, community groups and adjoining landowners in conserving flora, fauna and habitat within and adjoining the Reserve.

2.3 Zoning

A management zoning scheme has been developed to:

- provide a geographic framework in which to manage the Reserve;

- indicate which management directions have priority in different parts of the Reserve;
- indicate the types and levels of use appropriate throughout the Reserve;
- assist in minimising existing and potential conflicts between uses and activities, or between these and the protection of Reserve values;
- provide a basis for assessing the suitability of future activities and development proposals.

Four management zones apply to the Reserve: Conservation and Regeneration; Recreation; Telecommunications; and Pine Plantation.

Table 1 specifies management zone characteristics. The location of management zones is shown on figure 1.

TABLE 1 MANAGEMENT ZONES

	MANAGEMENT ZONES			
	CONSERVATION & REGENERATION	RECREATION	TELECOMMUNICATIONS	PINE PLANTATION
AREA/ LOCATION	93 ha, 95% of Reserve. Covers the majority of the Reserve.	1.3 ha, 1.3% of Reserve Main picnic areas at the summit and Blackberry Lane.	0.2 ha, 0.2% of the Reserve. The existing installations and associated infrastructure including power and telephone lines.	3.5 ha, 3.5% of the Reserve. The existing pine plantation.
VALUES	Important natural values with scope for recreation opportunities.	Sites with visitor facility development in a natural setting.	Wider community values.	The pine trees will provide a source of revenue for the Reserve management.
GENERAL MANAGEMENT AIM	Managed for the conservation and enhancement of the flora and fauna.	Managed primarily for visitor use.	Managed for telecommunications towers and associated infrastructure.	Managed for production of pine trees for this rotation only. This zone will revert to Conservation and Regeneration after harvesting.
FIRE MANAGEMENT	Burning for vegetation regeneration and management only.	Fuel reduction by slashing of grass and undergrowth. Water points will be maintained.	Only to be conducted within the enclosures, and is the responsibility of the licensees.	Fire management is required through the development of a plantation management plan.
ACCESS	Available on the main access road only. Walking, horse and bike tracks may be developed and maintained.	2WD access via main access road.	N/A	Walking, cycling and horse access on existing tracks.
SIGNAGE	Directional, identification, interpretation and information signs.	Orientation and interpretive signs.	N/A	N/A

3 RESOURCE CONSERVATION

3.1 Geological and landform features

Mount Buninyong is a late Pliocene composite breached scoria cone rising 245 m above the background landscape. It is one of the highest scoria cones in Victoria and is considered to be geologically of National and State significance.

The topography of the Mount reflects the complex nature of the eruptions which occurred here. Two distinct eruption phases have been noted. The earlier eruption phase is represented by a low ring of scoriaceous material approximately 600 m to the north-west of the main crater of Mount Buninyong. Lava flowed from this eruption point in a south-easterly direction toward the present day township of Clarendon.

The second eruption phase resulted in the Mount Buninyong scoria cone that is evident today. The present day scoria cone rises abruptly on the eastern side above the earlier weathered lava flows. The main central crater shape was modified by a series of partially joined east-west trending smaller craters and by an explosive breach on the north-west rim through which a second series of lava flows poured in the direction of the present day township of Buninyong. Small parasitic lava vents occurred around the base of the Mount. These later lava flows have created the irregular topography that can be seen around the western side of the Mount today.

Mount Buninyong is an important recharge point for the groundwater system of the surrounding volcanic plains due to its highly permeable scoria cone. Springs occur at the base of the Mount where the Newer Volcanic material rests on the underlying Ordovician basement.

The Mount Buninyong Scenic Reserve encompasses much of the present day scoria cone and its associated breached crater. The earlier and later lava flows are predominantly on private land adjoining the Reserve.

The Mount is an important educational aid as it is an easily accessed scoria cone with a deep crater. The site is regularly used for geological excursions, and is included in the Victorian Geology Excursion Guide (Day *et al.* 1988).

Generally the Reserve's geomorphological features are not subject to damage from visitors, however, rock specimens are periodically taken from the Reserve.

Aims

- Minimise impacts from visitors, management activities and educational studies on the Reserve's significant geological and geomorphological features.
- Provide opportunities for appropriate research into, and education about, geological and geomorphological features.
- Protect groundwater supplies emanating from the Mount.

Management strategies

- *Provide interpretation relating to the formation of the Mount and its geomorphological features (section 5.3).*
- *Protect groundwater catchments by eliminating septic toilets in the Reserve (section 5.2.2).*
- *Liaise with educational institutions to encourage appropriate research into and education relating to the geological and geomorphological features of the Reserve (section 5.3).*

3.2 Vegetation

Mount Buninyong's vegetation is of regional importance as few scoria cones in Western Victoria retain remnant vegetation. The vegetation has been modified by a European history of timber harvesting, grazing and associated frequent burning which continued until the 1960s. More recently the present low incidence of fire on the Mount is considered to be leading to a reduction in the vegetation's structural and floristic diversity.

No systematic survey of the Reserve's flora has been conducted, however, eighty species of native plants have been recorded for the Reserve. Significant species are listed in appendix 1. The Reserve is relatively well treed with an overstorey composed of a mixed population of Messmate and Manna Gum. The crater area and the eastern slope, however, generally lack trees and are an artefact of past logging practices on the Mount. The understorey is sparse and includes Blackwood, Sweet Bursaria, Bootlace Bush, Large-leaf Bush-pea and Golden Tips. A dense population of CommonTussock-grass dominates the ground-layer. Many of the plant species found on the Mount are indicative of a cooler, damper climate than that of surrounding areas and as a consequence the Reserve is important as a site for maintaining viable populations of moisture loving lichens, mosses and liverworts.

Areas of disturbance, such as roadsides, demonstrate increased diversity in the ground flora. However, disturbed areas also allow colonising weed species to become established. Native species associated with road cuttings include Derwent Speedwell and Mountain Psoralea. The Cinnamon Bells Orchid, occurs in small numbers near the summit, and should be protected from any management operations. Austral Bracken thickets are impassable over a considerable area and are a reflection of the earlier practice of burning to encourage fresh feed for stock.

There is considerable tree cover on some road reserves extending out from the Reserve. Granny Whites Lane is of particular note. The Linear Networks of Communal Spaces (LINCS) Committee has proposed a series of corridors connecting the Mount and adjacent remnant bushland. Additional opportunities exist to develop corridors particularly to the east of the Reserve (figure 4). These corridors can also be linked to historic walks extending out from the Mount.

Understorey vegetation has been investigated by Nathan (1994) and a revegetation program for the understorey component of the Reserve is considered desirable. Vegetation communities have been identified in the Reserve for this purpose (appendix 2 & figure 2) and overlying vegetation management zones have also been developed (appendix 3 & figure 3). Vegetation management will need to be supported by ongoing research into the flora's regeneration requirements and into the establishment of an ecological burning regime for the Reserve. A committee will be established to oversee the management of the Reserve's vegetation.

Interpretation will highlight the significance of the Reserve's flora and will place it in an historic context. Information relating to past logging and grazing practices, as represented by the bare areas on the north-east face and in the crater, and to the restoration of the understorey vegetation will be provided at appropriate sites in the Reserve.

Aims

- Conserve native plant communities and significant species in their natural condition and maintain genetic diversity.
- Restore the understorey component of the Reserve's flora.
- Provide information relating to the cultural aspects of the Mount's vegetation.

Management strategies

- *Establish a committee which oversees all aspects of the Reserve's vegetation management.*
- *Conduct a systematic flora survey to provide baseline information for future monitoring and management of the Reserve's flora .*
- *Restore the understorey component of the Reserve's flora based upon the vegetation communities in the Reserve (appendix 2 & figure 2).*
- *Manage the Reserve's flora based upon the Vegetation Management Zones for the Reserve (appendix 3 & figure 3).*
- *Develop an ecologically based burning regime for the Reserve's flora which:*

- *follows the burning recommendations outlined for each vegetation community in appendix 2 until modified by further research;*
- *is preferentially conducted in the autumn but may also be occasionally conducted in the spring;*
- *precedes all burning activities with a flora and fauna survey and is followed by annual monitoring until no change occurs;*
- *is conducted as a research activity and is modified as needs be by that research;*
- *does not permit more than 25 % of each vegetation community and no more than 25 % of the Reserve to be burnt at any one time;*
- *takes advantage of any wildfires to conduct further research.*
- *takes into consideration the fire conditions at the time of burning.*

- *Revegetate degraded areas in the Reserve including the pine plantation after harvesting (section 4.2). All revegetation needs to consider the impacts on views from the Reserve.*
- *Manage Bracken populations in the Reserve to prevent their expansion.*
- *Ensure that the Cinnamon Bells Orchid population is protected from management activities.*
- *Encourage research into the management of the Reserve's flora particularly with regard to its regeneration requirements.*
- *Revegetate proposed links to nearby remnant vegetation using both tree and understorey species (section 3.4).*
- *Provide interpretation of selected cultural aspects of the vegetation (section 5.3).*
- *Provide interpretation relating to the understorey revegetation of the Reserve at the Blackberry Lane Picnic Area.*

3.3 Fauna

Forty-three species of bird, eight mammals, two reptiles and twenty butterflies have been recorded for the Reserve. No systematic fauna surveys have been carried out in the Reserve

Two significant raptors, the Wedge-tailed Eagle and the Peregrine Falcon, are both regularly recorded in the Reserve. Mammals recorded for the Reserve include the Koala, Black Wallaby, Brown Antechinus, Brush-tailed Possum, Ring-tailed Possum and three species of bat. Koalas are abundant and are easily observed. The Mount is important habitat for koalas in an area where prime koala habitat has predominantly been cleared for agriculture. Black Wallabies are periodically killed on the Mount Buninyong Access Road.

The Mount is an important breeding area for butterflies of the district. The presence of Mountain Psoralea may be significant for the survival of the Chequered Swallowtail Butterfly in the Ballarat area. The Mount is also a 'hilltopping' site, where butterflies congregate in large numbers on vegetated hilltops, before mating and dispersing. This is particularly important for rare species such as the Dingy Swallowtail and Klugs Xenica.

The Reserve is a refuge and food source for fauna, particularly during dry periods, due to the cooler, damper climate that prevails on the Mount. Adjacent vegetated road reserves provide connecting habitat to other areas of remnant native vegetation. Lack of diversity in vegetation structure, particularly the understorey, may be a limiting factor to faunal diversity on the Mount. Revegetation of the understorey is considered a management priority for the Reserve and linkages to other areas of remnant vegetation have been proposed (section 3.2).

Aims

- Increase knowledge of fauna populations in the Reserve.

- Protect native fauna populations and maintain genetic diversity.

Management strategies

- *Survey the fauna and faunal habitat of the Reserve and link findings to vegetation management.*
- *Develop links to nearby remnant vegetation as wildlife corridors (section 3.2).*
- *Position appropriate advisory signs along the access road relating to reduced speed limits and the presence of wildlife (section 5.2.1).*
- *Prohibit faunal introductions or relocations into the Reserve.*
- *Provide interpretation of the Reserve's fauna and in particular the significance of the Mount to koalas and the importance of the site for the districts butterfly populations.*

3.4 Landscape

Mount Buninyong is a significant landmark in the Ballarat district and was an important navigational peak for the early settlers of the region. The Mount is considered of high scenic quality by Leonard and Hammond (1984) because it is a volcanic cone which has retained its vegetation cover. The lower slopes of the Mount have been cleared but some vegetation remnants still remain particularly on road reserves.

Extensive panoramic views can be obtained from the summit. Local residents and visitors have enjoyed views from a lookout tower since the early 1900s. There is no interpretation of the views from this tower. Three roadside viewing points are provided on the Mount Buninyong Access Road and views along walking tracks are excellent in places.

The Mount provides a significant backdrop for many of the historic features which are located at its base and for the township of Buninyong. It was declared an Area of Natural Beauty by the Buninyong Shire Council in the late 1980s.

Most of the land on the lower slopes is in private ownership having been originally sold as small allotments under the 1860 Land Acts. Inappropriate development will detract from landscape values and adherence to the relevant Planning Provisions will be required.

Telecommunications towers on the Mount stand well above the treeline and are obvious from a considerable distance. Buildings and fences associated with the telecommunication facilities on the summit are generally visually intrusive and require screen planting and suitably coloured cladding. The Australian Heritage Commission stated in its Register of the National Estate Database Place Report that 'if subdivisions on the lower slopes are developed for residential purposes or further telecommunication towers are erected, they have the potential to reduce the values of the site' (AHC 1996).

Aims

- Minimise visual impacts on the landscape character of the Mount.
- Protect and enhance landscape quality.
- Minimise, rehabilitate, remove or ameliorate undesirable visual intrusions in the Reserve.
- Minimise conflicts between adjoining land use and the landscape values of the Reserve.

Management strategies

- *Ensure that all new developments are planned and designed to minimise their impact on the landscape values of the Reserve.*
- *Control subdivisions on the lower slopes of the Mount through appropriate zoning in the Planning Provisions of the City of Ballarat and the Moorabool Shire (section 7.3).*
- *Limit telecommunication towers to their present number and location (section 7.1).*
- *Encourage existing utilities in the Reserve to minimise visual intrusions by planting indigenous screens and making facilities blend with the natural environment.*

- *Revegetate degraded areas in the Reserve including the pine plantation following harvest (section 3.2 & 4.2).*

- *Provide interpretation of the landscape, including geological and cultural features, as viewed from the lookout tower and roadside viewing areas (section 5.3).*

3.5 Cultural heritage

Aboriginal heritage

The area around Mount Buninyong was occupied by the Keyeet balug clan, a sub-section of the Burrumbeet balug people, of the Wada Wurrung tribe. Their moiety was Bunjil, the creator. Buninyong is an approximation of the Aboriginal name for the Mount which means 'big hill like a knee'. An Aboriginal legend tells the story of how two men fought and being mortally wounded fell to the ground forming Mount Buninyong and Mount Elephant where they died. An Aboriginal burial site was noted on the Mount in the 1860s by a mounted trooper visiting the area and more recently stone tools were found by a local historian near the Mount.

Mount Buninyong is an important site for the recognition of the ongoing connection of Aboriginal people with the land through creation stories and cultural sites and is an ideal site for interpreting Aboriginal cultural history. The Australian Heritage Commission has stated that it is possible that Aboriginal cultural values of national estate significance may exist for the Mount (AHC 1996).

Aboriginal Affairs Victoria (AAV) do not hold any records for Aboriginal archaeological sites for Mount Buninyong. As far as can be established the area has not been surveyed for archaeological sites. AAV recommend that an archaeological survey should be undertaken.

European heritage

Mount Buninyong was an important navigational peak for the first European surveyors and settlers heading west on their mission of pastoral occupation. The few surviving early descriptions suggest that the Mount was difficult to ascend, being "thickly timbered", and that it only partially qualified as a vantage point for landscape appraisal once the summit was reached.

Springs at the base of the Mount were important sites for early settlement including three pastoral stations and the township of Buninyong. Some of these Springs have remained public Water Reserves, including Pound Creek Spring, which serviced Buninyong's first Pound.

In the 1840s timber from the Mount was cut by pit sawyers and splitters and sent as far afield as Geelong. They were soon replaced by the Trial Saw Mills Company, a large steam saw mill operation which developed into a self-contained settlement at the eastern base of the Mount in the 1850s. The bare east face of Mount Buninyong remains as a legacy of this industry. In 1860 the Buninyong Borough successfully applied to secure the Mount as a Timber Reserve "for mining and other purposes". Guidelines for timber harvesting were not clearly articulated or enforced and within 30 years of European settlement the Mount was nearly denuded of trees.

In 1866 Mount Buninyong was declared a Public Reserve. Surrounding land was made available in 10 and 20 acre allotments to small landholders, who were usually dependent on a Common to ensure their viability. For a number of years Mount Buninyong, as a Public Reserve, fulfilled this role. An early 1860s cottage still remains on the Geelong Road near Granny Whites Lane. From 1874 the Committee of Management for the Reserve formalised the grazing function and advertised for grazing tenders. For the following 90 years, until the early 1960s, the Mount was constantly grazed by stock. Areas were burnt at low intensity every few years during much of the grazing lease period. A concrete water tank for stock use was constructed in the crater area in the 1920s. Some of the land was cultivated for crops such as oats and potatoes. Ringlock fencing still remains in the Reserve from this period. With the cessation of stock grazing, weeds flourished and the fire risk increased.

Mount Buninyong has a long history of passive recreation, perhaps best demonstrated by the successive look-out towers and the past

tradition of New Year's Day picnics. In the 1920s the Buninyong Progress Association requested a ten year lease to build a chalet on the summit. An associated request for a "good tourist road to the summit" was approved but the chalet was not. In the 1930s the Progress Association embarked on a beautification campaign designed to soften the Mount with exotic trees and bulbs. Colourful remnants of these plantings can still be seen on the Mount today.

The bond between the local community and Mount Buninyong has always been strong. This has been expressed through organised interest groups as well as in the varied recreational pursuits of individual residents. An historic walk connecting the township of Buninyong and the Mount has been proposed as part of a LINCS program for road reserves adjacent to the Mount.

Aims

- Increase knowledge of both Aboriginal and European history of the Reserve and its environs.
- Acknowledge the landscape of Mount Buninyong as being an expression of its recent history and adopt it as one rationale for revegetation of the Reserve.
- Provide access to and interpret selected historic sites of significance.

Management strategies

- *Investigate and document Aboriginal history and protect identified sites as appropriate, in consultation with the local Aboriginal community and AAV.*
- *Involve the local Aboriginal community in developing interpretation for the Reserve and environs which relates to Aboriginal cultural heritage.*
- *Use the bare north-east face of the Reserve to interpret past timber harvesting on the Mount (section 5.3).*
- *Utilise the concrete tank in the crater as a site for interpreting the effects of the grazing history on the Mounts flora (section 5.3).*
- *Develop historic trails which radiate out from the Reserve and incorporate nearby associated historic features including Pound Creek Spring, Trial Saw Mills site, the historic cottage and Hasties Spring (section 5.2.4).*
- *Remove ringlock fencing from the Reserve.*

4 RESERVE PROTECTION

4.1 Fire management

There is no program of fuel reduction burning for the Reserve. Historically there is evidence that Mount Buninyong was burnt at low intensity every few years over much of the grazing lease period which extended from the 1860s to the 1960s. Three small fires have occurred in the Reserve in the last three years.

The low incidence of fire in the Reserve, since the 1960s, is considered to be leading to a reduction in structural and floristic diversity of the Reserve's vegetation.

There are no reliable water points within the Reserve and the only water available for fire fighting is just outside the Reserve in a small natural well adjacent to the access road.

Slashing of grass and undergrowth occurs at the summit, the lower carpark area off Blackberry Lane and beside the access road.

Access to and within the Reserve is limited to the main access road and there are no other options for emergency escape from the summit.

The Department of Natural Resources and Environment and the Country Fire Authority (CFA) share the lookout tower for fire spotting purposes. The Buninyong CFA brigade is responsible for fires affecting the Telstra installation. Fire prevention in the City of Ballarat municipality is the responsibility of the Municipal Fire Prevention Committee. This committee is made up of council officers, representatives of Government instrumentalities, public authorities and local CFA representatives.

A major fire in the Mount Buninyong Scenic Reserve would significantly affect its scenic beauty in the short term. Susceptibility to soil erosion would increase following fire. Further research is needed into the effects of fire in the Reserve particularly with regard to vegetation management.

Aims

- Protect the Reserve and visitors from unplanned fire.
- Improve knowledge of the ecological effects of fire in the Reserve.

Management strategies

- *Prepare a fire management plan for the Reserve in consultation with the Municipal Fire Prevention Committee which compliments the Municipal Fire Prevention Plan and which includes:*
  - *slashing along the primary access road;*
  - *slashing and removal of vegetation as necessary from around the Summit and the proposed Blackberry Lane Picnic Areas;*
  - *an emergency plan for visitor safety;*
  - *liaison with adjoining landholders;*
  - *an ecologically based burning regime as a component of vegetation management based on current knowledge and modified by further research and monitoring (section 3.2).*
- *Provide a tank to supplement fire fighting water supplies at the proposed Blackberry Lane Picnic Area.*

4.2 Pest plants and animals

Pest plants

More than 70 introduced plants occur in the Reserve. Weed species are particularly abundant adjacent to roads and walking tracks. Woody weeds, particularly Gorse and Cape Broom, fringe the minor roads adjacent to the Reserve and are increasing their range. In the moister areas of greatest disturbance, both past and present, Blackberries and Variegated Thistle are of increasing concern. Introduced pasture species are to be found over many parts of the Reserve.

Forget-me-not, which is a major weed on nearby Mount Warrenheip, has begun to invade the Reserve on the eastern boundary. Other weed species in the Reserve include Ivy and Elderberry and non-indigenous native species which have been used in screen

planting around the Police telecommunications enclosure at the summit. Exotic trees and bulbs remain in the Reserve from earlier "beautification" attempts.

Weed control is currently being conducted in the Reserve. Adjoining landholders are being encouraged to control weeds on road reserves and adjacent properties through an initiative of the Upper Williamson's Creek Landcare Group and the LINCS Committee.

Pest animals

Pest animals in the Reserve include the Red Fox, Black Rat, House Mouse and European Rabbit. Cats are also present in the reserve. Pest animals, particularly the fox, cat and rabbit, can have adverse impacts on the native flora and fauna of the Reserve if uncontrolled. Rabbits are a problem on the lower slopes in the north of the Reserve. There is currently a fox control program being carried out on adjacent landholders properties. Methods of control need to be carefully considered so as not to have adverse impacts on native fauna.

Aims

- Control, and where possible eradicate, pest plants and animals from the Reserve.
- Minimise the impact of control programs on native flora and fauna.
- Co-operate with adjoining landholders in a co-ordinated approach to pest plant and animal control programs.

Management strategies

- *Initiate a regular monitoring program for pest plants and animals in the Reserve and use appropriate control measures when necessary.*
- *Target Blackberry, Gorse, Cape Broom, Hemlock, Elderberry, Variegated Thistle, Ivy and in particular Forget-me-not for priority weed control in and adjacent to the Reserve.*
- *Prevent weed infestation by minimising disturbance and preventing weed introductions on management vehicles and in roading and walking track materials.*
- *Manage grossly disturbed and weedy sites in the Reserve in a co-ordinated way using weed control followed by intensive restoration techniques.*
- *Replace non-indigenous native screen plantings with indigenous plants.*
- *Monitor exotic tree and bulb populations and control expansions as necessary.*
- *Target foxes and rabbits for priority pest control in and adjacent to the Reserve.*
- *Control cats in the Reserve.*
- *Initiate a Good Neighbour Program for the Reserve.*

4.3 Soil conservation

Soils associated with the Mount are of two types, friable red gradational soils found on the volcanic cone and variable dark red soils covering the volcanic flows. These soils are fertile, easily revegetated and generally fairly stable. Sheet and rill erosion will occur on disturbed sites and landslips can occur in some areas. The track which follows the phone line in the Reserve is badly eroding due to off road vehicle use. Rocks are frequently removed from the Reserve.

Aim

- Prevent and control soil erosion caused by visitor and management activities.

Management strategies

- *Prohibit or control any activities which cause ground disturbance (section 5.2).*
- *Revegetate disturbed areas with indigenous species (section 3.2).*

5 THE RESERVE VISIT

5.1 The Reserve visitor

Mount Buninyong Scenic Reserve offers a range of passive recreational opportunities in a natural setting. The Mount is popular with the local community for walking, horse riding, cycling and running. The main visitor activity in the Reserve is sightseeing, particularly from the lookout tower at the summit. Visitation levels are generally moderate although no visitor surveys have been carried out recently. Visitors are attracted to the summit and often overlook other recreation opportunities in the Reserve such as walking. Visitor facilities at the summit are degraded. Very little visitor orientation is provided and signage, to and in the Reserve, is poor. The Mount is not promoted in any tourist guides for the region.

Mount Buninyong Scenic Reserve is part of a tourism region which has a variety of natural and cultural settings including goldfield and other settlement features. The Reserve offers an excellent vantage point for viewing and interpreting many of these features.

Providing for the visitor

The Reserve will provide passive low impact recreational opportunities in a natural setting. To facilitate this, visitor facilities will be upgraded and information about the Reserve and environs will be made available. Emphasis will be placed on the provision of high quality facilities at existing or relocated sites which maintain the low-key feel of the Reserve.

A major development will be the creation of a new picnic area at the entrance to the Reserve with the aim of developing a sense of entry through:

- the slowing of traffic at the entrance to the Reserve;
- the creation of a new picnic area in the Blackberry Lane Carpark area;
- the provision of visitor orientation through consistent directional signage and an information board at the new picnic area;
- the restoration and interpretation of vegetation at the entrance to the Reserve and around the Blackberry Lane Picnic Area.

Aim

- Provide for visitors in accordance with the above overview of future management for visitors.

Management strategies

- *Permit recreational activities in accordance with table 2.*
- *Provide and maintain facilities and services which highlight, but are in keeping with, the area's distinctive character (section 5.2.2 and table 3).*
- *Determine appropriate levels of recreational activity consistent with protecting visitor experiences and Reserve values.*
- *Encourage all visitors to adopt minimal impact practices and to adhere to codes of conduct appropriate to their activity.*
- *Monitor visitor numbers and use to ensure adequate provision of facilities consistent with appropriate types and levels of use.*

5.2 Visitor recreation activities and facilities

5.2.1 Vehicle access

Main access to the Reserve and within the Reserve is via the Mount Buninyong Access Road. The road is a one-way, anti-clockwise spiral, which leads to the summit, and crosses itself on the eastern side of the Mount. White posts are located intermittently along the road and there are no safety barriers. The road can become slippery at times and is subject to infrequent snowfalls. The road is narrow and the speed limit is 100 kph. There is the potential for conflict to occur as the road is also used by pedestrians and cyclists. There is

TABLE 2 SUMMARY OF RECREATION ACTIVITIES

ACTIVITY	MANAGEMENT ZONES AND OVERLAYS 1	2	3	4
Picnicking	Yes	Yes	N/A	Yes
Camping	No	No	N/A	No
Walking	Yes	Yes	N/A	Yes
Bicycle riding	YC (5.2.6)	YC (5.2.6)	N/A	YC (5.2.6)
Horse riding	YC (5.2.5)	YC (5.2.5)	N/A	YC (5.2.5)
Firewood removal	No	No	N/A	No
Dogs	YC (5.2.9)	YC (5.2.9)	N/A	YC (5.2.9)
Hang gliding	No	No	N/A	No
Abseiling	No	No	N/A	No

1 Conservation & Regeneration Zone 2 Recreation Zone
3 Telecommunications Zone 4 Pine Plantation Zone

YC Yes conditional - refer to relevant section for details
No Not appropriate N/A Not applicable

a need for advisory signs which reduce the speed limit to 40 kph and warn of other road users on the access road. The point at which the access road divides is confusing and requires clearer definition. Visibility on the downhill section of the one way access road at the point where it crosses itself is poor. The give way signs at these two intersections should be replaced by stop signs. There is a need to slow traffic entering and leaving the Reserve and to direct traffic to the orientation point at the Blackberry Lane picnic area. Redesign of the road to include a chicane at this point would fulfil both requirements.

Parking at the summit is adequate for approximately eight cars. Three roadside viewing areas are located on the access road (figure 1). The best views can be obtained from the upper two viewing areas. There are no signs to indicate that they are viewing areas, no interpretation of the views and no barriers to confine car parking although the terrain generally constrains the vehicles. Views on the north-east side of the Reserve from the descending section of the access road cause many motorists to stop. The road is narrow at this point and no provision has been made for cars to pull over.

Informal tracks have developed within the Reserve. A track has developed along the Telstra underground cable line from the access road up to the lookout tower. This track is used by 4WD vehicles and motor bikes and is badly eroding in places. A track which enters the Reserve in the north-east corner from Hogarths Road through the pine plantation is predominantly used by motor bikes, horses and mountain bikes.

Access to the Crater Walk is available from Blackberry Lane. A signposted mown grass area is provided for parking at the northern end of the Crater Walk. There is no clear entrance to this area and no clear parking places or barriers to prevent vehicle access to the walking track. This area can become boggy in winter. No parking is provided at the southern end of the crater walk. A small car park has developed at the point where the Crater Walk joins the access road.

The one-way nature of the Mount Buninyong Access Road has the potential for risk to visitors in dangerous periods such as days of high fire risk. A gate near the entrance to the Reserve would allow the control of access during such periods.

Directional signs from the Midland Highway and other access points are inadequate. Internal signs are dilapidated and often inappropriately positioned.

Aims

- Provide quality public access to the lookout and to picnic areas in the Reserve.
- Minimise the impact of vehicles on the Reserve's natural environment.

Management strategies

- *Close, and revegetate if necessary, all tracks to public motor vehicles except the Mount Buninyong Access Road.*
- *Manage the Mount Buninyong Access Road to a high standard to ensure public safety and monitor regularly. Factors to consider include:*
  - *road surface condition;*
  - *appropriate advisory signs relating to reduced speed limit, road condition and other road users;*
  - *appropriate signs and road markings at intersections, particularly at the point where the road divides and where it crosses itself;*
  - *redesign of the entrance to the Reserve to include a chicane to slow traffic and direct visitors to the Blackberry Lane picnic area;*
  - *safety barriers and reflective posts*
  - *inclusion of a gate near the reserve entrance for use in dangerous periods such as times of high fire risk..*
- *Redesign roadside viewing areas and include:*
  - *signposting;*
  - *resurfacing with weed free gravel/scoria;*
  - *safety barriers;*
  - *removal and revegetation of the lower roadside viewing area;*
  - *interpretation of the views;*
  - *investigate the construction of a new roadside viewing area on the descending section of the access road on the north-east side.*
- *Provide a clearly defined parking area at the proposed Blackberry Lane Picnic Area. Special consideration will be given to the design of the carpark to ensure cars are separated from the picnic area and that traffic flow on Blackberry Lane is not impeded.*
- *Close and revegetate the carpark at the upper entrance to the Crater Walk, on the access road, after the Blackberry Lane Carpark has been upgraded.*
- *Close, to vehicle access, entrances to walking tracks and non-vehicular tracks by the use of appropriate barriers.*
- *Improve and standardise directional signage to and within the Reserve.*
- *Liaise with VicRoads to place appropriate directional signs on the Midland Highway at the Mount Buninyong Road intersection.*

5.2.2 Day visit facilities

The main picnic area in the Reserve is at the summit adjacent to the lookout tower. Facilities at this site include a septic toilet, rotunda, water tank, fire pit and seats and two picnic tables. All facilities are dilapidated.

A small picnic area, with a table, is provided at the roadside viewing area to the south of the Telstra tower.

Currently there are no picnic facilities at the Blackberry Lane Carpark. It is a sheltered site with pleasant views to the west. This area will be developed as the main picnic area and a major orientation point for the Reserve.

Rubbish in the reserve is a major problem at the Summit Picnic Area and at the roadside viewing areas. Removal of rubbish bins and requesting visitors to take their rubbish home has been successful in similar reserves elsewhere and will be trialed at Mount Buninyong.

Aim

- Provide quality day visit facilities which harmonise with the natural environment.

Management strategies

- *Rationalise day visit facilities at the Summit Picnic Area by:*
  - *removing the toilet following construction of the new toilet at the Blackberry Lane picnic area;*
  - *removing all barbecues, the fire pit and associated seats;*
  - *retain the rotunda but remove the associated water tank;*
  - *retaining 2 picnic tables;*
  - *providing an information sign within a small shelter which provides information about the Reserve and which directs visitors to the Blackberry Lane Picnic Area facilities;*
  - *clearly define the parking area allowing space for 8 cars and 1 coach..*

TABLE 3 EXISTING AND PROPOSED RECREATION FACILITIES

SITE	TOILETS	PICNIC TABLES	ELECTRIC BBQ	FIRE PLACES	WATER SUPPLY	RESERVE INFO.	WALK TRACK	LOOKOUT	CAMPING
Summit Recreation Area	R	E	N	R	R	P	E	E	N
Blackberry Lane Picnic Area	P	P	P	N	P	P	E	N	N

E = existing facility; N = no facility; P= proposed facility, R= remove facility

- *Construct a new picnic area at the Blackberry Lane Carpark which includes:*
  - *a unisex non-septic toilet;*
  - *small rotunda which incorporates an electric barbecue and an orientation board for the Reserve;*
  - *3 picnic tables;*
  - *water tank;*
  - *car parking for 8 cars.*
- *Upgrade the existing picnic table at the upper roadside viewing area.*
- *Ensure facilities, picnic areas and car parks are maintained to a high standard.*
- *Remove all rubbish bins from the Reserve and encourage a take home policy. The results of the trial will be reviewed after a year of operation.*

5.2.3 Camping

The Reserve is considered unsuitable for the establishment of camping.

Aim

- Prohibit formal camping in the Reserve.

Management strategy

- *Provide information relating to camping opportunities within the region.*

5.2.4 Bushwalking

Walking is a popular activity on the Mount. Most walking tracks do not provide a return loop and require a walk along sections of the access road or adjacent road reserves.

Three designated walking tracks are located in the Reserve: the Crater Walk; the Zigzag Summit Track; and the South Walk (figure 1). The Crater Walk is easy and is popular with walkers and horse riders. The Zigzag Track from the crater to the summit is steep and

corner-cutting has lead to erosion and the original track is becoming overgrown in places. The South Walk is steep and slippery in places. Horse riders are causing some erosion on this track. Consideration should be given to redesigning this track so that it follows a contour and extending it around to the north of the Mount to come out near the upper entrance to the Crater Walk. The South Walk could also extend up over the summit to connect with the Zigzag Summit Walk (figure 1).

Two tracks which are rarely used by walkers are located on the Mount (figure 1). One exists on the north face of the Reserve running from the pine plantation in a westerly direction and joining the access road near where it divides. This track is mostly used by horse riders, mountain bike riders and off road motor bikes and is prone to erosion when wet. The other is a little-used steep track, which is often overgrown by Bracken and which runs from the east end of the current South Walk down to a track behind the pine plantation.

No visitor maps are available which show walking tracks on the Mount and signposting is generally poor and in need of updating. Views along walking tracks are excellent in places and could be taken advantage of by the positioning of seats at strategic vantage points. The opportunity exists to develop walking tracks which radiate out from the Reserve and which incorporate the nearby township of Buninyong and historic features at the base of the Mount via laneways and unused road reserves (section 3.5 & figure 4).

Runners use the Reserve for training and recreation and local athletics clubs use the Mount for annual races.

Aim

- Provide for a range of walking experiences while minimising impacts on Reserve values.

Management strategies

- *Upgrade the three designated walking tracks to a safe standard, paying particular attention to the Zigzag Summit Track and the South Walk.*
- *Investigate the possibility of creating a return loop by:*
    - *continuing the South Walk over the summit to join up with the Zigzag Summit Track;*
    - *extending the South Walk around to the north of the Mount.*
- *Regularly monitor and maintain designated walking tracks in the Reserve.*
- *Improve signposting on walking tracks.*
- *Place seats at selected vantage points along walking tracks.*
- *Develop historic trails which radiate out from the Reserve and incorporate Buninyong and nearby associated historic features (section 3.5).*
- *Close and rehabilitate the track on the east side of the Reserve.*
- *Redesign the north track so that horse riders and mountain bike riders are diverted to the west section of Hogarths Road, while allowing walkers to continue up the Mount to the crater area (sections 5.2.5 & 5.2.6, figure 1).*
- *Provide interpretation along walking tracks relating to the flora and fauna, and to cultural aspects of the Reserve (section 5.3).*
- *Provide a walking track map on the proposed information boards at the Blackberry Lane and Summit Picnic Areas (section 5.3).*

5.2.5 Horse riding

The Reserve is a popular area for a small number of local horse riders. Riding occurs on the Crater Walk where it causes very little damage. Horse riding on the South Walk is causing some erosion and is not considered suitable for riding because it is narrow, steep and slippery in places. The track on the north side of the Reserve is also used for riding and

is prone to erosion when wet. This track is also popular with mountain bike riders. There is a possibility of conflict between users on the upper section of this track, particularly where it joins the access road. Adjoining road reserves are also used by horse riders and offer links to Buninyong. Commercial riding groups require a permit to use the Reserve (section 5.4).

Aim

- Provide opportunities for horse riding consistent with the protection of Reserve values and the avoidance of conflict with the activities of other Reserve users.

Management strategies

- *Permit horse riding on the designated section of the Crater Walk (figure 1).*
- *Permit horse riding on the lower section of the north track only and create a new horse riding track which links this track with the west section of Hogarths Road (figure 1). Seasonally close this track to horse riders during the wetter months of the year.*
- *Prohibit horse riding on all other tracks in the Reserve.*
- *Install appropriate signage on tracks where horse riding is permitted warning horse riders of other users, steep slopes and track closures.*
- *Provide a map showing roads and tracks available for horse riding and copies of the 'Horse Riding Code' to horse riders on request. Encourage horse riders to follow the Code.*
- *Monitor and assess impacts of horse riding on tracks, weed distribution and other Reserve visitors as a basis for determining appropriate levels of use.*
- *Close tracks to horse riding, as necessary, if erosion, damage or conflict occur.*

5.2.6 Cycling

Road cyclists use the access road for training and there is potential for conflict with motor vehicles as the road is narrow and the speed limit is 100 kph.

Mountain bike riders use the access road, adjacent road reserves and tracks within the Reserve, particularly the north track. There is potential for conflict between users on this track

Aim

- Provide access for cyclists while minimising environmental damage and conflicts with other Reserve users.

Management strategies

- *Permit cycling in the Reserve on the Mount Buninyong Access Road and on the designated section of the north track (figure 1). Seasonally close the north track to cyclists during the wetter months.*
- *Prohibit cycling on all other tracks.*
- *Install appropriate signage on the new north track, warning cyclists of other users, steep slopes and track closures.*
- *Make available and encourage the use of the 'Mountain Bike Code'.*
- *Provide advisory signs to reduce the speed limit on the access road and to warn of other road users (section 5.2.1).*

5.2.7 Hang gliding

Hang gliding occurs infrequently in the Reserve from the lower descending section of the one way access road on the north-east face. The road here is narrow and there is potential for conflict with vehicles. The infrastructure requirements of this sport at this site include the construction of a ramp, set-up area and a nearby safe landing area. Off road parking for participants and spectators is also required. Currently these requirements preclude this activity in the Reserve.

Aim

- Ensure that recreation activities do not have an adverse effect on traffic movement in the Reserve.

Management strategy

- *Do not permit or provide for hang gliding in the Reserve until such time that this activity will not impact on traffic flow in the Reserve.*

5.2.8 Abseiling

Abseiling has occurred infrequently from the lookout tower. No permission has been sought to conduct this activity. Rigging training has been permitted on the tower in the past. The tower, however, was not structurally designed for these purposes and is considered unsafe for these activities.

Aim

- Prohibit abseiling and rigging training on the tower on the grounds that it is unsafe for these activities.

Management strategy

- *Do not permit abseiling and rigging training from the lookout tower.*

5.2.9 Dogs

Dogs are permitted in the Reserve subject to the controls established by local laws and council policy. Free roaming dogs can have a detrimental impact on wildlife and on other users of the Reserve.

Aim

- Prevent detrimental impacts on wildlife and other users of the Reserve.

Management strategies

- *Permit dogs on leash within the Reserve.*
- *Provide appropriate signage to this effect.*

5.3 Visitor information, interpretation and education

There is currently little information or interpretation available for visitors to the Reserve. Information orientates visitors to the features and facilities of the Reserve and interpretation gives them an insight into the complexity and functioning of natural and cultural features.

The proposed Blackberry Lane Picnic Area is an ideal site for an information board orientating visitors to the features of the Reserve and adjoining linkages. An additional information board could also be located at the Summit Picnic Area. Signage throughout the Reserve should be clear and consistent.

Interpretation of the Reserve's natural and cultural features needs to be provided at the picnic areas and along walking tracks. The proposed restoration zone adjacent to the Blackberry Lane Picnic Area, when revegetated, will provide an opportunity for the interpretation of the restoration of the Reserve's understorey vegetation. The nearby historic water tank provides a focus for the interpretation of the grazing history of the Reserve; and the bare north-east slope for the interpretation of its past logging history.

Information and interpretation of the surrounding landscape as seen from the lookout tower is needed. Interpretation of regional features and the cultural history of the surrounding landscape, as viewed from the lookout tower, will provide visitors with a sense of place.

The Reserve is periodically used by educational institutions for excursions particularly relating to the geology of the Mount and the geomorphology of the surrounding landscape. Interpretation of these features will enhance visitor experience and the educational role of the Reserve. Opportunities exist for research to be carried out by educational institutions which will enhance management of the Reserve.

Aims

- Orientate visitors to the Reserve and its features.
- Enhance visitors' enjoyment and understanding of the Reserve's natural and cultural values.

- Enhance visitors' enjoyment and understanding of the natural and cultural values of the landscape as viewed from the lookout tower.
- Provide opportunities for education programs in the Reserve while minimising adverse environmental impacts.

Management strategies

- *Provide adequate visitor orientation information and safety messages at the Summit and Blackberry Lane Picnic Areas.*
- *Provide interpretation, at key sites within the Reserve, of the natural and cultural features of the Reserve and of the surrounding landscape, including:*
  - *information boards at the Blackberry Lane and the Summit Picnic Areas;*
  - *interpretation of the understorey restoration program in the area adjacent to the Blackberry Lane Picnic Area;*
  - *interpretation of the Reserve's grazing history located at the historic water tank in the crater;*
  - *interpretation of the Reserve's logging history using the bare slope on the north-east side of the Reserve;*
  - *interpretation of the surrounding landscape from the lookout tower.*
- *Establish and implement monitoring and maintenance schedules for all interpretive facilities.*
- *Investigate measures to enhance the provision of school educational programs in the Reserve and encourage research.*

5.4 Commercial tourism operations

There are limited opportunities for commercial tourism within the Reserve and currently very few tourist coaches enter the Reserve. The Reserve could, however, be a component of a district tour but the width and configuration of the access road precludes large numbers of tourist coaches. Commercial horse trail rides periodically pass through the Reserve and have the potential to damage tracks in the Reserve particularly during the wetter months of the year (section 5.2.5). Commercial tourism requires a permit (with the appropriate fee) to operate within the Reserve.

Aim

- Provide for appropriate commercial tourism consistent with Reserve management objectives.

Management strategies

- *Allow appropriate commercial tourism under permit from the Committee of Management.*
- *Encourage commercial operators to assist in the protection of Reserve values and management of its facilities.*

5.5 Public safety

The safety of visitors to the Reserve is a consideration in all aspects of management. There are always some risks involved with entering bushland areas, but they can be minimised through specific management actions, including the maintenance of facilities to a high standard, continued fire protection measures, and continuation of an ongoing risk management program that remove identified hazards in areas where visitors congregate.

Aim

- Promote public safety in the use of the Reserve.

Management strategies

- *Maintain facilities, including designated roads and tracks, to a high standard and provide appropriate signage including reduced speed advisory signs.*
- *Undertake fire protection measures as specified in section 4.1.*
- *Identify and remove hazards such as dead tree branches in high use areas of the Reserve including the Blackberry Lane and Summit Picnic Areas.*

- *Provide emergency contacts and procedures on the information boards at the Blackberry Lane and Summit Picnic Areas and encourage telecommunications operators to provide emergency contact details within their compounds.*
- *Maintain an ongoing risk management program.*

6 COMMUNITY AWARENESS AND INVOLVEMENT

6.1 Friends and volunteers

Friends and volunteers play an important role in fostering community support for Parks and Reserves. The Mount Buninyong Conservation Group was established in response to the telecommunications tower developments for the summit and has been active in pursuing conservation aims for the Reserve. Walking track construction in the past has been carried out with the help of volunteers such as the Scouts and LEAP teams. The LINCS Committee is involved in establishing corridors linking the Reserve with other remnant vegetation in the area and with the restoration of the Reserves wet gully communities. Currently there is no Friends group for the Reserve.

Organised interest groups make valuable contributions to Reserve management projects and their assistance is to be encouraged.

Aim

- Encourage organised interest groups and volunteer involvement in managing the Reserve.

Management strategies

- *Encourage the co-operation of organised interest groups and volunteer groups to assist in management projects in the Reserve.*
- *Promote organised interest groups and volunteer groups involved with the Reserve so that they gain greater support from the community.*

6.2 Community awareness and Reserve neighbours

Reserve neighbours are primarily involved in agriculture or have hobby farms. They are being encouraged to control weeds on road reserves and adjacent properties through initiatives of the Upper Williamson's Creek Landcare Group and the LINCS Committee. Many of the residents of the area value the natural bush setting that the Reserve offers.

Aims

- Increase community awareness of positive management activities, including pest plant and animal control and the conservation of significant flora and fauna.
- Encourage conservation and sound land management practices on private land adjoining the Reserve.
- Encourage adjoining landholders to participate in the Reserve planning process.

Management strategies

- *Maintain liaison with local community groups and land owners, and as appropriate involve them in relevant aspects of planning and managing the Reserve.*
- *Apply and encourage the application of the Good Neighbour Program to management issues on or near the boundary of the Reserve.*
- *Encourage a co-ordinated pest plant and animal control program with Reserve neighbours.*
- *Develop an ongoing community awareness and education program through local newspapers, schools and community groups.*

7 OTHER ISSUES

7.1 Authorised uses

The height and location of Mount Buninyong makes it a desirable site for telecommunications installations. There are a number of leases and licences within the Reserve, all of which are associated with the telecommunications towers on the summit. The Telstra tower, which is the dominant feature on the summit, is within Commonwealth land which is excised from the Reserve. There is strong local opposition to the erection of additional towers within the Reserve. Revenue raised from these installations must be put back into the management of the Reserve under the *Crown Land (Reserves) Act 1978.*

There is a small pine plantation in the north-east corner of the Reserve. The pines were planted about 1970 by the then Forests Commission. They are now the property of the Committee of Management and are likely to provide a substantial sum of money which could be used for Reserve works. Advice should be sought from the Victorian Plantations Corporation (VPC) regarding thinning, harvesting and sale of the trees.

An electricity line extends up the north slope of the Reserve to the towers. A short off-shoot of this line extends north to private property. Neither line is enclosed within an easement.

A telephone line extends underground to the summit via the north slope. The line is not within an easement.

Two permanent survey marks and a Trig Station are located on the summit.

The Reserve is bounded by formed roads or unused road easements. All of these roads and easements appear to be on the correct alignment except the western end of Hogarths Road which has taken a line of convenience through the Reserve; and the northern end of Blackberry Lane which cuts through the Reserve about 20 m to the east of the true line.

Aims

- Ensure appropriate use and licensing of the communications facilities and associated utilities.
- Minimise the impact of public utilities on the Reserve.

Management strategies

- *Limit telecommunications towers to the current number and location.*
- *Permit additional telecommunications installations only if they co-locate with existing users and pay the appropriate licence fees.*
- *Charge all current operators (including non-profit community groups) a licence fee at the commercial rate for their installations.*
- *Formalise access and maintenance agreements for all utilities.*
- *Resurvey Hogarths Road and Blackberry Lane easements to fit the road.*
- *Manage the pine plantation for timber production for this rotation only and following the final harvest revegetate the area with indigenous species.*
- *Minimise the impact of telecommunication facilities and associated infrastructure on landscape character and other values of the Reserve (section 3.4).*

7.2 Boundaries and adjacent uses

The Reserve is bounded on all sides by formed roads or unused road easements. Management of pest plants and animals along these easements is the shared responsibility of the adjoining landowners and the Reserve managers. Land surrounding the Reserve is private property.

Aims

- Co-operate with adjacent landholders in the protection of both private property and the Reserve from fire, pests and other hazards.

Management strategy

- *Liaise with adjacent landholders to address issues that may affect the Reserve or adjoining land.*

7.3 Local Government Planning Provisions

Two Local Government Areas (LGAs) abut the Reserve. The City of Ballarat includes the Reserve and land to the west of the Reserve as well as a small section on the east. The remaining adjoining land is within the Moorabool Shire boundary.

The City of Ballarat's Draft Planning Provisions propose that the Reserve be designated as a Public Use Zone. The purpose of this zone is to:

- recognise public land use for utility and community services and facilities;
- provide for associated uses that are consistent with the intent of the public land reservation or purpose. (Note that the Reserve is Crown Land and is governed by the *Crown Lands (Reserves) Act 1978*).

Land adjoining the east of the Reserve is to be designated Rural Zone. The purpose of this zone is to:

- provide for the sustainable use of land for extensive animal husbandry and crop raising;
- ensure that subdivision promotes effective land management practices and infrastructure provision.

Subdivisions must be at least 40 ha.

Land adjoining the west of the Reserve is designated as Rural Living Zone. The purpose of this zone is to:

- provide for residential use in a rural environment;
- ensure that subdivision promotes effective land management practices and infrastructure provision.

Subdivisions must be at least 8 ha.

Overlays which relate to these zones are:

- Environmental Significance Overlay (ESO) which is to identify areas where development, and its control, may be affected by environmental constraints;
- Vegetation Protection Overlay (VPO) which is to protect and preserve existing vegetation, and to enhance and promote regeneration;
- Incorporated Plan Overlay (IPO) which is to ensure that all planning applications show the form and condition of future use and developments.

Proposed Planning Provision zones for the Moorabool Shire LGA adjoining the Reserve will not be available until July 1997.

The Reserve is currently managed under the provisions of the *Crown Lands (Reserves) Act 1978.* Regulations made specifically for the Reserve under this Act need to be revoked and replaced by Local Laws for improved management.

Aim

- Minimise conflicts between Reserve values and surrounding land use.

Management strategies

- *Revoke all Regulations made specifically for the Reserve under the* Crown Land (Reserves) Act 1978 *and replace with City of Ballarat Local Laws pertinent to the Reserve.*
- *Encourage local planning authorities to take a consistent approach to planning around the Mount.*
- *Accept the City of Ballarat Draft Planning Provisions as suitable for the protection of the Reserve and its environs.*

8 IMPLEMENTATION

A three-year rolling implementation program will be prepared for the Reserve to ensure efficient implementation of this Plan. Priorities for management are identified in table 4 as an initial step in this process.

TABLE 4 PRIORITY MANAGEMENT STRATEGIES

MANAGEMENT STRATEGIES	SECTION IN PLAN
Resource conservation	
Establish a Committee to manage the Reserve's flora.	3.2
Manage Reserve's flora based upon proposed management zones.	3.2
Revegetate degraded areas.	3.2
Revegetate proposed links to nearby remnant vegetation.	3.2
Systematically survey the Reserve's flora and fauna.	3.2, 3.3
Involve local the Aboriginal community in identifying significant sites and developing interpretation.	3.5
Develop historic trails which radiate from the Reserve.	3.5,, 5.2.4
Reserve protection	
Prepare a fire management plan for the Reserve.	4.1
Control pest plants and animals and control as necessary.	4.2
Initiate a Good Neighbour Program for the Reserve.	4.2, 6.2
The Reserve visit	
Manage Mount Buninyong Access Road to a high safety standard and monitor regularly.	5.2.1
Rationalise and redesign roadside viewing areas and car parks.	5.2.1
Standardise all directional signage to and within the Reserve.	5.2.1
Rationalise and redesign picnic facilities at the Summit Picnic Area.	5.2.2
Develop a new Picnic Area at the Blackberry Lane Carpark.	5.2.2
Upgrade and maintain the designated walking tracks in the Reserve.	5.2.4
Redesign the South Walk to create circular walking opportunities.	5.2.4
Improve signposting and make a map available for walking tracks.	5.2.4
Divert the north track to join Hogarths Road for horse riding and mountain bikes.	5.2.5, 5.2.6
Provide interpretation of the Reserve's natural and cultural features at the Summit and Blackberry Lane Picnic Areas.	5.3
Maintain an ongoing risk management program.	5.5
Community awareness and involvement	
Encourage the co-operation of organised interest groups, volunteers and Reserve neighbours in management activities.	6.1, 6.2, 4.2

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APPENDIX 1 SIGNIFICANT FLORA OF MOUNT BUNINYONG SCENIC RESERVE

SCIENTIFIC NAME	COMMON NAME	STATUS	DISTRIBUTION	SOURCE AND REASON
Dianella tasmanica	Tasman Flax-lily	L	One plant only adjacent to upper Zigzag track	Thomas - rare in Buninyong district
Gastrodia sesamoides	Cinnamon Bells Orchid	R	Occurs in small numbers near the summit	Willis - not recorded from volcanic terrain anywhere else in Western Victoria Thomas - Needs to be considered in any future expansion of parking and picnic areas
Goodia lotifolia	Golden-tip	L	Lower slopes, sheltered roadcutting adjacent to start of ascending road	Willis - typical of damper mountain forests Thomas - scarcity in the Ballarat district
Parahebe derwentiana	Derwent Speedwell	L	Predominantly on road cuttings	Willis - typical of damper mountain forests Thomas - scarcity in the Ballarat district
Pimelea axiflora	Bootlace Bush	L	Majority on southern mid-slope, a few in gully and on road cutting	Willis - typical of damper mountain forests Thomas - scarcity in the Ballarat district
Psoralea adscendens	Mountain Psoralea	L	Predominantly on road cuttings	Thomas - scarcity in the Ballarat district Ambrose - significant as a potential food source for Chequered Swallowtail Butterfly
Senecio biserratus	Jagged Fireweed	R	Restricted to a small area near the road on the south side of the Mount	Thomas - usually regarded as a coastal plant but also found in the Grampians
Senecio linearifolius	Fireweed Groundsel	L	Scattered along roadsides on the shadier slopes	Willis - typical of damper mountain forests Thomas - scarcity in the Ballarat district

Source: Ambrose (pers. comm.); Nathan (1994); Thomas (1992a, 1992b); Willis (1986)

L locally rare R regionally rare

APPENDIX 2 VEGETATION COMMUNITIES OF MOUNT BUNINYONG SCENIC RESERVE

(Refer to figure 2 for locations).

Wet Gully Community

At the moment this community lacks many of the species which would have occurred prior to settlement. This community is dominated by Messmate (*Eucalyptus obliqua)* with Blackwood (*Acacia melanoxylon)* as an understorey component. Other understorey species in this community include Golden Tips (*Goodia lotifolia)* and Bootlace Bush (*Pimelea axiflora*). Proposed species to be reintroduced include Austral Indigo (*Indigofera australis),* Rough Coprosma *(Coprosma hirtella),* Soft Tree-fern *(Dicksonia antarctica),* Prickly Currant-bush (*Coprosma quadrifida)* and Musk Daisy-bush (*Olearia argophylla).* Fire will not be used as a management tool in this community.

Moist Open Forest

The overstorey is predominantly Messmate (*Eucalyptus obliqua)* in this community. Blackwood (*Acacia melanoxylon)* is a common understorey component. The understorey, however, is generally sparse and composed of Sweet Bursaria (*Bursaria spinosa*) and Bootlace Bush (*Pimelea axiflora).* Introductions into this community can include Austral Indigo (*Indigofera australis),* Golden Tips (*Goodia lotifolia),* Tasman Flax-lily (*Dianella tasmanica*) and Cherry Ballart (*Exocarpus cupressiformis*). Austral Bracken (*Pteridium esculentum)* is a strong component of this community having been encouraged by past management practices of grazing and frequent burning. Management in this community will need to ensure that this plant doesn't continue to spread to the detriment of other species. Fire will only be used in this community where it will not encourage Bracken regrowth and will be based upon a 20 year rotation until modified by further research.

Dry Open Forest

This community is dominated by a mixture of Messmate (*Eucalyptus obliqua*) and Manna Gum (*Eucalyptus viminalis*), with a sparse understorey of Large-leaf Bush-pea (*Pultenaea daphnoides).* One plant of Tasman Flax-lily (*Dianella tasmanica)* is located in this community. Plants to be reintroduced to this community include Tree Everlasting (*Ozothamnus ferrugineus)* and Silver Wattle (*Acacia dealbata).* A range of management options could be used in this community including spot planting, direct seeding and ecological burns. Ecological burning will be based upon a rotation of 20 years until modified by further research.

Grassland

This community is dominated by Tussock Grass *(Poa labillarieri).* This simplified community is an artefact of past logging and grazing practices and is found in the crater and on the north-east face of the Reserve. Tussock growth is generally dense. Highest species diversity in this community is generally found on the lower slopes where inter-tussock spaces are greatest. There will be no active management of this community. Ecological burning will not be carried out in this community.

Degraded Areas

These areas are located on the edges of the Reserve and have generally been used for crop production in the past. Weeds are a problem in these areas and they will require intensive revegetation techniques. These areas will revert back to the adjacent vegetation community after revegetation has been carried out.

Pine Plantation

Pines in this section of the Reserve were planted in the 1970s and shall be managed for this rotation only. This area of the Reserve is weedy. The Pine Plantation area will revert to Dry Open Forest and will require intensive revegetation techniques after harvesting.

APPENDIX 3 VEGETATION MANAGEMENT ZONES OF MOUNT BUNINYONG SCENIC RESERVE

(Refer to figure 3 for locations)

Restoration Management Zone

Intensive active planting will be carried out in this zone. Techniques will include the use of weed suppressant matting, particularly in highly disturbed areas.

Regeneration Management Zone

Management in this zone will enhance the existing vegetation by using a range of management activities including the use of spot planting or direct seeding of existing species or reintroduced species, and ecological burns. Management in this zone will be based upon the underlying vegetation communities. It will be modified by research into the regeneration requirements of the vegetation present and monitoring will be carried out to ensure that regeneration is enhanced by the techniques used.

Passive Management Zone

This zone will be left as it is with no active management. Natural regeneration, however, will not be discouraged.

Recreation Management Zone

Vegetation in this zone will be managed to reduce the risk of fire and increase visitor safety. Management techniques in this zone will include the slashing of grass and the removal of any flammable material.

Pine Management Zone

The pine plantation will be managed for timber production for this rotation only. The area will be intensively revegetated with indigenous species and revert to Dry Open Forest following the final harvest. The area will be managed to reduce the risk of fire while still a pine plantation.

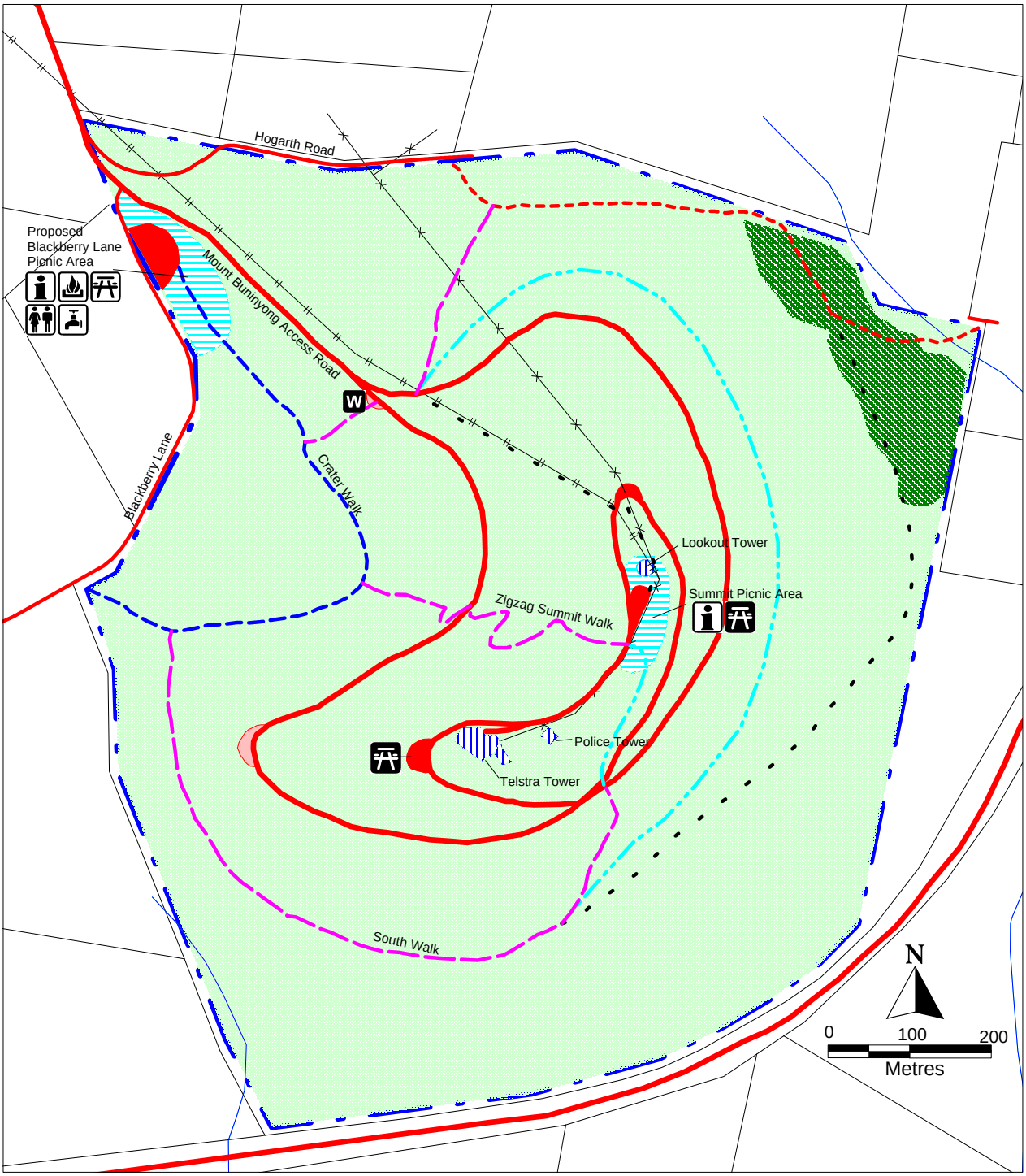

FIGURE 1

MOUNT BUNINYONG SCENIC RESERVE

MANAGEMENT ZONES & VISITOR FACILITIES

Legend

Existing Facilities
- picnic tables
- walking track
- horse/walking track
- horse/mountain bike track

Proposed Facilities
- barbecue
- picnic tables
- information
- water
- toilet
- closed track
- walking track
- closed carpark

Management Zones
- Pine
- Telecommunication
- Recreation
- Conservation & Regeneration

- major road
- minor road
- track
- creek
- electricity cable
- telephone cable
- property boundary
- carpark
- Reserve Boundary
- historic water tank

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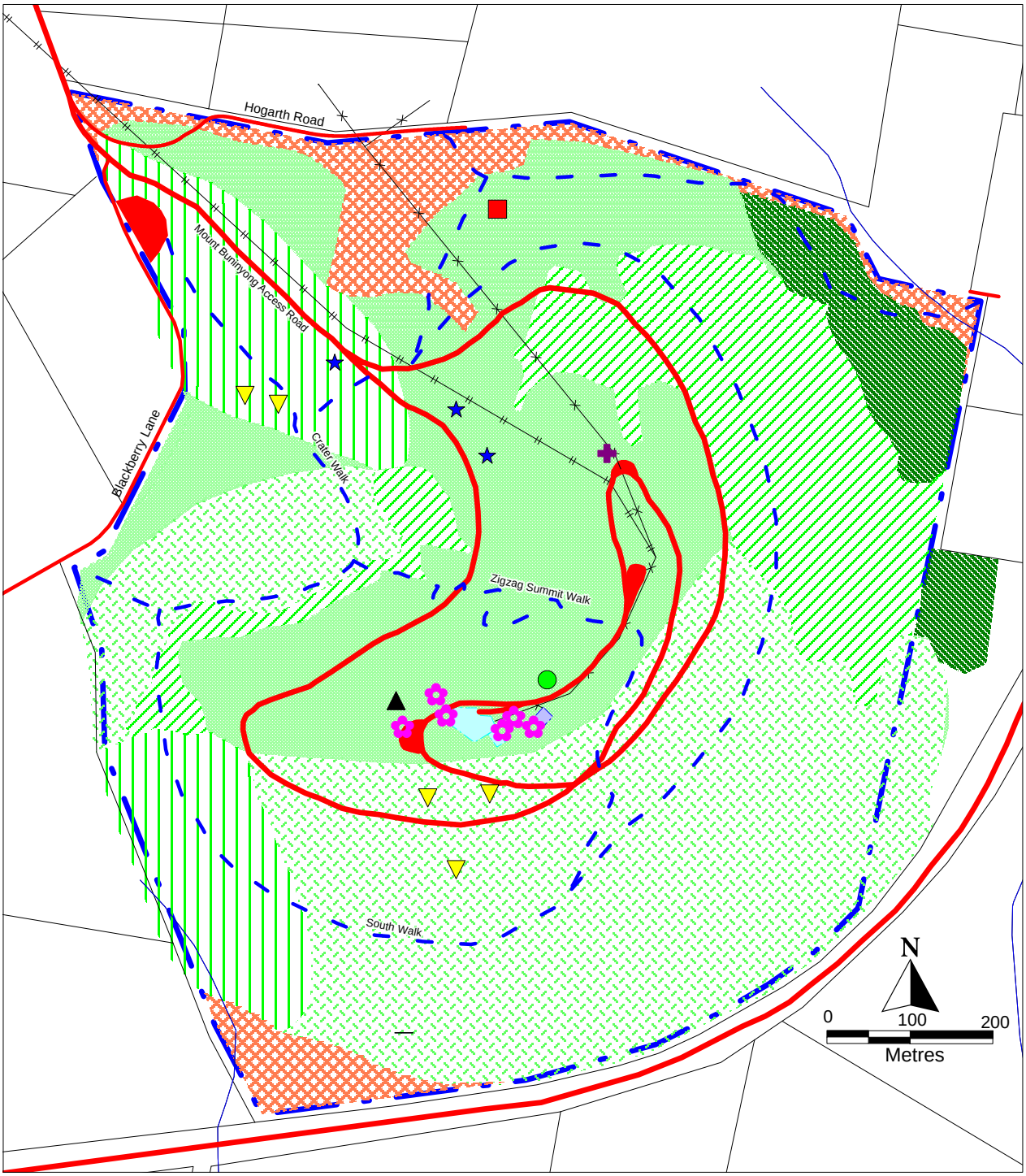

FIGURE 2

MOUNT BUNINYONG SCENIC RESERVE

VEGETATION COMMUNITIES

Legend

- Dry Open Forest
- Moist Open Forest
- Wet Gully Community
- Grassland
- Degraded
- Pine Plantation
- Police fenced enclosure
- Telstra fenced excision
- Reserve boundary
- Silver Wattle
- Cinnamon Bells Orchid
- Golden Tips
- Sweet Bursaria
- Tree Everlasting
- Bootlace Bush
- Mountain Psoralea
- Large-leaf Bush-pea
- major road
- minor road
- track
- walking track
- creek
- electricity cable
- telephone cable
- property boundary
- carpark

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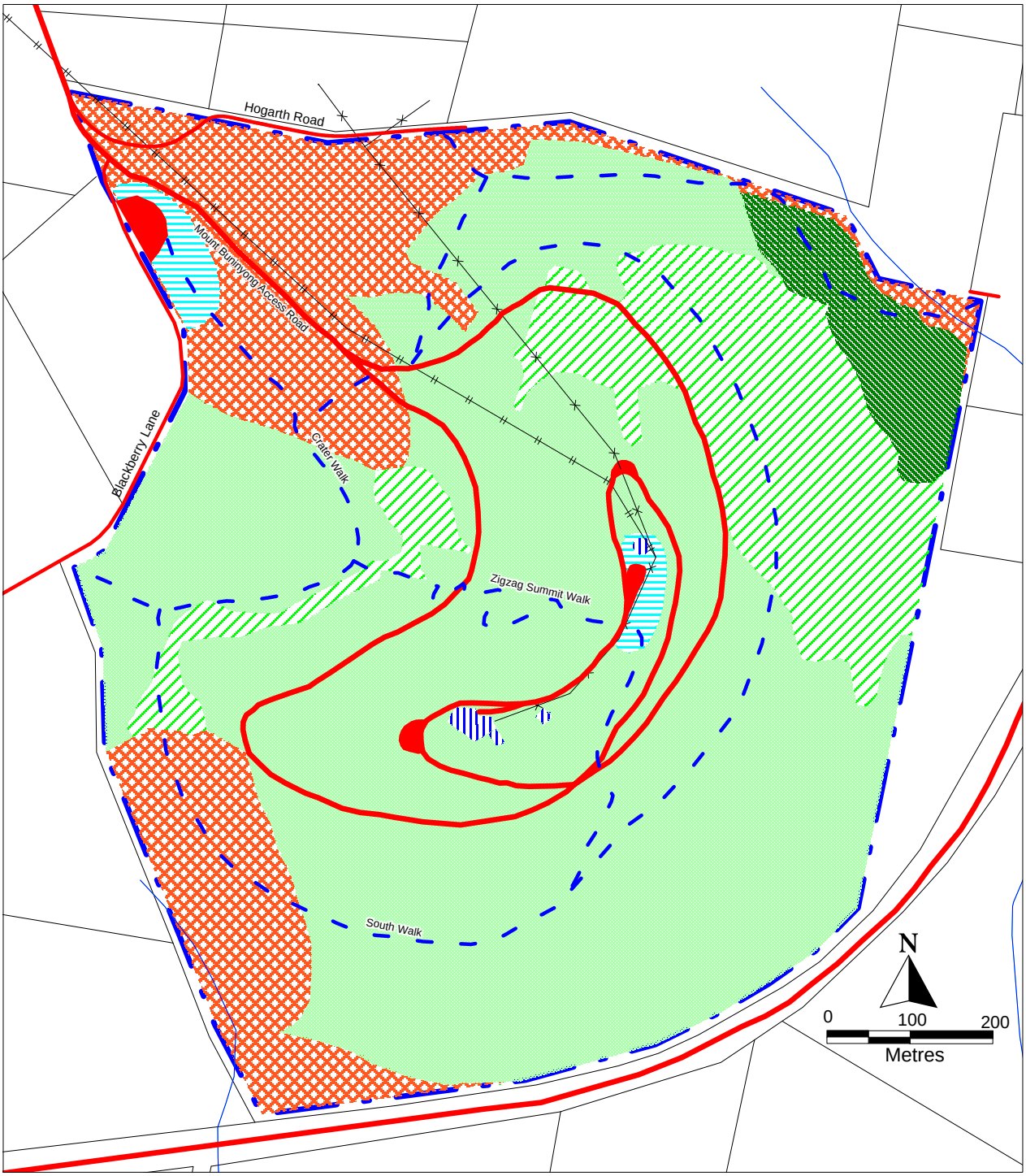

FIGURE 3

MOUNT BUNINYONG SCENIC RESERVE

VEGETATION MANAGEMENT ZONES

Legend

- Passive Management Zone
- Pine Management Zone
- Recreation Management Zone
- Regeneration Management Zone
- Restoration Management Zone
- Telecommunications Management Zone
- carpark
- Reserve boundary
- major road
- minor road
- track
- creek
- electricity cable
- telephone cable
- property boundary
- walking track

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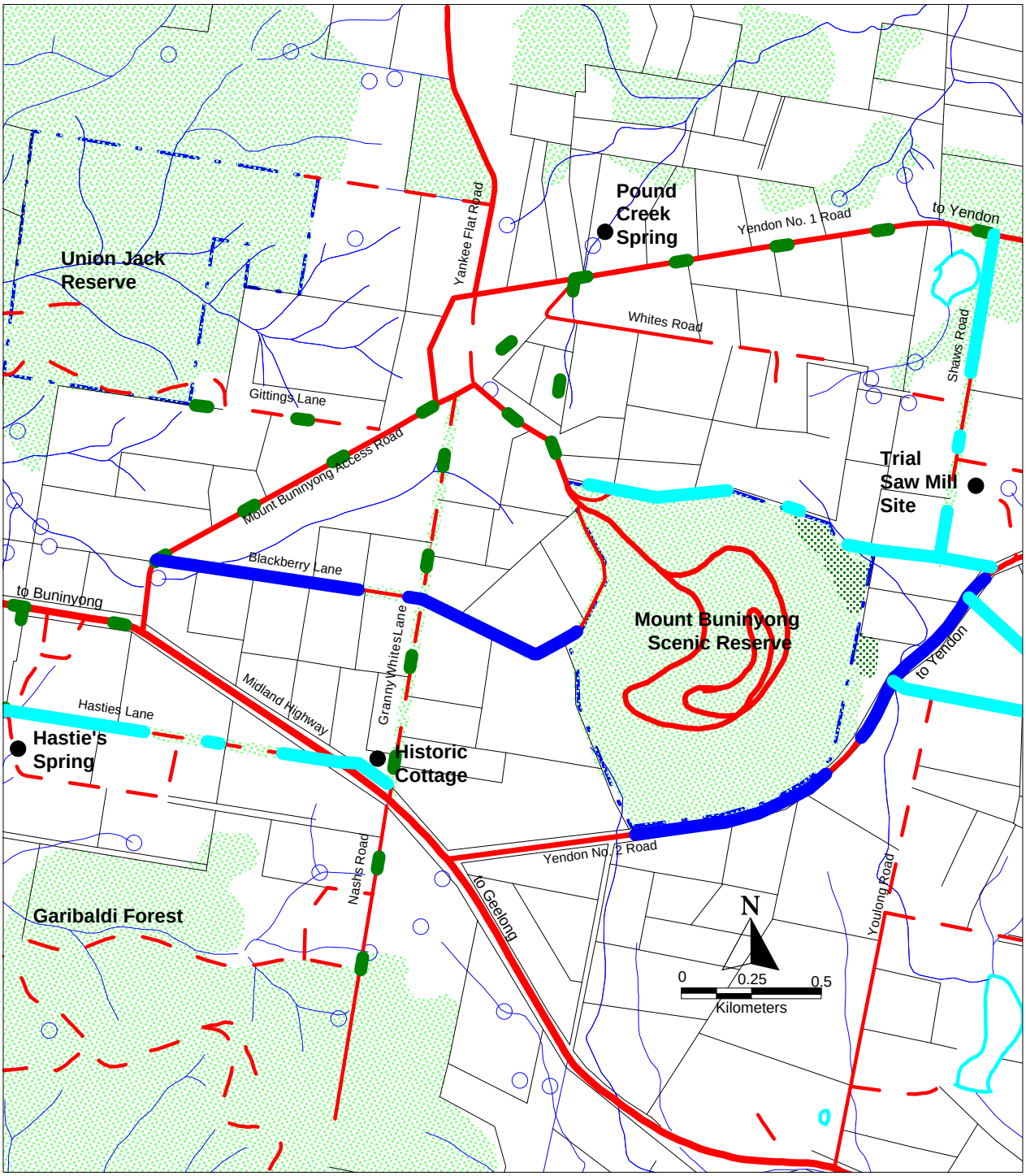

FIGURE 4

MOUNT BUNINYONG SCENIC RESERVE

LINKAGES

Legend

- Eucalypt forest
- Pine plantation
- existing linkage
- LINCS linkage
- proposed linkage
- Reserve boundary
- highway
- major road
- minor road
- track
- creek
- dam
- reservoir
- property boundary

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