



AUSTRALIAN CAPITAL TERRITORY

LAND (PLANNING AND ENVIRONMENT) ACT 1991

APPROVAL OF PLAN OF MANAGEMENT

NO. 298 OF 2001

Pursuant to paragraph 204(a) of the *Land (Planning and Environment) Act 1991* I approve the plan of management for the Lower Molonglo River Corridor in the schedule.

Dated this 12th day of September 2001

Brendan Smyth
Minister for Urban Services

SCHEDULE



MANAGEMENT PLAN 2001

LOWER MOLONGLO RIVER CORRIDOR



Australian Capital Territory Government

LOWER MOLONGLO RIVER CORRIDOR

MANAGEMENT PLAN

AUGUST 2001

NOTES

This management plan has been prepared in accordance with Section 197 of the *Land (Planning and Environment) Act 1991*.

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MINISTERIAL FOREWORD

The Lower Molonglo River Corridor, located close to urban Canberra, offers many recreational opportunities in a natural setting and at the same time serves an important role in our conservation effort. It contains important elements of our biological diversity such as the Pink-tailed Legless Lizard and the nationally vulnerable shrub, *Pomaderris pallida*. Low-impact recreational opportunities, including fishing, bushwalking, bird observation and picnicking, are popular in the Corridor.

In recognition of the conservation importance of the Lower Molonglo River Corridor, the potential for expanded recreation in the area and the resultant requirement for increased management effort, the land status of the majority of the Corridor has been changed from Public Land (Special Purpose Reserve) to the higher conservation status of Public Land (Nature Reserve). This brings it in line with classifications and management in the adjoining Murrumbidgee River Corridor.

While permitting a broad range of recreational activities, conservation management recognises that to survive in the long term, threatened species require intact ecosystems. These ecosystems must be sustained while at the same time meeting the use demands of the community. This is a challenge which we are meeting in the ACT and an important part of that challenge is the task of preparing guiding documents such as this Management Plan. The Plan has been based on sound, scientifically-based management regimes that will allow access for future generations to the same recreational, natural and cultural resources that we enjoy.

Brendan Smyth MLA
Minister for Urban Services

PREFACE

This Management Plan has been written to satisfy the requirements of the *Land (Planning and Environment) Act 1991* which provides the legislative basis for the reservation of Public Land through the Territory Plan. The Act requires that management plans be prepared for all Public Land marked on the Territory Plan.

The Conservator of Flora and Fauna prepared the Management Plan in conjunction with the ACT Parks and Conservation Service, Department of Urban Services. It has been developed within a framework of integration with the Murrumbidgee River Corridor and as an expansion of opportunities offered by Canberra Nature Park.

Throughout the document the following titles are interchangeable:

Corridor	the Lower Molonglo River Corridor
Service	ACT Parks and Conservation Service (ACTPCS)
LMWQCC	Lower Molonglo Water Quality Control Centre
ACTEW	ACTEW Corporation Ltd (formerly ACT Electricity and Water)

The Management Plan incorporates and assumes the following management principles:

- All management will comply with relevant legislation, the National Capital Plan and the Territory Plan.
- No actions will be undertaken which are inconsistent with Government policies. This will include policy changes or adoption of new policies.
- All activities by government agencies, private businesses, community groups and individuals will be consistent with the objectives of the Management Plan.
- Policy changes or new works will be implemented only after consideration of the short and long term costs of undertaking the action in relation to the short and long term benefits to be obtained.
- The Service will aim to assist and provide the best possible balance of uses for the Corridor including the provision of access to Corridor sites to community groups for appropriate activities whilst recognising the primary goal of conservation.
- The Service will provide for and control commercial participation in the provision of appropriate visitor services.
- The Service will ensure that there is a regular collection of data and a continual update of the GIS data base of sites of natural and cultural heritage significance.
- Within the Corridor, the Service will adopt practices that minimise soil erosion and environmental impacts.
- Management activities (e.g. use of chemical sprays and poisons) will be subject to visitor safety and public health considerations particularly with regard to contamination of water, possible residual or non-target effects and consideration of feasible alternatives.
- Hazard reduction and fire suppression will be balanced to ensure that the effects on the valuable natural and cultural features of the Corridor are minimised.

About Environment ACT

Environment ACT brings together the areas responsible for managing the environment in the ACT into one central agency. The functions undertaken by Environment ACT include:

- develop and implement policies and programs that support the Government's environmental and heritage policies and commitments;
- manage, protect and conserve the natural and cultural resources of the ACT, including our nature parks and reserves;
- assist with the conservation of plant and animal species within the Territory;
- develop and administer environmental protection legislation concerning air, water, noise, ozone and chemicals;
- develop and administer heritage places and objects protection legislation;
- promote appropriate recreation, tourism, educational, and scientific uses of our parks and reserves;
- promote environmental awareness and actions;
- respond to public enquiries and complaints regarding environmental matters;
- monitor adherence to environmental standards; and
- manage horse paddocks and rural leases.

The Parks and Conservation Service within Environment ACT is responsible for:

- the management of public land, including national parks, nature reserves and special purpose reserves;
- assistance with investigation and research into environmental issues;
- protection of native flora and fauna;
- environmental interpretation and advice on pest plant and animal control;
- support of nature-based tourism; and
- co-ordination of volunteer services.

The nature reserve portion of the Corridor will be managed directly by the Service.

VISION

The vision adopted for the Lower Molonglo River Corridor is:

The natural environment within the Corridor protected and enhanced as an ecologically viable and sustainable system with opportunities for research and low-impact recreational activity.

The overall objectives to achieve this vision are to:

- conserve and protect the diversity of terrestrial, riparian and aquatic ecosystems and habitats;
- conserve and enhance habitat links to adjacent corridors;
- conserve natural land forms and the river valley's scenery;
- conserve sites of cultural significance;
- provide for low-impact recreational opportunities appropriate to the conservation values of the Corridor; and
- provide appropriate environmental education and scientific research opportunities.

The Lower Molonglo River Corridor's riverine and gorge environments will provide opportunities for a stimulating low-impact recreational experience with places of solitude in a natural setting. There will be opportunity for research on, and education and interpretation about, riparian landscapes, native fauna and flora and the effects of a developing urban area on water quality and ecological systems.

The achievement of this vision will be dependent upon:

- maintaining the Corridor's natural, cultural and scenic values while providing for ecologically sustainable activities consistent with the requirements for the nature reserve and the special purpose reserve;
- maintaining a substantial vegetated rural or forested buffer between the Corridor and areas of future urban development;
- rehabilitation of degraded areas within and around the Corridor to promote the protection of the sensitive riverine and gorge environment;
- providing a high standard of service to visitors to the Corridor; and
- co-operative and sympathetic management of adjacent land by other agencies and by rural lessees and ensuring that, wherever possible, future facilities and utilities that service urban areas are located outside the Corridor.

TABLE OF CONTENTS

Notes	II
Ministerial Foreword.....	III
Preface	IV
Vision	VI
Table of Contents	VII
Summary.....	IX
1. INTRODUCTION	1
1.1 Scope of the Plan.....	1
1.2 The Management Plan purpose and process	1
1.3 Changes to land classifications and management regimes	4
1.4 Statutory and management responsibilities.....	4
1.5 Significance and values of the Lower Molonglo River Corridor.....	6
1.6 Management Plan requirements.....	6
2. MANAGEMENT OF VALUES.....	8
2.1 River and water values.....	8
2.2 Terrestrial and natural resource values	14
2.3 Aboriginal and historical resources	19
2.4 Landscape Values	20
3. MANAGEMENT OF VISITOR USE	22
3.1 Recreational opportunities.....	22
3.2 Interpretation and education.....	26
3.3 Public safety	27
3.4 Waste Management	28
4. PROTECTION OF THE RESOURCE	30
4.1 Erosion control and rehabilitation	30
4.2 Control of pest plants and animals.....	31

4.3	Bush Fire management.....	36
5.	MANAGEMENT OF AUTHORISED ACTIVITIES	38
5.1	Land occupancy and use agreements.....	38
5.2	Utilities and services	42
6.	RESEARCH AND MONITORING	44
6.1	Requirements for the program.....	44
7.	MANAGEMENT SYSTEMS	48
7.1	Management access and facilities.....	48
8.	ENVIRONMENTAL PLANNING AND PROTECTION	49
8.1	Requirements for management activities.....	49
9.	IMPLEMENTATION.....	51
9.1	Implementation program	51
9.2	Implementation Plan	51
	Glossary.....	52
	References.....	54
	Index.....	57
	Appendix 1 Relevant Legislation	58
	Appendix 2 listing of Actions by Priority and Duration	60

FIGURES

FIGURE 1	Location of the River Corridor	3
FIGURE 2	Access and Activity Sites.....	I

SUMMARY

The Lower Molonglo River Corridor (river and adjacent landscape) is located along the last twelve kilometres of the Molonglo River extending from Coppins Crossing downstream to the area defined by the Murrumbidgee River Corridor, approximately one kilometre above the confluence with the Murrumbidgee River.

The Corridor contains important ecological values. For example, it provides habitat for the nationally vulnerable shrub *Pomaderris pallida* and is a type habitat for the nationally vulnerable Pink-tailed Legless Lizard (*Aprasia parapulchella*) which has special protection status in the ACT.

Several raptor species breed within the reserve and the river contains native fish species, platypus and long-necked tortoises.

The Corridor's gorge environment provide opportunities for stimulating low-impact recreational in a natural setting. There is the opportunity for research on, and education and interpretation about, riparian landscapes, native fauna and flora and the effects of an urban area on water quality and riverine systems. Public access is obtained through entry at the Coppins Crossing and Murrumbidgee River sections of the Corridor.

The Corridor also serves as an easement for a main sewerage pipeline to the Lower Molonglo Water Quality Control Centre.

This management plan addresses the management issues, objectives, management policies and procedures specific to the Corridor. It is consistent with the National Capital Plan and the Territory Plan. Management of the Corridor recognises the wider system of ACT land and water planning, administration and management.

Section 1 covers the scope and purpose of the Plan, a synopsis of the planning history that led to the preparation of this management plan, the significance, values and the management requirements for the Corridor.

Sections 2 to 8 contain the proposed management objectives, strategies and guidelines for management. It also includes proposals for further investigations and follow-up management planning for specific areas or topics.

Section 9 outlines how the management actions in the Plan will be implemented.

The purposes of this plan of management are to:

- set the planning context, identify and describe the Corridor, identify values and issues, expectations and constraints;
- propose the direction for management (objectives, actions and priorities);
- provide a basis for evaluating management success; and
- provide a basis for the community to understand and comment on management intent.

1. INTRODUCTION

1.1 Scope of the Plan

This plan provides a statement of management intent that will underpin future decision making for management of the Lower Molonglo River Corridor. While issues and decisions stated here will be implemented over the short to long term, the Plan is designed to be dynamic. Future community demands and conservation requirements may require modifications to the Plan over time.

The Lower Molonglo River Corridor (river and adjacent landscape) is located along the lowest twelve kilometres of the Molonglo River. The area extends from Coppins Crossing downstream to the area defined by the Murrumbidgee River Corridor, approximately one kilometre above the confluence with the Murrumbidgee River. This area is defined in the National Capital Plan and Territory Plan as River Corridor and Public Land. This plan of management covers that portion of the Lower Molonglo River Corridor designated as Public Land (Nature Reserve) – see Figure 1. Land management practices external to the Nature Reserve area that could have a major impact on its nature conservation values are identified and corresponding management actions proposed. The Plan also covers any area of nature reserve associated with the Lower Molonglo River that is not included in the Lower Molonglo River Corridor boundaries. The nature conservation values for these areas are to be addressed through Land Management Agreements.

The Plan includes guidance for the management authority (the ACT Parks and Conservation Service) and the community. In addressing particular issues, the overriding considerations are the need for conservation of natural and cultural heritage values and for activities and uses to be ecologically sustainable.

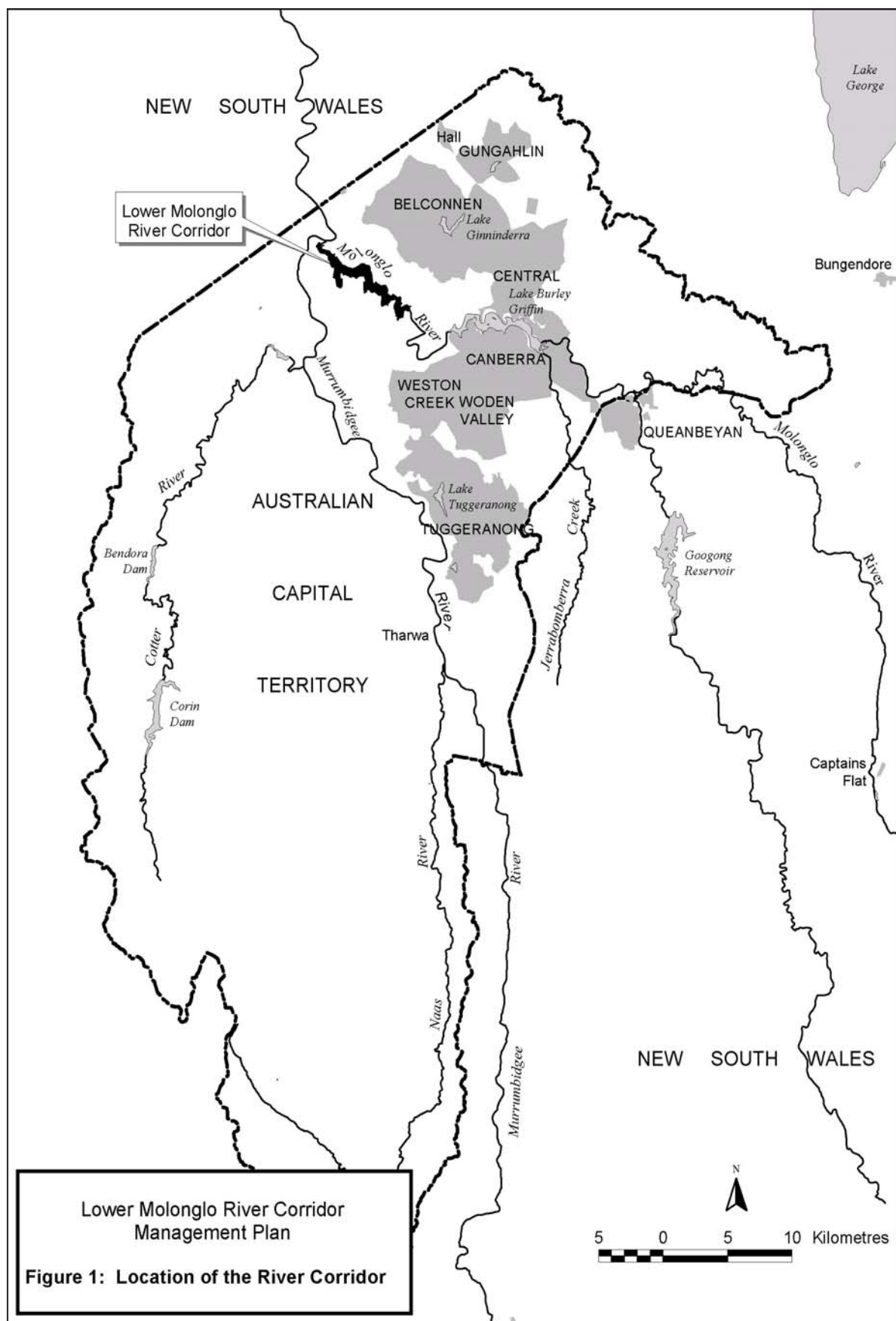
1.2 The Management Plan purpose and process

The purpose of this document is to provide management guidelines for the nature conservation and cultural values of the Lower Molonglo River Corridor and to satisfy statutory requirements for the preparation of a management plan for the Corridor as specified under the *Land (Planning and Environment) Act 1991*.

Management planning is primarily concerned with identifying methods to avoid and minimise conflicting activities and practices and to ensure management actions are kept within specified guidelines. The management planning process is a way of giving clear definition to the functions, objectives and programs needed to manage an area of land. Public participation is an essential part of this management planning process and has been achieved primarily through the release of Management Plans for public comment.

This Plan develops a clear management direction for the Lower Molonglo River Corridor. However, a management plan cannot anticipate all possible uses and activities. Rather, it must provide management policies and procedures that can be used to make decisions. In addition to this, some detailed management prescriptions and operations are covered in specific action plans on relevant themes such as fire management, pest control and threatened and endangered species and ecological communities. An Implementation Plan, incorporated with that for the Murrumbidgee River Corridor, will be prepared to achieve the management priorities stated in this Plan.

1. Introduction



1.3 Changes to land classifications and management regimes

In the ACT Territory Plan the Lower Molonglo River Corridor is declared as Public Land (Special Purpose Reserve). A variation to the Territory Plan during 2000 saw the status of the majority of the Corridor changed to Public Land (Nature Reserve).

The difference in classification between Special Purpose Reserve and Nature Reserve is outlined in Schedule 1 of the *Land (Planning and Environment) Act 1991*, Management Objectives for Public Land. The management objectives for these classifications are defined as follows:

- Public Land (Special Purpose Reserve) is to provide for public and community use of the area for recreation and education; and
- Public Land (Nature Reserve) is primarily to conserve the natural environment and secondarily to provide for the public use of the area for recreation, education and research.

An adjoining area of leased Rural Public Land has been assessed as having a high conservation value and will be managed in conjunction with the Public Land (Nature Reserve) through a Land Management Agreement.

1.4 Statutory and management responsibilities

1.4.1 Planning and management of land in the ACT

While all land in the ACT is owned by the Commonwealth, most is managed by the ACT Government and is referred to as Territory Land. Small areas of land that the Commonwealth uses, or intends to use, and Lake Burley Griffin are managed by the Commonwealth and are classified as National Land.

The land tenure system of the ACT differs from that of the states and the Northern Territory in that land may only be leased; there is no freehold land. Land management and protection requirements are provided for in lease conditions. The Government generally manages unleased land.

The majority of the Lower Molonglo River Corridor consists of unleased land, managed by the ACT Parks and Conservation Service. The Lower Molonglo River Corridor is bordered by rural leases, government land licensed for agistment, Bluetts Pine Plantation managed by ACT Forests, the Lower Molonglo Water Quality Control Centre managed by ACTEW and the Murrumbidgee River Corridor, which is also managed by the ACT Parks and Conservation Service. ACT Forests also manage the Special Purpose Reserve that is bounded by the river and the northern edge of the forest access road.

1.4.2 Planning background

The historical steps in the evolution of the Lower Molonglo River Corridor as a reserve were:

- The designation of the Molonglo River within the ACT as an "Area of Special National Concern" by the Commonwealth Government in 1964 because it played an important part in defining the character of Canberra.
- Special recognition of the Molonglo River in the development of the National Capital Open Space System (NCOSS) by the National Capital Development Commission (NCDC) in 1976 (see shaded box on page 4).

1. Introduction

- Adoption of the ACT Water Policy Plan by the NCDC in 1989. This sets water use categories, objectives for water quality and stream flow criteria for ACT waterways, including the Molonglo River.
- Sharing of responsibility for planning for the ACT between the National Capital Planning Authority (NCPA) and the ACT Planning Authority (ACTPA) with the introduction of self-government in 1989.
- Adoption of the National Capital Plan in 1990, ensuring that Canberra and the Territory are planned and developed in accordance with their national significance. The Plan includes a number of policies relevant to the NCOSS and has specific policies for the River Corridors. Furthermore, there are Special Requirements for the Molonglo River Corridor in the National Capital Plan which require the conservation of the Corridor's natural and cultural resources, and landscape and environmental qualities of the river while providing for a balanced range of compatible secondary uses. The Special Requirements also emphasise the need for a Development Control Plan (DCP) to be prepared for the River Corridor and agreed to by the National Capital Authority. Any development within the corridor needs to be in accordance with an agreed DCP.
- Enactment of the *Land (Planning and Environment) Act 1991* and its implementation in April 1992. This Act became the major statutory vehicle for environmental impact assessment, the recognition and protection of natural and cultural heritage sites and the reservation of public land in the ACT. It guides and empowers the Territory Plan. The Act is of direct relevance to management of the Lower Molonglo River Corridor as it requires the preparation of a plan of management and makes provisions for the protection of Aboriginal places.
- The definition of the Lower Molonglo River Corridor as 'River Corridor, Public Land (Special Purpose Reserve)' in the Territory Plan, gazetted in 1993. Reclassification of the majority of the Lower Molonglo River Corridor to Public Land (Nature Reserve) in 2000.

National Capital Open Space System (NCOSS)

The National Capital Open Space System recognises the significance of the natural setting of the national capital. NCOSS is a land use planning concept embodied in the National Capital Plan. The Open Space system of Canberra is required to blend city and country in a way that symbolises the character of the National Capital and provides a balanced range of uses which reinforce the natural, cultural, scenic and recreational values of the ACT. It includes the inner hills and ridges, the major lakes and river corridors and the distant mountains and bush lands south west of Canberra.

The Lower Molonglo River Corridor is an important part of National Capital Open Space. The Molonglo River links other open space elements, helping to define the transition from urbanisation to the rugged foothills and mountains. Other elements of NCOSS are:

- the Murrumbidgee, Gudgenby, Paddys and Cotter river corridors;
- natural areas, such as the Bullen Range, Rob Roy Range and Namadgi National Park; and
- pine forests, including those at Ingledene, Uriarra, Pierces Creek and Stromlo.

1.4.3 Statutory responsibilities

The management of the Lower Molonglo River Corridor is subject to a wide range of both Commonwealth and ACT legislation. These are listed in Appendix 1.

1.5 Significance and values of the Lower Molonglo River Corridor

The ACT is in the upper catchment of the Murray-Darling River system, the largest drainage basin in Australia. The Molonglo River, a major contributor to the catchment of the Murrumbidgee River, is a central feature of the National Capital.

As the population in the ACT continues to increase, it is likely that greater demands will be made on the Lower Molonglo River Corridor, its natural environment and its potential for providing opportunities for an isolated recreational experience. The Lower Molonglo River Corridor, also, is one of the important wildlife corridors linking the river systems and mountain ranges to the urban bush and waterways of Canberra.

Permissible water uses are stipulated in the Territory Plan that defines the Corridor primarily as a conservation catchment. In addition to conservation of the natural environment, the Territory Plan allows for a range of uses that are generally compatible with, but secondary to this primary use.

Environmental values have been influenced by:

- the damming of the river to create Lake Burley Griffin and the resultant modification to the natural hydrological regime;
- stormwater runoff from the urban area of Canberra; and
- erosion and riverside changes resulting from poor land management practices, such as overgrazing, the removal of riverside vegetation and the colonisation of river banks by non-native vegetation.

The Corridor contributes to regional biological diversity, providing habitat for several plant and animal species that are listed as threatened under Commonwealth and/or ACT legislation. For example, the vulnerable native hazel shrub *Pomaderris pallida* and the Pink-tailed Legless Lizard (*Aprasia parapulchella*) are found along the Corridor and the endangered fish Macquarie Perch (*Macquaria australasica*) and the vulnerable Murray River Crayfish (*Euastacus armatus*) have been recorded in the river. The Corridor is also a breeding area for several raptors.

The gorge section of the reserve demonstrates distinct topographical and microclimate features characteristic of an incised plain found in the Southern tablelands of NSW.

1.6 Management Plan requirements

Under the *Land (Planning and Environment) Act 1991* the management objective of a nature reserve is to conserve the natural environment, as well as provide for public use of the area for recreation, education and research.

The Territory Plan has more specific requirements for River Corridors and states that River Corridor Land Use policies must:

- conserve the ecological and cultural values of the river corridor;
- protect stream flow, water quality and floodplains from adverse impacts;
- ensure that the type and intensity of development is ecologically sustainable;
- provide opportunities for a range of water and land based recreational activities;
- ensure compatibility between land uses, water uses and the general character of the rivers; and

1. Introduction

- provide opportunities for appropriate environmental education and scientific research activities.

2. MANAGEMENT OF VALUES

Despite past land uses the Corridor retains important natural habitats that are in good condition. These habitats have been maintained and enhanced by the Service for several years and this management plan seeks to continue this management regime with a focus on conserving ecological communities and maintaining conditions suitable for the long term survival of the area's biodiversity, including those species that are listed as threatened.

2.1 River and water values

Specific management objectives:

- **to minimise adverse impacts on the water quality of the lower reaches of the Molonglo River;**
- **to protect the ecological processes of the riverine system;**
- **to conserve habitat for native fish and other native aquatic life; and**
- **to maintain recreational fishing opportunities.**

2.1.1 Background

The Territory Plan and associated guidelines, including the Water Quality Guidelines, Environmental Flow Guidelines and the Floodplain Protection Guidelines, contain objectives that provide for effective water quality management. These guidelines and objectives are the basis of Corridor water quality management.

2.1.2 Water quality in the Molonglo River

The water quality of the river in the Lower Molonglo River Corridor is affected by the impact of land uses upstream and surrounding the Corridor. Impacts on the lower Molonglo River are assumed to derive from:

- dam construction. Scrivener Dam was constructed on the river to form Lake Burley Griffin, a central landscape feature of the National Capital. While the backed-up waters are a highly effective sediment trap protecting the lower Molonglo River, the altered flow regime and release of cold bottom water often with low dissolved oxygen, high suspended solids and bacterial load have a significant impact on water quality in the lower Molonglo River;
- urban runoff from Yarralumla and Weston Creeks. This runoff carries sediment, rubbish and nutrients;
- sediment, nutrient and animal waste runoff from rural areas;
- high quality treated effluent from the LMWQCC. The Environmental Authorisation (formerly the Discharge Licence) provides the parameters under which LMWQCC operates and states the level of impact that is allowed on the river system; and
- sediment in the runoff resulting from forestry operations.

Regular water testing is carried out at Coppins Crossing and at the LMWQCC. This data is analysed and if an abnormal situation is detected then the possible causes are checked through a site inspection. Water quality information is published each year and is available on the Internet.

2.1.3 Aquatic life within the Molonglo River Corridor

Five native fish species and six introduced fish species have been recorded from the Molonglo River below Lake Burley Griffin. (Hogg 1990). The native species are Murray Cod (*Maccullochella peelii*), Golden Perch (*Macquaria ambigua*), Macquarie Perch (*Macquaria australasica*), Western Carp Gudgeon (*Hypseleotris klunzingeri*), and Australian Smelt (*Retropinna semoni*). Macquarie Perch is listed as endangered under the *Environment Protection and Biodiversity Conservation Act 1999* and the *Nature Conservation Act 1980*. The *Fisheries Act 2000* also lists Macquarie Perch as a protected species with a zero bag limit.

The introduced fish species are Carp (*Cyprinus carpio*), Redfin (*Perca fluviatilis*), Brown Trout (*Salmo trutta*), Rainbow Trout (*Oncorhynchus mykiss*), goldfish (*Carassius auratus*) and Mosquitofish (*Gambusia holbrooki*).

The platypus (*Ornithorhynchus anatinus*) and the Eastern Long-necked Tortoise (*Chelodina longicollis*) also are present. The Murray River Crayfish (*Euastacus armatus*), listed as vulnerable under ACT legislation has also been recorded in the river.

As part of condition of discharges from the LMWQCC fish surveys have been undertaken since 1994. This information provides a valuable guide to the species and populations existing in the river and has indicated that generally fish stocks are in a stable condition.

There is a single record of the endangered fish species Macquarie Perch (*Macquaria australasica*) from the Lower Molonglo River Corridor. Two individuals were captured approximately 700 metres upstream of the junction with the Murrumbidgee River during sampling of the river in 1981. It is thought that these individuals represent either random foraging movements or dispersal from the Murrumbidgee population which was still relatively abundant at this time.

The fish community of the Molonglo River was altered dramatically during the 1930s and 1940s when the collapse of mine dumps at Captains Flat poisoned the river by the addition of heavy metal contaminants. For many decades prior to the commencement of the LMWQCC in 1978, the lower Molonglo river was unsuitable habitat for many aquatic species due to the discharge from the Weston Creek Sewage Treatment Plant, and it is unlikely that Macquarie Perch were present in the river during this period. After the establishment of the LMWQCC in 1978 the water quality of the lower Molonglo River improved. However the status of Macquarie Perch in the ACT was declining rapidly with the local population undergoing a dramatic decline in the early to mid 1980s (ACT Government 1999a). Monitoring of the fish stocks of the lower Molonglo River in 1994, 1996 and 1997 failed to record any Macquarie Perch (Lintermans 1995, 1997, 1998). Similarly, monitoring of the fish stocks in the Murrumbidgee River in the ACT in 1994, 1996, 1997, 1998, and 2000 has only recorded a total of 8 Macquarie Perch out of a total of 2912 fish, with 7 of these captured at the southern end of the Murrumbidgee upstream of Tharwa (Lintermans unpublished data). It is unlikely that Macquarie Perch are still present in the Lower Molonglo River.

The Lower Molonglo River has potential to provide habitat for Macquarie Perch should the species recover to its former population levels. However the barrier posed by Scrivener Dam will still be present and so management activities aimed exclusively at this species are a low priority in the lower Molonglo River. Management and expansion of the remnant populations

of Macquarie Perch in the Cotter and Queanbeyan rivers remains the highest priority for this species (ACT Government 1999a, Lintermans 2000).

There is a single record of the vulnerable species Murray River Crayfish (*Euastacus armatus*) in the Lower Molonglo River, approximately 700 metres upstream of the junction with the Murrumbidgee River (Lintermans 1997). It is thought that this record either represents a local dispersal from the population in the Murrumbidgee River (Lintermans & Rutzou 1991), or possibly is the result of a translocation by an angler. Murray Crayfish have been a protected invertebrate under the *Nature Conservation Act 1980* since 1991 (Lintermans 1992, 1993) and are a protected species with a zero bag limit under the *Fisheries Act 2000*.

Two of the most important factors affecting the composition and abundance of the fish community of the lower Molonglo River are:

- (a) Effluent released immediately above the confluence with the Murrumbidgee River from the Lower Molonglo Water Quality Control Centre (LMWQCC). It is thought that treated effluent released from the LMWQCC may pose a chemical barrier to fish migration from the Murrumbidgee River, with some fish species avoiding the area of river containing concentrated effluent. The effluent component which is triggering this avoidance behaviour is unknown and further research is recommended. While in the past nutrient rich effluent has been released into the Molonglo River steps have been taken to prevent such overloads occurring. Discharges from the site will be in accordance with the Discharge Licence. The effect of discharges on fish species will continue to be monitored.
- (b) The Scrivener Dam wall acts as a physical barrier which blocks movement of fish to the upper Molonglo River. The quality of water released from Scrivener Dam is also a problem because the water is drawn from the lower part of the water column of Lake Burley Griffin. This water is high in nutrients and low in dissolved oxygen which can adversely affect native fish populations. The dam also alters the natural flow regime in the river downstream. This may disrupt breeding in native fish species and benefit introduced species such as carp and Redfin.

Management of the river is for the conservation and protection of the riverine ecosystem. The Lake Burley Griffin Management Plan (National Capital Planning Authority 1995) provides for an investigation into methods for improving water quality and reducing nutrient loads in the Molonglo River, including discharging water from the upper part of the lakes' water column where the water quality is higher.

Stable and vegetated river banks, especially those vegetated with native plant species, provide shelter and shade for aquatic species. The more diverse the riverbank vegetation, the more likely that a naturally diverse aquatic ecosystem also exists. Removal or degradation of this riverbank vegetation has a detrimental effect on the aquatic system.

Although the Lower Molonglo River Corridor has a relatively diverse and stable river bank vegetation, management will be directed towards improvement of the native riverbank vegetation. The removal of grazing from the river edge will protect the native riverine vegetation and allow its regeneration. Any reduction in effluent and rubbish entering the river can also be expected to improve the aquatic system and the construction of trash racks and a sedimentation trap on the lower reaches of Weston and Yarralumla Creeks is helping in this regard. Additional government and community measures in these two creek systems would further improve the quality of water entering the Molonglo River.

2.1.4 Sand soil extraction and rock removal

The transport of sediment to and within the river system has changed substantially since European settlement and the development of Canberra. The river now carries a heavier sediment load and is more turbid.

A total of 150,000 m³ of top soil and gravelly sand was removed from the quarry that operated on the northern bank of the river from 1966 to 1972 (Map 2). Such activities are no longer appropriate uses of the area. Sand and gravel extraction increases water turbidity downstream, affects fish and aquatic invertebrate habitat and disturbs riverbank recreation amenity. The commercial extraction of sand or gravel from the channel is not compatible with the maintenance of aquatic ecosystems or the maintenance of waterscape values. The Territory Plan prohibits the extraction of sand except where there is a clear management requirement to improve habitat degraded by increased sedimentation.

Scattered surface rocks provide habitat for the Pink-tailed Legless Lizard. Removal or displacement of rocks through grazing or visitor use can seriously affect the viability of local populations.

2.1.5 Water based recreation

Swimming in the lower Molonglo River is not permitted under Part C2 of the Territory Plan. However fishing and boating are allowed and the aesthetic nature of the Corridor with a permanent flowing river means it is popular with walkers. Reserve management will recognise the prohibitions specified in the Territory Plan.

The condition of ACT waterways is monitored by the Department of Urban Services, including the occurrence and severity of blue-green algal blooms. In the event of a blue-green algal bloom, the public will be notified of any health hazard and the ACT Government Service will follow protocols set out in the ACT Algal Action Plan.

2.1.6 Water for domestic stock and irrigation supplies

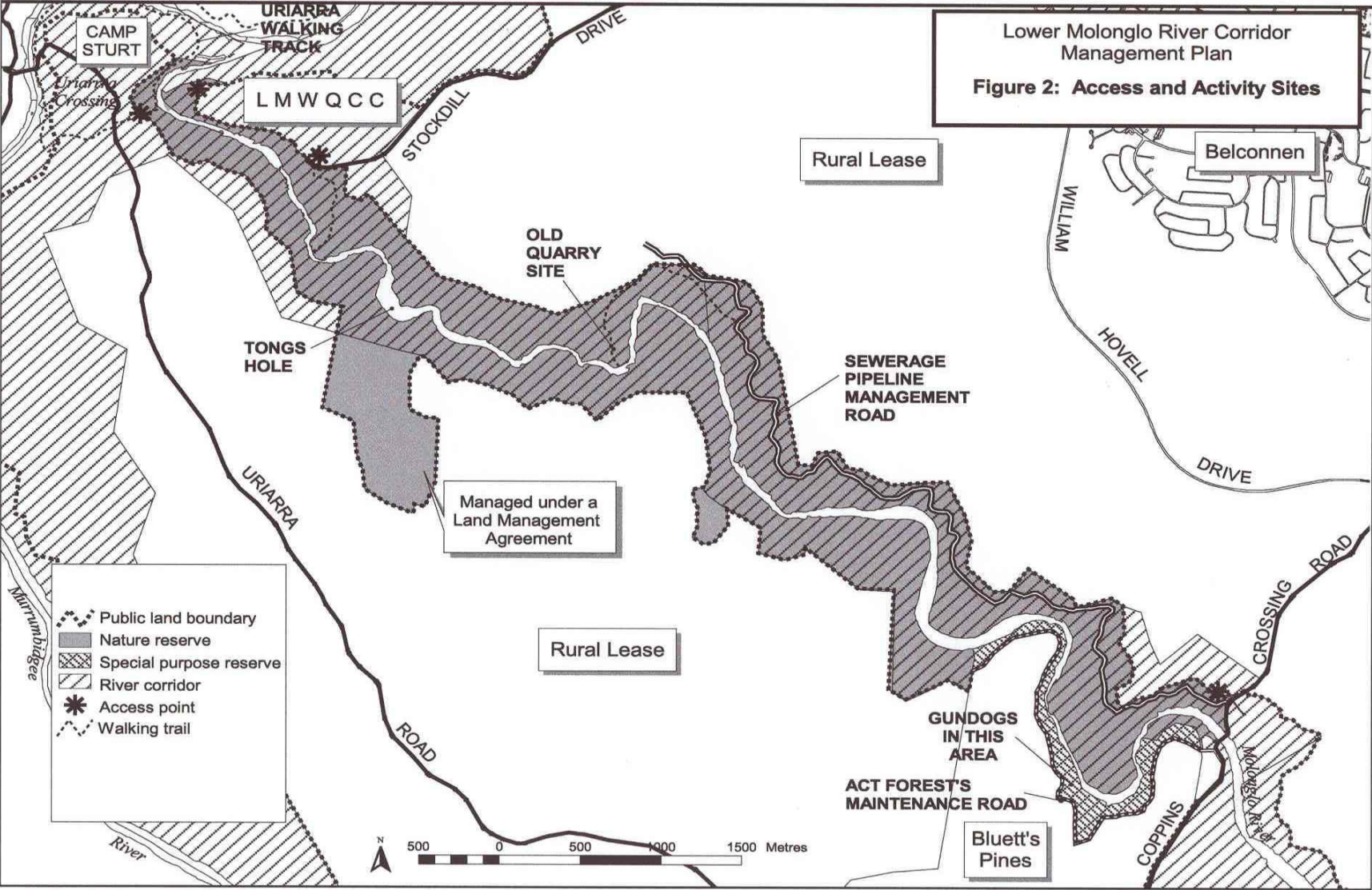
Stock on areas under agistment licence and on rural leases adjacent to the Molonglo River have in the past used the river as a water source. Stock trampling and defecating in and near the water's edge have an impact on the quality of the water, causing turbidity and nutrient enrichment. By fencing off the river and controlling grazing along the river's edge, these effects are reduced and the natural riverine vegetation is encouraged to regenerate. The last section of the southern nature reserve boundary leading to the Murrumbidgee River is to be fenced when resources become available. Subject to Government policies concerning water allocation and licensing (especially the Water Resources Management Plan), lessees will have a right to draw water for stock and domestic purposes where river access is fenced off.

The location and operation of pumps on the Lower Molonglo River for stock and domestic watering will be negotiated between lessees and the Service on a case by case basis. Pumping of water for management activities in the corridor, such as weed spraying and fire control, is exempt from controls.

2.1.7 Management actions - River and water values

- a. Obtain water quality monitoring information on a regular basis and use this information as a means to help determine pollution sources.**
- b. Encourage research into the aquatic system of the lower Molonglo River to establish the health of the system.**
- c. Continue to monitor populations of aquatic vertebrate and invertebrate taxa.**
- d. Stabilise and revegetate river banks with indigenous local species where necessary.**

- e. Erect signs at major entry points to advise of any health risks which arise.**
- f. Negotiate the location and operation of pumps and associated equipment where lessees have a right to pump water.**



PLEASE NOTE: THE INFORMATION contained on this map is indicative only and can change as updated data is obtained or on-ground management activities are implemented.

2.2 Terrestrial and natural resource values

The Corridor contains a diverse range of habitats that includes several species that are listed as threatened under Commonwealth and ACT legislation. For threatened species in the ACT Action Plans have been prepared which identify threats and set out conservation management actions to help overcome these threats. This management plan draws on these plans as well as past and current nature reserve management practices. The main types of threats that may impinge on the natural values in the Corridor are fire, stock or native animal grazing and trampling, weed infestations and disturbance by human visitors or from adjacent land use practices.

Specific management objectives:

- to protect significant habitats and species from unnatural disturbance and to conserve a diversity of natural communities;
- to protect significant geological sites from damage, and maintain the integrity of their landscape context; and
- monitor and take appropriate action to manage exotic plants and animals to reduce their impacts on biodiversity.

2.2.1 Background

The Lower Molonglo River Corridor possesses a range of geomorphological, botanical and zoological values of regional significance. Several studies have been carried out assessing the terrestrial resources of the Corridor (NCDC 1975, NCDC 1990, Barrer 1992, Saunders 1994, Owen 1987). Significant sites identified by NCDC 1990 are listed in the following table.

Significant sites in the Lower Molonglo River Corridor.

Name (and description) of place	Reference
Lower Molonglo Gorge - 80 metres incised river channel with hanging side valleys and river terraces that border the river and stands of Black Cypress Pine (<i>Callitris endlicheri</i>); of geomorphological, botanical and zoological significance	SOS 1990
Lower Molonglo Geological Site - fossiliferous limestone and shale of extremely high palaeontological value	SOS 1990
Bluffs and terraces - distinctly banded tuff rock face and narrow sandy terraces with River Oaks (<i>Casuarina cunninghamiana</i>)	SOS 1990
Coppins Crossing Reptile habitat - numerous rock outcrops in the bed of the river and on adjoining banks provide habitat for several uncommon reptiles; uncommon inclusions of jasperised chert in rock outcrops	SOS 1990
Lower Molonglo River Corridor - habitat for Pink-tailed Legless Lizard (<i>Aprasia parapulchella</i>)	Register of the National Estate - Indicative site

SOS = Sites of Significance. 1990. Technical Paper No 56. NCDC.

Barrer (1992) considered that the incised Corridor would have a different micro-climate from the surrounding plain. Factors such as cold air drainage, temperature inversions, more frequent frosts, reduced evaporation, valley mists and generally lower prevailing wind speed would lead to a wide range of habitat qualities subtly different from the adjacent tablelands.

2.2.2 Geomorphology, geological sites and soils

The Lower Molonglo River Corridor displays a variety of geomorphological forms. In the downstream end of the reserve the river has cut a 100 metre deep, winding and rocky channel providing a striking topographical contrast. Upstream of the gorges, cliffs and rock faces mark the south bank, facing gentler slopes on the north bank. Further upstream the river has not cut so deeply into the underlying strata and exposed rock faces are uncommon.

Acid igneous rocks associated with the Walker Volcanics (predominately rhyodacite and dacite, occasional small areas of rhyolite and localised limestone, calcareous shale and siltstone) comprise the main rocks found in the Corridor. The limestone outcrops are considered of extreme palaeontological value (Owen 1987) containing a diversity of fossil types

Within the Lower Molonglo River Corridor several geological sites and landforms have been recognised as significant (NCDC 1990) and are listed in the above table. These sites will be managed in order to minimise damage and to preserve the significant geomorphological values of the Corridor. The collection of fossils is prohibited in ACT nature reserves under the *Nature Conservation Act 1980*. Measures that will be used to protect fossils include discouraging public access to fossil sites, not publicising their location and seeking conservation advice from appropriate organisations.

Soils formed on the steeper slopes are shallow or skeletal. Where material has been able to accumulate such as on colluvial fans, along gully lines or river banks deeper soils showing some profile development have formed.

2.2.3 Flora

Plant communities

The Corridor displays an unusually high floristic diversity for a relatively small and partly cleared riverine area. The steep gorges appear to have protected a mosaic of habitats allowing floristic relics of past conditions to survive. Barrer (1992) reports that 225 species of vascular plants in 62 families have been recorded which represents 24% of the native species and 60% of the families of native species listed for the ACT by Hogg (1990).

The vegetation of part of the corridor has been described in detail by Barrer (1992). He identified more than 30 plant communities mapped as several vegetation units. The major types are:

- ***Callitris endlicheri* woodland:** occurs on shallow soils often with *Eucalyptus dives*, *E. macrorhyncha* or *E. blakelyi*. The combinations of dominant trees are variable, probably reflecting both natural environmental gradients and the effects of disturbance through partial clearing and grazing. The Reserve includes an unusual occurrence of Blakelys Red Gum (*Eucalyptus blakelyi*) growing as stunted and sometimes mallee-form individuals. Regeneration in Black Cypress Pine (*Callitris endlicheri*) is suppressed by grazing, especially by rabbits, and also by inappropriate fire regimes. The steeper land provides a degree of protection from these two factors and it is considered that the range of this species was much wider than its current extent. Also forming woodland or open forest stands are Snowgum (*E. pauciflora*) and Apple Box (*E. bridgesiana*).
- ***Casuarina cunninghamiana* fringing woodland:** present along river margins. Some trees carry the mistletoe species *Amyema cambagei* which is important in the diet of the vulnerable Painted Honeyeater (*Grantiella picta*). This community type is well represented in the gorge area and along the Murrumbidgee River Corridor in the ACT but is poorly reserved in the southern tablelands of NSW.

- ***Salix* spp. clumps of willow trees:** *S. babylonica* and other species comprise an exotic vegetation type associated with river margins.
- **Mixed native secondary grassland** (derived from clearing of open forest or woodland) dominated by Kangaroo Grass (*Themeda triandra*), Red Leg Grass (*Bothriochloa macra*) and *Microlaena stipoides* is present on undulating and level areas, merging with open woodland.
- ***Phragmites australis* reedland:** tall grass growing in still water areas of the river as a fringing community; other reeds and rushes forming a similar, though less tall, community include *Schoenoplectus validus*, *Isolepis fluitans*, *Eleocharis acuta*, *Cyperus* spp., *Carex apressa* and *Juncus* spp.
- ***Kunzea ericoides* shrubland:** a widespread community where grazing has not been consistent; *Callistemon paludosus* may be present. Other shrub communities are dominated by *Bursaria lasiophylla*, *Pomaderris angustifolia*, *Dodonaea viscosa*, *Acacia rubida*. Shrub dominated communities may have taller trees scattered within them as emergents, including eucalypts and Black Cypress Pine (*Callitris endlicheri*).
- **Minor communities:** in sheltered or rocky places may be dominated by the fern *Pelleaea falcata*.

Areas which have been cleared of trees are characterised by derived or secondary native grasslands that also contain introduced grasses and forbs. Although native grass species are not uncommon in the ACT, intact communities containing them as dominants are few and decreasing (Hogg 1990, Sharp 1994, ACT Government 1997). There are also several small areas of frost hollow which are probably naturally occurring and contain grassland dominated by *Poa labillardieri*, a floristic association that has been almost completely lost in the ACT lowlands (Sharp 1994, ACT Govt 1997).

Where grazing has predominated or is still current, trees are usually well spaced, being more common on drier and rockier areas. Open grassland forms pastures on the lower slopes which are the main land form incorporated into the corridor where it is dominated by steep rocky gorge like areas. Within the pastures and to a lesser extent, in the timbered communities, a wide variety of exotic species have become naturalised. The most recent invaders of serious concern are St Johns Wort (*Hypericum perforatum*) and Patersons Curse (*Echium plantagineum*). Most exotic species are of little consequence and do not require urgent removal.

Threatened and endemic plant species

Pomaderris pallida (Fam. Rhamnaceae) (Vulnerable ANZECC list) is a 1–2m high shrub with narrow elliptical leaves and small cream flowers that occurs on river banks (Harden 1991). It occurs on the Murrumbidgee, Paddys, Molonglo and Queanbeyan rivers. It was originally discovered at the junction of the Cotter and Murrumbidgee Rivers in 1911 (Cambage 1911)—the original “type locality” for scientific reference purposes. The species was subsequently described as *P. pallida* (Wakefield 1951) who based his description of an equivalent plant collection or “holotype” from the Upper Genoa River in Victoria. Otherwise, the species appears to be endemic in the ACT and is located in five discrete populations (Briggs 1985). Plants are threatened by grazing and appear to have limited ability to resprout after fire (Briggs and Leigh 1985). Its rarity, restricted distribution and susceptibility to grazing and burning, and its presence close to the original type locality, contribute strongly to the scientific significance of the species and the Molonglo River Corridor where the most extensive populations now are found.

Discaria pubescens (Fam. Rhamnaceae) (ROTAP list (Briggs and Leigh 1995)) is a rigid shrub to 2.5 m high, usually <1 m, dominated by spines to 50 mm long. True leaves fall early leaving

bare spiny branches. Tiny flowers cluster in the angles of the branches. It is usually found among rocks or logs which protect it from grazing although browsed stems are often present. It is widespread (Qld–Tas.) but rarely dense or locally abundant. In the Lower Molonglo River Corridor it is widely distributed through the gorges as numerous small scattered populations. Potential threats include fire, uncontrolled grazing, collection, vandalism, weed infestation and trampling by stock or people.

The area contains the only known locations for two species of lichen, *Xanthoparmelia hyposalazunica* and *Xanthoparmelia subluminosa* (Stevens 1997). The area also contains another species of lichen *Xanthoparmelia xanthofarinosa* which is rare in the ACT. Lichens are susceptible to nutrient enrichment, fungicide and herbicide treatment and microclimate changes such as from vegetation changes, and vulnerable to damage from grazing stock, fire, rock disturbance, and collection for use in dyeing.

This Management Plan provides for high priority protection of both nationally and regionally rare or threatened plant species and ecological communities as they are presently defined and as new ones are listed.

Felling and/or clearing of native vegetation will be allowed only for management reasons including public safety, suppression of wildfires, the maintenance of existing infrastructure and utilities and for river bank management. It will be necessary to maintain a variety of conditions including retaining dead standing and fallen timber and planting of trees in degraded woodland areas in order to provide conditions favourable to native fauna.

2.2.4 Fauna

Habitat for a diversity of arboreal, terrestrial and aquatic animals exists in the Corridor. The Corridor is considered to provide a link between the Murrumbidgee, the nature reserves of Canberra and remnant stands of vegetation. However, past clearing of vegetation and grazing have caused habitat alteration and relatively intact habitat only exists in the less accessible steeper areas of the gorges.

The Corridor is an important route for bird movements and has been assessed as having suitable habitat for the threatened Painted Honeyeater (*Grantiella picta*) and Brown Treecreeper (*Climacteris picum*) (ACT Govt. 1999b, 1999c). The main habitat for the Painted Honeyeater is River Oak woodland along major water courses and Brown Treecreepers were identified as uncommon residents of the woodland in the Corridor by Barrer in 1992. Enhancement of riverine and woodland vegetation communities through the measures provided for in this Management Plan will create conditions more suitable for these species.

The Corridor supports a diverse reptile fauna of twenty recorded species. Several others may be present. Extensive areas of the Corridor are modified native grassland which provides suitable habitat for the nationally vulnerable Pink-tailed Legless Lizard (*Aprasia parapulchella*) which has Special Protection Status in the ACT.

Five species of reptile which are uncommon in the region and are therefore of conservation significance also occur in the Lower Molonglo River Corridor: the Stone Gecko (*Diplodactylus vittatus*), the Marbled Gecko (*Phyllodactylus marmoratus*), the Eastern Copper-tailed Striped Skink (*Ctenotus subus orientalis*), Boulenger's Skink (*Morethia boulengeri*) and the Nobbi Dragon (*Amphibolurus nobbi*). Stone Geckoes, Copper-tailed Skinks and Boulenger's Skink are considered to be at the south eastern edge of their range. The Black-Headed Snake (*Unechis gouldii*), has been recorded at Coppins Crossing (NCDC 1984) outside, but adjacent to, the Lower Molonglo River Corridor.

Seven species of frog have been identified the LMRC. One of these *Litoria latopalmata* is insufficiently known in the ACT (Rauhala 1997). Further survey work is required to determine frog species in the soaks and creeks particularly on the upper slopes of the southern bank.

The populations of *A. parapulchella* in the ACT are the most significant in Australia in terms of abundance, location within protected areas, and the area of coverage. Barrer (1992) states that ‘the left bank of the Molonglo River Corridor downstream of Stromlo forest provides some of the most extensive and best populated *Aprasia* habitat yet recorded’. Other significant areas are found in the Murrumbidgee River Corridor and Mt Taylor Reserve in Canberra Nature Park.

The type of habitat favoured by these lizards includes a surface scatter of partially buried volcanic rocks, sparse shrubs and trees and a predominately native grass cover. The fact that the Corridor has been identified as a type locality for this species indicates that past and current land management practices are in keeping with the habitat requirements for the species.

Management activities within and around *A. parapulchella* habitat will be guided by the Recovery Plan for the species (Osborne & Jones, 1995) and other relevant studies (Osborne, Lintermans & Williams, 1991, Osborne & Mckergow, 1993, Wildlife Research Unit, 1993, Osborne & Jones, 1995). Key threats are loss of or disturbance to habitat which is particularly vulnerable to dislodgement of rocks due to stock grazing and visitors walking on slopes, rolling rocks down slopes or removing rocks for landscape gardening. Spread of shrubs such as Burgan (*Kunzea ericoides*), and regeneration or planting of trees may change open grassland areas into areas of shrubland or woodland. Environmental changes (such as can occur from fertiliser use) which affect the lizard’s food source (ants) are of particular concern.

The Lower Molonglo River Corridor has a robust assemblage of raptors. Some of these are sensitive to human disturbance during the breeding season and at these times there is a need to restrict access in the vicinity of nesting areas between June and October. Egg poaching is also a potential threat to local breeding success.

Also resident in the Lower Molonglo River Corridor are some regionally uncommon species including the Red-capped Robin (*Petroica goodenovii*), Speckled Warbler (*Sericornis sagittatus*), Yellow Thornbill (*Acanthiza nana*) and the Varied Sitella (*Daphoenositta chrysoptera*).

The Corridor provides habitat for a large population of the regionally uncommon Eastern Wallaroo (*Macropus robustus*). Platypus (*Ornithorhynchus anatinus*) occur in some of the larger pools. The area is of local significance because it provides habitat for the bush rat (*Rattus fuscipes*) and may be the closest population of this mammal to urban Canberra.

This Management Plan provides for high priority protection of both nationally and regionally rare or threatened animal species as they are presently defined and as new ones are listed. Given the sensitivity of a range of fauna and their habitats found in the Lower Molonglo River Corridor, access for recreational purposes will need to be carefully managed and monitored. Recreation paths will be located only where they are assessed as being unlikely to compromise conservation values.

2.2.5 Management actions - Terrestrial and natural resource values

- a. Consider known geological features and landforms in the design of any works and undertake measures to protect sites of significance.
- b. Facilitate research and further survey of the ecological communities and biota of the Lower Molonglo River Corridor.
- c. Assess areas of native grassland for their conservation significance and manage appropriately.
- d. Isolate from grazing the nationally vulnerable plant *Pomaderris pallida*.
- e. Protect *Aprasia parapulchella* habitat from disturbance.
- f. Restrict access to significant raptor breeding sites, and prohibit abseiling and rock climbing in the Corridor during the raptor breeding season.
- g. Encourage or undertake further study of animal populations in the Corridor.

2.3 Aboriginal and historical resources

Specific management objective:

- to conserve routes and places of cultural significance, including Aboriginal and European historical sites.

2.3.1 Background

Saunders (1994) documented the Aboriginal and European cultural resources of the Lower Molonglo River Corridor. A number of Aboriginal sites were found consisting of low density open artefact scatters and the landscape has spiritual significance. European historical sites include scarred trees (bark used for dog shelters) and a section of the Old Weetangera Road Ford across the Molonglo River. Other sites of interest include the limestone quarry and location of a lime burning kiln and a possible sawmill site. Most European sites/features were considered of low heritage significance. Saunders recommends that three sites warrant further investigation and that two sites should be retained in their present condition (Saunders 1994).

The property “Huntly” is listed on the ACT Interim Heritage Places Register and parts of Blocks 426 and 429 lie within the River Corridor. The property is to be maintained as a working rural lease although “the conditions of the management plan for the reserves on the Molonglo and Murrumbidgee Rivers apply to those areas of the property lying in the reserves” (ACT Heritage Council 1996).

2.3.2 protection and interpretation of cultural heritage

Cultural heritage sites, especially the Aboriginal sites, are vulnerable to disturbance from development and vandalism. Management of such Aboriginal sites must avoid activities that may disturb them. Information on Aboriginal life in the Corridor will be included in interpretative activities. However, because of the potential for visitor disturbance, no identification of particular sites will be given. Conserving and interpreting the numerous yet unspectacular cultural sites is a difficult management challenge.

All new walking paths and access vehicle routes will be carefully located to avoid archaeologically sensitive areas and interpretation of Aboriginal sites will avoid revealing their location.

All sites discovered need to be reported to the appropriate Minister under Section 67 of the *Land (Planning and Environment) Act 1991*. Disturbance of cultural artefacts will not be permitted. ACT Heritage recommends that consultation be undertaken with all relevant Aboriginal organisations representing the Ngun(n)awal people in the ACT. A contact list is available from ACT Heritage.

2.3.3 Management actions - Aboriginal and historical resources

- a. Conserve and protect cultural sites from damage, disturbance or gradual decay wherever possible.**
- b. Negotiate with lessees and relevant agencies to ensure the Old Weetangera Road Ford is retained.**
- c. Further investigate the limestone quarry, the lime burning kiln and the sawmill site.**
- d. In interpretation programs refer to Aboriginal use of the Corridor but not the actual sites of artefacts.**

2.4 Landscape Values

Specific management objectives:

- **to safeguard the visual character of the Corridor by identifying and protecting its significant visual resources with a particular focus on native vegetation.**

2.4.1 Background

The landscape of the Lower Molonglo River Corridor is characterised by distinctive topography. A deeply entrenched river valley with indigenous vegetation in steeper areas is surrounded by the rural grazing land of the outer valley. The rural vistas may contain non-grazing activities in the future. For example, vineyards or other horticultural crops may be established in the valley as a rural use of leased land.

A visual sensitivity analysis was undertaken on the Corridor by Anway et. al. (1975) as part of their ecological study. They found that the Corridor was almost entirely of high, or potentially high, visual sensitivity.

2.4.2 Landscape considerations

In developing options for use and management of the reserve the visual sensitivity of the Corridor will be considered. Developments such as tracks, walking trails and signs will be viewed against the wider landscape context of the Molonglo Valley and its surroundings. However, it is recognised that warning signs may be necessary as part of the safety precautions for users of the Corridor. While these signs may not be appropriate for the landscape setting every endeavour will be made to minimise their impact on landscape values. A more recent report by Lees (1992) will be consulted when determining the visual qualities for the Corridor.

2.4.3 Management actions - Landscape values

- a. Design walking tracks and signs so that they remain, where possible, unobtrusive and they are of a scale and form appropriate to the character of their setting.**
- b. Consider landscape effects when planning control burning, erosion control and other management activities.**

3. MANAGEMENT OF VISITOR USE

3.1 Recreational opportunities

Specific management objectives:

- **to contribute to the diversity of recreational opportunities available to residents of the region; and**
- **to minimise conflict between recreation uses and park values.**

3.1.1 Background

The primary responsibility of management is to protect and enhance the natural and cultural values of the Corridor. However, the Corridor has the potential offer significant recreational opportunities to supplement those of the Murrumbidgee River Corridor. The surrounding rural character, the undeveloped nature of the area and the limited access to the Corridor (see 3.1.2) provide a different experience close to suburban Canberra. To protect the Reserve's natural values, increased recreational opportunities in the Corridor will not be encouraged. Priority will be given to those activities that are intrinsic to the nature of the area and do not conflict with the conservation values of the Reserve.

3.1.2 Recreational settings

For recreation management purposes the Lower Molonglo River Corridor is viewed as a reserve within the Molonglo-Murrumbidgee River system. Management of recreation in the Lower Molonglo River Corridor will aim to minimise disturbance to all natural settings and on-site interpretation will be low-key. Only minimal levels of interpretation and facilities will be provided on-site.

It may be necessary to stabilise and realign existing walking tracks to provide the recreational settings desired and to avoid sensitive ecological habitat or cultural sites. No other recreational facilities will be placed within the Corridor at this stage (see 3.1.3) and it is not proposed to upgrade the sewerage pipeline management road.

3.1.3 Access and vehicles

With the exception of horse riding access at Bluetts Pines and cycle touring on the management road, public access to the Corridor is by foot. Pedestrian access points exist at Coppins Crossing both north and south of the river, at Stockdill Drive near the Lower Molonglo Water Quality Control Centre and off the Uriarra walking trail through the 'Rivers' property near Camp Sturt (see Fig. 2). Visitor access to the Corridor via Bluetts Pines may at times be limited by forestry activities.

A gravelled track links Stockdill Drive to the sewerage pipeline management road within the Corridor. This track will be retained primarily for management purposes such as fire fighting and emergencies and its use for recreational activities will not be encouraged. An informal vehicle route which runs from the sewerage pipeline management road along the Corridor fenceline to Stockdill Drive will remain a low level track for management and fire fighting purposes only and will not be opened as a recreational through route. This will reduce damage to sensitive vegetation, limit disturbance to nesting raptors and keep visitors away from the cliffs at the top of the gorge.

As the sewerage pipeline management road is owned and maintained by ACTEW, the Service will seek a management agreement with ACTEW recognising that:

- the road has been used regularly for car rallies but in order to minimise damage this activity should be permitted no more than two times per year; car rallies will require approval from ACTEW and the Service (see 5.1.5 Special activities).
- high vehicle usage of management tracks has the potential to erode and damage these tracks and will increase the introduction of weed seeds into areas;
- it is desirable to minimise unnecessary vehicle traffic; and
- restrictions on vehicle access to the site will help to maintain the 'remote' and 'rural' experience gained by visiting the reserve.

Only vehicles used for approved management purposes are allowed access into the Corridor. This includes vehicles belonging to rural lessees and agistees. Other vehicles may not enter the Corridor unless specific approval is granted.

Tracks within the Corridor, such as the one from the sewerage pipeline management road to Tongs Hole and the quarry, will be stabilised. The need to allow pedestrian access will be assessed and stable paths constructed if necessary. Other informal tracks will be assessed for their usefulness and environmental impact and either closed or rehabilitated.

3.1.4 Compatible and incompatible activities

Activities allowed in the reserve will be compatible with the principle of providing stimulating low-impact recreation and a remote experience of solitude and a respite from urban life.

Walking

The Lower Molonglo River Corridor provides a pleasant and interesting bush-walking experience. There is no continuous walking trail along the Corridor although old stock and kangaroo trails lead to and run along the river's edge and form an ad-hoc link between the sewerage pipeline management road and the MRC.

Orienteering

The narrow, linear nature of the Corridor and its steep slopes are significant constraints to use of the area as a successful orienteering course. Given the potential for damage to sensitive ecological communities and threatened species, orienteering will not be permitted in the Corridor.

Picnicking

As part of development in the 1970s, a picnic area with barbecues was constructed on the northern bank at the Coppins Crossing end of the Corridor. The area was closed in the 1980s due to vandalism and other inappropriate use of the area. No further developments of this kind are planned in the Corridor. The derelict barbecues and carpark at the site have been removed and the area will be rehabilitated.

The Lower Molonglo River Corridor provides scenic opportunities for picnicking, especially in the low-lying beach areas beside the river. Picnic use is usually associated with other activities such as bush-walking or fishing

Swimming

The Territory Plan (Part C2) does not allow swimming in the lower Molonglo River below Scrivener Dam.

Fishing

Fishing is one of the main recreational uses of the river. Under the new *Fisheries Act 2000*, the Molonglo River below Scrivener dam is classified as an “Open Water” where fishing is allowed throughout the year, although trout must be returned during the closed season. A recreational fishing licence is not required in the ACT. Bag, gear and size limits apply and anglers should acquaint themselves with the new fisheries regulations. A pamphlet outlining the new *Fisheries Act 2000* is available from Environment ACT and tackle shops. Fish listed as threatened under ACT legislation must be returned to the river.

A survey of the aquatic life in the river is needed to determine the aquatic resources present. Information obtained by ACTEW over the past four years will be used to assist in this survey.

Hunting

Hunting is prohibited in the ACT under provisions of the *Nature Conservation Act 1980*, the *Animal Welfare Act 1992* and the *Weapons Act 1992*. Therefore no hunting is permitted within the River Corridor.

Camping

Potential high fire risk, lack of suitable camping areas and the general lack of potable water in the Molonglo River make camping inappropriate in the Lower Molonglo River Corridor. Therefore camping and fires will not be permitted within the Corridor.

Cycling

Due to the generally steep and inaccessible nature of the Corridor, cycling is confined to the sewerage pipeline management road or to tracks within the pine plantation. Access is from the Coppins Crossing Road and there is no formal public through route in the Corridor to the Murrumbidgee River or Stockdill Drive.

Horse Riding

The potential impact of horses on fragile environments includes erosion, trampling, rock disturbance and the introduction of weeds from seeds. Fragile soils and plant and animal habitats on steep slopes and along the river are particularly susceptible to damage. Under Section 57 of the *Nature Conservation Act 1980*, horses are not generally allowed in nature reserves, although the Conservator may permit horses on identified horse trails where this is assessed as appropriate using the criteria developed by Landsberg (1999) and the related management principles and policies adopted by the ACT Government (1999d).

An equestrian trail network has been established through the Stromlo-Bluetts Pine area. Resting and watering areas have been proposed in three locations along this track, allowing horse access to the river for watering. This is compatible with the Bluetts Pines area being retained as Special Purpose Reserve. Management for horse riding will be included in the Memorandum of Understanding between the Service and ACT Forests.

Horse riding will only be permitted on the sewerage management road. Although the connecting track to Stockdill Drive is of a suitable standard for horse riding the adverse effects of increased public usage on the success of raptor breeding and potential damage to sensitive ecological communities through changed conditions, preclude opening this track for public access.

Horses will not be permitted in the immediate river edge area (except for any designated watering points in the special purpose reserve on the south bank), on steep slopes and near

fragile and sensitive wildlife breeding habitat. There will be no horse crossing points along the river at any point in the Corridor other than at Coppins Crossing Road.

Neighbouring lessees can use stock horses and dogs in the Corridor to recover straying stock.

Boating

The Lower Molonglo River is not suitable for recreational powered boats as the river is frequently interrupted by rapids and has only a few still-water pools. Although rafting and canoeing are possible activities in the Lower Molonglo River, better conditions for these activities are found on the Murrumbidgee River.

Non-powered boating is permitted on the river under the Territory Plan. Boats with motors may be used, where feasible, for essential management purposes only.

Dogs

Under the *Nature Conservation Act 1980* no dogs are allowed in nature reserves. However, the Conservator may grant a permit for special purposes.

In the Special Purpose Reserve, dogs may be allowed in designated areas. In these areas dogs must be kept under control at all times. The part of the Corridor contiguous with Bluetts Pines (a Special Purpose Reserve) has been used as a training area for gun (retriever) dogs (see Fig. 2). The dogs are trained to retrieve dummy toys that are thrown into the river or placed on surrounding land. The continuation of this activity will be permitted in this area (refer to Section 1.3). For gundog retriever activities across the river the Conservator has agreed to the use of a ten metre strip opposite Bluetts Pines along the northern bank with the following conditions:

- dogs must not harass wildlife and must be under the full control of their handler;
- cars transporting equipment for this activity must park outside the Corridor; and
- dogs must be trained only in areas designated, and during times designated, in any permit.

None of the above restrictions apply to guide or hearing dogs or dogs being used by police or customs for official duties.

Abseiling and rock climbing

Abseiling and rock climbing have not generally been an activity in the Corridor due to the difficulty of gaining access to sites. With the declaration of the Corridor as a nature reserve demand to use the gorge area for this activity can be expected to increase. Due to the potential for adverse environmental impact on raptors, abseiling and rock climbing will only be allowed for individuals or occasional small groups outside the raptor breeding season (June to October). To monitor usage a permit system will be required from the Service and will only be granted depending on seasonal and environmental conditions.

3.1.5 Special events

Special events will be permitted only where they do not have unacceptable impacts on Corridor values and other public uses. (Assessment will be made against the general criteria for activities within the Corridor—see Section 5: Management of authorised activities and Section 8: Environmental planning and protection).

The management track on the north side of the river has been used for car rallies in the past. This road is owned and maintained by ACTEW and the Service will negotiate with ACTEW over its use for this purpose. Permission for limited numbers of rallies under strict conditions may be given. If permitted, it is expected that licence agreements will be used to control these activities and the activity may include requirements such as temporary road closures and rehabilitation of areas.

3.1.6 Management actions—Recreational opportunities

- a. Discourage recreational activities not compatible with the protection of significant species and communities.**
- b. Provide low key interpretation where appropriate.**
- c. Provide safety and management signs where appropriate.**
- d. Monitor trails used by the public, repair degraded areas and realign as necessary.**
- e. Rehabilitate the old picnic site near Coppins Crossing to a ‘natural’ state.**

3.2 Interpretation and education

Specific management objectives:

- to encourage an appreciation of the significance of the natural and cultural features and appropriate uses of the Lower Molonglo River Corridor;**
- to encourage public participation in resolving environmental issues affecting the Corridor;**
- to provide opportunities for studying the environmental and cultural history of the Corridor; and**
- to influence recreation choice and promote responsible behaviour among Corridor visitors.**

3.2.1 Background

Interpretation aims to increase community understanding of the natural and cultural elements of our environment and how different people have interrelated with the environment over time. It informs visitors of the attractions and recreational opportunities available and fosters appropriate behaviour so that visitor impacts on the environment are minimised.

An effective interpretation and education strategy is part of achieving the goals and objectives of management for the Corridor. The Molonglo River presents an interpretative opportunity for community education on catchment management and water quality issues. The lower Molonglo River area can be used to monitor the effects of upstream uses and conditions and often carries large amounts of litter and sediment.

There are also issues associated with the river, such as:

- the impacts of dams and the lake system;**

- the value of the Corridor as a wildlife route; and
- the effect on water quality as the river flows through the Corridor.

3.2.2 Education and environmental programs

Education and environmental programs will promote an appreciation and understanding of the ecological relationships in the Corridor and encourage an awareness of appropriate visitor use and behaviour.

Community and/or school groups will be encouraged to become involved in monitoring of water quality and conditions within the Lower Molonglo River Corridor.

3.2.3 Management actions—Interpretation and education

- a. Provide on a fee basis ranger-guided walks.**
- b. Provide information boards at the main entrance points at Coppins Crossing and near the LMWQCC.**
- c. Establish a Park Care or ‘Friends’ group, provide opportunities for interested individuals and groups to be involved in projects and build on the community liaison program established by the LMWQCC.**

3.3 Public safety

Specific management objective:

- **to minimise public safety hazards.**

3.3.1 Background

Visitor safety is an important aspect of reserve management. Although there are a range of potential hazards within the reserve, all can be avoided if visitors take reasonable care. The ACT Parks and Conservation Service, the LMWQCC and ACT Forests have a responsibility towards the safety of park visitors in the safe design of facilities and in the provision of local knowledge in the event of search and/or rescue operations.

No fires, except for management purposes, will be permitted in the Corridor. The Corridor will be closed on days of total fire ban to ensure public safety and reduce fire risk and signs will be placed at the main access points.

Recreation facilities such as walking tracks will be designed and maintained to ensure safety for the appropriate recreational activities and the expected levels of use.

The primary purpose of a visit to the Lower Molonglo River Corridor is for a natural experience. Visitors desire minimal levels of interference to their experience of the Corridor and therefore signs within the reserve will be kept to a minimum.

3.3.2 Management actions—Public safety

- a. **Close the Lower Molonglo River Corridor on days of total fire ban by erecting signs at main gates and entrance sites.**
- b. **'No fires' signs to be erected at access points.**
- c. **Assist with search and/or rescue operations in the Corridor.**
- d. **The riverbank of Bluetts Pines will be closed to the public in conjunction with any closure of Bluetts Pines.**
- e. **Areas near the LMWQCC may need to be closed during emergency situations at the Centre.**

3.4 Waste Management

Specific management objective:

- **to avoid accumulation, discard or dumping of wastes within the Corridor.**

3.4.1 Background

Inevitably, wastes are generated during management and utility operations and by Corridor visitors. Combustible vegetative wastes generated during management operations will be used as mulch or compost or left on site to decompose wherever practicable. Otherwise these wastes may be burned on site as management needs dictate, such as for weed seed control. Any such burning must be cognisant of the risk of fire in the Corridor.

3.4.2 Management practices

Visitors to the Corridor will be encouraged to take their rubbish away with them for proper disposal in municipal waste systems. Special attention will be given to plastics and non-combustible wastes. Service staff will endeavour to keep the area clean to encourage responsible use from subsequent users.

No bins or other facilities will be provided within the Corridor.

Old sewerage ponds

The disused sewerage ponds near Coppins Crossing are to be restored by ACT Waste, Infrastructure and Policy, ACT Government. Some remedial drainage works have been undertaken to ensure runoff travels around the ponds into the Molonglo River rather than filtering through the ponds and then into groundwater or spilling into the river. Trials on planting of specific native tree species is to be undertaken to ascertain the effectiveness of drying out the sludge to help in the restoration of the site. The remediation options which may be employed include backfilling of the sludge beds with embankment material, compacting, capping and topsoiling or removal of the dried sludge to the nearest landfill site for disposal. The site is to be landscaped and stabilised with a suitable ground cover on completion of the project.

3.4.3 Management actions—waste management

- | |
|--|
| <ul style="list-style-type: none">a. Encourage visitors to take their rubbish home.b. Monitor the remediation works for the old sewerage ponds at Coppins Crossing. |
|--|

4. PROTECTION OF THE RESOURCE

4.1 Erosion control and rehabilitation

Specific management objectives:

- **to minimise and where possible prevent soil erosion;**
- **to rehabilitate eroding sites, including vehicular and walking tracks; and**
- **ensure all access, facilities and other developments are designed to minimise erosion.**

4.1.1 Background

Past clearing in the Corridor has been substantial. Remnant woodland areas in the reserve have survived on the steepest and least accessible slopes. Flatter areas on the ridge and the more gentle slopes have been cleared and grazed by stock. Past grazing has led to compaction of the soil and, especially in times of drought, removal of vegetative cover which has led to gully and sheet erosion. Grazing has been removed from most of the Corridor. Past land uses such as sand mining on the river and access tracks have left areas in an unstable condition.

4.1.2 Rehabilitation requirements

Revegetation and natural regeneration enhance the long-term survival and integrity of plant communities by increasing the area of native vegetation and enhancing wildlife habitat in degraded areas. Plantings will be designed to minimise runoff and be spaced to approximate presumed pre-European vegetation and to reduce the risk from fire.

Precautions will be required to minimise the extent and severity of soil disturbance as a result of works of any kind carried out in the Corridor. Following any disturbance, cover on the soil needs to be re-established as quickly as possible. Species used for stabilisation may include non-persistent introduced species to establish a protective vegetative ground cover. Local native plants appropriate for the site will be used to obtain long term cover.

The Service will ensure that all activities carried out on its behalf comply with ACT environmental protection legislation. Environment ACT will negotiate with adjacent lessees, ACTEW and ACT Forests about potential erosion control options including establishing protocols to be followed when any works that may cause soil disturbance are to be undertaken.

There is potential for sediment to enter the river from sources upstream of the Lower Molonglo River Corridor, including urban areas, and from rural land and pine plantations nearby. The reserve management has little control over these erosive activities. Negotiation of joint erosion control measures with adjoining land users will occur where necessary.

Adequate fencing will control many of the threats to the plant communities. This can be achieved by fencing on the boundaries and internally in those areas where grazing is not permitted or particular grazing regimes for reserve management are to be implemented. The most important fences in need of repair and replacement are boundary fences between grazed land and the Corridor such as the last portion of the southern boundary leading to the Murrumbidgee River.

4.1.3 Management actions—Erosion control and rehabilitation

- a. Negotiate joint erosion control measures with adjoining land users.
- b. Identify eroded areas and those most susceptible to erosion and initiate erosion control measures in those areas through rehabilitation and revegetation.
- c. Remove stock grazing from the river's edge and assess grazing impacts in other areas for appropriate action.
- d. Develop a plan to replace, repair or remove fences in the Corridor.
- e. Identify opportunities for regeneration and encourage it by fencing, appropriate stocking and other measures as appropriate.
- f. Tracks not required for management or visitor use will be closed and rehabilitated.

4.2 Control of pest plants and animals

Specific management objectives:

- to increase staff and public awareness of the impacts of pest plants and animals and minimise the spread of established pest species; and
- to co-operate with Corridor lessees and adjacent landholders to carry out joint control programs.

4.2.1 Background

Control of pest animals and plants in the Corridor will take account of information and priorities identified in:

- a) the ACT Weeds Strategy and the ACT Vertebrate Pests Management Strategy;
- b) the national principles and strategies detailed in the Managing Vertebrate Pests series developed by the Bureau of Resource Sciences; and
- c) the Environmental Weed Survey of the ACT commissioned by the Conservation Council of the South-east Region and Canberra.

The long thin shape of the Corridor means there is little opportunity to provide a buffer from surrounding weed and pest invasion. Also, the control of mobile or easily spread terrestrial pests is uneconomic and unsustainable except in conjunction with effective programs on adjoining areas. Other factors important for pest management include the proximity to urban areas, high visitation levels, the distributive role of the Molonglo River in spreading seeds and weed plants along its length and the accidental introduction of foreign plant material with roadworks, soil stabilisation and revegetation works.

Decisions about pest management will be based on the principles of achieving sustained, effective reduction in the impact of pests and the likely value-for-effort, considering the potential for a sustainable reduction in pest impact.

All control programs will be designed to avoid harming non-target species. Management and control will be in accordance with accepted codes of practice, legislation and policies and procedures and will incorporate a monitoring program to determine the effectiveness of weed and pest control measures.

Prioritisation of areas

Priorities for pest control will be determined on the following basis:

Priority 1:	Areas of high conservation value, for example threatened plant sites, relatively undisturbed native vegetation communities, important wildlife habitat, Aboriginal or other cultural sites
Priority 2:	Sites designated as significant for geological, geomorphological, zoological and botanical reasons that are not included above
Priority 3:	Areas where native species planting is occurring in order to maximise plant survival
Priority 4:	Neighbouring pest control programs
Priority 5:	All other sites

4.2.2 Pest plants

A wide range of introduced trees, shrubs, herbs and grasses occur in the Corridor. Several tree species pose a potentially serious threat to native vegetation, especially Tree of Heaven (*Ailanthus altissima*), which tends to dominate areas with its suckers, and Radiata Pine (*Pinus radiata*) as wildings.

In addition to Bluetts pine plantation, many pines were planted by ACT Forests on the north side and inside the Corridor boundary on the south bank close to Coppins Crossing. ACT Forests will manage on a commercial basis the planted pines within the Corridor. The planted trees on the northern side are a part of the commercial forest estate and ACT Forests will manage this area of pines to maturity when they will be harvested and the area removed from ACT Forests' commercial estate. Wildings from these plantings have established in the Corridor.

The removal of the small trial plot of native trees planted adjacent to the river on the southern bank are scheduled to be removed when sufficient results have been obtained.

The Service will undertake weed control in accordance with the ACT Weeds Strategy.

Important species for control include:

PLANT	OCCURRENCE
Tree of Heaven (<i>Ailanthus altissima</i>)	scattered pockets
Pine wildings (<i>Pinus radiata</i>)	mainly Coppins Crossing end of the Corridor
Willows (<i>Salix</i> spp.)	present throughout the Corridor, particularly in the more accessible reaches of the river
Sweet Briar (<i>Rosa rubiginosa</i>)	widespread in all habitats throughout the Corridor
Blackberry (<i>Rubus</i> spp.)	well established in some wet areas and gullies
African Love-grass (<i>Eragrostis curvula</i>)	scattered along the corridor

The propensity of willows to spread, including through seeding, and their deleterious effects on river channels, flow habitat and aquatic biota will require vigilant monitoring to initiate timely control measures.

Other weed species such as St John's Wort (*Hypericum perforatum*) and Paterson's Curse (*Echium plantagineum*) occur within the Corridor. These may result in financial costs to neighbouring landholders and will be controlled as a good neighbour policy.

Pest plants uncommon at the present time but with the capacity to become more troublesome are:

- Box thorn (*Lycium ferocissimum*)
- Firethorn (*Pyracantha spp.*)
- Hawthorn (*Crataegus monogyna*)
- Chilean Needle Grass (*Stipa neesiana*)

Some of the introduced herbs and grasses in the area threaten to displace native species. Species include *Phalaris aquatica* which dominates some wetland areas displacing the native sedges, Saffron Thistle (*Carthamus lanatus*) and Subterranean Clover (*Trifolium subterraneum*).

In areas where grazing recently has been removed, careful monitoring of weed species is necessary for the next few years. The removal of grazing can cause an explosion in certain weed species, e.g. St Johns Wort, which are inhibited by grazing pressure. Where these species have, or are suspected to have, an adverse effect on the values of the Corridor, or are a priority for control in neighbouring areas, it may be necessary to control them within the Corridor. Native plants such as Burgan (*Kunzia ericoides*) can also become a problem through rapid colonisation of non-grazed areas and measures may be required to control or limit this spread to prevent loss of rare and endangered plants and animals.

The ACT Parks and Conservation Service will adopt an ecological approach to weed control over the long-term i.e. weed control priorities and tactics to be based on the ecology of the weed species and the likely replacement species.

In order to minimise the spread of weeds and disease through importing contaminated soil, on-site soil and gravel will be used as much as possible for erosion control and rehabilitation works. Sites disturbed for soil extraction will be small and will be rehabilitated. ACTEW owns and maintains the sewerage pipeline management road and the Service will liaise with this agency on the location of material to maintain the road.

Any equipment used in the Corridor by the Service, for works of any kind, will be checked and cleaned for weed seed and disease contamination before and after the works. Disturbance of sites for works or other operations often causes the regeneration of weeds in the soil. Sites which have been disturbed will be monitored annually during spring/summer, and weeds controlled if necessary.

Due to its location the LMRC is in a strategic position to detect, especially aquatic species, the occurrence of new pest plants. Controlling these plants within the Corridor will help to prevent the spread of these plants downstream.

4.2.3 Pest animals

Introduced mammals that occur in the Corridor include rabbits, foxes, wild dogs and feral cats. All are thought to have an impact on the native flora and fauna. Rabbits graze and kill

regenerating shrubs and trees and consequently there is a noticeable decline in vegetation around rabbit warrens found throughout the Corridor. The release of the rabbit calicivirus in the ACT has had promising results and is expected to add to the still powerful effect of the *Myxoma* virus released 45 years ago in contributing to the suppression of rabbit population. Follow-up rabbit warren destruction will be required.

Analysis of fox scats within the Corridor has indicated that foxes feed mainly on dead or moribund domestic stock and macropods, rabbits, possums and small mammals (Barrer 1992). Corridor management will continue to participate in regional approaches to fox control (e.g. to reduce lamb mortality) providing these meet the pest management priorities stated above.

Feral cats are possibly important predators of small mammals and perhaps some species of birds. The Corridor's close proximity to the urban area of Canberra means that feral and domestic cats and dogs are likely to remain a constant problem.

Bee keeping is incompatible with the management aims of the Corridor. These insects can have adverse effects on endemic insect communities and native vegetation. Adverse effects include competition for food and nesting sites and discouragement of native pollinators through interference. Management will liaise with adjacent landholders on this issue. Commercial hives of bees will not be allowed within the Lower Molonglo River Corridor.

Control of kangaroo numbers may be necessary and will be undertaken in an humane way and in accordance with the guidelines developed by the ACT Kangaroo Advisory Committee. Control programs will be co-ordinated with neighbouring lessees.

The Corridor is in a strategic position to assist in the recovery and control of escaped fish from the National Aquarium or other aquaria, although it is recognised that any such program would need to be conducted in a holistic manner.

Priority pest animals

Priority pest animals include non-native species that:

- prey on native fauna;
- affect bank stability through undermining roots of plants;
- degrade land by trampling, digging, browsing or grazing, especially where this prevents or slows land rehabilitation programs; and
- for which control programs are likely to reduce substantially the impacts of existing populations.

When proposing control programs, consultation with various state and federal bodies and relevant research institutions may assist to determine control strategies and priorities and identify the most appropriate techniques. Pest animal control programs undertaken by the Service follow Codes of Practice and adopt the most humane methods available consistent with effective control.

4.2.4 Use of Chemicals

Chemical control is the most widely used means of pest plant control. The ACTPCS Pest Management Manual prescribes the application of pesticides and techniques to be used against each species, as well as occupational health and safety requirements.

4. PROTECTION OF THE RESOURCE

Use of chemicals will be subject to visitor safety, public health—particularly with regard to contamination of water, possible residual or non-target effects and consideration of feasible alternatives.

4.2.5 Management actions - Control of pest plants and animals

- a. Provide on-site information to the public and LMWQCC about control programs which may affect visitors.
- b. Co-ordinate pest animal and weed control programs with neighbouring landholders, LMWQCC and other bodies.
- c. Negotiate with ACT Forests about the removal of the planted pines within the Corridor.
- d. Undertake, where practical, pest fish control.
- e. Develop an annual weed control plan.
- f. Monitor and, where necessary, control weed species in areas where grazing has been removed.
- g. Check materials and equipment used in the Corridor for weed seed contamination.
- h. Follow operational works with annual weed checks.
- i. Remove or destroy non-native bee colonies located in the Corridor.

4.3 Bush Fire management

Specific management objectives:

- to protect human life and property;
- to prevent the spread of fire to neighbouring property;
- to protect natural and cultural features of the Corridor from damage by wildfire; and
- to minimise the impacts of hazard reduction and fire suppression activities on Corridor values.

4.3.1 Background

Wildfire is a potential problem for the Lower Molonglo River Corridor. Pine plantations and the urban development at West Belconnen increase the risk of fire in the area both as assets at risk and as a source of ignitions. Hazard reduction and fire suppression for these surrounding land uses and for the neighbouring grazing lands must be balanced to ensure that the valuable natural and cultural features of the Corridor are not adversely affected.

Fire suppression and management in the ACT is governed by the *ACT Bushfire Act 1936*. The Act creates the ACT Bush Fire Council which is empowered to take the necessary action to prevent or control the outbreak of fire and to protect life and property from the effects of fire outside the urban ACT. The Council delegates its operational responsibilities in regard to fire control management to its Chief Fire Control Officer whilst retaining its policy development function. The Act requires land managers, including the ACT Parks and Conservation Service, to remove or reduce bushfire hazards on their lands.

Bush fire management policies are stated in the *Bushfire (Fuel) Management Plan* (ACT Government 1998).

4.3.2 Fire management planning

Amendments to the Bushfire Act 1936 require ACT land managers to produce a Bush Fire (Fuel) Management Plan for areas of unleased bushfire-prone land in the ACT at least every two years. These plans must be approved by the Minister responsible for bushfire and emergency services and detail past fire history and the measures that will be taken to reduce the incidence and spread of bush fires. The Corridor is included in the relevant Bush Fire Fuel Management Plan and hazard reduction and suppression management in the Corridor will follow the requirements stated in that Plan.

4.3.3 Annual Fire Action Plans

An annual Fire Action Plan is prepared by the Service to guide the arrangements made for the control and suppression of fires. The following information is included in the relevant section of this Plan:

- details of staff and resources available;
- fire suppression co-ordination;
- deployment of fire control resources; and
- liaison with neighbours.

Hazard reduction

Hazard reduction will mainly be carried out by mechanical methods, i.e. slashing, graded breaks and stock grazing. Most work will be done on the perimeter of grazing lands. Grazing by domestic stock to reduce fuel levels may be possible in certain areas. Control burns may be used to reduce vegetation in areas where grazing is incompatible with management aims and where burning is ecologically acceptable and acceptable to adjacent landholders.

Fire control

Control of any wildfire in the Corridor is the responsibility of the Chief Fire Control Officer. The Bushfire Act overrides other legislation including that on which this Plan is based. However, the Agency Representative roster operated by the Service provides for a Service person to have input to the operational bush fire suppression decisions. The LMWQCC is available as a source of non-potable water for fire fighting purposes through its hydrant distribution system.

Access in times of fire

Access in times of fire will be along the sewerage pipeline management road, from rural properties and along ACT Forests' management tracks in the area. Prior negotiation with lessees and other management authorities within the area regarding the protocols to follow when such access is necessary will occur.

4.3.4 Management actions - Fire management

- Implement the on-ground works and consultation/education activities specified in the Bush Fire Fuel Management Plan.**
- Negotiate with lessees and other management authorities within the area regarding protocols for access in times of fire.**
- Liaise with adjacent land managers on fire hazard reduction measures and access to fire fighting facilities.**

5. MANAGEMENT OF AUTHORISED ACTIVITIES

5.1 Land occupancy and use agreements

Specific management objectives:

- **to provide for ecologically sustainable production from rural lands within the Corridor;**
- **to provide for access to Corridor sites by community groups for appropriate activities; and**
- **to provide for and control commercial participation in the provision of appropriate visitor services.**

5.1.1 Background

This chapter applies to leases, agistment licences and other agreements pertaining to the occupancy and use of land within the Corridor. Agreements for the following uses may be made with the private sector and community interests:

- rural, including short term grazing agreements;
- commercial enterprises to cater for the needs of visitors;
- group or special activities such as sporting events or film making;
- the activities of commercial tour operators; and
- the activities of volunteers wishing to assist in park management.

It should be noted that existing leases may confer entitlements on lessees which conflict with this Management Plan. These entitlements will not be superseded by this Management Plan. However, any new or re-negotiated Land Management Agreements will incorporate the provisions of the Management Plan.

5.1.2 Land Management Agreements

Any Land Management Agreements for the specification of permitted activities and the use of and/or occupation of land will include, as relevant:

- responsibility for land protection including plant and animal pest control and waste management;
- requirements for fencing;
- a description of permitted agricultural activities including any works, and location of equipment, for the diversion of water for agricultural purposes such as irrigation or watering stock;
- designation of public use areas and access to them;
- the protection of significant natural and cultural heritage sites;
- the protection of air and water quality;
- consideration of the economic viability of the activity and the competency of the proponent to undertake the activity;
- the protection of remnant native vegetation from stock damage, ring-barking and felling;
- controls on the scale and design of development (buildings and structures) to ensure that they blend with the natural/landscape setting of the area; and
- the level of monitoring to be undertaken by the Service and the lessee.

5.1.3 Rural leases and agistment licences

Some areas within the Corridor will remain rural lease or be grazed under agistment licence. The Service will liaise with existing lessees to secure the most flexible, equitable and economically viable arrangements consistent with this Management Plan. The use of grazing will be evaluated from time to time to assess its cost effectiveness as a management tool. Where grazing land is to be incorporated into the Corridor provision for alternative sources of stock water will be considered before fencing commences.

New and re-negotiated leases will define explicitly the respective roles of the government and lessees regarding the protection of water quality, landscape integrity and the natural and cultural features of the property.

The lease will also define any formal rights-of-way through leased lands for public access to the river.

Leases and licences will include the following conditions and considerations:

- grazing will be strictly controlled along the river bank in the Lower Molonglo River Corridor to encourage stabilisation and natural rehabilitation of the riverbank as well as allow visitor access;
- maintenance of boundary fences on an equitable basis;
- the Service will ensure there is a stock-proof fence along the Corridor boundary to exclude stock from where grazing is prohibited;
- provision for stock water will be considered before the river strip is fenced;
- short-term agistment for predetermined management purposes such as fire fuel reduction, management of native grasslands, weed control and plantation management is not precluded;
- agistment licences will have certain conditions on stocking rate attached. Monitoring of threatened species in areas covered by agistment licences will take place. Particular threatened species' habitats may be fenced off if practicable;
- grazing will only be permitted in revegetation areas if this action is permitted in a current lease. When the lease is due for renewal continuation of grazing will be reviewed, in light of the preferred landuse for the area. If grazing is to continue, stocking rates will reflect the need to enhance the revegetation process;
- proposals for pasture improvement will be assessed for their environmental impact and will be confined to long-term grazing leases; and
- movement of stock will be allowed only between adjacent areas of lease and agistment. Stock will only be allowed to travel through non-grazing areas of the Corridor with the permission of the Service.

5.1.4 Park concessions

A park concession is a right granted by way of a lease, licence or permit for the occupation or use of a part of the Corridor to provide appropriate facilities or services for the use and enjoyment of visitors. Such concessions may include:

- conducted tours, adventure trips and training courses;
- film making which promotes the natural and cultural values of the Corridor;
- special recreation or other events;
- the sale, hire or provision of supplies and services; and

- retail outlets, hawkers, hire facilities, commercial entertainment.

Strict controls on all waste disposal are needed. Concessions do not include grazing, bee keeping and other such activities.

The park concessions system will be guided by the Council of Nature Conservation Minister's *Guidelines for Concession Management in National Parks and other Protected Areas* (as modified by the then Environment and Conservation Consultative Committee). These Guidelines recognise three categories of concessions:

1. Major facilities and services, e.g. motel or caravan park
2. Minor facilities and services, e.g. kiosk, souvenir shop etc.
3. Guided leisure and educational activities, e.g. canoe tours, bushwalking, etc.

Only Category 3 concessions are in accordance with this Management Plan and will be considered for the Lower Molonglo River Corridor.

Concessions are generally subject to payment of a fee. However, other services, for example restoration or rehabilitation work, may be provided in lieu of a fee, but still require a permit. Where the focus of the activity is educational and promoting greater public awareness and understanding of environmental conservation, reducing or waiving licence fees may be considered.

Operators who charge visitors a fee will require a concession licence. This licence will specify constraints on the activity, the group size, the areas to be used and the requirements for public indemnity insurance. Operators of guided leisure and educational activities will not be permitted to use vehicles on management tracks or be provided with exclusive use of the walking tracks or other areas in the reserve. In many cases it is the regularity of an activity that causes significant impacts and this aspect needs to be considered in the granting of a concession.

A licence may be granted only if the Service is satisfied that:

- there is no, or very minimal, environmental impact from the proposed activities;
- the operator is competent to undertake the activity involved;
- there is adequate provision for the safety of persons; and
- the concession does not conflict with other visitors' use of the Lower Molonglo River Corridor.

Topography and lack of vehicle access make the Corridor generally unattractive for large informal group activities and this type of activity will be discouraged.

5.1.5 Special activities

Special activities are those activities, which may have a significant environmental impact. Such activities include car rallies, large social events involving the erection of specific structures or exclusive site occupancy and commercial film making. Specific permission and an assessment of their potential impact on the values of the Corridor will be required for these activities. If approved, a fee will be charged.

Authorisations to undertake special activities will include:

- Conditions to protect Corridor values;
- Conditions to minimise conflict with other visitors; and

- Provision for special requirements such as portable toilets, public indemnity insurance, garbage facilities and post event clean up and rehabilitation.

Participants in special activities will not receive preferential treatment and will be subject to the same general conditions as any other visitor to the Corridor. Minor concessions may be made to event organisers who require access not usually available to the public.

Activities of groups operating in leased land with the permission of the lessee will be governed primarily by lease conditions or under agreements between the Service and the lessee.

Filming

Proponents of commercial filming proposals need to provide the Service with details of the content and location of filming and any associated activities.

Filming that promotes management objectives and is consistent with the management aims for interpretation and education of the Lower Molonglo River Corridor will be treated as a park concession rather than a special activity.

Other commercial filming within the Corridor will require permission from the Service.

Filming associated with news events does not need permission. Access should be arranged with Corridor management.

5.1.6 Sponsorships and community participation

The Corridor provides an opportunity to encourage volunteer groups from within Canberra and the ACT, including Park Care, Landcare, WaterWatch and vocational training courses. Recognition of the involvement will be noted in the Service's publications. However, the Service will not extend this recognition to billboards, plaques or memorials. The Service will consider proposals for the official naming of places under the Public Places Names Act 1989.

Sponsorship and community participation in management will be encouraged.

5.1.7 Management actions—Land occupancy and use agreements

- a. Monitor the impact of grazing on threatened species and ecological communities in agisted areas.**
- b. Remove stock and fence, as necessary, areas of threatened species.**
- c. Assess the potential impacts on reserve values for all special activities proposed for the Lower Molonglo River Corridor.**
- d. Ensure all agreements reflect responsibilities for site rehabilitation.**

5.2 Utilities and services

Specific management objectives:

- to minimise adverse effects on Corridor values resulting from the operations of utility and monitoring services;
- to co-ordinate the operational requirements of utilities with the other management programs; and
- to maintain liaison between the Service and other management authorities in the area.

5.2.1 Background

The Lower Molonglo River Corridor contains sewerage, electricity, telecommunications and water supply infrastructure. Authorities responsible for the utilities and monitoring agencies are listed as follows:

ACTEW Corporation	sewerage treatment and disposal, electricity and water supply, water flow monitoring infrastructure
ACT Health Protection Service	monitoring and application of public health standards;
Environment ACT	water monitoring and education and enforcement of water quality and resource protection legislation
ACT Bush Fire Council	fire protection and control
ACT Waste, Urban Services	control and/or removal of sewerage ponds
Telstra	telephone lines and services
ACT Forests	management of Bluetts Pines and some other Corridor land
PALM	water monitoring

ACTEW is already working closely with Corridor management and is engaged in co-operative land management projects.

5.2.2 Management agreements

Management agreements will be developed through liaison between the Service and relevant utilities and regulatory and monitoring agencies. These agreements will consider:

- a precise description of the facilities, works, operations and access routes covered by the agreement;
- conditions for clearing vegetation and applying chemicals such as herbicides;
- soil conservation and site rehabilitation requirements, including maintenance of access routes, i.e. sewerage pipeline management road;
- protection of natural and cultural heritage;
- the requirement for all staff, contractors and subcontractors to comply with this Management Plan and any relevant legislation; and
- responsibility for the removal of equipment and installations when no longer required. In these instances, sites will be rehabilitated by the relevant authority to a standard determined by the Service.

5.2.3 New or modified utilities

Assessment of any future proposals for utilities and services will be based on physical, biological, social and visual considerations. Proposed utilities and services should be placed well outside the Lower Molonglo River Corridor. New facilities will only be allowed within the Corridor if it can be demonstrated clearly that there is no prudent or feasible alternative location and that impacts are acceptable.

All installations that may have an impact on the Corridor are subject to the National Capital Plan, the Territory Plan, the *Land (Planning and Environment) Act 1991* and this Management Plan.

A written agreement between the Service and the utility operator will also be required, covering the matters outlined in this plan. A written agreement already exists between the Service and ACTEW regarding the conditions and responsibilities of each authority in the control of the Lower Molonglo Water Quality Control Centre.

Any new or modified utilities will require an assessment of their environmental impacts and will include:

- an evaluation of the impacts on the landscape, on the natural, cultural and visual environment and on recreational opportunities. Such impacts should be minimised and appropriate documentation and evaluation of such impacts will be the basis of the decision;
- that there will be no significant reduction in the range and capacity of recreation opportunities;
- that existing utility easements, locations and routes are to be used;
- that soil cover and water quality are to be protected during construction and that long term land rehabilitation is to be accounted for (as required under Environment Protection legislation); and
- that a long-term maintenance plan is outlined.

5.2.4 Management action - utilities and services

- a. Develop and review management agreements with the owners of utilities in the Lower Molonglo River Corridor to include maintenance of conservation, landscape and recreation values.**
- b. Undertake Environmental Impact Assessments as required**

6. RESEARCH AND MONITORING

6.1 Requirements for the program

Specific management objectives:

- to provide an information base about the physical, biological, cultural and visitor use characteristics of the Corridor;
- to promote an understanding of the ecological relationships and dynamics of systems in the Corridor;
- to focus research on high priority management problems and issues; and
- to promote efficient and prompt transfer of research results into management practice.

6.1.1 Background

Research and monitoring are essential components of effective management and provide a scientific basis for management. Monitoring is one way to evaluate the effectiveness of management practices. However, for research and monitoring to be effective it should be evaluated against clear objectives so that it is clear why it is being undertaken and how the findings will be used to assist in the management of the Corridor. While the Service will encourage research and monitoring that has direct relevance to the management of the Corridor, it will also ensure that the results of those activities feed into management programs. Where resources are available, the Service will assist in such research efforts. Other research not directly related to the management of the Corridor but adding to the general land management knowledge base may take place from time to time.

For example, a tree planting of Eucalyptus species, including non-local species, was undertaken as part of a series of trials conducted by ACT Forests. This trial is of interest to the national and international scientific communities and is of great value to ACT Forests and the Commonwealth Scientific Industrial and Research Organisation. ACT Forests will continue to manage this area for its scientific values. When the site has no further scientific value it is proposed that non-indigenous species be removed.

Research and monitoring undertaken for the management of the Corridor should give priority to those values identified as being most at risk (sensitive to disturbance) and to ecological management problems. Research and survey of the aquatic dynamics of the Corridor in particular would greatly assist Corridor management. Such research would allow more informed decision-making. Guidelines to consider when setting up monitoring projects are contained in the shaded box below.

Environment ACT will undertake some survey and monitoring activities where these address high priority management or conservation issues and commitments made in Action Plans for threatened species. Additional survey and monitoring work may be arranged with other parties such as with university staff or qualified community groups where this complements existing work and is directed towards meeting management priorities.

Guidelines for setting up monitoring projects:

- who wants/needs the information;
- what are the specific goals or objectives;
- who will collect the information;
- how will it be validated;
- how the information will be stored and analysed;
- who will have access to it and under conditions;
- how will it fit into other monitoring/evaluation projects; and
- how it will be used to assist/change management.

6.1.2 Research and monitoring

Research and monitoring activities that need to be done and are already mentioned in this plan include:

Research

- Research aquatic systems in the Corridor.
- Investigate and identify geological features and landforms in the Corridor.
- Facilitate research and further survey of the vegetation of the Corridor including the riparian ecosystem and the ecological significance of interrelationships.
- Identify and map the distribution of weed species.
- Further study and survey of animal populations in the Corridor.
- Further investigate limestone quarry, lime burning kiln, farm gate and sawmill site.
- Research the history of Old Weetangera Road for interpretation purposes.
- Survey pest animal populations in the Corridor.

Monitoring

- Populations of aquatic taxa.
- Significant vegetation to ensure ongoing viability.
- The abundance of native animals, in particular kangaroos, and the environmental degradation due to overabundant populations.
- Impact of grazing on sites with significant vegetation or other conservation values particularly in areas that are under agistment licence.
- Weed species where grazing has been recently removed.
- Sites where operational works have been performed (annually).
- Effectiveness of weed and pest control measures.
- Fuel levels and fuel availability.
- The impacts of grazing on threatened species.

Research projects and monitoring programs can involve a wide range of people. Involvement of volunteers, educational institutions and individual researchers can reduce research and monitoring costs and help to provide information to the broader community.

Where there is a potential impact on the Corridor through the performance of research the Service will co-ordinate and manage this research through the permit and licensing system.

Management of research activities will:

- protect the susceptible nature of the Corridor resources;
- avoid conflict or undesirable overlap of research activities;
- promote dissemination of results to field management;
- ensure that researchers are aware of other management requirements such as restrictions on vehicle use; and
- promote research activities that directly assist management of the reserve.

Where applicable, proponents will be required to follow Service protocols and to apply for the necessary statutory permits, issued under the *Nature Conservation Act 1980*.

6.1.3 Management actions - Research and monitoring

- a. Continue to identify research needs, establish priorities and encourage research programs and findings that address management issues.**
- b. Encourage volunteers, educational institutions and other organisations to participate in research and monitoring projects.**
- c. Manage research activities and apply results to management programs.**

7. MANAGEMENT SYSTEMS

7.1 Management access and facilities

Specific management objectives:

- to minimise impacts on the Corridor from management infrastructure and access; and
- to implement an efficient system of land management in the Corridor consistent with the management of other Public Land in the ACT.

7.1.1 Background

The sewerage pipeline management road on the north side of the river is the only management road maintained within the Corridor. The ACT Forests roads on the south bank within Bluetts pines will be used for access to the south bank if required. These roads do not give access below Bluetts Pines and there is no intention to provide improved access to the south bank beyond Bluetts Pines. The sewerage pipeline management road provides access for:

- strategic fire control (see Bush Fire management);
- essential patrols and maintenance along utility easements;
- servicing of utility installations;
- river gauging and other monitoring;
- regular management operations, such as weed control; and
- emergency use on a 24 hour basis.

7.1.2 Management facilities

Staff of the Murrumbidgee River Corridor will manage the Lower Molonglo River Corridor from the Murrumbidgee West depot at Casuarina Sands.

The section of the Corridor known as the river bank of Bluetts Pines will be managed by ACT Forests in accordance with this management plan.

If an existing track or firebreak is subject to erosion, or is no longer required, it will be closed and rehabilitated. Management tracks will be kept to a minimum.

Any proposal to provide new or upgraded vehicle access for management or utility purposes will be subject to environmental planning and protection provisions as outlined in Chapter 8, Environmental planning and protection.

7.1.3 Management actions - Management access and facilities

- a. Minimise vehicle use of management roads.
- b. Assess requirement for current management tracks.

8. ENVIRONMENTAL PLANNING AND PROTECTION

8.1 Requirements for management activities

Specific management objectives:

- **to protect and maintain the natural and cultural resources of the Corridor;**
- **to avoid unnecessary environmental disturbance;**
- **to minimise the environmental impacts of any developments, works or other operations; and**
- **to ensure developments and operations within the Corridor are consistent with the management plan.**

8.1.2 Background

The *Land (Planning and Environment) Act 1991* (Land Act) provides for some public scrutiny of projects or actions which may affect the natural, social, built or economic environments. Not all proposed developments will trigger the requirement for an environmental impact assessment under the Land Act. Such developments may include minor works proposed by the Service or other agencies such as ACTEW, or minor extensions to existing buildings. Other important considerations are whether impacts conflict with management objectives and values of the Corridor and whether they conflict with other appropriate uses and users.

8.1.3 Development assessment

The most basic considerations for assessing whether potential impacts are acceptable are whether they are consistent with the Territory Plan and, through it, the National Capital Plan (NCPA 1990). All proposals will be examined initially against the requirements of the Land Act and the Territory Plan to determine whether the proposal is significant enough to warrant triggering Part IV of the Act. If triggered, the scope of preliminary assessments will vary according to the scale and type of project and will follow procedures set out in the Act.

Proposals which do not require assessment under the Land Act will be subject to the relatively simple local assessment procedure outlined in the Service's policy "Works in Parks and Reserves: Assessment of Environmental Impacts".

8.1.4 Catchment initiatives

As the Corridor lies within the Murrumbidgee Catchment there is a need to be cognisant of catchment wide management actions and strategies. Initiatives such as the development of the Murrumbidgee Catchment Strategy under the National Action Plan for Salinity and Water Quality and the deliberations and expectations of community organisations such as the Upper Murrumbidgee Catchment Co-ordinating Committee need to be taken into account in the management of the ACT corridor. Also, a number of community landcare groups are working across the Murrumbidgee River catchment to mitigate land degradation problems and enhance the health of the catchment. In 1999 a framework for progressing integrated catchment management (ICM) in the ACT was released and the Murray-Darling Basin Commission is employing ICM as a means of tackling natural resource management issues across the Basin. The overall purpose of these initiatives is to work towards achieving sustainable land use development and practices.

The management regime of the Corridor needs to keep abreast of these initiatives and be able to complement wider catchment management actions.

8.1.3 Management action - Requirements for management activities

- a. Screen all works and development proposals for environmental impacts and follow-up as determined.**
- b. Keep abreast of national/regional/catchment management initiatives and participate in projects as appropriate.**

9. IMPLEMENTATION

9.1 Implementation program

Specific management objective:

- **to manage the Lower Molonglo River Corridor according to the priorities identified in this Management Plan.**

This plan identifies many management actions that need to be implemented if responsible and successful management of the Corridor is to be achieved. These management actions will be undertaken as financial and human resources are available. Priorities need to be developed and reviewed on an annual basis and these priority actions need to be incorporated into business plans. A table of the actions, listed in order of priority, is provided at Appendix 2. This table is provided for information and, more importantly, as a tool for the use of land managers in allocating resources to actions. The Corridor will be managed as part of the Murrumbidgee River Corridor.

Although not a statutory requirement, it is expected that this management plan will be reviewed within ten years of its release.

9.2 Implementation Plan

To further refine the actions outlined in this Plan and to place them in a management context an Implementation Plan will be prepared within twelve months of the release of the final Management Plan. The Implementation Plan will confirm the priority listing of actions, detail the tasks to be performed, set target dates and define performance indicators to measure progress. Relevant peak community groups will be consulted during the preparation of the plan. The Implementation Plan will be incorporated into the Murrumbidgee River Corridor Implementation Plan and will be updated on an annual basis.

9.2.1 Management action - Implementation of actions identified in the Management Plan

- a. Prepare within 12 months of the release of this Management Plan an Implementation Plan.**

GLOSSARY

ACT Interim Heritage Places Register	lists natural and cultural heritage places in the ACT, including details about their location, their importance and the actions required to ensure their conservation. Administered by the Heritage Council of the ACT.
ACT Heritage Places Register	sites listed in the Interim Heritage Places Register may be forwarded for inclusion in the ACT Heritage Places Register, administered by the ACT Planning Authority. The ACT Heritage Places Register is included in the Territory Plan.
biological control	a method of controlling pests through the controlled introduction of one or more of their natural predators.
botanical significance	vegetation of scientific importance, often due to its restricted distribution.
concessionaires	one to whom a concession has been granted, as by a Government. A concessionaire is one who is granted the right to provide facilities or services for visitor use and enjoyment on a commercial basis.
Conservator of Flora and Fauna	a public servant whose duties include those stipulated under Part 1A - Administration of the <i>Nature Conservation Act 1980</i> , including the development of a Nature Conservation Strategy for the ACT.
corridor	an area between areas of substantially different environmental characteristics.
Designated Areas	land in the ACT which have the special characteristics of the National Capital as identified within the National Capital Plan.
ecological surveys	studies of the organisms in an area and their interrelationships with the environment.
environmental assessment	a preliminary written assessment of the likely environmental impacts of a proposed development or change of land use.
Geographic Information System (GIS)	a computer-based system that stores tabular and graphical data on the geography, geology, fauna and flora and other aspects of a region, and enables the data to be analysed in a way that can be used for practical land management.
geomorphology	the study of the Earth's physical surface features and the way in which they have developed.
grassland	an area of largely treeless land (but may be associated with a woodland overstorey) comprising a mixture of grasses, grass-like species and forbs.
management plan	a written statement prepared under the Land Act, approved by the Minister and adopted by the ACT Assembly, of the management policies, strategies and practices which will be adopted in the management of an area of Public Land.

National Capital Plan	a document produced and administered by the NCPA (pursuant to the <i>Australian Capital Territory (Planning and Land Management) Act 1988</i>) which stipulates the planning and development direction of the Territory in accordance with its national significance.
Nature Reserve	an area set aside to conserve the natural environment and secondarily to provide for recreational, education and research.
Park Care	a program of volunteer participation which aims to develop, co-ordinate, promote and evaluate activities to rehabilitate land areas managed by the Service.
prescribed burning	(also controlled burning) the burning of leaf litter and other organic matter, commonly in forested land, in order to reduce the amount of available fuel and thus reduce the likelihood of a severe bushfire.
Public Land	unleased areas of land in the ACT identified within the Territory Plan as an 'overlay' within the broader context of a land use policy. Different types of Public Land include wilderness, national park and nature reserve and reflect the management objectives for the particular area.
Sites of Significance	sites identified as having a conservation or other value through a survey conducted by the NCDC
Territory Plan	a document administered by the ACT Planning Authority in response to the requirements of the Commonwealth's Australian Capital Territory (Planning and Land Management) Act 1988. The object of the Territory Plan is to ensure, in a manner not inconsistent with the National Capital Plan, that the planning and development of the Territory provides the people of the Territory with an attractive, safe and efficient environment in which to live.
understorey	in a vegetation association, the smaller species of plants that do not form part of the canopy or ground cover.
wilding	a plant growing outside its designated management/planted area
woodland	a tract of land covered by trees, which do not form a closed canopy.

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INDEX

A	abseiling and rock climbing 21 access 18 ACT Vertebrate Pests Management Strategy 26 ACT Weeds Strategy 26 agistment licences 33 aquatic life 7	M	management agreements 36 management facilities 41 monitoring 39
B	bee keeping 29 blue-green algal blooms 9 boating 21	N	National Capital Open Space System 4 National Capital Plan 4 new or modified utilities 37
C	camping 20 car rallies 21 chemicals 29 community participation 35 cycling 20	O	orienteering 19
D	dogs 21	P	park concessions 33 pest animals 28 pest plants 27 picnicking 19 Pink-tailed Legless Lizard 14 planning background 3 plant communities 12
F	fauna 14 filming 35 fishing 19	R	research 39 rock removal 8 rural leases 33
G	geological sites 12 geomorphology, 12 grazing 25, 32, 33	S	sand/soil extraction 8 sewerage pipeline management road 41 sewerage ponds 24 special events 21 sponsorships 35 swimming 9, 19
H	horse riding 20 hunting 20	T	threatened and endemic plant species 13
I	irrigation 9	W	walking 19 water based recreation 9 water for domestic stock 9 water quality 6
L	<i>Land (Planning and Environment) Act 1991</i> 5, 42 Land Management Agreements 32		

APPENDIX 1

RELEVANT LEGISLATION

The *Land (Planning and Environment) Act 1991* is the instrument under which LMRC is reserved. The management authority for areas reserved as Public Land (Nature Reserve and Special Purpose Reserve) under this Act is vested in the Conservator of Flora and Fauna and the ACT Parks and Conservation Service of Environment ACT. The management of LMRC is subject to a wide range of legislation, both Commonwealth and ACT including:

Commonwealth legislation

- *Australian Capital Territory (Planning and Land Management) Act 1988* under which the National Capital Plan and Territory Plan is prepared.
- *Australian Heritage Commission Act 1975* which establishes the Register of the National Estate and imposes responsibilities on Commonwealth authorities relating to the protection of national estate values.
- *Environment Protection (Impact of Proposals) Act 1974* provides for the environmental assessment of certain developments and actions of Commonwealth authorities.

ACT legislation

- *Animal Diseases Act 1993*
- *Animal Nuisance Control Act 1975*—provides for control of disturbance by animals.
- *Bushfire Act 1936*—for fire protection and suppression
- *Crimes Act 1900*
- *Crimes (Offences Against the Government) Act 1989*
- *Dog Control Act 1975 and Amendments*—provides for the registration and control of dogs and the enforcement of penalties and on-the-spot fines
- *Environment Protection Act 1997*
- *Energy and Water Act 1988*
- *Firearms Act 1996*—for use of firearms by Reserve personnel
- *Fishing Act 1967*
- *Hawkers Act 1936*—provides for licensing of hawkers.
- *Heritage Objects Act 1991* - for heritage objects protection
- *Land (Planning and Environment) Act 1991*—for heritage site protection, environmental impact assessment, public land classification and management plans
- *Litter Act 1977*
- *Motor Traffic Act 1936*—for access and parking
- *Nature Conservation Act 1980 and Regulations*—for wildlife protection and regulating activities within the national park area
- *Plant Diseases Act 1934*
- *Pounds Act 1928*
- *Protection of Lands Act 1937*
- *Public Health Act 1997*
- *Roads and Public Places Act 1937*
- *Stock Act 1991*
- *Trespass on Territory Land Act 1932*

- *Water Resources Act 1998*

APPENDIX 2

LISTING OF ACTIONS BY PRIORITY AND DURATION

HIGH PRIORITY

PLAN REF.	ACTION	DURATION
2.2.5 e 3.1.6 c 3.3.2 b 4.3.4 b. 9.2.1 a.	Protect <i>Aprasia parapulchella</i> habitat from disturbance. Provide safety and management signs where appropriate. “No fires” signs to be erected at access points. Negotiate with lessees and other management authorities within the area regarding protocols for access in times of fire. Prepare within 12 months of the release of this Management Plan an Implementation Plan.	Short term
4.1.3 c 4.3.4. a. c.	Remove stock grazing from the river's edge and assess grazing impacts in other areas for appropriate action. Implement the on-ground works and consultation/education activities specified in the Bush Fire Fuel Management Plan. Liaise with adjacent land managers on fire hazard reduction measures and access to fire fighting facilities.	Medium term
2.1.7 d 2.2.5 c d f 2.3.3 a 3.1.6 d. 3.3.2 a. c. 3.4.3 a. 4.1.3 b. e. 4.2.5 a. d	Stabilise and revegetate river banks with indigenous local species where necessary. Assess areas of native grassland for their conservation significance and manage appropriately. Isolate from grazing the nationally vulnerable plant <i>Pomaderris pallida</i> . Restrict access to significant raptor breeding sites and prohibit abseiling and rock climbing in the Corridor during the raptor breeding season. Conserve and protect cultural sites from damage, disturbance or gradual decay wherever possible. Monitor trails used by the public, repair degraded areas and realign as necessary. Close the Lower Molonglo River Corridor on days of total fire ban by erecting signs at main gates and entrance sites. Assist with search and/or rescue operations in the Corridor. Encourage visitors to take their rubbish home. Identify eroded areas and those most susceptible to erosion and initiate erosion control measures in those areas through rehabilitation and revegetation. Identify opportunities for regeneration and encourage it by fencing, appropriate stocking and other measures as appropriate. Provide on-site information to the public and LMWQCC about control programs which may affect visitors. Undertake, where practical, pest fish control.	Long term (continuing)

PLAN REF.	ACTION	DURATION
f.	Monitor and, where necessary, control weed species in areas where grazing has been removed.	
4.2.5 g.	Check materials and equipment used in the Corridor for weed seed contamination.	Long term (continuing)
5.1.7 a.	Monitor the impact of grazing on threatened species and ecological communities in agisted areas.	
b.	Remove stock and fence, as necessary, areas of threatened species.	
5.2.4 b.	Undertake Environmental Impact Assessments as required.	
8.1.3 a.	Screen all works and development proposals for environmental impacts and follow-up as required.	

MEDIUM PRIORITY

PLAN REF.	ACTION	DURATION
2.1.7 f.	Negotiate the location and operation of pumps and associated equipment where lessees have a right to pump water.	Short term
2.2.5 g.	Encourage or undertake further study of animal populations in the Corridor.	
3.2.3 b	Provide information boards at the main entrance points at Coppins Crossing and near the LMWCC.	
3.3.2 d.	The riverbank of Bluetts Pines will be closed to the public in conjunction with any closure of Bluetts Pines.	
5.2.4 a.	Develop management agreements with owners of utilities in the Lower Molonglo River Corridor to include maintenance of conservation, landscape and recreation values.	
2.1.7 e.	Erect signs at major entry points to advise of any health risks which arise.	Medium term
3.3.2 e.	Areas near the LMWQCC may need to be closed during emergency situations at the Centre .	
3.4.3 b.	Monitor the remediation works for the old sewerage ponds at Coppins Crossing.	
4.1.3 d.	Develop a plan to erect, replace, repair or remove fences in the Corridor.	
f.	Tracks not required for management or visitor use will be closed and rehabilitated.	
2.1.7 a.	Obtain water quality monitoring information from ACT authorities on a regular basis and use this information to help determine pollution sources.	Long term (continuing)
b.	Encourage research into the aquatic system of the Lower Molonglo River to establish the health of the system.	
c.	Continue to monitor populations of aquatic vertebrate and invertebrate taxa.	
2.4.3 a.	Design walking tracks and signs so that they remain, where possible, unobtrusive and they are of a scale and form appropriate to the character of their setting.	
3.1.6 a.	Discourage recreation activities not compatible with the protection of significant species and communities.	
3.2.3 a.	Provide on a fee basis ranger-guided walks.	
c.	Establish a Park Care or "Friends" group and provide opportunities for interested individuals and groups to be involved in	

PLAN REF.	ACTION	DURATION
4.2.5 b. c.	projects and build on the community liaison program established by the LMWQCC. Co-ordinate pest animal and weed control programs with neighbouring landholders, LMWQCC and other bodies. Negotiate with ACT Forests about the removal of the planted pines within the Corridor.	
e. h. i. 5.1.7 c. d. 6.1.3 c. 7.1.3 b. 8.1.3 b	Develop an annual weed control plan. Follow operational works with annual weed checks. Remove or destroy non-native bee colonies located in the Corridor. Assess the potential impacts on reserve values for all special activities proposed for the Lower Molonglo River Corridor. Ensure all agreements reflect responsibilities for site rehabilitation. Manage research activities and apply results to management programs. Assess requirement for current management tracks. Keep abreast of national/regional/local catchment management initiatives and participate in projects as appropriate.	Long term (continuing)

LOW PRIORITY

PLAN REF.	ACTION	DURATION
2.3.3 b.	Negotiate with lessees and relevant agencies to ensure the Old Weetangera Road Ford is retained.	Short term
2.3.3 c. 3.1.6 e. 2.2.5 a b. 2.3.3 d	Further investigate the limestone quarry , the lime burning kiln and the possible sawmill site. Rehabilitate the old picnic site near Coppins Crossing to a 'natural' state. Consider known geological features and landforms in the design of any works and undertake measures to protect sites of significance. Facilitate research and further survey of communities and biota of the Lower Molonglo River Corridor. In interpretation programs refer to Aboriginal use of the Corridor but not the actual sites of artefacts.	Medium term
2.4.3 b. 3.1.6 b. 4.1.3 a. 6.1.3 a. b.	Consider, where practical, landscape effects together with other factors when planning control burning, erosion control and other management activities. Provide low key interpretation where appropriate. Negotiate joint erosion control measures with adjoining land users. Continue to identify research needs, establish priorities and encourage research programs and findings that address management issues. Encourage volunteers, educational institutions and other organisations to participate in research and monitoring projects.	Long term (continuing)

7.1.3 a.	Minimise vehicle use of management roads.	
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