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Broken-Boosey State Park

Nathalia, Numurkah, Tungamah and Youarang Natural Features Reserves



Management Plan October 2006

BROKEN-BOOSEY STATE PARK
AND NATHALIA, NUMURKAH, TUNGAMAH AND YOUARANG
NATURAL FEATURES RESERVES
MANAGEMENT PLAN

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Acknowledgements

Acknowledgement of *Country*. In their rich culture, Indigenous Australians are intrinsically connected to the continent – including the area now known as Victoria. Parks Victoria recognises that the park and reserves are part of *Country* of the Traditional Owners.

Parks Victoria is grateful to all those organisations and individuals who have contributed to the development of this Management Plan. Special thanks go to members of the Broken-Boosey Management Plan Advisory Group which comprises Tony Kubeil (Conservation Management Network Coordinator), Kathy Beattie, Neville Brown, Lorraine Cairns, Yvonne Davies, John Lawless, Chris Meek, Kevin McGaw, Elwyne Papworth, Lanie Pearce, Doug Robinson, Alex Sislov, Kylie Stafford and Steve Tucker.

Note: Technical terms used in this plan are explained in the Glossary at the end of the plan.

Disclaimers:

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

Every effort has been made to ensure that the information in this plan is accurate. Parks Victoria does not guarantee that the publication is without flaw of any kind and therefore disclaims all liability for any error, loss or other consequence which may arise from you relying on any information in the publication.

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FOREWORD

Broken–Boosey State Park and the Nathalia, Numurkah, Tungamah and Youarang Natural Features Reserves form a unique corridor of intact native vegetation in a sea of agricultural land. They are unusual among the Box-Ironbark parks and Victoria’s protected areas in their focus on and protection of tiny remnants of box-dominated grassy woodland strung along an entire creek system in the eastern Northern Plains.

The creeks are important for an array of flora and fauna, including many rare and threatened species, and are a particularly important link for migratory and wetland breeding birds.

The park and reserves are part of *Country* of the Yorta Yorta and Bangerang people. Other community members may also have traditional attachments to the area associated with their families and the history of their settlement.

This plan details the values and attractions of Broken-Boosey State Park and Nathalia, Numurkah, Tungamah and Youarang Natural Features Reserves, and is a strategic guide for the protection of natural and cultural values and their management into the future.

There are many opportunities for visitors to enjoy the park and reserves. Bushwalking, cycling, camping, dog walking, fishing and horse riding are some of the activities on offer.

I thank the members of the Broken–Boosey Management Plan Advisory Group for their valuable contribution to the plan, and also wish to thank those individuals and organisations who made submissions on the draft plan. I look forward to the community’s ongoing support for the management of this park and reserves.

JOHN THWAITES MP
Minister for Environment

APPROVED MANAGEMENT PLAN

This management plan has been prepared under section 17(2)(d) of the *National Parks Act 1975* (Vic.) and is approved for implementation.

The plan provides the basis for the future management of Broken-Boosey State Park and Nathalia, Numurkah, Tungamah and Yourang Natural Features Reserves. It was finalised following consideration of the 18 submissions received on the Draft Management Plan.

PROF. LYNSAY NEILSON
Secretary to the
Department of Sustainability and Environment

MARK STONE
Chief Executive
Parks Victoria

INTRODUCTION TO BOX-IRONBARK PARKS

The Box-Ironbark forests and woodlands lie inland of the Great Divide in northern Victoria. Extending in a broad band from Wodonga through Chiltern, Beechworth and Benalla, they reappear near Numurkah and continue through Heathcote, Bendigo, Maryborough and St Arnaud to Ararat and Stawell. At the time of European settlement they covered almost three million ha, or 13% of Victoria.

Box-Ironbark forests and woodlands are unique to Australia, valued by local communities and celebrated in literature and art. The landscapes of the region have also inspired poets, writers and artists, both past and contemporary, including Banjo Paterson and Steele Rudd. With the creation of a highly protected system of parks and reserves in 2002, the future of these forests and woodlands is assured.

This plan explains these values and attractions in detail for Broken-Boosey State Park and Nathalia, Numurkah, Tungamah and Youarang Natural Features Reserves, and sets out how they will be protected and managed. The park and reserves are unusual among the Box-Ironbark parks and Victoria's protected areas in their focus on tiny remnants of box-dominated grassy woodland strung along an entire creek system. Their creation represents a turning point in community attitudes towards these few remaining natural areas in the eastern Northern Plains and recognises their importance into the future.

Box-Ironbark areas are part of *Country* of the Traditional Owners. There are many places and sites rich in archaeological, cultural and spiritual significance throughout the region. Increasingly, Indigenous communities are involved in revealing and protecting Indigenous heritage.

Box-Ironbark forests and woodlands contain some of Victoria's most significant historic gold mining landscapes and features on public land, including areas of national cultural heritage significance. This has been recognised in the establishment of Castlemaine Diggings National Heritage Park, a first for Australia. These landscapes and sites are associated with many former gold towns and settlements, and combine with them to form a region of strong

historic character and interest. The historic gold mining landscapes are significant components of tourism in the region today.

The Box-Ironbark forests have been associated with agriculture, forestry and gold mining since the 1830s. These activities helped establish and maintain towns and, together with forest products, contributed to the State's economic development.

Different people value the forests in different ways, but local communities have strong feelings of pride in and ownership of their Box-Ironbark landscapes. The creation of the Box-Ironbark parks presents further opportunities to celebrate, protect and enhance these special landscapes.

Because much of the Box-Ironbark area was suitable for grazing and other forms of agriculture, and because it coincides with Victoria's gold country, European settlement has had a substantial impact. More than 80% of the area has been cleared, and nearly all the remainder (496 000 ha, of which 372 000 ha is on public land) has been affected by grazing, timber cutting and other pressures from settlement. Past land uses have also contributed to region-wide problems of pest plants and animals, salinity and soil erosion.

Interestingly, the gold mining which had a significant initial impact on these environments also contributed to their protection. To ensure supplies of timber for mining needs, the government established forest reserves. These became the setting for settlements and communities and the backyards for local people growing up in the area. Some are the basis of today's parks and reserves.

Although dominated by box and ironbark eucalypts, the Box-Ironbark forests are not uniform. Six broad vegetation and landscape types and no fewer than 73 Ecological Vegetation Classes are recognised. The most extensive classes originally were Plains Grassy Woodland, Grassy Woodland and Box-Ironbark Forest; all are now considered endangered or depleted.

Fragmentation and loss of habitat mean that almost 300 Box-Ironbark plant species (out of

a total of 1500 vascular Box-Ironbark plant species), and 53 of a total of 250 vertebrate Box-Ironbark fauna species, are now considered threatened. Many species, particularly of birds, are in an ongoing state of decline. A key aim of Box-Ironbark conservation and management is therefore the recovery of species, as well as the protection of those species not currently threatened.

One of the greatest losses has been that of large old box and ironbark trees, which produce reliable and abundant nectar, supply foraging sites such as peeling bark and fallen timber for ground-dwelling animals, and have many hollows vital for native mammals and birds. Instead of a landscape of large old and widely spaced trees, much is dominated by multi-stemmed coppice regrowth.

In October 2002, after many years of study and debate, the Victorian government proclaimed a number of parks designed primarily to protect and enhance the natural and cultural values of some of the remaining original Box-Ironbark forests. The parks were also to be available for a range of appropriate recreational activities for community enjoyment and appreciation. They comprise five national parks, five state parks, seven regional parks, two historic parks and reserves and one national heritage park. There are also some 300 conservation reserves to help link these park areas, bringing some connectivity to an otherwise fragmented landscape.

Some of the parks, such as Chiltern-Mt Pilot and Greater Bendigo National Parks, are extensions of existing parks; others such as Heathcote-Graytown National Park and this park, are completely new. But together they represent opportunities for the Box-Ironbark forests and woodlands – opportunities to halt the decline of threatened species, to increase community recognition of the values of the forests and woodlands, and to develop tourism and related industries.

The parks should not be seen as separately managed ‘islands’ but as reservoirs of biodiversity within a broader landscape. Protecting and enhancing natural values on other Crown and freehold land in the region is vital; improving and connecting habitat for native species. The parks and the people who manage them are an integral part of local communities, and these communities in turn will play a key role in their protection, promotion and management.

The long-term protection of a region’s cultural heritage and biodiversity, including that of its parks and reserves, relies on the community fostering a strong sense of custodianship of the parks and reserves and the landscapes of which they are an important part. This plan seeks to rebuild the natural linkages in a fragmented landscape through the goodwill of the community together with the help of land managers and the government, while respecting cultural, economic and community associations with the land.

Because of their rich Indigenous and European heritage, in addition to their natural attractions (especially as these are protected and enhanced), the Box-Ironbark parks are likely to have a growing significance for Victorians and visitors from interstate and overseas in the years ahead. The parks may not be major tourism attractions in their own right, but they are integral to the character of growing regional cities such as Shepparton. They have great potential as a complementary product for people who come to the region for other reasons, such as seeking social, recreational, sporting or heritage experiences. There is also potential for Indigenous communities and products to support the development and delivery of Box-Ironbark experiences for visitors.

SUMMARY

Broken-Boosey State Park and Nathalia, Numurkah, Tungamah and Yourang Natural Features Reserves contribute to the protection of the remaining stands of remnant box-dominated grassy woodland in the eastern Northern Plains. The planning area (2496 ha), extends along the banks of Broken, Boosey and Nine Mile creeks and is important habitat for an array of flora and fauna, harbouring many rare and threatened species including members of the Victorian temperate-woodland bird community, Murray Cod, Squirrel Glider, Spiny-fruit Saltbush and Amulla. This protection is significant for biodiversity at a landscape and regional level.

Protection of the significant plant and animal communities present in and around the planning area is an important aspect of this management plan. Future research and adaptive management will also be a focus for management.

The park and reserves are part of *Country* of Yorta Yorta and Bangerang people. The planning area contains Indigenous places and objects that are significant to the Traditional Owners. Respecting the knowledge of the Traditional Owners and protecting Indigenous values will be an important aspect of park and reserve management.

Building on the affiliation that local community members have with the planning area, their continued involvement in cooperative management will assist in the protection and promotion of the planning area's cultural and natural values. Further, the water in the creeks is an important resource, not only for the natural environment but for the livelihood of the community as well. Because of this, sustainable farming practices will be encouraged and supported wherever possible.

The planning area will be managed to protect its unique natural and cultural values while providing for a range of recreational activities currently enjoyed by locals and visitors.

Key elements of the plan

- The structural complexity and floristic diversity of the remnant vegetation in areas affected by grazing will be restored and maintained.
- Populations of threatened flora and fauna communities and individual species will be maintained, and where possible improved.
- The Traditional Owners' knowledge, interests and rights in the planning area and aspirations for *Country* will be reflected in planning and management in accordance with legislation and policy.
- The relatively undeveloped nature of the planning area will be maintained, and information and interpretation will be focused in neighbouring towns.
- Pest plants and animals with the potential to threaten the viability of the planning area will be controlled. A coordinated approach to pest plant and animal control with the community will be encouraged.
- Community groups and government agencies will be encouraged to work together with Parks Victoria to achieve common goals for the planning area.
- Strong working relationships with the Goulburn–Broken Catchment Management Authority and Goulburn–Murray Water will be encouraged to improve and coordinate land management practices on neighbouring land while nurturing the aquatic environment.
- Scientific research, surveys and monitoring that contribute to a better understanding and management of the planning area will be encouraged.

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1 INTRODUCTION

1.1 Location and planning area

Broken-Boosey State Park and the four Natural Features Reserves included in the planning area form a unique linear corridor extending approximately 140 km along the banks of the Broken, Boosey and Nine Mile creeks in the north central region of Victoria, 40 km north of Shepparton (figure 1).

The planning area (2496 ha) for this management plan includes the following park and reserves:

Broken-Boosey State Park (1010 ha) extends along the banks of parts of Broken, Boosey and Nine Mile creeks. The park begins upstream on Boosey Creek at Tungamah, 22 km south-east of Yarrowonga, and continues downstream as it joins Broken Creek west of Katamatite. It continues west along Broken Creek, merges with Nine Mile Creek 1 km west of Dip Bridge, then continues in a south-westerly direction following Nine Mile Creek to Wunghnu. The park has a length of approximately 67 km, is divided into six main sections by freehold and other Crown land and is crossed by a number of roads. It varies in width from 40 m to 610 m.

Nathalia Natural Features Reserve (295 ha) begins west of Nathalia township, and is continuous downstream along the length of Broken Creek for approximately 15 km. The reserve varies in width from 82 m to 309 m.

Numurkah Natural Features Reserve (666 ha) is a continuation of Broken-Boosey State Park predominantly on Broken Creek and partially on Nine Mile Creek, from the Nathalia–Katamatite Rd and Cargee Rd intersection, through Old Waaia, ceasing east of Nathalia at the end of Thompsons Rd. A number of roads, public land water frontage, and the township of Numurkah divide the reserve into three sections. The reserve is approximately 21 km in length and varies in width from 30 m to 689 m.

Tungamah Natural Features Reserve (315 ha) extends along the length of Boosey Creek from south of Tungamah township to the township of Lake Rowan, a distance of approximately 20 km. The reserve varies in width from 40 m to 1215 m.

Youarang Natural Features Reserve

(210 ha) encompasses Broken Creek in four sections beginning south of Yundool township and continuing downstream to the Parish of Youanmite, near Broken-Boosey State Park. The reserve's total length is approximately 17 km. Public land water frontage, freehold land and several main roads divide the reserve, which varies in width from 58 m to 436 m.

Together, the park and reserves form a vegetation corridor connecting remnants along the creek system, and enhance movement of native species throughout the rural landscape.

In this plan, the term 'the park' refers to Broken-Boosey State Park; 'the reserves' refers to the four Natural Features Reserves included in the planning area.

1.2 Creation of the park and reserves

The park and reserves are based on areas recommended by the Environment Conservation Council (ECC) in its *Box-Ironbark Forests and Woodlands Investigation* (ECC 2001). As a result of extensive public consultation, the area initially proposed as park was reduced to target more closely the area of highest conservation value.

Broken-Boosey State Park (1030 ha) was included in Schedule Two B of the *National Parks Act 1975* (Vic.) as a result of the *National Parks (Box-Ironbark and Other Parks) Act 2002* (Vic.) and was proclaimed on 30 October 2002 (appendix 1).

The park comprises areas that were formerly Wunghnu Common Bushland Reserve (33 ha), Wunghnu Town Reserve (7.5 ha), Whitty Bushland Reserve (23 ha), Katamatite Bushland Reserve (17 ha), small parcels of town land, and larger sections of streamside reserve and public land water frontage. The area of the park was decreased from about 1030 ha to 1010 ha in 2006 as a result of minor boundary adjustments.

The reserves were permanently reserved for the protection of natural features as a result of the *National Parks (Box-Ironbark and Other Parks) Act* on 30 October 2002, and are managed under the *Crown Land (Reserves) Act*

1978 (Vic). Some of the areas formerly recommended as park were subsequently recommended as Nature Conservation Reserves. Following further community consultation the Government reserved them as Natural Features Reserves (Nathalia, Numurkah, Tungamah and Youarang) rather than Nature Conservation Reserves, to allow for biodiversity values to be protected while allowing for traditional uses such as grazing where appropriate, and hunting game (appendix 2).

Nathalia Natural Features Reserve comprises the former Barwo Public Purposes Reserve (22 ha), and large areas of former public land water frontage. Originally 321 ha, the area was reduced to 295 ha in 2006 as a result of minor boundary adjustments.

Numurkah Natural Features Reserve comprises areas that were formerly Native Tree Plantation Reserve (3 ha), Broken Creek Streamside Reserve (31 ha), Numurkah Streamside Reserve (23 ha), Old Waaia Township Streamside Reserve (80 ha), water reserves and large sections of public land water frontage. Originally 688 ha, the area was reduced to 666 ha in 2006 as a result of minor boundary adjustments.

Tungamah Natural Features Reserve comprises areas that were formerly public land water frontage, Tungamah Bushland Reserve (14 ha), Lannigans Swamp (20 ha), a gravel and stone reserve (8 ha), streamside reserves including Back Creek Streamside Reserve (3 ha) and water reserves. Originally 321 ha, the area was reduced to 315 ha in 2004 as a result of minor boundary adjustments.

Youarang Natural Features Reserve comprises former Bushland Reserves in the Parish of Waggarandall (21 ha) and the Parish of St James (14 ha), and a large area of former public land water frontage. Originally 219 ha, the area was reduced to 210 ha in 2004 as a result of minor boundary adjustments.

1.3 Plan development

This Management Plan for Broken-Boosey State Park and Nathalia, Numurkah, Tungamah and Youarang Natural Features Reserves was prepared by Parks Victoria, with significant input from the Broken-Boosey Management Plan Advisory Group and other stakeholders. It takes into account existing information, reports and research findings that relate to the planning area, and is informed and supported by a range of best practice management systems. The Advisory Group, which broadly represents local community interests, also forms the Broken-Boosey Conservation Management Network (CMN), established to enhance the relationship between Crown and freehold land managers to achieve improved environmental outcomes (section 8.1).

The area covered by the CMN is much larger than the planning area, extending across 3500 square kilometres from Warby Ranges State Park in the east to Barmah in the west, and Dookie in the south to the Murray River in the north (figure 1). The knowledge and expertise of the CMN informed the development of this plan. Parks Victoria is committed to working cooperatively and in partnership with the community and government throughout the planning and implementation of the management plan.

This first management plan for Broken-Boosey State Park and Nathalia, Numurkah, Tungamah and Youarang Natural Features Reserves is a strategic guide for their future management.

As a public document, the plan establishes how Parks Victoria will protect the natural and cultural values of the park and reserves, and describes the services that will be provided for visitors to enjoy, appreciate and understand them in a way that is consistent with this. The plan also serves to inform and encourage cooperative land management and participation in community-based programs involving Parks Victoria and the managers of areas adjacent to the park and reserves.

As a working document for the park and reserves, the plan informs Parks Victoria's development of Corporate Plans, serves as a framework for subsequent detailed planning and governs management activities.

The Draft Management Plan was published for public comment in August 2005, and 18 submissions were received (appendix 3). Where necessary, further consultation with the community and stakeholders was undertaken.

Key changes made to the draft plan in finalising the plan included:

- an enhanced focus on partnerships with community groups and agencies with common goals, particularly with the Conservation Management Network and Trust for Nature
- updating of flora and fauna records
- updating project and program progress.

In addition, further details were added to clarify issues raised and improve the maps.

This Management Plan will direct future management of the Broken-Boosey State Park and Nathalia, Numurkah, Tungamah and Youarang Natural Features Reserves, until reviewed.

2.1 Regional context

The park and reserves form a unique corridor of intact native vegetation along Broken, Boosey and Nine Mile creeks. A linear island in a sea of agricultural land, they play an important role in conserving the vegetation and fauna in the Broken River Catchment and across the Victorian Riverina, Murray Fans and Northern Inland Slopes Bioregions.

Retaining the area's last distinctively natural landscape, the planning area includes a significant and substantial occurrence of high quality Grey Box grassy woodland and creates an important vegetative link and habitat corridor, especially for migratory and wetland breeding birds.

Indigenous tradition indicates that the park and reserves are part of *Country* of the Yorta Yorta and Bangerang people.

Other community members may also have traditional attachments to the area associated with their families and history of their settlement.

The planning area lies within the Shire of Moira and Tourism Victoria's Murray Region. Mostly visited for its waterways, the region is also a major rural and agricultural precinct.

Other important parks and natural attractions in the Murray Region and surrounding areas include:

- Barmah State Park and Barmah State Forest – north and north-west of the planning area, together boast the largest River Red Gum forest in Victoria and provide opportunities for camping, fishing, and cruising the 'Mighty Murray'
- Warby Range State Park – attracts visitors for its diverse flora and fauna, and scenic vistas of the Victorian Alps
- The Goulburn River – classified for its heritage values, provides opportunities for fishing, camping and boating.

2.2 Park values and significance

The park and reserves make a valuable contribution to Victoria's parks and reserves system, which aims to protect viable,

comprehensive, adequate and representative samples of the State's natural environments. Parks and reserves also provide opportunities for visitors to enjoy and appreciate natural and cultural values in solitary and social settings, and many make important economic contributions through tourism.

Broken-Boosey State Park is assigned the International Union for the Conservation of Nature and Natural Resources (IUCN) Category III (Natural Monument) of the United Nation's List of National Parks and Protected Areas. Category III areas are protected areas managed primarily for conservation of specific natural features.

The reserves are provisionally assigned to IUCN Category VI (Managed Resource Protected Area), which are protected areas managed primarily for the sustainable use of natural ecosystems.

Important values of the planning area are listed below.

Natural values

- The largest remaining example of grassy woodland on the eastern Northern Plains.
- One of the few surviving patches of remnant vegetation in the Northern Plains landscape (Robinson & Mann 1996).
- Approximately 30% of Victoria's endangered Plains Grassy Woodland/ Gilgai Plains Woodland/Wetland Mosaic Ecological Vegetation Classes.
- Ecologically distinctive riparian Grey Box vegetation compared to most other Victorian rivers and creeks (Robinson & Mann 1996).
- The only known site for the endangered Amulla and one of only two known sites in Victoria for the endangered Spiny-fruit Saltbush.
- Broken Creek – one of the most important stream systems for Murray Cod and Freshwater Catfish (Robinson & Mann 1996).
- Habitat for a significant number of woodland-dependent bird species

associated with the Victorian temperate-woodland bird community listed under the *Flora and Fauna Guarantee Act 1988* (Vic.), including the Bush Stone-curlew, Brown Treecreeper and Black-chinned Honeyeater.

- Habitat for threatened fauna including the Growling Grass Frog, Swift Parrot and Tree Goanna, and supplementary feeding ground for the threatened Brolga.

Cultural values

- A high density of scar trees used for shelters, canoes, shields and coolamons, some with multiple scars.
- Historically a source of water, food and materials for tribes traversing the area.
- A continuing association with the area by local Indigenous people through their past use and knowledge of the once widespread grassy woodland.
- Indigenous cultural heritage, knowledge and respect for the land and natural environment, including medicinal use of plant species and interpretation of the Brolga and Bush Stone-curlew in stories and dance.
- Historically a landmark and source of water for all travellers between Cobram, Yarrawonga and Melbourne since Major Mitchell's crossing of the area in 1836.
- Evidence of past settlement in the form of weirs, channels, levees, and bridges.

Recreation and tourism values

- Opportunities for short and long self-guided walks, cycling and horse riding in a natural setting, including the picturesque 'Boosey Boulevard' and Hester Road.
- Opportunities for fishing in a variety of quiet settings.
- Scenic routes, suitable in dry conditions for two wheel drives, complementing other regional tourist routes.

2.3 Evidence of past use

The planning area is of cultural significance to the Yorta Yorta and Bangerang people. Historically the creek systems were a good

source of food (fish, mussels and birdlife), drinking water, and materials for weapons, tools and canoes. The density of scar trees along the length of the planning area suggests that the area was often visited by Indigenous people.

The agricultural potential of the region, with its natural grasslands and extensive creek systems, was obvious. As the area was settled, Indigenous communities were forcibly displaced and moved to nearby missions with the promise of food, shelter and work. As a result, intensive farming practices replaced the traditional practices and conservation lifestyle of the local Indigenous communities, dramatically changing the landscape.

The land now in the planning area was protected from cultivation and timber cutting by the issue of the 1874 Government order requiring that frontages be set aside along all permanent streams (Robinson & Mann 1996). These water frontages (now part of the planning area) were used to graze and water stock, and for recreation and fishing. In the early 1880s formal grazing rights under licence on the frontages were introduced (Robinson & Mann 1996).

Although areas bordering the public frontages were initially used for grazing, with larger trees left standing, subsequently the large trees were cleared for crops, pastures (Robinson & Mann 1996), building materials and fuel.

Grazing under licence continued until the creation of the park, and continues in the reserves. A study of the area in 1996 by the Goulburn Valley Environment Group reported that no site has 'never been grazed' by domestic stock (Robinson & Mann 1996).

The natural creekline has been modified with the construction of weirs, channels and levees to supply water to farms and local communities. For over 100 years the natural flow and flooding regime has also been altered to deliver a reliable stock and domestic water supply. As a result of this, species adapted to more frequent inundation (such as sedges and River Red Gums) have replaced the drier-adapted box-woodland vegetation, especially in sites where soil is being saturated during the summer months.

Evidence of past land use in the form of weirs, channels and bridges remains to be seen today in the park and the reserves. Also evident are consequential undesirable effects, such as weed invasion and changes to the structure and composition of native vegetation communities.

The planning area continues to be used by the community as a source of water, a place to graze their stock and a place to relax and appreciate nature.

2.4 The park and reserves visitor

The park and adjoining reserves are mainly enjoyed by residents of the region for walking, fishing, bird watching, car touring and horse riding.

Prior to the creation of the park and reserves, there was limited awareness of the planning area as it was divided into different land use categories with minimal signposting (ECC 2001).

The most popular activities undertaken by visitors to the region are visiting friends and relatives (TV 2004). The planning area itself is not yet a drawcard destination and is visited more as a stop-off point, complementing visits to other more popular destinations (section 2.1).

There are opportunities for duck hunting and dispersed camping in the reserves, and a range of accommodation available in motels and caravan parks in the nearby towns.

2.5 Legislation and ECC recommendations

Broken-Boosey State Park is reserved and managed under the *National Parks Act 1975* (Vic.). The Act requires the Secretary to DSE to preserve and protect the natural conditions of the park and its natural, cultural and other features and, subject to this, to provide for the use of the park by the public for enjoyment, recreation and education. Appropriate research activities are also provided for under the Act.

The Natural Features Reserves are reserved under the *Crown Land (Reserves) Act 1978* (Vic.) for the protection of natural features and are managed in accordance with this Act.

The objects and provisions of the National Parks Act set the framework for the management of the park (appendix 1). Specific

legislation and ECC recommendations accepted by Government also govern particular aspects of management of the planning area (appendix 2), as described below and in subsequent sections of the plan.

The *Archaeological and Aboriginal Relics Preservation Act 1972* (Vic.) and the *Aboriginal and Torres Strait Islander Heritage Protection Act 1984* (Cwlth) apply to the park and reserves and protect all Aboriginal cultural heritage values including places and objects (section 5.1).

The *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth) applies to the whole of the planning area with respect to actions that have, will have, or are likely to have a significant impact on matters of national environmental or cultural significance, including listed threatened species and communities and listed migratory species, in the planning area.

The *Parks Victoria Act 1998* (Vic.) enables management services for parks and reserves to be provided on behalf of the Secretary to DSE by Parks Victoria. The National Parks (Park) Regulations 2003 apply to the park.

Other legislation, and policies and guidelines (section 2.6) at both the Commonwealth and State levels apply to management of the park and reserves and specific activities and uses.

ECC recommendations

The former Environment Conservation Council (ECC), in its *Box-Ironbark Forests and Woodlands Investigation Final Report* (ECC 2001), made a number of recommendations that relate to the park and reserves. The recommendations included:

Recommendation B Use of Broken-Boosey State Park (B2) in accordance with the general recommendations for State parks.

Continued access for neighbours, stock movement and water, phasing out of licensed grazing and metal detecting not be permitted (appendix 2).

Recommendation D Use of Nathalia (D58), Numurkah (D59), Tungamah (D63) and Yourarang (D64) Nature Conservation Reserves in accordance with the general recommendations for nature conservation reserves. Note that the Government

subsequently varied this recommendation and reserved them as Natural Features Reserves (appendix 2).

- R8 Land managers continue with and further develop adaptive management research and monitoring programs, develop targeted new programs, and apply the results where appropriate.
- R13 Land managers of the park and reserves together with the GBCMA establish a pilot CMN to complement public land conservation in the Broken-Boosey creeks system.
- R15 Planning and management relating to traditional interests and uses be based on recognition and respect for the traditional and contemporary relationship of Aboriginal peoples with the land.
- R42 Box-Ironbark public lands be available for a range of recreation activities for community enjoyment and appreciation, appropriate to the land use category.

These recommendations were accepted by the State Government in February 2002 (Government of Victoria 2002) except as varied for the reserves (section 1.2). The Government also decided that the entire waterway system comprising the park and reserves was to be managed as a single management unit and that fox shooting in the park will form part of a fox control program developed by Parks Victoria in conjunction with landowners (section 4.7).

2.6 Policy and guidelines

The planning area is managed in accordance with Parks Victoria's operational policies, strategies and guidelines and consistent with the following:

- *Recreation Framework for Box-Ironbark Public Land* (DSE 2003a)

- *Conservation Reserves Management Strategy* (PV 2003)
- *Indigenous Partnership Strategy and Action Plan* (PV 2005)
- *Guidelines for Working with Aboriginal Communities and Protection of Cultural Sites* (Parks Victoria 2002)
- *Code of Practice for Fire Management on Public Land* (DSE 2006)
- *Victoria's Biodiversity Strategy* (DNRE 1997)
- *North East Region Fire Protection Plan* (DSE 2003b)
- *Guidelines and Procedures for Ecological Burning on Public Land in Victoria* (DSE 2004)
- *National Strategy for Ecologically Sustainable Development* (COAG 1992)
- *National Strategy for the Conservation of Australia's Biological Diversity* (ANZECC 2001).

The planning area is also managed within a broader context of a number of other plans and strategies, including:

- *Policy for Sustainable Recreation and Tourism on Victoria's Public Land* (DNRE 2002b)
- *Goulburn–Broken Regional Catchment Strategy* (GBCMA 2004a)
- *Draft Goulburn–Broken Regional River Health Strategy* (GBCMA 2004b)
- *Draft Goulburn–Broken Native Vegetation Management Strategy* (GBCMA 2003a)
- *Draft Strategic overview for the Victorian Riverina Bioregion* (DNRE 2002a)
- *Local Biodiversity Plan for the Central Creek Landscape Zone* (DSE 2004).

3 STRATEGIC DIRECTIONS

3.1 Vision

Broken-Boosey State Park and the nearby Natural Features Reserves are valued as natural oases, the inspiration for renewal of box-dominated grassy woodland across the eastern Northern Plains of Victoria. The contiguous vegetation corridor follows a healthy, partly ephemeral waterway, and contributes significantly to the conservation of endangered vegetation, particularly the Plains Grassy Woodland/Gilgai Plains Woodland/Wetland Mosaic communities.

The planning area is the stronghold for native flora and fauna in the region, and is a haven for many threatened species such as the Squirrel Glider, Bush Stone-curlew, Grey-crowned Babbler, Amulla, Spiny Saltbush and Murray Cod. Brolga and Bush Stone-curlew numbers are increasing as a result of coordinated pest animal control programs across the catchment. Woodland birds thrive in a native understorey that is devoid of invasive plants.

Valued as the backbone for the restoration of freehold land in surrounding areas and a catalyst for sustainable farm planning, the planning area promotes increasing understanding of cultural history, ecological processes, and the importance of providing habitat connectivity and dispersal opportunities for wildlife.

The evidence of past Indigenous occupation is apparent with the many scar trees remaining. The Traditional Owners' knowledge and aspirations for the park and reserves are reflected in their management.

There is strong cooperation between community and government in utilising land and water resources by supporting responsible farming practices with respect for the environment. Local Landcare and environmental groups and park neighbours are actively involved with park managers in environmental programs to nurture and improve the health of their landscape.

Visitors enjoy passive recreation in a natural setting, such as bird watching, bushwalking, and fishing. Facilities are in keeping with the scale and relatively undeveloped character of

the planning area, and increased visitor use is sensitively and sustainably managed.

Surrounding townships experience greater visitation as they form part of the regional tourist route, providing the facilities and information needed to support visitation to the park and reserves.

High quality interpretation of the area's conservation, cultural, historic and community values strengthens people's appreciation of this unique park and these reserves and highlights their importance as a vital link in promoting the restoration and regeneration of a fragmented natural landscape.

3.2 Zoning

Park and reserve management zoning:

- provides a geographic framework in which to manage the park and reserves
- indicates which management directions have priority in different parts of the park and reserves
- indicates the types and levels of use appropriate throughout the park and reserves
- assists in minimising existing and potential conflicts between uses and activities, or between activities and the protection of the park and reserves values
- provides a basis for assessing the suitability of future activities and development proposals.

As there are consistent management objectives for the Broken-Boosey creek systems, and the park and reserves have similar levels of use, the whole planning area is zoned Conservation and Recreation Zone.

The aim of this zone is to protect sensitive natural environments and provide for sustainable dispersed recreation activities and small-scale recreation facilities without significant impact on natural processes. Applying the Conservation and Recreation zone does not compromise the conservation values of the planning area.

In addition, two Special Management Areas are used to highlight management requirements in addition to those of the underlying zone. A Special Management Area overlay for Public Safety applies in the park in the vicinity of the Katamatite Rifle Range (figure 2). This is to ensure public safety during rifle range events (section 6.12). A Special Management Area overlay for public utilities applies where powerlines cross the park, to allow for vegetation removal (section 7.1).

3.3 Management directions

Major management directions for the planning area are outlined below.

Natural values conservation

- The structural complexity and floristic diversity of vegetation, particularly in areas affected by grazing or with a high conservation value, will be restored and maintained.
- Strong relationships with Goulburn–Broken Catchment Management Authority and Goulburn–Murray Water will be encouraged to reduce the impacts of altered flow regimes on aquatic flora and fauna.
- Rare or threatened flora and fauna will be protected and actively managed on the basis of sound research findings, as necessary to improve populations and biodiversity.
- Partnerships with local government agencies, Indigenous communities and land owners will be strengthened to minimise threats to the aquatic and terrestrial environment.
- Research, surveys and monitoring that contribute to a better understanding and management of the planning area will be encouraged.
- Restoration of native vegetation on adjacent land by neighbours, community groups and agencies will be supported.

Cultural values conservation

- Indigenous places and objects, and historic relics and places, will be protected from

interference, damaging or inappropriate activities.

- The Traditional Owners' knowledge, interests and rights in the area and aspirations for *Country*, will be reflected in the park's planning and management, in accordance with legislation and policies.
- Indigenous cultural obligations relating to *Country* will be respected, and Traditional Owners' knowledge promoted and interpreted in accordance with their views.
- The cultural heritage of the park and reserves will be sympathetically conserved and managed in consultation with relevant agencies, individuals and communities.
- Research and surveys that contribute to a better understanding of human interaction with the planning area over time will be encouraged and supported as appropriate, in consultation with the Indigenous and wider communities.

The park visit

- Information and interpretation of the park and reserve values will be provided at accessible locations in nearby towns to enhance awareness, understanding, appreciation and enjoyment of the park and reserves.
- Visitor services and facilities will be in keeping with the undeveloped character of the park and reserves, to retain the natural experience.
- Visitor enjoyment will be enhanced by appropriate management of recreation activities.
- Recreation activities will be permitted as summarised in table 1.
- Visitors will be encouraged to adopt minimal impact techniques and to adhere to industry-developed standards that apply to their activities.

Community awareness and involvement

- Friends, Indigenous and environmental groups within the local community will be supported to help protect, conserve and enhance the natural and cultural values of the planning area, ensuring linkages where

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| <p>appropriate with other conservation projects.</p> <ul style="list-style-type: none"> • Strong collaborative partnerships will be developed with the Traditional Owners to facilitate the reflection of their knowledge, rights, interests and aspirations in planning and management. • Community participation and support will be encouraged to foster a sense of inclusiveness and motivation for the | <p>protection, conservation and enjoyment of the park and reserves.</p> <ul style="list-style-type: none"> • Neighbours and local groups will be encouraged to work towards sustainable use of water and improving stream health. • Collaborative partnerships will be established with relevant agencies to progress areas of mutual interest which strengthen protection of the park and reserves. |
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TABLE 1 SUMMARY OF RECREATIONAL OPPORTUNITIES

ACTIVITY	PARK*	RESERVES**
Bicycle riding (section 6.6)	Yes	Yes
Bird watching	Yes	Yes
Bushwalking (section 6.4)		
– short walks (1-5km)	Yes	Yes
– long walks (>5 km)	Yes	Yes
Camping (section 6.5)		
– car-based and designated (limited facilities)	N/A	N/A
– dispersed (no facilities)	No	Yes
Campfires (section 6.5)		
– solid-fuel fires	No	Yes
– gas or liquid-fuel stoves	Yes	Yes
Car rallying – navigation (section 6.2)	Yes	Yes
Car touring (section 6.2)	Yes	Yes
Dog walking (section 6.7)	Yes	Yes
Education/guided activities (section 6.1)	Yes	Yes
Feeding wildlife	No	No
Fishing (section 6.8)	Yes	Yes
Fossil collection	No	No
Horse riding (section 6.9)	Yes	Yes
Hunting (section 6.10)	No	Yes
Licensed tours	Yes	Yes
Motorbike riding (section 6.2)	Yes	Yes
Nature photography	Yes	Yes
Orienteering/rogaining	Yes	Yes
Picnicking	Yes	Yes
Prospecting and metal detecting	No	Yes
Rafting/canoeing/kayaking	Yes	Yes
Rock climbing/abseiling	N/A	N/A
Scenic viewing	Yes	Yes

Note: use of chainsaws and generators not permitted.

* includes Special Management Area overlays except when access is restricted for rifle club events (section 6.12)

** implementation subject to establishing regulations.

Yes Permitted subject to conditions prescribed by legislation, permits and indicated elsewhere in the plan,

No Not permitted N/A Not applicable

4 STRATEGIES FOR NATURAL VALUES CONSERVATION

4.1 Landscape

Nestled in a contemporary landscape which retains few distinctively natural features, the box-dominated grassy woodland with its shrubby understorey alongside the flowing creek system creates an aesthetic environment and stands as a poignant reminder of a once widespread landscape.

The tall remnant Grey Box, Yellow Box and River Red Gum trees lining the creeks of the park and reserves are in strong contrast to an otherwise flat and predominantly cleared landscape. The planning area forms the only continuous corridor along the natural gradient of land systems and vegetation types from the Warby Ranges in the east to the Murray River in the west (ECC 2001).

The landscape is also an intrinsic element of the *Country* of the Traditional Owners in accordance with tradition.

Some uses of the planning area can impact on the landscape value of the park and reserves, including gravel and rubbish dumping, grazing requiring fencing (section 7.2) or resulting in areas devoid of understorey from overgrazing (section 4.5), off-track driving (section 6.2), water supply with associated pump houses, supply channels and weirs (section 7.1).

Aim

- Protect the landscape of the planning area.

Management strategies

- *Consider and respect the significance of the landscape to Traditional Owners in planning and implementing management activities.*
- *Rehabilitate unauthorised tracks created by off-road driving (section 6.2).*
- *Rehabilitate areas devoid of understorey vegetation from overgrazing by stock (sections 4.5 and 4.7).*
- *Introduce prescriptions for future pump houses to be erected in the park and reserves to minimise their visual intrusion (section 7.1).*

- *Work with adjoining landholders, Goulburn–Broken Catchment Management Authority and Goulburn–Murray Water to remove redundant water supply and other infrastructure including fences (sections 7.1 and 7.2).*

4.2 Geological and landform features

The riverine plains of northern Victoria have a remarkable river system, with major streams, anabranches and tributaries. However, with few exceptions the plains of today are the product of deposition not by the existing streams but by an older river system, whose channels may be traced but which have in many instances been abandoned (LCC 1983).

Two formations along the Broken, Boosey and Nine Mile creeks have shaped the landscape we see today. The Shepparton Formation is the older of the two, having been deposited by a system of prior streams. The present streams have cut down through the Shepparton Formation, exposing these layers in the deeper channels. The Coonambidgal Formation is the younger and has been deposited by the present streams and their recent ancestors over the top of the Shepparton Formation during the past 10 000 years (LCC 1983).

Broken Creek occupies the channel of an ancestral river through Numurkah and Nathalia Natural Features Reserves, beginning at a point near Old Waaia. At this point the ancestral river can be traced south to the Goulburn River. Therefore the morphology of the present-day creek downstream of Old Waaia is strongly influenced by its inheritance, and less by present-day hydrologic conditions (SKM 1996a). The park upstream of Wunghnu to Harris Bridge contains a consistent example of the geomorphologically distinctive character of the creek system—moderately well drained but with some channels and depressions (Robinson and Mann 1996).

Marine sedimentary rocks and occasional granite of Palaeozoic age form the basement rocks to the Riverina Plain. They are only exposed in a few areas, for example just north of Tungamah and near Youarang. The Youarang Granite and the adjacent Palaeozoic

sandstone and mudstone have been more resistant to erosion and therefore stand about 70 metres above the surrounding plain, just west of the Yourang Natural Features Reserve.

The road cutting through Coopers Hill in the northernmost block of Tungamah Natural Features Reserve reveals a formation of geological interest: interbedded Ordovician marine sediments displaying a variety of faults, folds, and graptolites (DSE 2003c).

Aim

- Minimise impacts on geological landform features.

Management strategies

- *Provide information in appropriate material to interpret the significance of the Coopers Hill cutting in Tungamah Natural Features Reserve.*
- *Minimise impacts from visitor, educational and management activities on the significant formation of the Coopers Hill cutting.*
- *Provide information on the formation of the creek system in appropriate interpretive material.*
- *Consider and respect the significance of the landforms to Yorta Yorta and Bangerang people in planning and implementing management activities, interpretation and education programs (sections 4.1, 5.1, 6.1 and 8.1).*

4.3 Rivers and catchments

The planning area encompasses approximately 140 km of the Broken, Boosey and Nine Mile creeks and lies within the Goulburn–Broken catchment under the Goulburn–Broken Catchment Management Authority’s (GBCMA) area of responsibility. Originating in the Warby Ranges and nearby foothills where the annual rainfall is more than 600 mm, the creeks flow north-west, draining a catchment of about 3700 square kilometres, to the riverine plains where the annual rainfall is less than 400 mm (Robinson & Mann 1996; CMPS&F 1993).

Broken Creek is listed in the Directory of Important Wetlands in Australia (Environment

Australia 2002). The floodplain supports nationally threatened species, including Australasian Bittern and Freckled Duck, and has an association with Moodies Swamp, and Barmah Forest, which is an internationally important Ramsar wetland. In addition, GBCMA considers Broken Creek a priority waterway for its association with Murray Cod (section 4.6) (GBCMA 2004b).

However, only 6% of the Northern Plains still retains any remnant tree cover. Almost the entire catchment is freehold land, mostly cleared for agriculture consisting almost equally of irrigated and dryland pasture (DNRE 1996; CMPS&F 1993). Surrounding the planning area upstream of Katamatite, the primary production within the catchment is mainly dryland farming: cereal crops, fat lambs, wool and beef cattle. Downstream of Katamatite, there is significantly more irrigation farming, mainly dairy farming, horticulture and various crops.

To supply townships, stock, domestic and irrigation water, Goulburn–Murray Water (G–MW) regulates flows to the Broken, Boosey and Nine Mile creeks using:

- Caseys Weir on the Broken River at the upper end of the catchment
- the 7/3 Main Channel at Katamatite (supplied from Lake Mulwala on the Murray River)
- the East Goulburn Main Channel downstream of Katamatite (supplied by the Goulburn River).

These flows are often closer to the reverse of natural, with peaks in summer and troughs in winter, and are more perennial than the naturally ephemeral flows (CRC 2001) that would previously have typified the creeks in the planning area. Ultimately, the regulated flow regime is likely to lead to the replacement of some of the existing threatened vegetation (Plains Grassy Woodland/Gilgai Wetland Mosaic) with vegetation more tolerant of frequent flooding, such as River Red Gums (ECC 2001) (section 4.5). A desirable improvement to managing increased flows that result when water ordered for irrigation is rejected because rain has fallen (rain rejection) is the opportunistic filling of wetlands such as Black Swamp, subject to management

prescriptions that aim to mimic the swamp's natural water regime.

Broken Creek is rated as having poor to very poor stream condition along most of its length. This is mainly a consequence of flow regulation and poor water quality (CRC 2001). Irrigation drainage water has been identified as one of the key sources of nutrient input to Broken Creek and is therefore the most likely cause of increasing nutrient concentration. Stormwater from Nathalia, Numurkah, Wunghnu, Katamatite and Tungamah townships outfalling into the creeks is also a contributor. Suspended solids and turbidity are very high in Broken Creek and constant flow levels have caused creek bank erosion (CRC 2001).

The following threats, present in the planning area, are listed as potentially threatening processes under the *Flora and Fauna Guarantee Act 1988* (Vic.) (FFG):

- alteration to the natural flow regimes of rivers and streams
- alteration to the natural temperature regimes of rivers and streams
- degradation of native riparian vegetation along Victorian rivers and streams
- removal of wood debris from Victorian streams.
- increase in sediment input into rivers and streams due to human activities
- prevention of passage of aquatic biota as a result of the presence of instream structures.

Past dredging, construction of meander cut-offs and removal of large woody debris in the creeks to increase flow capacity have also led to a decline in instream fish habitat. These practices have now ceased and GBCMA is installing grade control structures in the bed of the creeks at key locations to prevent bed deepening (section 8.2).

In response to Victoria's degrading river systems, drought conditions and greater demand on water resources, the State Government released the White Paper – 'Our Water Our Future' in June 2004 (Government of Victoria 2004). Key initiatives in this action plan that will benefit the planning area include:

- studies of each major river and creek system, after which the Government will consider whether water currently allocated for consumptive use needs to be returned to achieve a satisfactory Environmental Water Reserve
- funding for restoration measures to improve water quality, habitat and flows in rivers and creeks
- finalisation of the Broken River bulk entitlement conversion
- decommissioning of Lake Mokoan and associated projects (such as the construction of the Tungamah Pipeline) resulting in an extra 24 000 ML of water being available for environmental flows for the Broken River.

To increase efficiency of the stock and domestic supply system upstream of Katamatite, G-MW proposes to deliver the water supply system via an underground pipeline (Tungamah Pipeline). As the pipeline proceeds, most of the creek reaches upstream of Katamatite will return to an ephemeral state. This will lead to a range of both positive and negative impacts on the environmental values of the creeks in the planning area. For example, the decommissioning of existing weirs associated with the system will lead to a decrease in deep pools associated with the weirs, reducing available fish habitat (section 4.6).

As part of an interim management arrangement in response to a fish kill at Rice's Weir (outside the planning area) in 2002, G-MW is passing environmental flows along the creek system downstream of Katamatite during the irrigation season. These flows reach up to 200 ML per day (Preece, pers. comm. 2006). This has led to corresponding higher creek flows and assisted in maintaining fish habitat at Rice's Weir (Preece, pers. comm. 2004).

First-flush flows are considered a threat in the more ephemeral systems upstream of Katamatite as they carry accumulated nutrients, salt, tannin and litter along the creeks during a heavy rain event after a long dry spell. This can lead to an increase in nutrients and salinity level, to blue-green algae blooms and black water events and potentially death to fish, amphibians, invertebrates and other fauna. The impact of first-flush flows can be

reduced by implementing a range of measures such as protecting the riparian zone so that it can act as a filter strip, removing grazing on water frontage to enhance regeneration of vegetation and reduce runoff, and improving the water quality of runoff from adjacent farms.

GBCMA reviewed its Lower Broken Creek Management Strategy, and released a Waterway Action Plan in 2005. Priorities in this action plan that will benefit the planning area include fencing of priority riparian areas, improving habitat and managing fish passage, stabilising creek bed and banks, controlling erosion and managing weeds.

Aims

- Protect and improve stream condition and minimise the detrimental catchment-derived impacts of altered water quality on park and reserve values.
- Minimise impacts on the planning area from altered hydrological regimes in Broken, Boosey and Nine Mile creeks.

Management strategies

- *Liaise with G–MW to ensure that the protection of natural and cultural values is considered in all aspects of water management (sections 7.1 and 8.2).*
- *Encourage Moira Shire Council to improve management of nutrient rich stormwater that outfalls into the creek system (section 7.1).*
- *Support implementation of the Lower Broken Creek Strategy by GBCMA to improve the aquatic environment and reduce erosion.*
- *Support initiatives by G–MW to reduce unnatural flooding of the planning area, especially by opportunistic filling of nearby wetlands.*
- *Liaise with GBCMA and G–MW in the development and implementation of the Tungamah Pipeline to ensure that adequate environmental flows are secured for Broken and Boosey creeks upstream of Katamatite and ensure minimal impact on the planning area (sections 7.1 and 8.2).*

- *Encourage research into changes in soil moisture and vegetation throughout the planning area, the seasonality and effects of high water flows along the creeks, and opportunities to minimise the impacts of altered flows and erosion.*
- *Liaise with DSE, GBCMA and G–MW, and the Yorta Yorta and Bangerang communities to ensure that initiatives from the State Government’s White Paper (Government of Victoria 2004) of benefit to the planning area are coordinated and implemented.*
- *Support research by GBCMA and G–MW on the impacts of altered flow regimes on the creek system’s morphology.*

4.4 Salinity and groundwater

Salinisation as a result of extensive clearing of native vegetation and the introduction of large-scale irrigation is a serious environmental threat in the catchment encompassing the park and the reserves.

Although salinity is not an immediate problem for the planning area or neighbouring farmland, the expansion of irrigated agriculture in the catchment area, particularly on land surrounding the park and reserves downstream of Katamatite, has caused a rise of groundwater tables within the Broken Creek catchment (SKM 1996a). This rise adversely affects the growth and survival of native vegetation and is already contributing to dieback in Grey and Yellow Box along the creeks in the planning area (Parks Victoria 2004a). Local improvements to subsurface drainage could help mitigate these impacts.

The impacts of land clearance and irrigation on groundwater and salinity levels downstream and upstream of Katamatite are described in the Shepparton Irrigation Region Land and Water Salinity Management Plan (GBRSPPAC 1989), and the Goulburn–Broken Dryland Salinity Management Plan (SKM 1996b).

Since the processes influencing salinity are catchment-wide, management actions within the park and reserves alone cannot protect them from the threat of salinity. The successful management of the issue requires coordinated action across the catchment (section 8.2).

Aim

- Minimise adverse effects of rising groundwater and salinity on park and reserves values.

Management strategies

- *Liaise with the GBCMA and the Department of Primary Industries on priority actions to protect park and reserve values from rising groundwater and salinity.*
- *Work with GBCMA, and the Broken-Boosey Conservation Management Network, to encourage landholders to improve local sub-surface drainage to improve the quality of Broken, Boosey and Nine Mile creeks.*

4.5 Vegetation

As the only substantial remnant of largely intact native vegetation (grassy woodland) in the eastern Northern Plains, the park and reserves contribute significantly to the conservation of endangered Ecological Vegetation Classes—Plains Grassy Woodland, Creekline Grassy Woodland, Plains Grassy Woodland/Gilgai Plains Woodland/Wetland Mosaic and Wetland Formation (ECC 2001). The park's and reserves' 'creekline vegetation' is broadly native in plant species composition but varies widely in terms of plant species richness (PV 2004). Areas such as the previous Katamatite Bushland Reserve and Wunghnu Common have high species richness with most major plant groups represented. Many areas have predominantly native grass cover but relatively few herbs, whereas the remainder have a mix of native and exotic grass cover (Trust for Nature 2004).

Supporting over 250 native vascular flora species, of which 22 are rare or threatened (appendix 4), the planning area is the stronghold for most native flora in the region, and in particular protects the threatened Spiny-fruit Saltbush, Pepper Grass, the FFG-listed Yellow-tongue Daisy, Buloke and Tough Scurf-pea and the only recorded population of Amulla in Victoria (appendix 4). It also contains a significantly higher proportion of old-growth woodland, important to threatened fauna (section 4.6), than most other remnants in the Northern Plains (Robinson & Mann 1996).

Grey Box dominates the overstorey with the occasional Yellow Box, River Red Gum and Buloke for most of the planning area. West of Old Waaia, Yellow Box becomes the more dominant tree, corresponding with the change from clay loams to more sandy soils. Stands of Golden Wattle, Gold-dust Wattle and Mallee Wattle are found in the shrub layer throughout the planning area, and a variety of tussock grasses, annual herbs, lilies, chenopods, perennial herbs and sub-shrubs forms the ground layer (PV 2004; Robinson & Mann 1996). At present little is known of the lichens, bryophytes (mosses, liverworts, hornworts) and fungi in the planning area.

The Traditional Owners recognise vegetation as an intrinsic element of *Country* and maintain a sophisticated knowledge of its value and use.

Throughout nearly all the planning area, invasion by annual exotic grasses is a major threat, not only in terms of the survival and recruitment of the native plant species present there but also in terms of a changed ground layer structure (section 4.7) (Trust for Nature 2004).

Past and unlicensed stock grazing is also a major threat as it has inhibited the recruitment of indigenous woody and herbaceous species, reducing the floristic diversity of the vegetation in the shrub and ground layers (section 4.7). Stock also poses a threat to vegetation after a fire event (Lunt et al. 1999) found that stock prefer to graze burnt areas, which could result in the prevention of native species regeneration and loss of threatened flora species. Despite this, the structure of the vegetation, particularly in areas with a high conservation value, is largely intact (PV 2004).

The instream environment is threatened by changing wetting and drying cycles since European settlement (sections 2.3 and 4.3) (PV 2004). The impacts of wetland loss and degradation as a result of change in water regime, dredging, draining, filling and grazing is an FFG-listed potentially threatening process. The change has reduced the diversity and abundance of instream biota by favouring invasive species adapted to more permanent inundation, including Cumbungi (section 4.7) (PV 2004). To date no threatened aquatic plant species have been recorded in the planning area.

Due to the lineal nature of the planning area, external influences and edge effects are significant. Coordinated management across land tenures is vital in the conservation of threatened communities. The Goulburn–Broken Regional Catchment Strategy recognises the park and reserves as areas in the catchment vital for protecting and connecting vegetation communities at the catchment level (GBCMA 2004a). Robinson and Mann (1996) in their study of the natural values of Broken, Boosey and Nine Mile creeks, recognised areas where overall tree cover or frontage width was greater than 200 metres as vital to some fauna species, including the FFG listed Victorian temperate-woodland bird community (section 4.6). This emphasises the importance of vegetation stretching beyond the boundaries of the planning area.

Several areas of high conservation value in the planning area have been recommended for nomination for the Register of the National Estate by the Goulburn Valley Environment Group (GVEG) in a report to the Australian Heritage Commission (Robinson & Mann 1996) (section 8.1). To date no further action has been taken on these recommendations.

Aims

- Protect indigenous flora and vegetation communities, particularly threatened species, and where possible restore their structure and composition to a more natural state.
- Increase knowledge of threatened and little known flora species, vegetation communities and threatening processes to improve management.
- Increase width and connectivity of remnant vegetation where possible.

Management strategies

- *Maintain the structural complexity and floristic diversity of areas with a high conservation value, and restore those with a medium conservation value (PV 2004).*
- *Maintain populations of threatened species, particularly Spiny-fruit Saltbush, Buloke, Pepper Grass, Yellow-tongue Daisy, Waterbush, Striped Water-milfoil, Desert Cassia, Leafless Bluebush, Wedge-leaf Hop-bush, Scurf-peas and Amulla. As*

necessary, consider artificial augmentation, or re-establishment, of populations in areas where grazing pressure and competition from pest plants is low.

- *Restore native shrub cover by promoting the natural regeneration of woody and herbaceous species and by planting artificially propagated indigenous plants in priority areas where appropriate (PV 2004).*
- *Implement priority actions from approved action statements or recovery plans to address threats to threatened species or communities (appendix 4) listed under the FFG Act.*
- *Maintain habitat values for native herbs by retaining intertussock spaces using various management techniques.*
- *Following a fire event, ensure that stock grazing is excluded from affected areas.*
- *In areas adjacent to the planning area that have high conservation value and are less than 100 m wide, work cooperatively with landholders, relevant Indigenous communities, government and non-government organisations to encourage restoration of native vegetation.*
- *Manage visitor activities to minimise impacts on flora and vegetation communities (sections 6.5, 6.6 and 6.9).*
- *Encourage surveys and research into threatened and under-studied vegetation communities (such as lichens, bryophytes and fungi) to improve knowledge and management requirements of the flora in the planning area.*
- *Where appropriate, encourage research to identify Indigenous knowledge relating to vegetation / flora, and harvesting practices.*
- *Reflect Indigenous knowledge of vegetation in management practices as appropriate.*
- *Respect the cultural obligations of Traditional Owners in relation to plants and their significance in all management and visitor activities.*

4.6 Fauna

The planning area supports more than 120 native species of mammals, reptiles, amphibians, birds and fish, of which 22 are rare or threatened (appendix 5). As they are the only substantial remnant of grassy woodland in the eastern Northern Plains, the park and reserves are particularly important for species dependent on mature woodland, such as the Crested Shrike-tit, Tree Martin, Squirrel Glider and Tree Goanna (ECC 2001).

More than 100 bird species have been recorded in the planning area, including the Great Egret (a JAMBA species) and Bush Stone-curlew, both recognised as species considered of highest priority for protection in the Victorian Riverina Bioregion. Other threatened birds include the Brolga, Grey-crowned Babbler, Swift Parrot and two other JAMBA/CAMBA species, Latham's Snipe and the Eastern Curlew. A significant proportion of member species from the FFG-listed Victorian temperate-woodland bird community which are also dependent on mature woodland seek refuge in the planning area.

The Bush Stone-curlew, a ground-dwelling bird that is a vagrant to the planning area, has suffered systematic regional decline in Victoria and is thought to still be in decline. Key threats include predation by foxes, clearing of fallen timber and logs, and trampling and disturbance of nests by stock (DNRE 1999a). The GBCMA and Broken-Boosey Conservation Management Network trialled methods to reduce species decline by installing fox-proof fencing (section 4.7).

The FFG-listed Brolga depends on wetlands and open water, particularly on private property adjacent to the planning area. Nests are constructed on a slight rise or in shallow herb- or sedge-dominated marshes. Loss of wetland habitat and modification of wetlands, alteration of flood regimes (section 4.3), and threats posed by foxes and stock have resulted in a decline in Brolga numbers in the Northern Plains. The Trust for Nature acquired Tomlinsons Swamp near Tungamah Natural Features Reserve in 1994 to help protect Brolga habitat (section 7.3)

Cohuna the native companion (Brolga) and *Goka* (Bush Stone-curlew) are significant to Yorta Yorta and Bangerang people. *Cohuna* is

often represented in traditional dance, while *Goka* is said to be a messenger of death if heard at night. *Tongala* the snake is also significant to Yorta Yorta people. *Watchera* the Long-neck Tortoise, *Wanagapipuwu* the Platypus, *Gokok* the owl, and *Biltjimdja* the Tree Goanna, which occur in the park and reserves, are significant because they are totems for local Indigenous clans (Atkinson, pers. comm. 2004).

The presence of arboreal mammals such as the White-striped Freetail Bat and the threatened Squirrel Glider, as well as member species of the FFG-listed Victorian temperate-woodland bird community, reflects the extent and presence of abundant mature trees, important for nesting and foraging. In a study investigating the importance of different Northern Plains remnants to bats, streamside reserves had the highest level of bat activity (Lumsden, pers. comm. 2004).

Other native mammal species recorded in the planning area include the Common Brushtail Possum, Common Ringtail Possum, Eastern Grey Kangaroo and Water Rat.

Anecdotal evidence suggests that kangaroo numbers are increasing in the planning area and adjoining region. There is potential for kangaroo numbers to have an impact on regenerating shrubs, particularly where grazing has been removed from the planning area, and also on pastures and crops on neighbouring land.

Habitat loss as a result of systematic stock grazing has led to a decline in reptile species, now comparatively low in number on creeklines compared to some other land management units in the Northern Plains (Robinson 1998). Nevertheless five species of reptile, including the threatened Tree Goanna and seven amphibians, including the FFG-listed and nationally threatened Growling Grass Frog, are recorded in the planning area.

Major threats to terrestrial native fauna in the planning area include increased edge effects, habitat modification caused by encroachments and inappropriate grazing regimes (sections 4.5 and 7.3) and several FFG-listed potentially threatening processes:

- habitat fragmentation
- loss of hollow-bearing trees

- predation by the introduced Red Fox and the cat
- loss of coarse woody debris
- invasion by environmental weeds (section 4.7).

Noisy Miners, although native birds, have become a concern in the former Wunghnu Common area of the park because they vigorously defend their colony and drive out other less aggressive native bird species. Noisy Miners usually occupy habitats such as open eucalypt forest and small bushland remnants on open plains, but generally avoid forest patches with dense shrub and grassy understoreys (DNRE 1999b). The management of Noisy Miner populations in this otherwise intact area of the park would benefit other species of threatened woodland birds such as the Black-chinned Honeyeater, Diamond Firetail, Little Lorikeet and Swift Parrot.

In addition to amphibians, the aquatic environment of the planning area is home to an array of aquatic fauna comprising six threatened species of fish, including the FFG-listed, and nationally vulnerable, Murray Cod. Anecdotal evidence suggests the endangered Trout Cod may also inhabit Broken Creek (SKM 1996a).

Modification of stream flows and instream habitat since European settlement has significantly altered the instream conditions of the planning area (section 4.3). Pollutants enter Broken, Boosey and Nine Mile creeks from irrigation and dryland drainage and urban stormwater (section 4.3). Consequently, water quality in the creek system is degraded and less suitable for native instream biota, reducing their diversity and abundance (SKM 1996a; CRC Freshwater Ecology 2001). As polluted waterways can lead to eutrophication, this can be detrimental to aquatic organisms, including fish.

Permanent inundation resulting from increased flows has favoured introduced species such as the European Carp. Sedimentation caused from lower flow velocities in weir pools and the removal of instream woody debris has also destroyed habitat for native fish including Murray Cod, Golden Perch, Crimson Rainbow Fish and Freshwater Catfish (section 4.3). Fish such as these are now prevented from migrating upstream to waters they once

inhabited. Macquarie Perch, Western Carp, Gudgeon and Flat-headed Galaxias are threatened fish which have disappeared from the system since 1990 (Robinson and Mann 1996). The Lowland Riverine Fish Community of the Southern Murray-Darling Basin is listed under the Flora and Fauna Guarantee Act. To combat fish species decline GBCMA is currently preparing a strategy for the replacement of woody debris in the Nine Mile Creek (O'Brien, pers. comm. 2004), while DPI Fisheries have been releasing Golden Perch into Broken Creek at Nathalia and Dip Bridge for the last five years (Trickey, pers. comm. 2004), and Murray Cod and Golden Perch into Boosey Creek near Tungamah for the last 10 years (SKM 2005).

Barriers including weirs, causeways and culverts have also impacted on fish migration. To rectify this, GBCMA has installed fish ladders on all barriers downstream of Katamatite. As the Tungamah Pipeline proceeds, care will need to be taken to ensure the retention of deep pools, necessary for fish breeding and survival in the drier months (section 4.3).

Aims

- Protect and enhance indigenous fauna and fauna habitat, particularly for threatened species.
- Restore and maintain the instream habitat of the planning area.

Management strategies

- *Monitor threatened species particularly the Squirrel Glider and Tree Goanna, to detect any change in numbers in response to management using standard protocols.*
- *Liaise with DPI, PIRVic, DSE and GBCMA to support research into and monitoring of threatened fish in the planning area.*
- *Assist GBCMA to monitor and record Bush Stone-curlew and Brolga numbers in the park and reserves to detect any change in numbers of breeding pairs in response to protective management techniques in and around the planning area.*
- *In conjunction with GBCMA, restore and maintain fish passage along the sections of*

Broken, Boosey and Nine Mile creeks in the planning area.

- *Liaise with DPI fisheries to ensure that release of native fish species is consistent with PV operational policy.*
- *Enhance the existing woodland habitat for ground-foraging birds and reptiles, including the retention of fallen timber on the ground in the park, and monitor the use of fallen timber for campfires in the reserves.*
- *Implement priority actions from approved action statements or recovery plans to address threats to threatened species (appendix 5) listed under the FFG and Environment Protection and Biodiversity Conservation (EPBC) Acts.*
- *Investigate ways to discourage or remove Noisy Miners from, and encourage recruitment of other insectivorous native birds, including species of the threatened Victorian temperate-woodland bird community, in the former Wunghnu Common area of the park.*
- *Monitor using standardised techniques impacts from kangaroos on park and reserve values where numbers are considered to be increasing significantly. Liaise with DSE, GBCMA and adjoining land owners to implement population control measures on private and public land, where considered necessary.*
- *Manage visitor activities to minimise impacts on fauna (sections 6.7 and 6.8).*
- *Liaise with DSE to implement statewide strategies and programs for significant fauna in the planning area.*
- *Where appropriate, encourage research to identify Indigenous knowledge relating to fauna.*
- *Reflect Indigenous knowledge of fauna in management practices as appropriate.*
- *Respect the cultural obligations of Traditional Owners in relation to fauna and their significance in all management and visitor activities.*
- *Encourage surveys and research into threatened and under-studied fauna including reptiles and invertebrates to*

improve knowledge of the fauna in the planning area and management requirements.

4.7 Pest plants and animals

Pest plants

The invasion of native vegetation by environmental weeds is a FFG-listed potentially threatening process. A weed survey conducted in 2002 (Whitechurch 2003) of Broken, Boosey and Nine Mile creeks recorded 89 pest plant species in the park, reserves and adjacent areas, 16 of which are declared under the *Catchment and Land Protection Act 1994* (Vic.) (appendix 6). These include the regionally prohibited Silverleaf Nightshade and Recurved Thornapple. Photo points at strategic locations were established as part of this survey.

Most pest plant infestations in the planning area are having minor impacts, but there are particularly problematic invasions at Wunghnu near Black Swamp and an area between Drumanure and Dunbulbalane. Arrowhead is a major problem in the irrigation channels on the northern plains and is spreading throughout the planning area, with a particularly large infestation on Broken Creek west of Numurkah.

Arrowhead is the key aquatic pest plant in the planning area and at present there is no completely effective control solution (Preece, pers. comm. 2004). G–MW is carrying out a treatment program as part of the Broken Creek management strategy, jointly funded by the GBCMA (Preece, pers. comm. 2006). G–MW is also currently carrying out an extensive trial program on Arrowhead to look at a number of new and existing herbicides (G–MW website 2004).

Large infestations of pest plants also occur on land directly adjacent to the planning area. In many cases, infestations of environmental weed species, in particular annual grasses, are species that are of agricultural benefit, leading to a conflict of interest in relation to land use (Whitechurch 2003). New and emerging weeds with the potential to threaten the planning area include Chilean Needle-grass, St John's Wort, Smilax and Alligator Weed.

Other major causes of weed invasion and establishment are disturbed areas where there

has been soil dumping (mostly from creek works), soil excavation, cultivation, current grazing by stock, off-track use by vehicles, intrusions from neighbouring land, dumping of garden waste, and irrigation channels and drainage.

Weed invasion following removal of grazing by domestic stock is likely to be generally minor, as the planning area contains the very highest quality (including least weedy) public frontages of Broken and Boosey creeks (ECC 2001). Nonetheless this will require monitoring and control where appropriate. Exotic annual grasses are particularly common in the planning area. In 2004 the Broken-Boosey Conservation Management Network, Trust for Nature and the University of Melbourne supported research into annual grass management. The study looked at the effectiveness of grazing, burning, mowing and herbicide as a management tool to control exotic grasses and promote the regeneration of native species. The results highlighted the complexity of grassland management and found different responses to the same techniques, indicating the need for further research (BBCMN 2004).

Willow is also being targeted by a G–MW control program, with GBCMA developing a strategy for ongoing inspections and spot removal (SKM 2005).

The Department of Primary Industries, in conjunction with the Goulburn–Murray Landcare Network (section 8.1) and the GBCMA, has had success running Regional Extension Programs to coordinate the control of target weeds throughout the catchment. Parks Victoria contributes to this program by controlling weeds in parks and reserves, while Moira Shire Council undertakes weed control works along roadsides.

Pest animals

Of the 12 introduced animals recorded in the planning area (Feral Cat, Red Fox, European Rabbit, Brown Hare, House Sparrow, Common Starling, Common Blackbird, Rock Dove, Redfin, Mosquito Fish, Weather Loach and European Carp), foxes and rabbits are of greatest concern.

Foxes are a declared pest under the Catchment and Land Protection Act, and predation of native wildlife by foxes is listed as a

threatening process under the EPBC and FFG Acts.

Fox predation of lambs is a concern in the dryland agricultural areas surrounding the planning area east of Katamatite, whereas their predation of vulnerable native species such as the Bush Stone-curlew and Brolga is a greater concern in and around the planning area in the wider, more densely vegetated waterways in the irrigation country west of Katamatite (DSE 2004). The Broken-Boosey Conservation Management Network, in conjunction with the GBCMA, trialled fox-proof fencing on private property in the vicinity of the planning area specifically to protect Brolga and Bush Stone-curlew populations (section 4.6). As the fencing did not improve protection for Bush Stone-curlew populations, future efforts will focus on landscape-scale fox-baiting, including across the planning area.

Parks Victoria's Interim Fox Control Strategy for the planning area highlights the need for a coordinated approach involving all land managers, the application of several control methods and for all pest control programs to be integrated. Signs are used to warn visitors and neighbours with dogs when areas are baited for foxes.

Impacts from rabbits and hares are significant, particularly in the Wunghnu Common area of the park. The tendency of rabbits to disturb soil while creating burrows aids in the spread of weeds. Rabbits also browse on vegetation, particularly young shoots, which may impede the regeneration of some species. If left uncontrolled, rabbits can breed prolifically and cause major damage to remnant areas. Hares graze in particular on young seedlings.

Aims

- Control and where possible eradicate pest plants and animal species from the planning area.
- Restore native vegetation to areas where pest plants have been controlled.
- Minimise impacts of pest plants and animals on the park and reserves; as well as any impacts of control programs on native flora and fauna.
- Promote and encourage an integrated, coordinated and cooperative approach to

pest management on adjacent land and in the Goulburn–Broken Catchment.

Management strategies

- *Priority for management will be pest plants and animals posing risks to:*
 - *areas of high conservation value (PV 2004)*
 - *areas of cultural significance*
 - *threatened flora and fauna.*
- *Establish effective partnerships in accordance with the Victorian Pest Management Framework (DNRE 2002c) to ensure an integrated and cooperative approach to pest control (section 8.2).*

Pest plants

- *Liaise and coordinate pest plant control efforts with neighbouring landholders, Broken-Boosey CMN, environmental and Landcare groups, encouraging the Good Neighbour approach.*
- *Liaise with GBCMA and G–MW to establish coordinated follow-up control programs for Arrowhead and willows.*
- *Reduce opportunities for pest plant germination and growth by minimising soil disturbance.*
- *Maintain photo points to monitor the effectiveness of weed control and response to removal of grazing pressure in the park.*
- *Liaise with DPI to reduce any threat to the planning area from priority weeds on adjacent land.*
- *Restore indigenous vegetation to appropriate areas using local seed, particularly where pest plants have been eradicated.*
- *Support further research into annual grass management using various management tools to promote restoration and maintenance of native grasslands in the planning area.*
- *Liaise with GBCMA, G–MW and Moira Shire Council to encourage responsible vehicle maintenance and removal of foreign soils before entering uninfested areas of the park and reserves.*

- *Record pest plant control activities in the planning area in Parks Victoria’s Environmental Information System (EIS).*

Pest animals

- *Liaise with adjacent landowners, Broken-Boosey CMN, DPI, Field and Game Australia and other Landcare groups, to implement pest animal control programs consistent with the fox control strategy, departmental guidelines and approved action statements.*
- *Establish a system for authorising abutting landowners to shoot foxes in the area of the park adjacent to their property to protect their sheep.*
- *Continue to inform park and reserves neighbours and visitors about relevant pest animal control programs in the area.*
- *Liaise with Fisheries (DPI) to support programs addressing invasive fish in the catchment.*
- *Record pest animal control activities in the planning area in Parks Victoria’s Environmental Information System.*

4.8 Fire management

The National Parks Act requires the Secretary to DSE to ensure that appropriate and sufficient measures are taken to protect parks from injury by fire. Current fire protection measures for the park and reserves are carried out in accordance with the *North East Region Fire Protection Plan* (DSE 2003b), the *Code of Practice for Fire Management on Public Land* (DSE 2006) and Parks Victoria’s operational policies.

Under the Fire Protection Plan, the planning area, with the exception of one land parcel, is classified for fuel management purposes as Zone 4 – Specific Flora and Fauna Management, to provide for the use of prescribed burning for the active management of specific flora and fauna. The former Numurkah Streamside Reserve, now part of Numurkah Natural Features Reserve, is classified as Zone 5 – Exclusion of Prescribed Burning, to exclude prescribed burning from areas that may suffer a high economic, ecological or cultural loss if they were subject to prescribed burning. Subsequently,

prescribed burning of the majority of the planning area is to be conducted primarily for ecological purposes. In addition, the Fire Protection Plan recommends that riparian vegetation within 40 metres of streams should not be burnt, to prevent increased runoff and an excess of nutrients entering streams, and that grassy woodland be burnt every five to six years (DSE 2003b).

The Code of Practice requires that fire management activities ensure that environmental and cultural values, including the vigour and diversity of the State's indigenous flora and fauna, are protected, as far as practicable, from the harmful effects of wildfire and inappropriate fire regimes.

When planning ecological burning, the impacts of fire on habitat values of older box trees with hollows, understorey shrubs, litter and fallen timber, and the isolated populations of rare and threatened plant species such as Amulla and the fire-sensitive White Cypress-Pine, need to be minimised.

Knowledge about pre-settlement occurrence and use of fire in the planning area remains to be uncovered. Historical accounts of Indigenous life in the Murray Valley area indicate that Indigenous groups often used fire for clearing tracks through reed beds, for hunting, and for dissuading Europeans from venturing into tribal territory (LCC 1983).

It has been common for graziers to set fires to burn off unpalatable forage and promote the growth of succulent shoots (LCC 1983). There have been a number of small fires in and adjoining the planning area, though no recent large fires.

The lineal nature of the park and reserves, together with the extensive road network for fire breaks, adequate water supply, and sparseness of the grassy woodland understorey, mean that the park and reserves are of minimal strategic significance for fire management.

As fire poses a substantial risk to the riparian vegetation and water quality of streams, there is a need for adjacent land owners to maintain fire breaks on their properties to reduce the risk of escapes into the planning area.

The Municipal Fire Prevention Committee, which includes representatives from CFA and

Parks Victoria, is responsible for planning and implementing coordinated fire prevention activities on private and public land within the municipality, including the planning area. This group will need to give consideration to the installation of the Tungamah Pipeline upstream of Katamatite (section 4.3) which will result in ephemeral flows in the Broken and Boosey creeks and may reduce the availability of water to fire units at some locations in the planning area.

Aims

- Protect park and reserve values from the deleterious effects of wildfire or inappropriate fire regimes.
- Cooperate with relevant agencies and adjacent land managers in the protection of human life, neighbouring properties and assets.

Management strategies

- *Undertake fire management in accordance with the North East Region Fire Protection Plan and the Code of Practice for Fire Management on Public Land.*
- *In partnership with DSE, work towards the use of prescribed fire to reduce fuel loads to protect life and property and to meet park and reserve management requirements, by updating the fire management plan. Ensure that the natural and cultural values, and Indigenous cultural heritage, of the park and reserves are taken into account.*
- *Maintain an up-to-date map of significant natural, historic and cultural features within the park and reserves for use in planning fire prevention and suppression activities.*
- *Publicise and enforce fire regulations and restrictions on the use and role of fire within the planning area, in cooperation with the Municipal Fire Prevention Committee and local Country Fire Authority brigades.*
- *Maintain adequate access for fire tankers, and maintain and signpost access points to water supplies.*
- *Maintain adequate watering points upstream of Katamatite when the*

Tungamah Pipeline is installed, e.g. by maintaining deep pools where appropriate.

- *Encourage adjacent land owners to maintain adequate fire breaks to minimise the risk of spread of wildfire into the planning area.*
- *Work with DSE to assess the necessity of burning off-stream blocks for ecological and fuel load purposes when reviewing the North East Region Fire Protection Plan.*
- *Liaise with DSE to reconsider the zoning for the previous Numurkah Streamside Reserve to be consistent with the planning area when reviewing the North East Region Fire Protection Plan.*
- *Encourage research into Indigenous knowledge relating to fire, including its use and management, in cooperation with the Traditional Owners.*

5 STRATEGIES FOR CULTURAL VALUES CONSERVATION

5.1 Indigenous cultural heritage

The land now protected within the park and reserves has a long history of Indigenous occupation by the Yorta Yorta and Bangerang people. Although archaeological findings in the Goulburn–Murray region have been dated at more than 13 000 years, some believe that Indigenous people have been here immemorially. As the park and reserves follow what was once an ephemeral creek, the area would have been an important corridor for travel through the region, providing food, water, materials for canoes, and shelter.

An archaeological survey of the park in 2004 identified 134 scar trees, made by removal of bark for shelters, canoes, coolamons and shields. The high density of scar trees signifies the importance of the Broken, Boosey and Nine Mile creeks to the Yorta Yorta and Bangerang people today.

Indigenous cultural heritage is evident in many of the local names of the area: *Boozi*, meaning gum-tree, *Numurkah* – war shield, *Wunghnu* – name of the particular water hole, and *Catamatiet* (Katamatite) – creek.

The Bangerang Keeping Place, Dharnya Centre, Yorta Yorta Clans Centre and Rumbalara Aboriginal Cooperative promote Indigenous cultural heritage in the area and offer a range of interpretation programs (sections 6.1 and 8.1).

Indigenous tradition indicates that the park and reserves are part of *Country* of the Yorta Yorta and Bangerang people.

Parks Victoria respects views of the Traditional Owners and seeks to reflect their knowledge, interests, rights and aspirations for *Country* in planning and management of the park (PV 2005). Their active involvement in the management and care of the planning area is desirable¹.

¹ An application for a native title determination by the Yorta Yorta people over their traditional *Country*, which includes the planning area, was subject to litigation in both the Federal and High Courts. The outcome of this litigation was the extinguishment of native title across all land within the Yorta Yorta claim, including the planning area.

A Yorta Yorta Cooperative Management Agreement covering approximately 50 000 ha of public land and waters within the *Country* of the Yorta Yorta people was signed by the State Government and the Yorta Yorta people on 10 June 2004. Currently, the Yorta Yorta Cooperative Management Agreement does not include reference to the planning area. However, the exclusion of the planning area from this agreement does not preclude the active involvement of the Yorta Yorta people in its management.

All Indigenous places and objects in the planning area are protected under the *Archaeological and Aboriginal Relics Preservation Act 1972* (Vic.) and the *Aboriginal and Torres Strait Islander Heritage Protection Act 1984* (Cwlth). It is an offence to damage, interfere with or endanger an Aboriginal site, place or object without obtaining prior written consent from the scheduled Aboriginal community.

Issues relating to the protection of such cultural heritage and the involvement of the scheduled Aboriginal community are approached in accordance with these Acts. Under the Commonwealth Act, Yorta Yorta Nation Aboriginal Corporation is designated as the scheduled Local Aboriginal Community for the park and Tungamah, Youarang and part of Numurkah Natural Features Reserves, and the Rumbalara Aboriginal Cooperative Ltd is the scheduled Local Aboriginal Community for Nathalia and part of Numurkah Natural Features Reserves.

Aims

- Protect Indigenous places and objects from interference or damaging activities.
- Support the views of the Traditional Owners in managing the park.

Management strategies

- *Protect all Indigenous places and objects from disturbance and damage in partnership with the Yorta Yorta and Bangerang people and in cooperation with the scheduled Aboriginal Communities, Aboriginal Affairs Victoria and North East*

Regional Aboriginal Cultural Heritage Program, and in accordance with:

- *relevant legislation, including the Archaeological and Aboriginal Relics Preservation Act and Aboriginal and Torres Strait Islander Heritage Protection Act*
- *Parks Victoria's Guidelines for Working with Aboriginal Communities and Protection of Cultural Sites (Parks Victoria 2002).*
- *Respect the views of the Traditional Owners and the cultural obligations of Indigenous communities.*
- *Reflect the Traditional Owners' knowledge, interests, rights and aspirations for Country in all planning and management of the park in consultation with the scheduled Aboriginal community and in accordance with Parks Victoria's operational policies (sections 4.1, 4.3, 4.4, 6.1, 7.1 and 8.1).*
- *Assess annual work programs to integrate relevant Indigenous practices and minimise the potential for impacts from management activities on Indigenous cultural heritage in consultation with the Traditional Owners, and the scheduled Aboriginal community.*
- *Maintain confidentiality about Indigenous obligations, knowledge, places, objects and aspirations, in accordance with the views of the Traditional Owners (sections 6.1 and 8.1).*
- *Work with the Traditional Owners to assess and identify Indigenous cultural heritage sites suitable for promotion and interpretation (sections 6.1 and 8.1).*
- *Ensure that staff and contractors are sufficiently trained and aware of Indigenous places and objects within the planning area and their management requirements.*

5.2 Post-settlement cultural heritage

Broken and Boosey creeks have been the backbone for water supply, farming and settlements since the 1850s (section 2.3). The park and reserves are a tiny natural remnant

within an area almost completely surrendered to agriculture since early European settlement.

In 1849, Hamilton Hume settled the 34 400 ha Yarrowonga run which included Tungamah, paving the way for other squatters and later selectors, all depending on water from the creeks.

Many of the early arrivals journeyed through thick bush to settle in the area, having given up on their dreams of striking it rich in the goldfields. Drawn by the potential of wheat and stock farming, they initially reported kangaroos and emus roaming in flocks of hundreds (Rudd 1978).

'These men with their wives and children "unlocked" the land and through their toil, courage and perseverance conquered so many adversities, making life just a little easier for all those who followed on' (Rudd 1978).

Despite knowing that Broken Creek (*Baala*, as it was known) was aptly named, flowing most of the winter but drying up to waterholes in summer, there was no conservation of water, and no prospect of water being diverted from the Broken River into Broken Creek until the late 1870s. The creek supported farms for six and seven miles around, the water being carried in Furphy's water carts.

Those living on the creeks grew their own vegetables and most planted orchards for their homes. In the early 1900s, two Chinese market gardeners settled in Katamatite and Tungamah, supplying fruit and vegetables to local stores.

Years of drought and flood passed with the turn of the century, as too did improvements in engineering and supply of water for towns.

By the 1950s horse teams for carting water had vanished and check-banking for irrigation was in place in the area on the north side of Boosey Creek. Dairying and the fattening of sheep had taken over the wheat fields, and subdivisions and populations grew with the establishment of soldier settlements.

Weirs and pumping sites in the planning area today reflect the continuing dependence on the water from the creeks for domestic and agricultural use.

Stone crossings, remnants of fences, timber bridges and nearby old homesteads, together with modern-day weirs and concrete bridges,

show how the community continues to use the planning area.

Aims

- Conserve and protect significant historic places which reflect the history of land use since European settlement.
- Provide opportunities for people to learn about and understand the heritage values of the planning area.

Management strategies

- *Document heritage values in the planning area and record the information in Parks*

Victoria's information systems. Provide a map of places with heritage value to DSE for use in planning fire suppression and prevention activities.

- *Encourage members of the community who have a historic association with the area to document the post-settlement heritage values and history of the park and reserves.*
- *Before removing any redundant stock fences (section 7.2), assess any cultural significance, and consider retaining at least fence posts marking early settlements in the planning area.*

6 STRATEGIES FOR VISITORS

6.1 Information, interpretation and education

Providing information, interpretation and education can help orientate and inform visitors, foster an understanding and appreciation of the park and reserves' special natural and cultural values, build understanding of management activities and help visitors to experience and appreciate the park and reserves in a safe and appropriate manner. Parks Victoria delivers information, interpretation and education to visitors by various means, including its website, ranger patrols, Park Notes, signage, tourism brochures and other publications, and licensed tour operators. These services may be developed and provided in collaboration with other agencies.

Pre-visit information on the planning area is available in a Park Note and on Parks Victoria's website.

Currently there is no orientation signage for visitors from major roads in the region, or regulatory signs at park and reserve entrances. Compared to many other parks across the State, the planning area has a relatively low level of visitation. As the park and reserves are fragmented, with many entrance points (figure 3), park and reserve information, orientation and interpretive signs may be most effective if located off-site in the nearby towns of Nathalia, Numurkah and Tungamah. At Katamatite and Wunghnu there are areas of park close to the town centres that are suitable for on-site park information (section 4.5).

The Murray Darling Association has expressed interest in working with Parks Victoria to develop some interpretation in areas where the Murray Valley Trail runs through Nathalia Natural Features Reserve (section 6.2) (Wells, pers. comm. 2004).

Given that most visitors are locals, efforts to inform and educate the local community, schools and neighbours are likely to be most effective in increasing enjoyment and appreciation. Face-to-face education by rangers to groups and schools is currently conducted on request, and usually in coordination with interpretation of Indigenous

culture of the area via interpretive centres at Bangerang Keeping Place and Rumbalara Aboriginal Cooperative at Shepparton, and the Dharnya Centre at Barmah. Students can complement their learning by undertaking projects related to the park and reserves while increasing Parks Victoria's understanding of the planning area.

Tourism Victoria found that approximately 10% of visitors visiting the region for day trips do so for sightseeing or pleasure (TV 2004). Although the park and reserves may not become key destinations themselves, the promotion of their tourist drives and walking routes linking nearby towns may raise their profile (section 6.2). By raising the profile of the park and reserves, and increasing awareness of their significance and scenic and natural quality, there is potential for them to become a valuable complementary product to existing regional tourism products (section 2.1). Increasing visitor numbers to the planning area will also benefit the economies of local communities. The Murray Regional Tourism Development Plan outlines the strategic directions for the Murray Region (TV 2004).

Aims

- Promote and encourage visitors' discovery, enjoyment and appreciation of the planning area's natural and cultural values in a safe and appropriate manner through information, interpretation and education.
- Orientate visitors in relation to park and reserves, focusing information and interpretation in neighbouring towns.

Management strategies

- *Investigate, in partnership with Moira Shire Council, options for off-site information and interpretation signs in Nathalia, Numurkah, Wunghnu and Tungamah.*
- *Install information and interpretive signs in the park area at Katamatite and Wunghnu.*

- *Support the Murray Darling Association in developing interpretation at an appropriate site where the Murray Valley Trail runs through Nathalia Natural Features Reserve.*
- *Develop interpretive material about key management issues, including pest control, habitat restoration, cultural heritage conservation and flow regimes.*
- *Promote greater public understanding and awareness of and respect for Indigenous culture by incorporating information about Indigenous tradition, places and objects in information, interpretation and education programs, in accordance with the views of the Traditional Owners (sections 5.1 and 8.1).*
- *Continue to work with Yorta Yorta and Bangerang people to identify opportunities and appropriate locations for delivery of interpretation and education about Indigenous cultural heritage relating to the planning area.*
- *Encourage Bangerang Keeping Place, the Dharnya Centre, and Rumbalara Aboriginal Co-operative to work with Parks Victoria to achieve shared goals and aspirations for the planning area.*
- *Provide visitors, particularly interest groups and schools, with ranger-led face-to-face interpretation about park and reserves values and management issues.*
- *Liaise with Tourism Victoria and Moira Shire Council to ensure that the park and reserves are appropriately promoted in regional visitor information centres and in regional tourism strategies.*
- *Liaise with Moira Shire Council and VicRoads to erect directional signage to the park and reserves at appropriate locations on major roads and in nearby towns.*
- *Liaise with local schools to encourage their use of the park and reserves and advise on educational material available on Parks Victoria's website.*

6.2 Visitor access

The park and reserves are best accessed by a number of roads that lead to and connect the towns of Numurkah, Nathalia, Wunghnu, Katamatite, Tungamah and Yundool (figure 3). Major roads leading to the park and reserves include the Barmah–Shepparton Road, Nathalia–Katamatite Road, Goulburn Valley Highway, Murray Valley Highway, Tungamah Main Road, Katamatite–Shepparton Road and the Tocumwal–Benalla Road (figures 1 and 3).

The ‘Boosey Boulevard’ and Hester Road allow 2WD year-round access to some of the more picturesque parts of the park. A number of other roads and tracks bordering or crossing the park and reserves offer shorter scenic driving opportunities. Vehicle access points are shown on figure 3. Car parking is limited to the sides of tracks and roads.

The road and track network of the planning area is managed by Parks Victoria, VicRoads and Moira Shire Council (table 2). The entire public network (approximately 120 km) is accessible by 2WD vehicles, except when flooded (table 2).

As the park and reserves consist of creek frontage on a natural floodplain, a number of roads and tracks are subject to flooding after high rainfall or when flows are increased for irrigation. In such instances roads and tracks will be closed temporarily to protect public safety and prevent damage to natural values (table 2). Closures will be signed and up-to-date information made available from Parks Victoria staff and offices in Nathalia and Yarrawonga.

Access to ten tracks in the park and one in the reserves (approximately 10 km) will be restricted to management vehicles to minimise damage to natural values and protect privacy of neighbours (table 2). The park and reserves are bordered and intersected by private property. Neighbouring land owners retain necessary access on management vehicle tracks to their property.

In the past, off-track driving resulting in the creation of unauthorised tracks to access the water's edge has been a common practice. There are obvious impacts on the surrounding vegetation and the practice has increased fragmentation within the already narrow park and reserves.

TABLE 2 MANAGEMENT OF ROADS AND VEHICLE TRACKS

ROAD /TRACK	CURRENT CLASS'N AND USE	PROPOSED CLASS'N AND USE	COMMENTS/ACTIONS
STATE PARK			
Managed by Parks Victoria			
Barnes Rd	5D/All	5D/All	Road for park and other access. Close in wet conditions.
Boosey Boulevard			
– Tungamah Main Rd to Hill Plain Rd	5D/All	5C/All	Road for park and other access. Close in wet conditions until upgraded to all weather access.
– Burramine Rd crossing to dwelling	5D/All	5C/All	Road for park and other access. Close in wet conditions until upgraded to all weather access.
– from Dickies Rd crossing to Grinter Rd	5D/All	5C/All	Road for park and other access. Close in wet conditions until upgraded to all weather access.
Burramine Rd	5C/All	5C/All	Road for park and other access. Impassable when flooded. Close in wet conditions.
Drain Rd	5C/All	5C/All	Road for park and other access. No change.
Drumanure Rd	5C/All	5C/All	Road for park and other access. No change.
Telford Rd	5D/All	5D/All	Road for park and other access. No change.
Wallden Rd	5C/All	5C/All	Road for park and other access. No change.
Whitty Rd	5E/All	5C/MV	Road for visitor or management access. Close to public vehicles.
Unnamed 21	5D/All	5D/All	Road for visitor or management access. No change.
Unnamed 22	5E/All	5E/MVP	Close to public vehicles. Retain for management and private access.
Unnamed 23	5D/All	5A/D/All	Road for park and other access. No through road – install sign.
Unnamed 24	5E/M4	5E/MVP	Road for visitor or management access. Close to public vehicles. Retain for management and private access.
Unnamed 25	5E/All	5E/MVP	Road for park and other access. Close to public vehicles. Retain for management and private access.
Unnamed 27	5E/All	5E/All	Road for visitor or management access. No change.
Unnamed 28	5E/All	5E/MVP	Road for park and other access. Close to public vehicles. Retain for management and private access.
Unnamed 29	5D/All	5D/All	Road for visitor or management access. No change. Access to former Invergordon Pony Club site.
Unnamed 30	5E/All	5E/MVP	Road for visitor or management access. Close to public vehicles. Retain for management and private access.
Unnamed 31	5E/All	5C/All	Road for visitor or management access. Close in wet conditions. Access to Nine Mile – Broken weir and water for fire units. G–MW to install hand rail on concrete footbridge (section 6.12).
Unnamed 32	5E/All	5E/MV	Road for park and other access. Close to public vehicles.
Unnamed 33	5E/All	5E/All	Road for visitor or management access. Close in wet conditions.
Unnamed 34	5D/All	5D/MVP	Road for visitor or management access. Close to public vehicles. No through road. Retain for management and private access.

Table 2 (contd.)

ROAD /TRACK	CURRENT CLASS'N AND USE	PROPOSED CLASS'N AND USE	COMMENTS/ACTIONS
Unnamed 35	5E/All	5E/All	Road for visitor or management access. No through road.
Unnamed 36	5C/All	5C/MVP	Road for park and other access. Close to public vehicles. Retain for management and private access.
Unnamed 37	5E/All	5E/All	Road for visitor or management access. No change.
Unnamed 38	5E/All	5E/MV	Road for visitor or management access. Close to public vehicles.
Managed by Moira Shire Council			
Boosey Boulevard from dwelling to Telford–Tungamah Rd cnr	5B/All		Road for park and other access.
Cargeeg Crossing	5E/All		Road for park and other access. Install signs warning of risk of flooding.
Cargeeg Rd	5D/All		Road for park and other access.
Dickies Road Crossing	5E/All		Road for park and other access. Also called Stoney Crossing. Only suitable for 4WD in wet conditions.
Dip Bridge Rd	5D/All		Major road between towns.
Gordons Rd	5C/All		Road for park and other access.
Graham Rd	5C/All		Road for park and other access.
Grinter Rd	5D/All		Road for park and other access.
Harris Rd	5C/All		Road for park and other access.
Hester Rd	5D/All		Road for park and other access.
Katamatite Rd	5C/All		Major road between towns.
Sellick Rd	5C/All		Road for park and other access.
Swamp Creek Rd	5C/All		Road for park and other access.
Managed by VicRoads			
Shepparton–Katamatite Rd	5A/All		Major road between towns.
Tocumwal–Benalla Rd	5A/All		Major road between towns.
Youarang Rd	5A/All		Major road between towns.
TUNGAMAH NFR			
Managed by Parks Victoria			
Unnamed 39	5E/All	5E/All	Road for visitor or management access. Close in wet conditions. Access to Lannigans Swamp.
Unnamed 40	5E/All	5E/All	Road for visitor or management access. No change.
Managed by Moira Shire Council			
Beggs Rd	5D/All		Road for reserve and other access.
Boosey Creek Rd	5B/All		Road for reserve and other access.
Elvin St	5D/All		Road for reserve and other access.

Table 2 (contd.)

ROAD /TRACK	CURRENT CLASS'N AND USE	PROPOSED CLASS'N AND USE	COMMENTS/ACTIONS
YOUARANG NFR			
Managed by Parks Victoria			
Jewell Rd—from dwelling to McLaughlin Rd	5D/All	5D/All	Road for reserve and other access. No change.
Mills Rd	5D/All	5D/All	Road for reserve and other access. No change. Access to private property and NFR.
St James Tk	5D/All	5D/All	Road for reserve and other access. No change.
Unnamed 41	5E/All	5E/All	Road for visitor or management access. No change.
Unnamed 42	5D/All	5D/All	Road for reserve and other access Close in wet conditions.
Unnamed 43	5E/All	5E/All	Road for reserve and other access No change. Access to G–MW channels.
Unnamed 44	5E/All	5E/All	Road for visitor or management access. No change.
NATHALIA NFR			
Managed by Parks Victoria			
Tomlinson Rd	5C/All	5C/All	Road for reserve and other access. No through road. Install sign.
Unnamed 1	5D/All	5D/All	Road for reserve and other access. Close in wet conditions.
Unnamed 2	5E/All	5E/All	Road for reserve and other access. No change.
Unnamed 4	5E/All	5E/All	Road for reserve and other access. Close in wet conditions.
Managed by Moira Shire Council			
Echuca Nathalia Rd	5B/All		Major road between towns.
Hardings Lane	5B/All		Road for reserve and other access.
Hardings Rd	5C/All		Road for reserve and other access.
Lindsays Rd	5C/All		Road for reserve and other access.
McCarron Rd	5C/All		Road for reserve and other access.
Murray Rd	5C/All		Road for reserve and other access.
Ormonds Rd	5D/All		Road for reserve and other access.
Weir St	5C/All		Road for reserve and other access.
Unnamed 3	5C/All		Road for reserve and other access.
NUMURKAH NFR			
Managed by Parks Victoria			
Billingham Rd	5E/All	5E/All	Road for visitor or management access. Close in wet conditions. Locked gate at SE end. Access to water table recording bore.
Folletts Bridge Rd	5E/All	5E/All	Road for reserve and other access Close in wet conditions.
Forked Creek Tk	5E/All	5E/All	Road for reserve and other access Close in wet conditions.
James Tk	5E/All	5E/All	Road for reserve and other access Close in wet conditions.
Kempsters Camp Rd	5E/All	5D/All	Road for visitor or management access. Improve wet weather drainage.

Table 2 (contd.)

ROAD /TRACK	CURRENT CLASS'N AND USE	PROPOSED CLASS'N AND USE	COMMENTS/ACTIONS
Knackery Tk	5E/All	5E/All	Road for visitor or management access. Close in wet conditions. Remove section of stock fence impeding access.
Powerline Tk	5E/All	5E/All	Road for reserve and other access. No change
Unnamed 5	5E/All	5E/All	Road for visitor or management access. Close in wet conditions.
Unnamed 8	5C/All	5C/All	Road for reserve and other access. Close in wet conditions.
Unnamed 12	5E/All	5E/All	Road for visitor or management access. No change.
Unnamed 13	5E/All	5E/All	Road for visitor or management access. Close in wet conditions.
Unnamed 14	5E/All	5E/All	Road for visitor or management access. Close in wet conditions.
Unnamed 15	5E/All	5E/All	Road for visitor or management access. Close in wet conditions.
Unnamed 17	5E/All	5E/All	Road for reserve and other access. Close in wet conditions.
Unnamed 18	5E/All	5E/All	Road for reserve and other access. Close in wet conditions.
Unnamed 19	5E/All	5E/MV	Road for reserve and other access. Close to public vehicles.
Unnamed 20	5E/All	5E/All	Road for reserve and other access. Close in wet conditions.
Managed by Moira Shire Council			
Baxter Dve	5C/All		Road for reserve and other access.
Central Mundoona Rd	5B/All		Road for reserve and other access.
Grinters Rd	5C/All		Road for reserve and other access.
Katamatite/ Nathalia Rd	5A/All		Major road between towns.
Kempsters Bridge Rd	5A/All		Major road between towns.
Lyons Rd	5C/All		Road for reserve and other access.
Sharps Br Rd	5C/All		Road for reserve and other access. Bridge currently closed.
Thompsons Rd	5C/All		Road for reserve and other access.
Walshs Br. Rd	5A/All		Major road between towns.
Unnamed 7	5C/All		Road for reserve and other access.
Unnamed 9	5D/All		Road for reserve and other access.
Unnamed 10	5C/All		Road for reserve and other access.
Unnamed 11	5C/All		Major road between towns.
Unnamed 16	5C/All		Road for reserve and other access.

Key:

Note: Implementation of closures in reserves subject to establishing regulations.

Road Classification:

- 5A Primary Road — all weather, two-laned, mainly sealed road.
- 5B Secondary Road — all weather, two-laned formed and gravelled, or single lane sealed with gravel shoulders.
- 5C Minor Road — Single lane unsealed, formed road usually lightly gravelled.
- 5D Access Track — Single lane, dry weather, formed (from natural materials).
- 5E Rough Track — Single lane, unformed earth track at or near the natural surface.

Use:

- All Visitors in 2WD & 4WD motor vehicles, trail bike riding, horse riding, bicycle riding and walking
- M4 4WD motor vehicles required
- MV Management vehicles, bicycle riding and walking
- MVP Management vehicles, bicycle riding, walking and private access

There is also an opportunity to link the planning area at Nathalia with the Murray Valley Trail currently being developed by the Murray Darling Association, and therefore promote the park and reserves as an additional scenic touring route.

The narrowness of the park and reserves, their natural values and proximity to private land make them generally unsuitable for car rallying. Car rallies with time and/or speed competitive components are not permitted in the park and reserves (DSE 2003a), however applications for CAMS-approved rallying with no time/speed competitive elements will be considered on their merits.

Aims

- Provide and maintain a safe and appropriate vehicle track network within the park and reserves.
- Minimise the impact of road and track management on natural and cultural values.

Management strategies

- *Manage vehicle roads and tracks in the planning area in accordance with table 2 and figure 3. Sign roads temporarily closed as a result of flooding and give up-to-date advice on road closures at local Parks Victoria offices.*
- *Liaise with Moira Shire Council and VicRoads to ensure maintenance of roads and tracks through the planning area under their management has minimal impact on planning area values.*
- *Liaise with Moira Shire Council and VicRoads to improve directional signage to the park and reserves from major highways and nearby towns and install safety warning signage at Cargee Crossing to warn visitors of unexpected flooding and crossing depth.*
- *Promote 'Boosey Boulevard' and Hester Road as short drives for day visitors, and provide route maps where appropriate.*
- *Liaise with the Murray Darling Association to jointly promote the park and reserves and the Murray Valley Trail in appropriate touring information material.*

- *Continue to permit roadside parking, regularly observe any impacts on natural values and visitor safety and if necessary consider establishing designated parking areas at areas popular with day visitors, such as Dip Bridge.*
- *Consult the community about the naming of unnamed roads and tracks in accordance with Parks Victoria and Moira Shire Council policy. Publicise the new road and track names in park and reserve information and inform the Registrar of Geographic Names, CFA and other relevant authorities as appropriate.*
- *Close and rehabilitate all unauthorised tracks.*
- *Permit CAMS-approved navigational car rallies with no time/speed components in accordance with Parks Victoria's operational policies and subject to minimal impact on natural values and other visitors.*

6.3 Day visit activities

Day visitors represent the majority of visitors to the park and reserves, most visiting for recreation. Activities enjoyed by visitors include fishing, bird watching, picnicking, horse riding, scenic driving and walking.

Day visitors may increase in the future as awareness of the park and reserves increases, as a result of the promotion of the 'Boosey Boulevard' and Hester Road as scenic touring routes (section 6.2) and return and short walks from towns centres (section 6.4).

Prospecting has traditionally been an important recreational activity across much of the Box–Ironbark area. Consistent with the Recreation Framework (DSE 2003a), prospecting is not permitted in the park but will continue to be permitted in the reserves subject to a Miner's Right or Tourist Fossicking Authority (TFA) and the use of non-mechanical hand tools.

Orienteering and rogaining is also a popular activity across the Box–Ironbark area. The fragmented and lineal nature of the park and reserves does not suit the activity and it is unlikely to be a use of the area.

When visiting the park and reserves, visitors can help protect them by adopting minimal

impact behaviours such as the ‘take in take out’ approach to rubbish.

Aims

- Maintain visitor services that enhance visitor enjoyment and are consistent with the protection of planning area values.
- Minimise the impacts from visitors on park and reserves values.

Management strategies

- *Promote use of the Federation of Victorian Walking Clubs’ ‘Tread Softly’ minimal impact ethics and encourage visitors to adopt the ‘take in take out’ approach to rubbish.*
- *Promote the park as a day visitor destination through Parks Victoria’s website, Park Notes and information provided in towns.*
- *Liaise with regional tourist centres and Moira Shire Council to raise awareness of the planning area and its values, and have the park and reserves included in regional touring routes.*
- *Do not permit prospecting in the park. Continue to permit prospecting in the reserves.*
- *Permit orienteering and rogaining events in the park and reserves in accordance with Parks Victoria’s operational policies.*

6.4 Bushwalking

The existing network of roads and tracks in the park and reserves offers easy-grade walking and access to most parts of the park and reserves. The park and reserves have no single entrance point or particular destination, and many visitors are locals who enjoy walking along the creeks. The more adventurous enjoy cross-country long-distance walks, finding their own routes along the creeks, across channels and over fences (section 4.1).

The relatively low levels of use and undeveloped character of the park and reserves do not warrant, and could not support, the development of defined, signed or interpreted walking tracks. However, there are opportunities for self-guided short and longer distance walks along routes as recommended

by the local community along the track network and through the park and Nathalia and Tungamah NFRs (table 3). The promotion of long-distance walking routes may create the need for overnight stops in the park. There is a range of accommodation in towns near the park and camping is permitted in some areas of the reserves (section 6.5).

Aim

- Provide a range of walking opportunities that enhance visitor enjoyment and appreciation of park and reserve values.

Management strategies

- *Maintain walking opportunities on all roads and tracks in the planning area (tables 2 and 3).*
- *Promote opportunities for self-guided short or longer day walks, partly cross-country from town centres. Map the recommended routes on handouts and information boards in major towns (table 3 and section 6.1).*
- *Monitor any impacts from cross-country use of walking routes and take appropriate action to avoid any further fragmentation of the planning area.*
- *Promote the use of minimal impact bushwalking ethics (available on the Parks Victoria website, www.parkweb.vic.gov.au).*
- *Promote camping and accommodation options in adjacent towns in information for those undertaking short and long walks in the planning area (section 6.1).*

6.5 Camping

Camping is a relatively low-level activity in the planning area, and there are no defined camping areas or facilities in the park or reserves. There are popular destinations for camping just half an hour’s drive away, on the Murray River and on the Goulburn River. The linear nature of much of the park and reserves, and lack of available space away from the creek, make most areas unsuitable for camping.

TABLE 3 WALKING ROUTES

ROUTE	LENGTH (KM)	COMMENTS
State Park		
Cargee Crossing to Wunghnu	~14 km	Can be walked easily along both sides of the creek to Union Rd. From Union Rd to Gordons Rd walk via the north side of the creek or Harris Rd. From Gordons Rd, walkers may journey to Wunghnu on the north side of the creek; however areas can become quite wet.
Dip Bridge to Katamatite	~8 km	Can be walked on the north side of the creek, either via Hester Rd or along the creek edge. No crossings are required.
Wunghnu to Katamatite	~28 km	Can be walked using both park and shire roads. See above.
Boosey Boulevard	~15 km	Can be walked on the north side of the creek, no crossings required. Can also be walked along the creek edge on the south side.
Nathalia NFR		
Weir St to former railway	~4 km	An already popular walk on the south or north side of the creek using existing tracks. Can be completed as a loop circuit using the disused railway bridges near Oakes Rd and Bourkes Rd.
Tungamah NFR		
Tungamah to Lake Rowan	~12 km	Both sides of Boosey Ck may be walked through to Lake Rowan, either along the creek edge or via tracks.

Campfire escapes pose a threat to neighbouring properties and the collection of firewood for campfires can have significant impacts on fauna through destruction of habitat for small ground-dwelling and foraging animals. Solid fuel campfires and firewood collection will not be permitted in the park. Gas or liquid fuel stoves are permitted in the park, for use when picnicking, for example.

There are opportunities for dispersed camping (areas with no facilities where camping is permitted) in the reserves where the width of the reserve from the creek to the boundary is more than 100 m. Campfires and the collection of fallen timber for firewood for use in the reserves are permitted in accordance with the *Country Fire Authority Act 1958* (Vic.) and the *Forests (Fire Protection) Regulations 2004*.

For special purposes, e.g. school and scout groups, camping may be permitted in the park at the site of the old Invergordon Pony Club, south of the Nine Mile Creek. Use of solid fuel campfires will not be permitted. Access is via Unnamed 29 (figure 3, sheet 2). Involvement in environmental programs to care for sites used by such groups will be encouraged (section 8.1).

Aim

- Provide opportunities for camping in the planning area while minimising impacts on natural and cultural values.

Management strategies

- *Allow dispersed camping in those areas of the reserves where the width of the reserve from the creek to the boundary is more than 100 m. Encourage visitors to camp at least 20 m from the creek, dispose of detergents at least 50 m away and bury faeces at least 100 m away.*
- *Do not permit camping in the park other than group camping (e.g. schools) at the former Invergordon Pony Club site, subject to a permit and in accordance with Parks Victoria's operational policies.*
- *Permit the use of gas and liquid fuel stoves in the park and reserves.*
- *Permit campfires in the reserves and the collection of fallen timber for use only in campfires in the reserves. Do not permit solid fuel fires or the collection of firewood in the park.*

- *Promote the use of minimal impact bushwalking ethics as it relates to camping, available on the Parks Victoria website (www.parkweb.vic.gov.au).*
- *Monitor impacts of camping on the reserves' natural and cultural values, and if necessary designate very basic camping areas (no facilities).*

6.6 Cycling

Recreational cycling, particularly mountain bike riding, has increased significantly over the past decade as people are increasingly using bikes to explore and enjoy natural areas. Although opportunities exist for cycling in the picturesque natural environment of the planning area, it is currently not a high use (DSE 2003a).

Cycling is permitted on all formed roads and vehicular tracks, including management vehicle roads and tracks, within the park and reserves.

Mountain biking may increase as the park and reserves are promoted as a linked system containing naturally surfaced roads with creek crossings. The Mountain Biking Code sets out guidelines for safe cycling and methods to minimise the impacts of cycling on park values.

There are opportunities for linking rides in the planning area with other trails in the area. The disused Nathalia–Picola Railway has been identified as an opportunity for development as a rail trail by Moira Shire Council (Arup 2004).

Aim

- Provide opportunities for cycling, while minimising impacts on park and reserve values.

Management strategies

- *Permit cycling on all formed roads and tracks in the planning area in accordance with table 2 and figure 3, subject to road and track closures.*
- *Promote use of the 'Mountain Biking Code' and encourage adoption of a 'leave no trace' practice.*
- *Promote the planning area's road and track network as a linear corridor suitable*

for short or longer rides or cycling tours, and liaise with Moira Shire Council to link opportunities in the planning area with those in the shire.

6.7 Dog walking

Dog walking is at present a minor activity in the planning area. However, many of the roads and tracks within the planning area are accessible from towns and offer opportunities for short and longer dog walks.

Consistent with the Recreation Framework (DSE 2003a), dog walking on leash is permitted in the park. To ensure protection of natural values and avoid conflict with other park users, dog walking is permitted only on formed roads and tracks, including those for management vehicle access.

Dogs need to be on leash and remain on formed roads and tracks, including management vehicle access tracks, to ensure protection of natural values and to avoid conflict with other reserve users.

Dogs used for duck hunting are permitted off leash in the reserves provided they are engaged in the activity during duck hunting season and are a breed of dog appropriate to the activity, e.g. pointers, setters and retrievers.

Dogs used for stock management will continue to be permitted in the park and reserves (section 7.3).

Dog droppings may be offensive to other visitors and can spread disease to humans and animals. Responsible dog ownership needs to be encouraged to minimise impacts on natural values and other visitors' enjoyment.

As dogs are susceptible to fox baits, signs are installed to warn owners to avoid baited areas (section 4.7).

Aim

- Provide opportunities for dog walking while minimising impacts on park and reserve values.

Management strategies

- *Permit dogs on leashes on all formed roads and tracks (including management vehicle access tracks) in the park and reserves.*

- *Allow dogs used for duck hunting off-leash throughout the reserves during duck hunting season provided they are a breed appropriate for duck hunting, e.g. pointers, setters and retrievers.*
- *Encourage responsible pet ownership and require dog owners to remove their dog's droppings from the planning area.*
- *Publicise opportunities for locals and other visitors to walk their dogs in the planning area (section 6.1).*

6.8 Fishing

Broken Creek is recognised as one of the best angling spots for Murray Cod in the State, as well as for other recreational native fish species. Recreational fishing in the park and reserves is a popular past time for local residents as well as day trippers.

A Recreational Fishing Licence is required for all forms of recreational fishing (including line, net, yabby, spear fishing, bait and shellfish collection) in all Victorian marine, estuarine and freshwaters.

While most fishers adopt responsible fishing practices, there are issues associated with fishing sites, including litter, possible campfire escapes and discarded fishing line that could cause the death of fish and birds.

Digging for or collecting bardie grubs for use as bait can damage sensitive riparian vegetation and encourage weed invasion; it is not permitted in the park and is discouraged in the reserves.

Aim

- Provide opportunities for recreational fishing while minimising impacts on park and reserves values.

Management strategies

- *Permit fishing throughout the planning area in accordance with the Fisheries Act 1995 (Vic.).*
- *Liaise with DPI to raise public awareness of provisions regarding bag limits, size, season and licensing requirements. Encourage responsible fishing practices, particularly in relation to digging for or collecting bardie grubs in the reserves.*

- *Support Fisheries Victoria programs to monitor and manage fish populations and fishing activities within the Broken Creek Catchment.*
- *Work with GBCMA to identify sections of the creek system with known critical habitat for threatened fish species and maintain in good condition.*
- *Work with local angling clubs to manage popular fishing spots, and inform and educate anglers on the benefits and importance of minimising their disturbance to the environment, including the appropriate disposal of rubbish such as fishing line and hooks.*

6.9 Horse riding

Horse riding is currently a low-level recreational activity in the park and reserves. The network of roads and tracks throughout the park and reserves gives riders ample opportunities to experience riding in a scenic and natural setting along the creek systems.

As horses can spread weeds and damage vegetation, particularly if ridden off-road, horses are required to remain on formed roads and vehicular tracks open to public vehicles in the park and reserves (table 2). Because of the localised disturbance caused on tracks in wet conditions, riders must comply with road closures in wet conditions.

Permits for groups of 10 or more horses will be issued from local Parks Victoria offices in Nathalia, as a means of monitoring the level of use.

The proximity of the park and reserves to the creeks makes them unsuitable for horse-based camping.

Aim

- Provide opportunities for horse riding in the planning area while minimising impacts to park and reserves values.

Management strategies

- *Allow horse riding on formed roads and tracks open to public vehicles within the park and reserves (table 2).*
- *Monitor impacts of horse riding in the planning area and if detrimental impacts become apparent consider restricting*

access to sensitive areas, group sizes or annual horse numbers.

- *Do not permit horse-based camping in the park or reserves.*
- *Promote adherence to the 'Horse Riding Code', available on the Parks Victoria website (www.parkweb.vic.gov.au), to users and riding clubs in the area.*
- *Provide the community, local riding clubs and visitors with information about horse riding in the planning area.*
- *Require permits for groups of 10 or more horse riders to ride in the planning area as a means of monitoring the level of horse rider use.*

6.10 Hunting

Hunting for recreational purposes is permitted in the reserves but not in the park. Recreational hunting of ducks, quail and other game species in season is permitted in the Nathalia, Numurkah, Tungamah and Youarang Natural Features Reserves by licensed shooters and the holder of a game licence. Recreational hunting is subject to the conditions of the licence. The potential impacts of irresponsible shooting include noise disturbance to visitors and neighbours, accidental shootings particularly of non-target species, disturbance to other fauna (e.g. from hunting dogs, section 6.7), possible damage to culturally significant sites (e.g. scar trees and artefact scatters), and litter.

There are other opportunities for recreational hunting in nearby reserves including Tungamah, Moodies, Rowan, Dowdle and Black Swamp Wildlife Reserves.

Shooting foxes as part of a coordinated pest control program in the park is addressed in section 4.7.

Aim

- Permit recreational hunting in the planning area in a safe manner with minimal impact on park and reserves values.

Management strategies

- *Continue to permit recreational hunting in Nathalia, Numurkah, Tungamah and Youarang Natural Features Reserves.*

- *Raise awareness of, and signpost, the prohibition of hunting in the park, particularly prior to duck season opening.*
- *Inform visitors and neighbours of duck hunting locations in the reserves prior to duck season opening, to ensure visitor safety (section 6.12).*
- *Liaise with DSE to coordinate enforcement of hunting regulations during duck seasons.*

6.11 Tourism services

Licensed tour operators play a key role in nature-based tourism in Victoria by offering guided park tours and supported recreation activities, and information that promotes park values and appropriate use.

There are no licensed tour operators currently using the park and reserves. However, as the planning area becomes more widely recognised, local commercial opportunities such as trail rides, guided bush walks and canoeing may arise. The Yorta Yorta Aboriginal Corporation has plans for guided cultural and nature-based tourism walks for the planning area (Atkinson, pers. comm. 2004).

Aim

- Provide opportunities for and encourage the provision of external tourism services while minimising impacts on natural and cultural values and other users of the planning area.

Management strategies

- *Encourage providers of licensed tours, particularly Indigenous tour operators, to develop and deliver interpretive and educational tours, particularly on Indigenous culture and history that enhance the tourism experience in the park and reserves for visitors (sections 6.1 and 8.1).*
- *Ensure that the commercial interpretation of Indigenous cultural sites and areas is consistent with expectations of the Traditional Owners and does not contravene legislation relating to intellectual property rights.*
- *Continue to work with the tourism industry to assist with the delivery of appropriate*

information about the planning area and promote it as a drawcard to the area.

- *Host a familiarisation day with relevant hospitality businesses and information services in the area.*
- *Liaise with prospective tour operators to promote awareness of Adventure Activity Standards and give them information about the park and reserves and their values.*

6.12 Public safety

Visitors need to be aware of safety risks to ensure that they enjoy a safe visit. Public information and education programs are one of the most effective ways to promote safety (section 6.1).

As the major tracks and roads in the park and reserves are shared by vehicles, walkers, horse riders, cyclists and stock, there is the potential for conflicting uses, which may pose a risk to visitor safety, e.g. walkers at risk from traffic or stock.

Old fences, exposed channels and delivery channels pose a threat to walkers wishing to walk along creek edges. Weirs and channels are often used as creek crossing points, which can be hazardous especially during times of high flows and flooding (section 7.1).

Rope swings attached to trees or other infrastructure within the planning area pose a danger, as the creek levels fluctuate and branches may be hidden under the water.

During duck hunting seasons, it is important that visitors and neighbours are aware of the times when shooting is permitted and locations within the reserves where it will occur.

Katamatite Rifle Range also borders the park. The park area adjacent to the rifle range is subject to a Special Management Area – Public Safety overlay to prevent access to the area during rifle range events (section 3.2 and figure 2).

Parks Victoria's response to emergency incidents is guided by the Northern Rivers Emergency Management Plan (PV 2006).

Aims

- Promote visitor safety and awareness of safety issues and risks within the park associated with access and use.
- Promote and observe safe practices, and cooperate with emergency services.

Management strategies

- *Increase visitors' awareness of safety issues and potential hazards in the park and reserves via information signs, the Park Note and Parks Victoria's website.*
- *Liaise with G–MW to minimise risks to public safety and staff by installing regulatory information and limiting access to their weir and channel infrastructure where appropriate. In particular seek installation of a hand rail on the concrete footbridge in the park at unnamed track 31.*
- *Ensure that staff are sufficiently trained to assist in emergency situations.*
- *Continue to manage roads and tracks in accordance with Parks Victoria's Risk Management Program.*
- *Liaise with farmers requiring access to move stock through the planning area to ensure that stock signs are displayed.*
- *Update the Northern Rivers Emergency Management Plan to include the park and reserves. Ensure that staff and licensed tour operators are aware of the plan.*
- *Liaise with Field and Game Australia and DSE to alert local communities of duck season opening times and popular shooting locations in the reserves.*
- *Liaise with the DSE Regional Firearms Officer and the Numurkah Rifle Range Committee to ensure that access is closed and signs are installed at both ends of the Public Safety Special Management Area during rifle club events.*
- *Remove unnecessary and unauthorised infrastructure including rope swings that pose risk to visitors.*

7 STRATEGIES FOR AUTHORISED AND ADJACENT USES

7.1 Infrastructure

There is a range of public and private infrastructure in the park and reserves associated with management of stock and the domestic water supply system in the area. The operation of public utilities in the park is subject to permission from the Secretary to DSE with conditions to minimise effects on the park and visitors.

Goulburn–Murray Water (G–MW) holds bulk entitlements to deliver regulated flows to Broken, Boosey and Nine Mile creeks via Caseys Weir on the Broken River at the upper end of the catchment, via the 7/3 Main Channel at Katamatite, and via the East Goulburn Main Channel downstream of Katamatite. This system supplies township, stock and domestic and irrigation water to private diverters. The present stock and domestic supply system upstream of Katamatite supplies water via the creeks and open channels to 330 landholders and urban users from January to September each year.

To facilitate these flows, G–MW manages approximately 50 structures within the planning area, 14 of which have fish ladders to allow fish passage. When the Tungamah Pipeline proceeds, approximately 10 weirs will be removed. GBCMA proposes to install rock chutes where barriers to fish passage remain. All structures in the park require permission from the Secretary to DSE. Infrastructure in the reserves will also need to be appropriately licensed.

Water supply infrastructure can pose a safety risk to staff and visitors, particularly if weirs are used as creek crossings (section 6.12).

A Memorandum of Understanding between Parks Victoria, GBCMA, G–MW, DPI, DSE, Trust for Nature and Moira Shire (section 8.2) that specifies cooperative management and operational arrangements in the planning area has been developed to facilitate effective future management of the water supply systems. Neighbouring landholders licensed by G–MW to divert water from, and outfall into, the creeks also have the associated infrastructure such as pump houses, pipes and delivery channels. This infrastructure also requires

licensing. Prescriptions for the establishment of future pump houses in the planning area, such as those used on the Murray River, would also reduce the visual intrusion on the landscape (section 4.1).

Powercor maintains electricity lines that cross the park in nine places and run along Harris Road. High clearances are maintained between high-voltage electric lines and vegetation by periodic removal of vegetation. Telstra maintains a number of underground cables within the planning area.

There is potential for a number of future developments particularly associated with water in and adjoining the planning area. It is important that Parks Victoria is consulted where impacts are likely on the planning area (e.g. drainage and outfall proposals).

Aim

- Manage authorised uses in accordance with the relevant legislation, and minimise their impact on park and reserves values.

Management strategies

- *Liaise with G–MW to review and map all pumping stations and delivery channels in the planning area, and permit as appropriate. License all private water supply infrastructure and services under Section 30G of the National Parks Act or the Crown Land (Reserves) Act or Land Act as appropriate, including conditions to ensure that construction, operation and maintenance are consistent with the protection of the park's natural and cultural values and amenity of visitors.*
- *Ensure that all licensed infrastructure is used and operated in a manner that does not conflict with the protection of natural values, in particular minimise the possibility of impacts from pipe leakages.*
- *Examine the prescriptions used for permitting pump houses on the Murray River, and incorporate relevant elements into licence conditions for authorised pump houses in the planning area.*
- *Remove infrastructure in the planning area no longer required for water or*

irrigation management where removal will have minimal disturbance to creek beds and vegetation and less impact that retention (section 4.1).

- *Develop Memorandums of Understanding with G–MW and GBCMA for operating, maintaining and installing water management infrastructure.*
- *Develop standard conditions with G–MW to enable joint licensing of water delivery and private diversion infrastructure.*
- *Seek permission from the Secretary to DSE for all existing public authority infrastructure in accordance with the National Parks Act and the relevant Parks Victoria operational policy. Give priority to the issue of consents for existing electrical powerlines, ensuring that conditions restrict the clearing of vegetation to essential clearances only.*
- *Monitor all works and liaise with consent and authority holders to ensure conditions are met and impacts on park values are minimised.*

7.2 Occupancies and occasional uses

There are a number of uses that may be permitted subject to specified conditions to minimise impacts in the park and reserves.

Apiary

There is one apiary site in the planning area, in the former Wunghnu Common section of the park. Although drought conditions have prevented its use for some years, there is potential for conflict with recreational use of the area, if the number of visitors increases in the future. A permit under section 21(1)(b) of the National Parks Act for the use of the site includes a requirement for signs to be erected to warn visitors when the site is in use.

Grazing

Historically, almost all the planning area was grazed by stock. Uncontrolled grazing in the planning area has led to excessive run-off, bank erosion, loss of productive land, decline in important wildlife habitat, reduced water quality, damage to instream ecosystems, weed invasion, increased nutrient levels in the creeks, selective grazing of palatable native

species and soil compaction (Price & Lovett 2002). Grazing can also impact on Indigenous cultural sites, and reduce regeneration of native species after a fire (section 4.5).

In recent years, the area of the reserves grazed by domestic stock has been greatly reduced, largely in response to a program by GBCMA offering financial incentives to park and reserves neighbours to fence their property boundary from the public land water frontage.

At the time the park was established there were 17 grazing licences covering 160 ha or 16% of the total park area. These licences were either annual grazing licences or five-year water frontage grazing licences issued under the Land Act. Consistent with the National Parks Act, all licences in the park ceased on 29 October 2005.

Approximately half of the reserves area is fenced and not grazed. The remaining unfenced areas are grazed either with a permit under the Land Act or illegally. Grazing in the reserves will continue to be permitted subject to licence conditions to ensure sustainable use and minimal impact on the values of the reserves.

In the past, some adjacent landowners fenced areas to the creeks to manage their stock. Clear boundaries with the planning area were not identified. The removal of grazing from the park will make some of these fences redundant (section 5.2). These fences can obstruct visitors and pose a safety risk.

Adjacent landowners can be permitted to transit stock through the planning area where there is no alternative access (section 7.3)

Training, filming and events

The planning area is probably too narrow and close to neighbouring properties to be suitable for the full range of adventure training and field navigation exercises by Defence Force units.

The planning area could host a range of community and competitive events or functions subject to minimal impact on park and reserve values.

Parks Victoria recognises the significant role that the filming and photography industry plays in the community and in providing for these activities seeks to ensure protection of

the natural and cultural values of the planning area. Permits are required in the park for all filming and photography conducted as part of a trade or a business.

Research

All external research and monitoring in the park by external organisations or individuals, requires a research permit under the National Parks Act.

Aim

- Manage authorised occupancies and activities in accordance with the National Parks Act, Crown Land (Reserves) Act and Land Act and minimise their impacts on park and reserves values.

Management strategies

- *Continue to allow use of one apiary site in the former Wunghnu Common section of the park, in accordance with Parks Victoria's operational policy. Liaise with the licensee to ensure that the site is appropriately signposted when in use.*
- *Liaise with DSE to ensure consultation with Parks Victoria prior to renewal of grazing licences in the reserves particularly in areas with high conservation value (section 4.5). Establish grazing conditions (stocking rates and periods) in reserves to meet conservation objectives (PV 2004) and in accordance with PV operational policy and guided by best practice performance measures.*
- *Monitor and mitigate any impacts on Indigenous cultural sites from grazing, in collaboration with the relevant Indigenous communities.*
- *Do not permit unlicensed grazing in the planning area, and ensure that all unlicensed stock are removed from the park and reserves.*
- *Remove all fences and other infrastructure in the planning area no longer required for grazing management, subject to an assessment of heritage value (section 5.2).*
- *Permit Defence Force exercises and training in accordance with Parks Victoria's operational policies.*

- *Permit events, functions and commercial filming and photography that have acceptable impacts, do not overly disturb other visitors or increase liability risk exposure, and can be appropriately managed with available resources in accordance with Parks Victoria operational policies.*
- *Ensure that all occupancies are appropriately licensed or permitted and are used and operated in a manner that does not conflict with park values.*

7.3 Boundaries and adjacent uses

Ribbons of remnant vegetation along the creeks have bordered freehold land cleared for agriculture since settlement. The boundaries along some sections of the planning area are unclear. Many of the key issues for the planning area, including weed invasion, pest control (section 4.7) and fire management (section 4.8), are shared by neighbours. There are mutual benefits in adopting an integrated approach to park and reserves management with neighbours and their associated groups such as Landcare (section 8.1).

The planning area is bordered by several roads managed by Moira Shire Council. Some of these roadsides support significant remnant vegetation. Both the planning area and roadsides will benefit from co-ordinated management to conserve remnant vegetation links.

Conflict between recreational users and adjacent land owners needs to be managed as some roads within the planning area are close to freehold land. Restricted access to some roads is required where public access is not essential to visit areas of particular interest, or required as a through road (table 2).

Under section 30K of the National Parks Act adjacent landowners can be permitted to move cattle or sheep through the park to access other parts of their property, where no alternative access is available. Dogs assisting in the movement of stock may also be permitted. Adjacent land owners are permitted to move their stock through the reserves to access other parts of their property, also using dogs, where no alternative access is available.

Continuity of the planning area along the creeks is interrupted predominantly by public

land water frontage managed by DSE, freehold land and community use areas in town centres.

Trust for Nature manages Tomlinson Swamp and other covenanted land (280 ha) abutting the planning area for biodiversity conservation and in particular to enhance habitat and breeding of the FFG-listed Brolga.

The Katamatite Rifle Range, managed by the Numurkah Rifle Club Committee, is located in the Katamatite Racecourse Reserve adjacent to the park east of Katamatite (figure 2, sheet 3). The club holds approximately 20 events each year between March and October. When in use, the rifle range could pose a risk to park visitors (section 6.12).

Moira Shire Council held an EPA licence to discharge first-flush flows resulting from high rainfall events into the Nine Mile Creek, ending in 2004. In the future the Shire will discharge first-flush events into treatment plants on nearby land (Tovey, pers. comm. 2004).

Aims

- Cooperate with adjoining landholders and Moira Shire Council to manage and minimise impacts from boundary and adjacent land uses.
- Increase awareness and support for the planning area, and maintain good relations with neighbours.

Management strategies

- *Cooperate with neighbours and adjoining land managers to coordinate pest animal management and weed control across the planning area, and freehold boundaries.*

- *Work closely with neighbours to encourage sound conservation and land management practices including revegetating, maintaining habitat corridors and linking remnant vegetation on freehold land adjoining the planning area. Encourage application of the Good Neighbour program and the use of schemes such as Land for Wildlife and Landcare.*
- *Permit adjacent land owners to move their stock through the planning area to access other parts of their property where there is no alternative access outside the park. Liaise with land owners to minimise impacts on the planning area.*
- *Allow adjacent land owners to use working dogs off-leash in the planning area provided they are actively engaged in the transit of stock through the planning area and under immediate control at all times.*
- *Where necessary identify and clarify park or reserve boundary locations.*
- *Work with Trust for Nature to coordinate appropriate activities in Tomlinson Swamp with those in the planning area, to encourage successful breeding of Brolgas.*
- *Liaise with Moira Shire Council to promote conservation of remnants on roadsides that border and link with the planning area.*
- *Continue to liaise with DSE in relation to planning permit applications on adjacent land likely to impact on the planning area.*

8 STRATEGIES FOR COMMUNITY AWARENESS AND INVOLVEMENT

8.1 Community awareness and participation

Raising awareness of the planning area's values will enhance the community's engagement in the area's management. A sense of custodianship is more likely if community views and values are respected and park-related social networks are encouraged and supported.

Education and interpretation programs (section 6.1) can play an important role in raising awareness of the park and reserves in the wider community. Parks Victoria aims to communicate the benefits of a healthy parks system and its contribution to the health of individuals and society through the 'Healthy Parks Healthy People' program.

The participation of community groups and individuals can enrich and strengthen park management and is pivotal in effective long-term planning, use and protection of the park's values.

The Traditional Owners have considerable interest in and aspirations for the planning area as part of *Country* and are also an important source of traditional knowledge about the area. A strong working relationship with the Traditional Owners will be essential to reflecting their views in the park's planning and management and reconciliation of their interests and aspirations with those of other members of the community (section 6.1).

Volunteers and community groups, such as Landcare, Friends groups, naturalist groups and Indigenous communities, make valuable contributions to management projects within and around the planning area. They bring diverse and valuable information, knowledge, skills, and experience to park management that may otherwise not be available. Volunteers also bring great enthusiasm and add valuable resources to assist with the care of the planning area.

The interests of community groups in the planning area and surrounds often overlap, particularly with such a lineal park with many neighbours. There can be considerable benefits

where such groups work together, with one another, and with Parks Victoria and neighbours to achieve common goals (section 7.3).

Trust for Nature is a non-profit organisation which works to protect remnant bushland. Focusing on landscape-scale conservation, Trust for Nature manage an area (280 ha) abutting the planning area which includes Tomlinson Swamp.

To strengthen partnerships across land tenure, a Conservation Management Network (CMN) has been established for the Broken, Boosey and Nine Mile creeks area (section 1.3). Conservation Management Networks focus on protecting ecosystems and threatened species across both private and public land, now and in the long-term. They represent partnerships between private landholders, public land managers and other interested parties in the local community that strive to enhance biodiversity values at the landscape level, irrespective of land ownership.

The Broken-Boosey CMN aims to deliver a higher level of community involvement in nature conservation in the Broken-Boosey Creeks system and planning area, and will help to drive a long-term approach to land management. Projects funded by the CMN include securing water for Tomlinsons Swamp, development of a management plan for Moodies Swamp, trialling fox-proof fences for Brolga and Bush Stone-curlew protection (section 4.7), and supporting a Trust for Nature initiative to secure covenants on freehold land with valuable remnant vegetation. Works can be undertaken outside the boundaries to improve biodiversity within the CMN (Kubeil, pers. comm. 2006).

Goulburn Valley Environment Group (GVEG) is a non-profit group that originally called for a higher level of protection of the park and reserves. In addition, several sites of high significance within the planning area were recommended for nomination on the Register of the National Estate (Robinson & Mann 1996).

GVEG has also been active in working with Parks Victoria to fence environmentally sensitive or significant sites at Wunghnu, Drumanure, Dunbulbalane and Katamatite. They have undertaken weed control works at Wunghnu, Katamatite and Dunbulbalane, and fenced rare plants at James and Fairmans Bridges. GVEG is enthusiastic to continue a strong working partnership with Parks Victoria and has suggested ways to assist in the protection and enhancement of the planning area. Future projects being considered include seeking Botanical Guardians funding to propagate and reintroduce some of the rare and threatened plant species to the planning area (section 4.5) (Robinson, pers. comm. 2004).

Wunghnu Advancement Group (WAG) has historically cared for Wunghnu Common Bushland Reserve, now included in the park. In 1996, the group obtained funding to fence off the former reserve and helped to protect the site from damage resulting from off-road vehicle use (DNRE 2002d).

The Broken Creek Improvement Landcare Group (LG) formed in 1994 to improve the quality of Broken Creek and the catchment, and has since established a seed orchard for propagation of indigenous plants for future replanting on public land. This group and a number of others (Invergordon LG, Naringaningalook LG, Bunbartha-Kaarimba LG, Burramine-Tungamah Land Management Group, Superb Parrot Project Group, Nathalia Tree Group and Picola Land Management Group) associated with the Goulburn–Murray Landcare Network (GMLN) work towards improving vegetation corridors and overall health of the local environment in the Shepparton Irrigation Region, including the planning area.

A committee of management previously operated for the Barwo Public Purposes Reserve, now part of Nathalia Natural Features Reserve. This group will continue to be encouraged to provide input into the future management of the reserve.

Broken Creek Field Naturalists and Nathalia Wildflower Group also have much to offer future management of the planning area.

Environmental projects in the planning area and broader catchment are coordinated when funding is registered by GBCMA. Registration

of all community projects would help Parks Victoria, GBCMA and community groups to maximise resources and share knowledge.

Local schools are also important avenues for community awareness and involvement in caring for the environment. Incorporating community events in the planning area such as tree-planting days and Clean-up Australia Day have mutual benefits.

Local Area Plans (LAPs) have been established for local communities occupying the land surrounding and encompassing the planning area. It is important that Parks Victoria understands the needs and values of the natural environment to the local community, and identifies opportunities for shared involvement when managing the planning area. Local Area Plans relevant to the planning area include Nathalia & District LAP, Invergordon LAP, Muckatah–Katamatite–Naringaningalook LAP and Bunbartha–Karimba–Zeerust LAP.

Aims

- Increase awareness of the planning area and support and encourage community groups and volunteers to participate in its management.
- Build a sense of ownership and custodianship for the park and reserves.

Management strategies

- *Continue liaison with the Broken-Boosey CMN and involve them in development and implementation of projects in the planning area, where appropriate.*
- *Continue to maintain a strong relationship with the Traditional Owners and explore means to involve and work with them in reflecting and integrating their knowledge, interests, rights and aspirations in the management of the park and reserves (section 5.1).*
- *Strengthen relationships with community groups that use or have a particular interest in the planning area, and encourage and support them to work with Parks Victoria and the Traditional Owners to achieve shared goals for the planning area and catchment.*

- *Support environmental groups in applying for grants for works to achieve the conservation objectives of the planning area.*
- *Encourage the former Barwo Public Purposes Reserve Committee of Management to continue its involvement in the reserve's management.*
- *Liaise with the Broken-Boosey CMN and GBCMA to develop a strategy for voluntary registration of community environmental works in the catchment, so that programs may be coordinated and resources and knowledge shared.*
- *Encourage local school involvement in caring for the planning area through community events such as tree planting, Clean-up Australia Day etc.*

8.2 Agency partnerships

Although Parks Victoria is responsible for overall management of the planning area, other agencies are responsible for planning, managing or regulating certain activities in the planning area.

All activities relating to the park that are carried out by Parks Victoria or other agencies need to accord with all legislation and government policy and, as far as practicable, be consistent with agencies' policies and guidelines. To ensure this occurs, Parks Victoria staff must work closely with staff of relevant agencies and collaborate in implementing activities where appropriate.

The roles and responsibilities of agencies involved in the management of the planning area are clarified in a Memorandum of Understanding (GBCMA 2003b).

The Department of Sustainability and Environment (DSE) establishes parks and reserves, and provides strategic direction and policy advice in matters relating to public land (including the parks and reserves), fire, flora and fauna management. DSE is also responsible for providing regulatory frameworks including drafting regulations under the Crown Land (Reserves) Act. Parks Victoria is a support agency operating at the direction of DSE for emergency response (sections 4.8 and 6.12).

DSE in partnership with Goulburn–Broken CMA, Parks Victoria, the Trust for Nature and Moira Shire Council has developed the Victorian Riverina Bioregion Biodiversity Action Plan (BAP) and Central Creek Landscape Plan, which aim to improve conservation of biodiversity in the region, including the planning area.

The Department of Primary Industries advises on pest plants and animals, fishing and fish, salinity and sustainable production practices.

The Goulburn–Broken Catchment Management Authority is responsible for structural works on beds and banks of streams and protection of stream health and condition in the Goulburn–Broken Catchment. Strategic directions for the catchment are detailed in the Goulburn–Broken Regional Catchment Strategy (GBCMA 2004). Current works being undertaken by the two Implementation Committees (Shepparton Irrigation Region and Mid-Goulburn) which cover the planning area include fencing, riparian weed control, instream habitat improvement works, and development of a flow rehabilitation program. GBCMA is also responsible for the coordination of the Broken-Boosey Conservation Management Network (section 8.1).

Goulburn–Murray Water is the water authority responsible for water supply in the region and regulating flows within the planning area. The planning area has many channels and weirs operated by G–MW to supply water for irrigation, stock and domestic use outside the planning area (section 7.1). Parks Victoria works with G–MW to manage pest plants and animals, and all issues relating to water quality and maintenance of environmental flows (sections 4.3 and 4.7).

The Victorian **Environment Protection Authority** (EPA) is responsible for coordinating all activities relating to the discharge of waste into the environment (section 4.3).

Moira Shire Council is responsible for administration of the local planning scheme, including assessments of developments with a potential to impact on planning area values. Parks Victoria provides input into planning applications to ensure that planning area values

are protected. There are a number of significant roadsides managed by Moira Shire Council around the planning area (section 7.3) and the Shire is responsible for the maintenance of many roads through the planning area (section 6.2).

VicRoads is responsible for the management of three roads through the park (section 6.2).

The **Country Fire Authority** (CFA) is a volunteer-based community service, which responds to a variety of fire and emergency incidents.

Aboriginal Affairs Victoria (AAV), Department of Victorian Communities, has legislative responsibility for protecting cultural heritage under State and Commonwealth legislation. AAV and the North East Regional Aboriginal Cultural Heritage Program advise Parks Victoria on Indigenous matters (section 5.1).

Heritage Victoria (DSE) is the central government agency which provides information and advice about places listed on the Victorian Heritage Register and Archaeological Inventory. It supports the Heritage Council through research, recommends additions to the Register and issues permits for alterations to heritage places (section 5.2).

Tourism Victoria is the government authority responsible for developing and marketing Victoria to Australian and international travellers (section 6.1).

The Commonwealth **Department of the Environment and Heritage** works cooperatively with Victorian agencies on the management of regional ecosystem conservation issues.

Aim

- Enhance park and reserves management by collaborating with other agencies to ensure that they give appropriate consideration to the planning area values in planning and implementing activities that relate to the park and reserves.

Management strategies

- *Work collaboratively with GBCMA, G–MW, Moira Shire Council and other agencies to implement the park and*

reserves vision and management directions. In doing so, raise Parks Victoria's profile as a land manager in the catchment.

- *Liaise with GBCMA to reduce the impacts of land use and management on the planning area and the implementation of appropriate actions from the Regional Catchment Strategy.*
- *Liaise with EPA to minimise impacts associated with the discharge of waste into the creek systems.*
- *Liaise with DSE and DPI regarding future planning and management, including fire management, the protection of flora and fauna from potentially threatening processes and reserve regulations.*
- *Work with the CFA to ensure safety and protection of planning area values in managing fire within and around the park and reserves.*
- *Liaise with Moira Shire Council regarding administration of the planning scheme, including input into adjacent or nearby developments that may impact on the planning area (section 7.3).*
- *Work with VicRoads and Moira Shire Council to minimise impacts associated with the management of roads, particularly from road works and signage.*
- *Liaise with G–MW to ensure that water regimes are consistent with the vision, aims and strategies of this plan.*
- *Liaise with AAV and the North East Regional Aboriginal Cultural Heritage Program on issues relating to Indigenous affairs and to ensure compliance with the Archaeological and Aboriginal Relics Preservation Act and the Aboriginal and Torres Strait Islander Heritage Protection Act.*
- *Liaise with Heritage Victoria on heritage management and compliance with the Heritage Act.*
- *Liaise with Tourism Victoria and regional tourism authorities to promote the park and reserves in regional visitor information centres and in regional tourism strategies.*

9 PLAN IMPLEMENTATION

9.1 Delivery and reporting

A range of approaches will be used to implement strategies in this plan. Some will be undertaken as part of routine management activities such as ranger visits; others will be addressed as part of regional programs undertaken across the State each year.

A priority list of all the strategies in the plan will be used to guide routine management and identify detailed actions in annual regional programs. Priorities for regional programs vary from year to year depending on available resources and government priorities.

At the end of each year, progress towards implementing the plan will be reviewed and the priority list updated. Staff report internally against 'on time and within budget' delivery of regional programs and whether the completed strategy has achieved the objective. Parks Victoria reports annually to government on the overall delivery of regional and divisional programs. This broader reporting on management performance is available in annual reports prepared on Parks Victoria and the National Parks Act.

During implementation of the plan, Parks Victoria will work in partnership with the Traditional Owners and the scheduled Aboriginal Community. On-going collaborative activities with the relevant Indigenous communities, interested members of the community, scientists and agencies in realising the vision and management directions for the planning area will be especially important as outlined in previous sections of the plan.

Implementation of the plan will be consistent with Parks Victoria's commitment to sustainable practices, which involves the delivery of operations, services and facilities in an ecologically and socially responsible manner with minimal use of expendable resources and minimal generation of waste.

In implementing the plan, management will respond to monitoring and research information as it emerges. Parks Victoria's environmental management framework makes this possible. Based on the International Standard for Environmental Management

Systems (ISO 14001), the framework ensures that the future condition of values is considered in identifying threats and developing actions to ameliorate them. Over time the success of actions is reviewed against set objectives to ensure ongoing learning and refinement of management. The selection of actions and treatments of threats are guided by the precautionary principle. Management options are evaluated on the basis of least impact on the environment. Treatment of threats with a potential for serious damage that is not addressed in the plan will not be postponed for lack of information.

Parks Victoria will use a variety of means to report to the community about the progress of implementation of the plan. The primary means will be through the Conservation Management Network (section 1.3) and routine liaison between Parks Victoria, interested groups and individuals from the local community and relevant government agencies. In addition to giving regular updates, there will be opportunities for input by interested members of the community into annual priority setting and feedback on management performance. Events such as Park open days and community and volunteer forums will offer similar opportunities for reporting and discussions about annual programs.

The results of monitoring and research work will continue to be available to the community as technical reports on Parks Victoria's website (www.parkweb.vic.gov.au).

Parks Victoria will also report on evaluation of the plan (section 9.3) at the start of the new or revised plan, through routine liaison and community forums and in the subsequent draft plan.

Future State of the Parks reports, which will be available on the Parks Victoria's website, will also include information on management performance in the park.

9.2 Plan amendment

During the 10-year life of the plan, amendments to the plan may only be made by the Secretary to DSE, following an authorised

process which includes community consultation.

Circumstances that might lead to amendment of the plan include:

- the results of monitoring or research, management experience or new information (such as altered flow regimes) which indicate the need for a change in management direction
- significant changes in visitation or use (such as installation of the Tungamah Pipeline)
- a change in policy that calls into question plan objectives
- new legislation (such as significant boundary changes).

The plan may also be amended if an activity, development or use which conflicts with the provisions of the plan is approved by government.

9.3 Evaluation and review

Periodically through the life of the plan, Parks Victoria will assess overall progress towards implementing the strategies in the plan and also assess progress towards achieving the plan vision and directions. These evaluations will inform a decision about whether a new or revised plan is required. The achievements of the plan will be assessed by considering performance areas such as:

Protecting natural values

- Progress towards increasing the cover of the native ground and shrub layers of previously grazed areas.
- In high conservation areas less than 100 m wide, progress towards restoring vegetation on adjacent land.
- The return of fish to areas where instream habitat and a degree of ephemerality in the creek systems are restored.
- Meeting targets of an integrated fox control program co-ordinated with CMN and neighbours.
- Minimal impact from permitted uses.

Protecting cultural values

- Progress towards working with Traditional Owners in all aspects of park and reserves management, particularly in protecting and interpreting Indigenous places and objects.
- Identification and recording of historic sites and places.
- Timely management intervention to avoid threats to cultural values.

Managing recreation and visitor use

- Maintaining the levels of information and interpretation (section 6.1).
- Meeting road and track standards (table 3).
- Managing impacts from visitors, including individuals, schools and clubs.
- Maintaining visitor satisfaction with recreational opportunities.

Providing for research and promoting understanding

- Improving understanding of riparian grassy woodland management techniques.
- Improving understanding of the long term effects of altered flow regimes on the environment.
- Ongoing partnerships with and participation by, local communities in park management.

Methods for evaluating the benefits of the plan are likely to be refined over time. Parks Victoria has introduced a range of structured monitoring practices to collect standardised and scientifically-robust information. In particular these will improve understanding of the outcomes of management on natural values; and allow improved reporting and assessment of performance. Parks Victoria also partners with external research agencies to enhance knowledge and understanding of the values and features of the planning area and inform management decisions particularly in relation to pest and fire management. By using sound monitoring and assessment methods this monitoring and research work will strengthen the basis for comparing management performance over time.

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GLOSSARY

Anabranch – a stream that separates from a river and follows its own course before re-entering the same river further downstream.

Biodiversity – the natural diversity of all life: the sum of all our native species of flora and fauna, the genetic variation within them, their habitats and the ecosystems of which they are an integral part.

Bioregion – an area with unique underlying environmental and ecological features.

Catchment – the area of land that drains to a watercourse or estuary.

Chenopod – salt-tolerant xenomorphic (plant characteristics determined by ability to resist drought) shrubs, sub-shrubs or forbs. The leaves are frequently covered with scales or soft hairs; some are leafless with fleshy jointed stems. Many have pores, which excrete salt.

Coolamon – a wooden vessel used by Indigenous peoples for carrying.

Country – all of nature, culture and spirituality relating to an area.

Crown land – land belonging to the State.

Customs – observances and practices of people (includes land management practices and resource use in accordance with tradition).

Dreaming, the – the primordial creative world of the spirit ancestors and the continuing reality for their totem ancestors.

Ecological values – the importance of natural assets in maintaining natural ecosystems and ecological processes, of which they are a part.

Ecosystem – a dynamic complex of interacting organisms and their associated non-living environment.

Eutrophication – the process by which a body of water becomes rich in dissolved nutrients, thereby encouraging the growth and decomposition of oxygen-depleting plant life and resulting in harm to other organisms.

Ephemeral – lasting for only a short period of time.

Freehold land – land held in private ownership.

Geomorphology – the branch of geology that examines the formation and structure of the features of the surface of the earth.

Graptolite – any one of various small floating sea animals that lived in colonies, and existed between about 550 million and 325 million years ago and are now found as fossils.

Herb – a seed-producing flowering plant that does not produce woody stems and that forms new stems and leaves each season.

Heritage – a place, activity, cultural way of life, structure or group of structures that has aesthetic, historic, scientific or social value for the past, present or future generations.

High conservation value – sites of high conservation value in this report are those considered excellent and high in Robinson & Mann 1996.

Hydrologic conditions – conditions resulting from the water of the earth and the atmosphere.

Indigenous – Native to a place or area, originating in and characteristic of a particular region or country.

Indigenous cultural heritage – all aspects of contemporary and traditional culture, and places and objects of significance to Indigenous people in accordance with tradition.

Indigenous people – people who are descendants of Aboriginal Australians.

Infrastructure – physical structures that facilitate the human use of an area (e.g. roads, paths, toilet blocks).

Lease – grants the lessee a right of exclusive occupancy of the land leased for a specific term. It creates a legal interest in the land in favour of the lessee.

Licence – grants the licensee the right to enter upon the land and use it for a specific purpose. Gives no right of exclusive occupancy and no legal interest in the land created by the grant of a licence. A licence is usually subject to the rights of other persons to use the land.

Low conservation value – sites of low conservation value in this report are those considered moderate-low and low in Robinson & Mann 1996.

Medium conservation value – sites of medium conservation value in this report are those considered moderate-high and moderate in Robinson & Mann 1996.

Monitoring – the process of systematic observation of one or more elements of the environment over time.

Morphology – the form and structure of an organism or of any part of an organism.

Permit – a form of licence, usually granted for a short period of time and for a limited purpose.

Pest – an exotic organism (plant, animal) that if introduced outside its natural or previous distribution can cause significant changes to habitats or ecosystems by feeding on or competing with native species.

Risk – the chance of something happening that will have an impact upon objectives. It is measured in terms of consequences and likelihood.

Relevant Indigenous communities – includes the Traditional Owners and the scheduled Aboriginal Community for the area including the planning area.

Scar tree – a tree with scars or notches made by Indigenous people removing bark for the manufacture of utensils, shields, canoes or shelters, or creating hand and toe holds to aid climbing trees (for lookouts, hunting arboreal animals and cutting bark higher up the tree).

Scheduled Aboriginal Community – body/s scheduled as the Local Aboriginal Community under the Aboriginal and Torres Strait Islander Heritage Protection Act relating to the planning area.

Stakeholders – those people and organisations who may affect, be affected by, or perceive themselves to be affected by, a decision or activity.

Threatened – an organism or species that is in danger of becoming extinct.

Threatening process – a process which may have the capability to threaten the survival, abundance or evolutionary development of any taxon or community of flora or fauna.

Tradition – the body of knowledge, belief and customs that is passed from one generation to another.

Traditional Owners – the Yorta Yorta and Bangerang people that reasonably assert an

association with the planning area that is based on direct descent from the original Indigenous custodians of *Country*, in accordance with Indigenous tradition.

Values – natural and cultural assets (e.g. historic artefacts, features, landscapes, flora and fauna species, flora communities) that have been given worth or are considered to be desirable.

Acronyms

AAV – Aboriginal Affairs Victoria.

BP – before present.

CMN – Conservation Management Network.

DPI – Department of Primary Industries.

DSE – Department of Sustainability and Environment.

ECC – Environment Conservation Council.

EPA – Environment Protection Authority (Victoria).

EPBC – Environment Protection and Conservation Biodiversity Act.

FFG – Flora and Fauna Guarantee Act.

GBCMA – Goulburn–Broken Catchment Management Authority.

GBRSPPAC - Goulburn–Broken Region Salinity Pilot Program Advisory Council.

G–MW – Goulburn–Murray Water.

LG – Landcare Group

PV – Parks Victoria.

VEAC – Victorian Environmental Assessment Council.

APPENDIX 1 MANAGEMENT OBJECTIVES FOR STATE PARKS

Management objectives for State Parks included on Schedule Two B of the National Parks Act are listed below.

For an up-to-date copy of the *National Parks Act 1975* (Vic.), refer to Victorian Acts on the Victorian Legislation and Parliamentary Documents website: www.dms.dpc.vic.gov.au.

4. Objects of the Act

The objects of this Act are-

- (a) to make provision, in respect of national parks, State parks, marine national parks and marine sanctuaries –
 - (i) for the preservation and protection of the natural environment including wilderness areas and remote and natural areas in those parks;
 - (ii) for the protection and preservation of indigenous flora and fauna and of features of scenic or archaeological, ecological, geological, historic or other scientific interest in those parks; and
 - (iii) for the study of ecology, geology, botany, zoology and other sciences relating to the conservation of the natural environment in those parks; and
 - (iv) for the responsible management of the land in those parks;
- (c) to make provision in accordance with the foregoing for the use of parks by the public for the purposes of enjoyment, recreation or education, and for the encouragement and control of that use.

Section 17. National Parks and State Parks

Section 17. National parks and State parks

- (2) The Secretary shall, subject to this Act –
 - (a) ensure that each national park and State park is controlled and managed, in accordance with the objects of this Act, in a manner that will -

- (i) preserve and protect the park in its natural condition for the use, enjoyment and education of the public;
- (ii) preserve and protect indigenous flora and fauna in the park;
- (iii) exterminate or control exotic fauna in the park;
- (iv) eradicate or control exotic flora in the park; and
- (v) preserve and protect wilderness areas in the park and features in the park of scenic, archaeological, ecological, geological, historic or other scientific interest;
 - (aa) have regard to all classes of management actions that may be implemented for the purposes of maintaining and improving the ecological function of the park;
 - (b) ensure that appropriate and sufficient measures are taken to protect each national park and State park from injury by fire;
 - (ba) ensure that appropriate and sufficient measures are taken –
 - (i) to protect designated water supply catchment areas; and
 - (ii) to maintain water quality of and otherwise protect the water resources in those areas; and
 - (iii) to restrict human activity in those areas for the purposes of subparagraphs (i) and (ii);
 - (c) promote and encourage the use and enjoyment of national parks and State parks by the public and the understanding and recognition of the purpose and significance of national parks and State parks; and
 - (d) prepare a plan of management in respect of each national park and State park.

APPENDIX 2 ECC RECOMMENDATIONS

The Victorian Government accepted the following in relation to management of the park and reserves.

B2 Recommendations for Broken-Boosey State Park

- a) Broken-Boosey State Park be used in accordance with the general recommendations for State Parks;
- b) metal detecting not be permitted;
- c) low intensity grazing permitted at land manager's discretion, where necessary for biodiversity conservation;
- d) dogs generally be permitted in the park, subject to land managers discretion; and
- e) the following uses be allowed to continue, through specific agreements where appropriate, at current levels:
 - i. Land owners to retain necessary access through the park to their properties.
 - ii Stock movement through the park to be permitted where required to access different parts of a property.
 - iii. Continued access to water for domestic and irrigation purposes from the creeks in the park.
 - iv. Changes to access for owners or stock, or changes to water access points to be treated on their merits but approval should not be unreasonably withheld.

General recommendations for Natural Features Reserves

- H Natural Features Reserves, according to their specific characteristics, be used to:
 - a) protect natural features and values
 - b) provide opportunities for:
 - i) education and passive recreation such as picnicking, walking and where relevant, fishing, and
 - ii) more intensive recreation such as camping where specified;

- c) conserve indigenous flora and fauna;
- d) protect areas with remnant vegetation or habitat value;
- e) provide protection for historic and Aboriginal cultural values and sites;
- f) preserve features of geological or geomorphological interest;
- g) maintain scenic features and the character and quality of the local landscape; and
- h) commercial timber harvesting not be permitted;
- i) some firewood collection may be available from thinning for ecological management, subject to research and the approval of the land manager;
- j) exploration of minerals be permitted, and mining, subject to decisions on particular cases;
- k) prospecting and apiculture generally be permitted subject to conditions;
- l) grazing generally not be permitted, unless required for short periods by the land manager;
- m) unused road reserves adjoining natural features reserves be added to those reserves where appropriate; and
- n) they be permanently reserved under the *Crown Land (Reserves) Act 1978*, and managed by Parks Victoria.

Note: The Government decided to apply the classification of 'Natural Features Reserve' to the recommended Nathalia, Numurkah, Tungamah and Youarang Nature Conservation Reserves to allow for biodiversity values to be protected, while also allowing for traditional uses, such as grazing where appropriate and hunting game.

APPENDIX 3 SUBMISSIONS ON THE DRAFT MANAGEMENT PLAN

A total of 18 submissions were received on the Draft Management Plan (September – November 2005), from the following organisations and individuals. Two submissions were marked confidential.

ORGANISATION	SUBMISSION No.	NAME	SUBMISSION No.
Submissions from groups	Total: 12	Submissions from Individuals	Total: 6
Aboriginal Affairs Victoria	5	Philip Brown (identical to Sporting Shooters Association submission)	9
Bangerang/North East Cultural Heritage	3	Confidential	6
Bird Observers Club of Australia	15	Confidential	10
Broken Creek Improvement Landcare Group	12	June Dixon	4
Department of Sustainability and Environment – Public Land Management – Parks Branch	16	Geoff Mills	11
Department of Sustainability and Environment – Threatened Species and Communities Section	1	Patricia & Leo Simpson; Helen & Tom Seymour	2
Goulburn Murray Landcare Network	14		
Shepparton Irrigation Region Implementation Committee	18		
Sporting Shooters Association of Australia (Victoria)	17		
The Goulburn Valley Environment Group	7		
Trust for Nature	8		
VicWalk Conservation Committee	13		

APPENDIX 4 RARE OR THREATENED FLORA

SCIENTIFIC NAME	COMMON NAME	CONSERVATION STATUS	STATE PARK	NATHALIA NFR	NUJURKAH NFR	TUNGAMAH NFR	YOUJARANG NFR
<i>Acacia notabilis</i>	Mallee Golden Wattle	v		✓			
<i>Allocasuarina luehmannii</i>	Buloke	L					
<i>Alternanthera nodiflora</i>	Common Joyweed	k	✓	✓			
<i>Atriplex spinibractea</i>	Spiny-fruit Saltbush	e	✓		✓*		
<i>Brachyscome chrysoglossa</i>	Yellow-tongue Daisy	L, v	✓		✓*		
<i>Cullen parvum</i> *	Small Scurf-pea	L, e, E		✓			
<i>Cullen tenax</i>	Tough Scurf-pea	L, e		✓			
<i>Desmodium varians</i>	Slender Tick-trefoil	k					✓
<i>Eleocharis pallens</i>	Pale Spike-sedge	k				✓	
<i>Eremophila debilis</i>	Winter Apple (Amulla)	e	✓				
<i>Eryngium paludosum</i> *	Long Eryngium	v			✓		
<i>Glossostigma cleistanthum</i>	Small-flower Mud-mat	r			✓		
<i>Haloragis glauca</i> f. <i>glauca</i>	Bluish Raspwort	k	✓				
<i>Hypoxis exilis</i>	Swamp Star	v				✓	
<i>Maireana aphylla</i>	Leafless Bluebush	k	✓				
<i>Minuria integerrima</i>	Smooth Minuria	r	✓		✓*	✓	
<i>Myoporum montanum</i>	Waterbush	r	✓		✓*		
<i>Myriophyllum gracile</i> var. <i>lineare</i>	Slender Water-milfoil	L, e			✓		
<i>Myriophyllum striatum</i>	Striped Water-milfoil	L, v			✓		
<i>Panicum laevinode</i>	Pepper Grass	v				✓	
<i>Panicum queenslandicum</i> var. <i>queenslandicum</i>	Coolibah Grass	e	✓				
<i>Swainsona behriana</i> *	Southern Swainson-pea	-			✓		

Source: DSE 2005b

Victorian status:

e endangered in Victoria
v vulnerable in Victoria
d depleted in Victoria
r rare in Victoria
k species poorly known in Victoria
L listed under the Flora and Fauna Guarantee Act

National Status:

E endangered

* Williams pers. comm. 2005

APPENDIX 5 RARE OR THREATENED FAUNA

SCIENTIFIC NAME	COMMON NAME	CONSERVATION STATUS	STATE PARK	NATHALIA NFR	NUMURKAH NFR	TUNGAMAH NFR	YOUJARANG NFR
Birds							
<i>Ardea alba</i>	Great Egret	Vul, L, C, J		✓		✓	
<i>Burhinus grallarius</i>	Bush Stone-curlew	End, L, A LC	✓	✓		✓	
<i>Climacteris picumnus</i>	Brown Treecreeper	NT	✓	✓	✓	✓	✓
<i>Gallinago hardwickii</i>	Latham's Snipe	NT, C, J	✓				
<i>Grus rubicunda*</i>	Brolga	Vul, L, A				✓	
<i>Melithripterus gularis</i>	Black-chinned Honeyeater	NT, LC	✓	✓			
<i>Numenius madagascariensis</i>	Eastern Curlew	NT, C, J	✓				
<i>Nycticorax caledonicus</i>	Nankeen Night Heron	NT	✓				
<i>Platalea regia</i>	Royal Spoonbill	Vul			✓		
<i>Polytelis swainsonii**</i>	Superb Parrot	V, End, L	✓	✓			
<i>Pomatostomus temporalis</i>	Grey-crowned Babbler	End, L, A LC	✓				✓
<i>Stagonopleura guttata</i>	Diamond Firetail	Vul, L, LC	✓				
<i>Todiramphus pyrropygia</i>	Red-backed Kingfisher	NT			✓		
Members of the FFG-listed Victorian-temperate woodland bird community							
<i>Glossopsitta pusilla</i>	Little Lorikeet	LC					
<i>Lichenostomus fuscus</i>	Fuscous Honeyeater	LC					
<i>Melithreptus brevirostris pallidiceps</i>	Brown-headed Honeyeater	LC					
<i>Microeca fascinans</i>	Jacky Winter	LC					
<i>Petroica goodenovii</i>	Red-capped Robin	LC					
<i>Turnix varia</i>	Painted Button-quail	LC					
Mammal							
<i>Petaurus norfolcensis</i>	Squirrel Glider	End, L, A	✓	✓	✓		
Reptile							
<i>Varanus varius</i>	Lace Monitor	Vul	✓	✓	✓		
Amphibian							
<i>Litoria raniformis</i>	Growling Grass Frog	V, End, L	✓				

Appendix 5 (contd.)

SCIENTIFIC NAME	COMMON NAME	CONSERVATION STATUS	STATE PARK	NATHALIA NFR	NUMURKAH NFR	TUNGAMAH NFR	YOUARANG NFR
Fish							
<i>Maccullochella peelii peelii</i> *	Murray Cod	Vul, L, 1A	Lower Broken Creek (Katamatite to the Murray River) (GBCMA 2004c) and Broken Creek between the Broken River and Katamatite (CRC 2001)				
<i>Macquarie australasica</i> *	Macquarie Perch	End, L	Nathalia NFR (Saddler, pers. comm. 2005) and Lower Broken Creek (Katamatite to the Murray River) (GBCMA 2004c)				
<i>Maquaria ambigua</i> *	Golden Perch	Vul					
<i>Melanotaenia fluviatilis</i> *	Crimson-spotted Rainbowfish	dd, L	Nathalia NFR (Saddler, pers. comm. 2005), Lower Broken Creek (Katamatite to the Murray River) (GBCMA 2004c) and Broken Creek between the Broken River and Katamatite (CRC 2001)				
<i>Maccullochella macquariensis</i> ***	Trout Cod	CEn, L	Lower Broken Creek (Katamatite to the Murray River) (GBCMA 2004c)				
<i>Tandanus tandanus</i> *	Freshwater Catfish	End, L	Lower Broken Creek (Katamatite to the Murray River) (GBCMA 2004c)				

Source: DSE 2005a

* record yet to be added to DSE 2005a

** Weber, pers. comm. 2006

*** recorded by SKM 1996a

Victorian status:

- CEn critically endangered in Victoria
- End endangered in Victoria
- Vul vulnerable in Victoria
- NT near threatened in Victoria
- dd data deficient in Victoria
- L listed under the Flora and Fauna Guarantee Act
- LC member species of the FFG-listed Victorian temperate-woodland bird community
- A an Action Statement has been prepared for its management

National status:

- E Endangered in Australia
- V Vulnerable in Australia

Migratory Species:

- J denotes species listed under the Japan-Australia Migratory Bird Agreement (JAMBA)
- C denotes species listed under China-Australia Migratory Bird Agreement (CAMBA)

APPENDIX 6 PEST PLANTS

COMMON NAME	SCIENTIFIC NAME	EXISTING THREAT	EMERGING THREAT
REGIONALLY PROHIBITED WEEDS			
Silver-leaf Nightshade	<i>Solanum elaeagnifolium</i>	✓	
Recurved Thornapple	<i>Datura innoxia</i>		✓
REGIONALLY CONTROLLED WEEDS			
Bathurst Burr	<i>Xanthium spinosum</i>	✓	
Blackberry	<i>Rubus fruticosus</i> spp. agg.	✓	
African Box-thorn	<i>Lycium ferocissimum</i>	✓	
Hardheads / Russian knapweed	<i>Acroptilon repens</i>	✓	
Hoary Cress	<i>Lepidium draba</i>	✓	
Horehound	<i>Marrubium vulgare</i>	✓	
Paterson's Curse	<i>Echium plantagineum</i>	✓	
Ground Cherry	<i>Physalis lanceifolia</i>	✓	
Saffron Thistle	<i>Carthamus lanatus</i>	✓	
Slender / Shore Thistle	<i>Carduus tenuiflorus</i> / <i>C. pycnocephalus</i>	✓	
St. John's Wort	<i>Hypericum perforatum</i>		
Stemless Thistle	<i>Onopordum acaulon</i>	✓	
Sweet Briar	<i>Rosa rubiginosa</i>	✓	
Variegated Thistle	<i>Silybum marianum</i>	✓	
OTHER WEEDS			
Alligator Weed	<i>Alternanthera philoxeroides</i>		✓
Arrowhead	<i>Sagittaria graminea</i>	✓	
Bridal Creeper (Smilax)	<i>Asparagus asparagoides</i>	✓	
Chilean Needle-grass	<i>Nassella neesiana</i>		✓
Phalaris	<i>Phalaris</i> spp.	✓	
Prickly Pear	<i>Opuntia</i> spp.		✓
Weeping Willow	<i>Salix babylonica</i>	✓	

Source: Whitechurch 2003, McDougall, pers. comm. 2005.

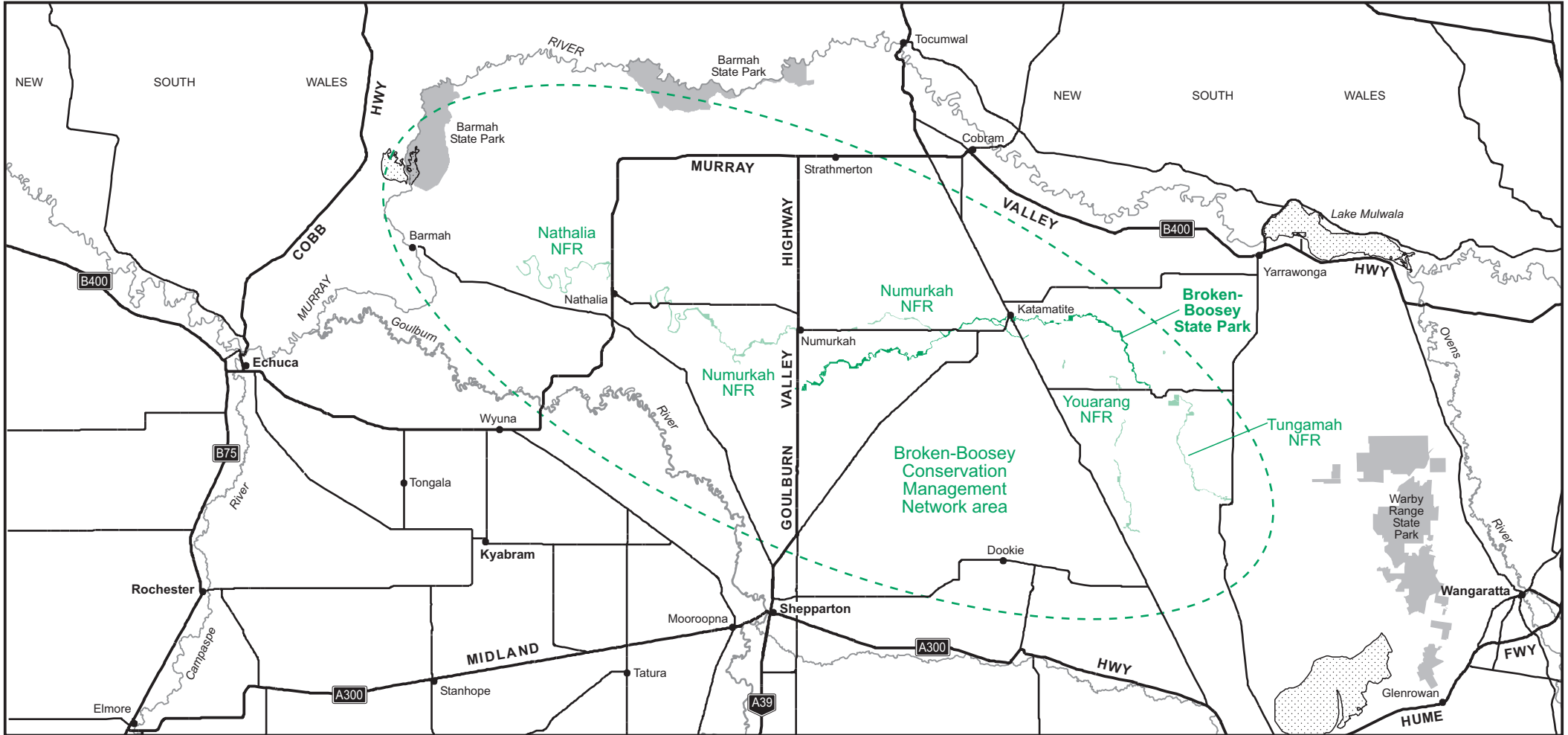









Figure 1 LOCATION
BROKEN-BOOSEY STATE PARK &
NATHALIA, NUMURKAH, TUNGAMAH & YOUARANG NATURAL FEATURES RESERVES

-  Freeway/Highway
-  Major sealed road
-  State Park
-  Natural Features Reserves (NFR)
-  Other Parks & Reserves
-  Waterbody
-  Broken-Boosey Conservation Management Network area

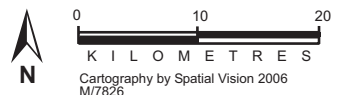












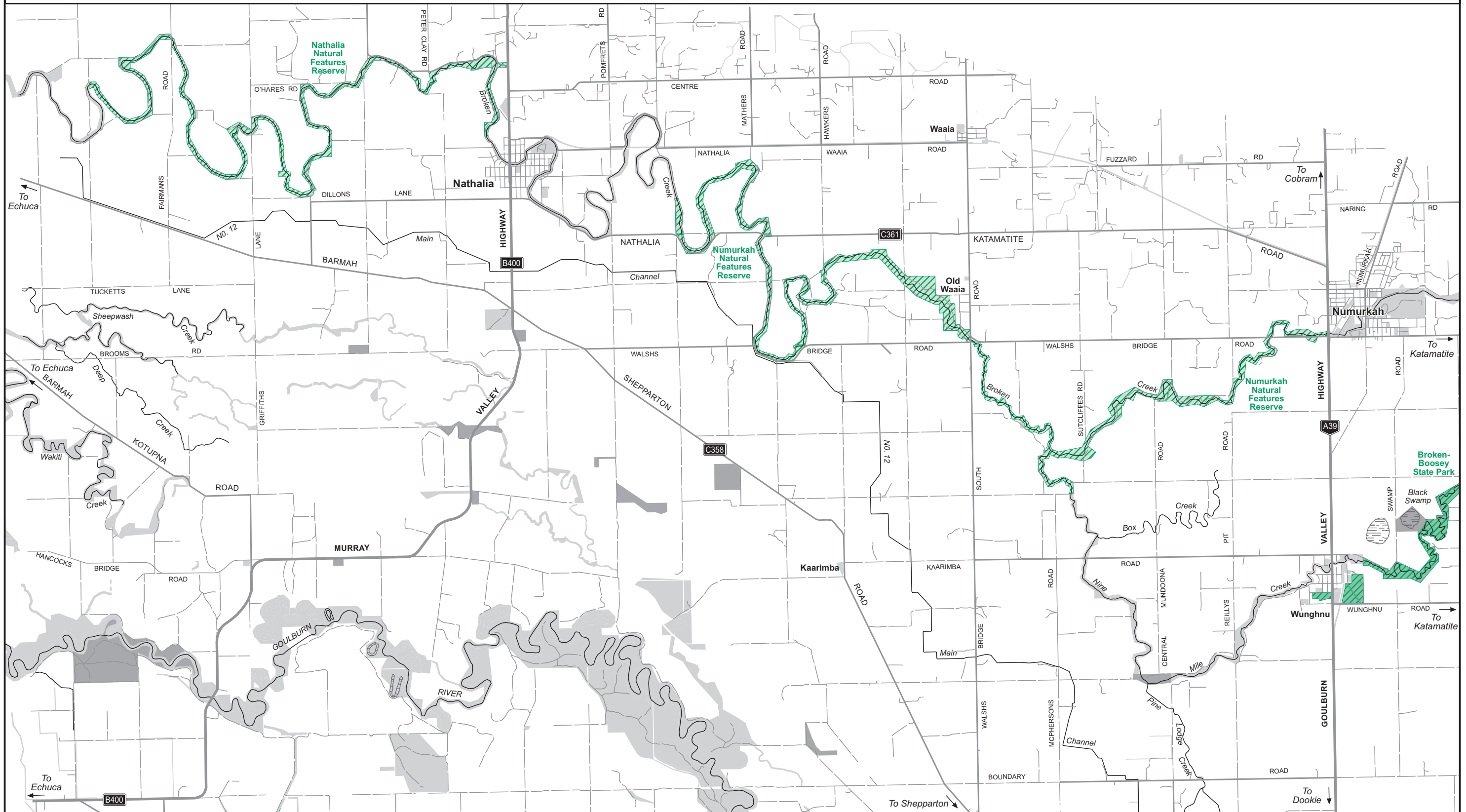
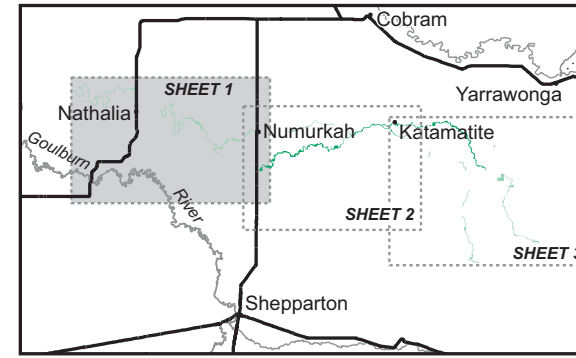
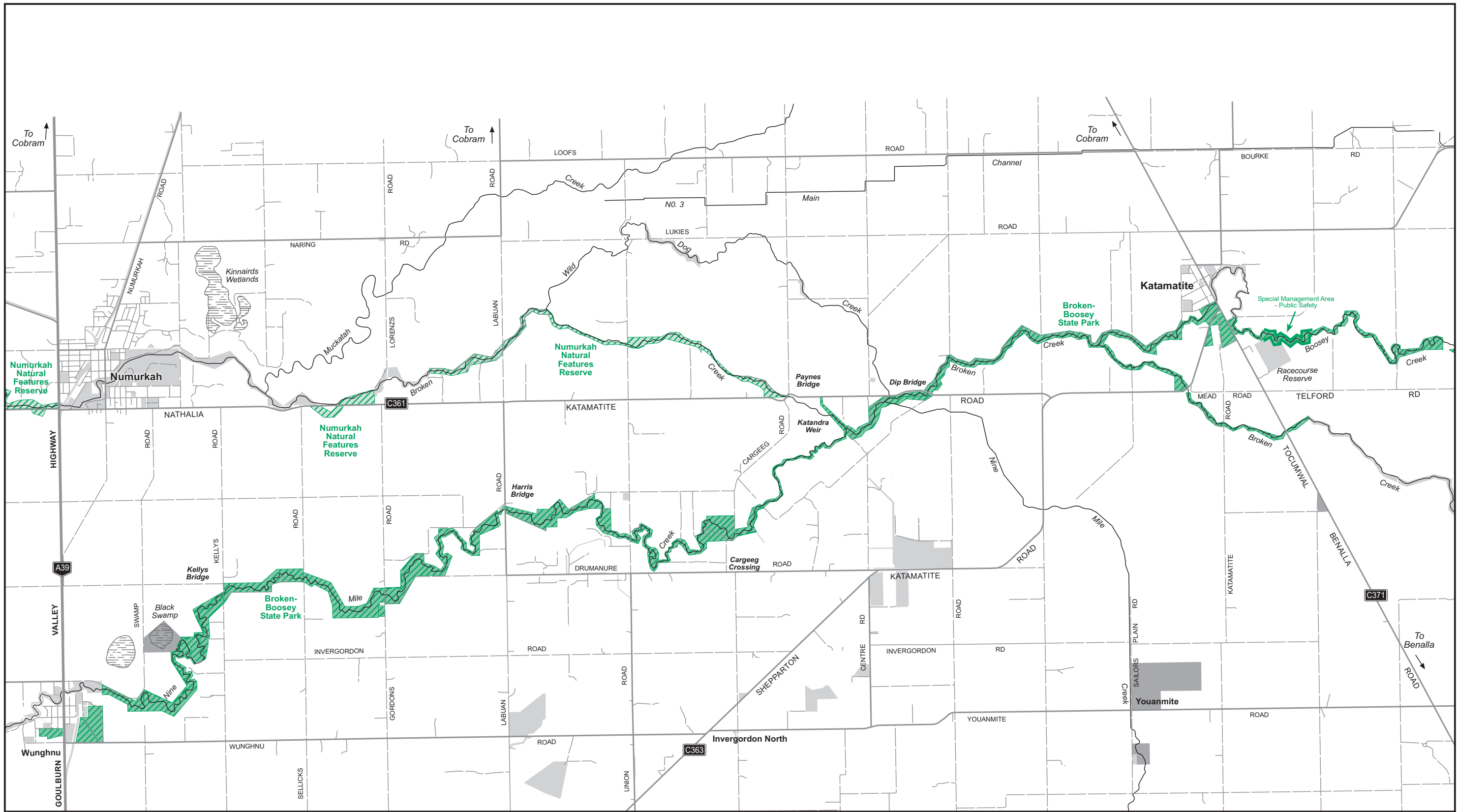


Figure 2 MANAGEMENT ZONING & ADJACENT LAND

BROKEN-BOOSEY STATE PARK & NATHALIA, NUMURKAH, TUNGAMAH & YOUARANG NATURAL FEATURES RESERVES SHEET 1

-  Highway
-  Major sealed road
-  Minor sealed road
-  Unsealed track
-  Swamp
-  State Park
-  Natural Features Reserves (NFR)
-  Conservation Reserves not included in the Planning Area
-  Other Public Land
-  Freehold
-  Management Zoning Planning Area only
-  Conservation & Recreation Zone





- | | | |
|-------------------|---|------------------------------------|
| Highway | State Park | Management Zoning |
| Major sealed road | Natural Features Reserves (NFR) | Conservation & Recreation Zone |
| Minor sealed road | Conservation Reserves not included in the Planning Area | Special Management - Public Safety |
| Unsealed track | Other Public Land | |
| Swamp | Freehold | |

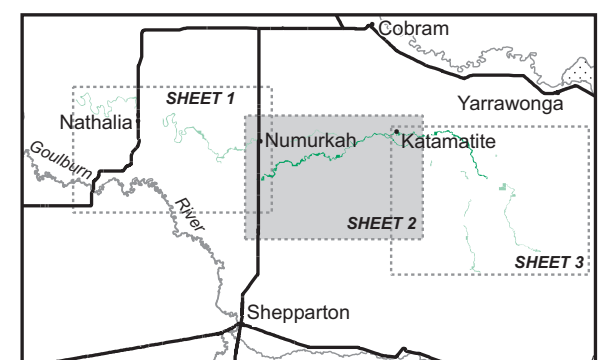


Figure 2 MANAGEMENT ZONING & ADJACENT LAND
BROKEN-BOOSEY STATE PARK & NATHALIA, NUMURKAH, TUNGAMAH & YOUARANG NATURAL FEATURES RESERVES
 SHEET 2

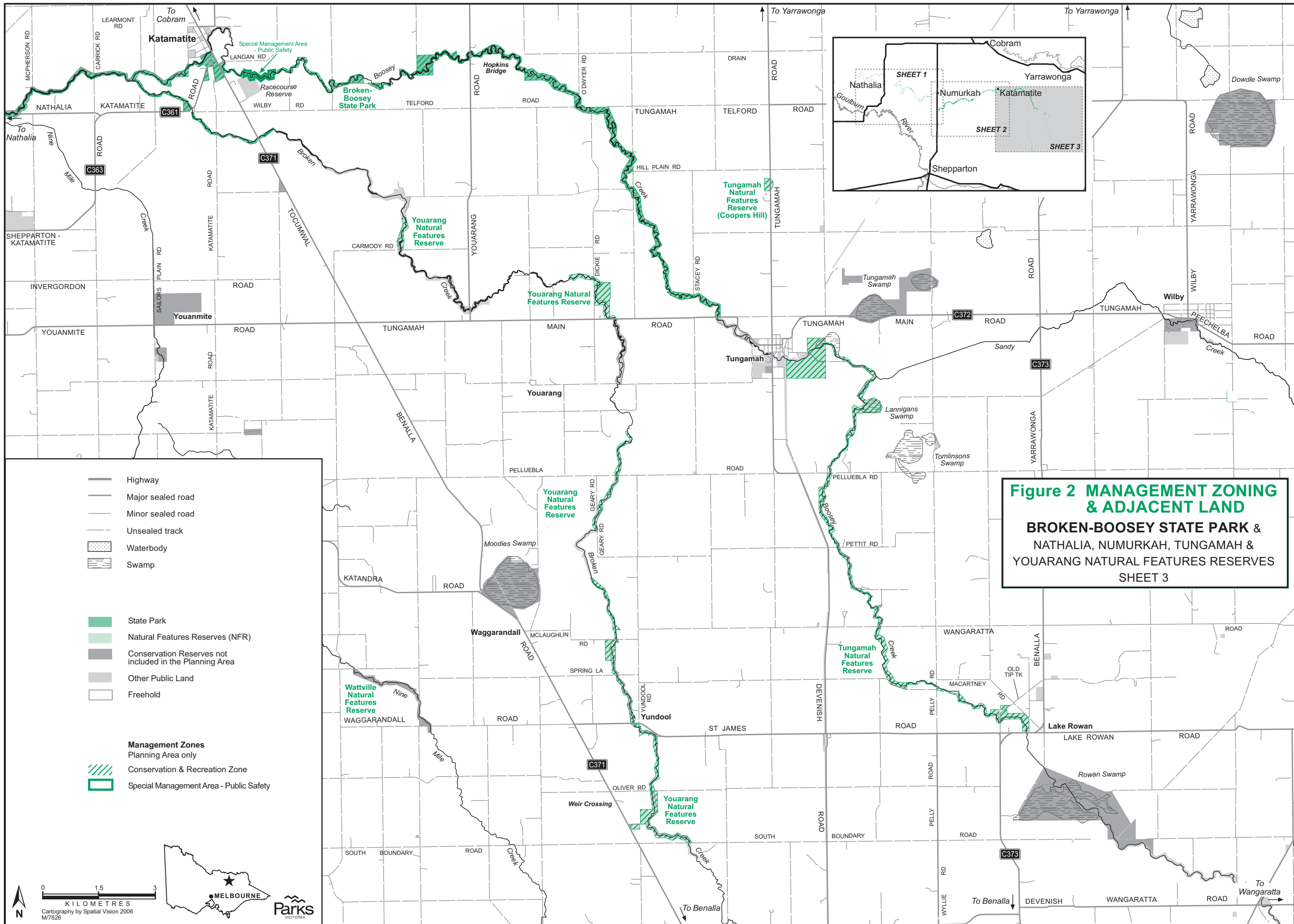


Figure 2 MANAGEMENT ZONING & ADJACENT LAND
BROKEN-BOOSEY STATE PARK & NATHALIA, NUMURKAH, TUNGAMAH & YOUARANG NATURAL FEATURES RESERVES
 SHEET 3

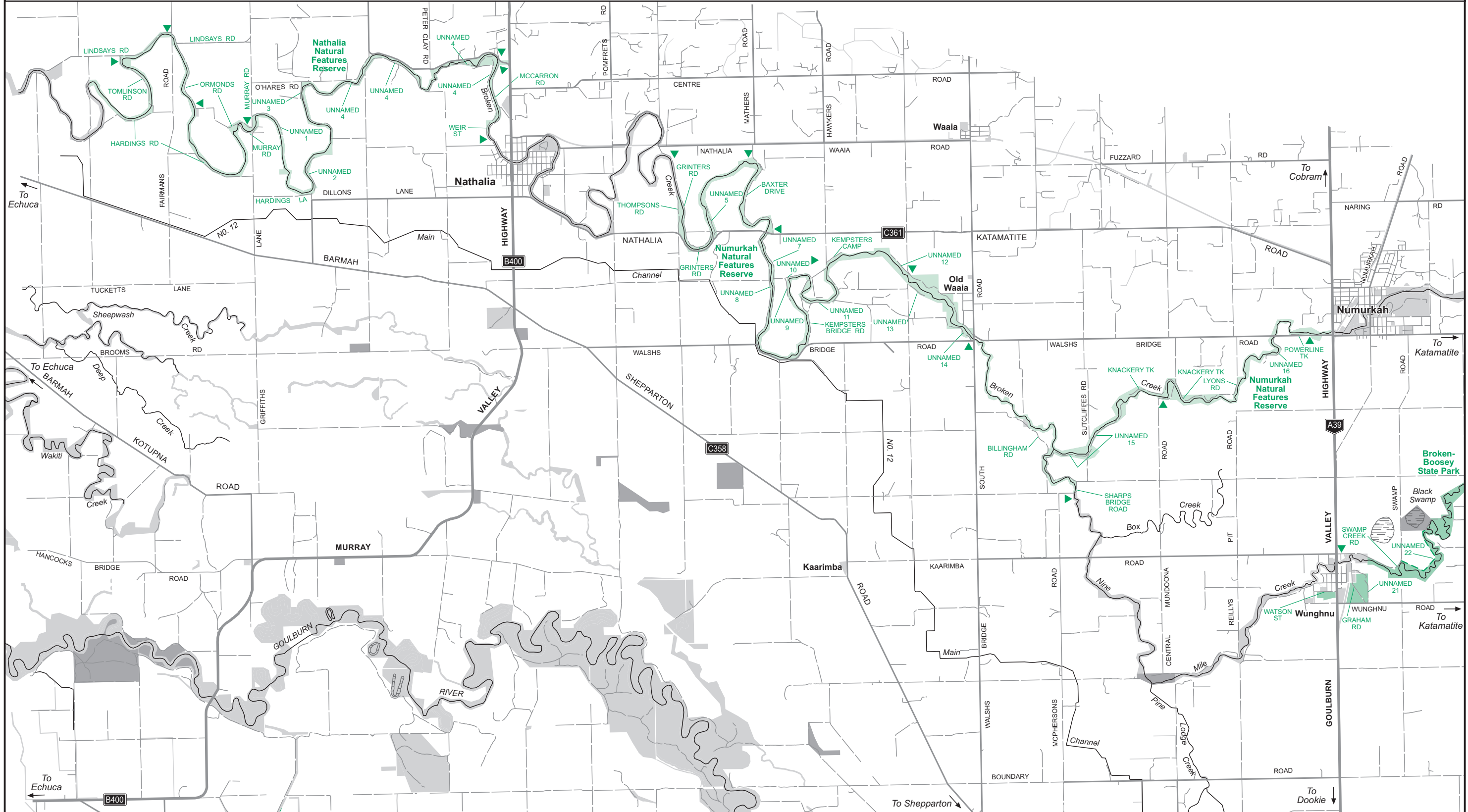
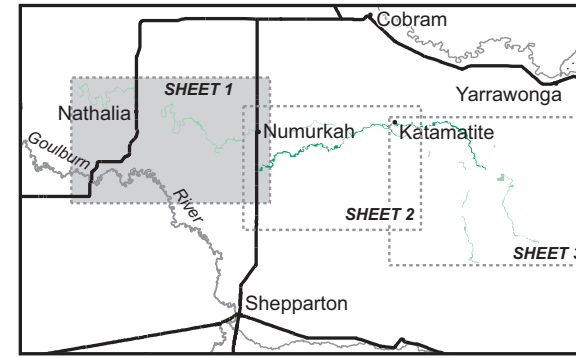
- Highway
- Major sealed road
- Minor sealed road
- - - Unsealed track
- ▨ Waterbody
- ▨ Swamp

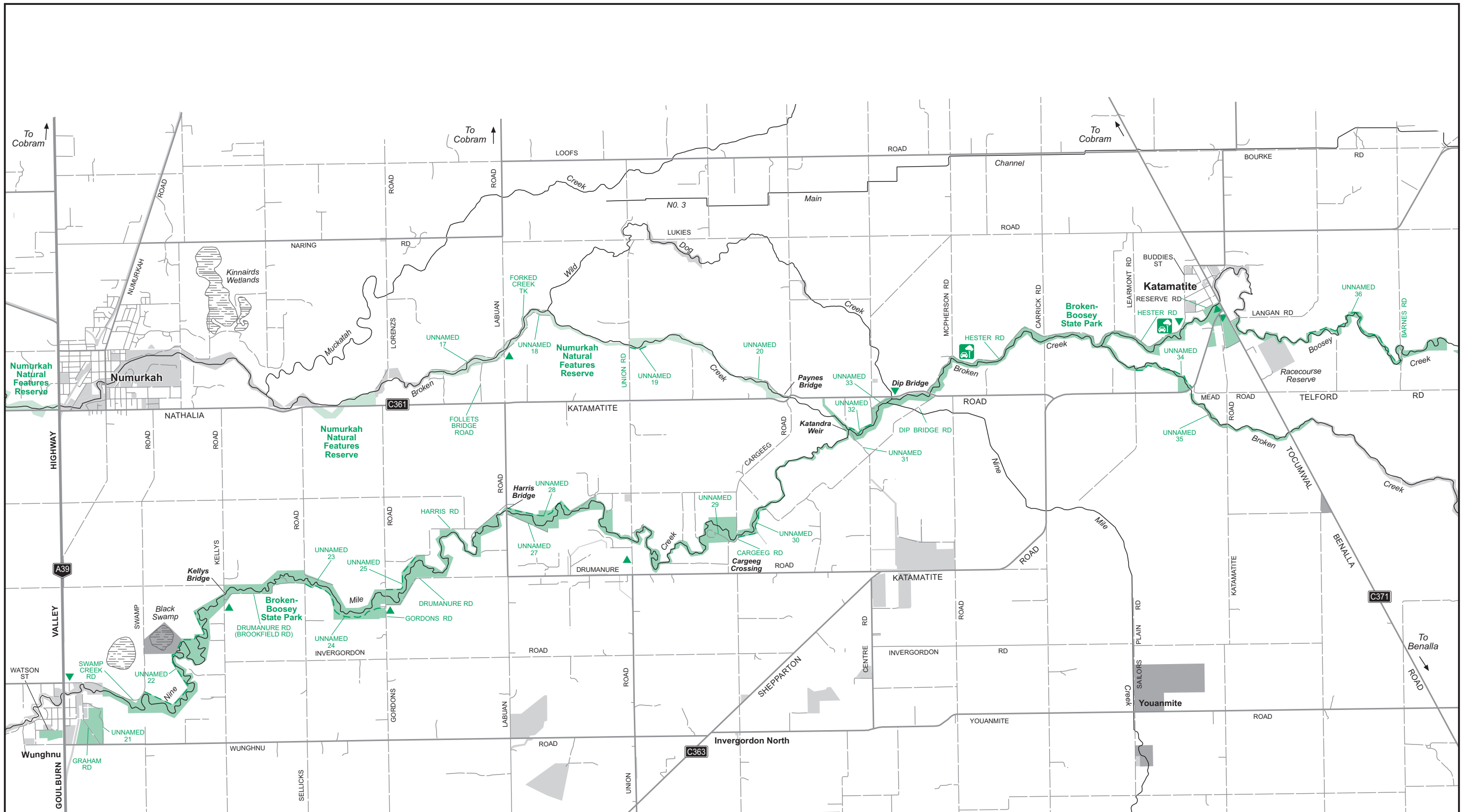
- State Park
- Natural Features Reserves (NFR)
- Conservation Reserves not included in the Planning Area
- Other Public Land
- Freehold

- Management Zones**
 Planning Area only
- ▨ Conservation & Recreation Zone
- ▨ Special Management Area - Public Safety

Figure 3 VISITOR ACCESS
BROKEN-BOOSEY STATE PARK &
NATHALIA, NUMURKAH, TUNGAMAH &
YOUARANG NATURAL FEATURES RESERVES
 SHEET 1

- Highway
 - Major sealed road
 - Minor sealed road
 - Unsealed track
 - Management Vehicle access
 - Swamp
 - State Park
 - Natural Features Reserves (NFR)
 - Conservation Reserves not included in the Planning Area
 - Other Public Land
 - Freehold
 - Visitor Access
 - Planning Area only
 - Access road names
 - Park/Reserve Access Point
- Note: Roads and tracks may be closed in wet conditions (see Table 2)





- Highway
- Major sealed road
- Minor sealed road
- Unsealed track
- Management Vehicle access
- Swamp

- State Park
- Natural Features Reserves (NFR)
- Conservation Reserves not included in the Planning Area
- Other Public Land
- Freehold

- Visitor Access Planning Area only**
- Access road names
 - Park/Reserve access point
 - Scenic Drive

Note: Roads and tracks may be closed in wet conditions (see Table 2)

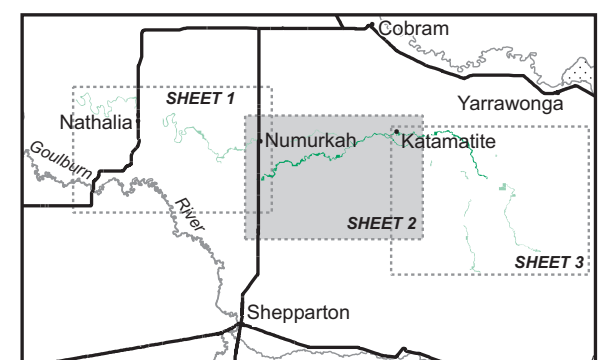


Figure 3 VISITOR ACCESS
BROKEN-BOOSEY STATE PARK & NATHALIA, NUMURKAH, TUNGAMAH & YOUARANG NATURAL FEATURES RESERVES
 SHEET 2



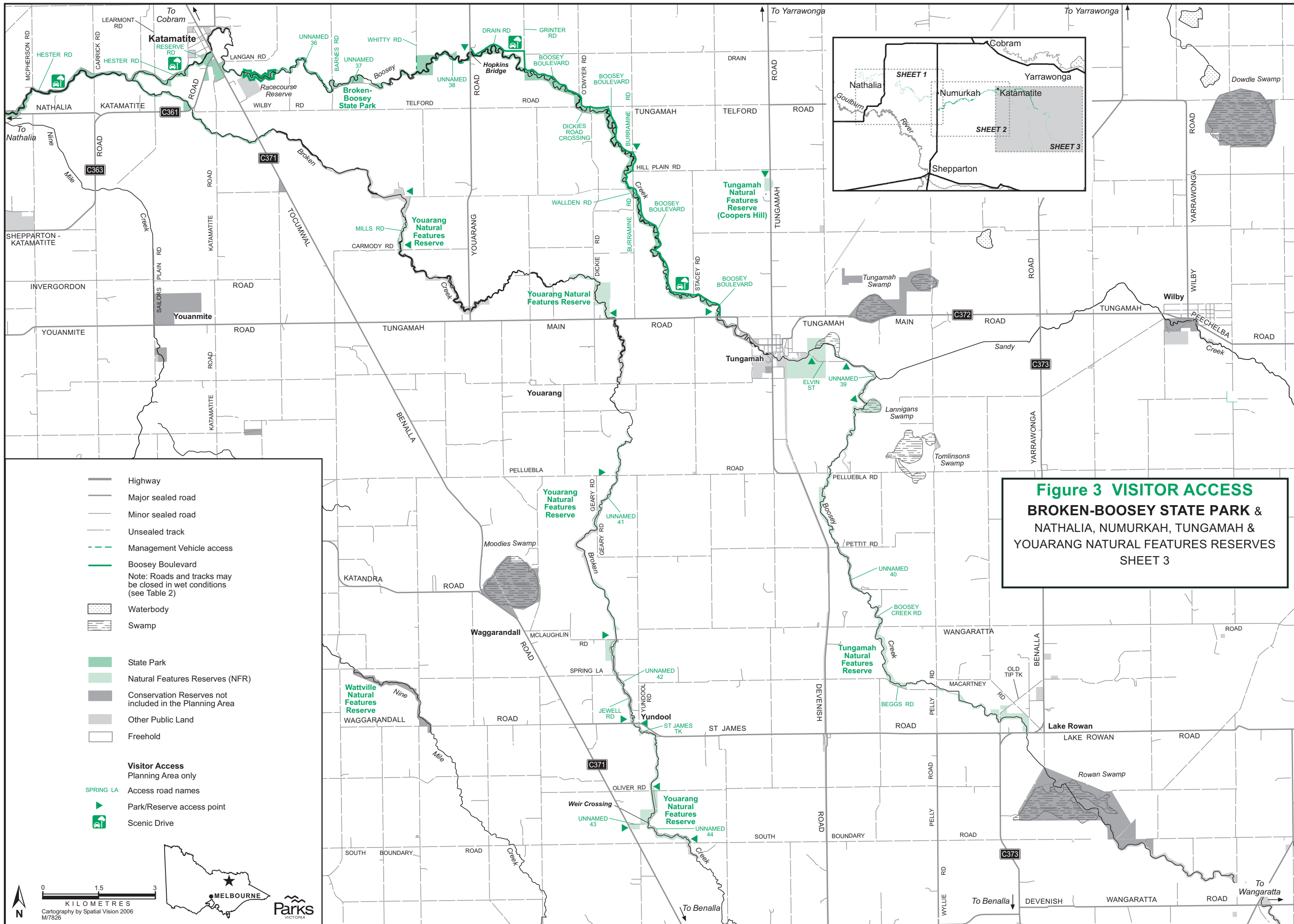


Figure 3 VISITOR ACCESS
BROKEN-BOOSEY STATE PARK &
NATHALIA, NUMURKAH, TUNGAMAH &
YOUARANG NATURAL FEATURES RESERVES
SHEET 3

- Highway
- Major sealed road
- Minor sealed road
- - - Unsealed track
- - - Management Vehicle access
- Boosey Boulevard
- Note: Roads and tracks may be closed in wet conditions (see Table 2)
- Waterbody
- Swamp
- State Park
- Natural Features Reserves (NFR)
- Conservation Reserves not included in the Planning Area
- Other Public Land
- Freehold
- Visitor Access Planning Area only
- SPRING LA Access road names
- ▶ Park/Reserve access point
- Scenic Drive