

DRAFT MANAGEMENT PLAN

West Belconnen Conservation Reserve

2016 - 2021

DRAFT – November 2016

[BACKGROUND PHOTOS]

[ABORIGINAL STATEMENT]

Foreword

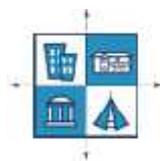
Acknowledgements

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The Riverview Group

Vision

The West Belconnen Conservation Reserve is an integral part of sustainable living at West Belconnen.

The community and visitors respect and are inspired by the intrinsic value of the area's biodiversity, ecological integrity, scenic landscape, cultural heritage and tranquil natural settings.

The Reserve is a leader in science-based biodiversity restoration, innovative community management, sustainable recreation and active learning opportunities and partnerships.

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1 Introduction

[NOTE ON SUGGESTED LAYOUT – EACH CHAPTER HEADING ON A SEPARATE PAGE WITH BACKGROUND IMAGES OF THE RESERVE]

1.1 The Reserve

The West Belconnen Conservation Reserve is a new conservation area located across the border of the ACT and NSW and planned as an integral part of the new sustainable West Belconnen urban community. The Reserve is managed as a cohesive, cross-border entity by a community-based Environmental Management Trust. The Trust will manage the reserve through collaborative community management and stewardship, focussing on restoration of biodiversity and opportunities for sustainable recreation.

When it is fully developed, the Conservation Reserve will comprise a total area of 580 hectares - 360 hectares in the ACT and 220 hectares in NSW. To the west the Reserve is bounded by the eastern bank of the Murrumbidgee River and to the north by Ginninderra Creek in NSW. In the east, the Reserve abuts the new cross-border West Belconnen urban development near the ACT suburbs of Holt and Macgregor and extends south to Stockdill Drive and Woodstock Nature Reserve in the ACT. The Conservation Reserve incorporates the northern end of the Murrumbidgee River Corridor in the ACT and will eventually incorporate an area of former agricultural land in NSW.

The Reserve is a scenic landscape with extensive views to the Murrumbidgee River and distant mountains of the Brindabella Range and Namadgi National Park. Extending from the West Belconnen urban edge is an area of undulating, largely cleared land, open woodland and native grasslands between 500 and 600 metres above sea level. The land then falls in steep slopes and incised creek lines to the Murrumbidgee River at about 425 metres above sea level. This stretch of the river and surrounding riparian zone forms a gorge-like landscape where the river flows through several deep pools interspersed with rapids and sandy banks lined with stands of River She-oak. In the north, Ginninderra Creek forms a steep, forested gorge where the creek falls in a series of waterfalls to the Murrumbidgee River.

The associated West Belconnen urban community is being developed as a highly sustainable, Green Star accredited community meeting world's best practice in its design, construction and liveability. The sustainability ethos in the urban development includes encouraging community ownership and respect for ecosystem functions, the intrinsic value of the Murrumbidgee River and Ginninderra Creek environments, ecological restoration of conservation areas and recognition of Aboriginal and non-Aboriginal cultural values. Planning for the West Belconnen development included extensive investigation into the natural and cultural values of the Conservation Reserve. Establishment of the Conservation Reserve is a condition of the approvals for the urban development (see Appendix B).

The West Belconnen development is envisaged to yield approximately 6,500 dwellings in the ACT and 5,000 dwellings in NSW, eventually providing housing for about 30,000 people over a period of 30 to 40 years. The urban development is scheduled to commence in the ACT in 2017 and is expected to commence in NSW in about 10 years. The Conservation Reserve will be established and developed in stages that parallel the urban development.

The Conservation Reserve will be managed to high standards of biodiversity conservation, cultural heritage conservation and sustainable recreational use. It is intended to be managed to meet International Union for the Conservation of Nature (IUCN) protected areas standards as a Category IV reserve 'to maintain, conserve and restore species and habitats' and provide for public access, education and appreciation. This IUCN category applies to habitat fragments or modified ecosystems (often close to urban areas) where active intervention is needed to manage or restore species and ecosystems¹.

¹ Dudley N. ed. (2008); Stolten et al (2013); IUCN (2014).

1.2 Statement of Significance

Biodiversity Conservation

The Reserve protects and is intended to restore an area of the critically endangered Box-Gum Woodland ecological community, which has been reduced to cover only a fragmented 8% of its pre-European occurrence over extensive areas of south east Australia. The Reserve also contains a significant population and habitat of the nationally vulnerable Pink-tailed Worm Lizard. The Ginninderra Gorge in the north of the Reserve contains Black Cypress Pine forest and woodland in exceptional condition, a diverse flora and native fauna particularly rich in reptile species and listed vulnerable species. Along the Murrumbidgee River are stands of River She-oak, a species which has experienced a reduction in its range. The Murrumbidgee River provides habitat for threatened aquatic species such as Murray Cod and Macquarie Perch. The woodland and forest of the riparian corridor and remnant woodland elsewhere in the Reserve provide habitat for a range of threatened, migratory and other bird species.

Conservation Connectivity

The Reserve is an important habitat link for facilitating the movement and long-term conservation of species and ecological communities across the regional landscape. The Reserve forms part of the Murrumbidgee River Corridor (a 9,800 hectare area extending 66 kilometre along the Murrumbidgee River in the ACT) which is a significant regional conservation link. Ginninderra Creek and associated reserves in its catchment provide habitat connectivity to Mulligan's Flat Nature Reserve and other reserves in the north of the ACT and nearby areas of NSW.

Ecosystem Services

Ecological restoration in the West Belconnen Conservation Reserve and sustainable management of natural processes, soils, streams, runoff, weeds, pests and human uses will contribute to the quality of the regional environment, assist in protecting the ecosystems of the Murrumbidgee River (one of Australia's most significant rivers) and contribute to the social and economic benefits derived from the environment.

Scenic Landscape

The Reserve is a dramatic landscape with expansive views of the Murrumbidgee River, Ginninderra Falls and the distant mountains of the Brindabella Range and Namadgi National Park. Ginninderra Falls, which has a vertical drop of 41 metres, is the most spectacular waterfall in close proximity to the Canberra community.

Cultural Heritage

Aboriginal people occupied and managed the general area for over 25,000 years. There are numerous Aboriginal sites within the Reserve which demonstrate past Aboriginal use of the West Belconnen area. The Reserve is important for Aboriginal groups as a place to protect and manage significant sites and maintain their connection to country. The area of the Reserve is linked to the history of European agricultural settlement and land use from the 1830s as demonstrated by the nearby Belconnen Farm heritage precinct (listed on the ACT Heritage Register), the heritage view corridor from the farm across the Reserve and visits by the local community to Ginninderra Falls.

Recreation and Tourism

The Reserve's tranquil setting, scenic values, river frontage and Ginninderra Falls together make it a significant recreation and conservation resource for the residents of West Belconnen and the region. The Reserve will provide opportunities for relaxing, healthy outdoor recreation, enriching natural and cultural heritage experiences and access to the Murrumbidgee River and Ginninderra Falls close to the expanding population centre of West Belconnen and Canberra.

The Reserve will be a centre for active learning about and appreciation of local biodiversity, ecological restoration and the area's cultural heritage by institutions and the community.

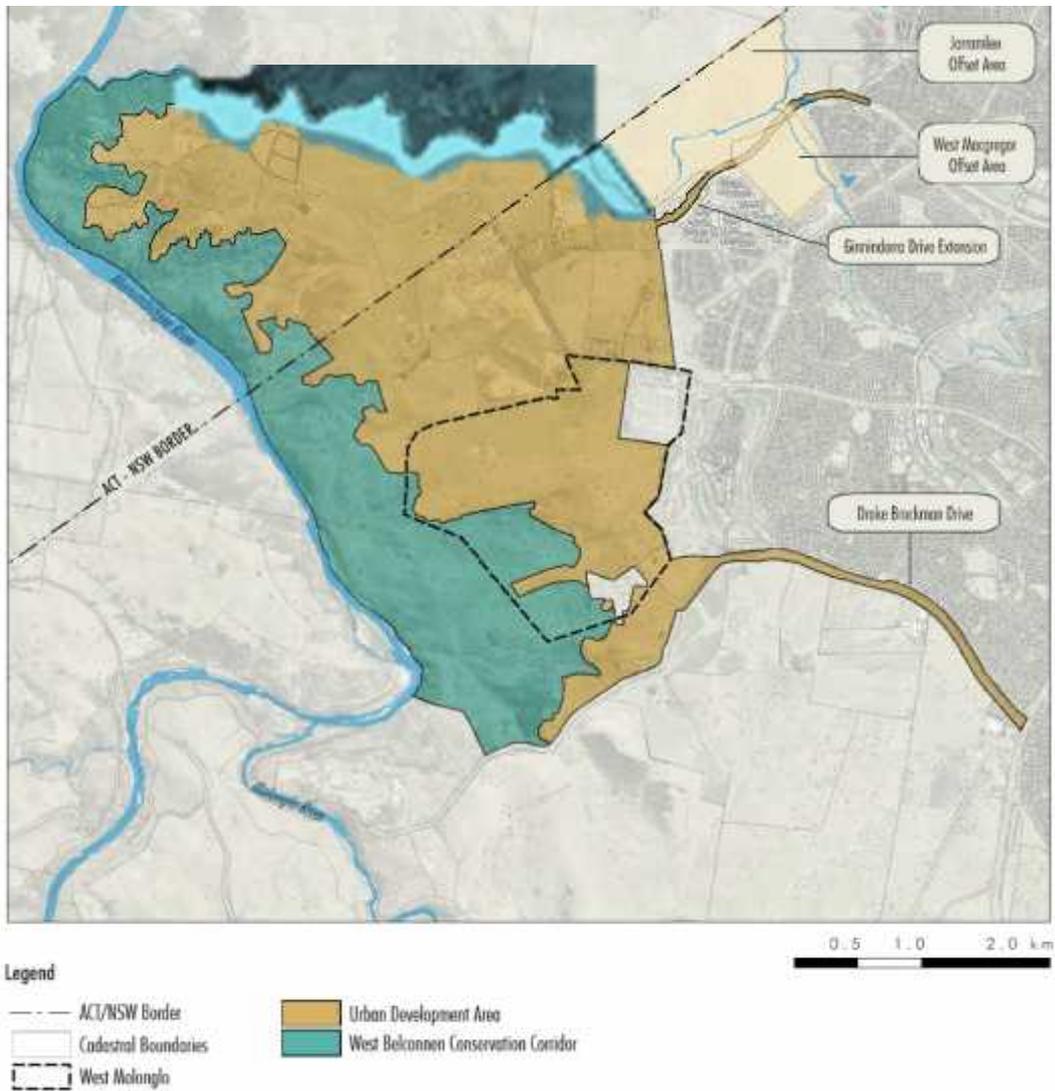
Community Conservation and Stewardship

The Reserve is an integral part of the West Belconnen sustainable community and aims to set a national benchmark in achieving community-based biodiversity conservation adjacent to an urban area. There has been a high level of participation by community and scientific organisations in the initial development of the Reserve. This will be continued through the Environmental Management Trust, scientific studies, community involvement in management and programs to encourage community and visitor understanding and stewardship of Reserve values.

Figure 1: Regional Context

[MAP SHOWING RESERVE LOCATION RELATIVE TO Canberra, the Murrumbidgee River, the Molonglo River, Ginninderra Creek, Namadgi National Park, the Brindabella Range]

Figure 2: West Belconnen Conservation Reserve



[INDICATIVE MAP ONLY. NEEDS TO SHOW PART OF THE RESERVE ALONG GINNINDERRA CREEK EAST (INDICATIVE AREA SKETCHED IN THIS MAP. OFFSET AREAS NOT NEEDED. SHOULD SHOW REFERENCE LOCATIONS SUCH AS STOCKDILL DRIVE, STRATHNAIRN, GINNINDERRA CREEK, HOLT, MACGREGOR, WOODSTOCK NATURE RESERVE, LOWER MOLONGLO WATER QUALITY CONTROL CENTRE]

1.3 Establishing and managing the Reserve

The West Belconnen Conservation Reserve has been established as a cross-border reserve under collaborative arrangements with the ACT, NSW and Commonwealth Governments. The ACT Government amended the Territory Plan to establish the ACT portion of the Reserve as a nature reserve overlay of the Murrumbidgee River Corridor and to add 80 hectares to the River Corridor, while the Commonwealth Government concurrently amended the National Capital Plan under which the Murrumbidgee River Corridor is designated as important for the natural landscape setting and environmental quality of the national capital. The Yass Valley Shire Council proposes to re-zone the NSW portion of the Reserve for environmental protection under the Yass Valley Local Environment Plan. The re-zoning process is expected to be completed in 2017.

Approval conditions that specify how the Reserve is to be managed have been issued by the ACT and NSW as a result of these planning instrument changes. In addition, conditions have been issued by the Commonwealth Government as part of its approval of reserve activities with potential impacts on the Yellow Box–Red Gum Grassy Woodland endangered ecological community (Box-Gum Woodland) and the Pink-tailed Worm Lizard (PTWL), which are Matters of National Environmental Significance (referred to as ‘MNES’ in this Plan) under part 10 of the *Environment Protection Biodiversity Conservation Act 1999* (the EPBC Act).

The approval conditions and how they are addressed in this Management Plan are provided in Appendix B.

NOTE – At the time of preparing this draft of the Management Plan the processes for EPBC Act and Yass Valley Local Environment Plan were not yet finalised. The final approval conditions will be added to this Management Plan when they are available and any necessary adjustments will be made to the Plan. In the interim draft approvals from the EPBC Act process have been incorporated into this draft Management Plan.

Due to the different land tenure arrangements in the two jurisdictions the Reserve will have two forms of tenure. The ACT portion is held under a 99 year lease over public land under the *Planning and Development Act 2007*. This is the longest form of land tenure in the ACT. The lease will specify the use of the land for conservation and recreation purposes. In NSW the Reserve land will be held under freehold title.

Title to the Reserve in both jurisdictions will be held by an Environmental Management Trust (EMT) which will also have responsibility for managing the Reserve as a single, cross-border entity. Establishment of the Trust is a condition of the Commonwealth MNES approvals under the EPBC Act. The Trust is a not-for-profit corporation formed under the Commonwealth *Corporations Act 2001* with the principal purpose of enhancing protection and management of the Reserve. The Trust is legally required to carry out its purpose in accordance with its functions and responsibilities which are set out in the Trust Deed and its Constitution. It has a skills-based Board of Directors with a balance of the skills relevant to achieving effective management of the Conservation Reserve.

The arrangements and conditions for establishing the Reserve are summarised in Table 1.

Table 1: Arrangements and conditions for establishing the West Belconnen Conservation Reserve

	ACT	NSW	Commonwealth
Reserve establishment	Variation No 351 to the Territory Plan	Zoning for environmental protection under the Yass Valley Local Environment Plan (Pending)	Amendment 86 to the National Capital Plan
Approvals and conditions	Structure Plan for West Belconnen under section 91 of the ACT <i>Planning and Development Act 2007</i> Concept Plan for West Belconnen	(Pending)	Part 10 assessment under <i>Environment Protection and Biodiversity Conservation Act 1999</i> for MNES - Yellow Box–Red Gum Grassy Woodland, Pink-tailed Worm Lizard.
Title to the land	99 year lease under the <i>Planning and Development Act 2007</i>	Freehold	
Title-holder	Environmental Management Trust		

Preparation of a management plan for the Reserve is a condition of ACT and Commonwealth Government approvals for the Reserve.

The draft EPBC Act report sets out requirements for the preparation and approval of the reserve management plan as follows.

‘A reserve management plan will be prepared in accordance with part 10.4 of the (ACT) *Planning and Development Act 1997* (and pursuant to part 8.3 of the *Nature Conservation Act*). The plan will cover all of the land under the control of the EMT. The preparation of such a plan is a statutory requirement in the ACT as the land will be defined as ‘public land’ under the Territory Plan. The terms of the EMT deed will require that a similar process be followed for NSW land.

The reserve management plan must be prepared in consultation with the public, the ACT Planning Authority, the ACT Conservator of Flora and Fauna, the NSW Office of Environment and Heritage (OEH) and the Yass Valley Shire Council. It must be periodically updated as required. A maximum period between reviews of 10 years is specified in the legislation - a five yearly review is recommended. The ACT component of the plan will be subject to the approval of the ACT Minister for the Environment and the Conservator. The NSW component of the plan will require the endorsement of the ACT Conservator of Flora and Fauna who will consult with the NSW OEH.’

1.4 Areas to which this Management Plan applies

This first Management Plan for the West Belconnen Conservation Reserve has been developed for the whole Reserve to establish a consistent framework for biodiversity and heritage conservation, ecological restoration and visitor use as the Reserve is gradually developed over time².

The land within the Reserve boundaries will be acquired by the Environmental Management Trust in stages. In the interim, the land that is not held by the Trust will continue to be held and managed by rural lessees in the ACT and freehold landowners in NSW who are partners in the West Belconnen development.

During this period of transition, the Management Plan will formally apply only to the areas of the Reserve that have been transferred to the ownership and management of the Environmental Management Trust. Until areas are transferred to the control of the Trust, there will be consultation between the Trust and the ACT and NSW landholders on management issues using the Management Plan as a guide.

The first land to be handed over to the Trust is the southern ACT portion adjacent to the first stage of the West Belconnen urban development. Indicative stages for development of the Reserve are shown in Appendix C and consist of:

-)] **Stage 1** (years 1 to 5) - initial development of the Reserve and its opening to the public in the southern ACT portion
-)] **Stages 2a, 2b and 2c** (years 5 to 10) – extension of Reserve development and public access will extend to and across the ACT/NSW border and to the Ginninderra Falls and Ginninderra Gorge area in the north which is likely to attract demand as the population in the area increases
-)] **Stages 3 to 6 (years 10 to 20)** – gradual development of the Reserve along the Murrumbidgee River and Ginninderra Creek.

² It is possible that the existing Jarramlee and West Macgregor offset reserves and any additional property at Lot 2 Wallaroo Road will also be under the control of the EMT because of the EPBC Act assessment process for other parts of the West Belconnen development. In this case management plans for those reserves will be appended to become part of this management plan.

1.5 The approach used in this Plan

1.5.1 A strategic approach

To successfully apply the aims for innovative biodiversity restoration and community stewardship of the Reserve it is critical that a workable management plan is in place to guide the Trust from the time the Reserve is established.

A large body of work has already been conducted in relation to the values of the Reserve, threats to values, ecosystem management needs, identification of stakeholders and opportunities for visitor use and partnerships. A comprehensive vegetation survey has been conducted to establish the condition of the Reserve, including vegetation community polygons, species, cover, quality, fauna habitat, weeds and site condition. This survey will guide management actions and provide a baseline for future surveys to assess management effectiveness³. Detailed planning, additional research and the development and implementation of programs and management mechanisms is now needed to achieve the ecological restoration, sustainable recreation and community stewardship aims of the Reserve. This work will take time.

Therefore this first Management Plan for the West Belconnen Conservation Reserve takes a strategic approach that recognises that further research in some areas, detailed planning and design of infrastructure and staged development of the Reserve will occur over time. The Management Plan:

- J provides a framework for consistent planning and management for the protection of natural and cultural values, ecosystem restoration and sustainable visitor use of the Reserve over the long term (what we want to achieve in the long term)
- J requires the preparation of detailed supporting plans and the conduct of necessary research covering detailed, technical management prescriptions and monitoring of threatened species habitat, other significant biodiversity areas and Aboriginal cultural heritage. The details relating to these supporting plans are provided in the text and actions in Chapters 4, 5 and 6. A list of the supporting plans is provided in Table 2.
- J provides guidance on management activities, infrastructure and visitor use in significant areas of the Reserve (threatened species and ecological communities, the Murrumbidgee River and Ginninderra Creek riparian zone, Ginninderra Gorge and visitor nodes near the Murrumbidgee River and Ginninderra Falls)
- J gives priority to actions needed to develop the first stage of the Reserve and prepare for the development of Stage 2 (what we want to achieve in the first 5 years).

High priority is given to establishing core management operations and visitor infrastructure in Stage 1 to manage potential impacts from the growing urban development, provide for some visitor access to the area and establish the importance of the Reserve and its conservation objectives in the minds of the community. Of importance in the initial stages will be establishing a framework to manage visitor access from the first urban development areas in the ACT (especially to the Murrumbidgee River) and to start on ecological restoration, especially the Box-Gum Woodland and Pink-tailed Worm Lizard habitat in the ACT part of the Reserve.

Other important actions during the first 5 years are:

- J establishing relationships with the Aboriginal community and mechanisms for their participation in stewardship of the Reserve
- J master planning for visitor infrastructure with priority given to the Stage 1 area followed by Stage 2 (including the visitor node near Ginninderra Falls and infrastructure in the Ginninderra Gorge)
- J communicating with and informing the community and visitors about the Reserve
- J developing opportunities for community participation
- J establishing management partnerships with researchers, research and education institutions, government agencies, non-government organisations and community groups.

³ Robert Jessop Pty Ltd (August 2015); Sharp (March 2015).

Table 2: Supporting plans to be prepared under the West Belconnen Conservation Reserve Management Plan⁴

	Plan	Action in this Plan	Priority
Ecological restoration and biodiversity conservation	Ecological Restoration and Biodiversity Management Plan - this will cover the Reserve and will include the following specific plans for threatened species and significant areas	ER 1	1
	) Pink-tailed Worm Lizard Habitat Management Plan	PTWL 2	1
	) Box-Gum Woodland Management Plan	BGW 2	1
	) Murrumbidgee River Riparian Zone and Environs Management Plan	MR 2	2
	) Conservation Management Plan for Ginninderra Creek East (existing plan to be reviewed)	GC 3	5
	) Ginninderra Gorge Biodiversity Plan, including	GG 2	4
	o Rosenberg’s Goanna Management Plan	GG 3	1
	o Pale Pomaderris Management Plan	GG 4	4
	Weed Management Plan	ER 4	2
	Pest Management Strategy	ER 5	1
Bushfire Management Strategy	ER 6	2	
Sustainable Fisheries Plan	MR 6	3	
Heritage and culture	Conservation Management Plan for Aboriginal objects and sites	AH 3	1 - 2
	European Heritage Conservation Strategy	EH 1	3
Visitor experiences and infrastructure	Trails Master Plan	VE 4	1
	Visitor Safety Strategy	VE 5	2
	Interpretation Strategy	VE 8	3
	Commercial Partnership Strategy	VE 9	4
	Murrumbidgee River Visitor Node Master Plan	VN 1	2
	Ginninderra Falls Visitor Node Master Plan	VN 2	5
	Ginninderra Gorge sustainable visitor use study	GG 5	4
	Ginninderra Gorge Visitor Infrastructure Master Plan	GG 6	5
	Ginninderra Creek East Visitor Infrastructure Master Plan	GC 5	5
	Reserve Infrastructure Design Standards	VN 3	1
	Construction Environment Management Plans	VN 4	Ongoing
Community stewardship	Reserve Communication and Promotion Strategy	CSP 2	2
Management operations	Operations Plan	MO 1	1

⁴ See Chapters 4, 5 and 6 for details.

1.5.2 Adaptive management and review

This and subsequent Plans of Management for the West Belconnen Conservation Reserve will follow a best-practice adaptive management framework that enables management strategies and actions to be evaluated and adjusted over time based on experience, research and science-based evidence.

Adaptive management is a best practice approach developed by the IUCN for effective management of protected areas, including ecological restoration and sustainable recreational use. It is a cyclical process that consists of:

-) analysis of the current status and threats
-) planning where to go in the future (desired outcomes) and how to get there (strategies, actions and resources)
-) implementing the plan
-) putting in place indicators and monitoring/ research systems to provide information on achievement of desired outcomes (performance)
-) evaluating outcomes periodically to assess effectiveness by reviewing plans and making any necessary adjustments.

This Plan will be reviewed in five years to evaluate progress and identify any issues that arise as residential development continues, research into the Reserve progresses and management experience is gained. Thereafter, there is potential to coordinate reviews of this plan with reviews of the Murrumbidgee River Corridor Management Plan undertaken by the ACT Government. Review of this Plan at intervals of five years is a condition of the [DRAFT] MNES approval.

The regular review process will include monitoring of the baseline vegetation survey polygons and plots in order to compare changes in vegetation condition over time.

Annual reporting to the ACT Conservator of Flora and Fauna on MNES outcomes is also required as part of the [DRAFT] MNES approvals under the EPBC Act.

1.5.3 An accessible style

The Plan is written and structured in a style intended to be accessible to the range of people who may consult it. Non-technical language has been used as much as possible.

The management strategies in each section of the Plan are set out in a way that shows the connections between the outcomes that are sought for the Reserve, the actions that will be taken to achieve outcomes and the ways performance will be evaluated under the adaptive management approach. The management outcomes sought during the first five years of the Reserve are distinguished from the long term outcomes.

HOW MANAGEMENT STRATEGIES ARE PRESENTED IN THIS MANAGEMENT PLAN

What we want to achieve – desired outcomes for the Reserve in the long term and in the next 5 years

What we are going to do – management actions to achieve desired outcomes, concentrating on priorities for the first 5 years of the Reserve but also including critical actions for subsequent years in order to provide guidance for consistent long term management

How we will evaluate outcomes – performance indicators that will enable us to evaluate what we have achieved in the next 5 years

HOW THIS MANAGEMENT PLAN IS STRUCTURED

Chapter 1 - Introduction	Explanation of the background to establishment and management of the Reserve and the approach taken in this Management Plan.
Chapter 2 - Vision	A broad Vision of what we want to achieve and Guiding Principles that we will apply achieving the Vision.
Chapter 3 - Values	Descriptions of the landscape, natural, cultural and recreational values of the Reserve. Protection of these values is the foundation of the detailed management strategies and actions in the following chapters. The information in Chapter 3 should be consulted to understand the basis of management actions.
Chapter 4 – Reserve-wide Strategies	Management approaches and actions that apply across the whole Reserve to protect and enhance natural and cultural values, provide enriching visitor experiences and encourage community stewardship and partnerships.
Chapter 5 – Specific Areas	Management approaches and actions that apply to nationally significant threatened habitats, the Murrumbidgee River and Ginninderra Creek corridors, the Ginninderra Gorge and visitor nodes near the Murrumbidgee River and Ginninderra Falls.
Chapter 6 – Management Operations	Cooperative arrangements with other agencies for conduct of management of the Reserve and the operation of utilities and services located in the Reserve.
Chapter 7 – References	A list of the main studies, research reports and documents used in the preparation of this Management Plan.
Appendix A	References to documents used in the preparation of the Management Plan
Appendix B	Approval conditions for the West Belconnen Conservation Reserve.
Appendix C	Details of the stages of Reserve development.

2 Vision

Management of the West Belconnen Conservation Reserve and assessment of achievements and progress will be guided by the following vision.

The West Belconnen Conservation Reserve is an integral part of sustainable living at West Belconnen. The community and visitors to the Reserve respect and are inspired by the intrinsic value of the area's biodiversity, ecological integrity, scenic landscape, cultural heritage and tranquil natural settings. The Reserve is a leader in science-based biodiversity restoration, innovative community management, sustainable recreation and active learning opportunities and partnerships.

The future of the Reserve lies in maintaining, restoring, enhancing and communicating its special qualities. Management of the Reserve works to achieve:

-) a landscape rich in biodiversity - by protecting and restoring ecosystems and habitats (including threatened species habitats)
-) sustainable land use and improved ecosystem function - so that the people living near the reserve and the region leave it in better health for future generations
-) beneficial ecosystem and water quality outcomes in the regionally significant Murrumbidgee River and Ginninderra Creek – by implementing best practice sediment and erosion controls and rehabilitation of the riparian zone
-) a rich cultural heritage – where Aboriginal traditions and European heritage are valued and Aboriginal people have opportunities to continue their connections with country
-) a sense of tranquillity - the peace and quiet of recreating in natural settings which are increasingly rare and precious
-) showcasing the distinctive characteristics of the Murrumbidgee River and Ginninderra Falls for the community to enjoy
-) opportunities for the community to respect, understand, enjoy and contribute to the special qualities of the Reserve and to encourage well-informed, enthusiastic people who will help to support management aims
-) a thriving community and economy – strong community ownership and management that benefits conservation, the community and visitors.

2.1 Guiding Principles

The following Guiding Principles will inform management of the West Belconnen Conservation Reserve. They will be applied in conjunction with the legislation, planning instruments, approval conditions and policies that apply to the Reserve.

1. Collaborative Conservation	The core priority for Reserve management will be collaborative natural and cultural heritage conservation practices across borders, government agencies, the community and management partners. There will be a focus on people protecting, connecting and restoring landscapes. This will serve to captivate audiences and rally support, involvement and a sense of stewardship from the community, organisations, institutions and funding agencies.
2. Biodiversity	The biodiversity of the Reserve will be protected and restored to achieve: <ul style="list-style-type: none">) a mosaic of native vegetation and habitat types and species diversity) protection and restoration of existing threatened species, ecological communities and their habitat) the control of introduced plant and animal species) the reduction as far as possible of unplanned fire in the Reserve) protection and restoration of stream water quality and aquatic ecosystems within the Reserve) protection of water quality and the diversity and abundance of aquatic life in the Murrumbidgee River and Ginninderra Creek) managed reintroduction of native plant and animal species as this becomes viable.
3. Connectivity	The intrinsic value of the Reserve as part of the Murrumbidgee River Corridor and its importance for conservation linkages and wildlife movement along the Murrumbidgee and Molonglo River Corridors, the Ginninderra Creek catchment and across the broader ACT and NSW landscape will be maintained and enhanced.
4. Aboriginal Heritage	Aboriginal sites, cultural and spiritual values will be respected and protected in the Reserve in collaboration with Aboriginal custodians. Aboriginal people will have opportunities to be involved in and benefit from management of the Reserve. Cross-cultural awareness in the wider community will be promoted.
5. Fostering sustainable community and visitor use	<p>The Reserve will provide a range of opportunities for enriching experiences compatible with natural and cultural values to inspire visitors and the community and contribute to their wellbeing and appreciation of the Reserve. There will be opportunities for access to the Murrumbidgee River and the Ginninderra Falls area, sustainable nature-based activities and appreciation of cultural heritage.</p> <p>Recreational developments will be concentrated in defined areas compatible with the protection of natural and cultural values and ecological restoration and will be sensitive to their location within the landscape. Commercial partnerships for visitor experiences may be offered subject to compatibility with the Reserve vision and protection of natural and cultural values.</p>
6. Community Engagement,	To achieve the vision of a Reserve integrated into a sustainable living community,

Participation and Active Learning	<p>involvement of the community will be a central component of Reserve planning, management, ecological restoration, cultural heritage protection and ongoing monitoring.</p> <p>Opportunities for scientific and other relevant research will be embedded in management. Learning, education and volunteer opportunities will be provided for the community, community groups and institutions.</p>
7. Quality Interpretation	<p>Quality interpretation and management messages appealing to contemporary audiences will be offered to assist the community and visitors understand and respect the natural and cultural values of the Reserve, the aim to restore its natural ecosystems and respectful minimal impact visitor behaviour.</p>
8. Managing the Urban Interface	<p>The interface between the Reserve and the West Belconnen urban area is a critical area for management. It will be managed to:</p> <ul style="list-style-type: none">) assist the conservation, ecosystem restoration and recreation objectives of the Reserve) provide appropriate interface between reserve and urban land uses) ensure the health and safety of visitors and residents) maintain compatibility with the sustainable urban design principles and practices underlying the West Belconnen development.
9. Effective and Transparent Governance	<p>The Environmental Management Trust will ensure that management of the Reserve aligns with the Management Plan and is consistent with relevant ACT, NSW and Commonwealth legislation, policies and requirements.</p>
10. Long Term Financial Viability	<p>Adequate finances and resources are essential to achieve the vision for the Reserve and sustain management operations and quality visitor opportunities in the long term. This will be achieved through a combination of government and developer contributions, and commercial and voluntary partnerships which result in long term collaboration and investment in programs and asset management.</p>
11. Continual Improvement	<p>The Reserve will be managed under an adaptive management framework appropriate for conserving and restoring natural and cultural values and maintaining sustainable recreation and other uses. This approach will enable fine tuning of the Management Plan, priorities and management actions over time based on evidence gained through monitoring, research and evaluation of results against performance indicators.</p> <p>Government agencies, institutions and community groups will be involved in research and monitoring programs. Connections with existing research findings and programs will be fostered.</p> <p>The Management Plan will be reviewed regularly taking account of the results of periodic evaluations of performance.</p>

3 Values

3.1 Significant Biodiversity

3.1.1 Terrain

The Reserve occupies a landscape characterised by steep slopes and deeply incised watercourses that is the highly eroded remnant of rocks formed from volcanic activity during the Silurian geological period between 444 and 416 million years ago and is typical of the geology of the surrounding area⁵. The area of the Ginninderra Gorge from Ginninderra Falls downstream to the Murrumbidgee River has distinctive steep outcrops of Ginninderra Porphyry that distinguish it from the rocks of the surrounding area.

The terrain of the Reserve is a major determinant of the biodiversity of the area. The steeply sloping topography, the gullies formed by watercourses and the deeply incised landforms of the Murrumbidgee River and Ginninderra Gorge provide a range of environments, habitats and aspects that support the Reserve's diverse ecological communities, flora and fauna. Vegetation clearing and livestock grazing in the steep rocky landscape of the Ginninderra Gorge was less extensive than elsewhere in the Reserve due to its unsuitability for agricultural uses, thus protecting the distinctive biodiversity and Black Cypress Pine in the area.

The terrain in the Reserve is also a major factor in the protection and restoration of biodiversity, the protection of scenic values and management of recreation that is sustainable. Effective sediment and erosion controls will be critical for re-establishing vegetation and for protecting the water quality of streams and the river. Visitor infrastructure and trails will need to be located to minimise erosion and impacts on scenic vistas. Due to the steep slopes and risk of erosion and disturbance of fauna habitat, recreation activities and infrastructure which have a high impact on the ground surface or scenic vistas are not considered suitable in the Reserve.

[INSERT MAP/AERIAL PHOTO SHOWING THE TERRAIN. ALSO PHOTOS TO DEMONSTRATE STEEPNESS.]

3.1.2 General description

The vegetation communities in the Reserve as defined in the 2015 vegetation survey⁶ of the Reserve using the ACT vegetation classification are shown in Figure 3.

Tree clearing and livestock grazing in the Reserve area over 150 years has led to modification of the original vegetation communities. In the central part of the Reserve, the undulating terrain near the urban development boundary is now dominated by exotic pasture with scattered patches of native pasture (particularly in rocky areas) and woody weeds. In the south of the Reserve near the Strathnairn Arts Centre there are patches of Yellow Box - Red Gum Tableland Grassy Woodland (as classified in the ACT) with remnant trees including Yellow Box (*Eucalyptus melliodora*) and Red Gum (*Eucalyptus blakelyi*) and an understorey of native and exotic species. This area is categorised as the critically endangered White Box-Yellow Box-Blakely's Red Gum Woodlands and Derived Native Grasslands ecological community (see section 3.1.3.1). There are also remnants of the other woodland vegetation including Scribbly Gum (*Eucalyptus rossii*), Broad-leaved Peppermint (*Eucalyptus dives*), Red Stringybark (*Eucalyptus macroryncha*) and Snow Gum (*Eucalyptus pauciflora*).

In the NSW portion of the Reserve Red Stringybark-Scribbly Gum Tableland Forest occurs on steep, dry sites and hill crests. There is also an area of Yellow Box-Red Gum Tableland Grassy Woodland between the urban edge and the Ginninderra Gorge.

Exposed rocky outcrops and the more steeply sloping terrain towards the Murrumbidgee River contain a greater diversity of native grasses (such as *Themeda sp.*) and forbs with areas of shrubby Burgan (*Kunzea ericoides*) and Blackthorn (*Bursaria spinosa*). Along the top of these slopes a band of habitat for the nationally threatened Pink-tailed Worm Lizard (*Aprasia parapulchella*) extends from south to north of the Reserve (see section 3.1.3.2).

A narrow band of River She-oak Tableland Riparian Woodland occurs along the bank of the Murrumbidgee River where there are extensive stands of River She-oak (*Casuarina cunninghamiana*). The understorey in this riparian

⁵ Geological information sourced from Ginninderra Catchment Group (2015), Finlayson, D. M. (2008) and Ginninderra Falls Association (no date)

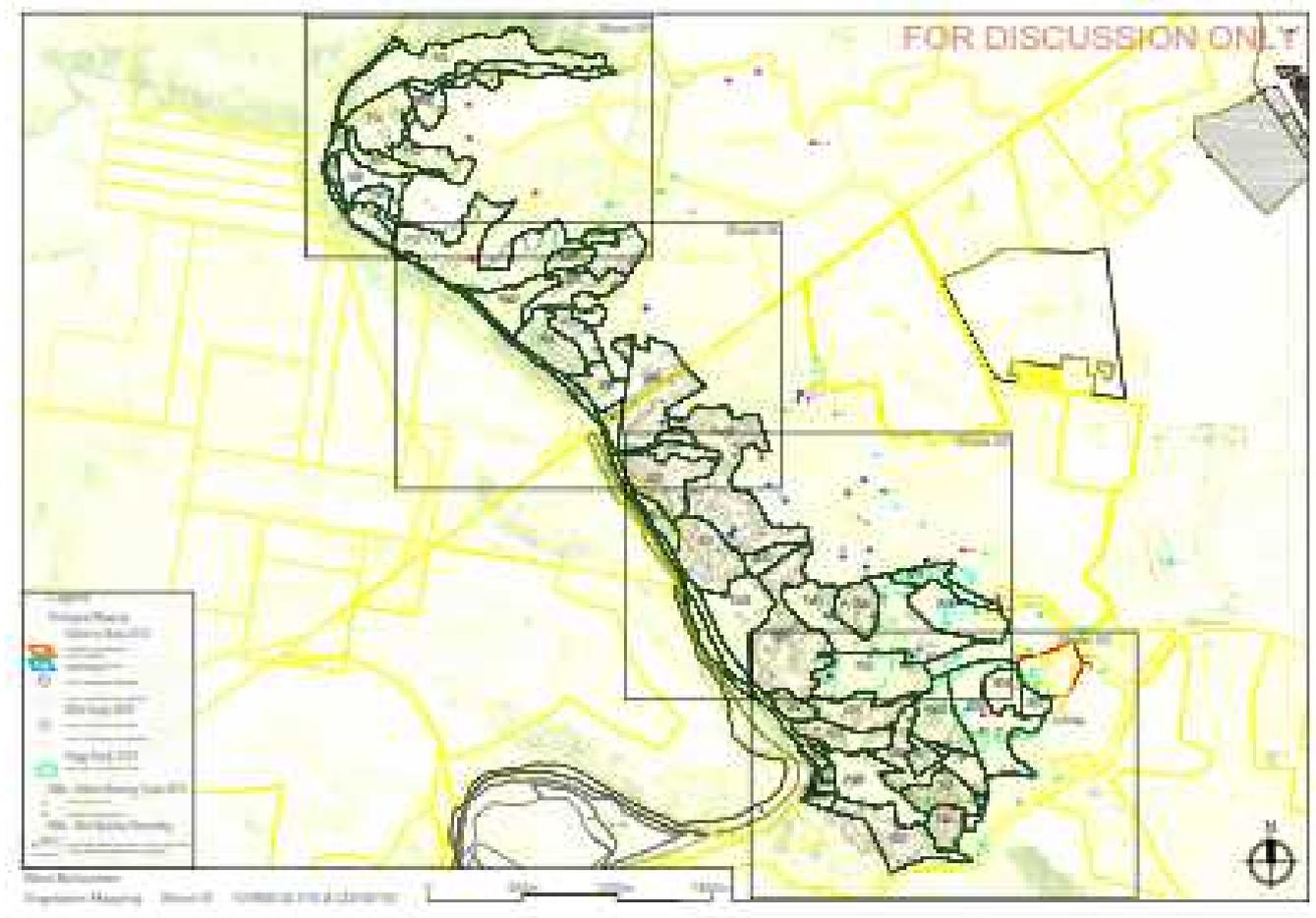
⁶ Robert Jessop Pty Ltd (August 2015).

zone is primarily exotic species. River She-oak is a greatly diminished vegetation type with conservation value. The waters of the river contain habitat for several threatened aquatic species including Murray Cod (*Maccullochella peelii*) and Macquarie Perch (*Macquaria australasica*). On slopes overlooking the river in the south of the Reserve below Shepherd's Lookout there are patches of Black Cypress Pine Tableland Open Forest dominated by the distinctive Black Cypress Pine (*Callitris endlicheri*).

The part of the Reserve along the southern side of Ginninderra Creek comprises two distinct landscapes. The section of Ginninderra Creek from Ginninderra Falls downstream to the confluence with the Murrumbidgee River (referred to in this Management Plan as the 'Ginninderra Gorge') is an area of high biodiversity in a landscape unique in the region. This area of Black Cypress Pine Tableland Open Forest in good condition has diverse vegetation and fauna and includes the vulnerable Pale Pomaderris (*Pomaderris pallida*) and Rosenberg's Goanna (*Varanus rosenbergi*) and several locally rare plant species.

Upstream of Ginninderra Falls (called Ginninderra Creek East in this Management Plan) the creek flows through grasslands which have been extensively modified by agricultural activity. The area is dominated by exotic grassland and herbaceous weeds with scattered native grasses. There are alternating ponds and sand and gravel deposits with occasional rock bars which support a mix of native wetland vegetation (such as reeds and sedges) and weeds. A remnant stand of River She-oak occurs at the western end of this stretch. Restoration of this section of the Ginninderra Creek corridor has commenced with the removal of introduced Willows and planting of native vegetation under the guidance of the Ginninderra Catchment Group.

Figure 3: Vegetation – West Belconnen Conservation Reserve



[INDICATIVE MAP ONLY. SUGGEST INCLUDING A MODIFIED VERSION OF THE VEGETATION MAPS WITH DIFFERENT COLOURS SHOWING THE VEGETATION COMMUNITIES.]

A range of fauna occurs in the Reserve, including numerous bird and reptile species and larger mammal species typical of the Murrumbidgee River Corridor - Eastern Grey Kangaroo (*Macropus giganteus*), Swamp Wallaby (*Wallabia bicolor*), Red-necked Wallaby (*Macropus rufogriseus*), Wallaroo or Euro (*Macropus robustus*), Wombat (*Vombatus ursinus*), Brush-tailed Possum (*Trichosurus vulpecula*), Ring-tail Possum (*Pseudocheirus peregrinus*) and Echidna (*Tachyglossus aculeatus*). There have also been recordings of the Eastern Bent-wing Bat (*Miniopterus schreibersii oceanensis*) in the area which is listed as vulnerable under NSW legislation.

A range of woodland bird species occupy the Reserve and adjacent Murrumbidgee River corridor year round or as nomadic or migratory visitors (see section 3.1.3.5).

Birds of prey observed in the Reserve include the Nankeen Kestrel (*Falco cenchroides*), Wedge-tailed Eagle (*Aquila audax*), Variable Goshawk (*Accipiter hiogaster*), Spotted Harrier (*Circus assimilis*) which is listed as vulnerable in NSW, Peregrine Falcon (*Falco peregrinus*), Brown Falcon (*Falco berigora*), Australian Hobby (*Falco longipennis*) and Little Eagle (*Hieraaetus morphnoides*). Other than the Nankeen Kestrel there are no confirmed nesting sites within the Reserve, but the potential for nesting by birds of prey is likely to increase as vegetation restoration progresses.

3.1.3 Threatened species and ecological communities

3.1.3.1 Box Gum Woodland (MNES)

The Reserve contains three remnant patches (totalling 68.2 hectares) of White Box-Yellow Box-Blakely's Red Gum Woodlands and Derived Native Grasslands (referred to as 'Box-Gum Woodland' in this Management Plan) which meets the criteria for categorisation as this endangered ecological community under the Commonwealth's *Environment Protection and Biodiversity Conservation Act 1999*. Box-Gum Woodland is also protected as endangered under NSW and ACT legislation⁷. These areas are in the south of the ACT portion of the Reserve near the Strathnairn Arts Centre.

The Box-Gum Woodland in the Reserve is in a modified condition with an absence of the tree layer in many places. A National Recovery Plan for Box-Gum Woodland (which was once widespread from southern Queensland to central Victoria) aims to prevent the extinction of the ecological community through protection and restoration of remnant sites⁸. Restoration of the Box-Gum Woodland in the Reserve has the potential to provide habitat for native fauna such as birds, bats, ground dwelling and arboreal mammals and invertebrates.

3.1.3.2 Pink-tailed Worm Lizard (MNES)

The Reserve contains important habitat for the Pink-tailed Worm Lizard (*Aprasia parapulchella*) which is listed as a vulnerable species nationally under the *Environment Protection and Biodiversity Conservation Act 1999*, in NSW under the *Threatened Species Conservation Act 1995* and in the ACT under the *Nature Conservation Act 2014*. A band of Pink-tailed Worm Lizard habitat (totalling 146.4 hectares in area), up to one kilometre wide in places, extends through the Reserve from Stockdill Drive in the south to about one kilometre north of the ACT/NSW border⁹. There are some further discrete habitat patches between the main habitat band and Ginninderra Creek. The habitat is mostly in good condition and consists of modified native grassland with scattered surface rocks in hilly terrain. Grasses and surface rocks are important habitat elements providing shelter for the lizards.

The ACT region is the main stronghold for the species. The habitat in the Reserve links with other significant regional Pink-tailed Worm Lizard populations along the Murrumbidgee and Molonglo Rivers to the south. The lizard population and habitat in the Reserve are important for maintaining connectivity between populations of the species to the south.

⁷ The community is known as Yellow Box-Blakely's Red Gum Tableland Grassy Woodland under ACT vegetation classifications.

⁸ Department of Environment, Climate Change and Water NSW (2010).

⁹ Osborne and Wong (10 May 2013).

3.1.3.3 Pale Pomaderris

A population of Pale Pomaderris (between 800 and 1000 plants) occurs in the Ginninderra gorge area. Pale Pomaderris is listed as vulnerable nationally under the Commonwealth's *Environment Protection and Biodiversity Conservation Act 1999* and in NSW under the *Threatened Species Conservation Act 1995*. The species is known from only about 15 populations mostly found in the region along the Murrumbidgee, Cotter and Paddy's Rivers. The size of the Ginninderra Gorge Pale Pomaderris population is likely to make it significant for the protection of this species.

3.1.3.4 Rosenberg's Goanna

There have been historical sightings of Rosenberg's Goanna in the area. The goanna (a large predator species that reaches up to 1.5 metres in length) is declining in numbers and is listed as vulnerable in NSW under the *Threatened Species Conservation Act 1995*. A recent survey has indicated the presence of Rosenberg's Goanna in the Ginninderra Gorge area¹⁰. Further study is required to ascertain the details of the goanna population and how it uses the area.

3.1.3.5 Threatened bird species

Several bird species observed in the Reserve are listed as threatened under ACT, NSW or national legislation (see Table 3).

A pair of Little Eagles (listed as vulnerable under ACT and NSW legislation) has nested in pine trees at Strathnairn on the edge of the Reserve and are likely to forage across the Reserve and nearby areas. A Clearance Zone has been established under the West Belconnen Concept Plan to protect this site. The results of ongoing research tracking the range of the Little Eagles will be relevant to management of the Reserve.

Several woodland bird species observed in the Reserve area are listed as threatened in the ACT and NSW. The Murrumbidgee River Corridor is particularly important for the movement of large numbers of honeyeaters and it is possible that other nomadic threatened species such as the Painted Honeyeater, Regent Honeyeater and Superb Parrot at times move through the Reserve.

Table 3: Threatened and migratory bird species that use or potentially use the Reserve

Name	Threatened Species Listing		
	EPBC Act (National)	NC Act (ACT)	TSC Act (NSW)
Little Eagle (<i>Hieraaetus morphnoides</i>)		Vulnerable	Vulnerable
Spotted Harrier (<i>Circus assimilis</i>)			Vulnerable
White-winged Triller (<i>Lalage suerii</i>)			Vulnerable
Speckled Warbler (<i>Pyrrholaemus sagittatus</i>)			Vulnerable
Diamond Firetail (<i>Stagonopleura guttata</i>)			Vulnerable
Varied Sitella (<i>Daphoenositta chrysoptera</i>)		Vulnerable	Vulnerable
Flame Robin (<i>Petroica phoenicea</i>)			Vulnerable
Scarlet Robin (<i>Petroica boodang</i>)			Vulnerable
Gang-gang Cockatoo (<i>Callocephalon fimbriatum</i>)			Vulnerable
Brown Treecreeper (<i>Climacteris picumnus</i>)		Vulnerable	Vulnerable
Painted Honeyeater (<i>Grantiella picta</i>)	Vulnerable	Vulnerable	Vulnerable
Regent Honeyeater (<i>Xanthomyza phrygia</i>)	Critically Endangered	Endangered	Critically Endangered

¹⁰ Ginninderra Catchment Group (2015).

Name	Threatened Species Listing		
	EPBC Act (National)	NC Act (ACT)	TSC Act (NSW)
Superb Parrot (<i>Polytelis swainsonii</i>)	Vulnerable		
Swift Parrot (<i>Lathamus discolor</i>)		Vulnerable	
Rainbow Bee-eater (<i>Merops ornatus</i>)	Migratory		
Rufous Fantail (<i>Rhipidura rufifrons</i>)	Migratory		

3.1.4 Ginninderra Gorge

The section of Ginninderra Creek from Ginninderra Falls downstream to the confluence with the Murrumbidgee River (referred to in this Plan as the 'Ginninderra Gorge') is a unique environment in the region¹¹. The steep rocky terrain was not subject to the high level of agricultural impacts of the adjoining land and retains a high level of ecological integrity. Black Cypress Pine Tableland Open Forest in good condition with trees in a range of ages occurs on the steep slopes and Red Stringybark – Scribbly Gum Tableland Forest on the areas fringing the gorge. Black Cypress Pine is a fire-sensitive species and the condition of the population at Ginninderra Falls indicates it has been subject to fewer fires and other impacts than many other populations in the region. It is likely that the Black Cypress Pine at Ginninderra Creek community is one of the best examples of this vegetation in the region.

The understorey vegetation exhibits a high level of biodiversity including a layer of shrubs between 0.5 and 2 metres in height and a ground layer of grasses, forbs, geophytes (such as orchids and lilies), ferns, twiners and sedges. Preliminary surveys in 2014 and 2015 identified 164 native plant species of which the following 13 species are rare, uncommon or significant species:

- J trees – River She-oak, Currawang (*Acacia doratoxylon*)
- J shrubs - Mountain Hickory (*Acacia penninervis*), Varnish Wattle (*Acacia verniciflua*), *Bertya rosemarinifolia*, Common Fringe Myrtle (*Calytrix tetragona*), Tree Pomaderris (*Pomaderris intermedia*), and the threatened Pale Pomaderris (*Pomaderris pallida*)
- J forbs, ferns and geophytes - Bristly Cloak Fern (*Cheilanthes distans*), Hornet Orchid (*Diurus sulphurea*), Shining Pennywort (*Hydrocotyle sybthorpioides*), Yam Daisy (*Microseris lanceolata*), Nodding Greenhood (*Pterostylis nutans*)

Other locally notable species present are *Crowea exalata*, Tick Indigo (*Indigofera adesmiifolia*), Yellow Burr-daisy (*Calotis lappulacea*), Lark Tick-trefoil or Digger's Speedwell (*Desmodium brachypodium*), Hooked Greenhood (*Pterostylis hamata*), Hornet Orchid (*Diurus sulphurea*) and Rough Maidenhair Fern (*Adiantum hispidulum*)¹².

The intact native vegetation structure and rocky terrain of the Reserve in the area below Ginninderra Falls provides abundant fauna habitat. This area supports a diverse range of reptiles, of which 20 species were found in a survey in 2015¹³. In addition to Rosenberg's Goanna (see section 3.1.3.4) significant reptile species found in the area are Burton's Legless Lizard (*Lialis burtonis*), the Nobbi Dragon (*Amphibolurus nobbi*), the Eastern Stone Gecko (*Diplodactylus vittatus*) and the Tree Skink (*Egernia striolata*) which is at the extreme south-eastern edge of its geographical range.

The endangered Spotted-tailed Quoll (*Dasyurus maculatus*) has been recorded in the general area and Belconnen suburbs in the past and potentially uses the Ginninderra Gorge which contains suitable habitat.

3.1.5 Aquatic ecosystems

The waters of the Murrumbidgee River are not within in the Conservation Reserve and are managed by the ACT Environment and Sustainable Development Directorate and the Fisheries NSW in their respective jurisdictions.

¹¹ Information on Ginninderra Creek derived from Ginninderra Catchment Group (2015).

¹² Robert Jessop Pty Ltd (August 2015).

¹³ Ginninderra Catchment Group (2015).

Management of the terrestrial ecosystems, the riparian zone, streams and water quality and recreational activities in the Conservation Reserve will have implications of aquatic ecosystems, fish populations and habitat in the river. The stretch of the Murrumbidgee River adjoining the Conservation Reserve contains several threatened aquatic fauna species listed under the Commonwealth’s *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), the ACT *Nature Conservation Act 2014* (NC Act) and the NSW *Fisheries Management Act 1994* (the FM Act) (see Table 4). It is possible that the Booroolong Frog (*Litoria booroolongensis*) occurs in the riparian zone along the Murrumbidgee River¹⁴ and is listed as endangered nationally as well as in NSW.

Table 4: Threatened aquatic fauna species occurring (or potentially occurring) in the Murrumbidgee River at West Belconnen

Name	Threatened Aquatic Species Listing		
	EPBC Act (National)	NC Act (ACT)	FM Act (NSW)
Murray Cod (<i>Maccullochella peelii</i>)	Vulnerable		
Macquarie Perch (<i>Macquaria australasica</i>)	Endangered	Endangered	Endangered
Trout Cod (<i>Maccullochella macquariensis</i>)	Endangered	Endangered	Endangered
Silver Perch (<i>Bidyanus bidyanus</i>) – possible presence	Critically Endangered	Endangered	Vulnerable
Murray River Crayfish (<i>Euastacus armatus</i>) – possible presence		Vulnerable	

3.1.6 Conservation connectivity

The West Belconnen Conservation Reserve acts as an important regional conservation connectivity link.

As part of the Murrumbidgee River Corridor the Reserve will protect and improve the habitat linkages at the northern end of the corridor which also extend into the Molonglo River Corridor upstream of the Reserve. Ecosystem management in the Reserve will assist in protecting the water quality and aquatic life in the upper reaches of the Murrumbidgee River. The river, its riparian zone and adjoining land is a significant conservation corridor in the region. There have been extensive cooperative regional efforts (involving ACT and NSW agencies, catchment committees, research institutions and community organisations) to improve the ecological condition of the Murrumbidgee River and its functioning as a conservation corridor. These initiatives include management of a 100 kilometre stretch of the river from Bredbo in NSW to Casuarina Sands in the ACT as a Demonstration Reach (under the Murray Darling Basin Native Fish Strategy); tree planting and weed control along the Murrumbidgee River Corridor under the ACT Million Trees program; and ACT Waterwatch monitoring of water quality in rivers, streams, wetlands and lakes by community volunteers. There is potential for management of the West Belconnen Conservation Reserve to contribute to these initiatives.

The portion of the Reserve along Ginninderra Creek will maintain the connection between the Murrumbidgee River, Ginninderra Creek and a chain of conservation reserves in the Ginninderra Creek catchment and in nearby NSW. This will contribute to efforts being made by community groups, scientific institutions and the ACT Parks and Conservation Service to improve the ecological condition of the Ginninderra Creek catchment and restore ecosystems in reserves in the catchment.

3.2 Ecosystem services

Ecological restoration in the West Belconnen Conservation Reserve and sustainable management of natural processes, soils, streams, runoff, weeds, pests and human uses will contribute to the quality of the regional

¹⁴ Umwelt (Australia) Pty Ltd (April 2016).

environment and the social and economic community benefits derived from the environment. It will contribute to the quality of water and associated aquatic ecosystems in the Murrumbidgee River which is one of Australia's most significant rivers, providing water supplies to towns and irrigation for food production downstream of the ACT.

Ecosystem management in the reserve will assist protecting the quality of water which flows into Burrinjuck Dam, the first major dam on the Murrumbidgee River downstream of the ACT which is a major storage for the Murrumbidgee Irrigation Area and the release of environmental flows into the river. The Dam also houses a hydro-electric power station and is a popular fishing, boating and recreational destination which attracts a quarter of a million visitors annually¹⁵ and are important for the economy of the Yass Valley.

3.3 Scenic Landscape

[NOTE – Historic paintings and photos of Ginninderra Falls in the Biosis reports and Eric Martin & Associates (17 Feb 2013) might be used to illustrate the historic appreciation of the Falls. Copyright holder permission may be required.]

The Reserve will protect and provide opportunities for the community to enjoy scenic vistas of the Murrumbidgee River, Ginninderra Falls and distant mountains. While high voltage power lines cross the Reserve, they do not have a major impact on the scenic outlooks from and into the Reserve.

The Ginninderra Falls area has been long been recognised as a significant place with a landscape unique in the region. The Falls have past and ongoing significance for Aboriginal people and archaeological sites show that the area was visited by Aboriginal people. Following European settlement Ginninderra Falls became a destination for the local and regional community valued for its scenic and aesthetic qualities.

In 1907 Ginninderra Falls was mentioned in a paper discussing the merits of Canberra over Dalgety as the site for the national capital¹⁶. Between the late 1990s and 2004 the Ginninderra Falls Tourist Park was opened on private land enabling public access to the Falls and walking and picnicking in the vicinity. While that park closed in 2004, many people in the local community have retained an attachment to the place and seek access to the Falls re-opened to the public. This was reflected in formation of the Ginninderra Falls Association in 2012 to lobby for the inclusion of Ginninderra Falls in the NSW national park estate.

The Reserve contributes to the landscape features which give Canberra its distinctive natural character and setting as the national capital. Canberra has been consciously developed to provide a natural setting through a network of open space and bushland connecting urban areas and to provide vistas to the scenic mountain backdrop to the city. Protection of Canberra's landscape setting and open space system is given statutory effect by the National Capital Plan which also establishes the Murrumbidgee and Molonglo River Corridors to protect and enhance the environmental quality and landscape setting from urban encroachment.

The ACT portion of the Reserve is part of the Murrumbidgee River Corridor and the Reserve land in NSW will extend protection of the natural landscape along the river into NSW.

¹⁵ Yass Valley Council's tourism website, www.yassvalley.com.au.

¹⁶ Gale (1907) cited in Ginninderra Catchment Group (2015).

3.4 Cultural heritage

3.4.1 Aboriginal heritage

The environs of the Murrumbidgee River and Ginninderra Creek were used extensively by Aboriginal people as evidenced by the numerous Aboriginal archaeological sites found in the Reserve and nearby areas. The area of the Reserve is valued today by Aboriginal people who aspire to maintain their traditional connections with country and participate in Reserve management.

From evidence found in rock shelters it is known that Aboriginal people lived in the Canberra region for at least 25,000 years. The general Canberra region was occupied by the Ngunnawal people and was also used by people from the Ngarigo, Wolgalu, Gundungarra, Yuin and Wiradjuri people¹⁷. It is thought that West Belconnen is near the traditional boundaries of Aboriginal groups on the southern tablelands and Canberra area¹⁸.

In pre-European times, West Belconnen and the surrounding areas were heavily utilised by Aboriginal people due to the availability of water, food and material resources associated with the Murrumbidgee River, Ginninderra Creek and the woodlands and grassland of the undulating tableland landscape¹⁹. West Belconnen is also close to the Uriarra Valley and northern Brindabella Mountains which were important places for seasonal gathering of Bogong Moths and associated ceremonies. Bogong Moths were an important seasonal food source for the Aboriginal people living around the Australian Alps. Other Aboriginal groups also traditionally gathered in the region and utilised the Murrumbidgee River corridor for travelling and meeting.

Evidence of Aboriginal occupation in the West Belconnen area is found in numerous archaeological sites (including artefact scatters) and other indications such as scarred trees and a rock shelter. The whole of the Ginninderra Creek catchment has been identified as an 'ancient pathway for Ngunawal people' that is reflected in areas such as the axe grinding grooves in Umbagog Nature Reserve and the ochre grounds at Franklin²⁰.

Surveys of archaeological sites in the West Belconnen Conservation Reserve and urban development areas were undertaken in 2013 and 2014 in conjunction with representatives of Aboriginal organisations from NSW and the ACT who also provided information on the cultural significance of the area to contemporary Aboriginal people.

Together with previously recorded sites, the surveys identified a total of 67 Aboriginal archaeological sites in the Reserve – 46 in the ACT portion and 21 in NSW. Most of the sites are small artefact scatters or isolated artefact finds. There are several scarred trees and large artefact scatters (open campsites). The Aboriginal community places a high value on scarred trees and large artefact scatters as providing evidence of past use of the area and considers that these areas should not be impacted by future developments. A rock shelter located in a hilly area overlooking the river is a rare shelter type in the ACT and has high significance archaeologically and culturally to the Aboriginal community. The environs of Ginninderra Creek and were also identified as having high potential for the discovery of further sites. Due to cultural sensitivities and the need to protect the sites while the Reserve and adjacent urban areas are developed, the location of Aboriginal sites in the Reserve is not provided in this Management Plan.

Management of the Aboriginal sites in the Reserve will be subject to the requirements of ACT and NSW Aboriginal heritage legislation and the wishes of the Aboriginal custodians. In the ACT protection of Aboriginal objects and places is provided under the ACT *Heritage Act 2004* which also provides for the registration of Aboriginal objects and places on the ACT Heritage Register administered by the ACT Heritage Council. Approval from the Heritage Council is required for work affecting registered Aboriginal sites and places. The Act also provides for Conservation Management Plans to be developed for Aboriginal objects and places and approved by the Council. Representative Aboriginal Organisations established under the Act must be consulted by the Council in matters related to the registration and management of Aboriginal places and objects.

In NSW all Aboriginal objects and places are protected under part 6 of the *National Parks and Wildlife Act 1974*. It is an offence to knowingly disturb an Aboriginal site without a consent permit issued by the Office of Environment and Heritage (OEH). OEH recognises the rights of Aboriginal people to determine the significance

¹⁷ ACT Government (2010).

¹⁸ Biosis (10 January 2014).

¹⁹ Biosis (6 January 2013); Biosis (10 January 2014).

²⁰ www.ginninderralandcare.org.au/landcare/projects/aboriginal-heritage-ginninderra.

of their heritage and has issued guidelines for Aboriginal heritage consultation in relation to matters affecting Aboriginal heritage²¹. A code of practice has also been issued for archaeological investigation of Aboriginal objects. Aboriginal places may also be declared over places of special significance to Aboriginal culture.

The whole of the Conservation Reserve is of high cultural significance to the present day Aboriginal community. Local Aboriginal groups consulted during planning of the West Belconnen development²² value the area because it provides evidence and connection between past Aboriginal use of the Murrumbidgee River and Ginninderra Creek areas and the present community. It has significance as an area where connection to country can be maintained (including through participation in management and deriving socio-economic benefits) and culture communicated to younger generations. It is also considered to have potential for developing an appreciation of Aboriginal culture in the wider community.

Aboriginal people are already involved in protecting and showcasing their heritage in the Ginninderra catchment through guided walks, school and corporate talks and contributing traditional land management and cultural knowledge to management of reserves in the catchment.

A commitment to engagement and involvement of Aboriginal people in managing the West Belconnen Conservation Reserve and running interpretation and visitor programs has been expressed by local Aboriginal people and the local conservation community.

3.4.2 European heritage

[NOTE – Historic paintings and photos (see Biosis and Eric Martin reports) might be used to demonstrate European heritage. Use would probably require the permission of the copyright holder.]

The general West Belconnen area (and the wider Belconnen/Ginninderra area) has a history of European exploration, early pastoral settlement and encounters with Aboriginal people dating from the 1820s. The West Belconnen Conservation Reserve is intrinsically linked to the history of European agriculture and stock grazing in the Belconnen area and the resulting creation of the modified ecosystems that characterise the Reserve today.

The Reserve is part of land granted to the prominent explorer Charles Sturt in 1837 after his return from expeditions along the Murray and Darling Rivers²³. That land was purchased from Sturt in 1838 by Charles Campbell, was named 'Belconnen' and cleared for sheep grazing. In 1913 the 'Belconnen' land in the ACT was resumed by the Commonwealth and leased. In 1927 the land was leased under the Soldier Settlement Scheme by Austen Shepherd and farmed by the Shepherd family until the 1970s.

The Reserve also contains land that was farmed by the Kilby family as part 'The Falls' property near Ginninderra Falls.

The homestead for the Belconnen property, 'Belconnen Farm', is located outside but adjacent to the Conservation Reserve near its eastern boundary. It is comprised of an 1850s stone cottage, other farm buildings of various ages, plantings and archaeological resources which contribute to an understanding of the use and development of the place. The Belconnen Farm precinct is listed on the ACT Heritage Register as a rare example of a continuous working property and a successful soldier settlement lease²⁴. The 1850s stone cottage is one of only six stone residences in the ACT dating from this time. The scenic outlook forming a corridor from Belconnen Farm across the Conservation Reserve to the Murrumbidgee River and distant mountains is considered intrinsic to the heritage significance of Belconnen Farm though it is not included in the boundaries of the listing in the ACT Heritage Register.

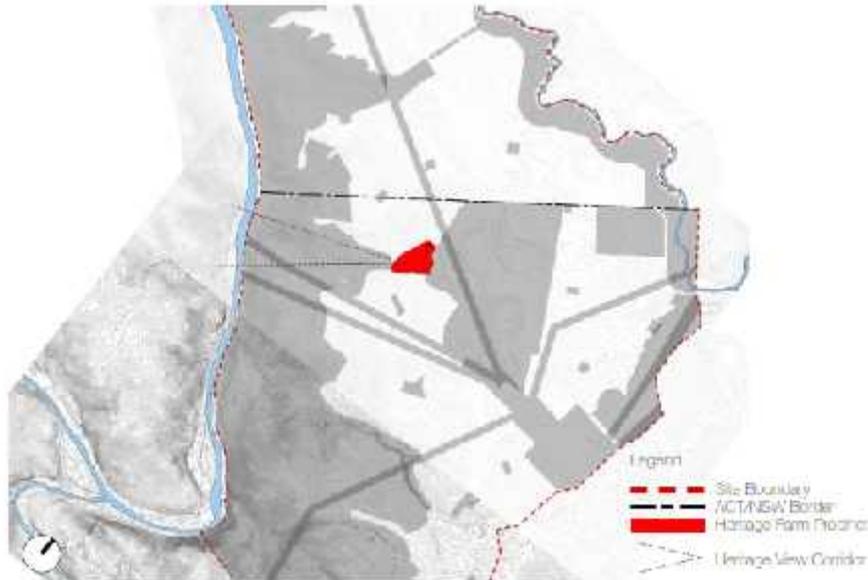
²¹ Department of Environment, Climate and Water NSW (April 2010).

²² Biosis (6 January 2013) and (10 January 2014).

²³ ACT Government (August 2011).

²⁴ ACT Government (August 2011).

Figure 4: West Belconnen Heritage Corridor



[POSSIBLY INCLUDE A MAP OF THE HERITAGE CORRIDOR. This is a the map of the heritage corridor from Belconnen Farm taken from McGregor Coxall]

Under the West Belconnen Concept Plan Belconnen Farm is set aside as a Heritage Precinct to be managed in accordance with a Conservation Management Plan approved by the ACT Heritage Council. The Precinct will also be available for community and commercial uses such as arts, crafts, market, restaurant, shop and business enterprise. An area of open space will connect the Heritage Precinct to the Conservation Reserve. Although Belconnen Farm is not within the Reserve its proximity provides potential opportunities for European heritage interpretation and linked visitor experiences.

European heritage assessments conducted in 2013 and 2014²⁵ did not find any areas or structures that satisfied the criteria for heritage listing on the ACT Heritage Register, the NSW Heritage Register or the Heritage Schedule to the Yass Valley Local Environment Plan. In addition to the heritage view corridor from Belconnen Farm, the following elements of the land in the Reserve were identified as sufficiently significant in the European history of the area to be considered and interpreted in development of the Reserve

-) the ACT/NSW border alignment
-) retention of views to the distant ranges and the Murrumbidgee River valley
-) the western boundary of the Sturt/Campbell land seen in a fence line near the river
-) an early easement providing access to Cusack's Crossing
-) Cusack's Crossing on the Murrumbidgee River near the confluence with Ginninderra Creek.

The historic local community connections to Ginninderra Falls are discussed in section 3.1.2.

Strathnairn is a 1920s homestead and outbuildings located adjacent to the south of the Reserve off Stockdill Driver. Since the 1990s it has been operated by the not-for profit Strathnairn Arts Association (supported by the ACT Government) as an artist community with a range of studio facilities, art programs and a creative precinct (including a gallery and café) open to the public. The property provides a reminder of the area's grazing history and is important for development of the arts and encouragement of artists in the region. There is potential for partnerships with Strathnairn Arts Association to contribute to the Reserve's ecological management, interpretation and the variety of visitor experiences.

²⁵ Eric Martin & Associates (17 February 2013, 17 February 2014 and 24 February 2014).

3.5 Recreation and tourism

The Conservation Reserve has the potential to provide relaxing, healthy outdoor recreation and enriching natural and cultural heritage experiences close to an expanding population centre. The population of West Belconnen is expected to reach 30,000 people while the wider ACT population is projected to reach 500,000 people by 2033.

Ginninderra Falls has been used for recreation for many decades. The former privately-run Ginninderra Falls Tourist Park was a popular destination for ACT and regional residents.

As an inland area, the community of the ACT and surrounding region places a high value on places such as the Murrumbidgee River which offer settings for water based and associated recreation such as swimming, picnicking, canoeing, wildlife and bird watching and fishing. The Reserve will open access to a stretch of the Murrumbidgee River previously closed to public access. The deep pools along this stretch of river are likely to be attractive for river recreation and fishing.

The Conservation Reserve also offers a unique opportunity in the region to provide inspiring interpretation and associated facilities related to the riverine environment and ecological restoration.

3.6 Community involvement in conservation

There is a strong legacy of involvement in, and knowledge of, conservation management in the Ginninderra Creek catchment by community members, community organisations and scientific and research institutions

The Ginninderra Catchment Group has been established to assist in restoration of the Ginninderra catchment. The Group receives government funding to coordinate and support community volunteer activities through programs such as Waterwatch, Frogwatch and Landcare. It is also involved in weed management and school education programs and works with Aboriginal people on sharing of traditional cultural heritage. The Group has been closely involved in development of the Conservation Reserve through initial restoration works on Ginninderra Creek and participation in biodiversity surveys of the Ginninderra Gorge area. The Bush on the Boundary group is a partnership between the Ginninderra Catchment Group, other community conservation groups, the ACT Government and research institutions fosters collaborative conservation projects including ecological restoration of the Mulligans Flat Nature Reserve at the head of the Ginninderra Catchment.

The Conservation Reserve provides an opportunity to continue and extend community management partnerships. It provides a unique opportunity in the region for partnership between a proposed world's best practice sustainable community and conservation management.

3.7 Threats to values

Biodiversity, landscape and cultural heritage values have persisted in the West Belconnen Conservation Reserve despite clearing of much of the area for agriculture. In part this is due to the steep nature of the terrain in the lower reaches of Ginninderra Creek and along the banks of the Murrumbidgee River that was not suitable for agriculture. Establishment of the Murrumbidgee River Corridor in the ACT also protected the area from urban development and maintained its scenic landscapes.

However, many of the values of the Reserve are remnants of the former ecological communities in the area and are vulnerable to the ecological changes associated with past agricultural uses and the growth of the regional population. Additionally, impacts on the integrity of the Reserve's values will arise from the new urban development and anticipated recreational use. The sustainable environmental design features proposed for the West Belconnen development will be a significant mitigating factor in controlling urban impacts on the Conservation Reserve. Nevertheless, careful management of uses and the urban interface and active restoration of biodiversity will be needed to achieve the vision for the Reserve.

Current and future threats to values across the Reserve are summarised in Table 5.

Table 5: Threats to values in West Belconnen Conservation Reserve

Threat	Potential Impacts	Measures that will be used to manage threats ²⁶
Spread of weed species.	<p>Competition with native vegetation communities and species.</p> <p>Impacts on Pink-tailed Worm Lizard habitat, Box-Gum Woodland and other significant species and communities</p> <p>Impacts on ecosystem restoration works.</p>	<p>Long term weed control programs.</p> <p>Management vehicle and machinery wash down protocols.</p>
Grazing and browsing by feral deer, goats, pigs and rabbits and domestic stock.	<p>Impacts on biodiversity of native vegetation communities through grazing, introduction of weed species and suppression of vegetation regeneration.</p> <p>Disturbance of native animal habitat.</p> <p>Reduction of ground cover leading to soil erosion.</p>	<p>Long term feral animal control programs.</p>
Predation by feral animals such as foxes, dogs and cats and domestic dogs and cats entering from the urban area.	<p>Impacts on native animal populations due to predation and interference with habitat and breeding.</p>	<p>Feral animal control programs.</p> <p>Cat containment in the urban area to lessen likelihood of cats entering the Reserve. Liaison with the community and authorities on education and enforcement.</p> <p>Exclusion of domestic dogs from the Reserve.</p>
Inappropriate fire regimes and fire protection measures.	<p>Impacts on the condition of fire sensitive species and communities (such as Black Cypress Pine and Pale Pomaderris).</p> <p>Impacts on the high biodiversity of the Ginninderra Falls area.</p> <p>Damage to ecosystem restoration works.</p>	<p>Science-based plans for biodiversity management and ecosystem restoration of specific ecosystems that will determine appropriate fire regimes and feed into the Reserve’s overall fire management plan.</p>
Changed runoff patterns and sediment and nutrients in runoff from urban areas and Reserve infrastructure.	<p>Impacts on water quality, aquatic habitats and species in streams, Ginninderra Creek and the Murrumbidgee River.</p> <p>Introduction of weeds and pest species.</p> <p>Changes in moisture and nutrient levels affecting growth conditions and habitat of some species, including Pink-tailed Worm Lizard habitat.</p>	<p>High standards of sustainable urban design including implementation of Water Sensitive Urban Design (WSUD) in the West Belconnen urban area, and retention ponds to contain and treat the quality of urban runoff.</p> <p>Application of high standards of design and runoff management for infrastructure and buildings within the Reserve.</p>
Rural tree dieback.	<p>Loss of Eucalypt trees resulting from susceptibility to insect attack as part of a general decline in ecosystem health.</p>	<p>Ecological restoration which will reduce the vulnerability of older trees through improvements to soil structure, vegetation diversity and the range of tree age classes.</p>
Impacts from construction activities in the urban area and the Reserve.	<p>Damage to vegetation and animal habitat.</p> <p>Impacts on water quality, aquatic</p>	<p>Construction Environment Management Plans including erosion and sediment controls, measures to</p>

²⁶ Details on these measures are provided in Chapters 4, 5 and 6.

Threat	Potential Impacts	Measures that will be used to manage threats ²⁶
	<p>habitats and species in streams, Ginninderra Creek and the Murrumbidgee River.</p> <p>Introduction of weeds and pest species, foreign materials.</p> <p>Damage to Aboriginal sites.</p>	<p>mitigate weed spread, protective measures for sensitive areas, procedures relating to Aboriginal sites, waste management procedures and post-construction remediation.</p>
<p>Inappropriate location of trails and infrastructure.</p>	<p>Soil erosion and weed spread.</p> <p>Habitat fragmentation and loss of native animal habitat.</p> <p>Human presence affecting native animals.</p> <p>Damage to Aboriginal sites.</p> <p>Impacts on scenic values and heritage views.</p>	<p>Science-based plans for biodiversity management and ecosystem restoration of specific areas.</p> <p>Master planning for trails and visitor nodes that will take account of impacts on Reserve values, with location of major visitor facilities outside of the Reserve in the nearby urban area.</p> <p>Location of work depot outside the Reserve.</p> <p>Conservation management planning for protection of Aboriginal sites.</p> <p>Design principles to protect scenic values.</p> <p>European heritage conservation strategy.</p>
<p>Disturbance and damage by visitors.</p>	<p>Disturbance of native vegetation and plant and animal habitat, including taking of fallen wood and rocks.</p> <p>Erosion and weed spread.</p> <p>Disturbance of Aboriginal archaeological sites and areas of Aboriginal significance.</p> <p>Roadkill of native fauna.</p>	<p>Master planning for trails and visitor nodes that will take account of impacts on Reserve values in the location and design of trails and infrastructure.</p> <p>Prohibition on damaging activities such as taking fallen wood and rocks.</p> <p>Conservation management planning for protection of Aboriginal sites, including measures to manage potential visitor impacts.</p> <p>Programs and information to increase visitor awareness and encourage minimal impact behaviour.</p> <p>A small number of visitor access roads with low speed limits.</p>
<p>Social impacts from unsustainable type and level of visitor use.</p>	<p>Conflicting uses affecting the experience of other visitors and the quality of nature and culture based experiences through noise, speed and crowding.</p>	<p>Master planning for trails and visitor nodes that will take account of impacts on Reserve values in the location of trails and infrastructure.</p> <p>Location of higher impact activities (such as large groups) in specific visitor nodes designed for this purpose and placement of major visitor facilities outside of the Reserve in the nearby urban area.</p> <p>Provision of areas for tranquil, low-key</p>

Threat	Potential Impacts	Measures that will be used to manage threats ²⁶
		<p>nature-based activities accessed by recreation trails.</p> <p>Programs and information to increase visitor awareness and encourage minimal impact behaviour.</p>
<p>Edge effects along the urban boundary.</p>	<p>Introduction of weeds, domestic animals, impacts on water quality.</p> <p>Fragmentation of plant and animal habitat and ranges.</p> <p>Roadkill.</p> <p>Multiple visitor entry points leading to uncontrolled uses, erosion, weed introduction, informal trails and visitor conflicts.</p>	<p>Management of the urban interface to protect the Reserve.</p> <p>Sustainable urban design and management of the urban areas including WSUD, cat containment and use of native species in plantings.</p> <p>Fencing of the Reserve to limit access to designated roads and trails.</p> <p>A small number of visitor access roads with low speed limits.</p> <p>Programs and information to increase awareness by residents and visitors of ways to minimise impacts on the Reserve and to encourage development of stewardship for the Reserve.</p> <p>Encouragement of use of non-invasive and local species in the urban area.</p>

Chapters 4 and 5 of this Management Plan identify threats to specific values and areas of the Reserve and include mitigation measures to manage threats and restore values.

4 Reserve-Wide Strategies

Chapter 4 provides strategies and actions that will apply across the whole Reserve to protect and enhance natural and cultural values, provide enriching visitor experiences and encourage community stewardship and partnerships. Detailed strategies for managing specific parts of the Reserve are provided in chapter 5.

Management strategies are described as follows:

-) **What we want to achieve** – desired outcomes for the Reserve in the long term and in the next 5 years
-) **What we are going to do** – management actions to achieve desired outcomes
-) **How we will evaluate outcomes** – performance indicators that will enable us to evaluate what we have achieved in the next 5 years

Actions are prioritised as follows:

Priority 1 – core plans and actions to be completed in year 1

Priority 2 – to be completed in years 2 to 3 (some are dependent on Priority 1 plans)

Priority 3 – to be completed in years 4 to 5

Priority 4 – to be completed in year 5

Priority 5 – actions scheduled for completion after year 5 (when this Management Plan will be reviewed). These actions are critical for consistent management of the Reserve.

Ongoing – actions that will be applied throughout the life of this Plan and future Plans.

Priorities reflect the stages in development of the Reserve (see section 1.4). Actions required to plan for management of a particular stage are scheduled to be undertaken before development of that stage commences.

4.1 Ecological restoration and conservation of biodiversity

Objective A

Conservation and restoration of the natural values of the reserve is a high priority and the foundation of a sustainable Reserve that is a thriving ecosystem and a living landscape where people will want to visit, appreciate and contribute.

This section covers Reserve-wide management strategies. Specific requirements for management of MNES, other threatened species, the Murrumbidgee River Riparian Zone, Ginninderra Gorge and Ginninderra Creek East are in Chapter 5.

4.1.1 Ecological restoration and biodiversity management

Active intervention is required to prevent the ecosystems, biodiversity and landscapes of the Reserve from further degradation and meet the legislative requirements for protection of threatened species and communities, control of weeds and pests and fire management.

The main way this will be achieved is through an ecosystem-based approach that seeks to restore the natural ecosystems of the Reserve (soils, water, plant and animal communities) that have been modified by past land uses to a healthy condition and function. Ecosystem restoration will be conducted in a variety of ways depending on the current condition of particular areas and may consist of soil stabilisation, control of pests and weeds, encouragement of natural vegetation regeneration, planting of vegetation, creation of fauna habitat, special protective measures for particular species and communities and reintroduction of flora and fauna species that previously existed. To maximise the effectiveness of ecosystem restoration and impacts on restored areas from upstream sources, restoration works will proceed as far as possible on a sub-catchment basis.

This chapter sets out broad strategies for Reserve-wide ecosystem restoration and biodiversity conservation. An Ecosystem Restoration and Biodiversity Management Plan will be prepared to guide the technical details of ecosystem restoration and biodiversity management. The first Ecosystem Restoration Plan will give priority to restoration in Stages 1 and 2 of Reserve development.

Details of conservation and ecological restoration measures in areas of the Reserve that have special values (Pink –tailed Worm Lizard habitat, Box-Gum Woodland, Ginninderra Gorge and the riparian zones along the Murrumbidgee River and Ginninderra Creek East) are provided in chapter 5. Detailed plans for management of these areas will be developed and form sub-plans of the Reserve-wide Ecosystem Restoration and Biodiversity Management Plan.

Where management measures are not specifically provided in this Reserve Plan, management of threatened and other significant species and habitat will be guided by relevant government legislation and plans (such as recovery plans). Should additional significant species or communities be discovered or become established in the Reserve specific management measures will be developed as part of the Ecosystem Restoration and Biodiversity Management Plan.

4.1.2 Weed management

Weed invasion threatens natural values throughout the Reserve²⁷. Woody weeds are prevalent on the steep slopes above the Murrumbidgee River and inland gullies and Blackberry infestations occur along the river and most streams. Herbaceous weeds are present in many grassland areas.

A Weed Management Plan²⁸ has been developed for the West Belconnen development in the ACT including the area of the Reserve. A total of 84 exotic species were found including exotic pasture species, grasses, herbs,

²⁷ Robert Jessop Pty Ltd (August 2015).

²⁸ Geoff Butler & Associates (August 2014)

shrubs and trees. A strategic approach is needed for effective weed management in the Reserve. In some cases exotic pasture species provide ground cover and protection from soil erosion. There is a risk that removal of this ground cover in some areas will lead to invasion by significant weeds.

The West Belconnen Weed Management Plan gives priority to controlling the most invasive weeds where there are significant infestations, where there is potential for increased weed spread and where weed species pose a high risk to areas of high conservation value such as Pink-tailed Worm Lizard habitat. Weed control methods and a control program is provided for St John's Wort (*Hypericum perforatum*), African Love Grass (*Eragrostis curvula*), Serrated Tussock (*Eragrostis curvula*), Blackberry (*Rubus fruticosus*), Briar Rose (*Rosa rubiginosa*), Willow (*Salix sp.*), Hawthorn (*Crataegus monogyna*), Firethorn (*Pyracantha sp.*). Control methods recommended include physical removal, herbicide spraying and grazing at an appropriate level to reduce weed biomass while maintaining groundcover (see section 4.1.5). The control methods recommended in the Weed Management Plan are consistent with the requirements of the *Pest Plants and Animals Act 2005*, the *ACT Weeds Strategy* and noxious weed control requirements in the ACT and in NSW under the *Noxious Weeds Act 1993*.

The existing Weed Management Plan will guide the treatment of weeds in the initial years of the Reserve. As the Reserve is developed and detailed plans for ecological restoration and specific areas are developed a new Weed Management Strategy will be prepared to provide a best practice approach to weed management

4.1.3 Pest animal management

Exotic animal species seen in the Reserve or potentially present due to their occurrence in nearby areas include Rabbits (*Oryctolagus cuniculus*), Feral Goats (*Capra hircus*), Wild Deer (*Cervus spp.*, *Dama dama* and *Axis spp.*), Feral Pig (*Sus scrofa*), Foxes (*Vulpes vulpes*) and Feral Cats (*Felis catus*). These pest animals have been listed as threatening processes in NSW under the TSC Act. Wild Dogs (*Canis lupus familiaris*) may also occur in the Reserve. Impacts by pest animals on natural values include soil erosion (from burrows), grazing on native species, predation on native species and competition for and degradation of native species habitat. Pest animal browsing (including by Deer) is affecting the vegetation and soil cover on the steep slopes above the Murrumbidgee River and Ginninderra Creek²⁹.

The Yass Rural Lands Protection Board overseas control programs for feral animals in Yass Valley Shire under a *Pest Animal and Insects Function Management Plan - 2005*. In the ACT pest animals are managed under the *Pest Plants and Animals Act 2005* and the *ACT Pest Animal Management Strategy 2012-2022*. Cross-border cooperative pest animal control programs are undertaken between NSW and ACT authorities in the region.

4.1.4 Fire management

Inappropriate fire frequency and intensities through hazard reduction burning or wildfires will affect the condition of vegetation communities and habitat in the Reserve and ecological restoration works. Management of fire is important to protect Pink-tailed Worm Lizard habitat, Box-Gum Woodland areas, the fire-sensitive Black Cypress Pine community and the threatened Pale Pomaderris population at Ginninderra Creek.

In accordance with ACT and NSW bushfire management legislation and planning requirements, Asset Protection Zones (APZs) will be created along the edge of the West Belconnen urban area as buffer areas where vegetation, fuel loads and structures are managed to reduce fire risk and intensity. The APZ will be located wholly within the urban boundary.

A preliminary Bushfire Management Strategy³⁰ has been prepared for the West Belconnen development and applies the requirements and principles of the *ACT Emergency Services Act 2004*, the *ACT Strategic Bushfire Management Plan 2009*, the *ACT Planning for Bushfire Risk Mitigation General Code* (ACT Planning & Land Authority, 2008), the *NSW Rural Fires Act 1997* and the *NSW Planning for Bushfire Protection Guidelines*³¹. Detailed prescriptions for bushfire management will be developed for each stage of the urban development and a detailed Bushfire Management Strategy is required for the whole area of the Reserve. Bushfire management strategies for the area require approval by ACT and NSW authorities and will need to take account of proposed revisions to APZ requirements in NSW and the ACT Strategic Bushfire Management Plan. The Trust will work

²⁹ Robert Jessop Pty Ltd (August 2015).

³⁰ Eco Logical Australia (June 2014).

³¹ NSW RFS (2006)

with fire management authorities to develop fire management strategies compatible with protection of Reserve values, ecological restoration activities and visitor uses and safety.

4.1.5 Grazing as a management tool

Controlled levels of grazing by kangaroos or livestock will be used in grassland as a tool to manage weed spread and reduce biomass to reduce bushfire risk.

Controlled grazing has been demonstrated to be an effective technique in the ecological restoration of former grazing land. Complete removal of grazing leads to the invasion of aggressive weed species that were previously kept in check by livestock. This leads to the spread of large weed populations that are difficult to control by herbicides or other methods.

Grazing used with appropriate controls and exclusion areas is also an effective way to control fuel loads that pose a bushfire risk in some areas undergoing ecological restoration. In areas with fire-sensitive species and new plantings it can be more appropriate than frequent hazard reduction burning which may affect vegetation recovery, growth and diversity.

Grazing in the Conservation Reserve will be closely controlled and its impacts will be monitored to ensure it is used in the best way possible to assist ecological restoration while controlling weed and bushfire risks. Guidance on the areas to be grazed, grazing levels, exclusion areas and protective measures for threatened habitat and species will be provided in the Ecological Restoration Plan and the specific plans for threatened species and the Box-Gum Woodland.

4.1.6 Managing urban interface effects

Impacts on the ecosystems in protected areas from adjacent urban areas has been demonstrated throughout Australia and globally. Potential risks to the ecosystems of the Reserve from the West Belconnen urban area are:

-) soil erosion (including during the construction phase)
-) introduction of weeds and other exotic plant species spreading for urban gardens and open space
-) invasion by domestic animals such as dogs and cats
-) pollution in runoff affecting water quality in the Reserve streams, the Murrumbidgee River and Ginninderra Creek
-) impacts on native fauna sensitive to disturbance, noise and light, including bats and breeding birds
-) impacts on fauna species from roadkill and introduced predators
-) invasion of the Reserve by invasive exotic animals that have become prevalent in Canberra urban areas (such as the Common Myna (*Acriditheres tristis*)) and aggressive native animals (such as the Noisy Miner (*Manorina melanocephala*)) which outcompete with native bird species for habitat and nesting sites
-) human impacts from unsustainable access and activities.

The sustainability goals of the West Belconnen development and its strategies to control environmental impacts and build an informed and motivated community will mitigate potential urban interface impacts on the Conservation Reserve. Important strategies for mitigating impacts are the use of Water Sensitive Urban Design (WSUD), containment and treatment of stormwater runoff in ponds, retention of remnant mature trees within the urban area, and use of a high percentage of native vegetation in public plantings. Research by the Australian National University is being conducted to develop a strategy for managing the environmental and biodiversity impacts of the urban area.

The Trust will liaise with the managers of the West Belconnen development to influence the approach to environmental management within the urban area and minimise potential urban edge impacts on the Reserve. This will include a contribution to the induction packages for new residents and participation in community sustainability education programs.

Cat containment in the ACT portion of the West Belconnen urban areas is required under the [DRAFT] MNES approvals. As in all new ACT suburbs containment of domestic cats in accordance with the ACT *Domestic Animals Act 2000* will apply at West Belconnen and will minimise the possibility of cats preying on native fauna in the Reserve. There is no equivalent legislation for cat containment in NSW, although section 30 of the *Companion Animals Act 1998* enables a local authority to prohibit cats in and near the boundaries of wildlife protection areas. In other places near wildlife reserves local by-laws or prohibition of cats as a condition of house purchase have been used to require cat containment to protect native wildlife. The [DRAFT] MNES approvals require cat containment to be instituted in the NSW portion of the West Belconnen urban area if suitable NSW legislation comes into force. The Trust will work with the urban developers, the community and Yass Valley Shire Council to achieve cat containment in the NSW portion of the urban development to minimise the incursion of cats into the Reserve. The Trust will also work with the relevant authorities and the community on compliance with and effective enforcement of cat containment.

Dog walking will not be allowed in the Reserve to limit the potential for domestic dogs to affect native fauna habitat and breeding (see section 4.4.3, Table 5).

A fence along all or part of the urban edge of the Reserve boundary will be considered to control the entry of feral animals and avoid impacts on ecological restoration efforts. The effectiveness of the predator proof fence at the Mulligans Flat Sanctuary will assist in determining whether such a measure is an appropriate strategy for this Reserve.

4.1.7 Sensitive location and design of infrastructure

Visitor and management infrastructure and facilities will be located and designed in a manner that minimises impacts on biodiversity, ecosystem restoration and wildlife. Provisions related to the location and design of infrastructure is in the following sections of the Management Plan:

-)] section 4.4.4 –the recreational trails network (Action VE 4)
-)] section 5.1.1 – Pink-tailed Worm Lizard habitat (Action PTWL 4)
-)] section 5.1.2 – Box-Gum Woodland (Action BGW 3)
-)] section 5.2 – Murrumbidgee River environs (Action MR 5)
-)] section 5.3 – Ginninderra Creek East (Action GC 5)
-)] section 5.4 – Ginninderra Gorge Biodiversity Area (Action GG 6)
-)] section 5.5 – Visitor nodes (Actions VN 1 and VN 2)
-)] section 6.1.4 – location of management infrastructure (Actions MO 7 and MO 8).

Motor vehicle access by visitors will be limited to vehicle roads leading to visitor nodes. A speed limit of no more than 40 km per hour will apply on the roads to reduce impacts on wildlife. Warning signs will be installed to inform motorists of the wildlife that may be encountered. Where feasible, the roads will be designed to provide for passage by wildlife.

4.1.8 Protection of aquatic ecosystems

In addition to WSUD measures and sustainable management of stormwater in the urban area (see section 4.1.6) protection and improvement of the aquatic ecosystems in the streams in the Reserve and the waters of the Murrumbidgee River and Ginninderra Creek will be achieved because of best-practice management throughout the Reserve as follows:

-)] general terrestrial ecosystem restoration will stabilise ground surfaces and improve the quality of water flowing from the Reserve
-)] use of best-practice sediment and erosion control measures for all construction and infrastructure
-)] ecological restoration of the riparian zones along the Murrumbidgee River (section 5.2) and Ginninderra Creek (section 5.3 and 5.4)

-)] collaboration with ACT and NSW management programs for the Murrumbidgee River (Action MR 1) and development of a Sustainable Fisheries Plan for the section of the river adjoining the Reserve (Action MR 6)
-)] monitoring of water quality and aquatic ecosystem health.

4.1.9 Conservation connectivity

Conservation connectivity between the Reserve, the Murrumbidgee River Corridor and the Ginninderra Creek corridor will be assisted by ecological restoration and biodiversity management in the Reserve. The Trust will work with the managers of adjoining land, the ACT Parks and Conservation Service, the Yass Valley Council, the NSW National Parks and Wildlife and community groups:

-)] to improve the physical habitat linkages between the Reserve and adjoining areas and conservation corridors
-)] to participate in collaborative programs for management of the Ginninderra Creek catchment, the Murrumbidgee River and other regional conservation initiatives.

4.1.10 Collaborative control measures

Consultation will also be required with ACT and NSW agencies on the application of the relevant legislation and policies to restoration works and weed, pest and fire management.

Collaboration with ACT and NSW government agencies, the West Belconnen developer Riverview (ACT) Pty Ltd and adjacent landholders will be essential to manage potential outside impacts of adjoining land uses on ecosystem restoration and biodiversity protection, to coordinate weed, pest and fire management programs and cooperate on regional conservation connectivity programs.

WHAT WE WANT TO ACHIEVE – Ecological Restoration and Conservation of Biodiversity	
<i>In the long term</i>	<i>In the next 5 years</i>
)] A mosaic of native vegetation communities and habitat types with a high level of biodiversity and natural regeneration.	)] The basis for ecosystem restoration has been established in a science-based plan that will guide ecosystem restoration works in the Reserve over time.
)] Protection and restoration of threatened species habitat and communities and viable populations of threatened fauna.	)] A start has been made on ecosystem restoration in the ACT portion of the Reserve.
)] Viable populations of native fauna which are naturally occurring or have been reintroduced.	)] Weeds and pest animals are being controlled in priority areas.
)] Viable landscape, habitat and wildlife corridor connections through the Reserve to the Murrumbidgee River Corridor and the Ginninderra Creek catchment.	)] A Bushfire Management Plan for the Reserve is in place and is being implemented.
)] A high level of water quality and abundance of aquatic life in streams on the Reserve, Ginninderra Creek and the Murrumbidgee River taking into account the impacts on river ecosystems of processes outside the Reserve.	)] Information is provided to West Belconnen residents on the conservation aims of the Reserve and ways to minimise urban impacts on the Reserve area.
)] An informed and motivated community that	

WHAT WE WANT TO ACHIEVE – Ecological Restoration and Conservation of Biodiversity	
<i>In the long term</i>	<i>In the next 5 years</i>
assists in minimising risks to the ecological integrity of the Reserve.	

WHAT WE ARE GOING TO DO - Ecological Restoration and Conservation of Biodiversity		
	Actions	Priority
ER 1	<p>Prepare a science-based Ecological Restoration and Biodiversity Management Plan for the West Belconnen Conservation Reserve. This Reserve-wide Ecological Restoration Plan should:</p> <ul style="list-style-type: none">) provide goals, research needs, methods and priorities for ecosystem restoration in the various parts of the Reserve compatible with this Management Plan) set out priorities for ecosystem restoration according to the degree of threat and on a sub-catchment basis as far as possible) provide priorities for areas to be restored in the first 5 years of the Reserve) provide guidance on the areas to be grazed, grazing levels, exclusion areas and protective measures for sensitive areas) specify monitoring programs to evaluate the success of restoration work and the condition of flora and fauna) identify partnerships with the community and institutions to assist in research and restoration works) be periodically reviewed to enable an adaptive management approach) as they are prepared include as sub-plans the specific plans for the Pink-tailed Worm Lizard (Action PTWL 2), Box-Gum Woodland (Action BGW 2), the Murrumbidgee Riparian Zone (Action MR 2), Ginninderra Creek East (Action GC 3), Ginninderra Gorge (GG 2) which includes a management plans for Rosenberg’s Goanna (Action GG 3) and Pale Pomaderris (Action GG 4)) be amended as needed should additional significant species or communities be discovered or become established in the Reserve. 	1 and ongoing
ER 2	Commence ecological restoration of the Box-Gum Woodland and nearby areas and Pink-tailed Worm Lizard habitat in the ACT portion of the Reserve.	2
ER 3	In the first years of the Reserve implement the August 2014 <i>Weed Management Plan for Proposed Riverview Development West Belconnen</i> .	1
ER 4	Revise the August 2014 Weed Management Plan in the light of the Ecological Restoration Plan and specific requirements for threatened habitat and other areas. Prepare a Weed Management Strategy for the Reserve that is compatible with this Plan and best-practice weed management, meets the requirements of ACT and NSW legislation, contains monitoring programs and includes collaborative mechanisms with land management agencies and organisations.	3
ER 5	Prepare a Pest Management Strategy for the Reserve that is compatible with this Plan, meets the requirements of ACT and NSW legislation, contains monitoring programs and includes collaborative mechanisms with land management agencies and organisations.	1
ER 6	Work with ACT and NSW fire management authorities to prepare a Bushfire Management Strategy for the Reserve that meets ACT and NSW fire management legislation and	2

WHAT WE ARE GOING TO DO - Ecological Restoration and Conservation of Biodiversity		
	Actions	Priority
	planning requirements and which contains fire management methods and regimes that are appropriate for the protection of Reserve values and restoration of ecological communities within the Reserve.	
ER 7	Apply a speed limit of no more than 40 km per hour on vehicle roads in the Reserve to minimise the impacts of vehicles on wildlife and install signage to warn motorists about wildlife in the area.	Ongoing
ER 8	Work with the managers of adjoining land, the ACT Parks and Conservation Service, the Yass Valley Council, the NSW National Parks and Wildlife, other relevant agencies and organisations and community groups: <ul style="list-style-type: none">)] to improve the physical habitat linkages between the Reserve and adjoining areas and conservation corridors)] to participate in collaborative programs for management of the Ginninderra Creek catchment, the Murrumbidgee River and other regional conservation initiatives. 	Ongoing
ER 9	Work with the ACT Environment and Planning Directorate to ensure that cat containment is instituted and enforced in the ACT portion of the West Belconnen urban area.	Ongoing
ER 10	Liaise with the Yass Valley Shire Council and the developer on the implementation of cat containment in the NSW portion of the West Belconnen urban development.	5
ER 11	Work with the relevant authorities and the community to achieve effective compliance with and effective enforcement of cat containment in the urban area.	1 and ongoing
ER 12	Encourage the use of non-invasive and native plant species in the West Belconnen urban area and work with the community and experts (such as Greening Australia) to develop advice for residents on preferred plant species.	Ongoing
ER 13	Contribute information on the Reserve and its conservation aims to induction packages for new West Belconnen residents and to community sustainability education programs.	Ongoing

HOW WE WILL EVALUATE OUTCOMES - Ecological Restoration and Conservation of Biodiversity

- A. Completion of the Ecological Restoration and Biodiversity Management Plan, which will include details of monitoring and desired outcomes.
- B. Monitoring of the extent and condition of initial restoration works.
- C. Completion and implementation of the Weed Management, Pest Management and Bushfire Management Strategies.
- D. Monitoring of the condition of vegetation (based on the baseline vegetation survey).
- E. Reduction of areas of significant weed infestations.
- F. Reduction of feral animal populations.

4.2 Conservation and celebration of heritage and culture

4.2.1 Aboriginal heritage

Objective B

Conservation of Aboriginal sites, celebration and appreciation of Aboriginal traditions and management of Aboriginal heritage in partnership with Aboriginal custodians and communities will be an integral part of the Reserve.

There will be opportunities for Aboriginal people to benefit culturally, socially and economically from the Reserve.

The establishment of effective ways for Aboriginal people to participate in conservation of archaeological sites, maintenance of their cultural traditions and Reserve management is a high priority for the first years of the Reserve. There are several Aboriginal organisations that have been established in the ACT and NSW which indicated an interest in the area during the Aboriginal heritage study of West Belconnen in 2012 and 2013. These organisations include Representative Aboriginal Organisations which have a statutory role under the ACT *Heritage Act 2004*. Consultation with the relevant Aboriginal organisations and any other relevant Aboriginal groups is required to decide on mechanisms for Aboriginal participation in the Reserve. Consultation will occur according to the consultation requirements of the ACT Heritage Council under the *Heritage Act 2004* and the NSW Office of Environment and Heritage Aboriginal consultation guidelines.

Various mechanisms for Aboriginal participation exist in other protected areas and include:

-) Aboriginal advisory bodies with representatives from relevant Aboriginal groups with a role in making decisions on matters affecting Aboriginal heritage and culture
-) contracting or employment of Aboriginal people and organisations to conduct or assist with site surveys, research and conservation management activities
-) arrangements to enable Aboriginal people to conduct cultural activities such as ceremonies, camps and communication of culture to young people
-) Aboriginal cultural tours, interpretation and education programs conducted by Aboriginal rangers or commercial operators
-) Aboriginal cultural centres and keeping places for cultural items
-) use of traditional Aboriginal land management techniques
-) employment or contract of Aboriginal people for general management activities.

The Trust has a policy of pro-actively encouraging employment of Aboriginal people in the Reserve.

During the first years of the Reserve the priorities will be:

-) protection and management of archaeological sites which are vulnerable to accidental or deliberate damage from human activities and infrastructure development
-) linking Aboriginal cultural heritage values to the identity of the Reserve and beginning to develop respect for and appreciation of Aboriginal culture in the community and visitors.

WHAT WE WANT TO ACHIEVE - Aboriginal cultural heritage	
<i>In the long term</i>	<i>In the next 5 years</i>
<ul style="list-style-type: none">) Aboriginal people are actively involved in conservation of their culture, maintenance of their traditions and presentation of Aboriginal culture to Reserve visitors.) There is a Reserve Aboriginal advisory group or other mechanism which advises on Reserve management matters and participates in Reserve decision-making.) Archaeological sites and places of significance are effectively protected and managed.) If possible the Reserve has an Aboriginal name and Aboriginal names are given to a range of features within the Reserve.) The Reserve is known in the wider community for its celebration of Aboriginal culture and quality cultural experiences.) Aboriginal people are employed or contracted in a variety of capacities in the Reserve. 	<ul style="list-style-type: none">) An Aboriginal advisory group or similar mechanism has been established.) A Conservation Management Plan has been developed for Aboriginal sites and objects and is being implemented.) An Aboriginal name for the Reserve has been considered and, if agreed, applied.) Strategies are in place and are being implemented for involvement of Aboriginal people in Reserve management and interpretation.

WHAT WE ARE GOING TO DO – Aboriginal Cultural Heritage		
	Actions	Priority
AH 1	Consult with Aboriginal groups in accordance with the consultation requirements of the ACT Heritage Council and the NSW Office of Environment and Heritage to develop an advisory group or other mechanism(s) through which Aboriginal people can advise on Reserve management and participate in Reserve decision-making.	1
AH 2	With Aboriginal people seek registration of Aboriginal objects and places in the Reserve under the ACT <i>Heritage Act 2004</i> and ensure objects and places in the Reserve are included in the NSW Aboriginal Heritage Information Management System.	1
AH 3	Work with Aboriginal people (in accordance with the consultation requirements of the ACT Heritage Council and the NSW Office of Environment and Heritage) to develop a Conservation Management Plan for Aboriginal objects and sites in the Reserve that meets the requirements of ACT and NSW legislation. The Conservation Management Plan should identify the conditions of objects and sites, evaluate risks from the reserve development and human use, and establish management actions.	1 - 2
AH 4	Consult with Aboriginal people on an Aboriginal name for the Reserve.	2
AH 5	Locate Reserve trails and infrastructure to avoid known Aboriginal sites and areas of high	Ongoing

WHAT WE ARE GOING TO DO – Aboriginal Cultural Heritage		
	Actions	Priority
	archaeological potential.	
AH 6	Prohibit off-trail recreation activities with a high potential to impact on Aboriginal sites through disturbance and erosion (including mountain biking and horse riding).	Ongoing
AH 7	Work with Aboriginal people to provide public information on responsible behaviour to protect Aboriginal heritage.	3
AH 8	With Aboriginal people develop a strategy for Aboriginal involvement in the Reserve including potentially through employment/contracts for Aboriginal interpretation and signage; staff employment (e.g. rangers, guides, service and maintenance personnel); management roles; mentoring programs; contracts as licenced tour operators (including for Aboriginal cultural tours); use of traditional Aboriginal management techniques (such as burning regimes); and Aboriginal cultural activities	3

HOW WE WILL EVALUATE OUTCOMES – Aboriginal Cultural Heritage

- A. An Aboriginal advisory group or similar mechanism is established and participates in Reserve management decisions.
- B. The Reserve has an Aboriginal name.
- C. Known Aboriginal objects and sites are listed in the ACT and NSW.
- D. A Conservation Management Plan is in place for Aboriginal objects and sites in the Reserve.
- E. Progress in involvement of Aboriginal people in the Reserve.

4.2.2 European heritage

Objective C

European heritage in the Reserve will be managed and interpreted in an appropriate manner to show its importance in the land use history and community connections to the Reserve area.

European heritage conservation in the Reserve will focus on interpretation of the history of local settlement and land use and the remaining visible elements of European heritage:

-) the heritage view corridor from the adjacent Belconnen Farm historic precinct
-) views to the distant ranges and the Murrumbidgee River valley (see section 4.3)
-) the western boundary of the Sturt/Campbell land seen in a fence line near the Murrumbidgee River
-) an early easement providing access to Cusack's Crossing
-) Cusack's Crossing on the Murrumbidgee River near the confluence with Ginninderra Creek
-) the ACT/NSW border alignment
-) the adjacent Strathnairn Homestead.

Consultation will be held with the ACT Heritage Council, the managers of the Belconnen Farm heritage precinct, the Strathnairn Arts Association, Yass Valley Shire, local grazing families and the community on appropriate management partnerships and celebration of heritage elements in a manner that is consistent with ecological restoration of the Reserve and protection of natural values. As the Reserve and the Belconnen Farm heritage precinct are developed opportunities will be explored for linked heritage interpretation and visitor experiences.

WHAT WE WANT TO ACHIEVE – European Cultural Heritage	
<i>In the long term</i>	<i>In the next 5 years</i>
<ul style="list-style-type: none">) European cultural heritage is well integrated into the interpretation of the Reserve, its past land use and community connections.) Visitors to the Reserve are aware of and appreciate European cultural heritage features, historical community connections and stories, and changing land uses over time. 	<ul style="list-style-type: none">) Planning for European heritage conservation and interpretation.

WHAT WE ARE GOING TO DO – European Cultural Heritage		
	Actions	Priority
EH 1	Prepare a European Heritage Conservation Strategy for the Reserve in consultation the ACT Heritage Council, the managers of the Belconnen Farm heritage precinct, the Strathnairn Arts Association, Yass Valley Shire, local grazing families and the community.	3
EH 2	Consult with the ACT Heritage Council on ways to conserve the heritage view corridor from	5

WHAT WE ARE GOING TO DO – European Cultural Heritage		
	Actions	Priority
	Belconnen Farm during ecological restoration works over that area.	
EH 3	Include interpretation of European heritage in the Interpretation Strategy (Action VE 7).	3

HOW WE WILL EVALUATE OUTCOMES – European Cultural Heritage		
	A. Completion and implementation of planning actions for European heritage.	
	B. Photographic monitoring of landscape and scenic view reference points (see section 4.3).	

4.3 Protection and enhancement of scenic landscapes

Objective D

The Reserve's natural landscape and scenic vistas will be protected and enhanced to foster community appreciation of the Reserve and its setting and contribute to the distinctive landscape identity of Canberra and the Murrumbidgee River Corridor

Protection and enhancement of the natural appearance of the Reserve landscape and the scenic views from within and into the Reserve will be considered during development of the Reserve, including the placement and design of visitor infrastructure and vegetation plantings. Viewpoints will be provided to enable visitors to appreciate the variety of landscapes including Ginninderra Falls and gorge, the Murrumbidgee River and vistas of distant mountains.

Design of infrastructure, plantings and other Reserve developments will be guided by design principles that aim to protect the quality of the natural and cultural landscapes. An analysis of the landscape character, slope, viewpoints and covering the areas of the Reserve was conducted in the West Belconnen Landscape and Open Space Strategy³².

As the terrain in the Reserve slopes towards the Murrumbidgee River from a ridge traversing the West Belconnen urban area it is possible that inclusion of urban elements in some vistas will be unavoidable. The sustainability aim of the urban development and the requirement for landscape protection in the ACT's West Belconnen Structure Plan will mitigate potential urban landscape impacts. Significant natural vistas for protection (including views into and from Ginninderra Falls and views across the Murrumbidgee River to distant mountains) will be identified.

It is proposed that plantings in public areas of the urban development will be dominated by native species from the local area and region, though some exotic deciduous trees and fruiting trees will be used. Planting in the APZ at the edge of the urban area will have to comply with ACT and NSW fire fuel management requirements. Liaison with parties to the urban development on the design and vegetation programs for the urban area will occur to obtain the best practicable landscape results for the Reserve.

DESIGN PRINCIPLES TO PROTECT NATURAL AND CULTURAL LANDSCAPE VALUES

- J Structures should be low, be designed to blend with the natural landscape and contours and have minimal intrusion into scenic views from within and into the Reserve.
- J Large structures should not be constructed on visible high points.
- J Natural materials should be used for structures, the outside cladding of larger structures and trail surfaces where feasible.
- J The colour of structures should blend with the surrounding areas.
- J The intrusion of trails and roads into the visual landscape should be minimised. As far as possible should be located follow natural contours as far as possible.
- J Vegetation plantings and screening of structures, trails and roads should be compatible with ecological restoration objectives for the affected areas.

³² McGregor Coxall (no date).

WHAT WE WANT TO ACHIEVE – Scenic Landscape Protection

<i>In the long term</i>	<i>In the next 5 years</i>
<ul style="list-style-type: none">) The Reserve is a highly natural landscape where the scenic views from within and into the Reserve are protected and enhanced.) Reserve structures, trails and roads do not derogate from the natural landscape and scenic views.) The Belconnen Farm heritage view corridor is protected. 	<ul style="list-style-type: none">) Design and construction of the initial infrastructure in the Reserve complies with design principles to protect natural and cultural landscape values.) There is collaboration between managers of the Reserve and the urban development to minimise impacts in the urban areas on the landscape values of the Reserve.

WHAT WE ARE GOING TO DO – Scenic Landscape Protection

	Actions	Priority
L 1	Apply the <i>Design Principles to Protect Natural and Cultural Landscape Values</i> in this Plan to design and construction of structures, trails and roads and related vegetation planting in the Reserve.	Ongoing
L 2	Identify significant views within and out of the Reserve to be protected (including the Ginninderra Falls and Gorge) and establish landscape reference points for regular monitoring of the condition of the reserve landscape and scenic views.	2 and ongoing
L 3	Liaise with West Belconnen urban development managers and relevant government agencies to minimise urban development impacts on Reserve landscape values.	Ongoing
L 4	Liaise with the managers and relevant government agencies of any other land uses and developments potentially impacting on landscape values to minimise impacts on Reserve landscape values.	Ongoing

HOW WE WILL EVALUATE OUTCOMES – Scenic Landscape Protection

- A. Photographic monitoring of landscape and scenic view reference points.

4.4 Providing enriching visitor experiences

Objective E

The Reserve will be a special place for the local community and visitors that offers an experience distinct from other parks in the region.

People will be welcomed by a range of recreation and interpretation opportunities where they can immerse themselves in the Reserve's tranquil setting and appreciate and learn about its natural beauty and natural and cultural heritage.

The way people experience the Reserve will be a model of best-practice low impact recreation compatible with protection of the area's natural and cultural values. Experiences in the Reserve will encourage community stewardship of the area and reflect the sustainability objectives of the West Belconnen urban development.

4.4.1 Achieving sustainable visitor use

The West Belconnen Conservation Reserve will offer visitors an experience distinct from other peri-urban reserves in the region through its strong emphasis on community appreciation, learning and stewardship of natural and cultural values in a tranquil setting. Recreation opportunities will be developed and managed in a way that both protects and showcases the nationally significant habitat, ecosystems, scenic landscapes and other natural and cultural heritage in the Reserve. Visitors will have opportunities to experience the Reserve in a variety of ways such as quiet nature appreciation, picnicking and social gatherings, active outdoor recreation, guided experiences, learning and education programs, and volunteer activities.

At the same time, due to its location near a major urban community and the ACT Government approval conditions for West Belconnen, the Reserve also needs to cater for the recreational needs of the local community and provide linkages to the ACT open space system and trails network. It is expected that there will be a high level of interest in visiting Ginninderra Falls and the section of the Murrumbidgee River adjoining the Reserve which have both been previously closed to public access.

In order to achieve the vision for the Reserve and long term sustainable recreation there needs to be a selective approach to the types of recreational opportunities offered in the Reserve. Not all visitor uses will be compatible with protection and visitor appreciation of threatened species and ecological communities or with ecosystem restoration in the small area of the Reserve. While some activities will not be permitted in the Reserve this should be seen as a positive feature which provides visitors with a special experience.

Sustainable visitor use will be achieved in the following ways:

-)] **concentration of facilities for larger numbers of visitors and higher intensity uses in visitor nodes accessible by road.** The Murrumbidgee River Visitor Node near the river in the south of the Reserve in the ACT will be developed first and provide for picnicking, group activities, nature activities, access to the river and trails and potentially camping. The Ginninderra Falls Visitor Node will be developed near a quarry site near, but set back from, Ginninderra Falls in the north of the Reserve. Specific planning requirements for these sites are in section 5.3. In the longer term, consideration may be given to establishment of a third visitor node near the Murrumbidgee River in the north of the Reserve to provide access for kayaking and related activities
-)] **location of major shared use trails near the urban edge within the urban area and to the two visitor nodes.** This will provide for trail activities by the local community with connections to the local and regional trail network and trail access to visitor nodes in the Reserve

- J **avoidance of high intensity or environmentally damaging visitor uses and activities** that are more appropriately located in urban parks or other facilities in the Region. Visitor uses in the Reserve will be low intensity activities conducted with minimal environmental impact or activities whose environmental impact is controlled by their location in suitable facilities in the visitor nodes
- J **limitation of motor vehicle access by visitors** to the roads to the visitor nodes
- J **location, design and construction of visitor infrastructure and trails** in a way that minimises impacts on natural and cultural values and is sensitive to the landscape while providing quality opportunities for a range of visitors to experience and appreciate those values
- J **providing quality, contemporary interpretation and learning experiences** that encourage visitor appreciation of Reserve values
- J **promoting the Reserve vision and information about sustainable, low impact recreational use** to the local community, visitors and user groups to encourage understanding, responsible behaviour and stewardship. This will include development and dissemination of Codes of Conduct for the major activities undertaken in the Reserve and through signage at Reserve entry points
- J **offering exclusive experiences which give visitors opportunities to do something different.** Such experiences might include voluntary activities participating in monitoring and research, and commercial nature and cultural tours and ecotourism.

4.4.2 What visitor uses and activities will be permitted?

Table 4: Permissible visitor uses in West Belconnen Conservation Reserve

Visitor Use/Activity	Management Considerations and Conditions
<p>Quiet observation and nature appreciation (such as bird watching, wildlife watching, visiting scenic and natural sites, photography, painting)</p>	<p>This activity will be encouraged through provision of quality interpretation and visitor learning and volunteer programs.</p> <p>Potential for impacts such as vegetation trampling, interference with habitat, ecosystem restoration sites and Aboriginal sites will be managed through sensitive location of trails and viewing points, selective fencing of sensitive sites where appropriate, and visitor education in minimal impact behaviour. A Code of Conduct for nature observation will clarify appropriate behaviour to minimise environmental and social impacts.</p> <p>Appropriate facilities such as scenic view points and bird hides will be provided.</p>
<p>Walking and bushwalking</p>	<p>Sustainable walking and bushwalking will be encouraged through provision of a range of walking trails and collaboration with walking and health groups and programs that facilitate healthy exercise.</p> <p>Potential for impacts such as vegetation trampling, interference with habitat and wildlife, ecosystem restoration sites and Aboriginal sites will be managed through sensitive location of trails and viewing points, selective fencing of sensitive sites where appropriate and visitor education on minimal impact behaviour. Walkers will be encouraged to keep to the formed trails. There will be consultation with bushwalking groups about suitable off-trail routes that avoid impacts on threatened habitat and ecological restoration sites.</p> <p>It is proposed to provide a range of trails for different levels of visitor mobility and preferences to showcase and interpret the values of the Reserve. Trails suitable for disability users, wheelchairs, children, families and seniors will be provided close to access points.</p> <p>Trailheads with parking will be provided at selected trails.</p> <p>Walker-only trails will be provided so that walkers can enjoy the tranquil qualities of the Reserve away from cyclists and horse riders. Walkers and conservation groups in the ACT have expressed a preference to have some walker-only trails. A Code of Conduct for walking will clarify appropriate behaviour to minimise environmental and social impacts.</p>

Visitor Use/Activity	Management Considerations and Conditions
Cycling	<p>Cycling will be able to occur on shared trails to visitor nodes. This will provide cyclists with opportunities to travel to the main visitor nodes. There will be a shared path around the urban edge outside the Reserve which will connect to the local, Belconnen and regional trail network. This will enable cyclists to travel to the Reserve from various parts of Canberra.</p> <p>Cycling will not be permitted on walking trails. A Code of Conduct for cycling will clarify appropriate behaviour to minimise environmental and social impacts.</p>
Picnicking	<p>Picnicking is an important way for visitors to enjoy nature and scenic landscapes and is often conducted in association with other activities.</p> <p>Picnicking facilities, car parking and shelters will be provided at the visitor nodes, with facilities for large groups concentrated at the Ginninderra Falls node.</p>
Water-based activities and swimming	<p>With the opening of access to the Murrumbidgee River at West Belconnen there are opportunities for swimming, canoeing, kayaking and rafting along the river. As the river waters are not part of the Reserve the Trust will work with ACT and NSW agencies on coordinated provision of access for and management of risks associated with swimming and other water-based activities.</p> <p>The Murrumbidgee River in the ACT is subject to periodic flooding at which times public warning notices are issued and the river is closed to swimming.</p> <p>The portion of river adjoining the Reserve is downstream of the Molonglo River confluence. The Molonglo River is not open to swimming due to the quality of water released from Scrivener Dam. The ACT's sewage treatment facility, the Lower Molonglo Water Quality Control Centre operated by Icon Water, is located just upstream of the Conservation Reserve. The facility is operated according to high standards of physical, chemical and biological treatment in accordance with conditions under the <i>ACT Environmental Protection Act 1997</i> to ensure that discharged water has minimal impact on downstream environments. Downstream water quality and ecological monitoring is conducted.</p> <p>The Trust will liaise with Icon Water, the ACT Environment Protection Authority and Territory and Municipal Services on water quality and flow conditions in the river and will impose any necessary restrictions on water-based activities on the advice of the relevant ACT authorities.</p> <p>A Code of Conduct for water-based activities will clarify appropriate behaviour to minimise environmental and social impacts.</p>
Fishing	<p>The improved access to the river and presence of Murray Cod is likely to attract a range of fishers, from experienced anglers to casual fishers.</p> <p>Many fishers assist in protecting fish habitat and riverine environments and there are several such active fishing groups in the ACT and region. On the other hand, there is potential for uncontrolled fishing activities to have adverse impacts on fish populations (including threatened species) and the riverine environment.</p> <p>A precautionary approach will be taken to fishing. The sustainable management of fishing, protection of aquatic ecosystems and threatened species and management of different regulations and fishing licence requirements in the ACT and NSW will be included in a Sustainable Fisheries Plan to be developed in conjunction with ACT and NSW agencies and the community (Action MR 6). The establishment of catch and release fishing (as a potential approach to sustainable fishing) will be investigated with the ACT Environment and Planning Directorate and Fisheries NSW (Action MR 6).</p> <p>Night fishing, camping and campfires will not be allowed along the river to protect the quality of the environment and minimise illegal fishing activities. A Code of Conduct for fishing will clarify appropriate behaviour to minimise environmental and social impacts.</p> <p>As an alternative to river fishing, catch and release fishing of stocked native species at dams in the Reserve may be investigated.</p>

Visitor Use/Activity	Management Considerations and Conditions
Camping	<p>The Reserve will be primarily a day use area. Camping in this small area near a large population will be difficult to manage and has the potential to affect the condition of habitat, Aboriginal sites and ecological restoration and increase the risk of fire.</p> <p>Small group camping may be considered subject to assessment of impacts and permit or licence approvals.</p> <p>Camping as part of Aboriginal cultural activities may be considered under arrangements with the Aboriginal community and subject to environmental protective measures.</p>
Events, functions and large group activities	<p>Certain types of events and large group activities will be permitted subject to the issue of permits once facilities for these activities are in place. Permission to conduct these activities will be assessed in accordance with:</p> <ul style="list-style-type: none"> <li data-bbox="483 689 1426 763">) relevance to the purpose of the Reserve and the protection and showcasing of its natural and cultural values <li data-bbox="483 775 1426 848">) avoidance of adverse impacts on Reserve values, ecological restoration and other visitors <li data-bbox="483 860 1426 934">) the availability of adequate facilities and arrangements for access, parking, visitor amenities and waste management.
Non-commercial small group activities	<p>Naturalist, conservation, bushwalking, cultural, social, youth, tour and similar groups will be able to use the Reserve subject to the conditions related to the activities they undertake.</p>
Commercial tours, products and services	<p>Commercial activities (such as guided nature and culture tours, ecotourism experiences, voluntourism, education activities and facilities for functions) may be permitted subject to approval and licence conditions (see section 4.4.7).</p>
Rock climbing and abseiling	<p>There is a previous history of rock climbing and abseiling on the rocks at Ginninderra Falls during the period the area operated as a privately-managed park. However, these activities resulted in serious accidents and closure of the private reserve in the area for liability reasons.</p> <p>Re-introduction of public rock climbing to this area has the potential to raise safety and liability considerations. It also has potential to impact on the scenic views of the Falls, the quiet enjoyment of the area by other visitors, the high biodiversity value of the area and the habitat of the vulnerable Rosenberg's Goanna. Part of the area is also a significant Aboriginal site.</p> <p>A precautionary approach will be taken to whether and how public rock climbing can occur at Ginninderra Falls in a way that protects natural and cultural values and public safety. Public rock climbing will be prohibited until the Ginninderra Falls area is open to the public and visitor infrastructure is in place. The potential for safe and environmentally sustainable rock climbing run by licensed operators will then be investigated in consultation with Aboriginal custodians.</p> <p>The area also has ongoing use by emergency services agencies for training in climbing and abseiling techniques. When the area is transferred to the Reserve the management of this use will be considered by the Trust in consultation with the relevant agencies and Aboriginal custodians.</p>

4.4.3 What visitor uses and activities will not be permitted?

Table 5: Visitor uses not permitted in West Belconnen Conservation Reserve

Visitor Use/Activity	Management Considerations and Conditions
Mountain biking	<p>Cyclists will be able to ride on the shared paths in the Reserve but single track mountain biking (covering downhill, cross-country and other riding genres) and mountain biking on walking trails will not be permitted. Mountain biking is not a sustainable activity in the Reserve due to the steep terrain and extensive tracts of sensitive habitat (particularly Pink-tailed Worm Lizard habitat), ecological restoration objectives and the potential for erosion and high maintenance costs in the steep terrain. Mountain biking on narrow trails used by walkers also poses a safety risk to other Reserve users.</p> <p>A Code of Conduct for cycling will clarify appropriate behaviour to minimise environmental and social impacts.</p> <p>A bike park is being considered for location within the West Belconnen urban area where there is a more suitable environment for mountain biking. The ACT has other purpose-built mountain biking facilities and opportunities for mountain biking on management trails in other reserves that are also suitable.</p>
Horse riding	<p>Horse riding will not occur within the boundaries of the Reserve due to the potential impacts of horses on threatened habitat and ecosystem restoration through vegetation trampling, interference with habitat and the introduction of weeds.</p> <p>Horse riding will be catered for on the Bicentennial National Trail which follows the Reserve edge within the urban area for part of its route.</p>
Lighting of fires	<p>The lighting of open fires by visitors poses a risk of fire spread and adverse impacts on ecosystems, fire sensitive vegetation, ecological restoration and the safety of visitors and urban residents. The lighting of fires will be prohibited in the Reserve and the use of BBQs will comply with ACT and NSW fire restrictions.</p>
Dog walking	<p>Dogs can interfere with native fauna and flora habitat and breeding, destroy nesting sites, chase and kill wildlife and transmit diseases and parasites to native fauna. Impacts of dogs on Pink-tailed Worm Lizard habitat and Rosenberg's Goanna are of concern. Even the regular presence of on-leash dogs can disturb native wildlife and discourage them from using an area. On-leash dogs may pull people off paths leading to damage of vegetation and habitat. Habitats in the Reserve will be especially susceptible to impacts by dogs during the ecological restoration process and the recolonisation or reintroduction of native fauna to the area. The [DRAFT] MNES approvals require that off-leash dog walking not be permitted in the Reserve.</p> <p>Due to the adverse impacts on wildlife, threatened species, habitat and ecological restoration and the difficulty in managing on-leash dog walking, no dog walking will be permitted within the Reserve boundary. Trained assistance dogs (such as guide dogs or hearing dogs) accompanying a person with a disability will be permitted in public areas</p> <p>There will be open space for dog walking in the West Belconnen urban area, including on the shared path within the urban boundary and at a proposed dog park.</p>
Motorised activities and off-road vehicle use	<p>Motorised recreation such as motorbike riding and four-wheel driving will not be permitted due to the small size and steep slopes in the Reserve and the potential for adverse impacts on habitat, soils, ecosystem restoration and other visitors.</p> <p>The use of motor vehicles by visitors will be limited to road access to the Murrumbidgee River and Ginninderra Falls visitor nodes.</p>
Hunting	<p>Recreational hunting, the carrying of weapons and the taking of animals will not be permitted due to the potential for adverse impacts on native wildlife and the safety of visitors and urban residents. The unauthorised use of weapons and the trapping and capture of animals in reserves is prohibited under ACT and NSW legislation.</p>

Visitor Use/Activity	Management Considerations and Conditions
	Approved animal control methods carried out by management will be permitted.
Aerial activities	Low altitude aircraft, hang gliding and ballooning will not be permitted as they have noise impacts on fauna, affect the amenity of Reserve visitors and urban residents and pose safety issues and potential environmental impacts from landings and access. The use of drones for ecological monitoring will be permitted subject to permit.
Plant, rock and firewood collection	Disturbance and picking of vegetation and the taking of firewood (including fallen logs) and rocks will not be permitted due to its impact on native species populations, ecosystem function and fauna habitat (including Pink-tailed Worm Lizard habitat).
Orienteering and other off-trail group sports	The numbers of people involved in off-trail sports have the potential for cumulative impacts on the condition of habitat and ecological restoration. They will not be permitted in the Reserve. There are other places in the region where they can be conducted.
Geocaching	This activity will not be permitted as it has potential to disturb habitat, ecological restoration and Aboriginal sites. There are other places in the region where it can be conducted.

The introduction of new or unanticipated recreation activities in the Reserve will be assessed according to the following criteria:

-)] compatibility with the Reserve vision
-)] impacts on Reserve values, including ecological restoration, ecosystem function, conservation connectivity, threatened species and communities, cultural heritage
-)] potential for conflicts with or loss of amenity for other Reserve users
-)] availability of other locations for the activity in the region.

4.4.4 Recreational trails network

The Reserve contains tracks that were developed during its past land uses. These tracks are not all located or designed for sustainable visitor use or compatibility with biodiversity and scenic landscape protection.

A Master Plan will be prepared to design a sustainable recreational trails network for the Reserve in accordance with this section of the Reserve Management Plan. The Master Plan will include:

-)] a review of current tracks in terms of impacts on Reserve values and their suitability for recreation
-)] an indication of which existing tracks are to be retained, modified or rehabilitated
-)] application of MNES approval conditions
-)] a plan for a Reserve trail network that is compatible with the measures in the Reserve Management Plan for
 - o sustainable recreation activities and provision of safe, high quality experiences
 - o management of threatened species, biodiversity and ecological restoration as set out in the Ecological Restoration Plan and associated sub-plans and the Ginninderra Gorge Biodiversity Plan
-)] use of best practice design and sediment and erosions controls to protect water quality
-)] guidelines and standards for trail location, construction and maintenance to provide a trail network that is environmentally, socially and economically sustainable
-)] ways in which the location and design of trails can avoid or manage impacts on significant biodiversity, threatened species and ecological communities and habitat connectivity and enable the passage of wildlife. In accordance with [DRAFT] MNES approval conditions, site surveys for threatened species are

to be conducted prior to trail infrastructure development and threatened species populations are to be avoided or impacts managed in accordance with the Reserve Management Plan

- J links to the West Belconnen urban development, the Murrumbidgee River corridor, Ginninderra Creek and the wider Canberra and regional trail network
- J the locations of trailheads and car parking.

The trail network will contain a variety of trail types and standards that provide for a diversity of visitor experiences and protection of the values of the Reserve as follows:

- J shared walking and cycling trails to the Murrumbidgee River and Ginninderra Falls visitor nodes. These shared trails will connect to the major shared trail along the urban edge within the urban boundary which will then connect with the West Belconnen and wider Canberra shared trail network. Because of the steep terrain, biodiversity restoration and protection, and visitor safety considerations the extent of shared trails will be limited in the Reserve
- J a range of walking trails for different levels of visitor mobility and preferences to showcase and interpret the values of the Reserve and provide access to points of interest and centres of activity. Trails suitable for disability users, wheelchairs, children, families and seniors will be provided close to access points and visitor nodes.

The design of trails and related infrastructure will be in accordance with the Reserve Infrastructure Design Standards (section 5.5, Action VN 3). Construction Environment Management Plans will be prepared and implemented for trail construction to ensure the protection of sensitive values and mitigation of construction impacts (see section 5.5, Action VN 4).

The *Design Principles to Protect Natural and Cultural Landscape Values* in section 4.3 will be applied to the location and design of trails in the Reserve.

To protect the riparian zone and water quality and avoid damage from flooding, trails will be located outside the riparian zone along the Murrumbidgee River and Ginninderra Creek and trail infrastructure will be minimised in areas adjoining the riparian zone and on steep slopes near the river and creek.

In addition to recreational trails, to ensure consistency in overall trails planning in the Reserve, the Trails Master Plan will address the location and use of management trails that are to be used for vehicle access for management purposes.

4.4.5 Visitor access and amenity

Visitor access into the Reserve will be provided by vehicle roads to the visitor nodes and trailheads from the West Belconnen suburbs, the Belconnen Farm heritage precinct and the adjacent Woodstock Nature Reserve in the Murrumbidgee River Corridor.

Motor vehicle access by visitors will be limited to the vehicle roads to visitor nodes in order to maximise opportunities for visitors to have immersive experiences in a tranquil setting. Limited motor vehicle access will also minimise impacts on wildlife and ecological restoration. A speed limit of not more than 40 km per hour will apply on the roads. Where feasible, the roads will be designed to provide for passage by wildlife.

Parts of the Reserve may be closed to the public at times for ecological restoration, pest and fire management activities. The Reserve may also need to be closed during fire danger periods.

There is a possibility of odour related to a vent on the Ginninderra Trunk Sewer located in the south of the ACT portion of the Reserve. The West Belconnen Structure Plan prohibits recreation activities that will encourage people to congregate to be within 130 metres of the sewer vent, although a reduction in this buffer may be permitted with the endorsement of Icon Water.

4.4.6 Visitor safety

The Reserve will attract a range of visitors, not all of whom are familiar with risks in bushland or experienced in recreating in natural areas. Visitors will be informed and educated about safety issues in the Reserve and appropriate actions (such as design of infrastructure, safety barriers, signage, media announcements, emergency

response arrangements and temporary closures) will be taken when necessary to address risks. In some cases addressing risks will require cooperative actions with ACT and NSW authorities.

Visitor safety concerns that may be encountered in the Reserve include:

-) bushfires and hazard reduction burns
-) impacts from weed and animal pest control measures such as herbicide and pesticide spraying
-) personal injury, illness, snakebite
-) cliffs and steep rocky slopes at Ginninderra Falls and in the gorge downstream
-) flooding in the Murrumbidgee River and Ginninderra Creek
-) hazards of water-based activities
-) health impacts of drinking water from the river and creeks
-) pedestrians crossing access roads.

4.4.7 Commercial partnerships

As the Reserve is developed it is envisaged that some products will be offered by licensed commercial operators to extend opportunities for visitors to immerse themselves in and learn about the Reserve. Potential products include:

-) guided tours with interpretation of natural values, ecological restoration
-) ecotourism products
-) Aboriginal cultural tours or experiences run by Aboriginal custodians
-) guided history tours
-) outdoor activities with an interpretation component
-) voluntourism – exclusive experiences participating in research or ecological restoration programs
-) school and tertiary education programs
-) photography and art programs
-) provision of facilities for functions and events at the Ginninderra Falls visitor node.

Sustainably managed commercial activities will also contribute to the Reserve's revenue and can provide opportunities for Aboriginal-run businesses to benefit economically from the Reserve and participate in communicating and managing their culture.

All commercial activities in the Reserve will be licensed and will need to comply with licence conditions which include compatibility with Reserve values, environmental protection and minimal impact measures, and meeting of certification standards.

4.4.8 Interpretation

Quality interpretation and storytelling will be critical to delivering enriching visitor experiences and achieving public understanding and appreciation of natural and cultural values and commitment to the Reserve vision. Interpretation in and about the Reserve will not be confined to traditional interpretative signage. A range of interpretation and storytelling methods that appeal to different visitor audiences will be considered, including use of digital apps, website information, guided tours, special events and learning through voluntary participation in research and monitoring programs.

Interpretation offers potential avenues for Aboriginal custodians and local Aboriginal communities to communicate their culture to visitors and potentially gain social and economic benefits through interpretative products and preparation of Aboriginal interpretation material. Partnerships with nearby facilities (such as Belconnen Farm and Strathnairn), agencies (such as ACT Parks and Conservation and the ACT Heritage Canberra

Tracks interpretation) and institutions may be utilised to develop and deliver interpretation material and link it to other interpretation in the region.

WHAT WE WANT TO ACHIEVE – Enriching Visitor Experiences	
<i>In the long term</i>	<i>In the next 5 years</i>
<ul style="list-style-type: none">) The Reserve is valued as a special place by the local community and visitors for its opportunities to recreate in a safe and tranquil natural setting and learn about its natural and cultural heritage.) Visitors conduct their activities in ways that are compatible with the Reserve vision and that have minimal impacts on natural and cultural values.) Visitor experiences are enriched by a range of opportunities to appreciate and immerse themselves in Reserve values, hear and celebrate the stories of the area and participate in hands-on research and management activities.) Sustainable commercial activities contribute to enriching visitor experiences, Reserve revenue and management.) The Reserve is accessible at two major visitor nodes (with vehicle access) and a trail system that connects to West Belconnen and the wider ACT trail network.) Hazards to visitors are minimised by appropriate infrastructure design, community information, warnings and management of access. 	<ul style="list-style-type: none">) Basic visitor infrastructure is constructed and opened in the ACT portion of the Reserve, including initial development of the Murrumbidgee River visitor node and access road, and a basic trail network.) A regularly updated website is established to provide information about the Reserve.) Strategic planning for visitor safety, interpretation and information provision, and commercial partnerships and licences is in place to guide visitor experience delivery and management as the Reserve develops and visitor numbers increase.

WHAT WE ARE GOING TO DO – Enriching Visitor Experiences		
	Actions	Priority
VE 1	Establish a website for the Reserve containing regularly updated information about the Reserve purpose and vision, management arrangements, ecosystem restoration programs, visitor opportunities, minimal impact recreation, access and safety information and interpretation.	1
VE 2	Work with recreation, conservation, education and social groups on the planning of recreation opportunities and education in minimal impact recreation.	Ongoing
VE 3	Establish a visitor monitoring system , including methods for recording visitor numbers, a visitor satisfaction survey and methods of monitoring environmental impacts of visitors at selected sites.	3

	WHAT WE ARE GOING TO DO – Enriching Visitor Experiences	
	Actions	Priority
VE 4	<p>Prepare a Trails Master Plan for the Reserve in accordance with the requirements set out in section 4.4.4 of the Reserve Master Plan. The initial Trails Master Plan should provide a concept for the trail network over the whole Reserve and provide detailed guidance for trail location, design and construction in Stages 1 and 2 of the Reserve development. The Trails Master Plan should be periodically reviewed to provide details for subsequent Reserve development stages prior to the beginning of construction work in each stage.</p> <p>The Trails Master Plan should also address the location and use of management trails used for vehicle access for management purposes.</p>	1
VE 5	<p>Prepare a Visitor Safety Strategy for the Reserve that covers:</p> <ul style="list-style-type: none">) an assessment of risks) risk mitigation measures including signage, media warnings and guidelines including advice from government agencies) for temporary closures due to management operations, fire, flood, water quality and other risks) measures to inform and educate the community and visitors about risks and appropriate behaviour and safeguards in outdoor environments) an Emergency Response Plan (in conjunction with relevant ACT and NSW agencies). 	2
VE 6	<p>As part of the Visitor Safety Strategy work with Icon Water, the ACT Environment Protection Authority and Territory and Municipal Services to develop a strategy for managing recreation activities (such as swimming, canoeing and fishing) that may be affected by flooding and by water quality impacts due to flows from the Molonglo River and occasional releases from the Lower Molonglo Water Quality Control Centre.</p>	2
VE 7	<p>Liaise with Icon Water on plans for visitor infrastructure and activities in the area of the sewer vent on the Ginninderra Trunk Sewer in the ACT portion of the Reserve.</p>	2
VE 8	<p>Prepare an adaptive Interpretation Strategy that can be implemented in stages as the Reserve develops. The Strategy should include:</p> <ul style="list-style-type: none">) core information and messages to be delivered to the range of visitor audiences) themes and storylines – suggested subject areas are threatened habitat, ecosystem restoration, river ecology and landscapes, Aboriginal heritage, European heritage, management ethos for the Conservation Reserve and West Belconnen) a range of delivery methods – including on-site, digital and web-based, and potential partnerships with Aboriginal people, Belconnen Farm, Strathnairn Arts Association agencies and others) signage and design guidelines for the initial visitor infrastructure) provision for review as the Reserve develops. 	3
VE 9	<p>Prepare a Commercial Partnership Strategy that includes:</p> <ul style="list-style-type: none">) a licence approval system for commercial activities) criteria for assessing licence applications) licence conditions compatibility with Reserve values, environmental protection and minimal impact measures, meeting of certification standards and encouragement of licensees to hold ecotourism or similar certification. <p>The licencing system should be compatible with systems in the ACT and NSW.</p>	4
VE 10	<p>Prepare Codes of Conduct on minimal impact practices for recreational activities in the Reserve and distribute them through the Reserve website, local resident induction packages</p>	2 and ongoing

WHAT WE ARE GOING TO DO – Enriching Visitor Experiences		
	Actions	Priority
	and other means.	
VE 11	Develop and install signage informing visitors of behaviour to minimise impacts on Reserve values and other visitors.	2 and ongoing
	Actions related to visitor nodes are in section 5.3	

HOW WE WILL EVALUATE OUTCOMES – Enriching Visitor Experiences	
A.	Aim of establishing basic visitor infrastructure in the ACT portion of the Reserve is achieved.
B.	Number of visitors to the Reserve.
C.	Visitor attitudes to and experiences in the Reserve as assessed in a visitor satisfaction survey.
D.	Environmental impacts of visitors as measures at monitored sites.

4.5 Achieving community stewardship and partnerships

Objective F

Encouragement of strong support for and understanding of the Reserve vision among residents and the wider community and their participation in the protection, restoration and connection of biodiversity, habitats and landscapes is a high priority.

Partnerships with community groups, organisations and institutions will be a core part of Reserve management.

4.5.1 Community stewardship

The development of community stewardship of the Reserve will be achieved through information, active learning and volunteer opportunities that reveal the special values of the Reserve and the reasons for management actions.

The integration between the Reserve vision and the sustainability aims and practices of the West Belconnen urban area will be emphasised to new residents moving into the area. An induction package for new residents will provide information on the Reserve and its staged development, explain ecological restoration activities, explain the reasons for access and recreation arrangements, and encourage volunteer participation. The Reserve website will provide more detailed information and notification of volunteer opportunities. The volunteer program is explained in section 4.5.2 below.

A communication and promotion program will be developed over time as the Reserve is established and the local population and visitor numbers increases. The program will aim to develop community understanding, enthusiasm and support for the Reserve and will include promotional messages and campaigns, special activities such as tours and talks on special features of the Reserve and ecological restoration; children's activities; and events celebrating the values of the Reserve. Ways for the community to contribute to artwork in the Reserve will be explored.

4.5.2 Partnerships

Several local researchers, research institutions, community conservation groups and local landholders have already contributed research and management advice to development of the Reserve. There is potential to extend this contribution to partnerships in implementing this Management Plan. Potential partnerships include collaboration in further scientific research, contribution to the Ecological Restoration Plan and related sub-plans, conduct of restoration works (such as planting, seed collection, weed removal and erosion control), trialling of management methods, participation in monitoring programs and community education.

There are several examples of collaborative conservation management initiatives with research institutions, conservation groups, recreation groups and landholders in the ACT and region – including the Capital Woodlands and Wetlands Conservation Trust at Mulligans Flat Woodland Sanctuary and Jerrabomberra Wetlands, the Ginninderra Catchment Group's work on nature reserves, the Upper Murrumbidgee River Demonstration Reach and ACT Waterwatch and Frogwatch. With several existing collaborative programs already operating in the Ginninderra Creek Catchment and the region, the extension of these programs to the West Belconnen Conservation Reserve will be explored. A Waterwatch Program has already been established to monitor water quality in the streams flowing from the proposed West Belconnen urban area through the Reserve to the Murrumbidgee River.

Scientific researchers, conservation groups and the Aboriginal community will be encouraged to participate in Reserve management decisions through membership of advisory groups or panels. The establishment of advisory groups for management of Aboriginal and European cultural heritage management will also be explored. An Aboriginal advisory mechanism is covered in Action AH 1 in section 4.2.1.

A volunteer program will be established to develop community volunteering opportunities and coordinate community volunteer activities conducted by different bodies. Consideration will be given to establishment of a 'Friends of the West Belconnen Conservation Reserve' as a central mechanism for community members to become involved in volunteer work in the Reserve.

With an increasing ACT population, there may be demand for more environmental education programs and sites in the region. Potentially, ecological restoration, biodiversity management and Aboriginal cultural heritage in the Reserve could form a basis for environmental education programs. A proposal has been mooted for a 'Living River Centre' in the Reserve for education and interpretation for visitors, schools, universities and research partners. The establishment of this proposal and other education partnerships and facilities in the Reserve will be investigated in the longer term as the Reserve develops. Education facilities should be in the Ginninderra Falls Visitor Node. Consideration should be given to reflecting the whole ecosystem of the area in the content, research and naming of any education centre.

WHAT WE WANT TO ACHIEVE – Community Stewardship and Partnerships	
<i>In the long term</i>	<i>In the next 5 years</i>
<ul style="list-style-type: none">) Local residents and the wider community are committed to the Reserve vision and are actively involved in the Reserve through a range of activities and volunteering.) Partnerships with the scientific community, research institutions, conservation groups, other community groups, Aboriginal people, Strathnairn and adjoining landholders are a core part of Reserve management.) Sponsorships and donations make an important contribution to revenue and promotion.) The Reserve is a focus for environmental education programs. 	<ul style="list-style-type: none">) Preparation and distribution of Reserve information through a residents' induction package, the Reserve website and a Communications and Promotion Strategy.) Beginning to establish management partnerships with priority given to ecological restoration activities and the establishment of a biodiversity advisory group.) Developing a volunteer program.) Exploring sponsorships and tax-deductible donations.

WHAT WE ARE GOING TO DO – Community Stewardship and Partnerships		
	Actions	Priority
CSP 1	Prepare and distribute an induction package for new West Belconnen residents providing information on the Reserve, the vision, management activities, recreation and volunteer opportunities. The induction package should be included on the Reserve website and periodically updated as the Reserve is developed.	2 and ongoing
CSP 2	Prepare a Reserve Communications and Promotion Strategy to promote the Reserve vision and encourage community stewardship through a range of channels and activities. The Strategy should be periodically reviewed to reflect the development of the Reserve and growth in opportunities.	2
CSP 3	Liase with existing community and institutional partners that conduct monitoring and research in the area on continuation of arrangements in the Reserve.	1
CSP 4	Negotiate with researchers, research institutions, community groups and organisations, government agencies and adjoining landholders to form partnerships for Reserve	1 – 2 and ongoing

WHAT WE ARE GOING TO DO – Community Stewardship and Partnerships		
	Actions	Priority
	management. Initial priority should be given to partnerships and projects required to lay the foundations for ecological restoration in the Reserve.	
CSP 5	Consult with the ACT Heritage Council, the NSW National Parks & Wildlife Service, the managers of Belconnen Farm and heritage groups on formation of a European heritage advisory group for the Reserve.	3
CSP 6	Set up a volunteer program to develop volunteer opportunities and coordinate volunteer activities in the Reserve. The volunteer program should be expanded over time as the Reserve is developed and more opportunities emerge.	1
CSP 7	Consider establishment of a 'Friends of the West Belconnen Conservation Reserve' group as a focus for volunteering and community stewardship activities.	2

HOW WE WILL EVALUATE OUTCOMES – Community Stewardship and Partnerships	
A.	Establishment and operation of partnerships and the biodiversity advisory group.
B.	Number of induction packages distributed to residents.
C.	Number of community volunteers and community groups participating in Reserve management.

5 Special Management Areas

Chapter 5 provides strategies and actions that will apply to specific areas of the Reserve that have special values and management requirements.

Management strategies are described as follows:

-) **What we want to achieve** – desired outcomes for the Reserve in the long term and in the next 5 years
-) **What we are going to do** – management actions to achieve desired outcomes
-) **How we will evaluate outcomes** – performance indicators that will enable us to evaluate what we have achieved in the next 5 years

Actions are prioritised as follows:

Priority 1 – core plans and actions to be completed in year 1

Priority 2 – to be completed in years 2 to 3 (some are dependent on Priority 1 plans)

Priority 3 – to be completed in years 4 to 5

Priority 5 – actions scheduled for completion after year 5 (when this Management Plan will be reviewed). These actions are critical for consistent management of the Reserve.

Ongoing – actions that will be applied throughout the life of this Plan and future Plans.

Priorities reflect the stages in development of the Reserve (see section 1.4). Actions required to plan for management of a particular stage are scheduled to be undertaken before development of that stage commences.

5.1 Nationally Significant Threatened Habitats

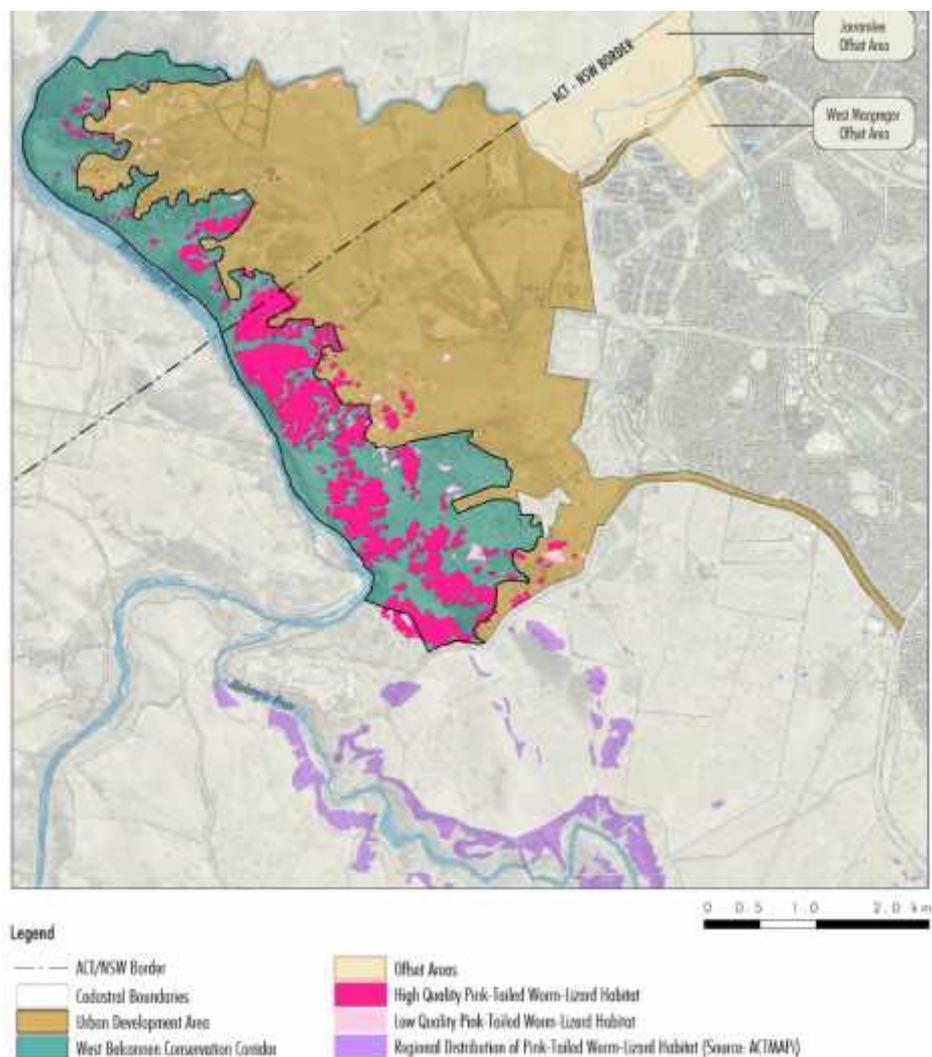
5.1.1 Pink-tailed Worm Lizard habitat

Objective G

Protection of habitat for the nationally significant Pink-tailed Worm Lizard and the associated lizard population in the Reserve will be a high priority.

The habitat will be conserved and managed to promote the long term survival of the lizard in the region and improve the connectivity between habitat patches within the Reserve and with other nearby lizard populations.

Figure 5: Pink-tailed Worm Lizard habitat in the West Belconnen Conservation Reserve



[INDICATIVE MAP ONLY. NEEDS TO REFLECT AREA IN THE EPBC ACT APPROVAL. SUGGEST ALSO INCLUDING PHOTOS TO SHOW THE HABITAT.]

Pink-tailed Worm Lizard habitat in the Reserve occurs throughout much of the hilly areas and steeply dissected slopes above the Murrumbidgee River. The habitat consists of areas of surface volcanic rocks in areas of grassland with a significant component of native grassland species such as Kangaroo Grass (*Themeda triandra*). This grassland may be naturally occurring or derived (the result of the clearing of the original woodland vegetation). Areas dominated by exotic pasture vegetation are not suitable Pink-tailed Worm Lizard habitat, but small patches of low quality habitat occupied by the lizards are scattered in some exotic pasture areas. Habitat of the lizard often supports populations of other native reptiles and the presence of Pink-tailed Worm Lizard is an indicator of the presence of other reptile species.

Threats to the habitat are infestations of African Love Grass, St John’s Wort and Blackberry that out compete native grassland species; the removal of or interference with rocks, trampling of vegetation caused by recreational use, feral animals and domestic dogs; and habitat damage or reduction of habitat connectivity caused by the location of infrastructure. Some existing tracks in the Reserve area pass through Pink-tailed Worm Lizard habitat. Recreational trails and other infrastructure will need to be located and designed in a way that avoids or minimises impacts on fragmentation of lizard habitat and avoids blocking the passage of lizards.

The [DRAFT] MNES approval sets out requirements for the location and management of infrastructure in Pink-tailed Worm Lizard habitat and the management of cats and dogs entering the Reserve. Actions related to cat containment are provided in section 4.1.6 (Actions ER 9 and 10) and dog walking in section 4.4.3 (Table 5).

Research into the Pink-tailed Worm Lizard habitat in the Reserve conducted by Osborne and Wong³³ from the University of Canberra noted made the following recommendations for habitat management:

-)] active weed control to maintain native grassland species
-)] a 20 metre wide buffer zone around habitat
-)] controlled levels of grazing in PTWL habitat as an effective method to keep grasslands in a condition suitable for the lizard.

The regeneration of woodland in Pink-tailed Worm Lizard habitat may impact on lizard populations. There will be a need to decide on areas where maintenance and enhancement of natural or derived Pink-tailed Worm Lizard habitat is the primary consideration in ecological management. The results of Pink-tailed Worm Lizard habitat restoration work being conducted along the Lower Molonglo River may provide guidance for habitat programs in the Reserve.

WHAT WE WANT TO ACHIEVE – Pink-tailed Worm Lizard (PTWL) Habitat	
In the long term	In the next 5 years
)] Preservation and enhancement of PTWL habitat areas in the Reserve, with no appreciable long term net reduction in total PTWL habitat areas.	)] Planning the details for science-based management of PTWL habitat in accordance with MNES approval conditions.
)] Maintenance and enhancement of connectivity between PTWL habitat areas in the Reserve and nearby areas.	)] Beginning implementation of habitat protection and restoration measures in the areas transferred to Trust management.
)] A thriving population of Pink-tailed Worm Lizards in the Reserve.	)] Establishment of ongoing monitoring programs to assess the condition of the habitat and the lizard population.
)] Protection of Pink-tailed Worm Lizard from predation by feral and domestic animals.	)] Location of initial Reserve infrastructure (such as trails) to avoid or manage impacts on PTWL habitat in accordance with MNES approval conditions.
)] Ongoing monitoring of the condition and impacts on habitat and the PTWL population.	)] Community and visitor education on PTWL habitat and recreation requirements for habitat
)] The local community and visitors appreciate the significance of PTWL habitat, cooperate in	

³³ Osborne and Wong (10 May 2013).

WHAT WE WANT TO ACHIEVE – Pink-tailed Worm Lizard (PTWL) Habitat

<i>In the long term</i>	<i>In the next 5 years</i>
complying with management and recreation requirements in PTWL habitat, and participation actively in habitat management.	<p>protection.</p> <ul style="list-style-type: none">) Annual reporting on management of PTWL habitat in accordance with MNES approval conditions.

WHAT WE ARE GOING TO DO – Pink-tailed Worm Lizard (PTWL) Habitat		
	Actions	Priority
PTWL 1	Designate a Pink-tailed Worm Lizard Habitat Management Area where protection and improvement of PTWL habitat will be a priority. This Area should encompass the areas to which the MNES approval applies.	1
PTWL 2	<p>Prepare a science-based Pink-tailed Worm Lizard Habitat Management Plan as a sub-plan of the Reserve Ecological Restoration Plan. The PTWL Habitat Plan should:</p> <ul style="list-style-type: none">) be compatible with the findings, requirements and recommendations in the MNES approval conditions) contain measures for habitat management, restoration, control of threats and fire management) contain guidelines for recreational use and infrastructure in and near the PTWL Habitat Management Area) require periodic field research to assess changes in the quality and extent of PTWL habitat utilising data in Osborne and Wong (2013) as baseline data [DRAFT MNES approval condition] and the condition of the PTWL population) identify potential opportunities for agency, institution, conservation group and community involvement in habitat restoration and management. 	1
PTWL 3	Implement of habitat protection and restoration measures in accordance with the Pink-tailed Worm Lizard Management Plan in the areas transferred to Trust management.	1 and ongoing
PTWL 4	Locate and design management trails, recreation trails, vehicle roads and other infrastructure to avoid or minimise impacts on PTWL habitat and enable the passage of lizards between habitat patches in accordance with MNES approval conditions.	1 and ongoing
PTWL 5	Prepare and distribute information for the community and visitors to educate them on recreation requirements to protect PTWL habitat.	2 and ongoing
PTWL 6	Within 2 months of the end of each financial year prepare an annual report on outcomes in PTWL habitat in accordance with MNES approval conditions and including outcomes achieved in the previous year, lessons learned and a financial audit. The annual report is to be submitted to the ACT Conservator or Flora and Fauna and to be made publicly available. [DRAFT MNES approval condition]	Ongoing

HOW WE WILL EVALUATE OUTCOMES – Pink-tailed Worm Lizard (PTWL) Habitat

The details of evaluation indicators and monitoring methods will be in the PTWL Habitat Management Plan.

- A. Periodic monitoring of the condition of PTWL habitat utilising the baseline data established by Osborne and Wong (2013) [DRAFT MNES approval condition].

- B. Monitoring of the condition of the PTWL population.
- C. Visitor attitudes to and awareness of PTWL habitat in the visitor satisfaction survey.

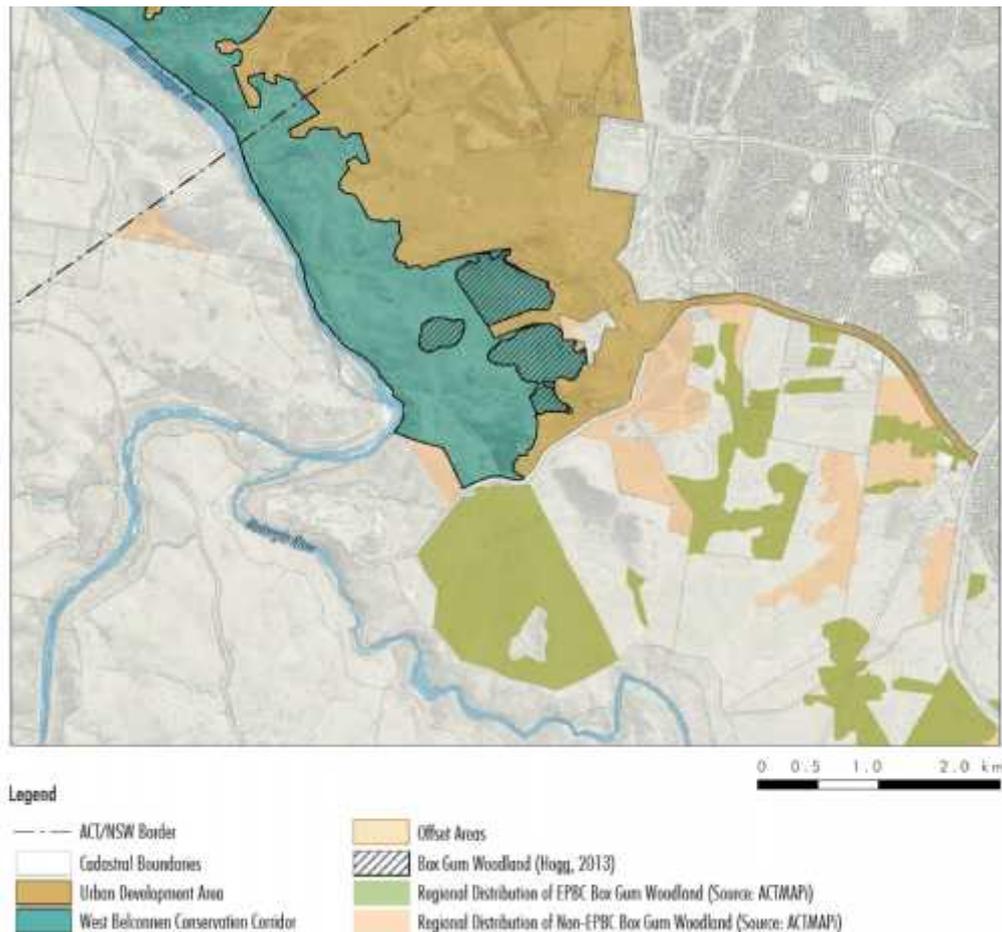
5.1.2 Box-Gum Woodland

Objective H

Protection of the nationally significant Box-Gum Woodland critically endangered ecological community in the Reserve will be a high priority.

The ecological community will be conserved, restored and managed to achieve a healthy ecosystem with a vegetation structure and ground cover that provides habitat for a range of native fauna and the potential for re-introduction of locally extinct species.

Figure 6: Box-Gum Woodland in the West Belconnen Conservation Reserve



[INDICATIVE MAP ONLY. NEEDS TO REFLECT AREA IN THE EPBC ACT APPROVAL. SUGGEST ALSO INCLUDING PHOTOS TO SHOW THE HABITAT.]

The Box-Gum Woodland which meets the criteria for the critically endangered ecological community is located in a cluster of three patches in the ACT portion of the Reserve near the Strathnairn Homestead. These woodland areas are variable in quality. They include some remnant trees but are mainly in a modified condition where the tree cover has been removed above native grassland species. Restoration of the Box-Gum Woodland in the Reserve has the potential to provide habitat for native fauna such as birds, bats, ground dwelling and arboreal mammals and invertebrates. Small mammals that previously occurred in this habitat in the region include the Eastern Bettong (*Bettongia gaimardi*), New Holland Mouse (*Pseudomys novaehollandiae*) and Southern Brown Bandicoot (*Isooden obesulus*). It will also contribute to the Reserve’s natural landscape values.

Critical management needs for the conservation and restoration of Box-Gum Woodland are set out in the National Recovery Plan for the ecological community³⁴ and include:

-) maintaining or improving soil structure, aeration and organic matter and avoidance of fertilisers and soil compaction
-) avoidance of run-off from developed areas and roads
-) control of weeds and introduction of non-indigenous plant species
-) improving structural diversity and habitat in the ecosystem by protecting or reintroducing ground cover, leaf litter, fallen timber and tree regeneration
-) adequate buffers from developed areas
-) fire management burning in a mosaic pattern at appropriate durations taking account of an area’s floristic composition
-) grazing, where it occurs, that maintains 80% of ground cover and is avoided during the flowering and seeding of native species.

Threats to the Box-Gum Woodland in the Reserve can potentially come from weeds spread by visitors, vehicles, animals and migration from nearby areas; overgrazing by feral animals, livestock and native animals; predation by feral and domestic animals; dieback of mature trees; too frequent bushfires or hazard reduction burning; loss of ground cover through trampling, erosion and removal of fallen timber; and inappropriate location of infrastructure.

The [DRAFT] MNES approval sets out requirements for the location and management of infrastructure in Box-Gum Woodland and the management of cats and dogs entering the Reserve. Actions related to cat containment are provided in section 4.1.6 (Actions ER 9 and 10) and dog walking in section 4.4.3 (Table 5).

As the Box-Gum Woodland areas are close to the first urban development to occur at West Belconnen the protection of the area, appropriate location of visitor infrastructure and management of visitor impacts and access will be an important consideration in the first years of the Reserve.

Experience in the restoration of local woodland ecosystems has been gained under the ACT Government’s Woodlands Restoration Project recovery program and research by the Australian National University at Mulligan’s Flat Woodland Sanctuary and Nature Reserve in the upper Ginninderra Creek catchment. Lessons learned from these projects will assist in developing an approach to woodland restoration suitable to local conditions.

WHAT WE WANT TO ACHIEVE – Box-Gum Woodland	
<i>In the long term</i>	<i>In the next 5 years</i>
) No appreciable long term net reduction in total Box-Gum Woodland habitat areas.	) Planning the details for science-based management of Box-Gum Woodland in accordance with MNES approval conditions.
) Maintenance and enhancement of connectivity between Box-Gum Woodland	) Beginning implementation of protective

³⁴ Department of Environment, Climate Change and Water NSW (May 2011).

WHAT WE WANT TO ACHIEVE – Box-Gum Woodland

<i>In the long term</i>	<i>In the next 5 years</i>
<p>habitat areas.</p> <ul style="list-style-type: none">) Protection and enhancement of a healthy Box-Gum Woodland ecological community that provides habitat for a diversity of native species.) If feasible, native flora species that were previously indigenous to the area have been re-introduced.) Effective control of the area from degradation due to weed invasion, grazing and browsing.) Ongoing monitoring of the condition and impacts on the habitat.) The local community and visitors appreciate the significance of Box-Gum Woodland, cooperate in complying with management and recreation requirements in the area, and participate actively in habitat management and restoration. 	<p>measures and ecosystem restoration activities including enhancement of plant diversity.</p> <ul style="list-style-type: none">) Establishment of ongoing monitoring programs to assess the condition of remediation measures.) Location of initial Reserve infrastructure to avoid or manage impacts on Box-Gum Woodland in accordance with MNES approval conditions.) Community and visitor education on Box-Gum Woodland and recreation requirements for its protection.

WHAT WE ARE GOING TO DO – Box-Gum Woodland

	Actions	Priority
BGW 1	Designate a Box-Gum Woodland Management Area over the area to which the MNES approval applies.	1
BGW 2	<p>Prepare a science-based Box-Gum Woodland Management Plan as a sub-plan of the Reserve Ecological Restoration Plan. The Box-Gum Woodland Management Plan should:</p> <ul style="list-style-type: none">) be compatible with the findings, requirements and recommendations in the MNES approval conditions) contain measures for habitat management, restoration, control of threats and fire management) contain guidelines for recreational use and infrastructure in and near the Box-Gum Woodland Management Area) require periodic field research to assess changes in the quality and extent of Box-Gum Woodland utilising data recorded by Nash and Hogg (2013) as baseline data [DRAFT MNES approval condition]) identify potential opportunities for agency, institution, conservation group and community involvement in restoration and management. 	1
BGW 3	Locate and design management trails, recreation trails, vehicle roads and other infrastructure to avoid or manage impacts on Box-Gum Woodland restoration in accordance with MNES approval conditions.	1 and ongoing
BGW 4	Prepare and distribute information for the community and visitors to educate them on	1 and

WHAT WE ARE GOING TO DO – Box-Gum Woodland		
	Actions	Priority
	recreation requirements to protect Box-Gum Woodland and restoration activities.	ongoing
BGW 5	Develop a partnership with the Strathnairn Arts Association on land management practices that will contribute to Box-Gum Woodland and restoration activities.	2
BGW 6	Liaise with managers of the West Belconnen urban construction on measures to reduce run-off and other potential construction impacts on Box-Gum Woodland.	1 and ongoing.
BGW 7	Within 2 months of the end of each financial year prepare an annual report on outcomes in Box-Gum Woodland in accordance with MNES approval conditions and including outcomes achieved in the previous year, lessons learned and a financial audit. The annual report is to be submitted to the ACT Conservator or Flora and Fauna and to be made publicly available. [DRAFT MNES approval condition]]	Ongoing

HOW WE WILL EVALUATE OUTCOMES – Box-Gum Woodland

The details of evaluation and monitoring will be contained in the Box-Gum Woodland Management Plan.

- A. Periodic monitoring of the condition of the Box-Gum Woodland ecological community and progress of restoration utilising the baseline data established by Nash and Hogg (2013) [DRAFT MNES approval condition].
- B. Visitor attitudes to and awareness of Box-Gum Woodland in the visitor satisfaction survey.

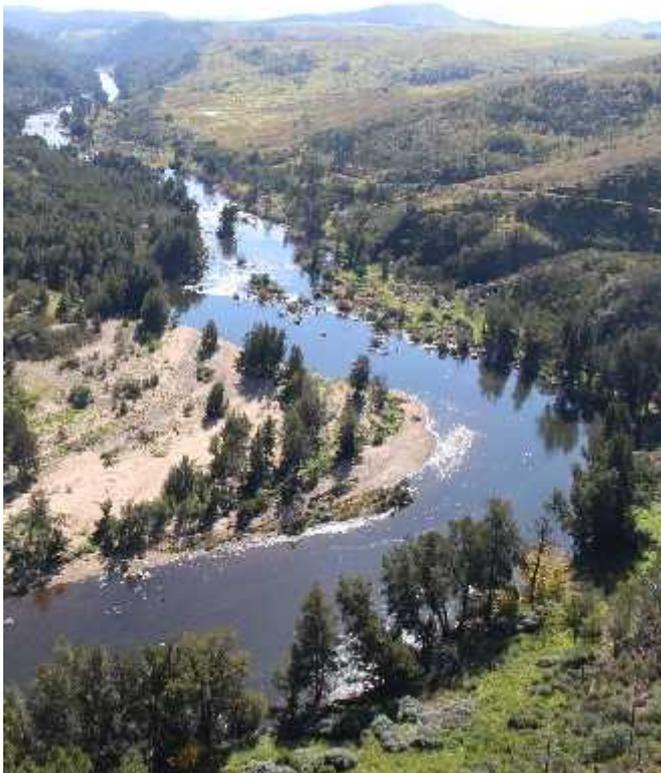
5.2 Murrumbidgee River Environs

Objective I

The environs of the Murrumbidgee River in the Reserve will be managed in cooperation with ACT and NSW government agencies and the community to protect and restore river and riparian ecosystems and contribute to regional management of the river.

The environs of the river will be a natural landscape with minimum infrastructure and provision for quality, sustainable recreation that enables visitors to enjoy and appreciate the river while having a minimal impact on ecosystems and the landscape

Figure 7: Murrumbidgee River Environs



[SUGGEST MAP/AERIAL PHOTO OF STRIP ALONG THE RIVER. INCLUDE PHOTOS TO SHOW THE ENVIRONMENT]

In the Reserve the Murrumbidgee River flows through a channel characterised by high steep slopes except in the vicinity of the Murrumbidgee visitor node where the drop to the river is lower. Below the steep slopes the river is bounded by a riparian zone of variable width occupied by vegetation subject to inundation by river water or

high water tables and areas where streams flowing through the Reserve discharge into the river. Periodic floods can lead to water rising two or more metres above the riparian zone.

The river and riparian zone are likely to be key attractions for Reserve visitors for water-based activities, nature appreciation, walking and fishing. The management of the River for water-based activities is addressed in section 4.4.2.

The stretch of river in the Reserve may attract both experienced and casual anglers. It contains habitat for the native Murray Cod and Golden Perch, several threatened native fish species, and the exotic European Carp and Redfin. There are similar regulations for the taking of native fish from rivers exist the ACT and NSW, except that fishers are required to hold a fishing licence in NSW while no licence is required in the ACT. Murray Cod is considered to be Australia's iconic freshwater sporting fish. Once abundant throughout the Murray-Darling river system (which includes the Murrumbidgee River), Murray Cod has declined in abundance due to habitat loss, river flow regulation, barriers to fish passage and overfishing. It is listed as a vulnerable species under the Commonwealth's *Environment Protection Biodiversity Conservation Act 1999*, but can still be caught subject to regulations. Under the national recovery plan for Murray Cod³⁵ the population of the fish in the Murrumbidgee River in the ACT is considered an 'important population' considered to be significant for the long time survival and recovery of the species. The ACT population is important due to its size, level of integrity and location near the upland limit of Murray Cod distribution in the Murrumbidgee River. The establishment of catch and release fishing to manage the sustainability of fishing in the river adjoining and upstream and downstream of the Reserve will be investigated with the ACT Environment and Planning Directorate and Fisheries NSW.

Protection, ecological restoration and management of the river waters, riparian zone and river slopes are important to:

- J maintain environmental conditions in the river that sustain aquatic ecosystems, protect aquatic species' populations and habitat, and are suitable for recreational uses
- J contribute to conservation connectivity along the river outside the Reserve
- J prevent erosion of the steep river slopes
- J retain the scenic river landscape and scenic vistas of and from the river which have significance for historic heritage and visitor enjoyment
- J provide for quality visitor experiences compatible with the vision for the Reserve.

Potential threats to the natural and cultural values, environmental condition and quality of recreational experiences near the river are:

- J water quality impacts and potential introduction of exotic species from runoff from the urban areas and streams in the Reserve. This is being managed through the application of WSUD management principles in the West Belconnen urban development and the Reserve
- J invasive plant species in the riparian zone and slopes, including Willow and Blackberry
- J recreation impacts (such as vegetation damage, erosion, weed spread, lighting of fires, illegal fishing and overfishing) and conflicts between different recreational users. The management of recreation is covered in section 4.4
- J visual intrusions in the landscape from infrastructure
- J rises in river levels damaging infrastructure and creating hazards for visitors.

The waters of the river are outside the Reserve boundary and are managed by the ACT and NSW. Liaison with ACT and NSW agencies will be needed to develop Reserve management measures that are compatible with ACT and NSW legislation, policies and strategies. In the ACT management of riparian zones is specified in the *ACT Aquatic Species and Riparian Zone Conservation Strategy*³⁶. In NSW management of riparian corridors occurs under the *NSW Water Management Act 2000*. Guidelines³⁷ for management of riparian corridors (defined as

³⁵ Koehn and Clunie (October 2010).

³⁶ ACT Government (2007).

³⁷ NSW Office of Water (July 2012).

approximately 40 metres on either side of the highest bank of a river) have been issued and provide that riparian corridors are managed to maintain environmental functions and passive recreational uses. Other than for public authorities³⁸, the approval of the NSW Office of Water is required for ‘controlled activities’ which are defined as the erection of buildings, carrying out of works, removal or material or vegetation, deposition of material, and any other activity that affects the quantity or flow of water.

Collaborative management and ecosystem restoration programs between agencies, research institutions and community groups has occurred elsewhere in the region in relation to the Murrumbidgee River waters and riparian zone (see section 4.5).

WHAT WE WANT TO ACHIEVE – Murrumbidgee River Environs	
<i>In the long term</i>	<i>In the next 5 years</i>
<ul style="list-style-type: none">) Healthy riparian and riverine ecosystems managed cooperatively with ACT and NSW agencies and the community.) Natural viewsapes from and into the river environs with minimal intrusion of built features.) A range of quality sustainable recreational opportunities.) Sustainable and consistent cross-border management of fisheries, including any recreational fishing.) Community and visitor understanding of and compliance with recreation management measures. 	<ul style="list-style-type: none">) Planning the details of riparian zone management and restoration.) Decision-making on recreation management and permitted water-based activities in the Murrumbidgee River in collaboration with ACT and NSW agencies and the community.) Implementation of best practice water quality, stormwater management and erosion control practices.) Planning for sustainable fisheries management in collaboration with ACT and NSW agencies and the community.

WHAT WE ARE GOING TO DO – Murrumbidgee River Environs		
	Actions	Priority
MR 1	Work with ACT and NSW government agencies, research institutions and community groups to: <ul style="list-style-type: none">) ensure sustainable management of the riparian corridor in the Reserve that is consistent with relevant legislation, management strategies and management initiatives for the Murrumbidgee in the ACT and region) achieve cooperative and consistent management of the Reserve and ACT/NSW management of the waters and bed of the river and restoration of aquatic habitat. 	2 and ongoing
MR 2	Prepare a science-based Murrumbidgee Riparian Zone and Environs Management Plan (as a sub-plan of the Reserve Ecological Restoration and Biodiversity Management Plan) concentrating on initial priorities for restoring the riparian zone in the Conservation Reserve and addressing the control of introduced plants and animals. The Plan should include monitoring measures for environmental conditions and visitor impacts.	2

³⁸ Depending on how it is established the management body for the West Belconnen Conservation Reserve may not qualify as a ‘public authority’ which is defined as a government authority, statutory body or corporation, or council.

WHAT WE ARE GOING TO DO – Murrumbidgee River Environs		
	Actions	Priority
MR 3	Liaise with managers of the West Belconnen urban development on implementation of urban stormwater management and retention ponds and minimising impacts on streams in the Reserve.	1 and ongoing
MR 4	Apply best practice sediment and erosion controls to construction and infrastructure in the Reserve.	Ongoing
MR 5	Locate visitor infrastructure (including trails) and facilities outside of the riparian zone and in areas where damage from major floods and impacts on scenic landscape values is minimised.	Ongoing
MR 6	Work with ACT and NSW agencies, research institutions, angler and community groups to prepare a Sustainable Fisheries Plan for the West Belconnen reach of the river including: <ul style="list-style-type: none">) obtaining baseline data on the status of aquatic habitat and native fish populations, including Murray Cod and other threatened species) strategies to maintain and improve native fish populations and control threats, such as pest fish species) minimal impact fishing practices) consistent cross-border management of recreational fishing) investigation of establishment of catch and release fishing with the ACT Environment and Planning Directorate and Fisheries NSW. 	3
MR 7	Seek extension of the Waterwatch monitoring program in the West Belconnen reach of the river.	3

HOW WE WILL EVALUATE OUTCOMES – Murrumbidgee River Environs	
A.	Monitoring of the condition of the Riparian Zone and recreation impacts – details to be provided in the Murrumbidgee Riparian Zone Plan.
B.	Monitoring of the condition of aquatic habitat and fish populations in conjunction with ACT and NSW agencies – details to be provided in the Sustainable Fisheries Plan.
C.	Attitudes to the river and awareness of management measures through the visitor satisfaction survey.

5.3 Ginninderra Creek East

Objective J

The ecosystems of the Reserve corridor along Ginninderra Creek above the Falls will be restored and the quality of the riparian zone and water in the creek will be improved.

Due to its narrow width and the sensitivity of the riparian environments the area will be managed for low impact recreation with minimal facilities compatible with enjoyment of the area's natural values.

Figure 8: Ginninderra Creek East



[INDICATIVE MAP ONLY.]

There are different management requirements for the two distinct landscapes in the Reserve along Ginninderra Creek. For the purposes of this Management Plan they are described as:

- J **Ginninderra Creek East** – the area upstream of the change in elevation above Ginninderra Falls. Here the creek flows through a cleared agricultural landscape and the Reserve is comprised of a narrow corridor between the creek and the proposed urban development
- J **Ginninderra Gorge** – the portion of the Reserve from Ginninderra Falls to the confluence with the Murrumbidgee River where the creek flows through a steep rocky gorge-like landscape. This part of the Reserve consists of the southern side of the gorge and associated forest and woodland landscape between the creek and the proposed urban development.

In both cases the land in the Reserve is located on the southern side of the creek and does not include the creek waters.

The area of the Reserve in Ginninderra Creek East is a landscape extensively modified by agricultural activity, the spread of exotic vegetation and removal of trees. The condition of the aquatic ecosystems in the creek (which is outside the Reserve boundary) has been affected by agricultural uses and urban development in the catchment. Originally thought to have been a chain of ponds the creek banks have become eroded and incised due to increased runoff and agricultural use.

This long strip of Reserve land between the proposed urban area and Ginninderra Creek is important for protecting and restoring the riparian zone along the creek and providing conservation linkages and wildlife movement between the Murrumbidgee River corridor and the Ginninderra Creek catchment. Ecological restoration of this part of the Ginninderra Creek riparian corridor has commenced under the guidance of the Ginninderra Catchment Association and in accordance with a Conservation Management Plan³⁹ prepared in 2009. Willows have been removed and some native vegetation has been planted. Further funding is required to continue this work. The aims of the Plan are to achieve an open grassy woodland landscape.

Due to its relatively narrow width and long urban interface the vegetation, wildlife and ecological restoration of this part of the Reserve will be particularly vulnerable to impacts from human use. Potential impacts that need to be managed include trampling of vegetation and habitat, disturbance of wildlife by people and domestic dogs, weed spread, habitat fragmentation from trails and visitor infrastructure, and impacts from runoff on water quality. The quality of recreation experiences in this area will also be affected if too many uses become concentrated in the corridor.

Most of this corridor is in NSW and its management and infrastructure development will be subject to the requirements of the NSW *Water Management Act 2000* and NSW Office of Water guidelines for management of riparian corridors as described in section 5.2 above.

In order to restore natural values and the quality of recreation in this area it will be managed as a low impact recreation area with minimal visitor infrastructure. Infrastructure will be limited to facilities required to provide compatible visitor experiences and protect natural values and the environmental condition of the Reserve land and the creek. Trails should be located near the urban edge with occasional side trails to observation areas near the creek constructed to provide passage to wildlife. Horse riding and dog walking will not be permitted in the area due to their potential impacts on vegetation, weed spread and native fauna.

Effective management of Ginninderra Creek East will require partnerships with NSW and ACT agencies, NSW landowners to the north of the creek, the Ginninderra Catchment Group and other community groups, and the cooperation of the community and Reserve visitors.

As the adjoining urban areas are not scheduled to be constructed for another 15 to 20 years, development of visitor infrastructure in this area will not occur for some years. Progress already made in restoring the area will continue gradually in order to improve the ecological condition and appearance of the creek and riparian zone before it is developed for visitor use.

WHAT WE WANT TO ACHIEVE – Ginninderra Creek East	
<i>In the long term</i>	<i>In the next 5 years</i>
<ul style="list-style-type: none">) Healthy riparian and riverine ecosystems managed cooperatively with ACT and NSW agencies and the community.) Community and visitor understanding of and compliance with recreation management measures. 	<ul style="list-style-type: none">) Continuing ecosystem restoration work.) Establishment of partnerships for integrated management of the Reserve, the adjoining creek and the riparian corridor on private land in NSW.) Review and adjustment of the existing Conservation Management Plan.

³⁹ Geoff Butler & Associates (October 2009).

WHAT WE ARE GOING TO DO – Ginninderra Creek East		
	Actions	Priority
GC 1	Manage the area of the Reserve and associated riparian corridor along Ginninderra Creek East cooperatively with NSW and ACT agencies, adjoining landholders and community groups to achieve integrated management of the riparian corridor in the Reserve and the creek waters and riparian corridor on private land in NSW.	2 and ongoing
GC 2	Continue to implement the October 2009 Conservation Management Plan for Ginninderra Creek East through vegetation restoration and management of weeds and fuel levels.	2 and ongoing
GC 3	Review the October 2009 Conservation Management Plan for Ginninderra Creek East in conjunction with government agencies, adjacent landholders and community groups in order to provide detailed guidance for weed management, ecosystem restoration and cooperative management of the waters and bed of the creek to improve aquatic habitat and managed aquatic pest species.	5
GC 4	Seek funding to enable the ecosystem restoration program along Ginninderra Creek to continue and for progress to be monitored.	2
GC 5	Prepare a Ginninderra Creek East Visitor Infrastructure Master Plan that: <ul style="list-style-type: none">) provides for low impact recreation and visitor access) provides for minimal infrastructure and facilities located and designed to reduce the impacts of infrastructure and human use on natural values and the passage of wildlife. 	5
GC 6	Apply best practice sediment and erosion controls to construction and infrastructure in the Ginninderra Creek East area.	Ongoing

HOW WE WILL EVALUATE OUTCOMES – Ginninderra Creek East

- A. Monitoring of the condition of the riparian and aquatic ecosystems.
- B. Monitoring of recreation impacts when the area is opened to recreation.
- C. Attitudes to the area and awareness of management measures through the visitor satisfaction survey.

5.4 Ginninderra Gorge Biodiversity Area

Objective K

Protection of the significant biodiversity, ecological integrity and outstanding scenic values of Ginninderra Gorge will be a high priority.

The Ginninderra Falls and Gorge area will showcase best practice sustainable visitor use and opportunities for appreciation and learning.

Figure 9: Ginninderra Gorge Biodiversity Area

[INSERT MAP/AERIAL PHOTO OF THE AREA, WHICH IS THE CREEK FROM JUST ABOVE GINNINDERRA FALLS TO THE MURRUMBIDGEE RIVER CONFLUENCE AND INCLUDING THE ADJACENT AREA OF INTACT NATIVE VEGETATION.]

Ginninderra Falls and the gorge area is the outstanding feature of the West Belconnen Conservation Reserve. It retains a high level of biodiversity and ecological integrity, has outstanding landscape values unique in the surrounding region and has strong connections in the community, including significance to Aboriginal people. The challenge for management is to protect the area's biodiversity, landscape and cultural values while showcasing the area in a way that provides enriching visitor experiences and develops understanding and stewardship among visitors. The area includes a regionally significant Black Cypress Pine community, a population of Pale Pomaderris is listed as vulnerable under the Commonwealth's *Environment Protection Biodiversity Conservation Act 1999* and in NSW, and Rosenberg's Goanna which is listed as vulnerable in NSW under the *Threatened Species Conservation Act 1995*. This small area also supports at least 164 native plant species of which 13 species are rare, uncommon or significant species, a rich reptile fauna and potential habitat for the endangered Spotted-tailed Quoll.

The high biodiversity of this area and the presence of threatened species was confirmed in recent surveys. Further studies are required to ascertain the full range of flora and fauna species in the area and to develop prescriptions for management of biodiversity and appropriate visitor use. This includes studies and monitoring to determine the use of the area by Rosenberg's Goanna and appropriate management measures and to determine whether Spotted-tailed Quoll occur in the area.

Current and potential future threats to the biodiversity of Ginninderra Gorge include:

-) inappropriate fire regimes, including frequent burning of the Black Cypress Pine forest/woodland and the Pale Pomaderris population
-) browsing by feral deer and goats
-) human use impacts such as picking and trampling of vegetation, interference with fauna habitat such as fallen logs, rocks and rocky crevices
-) steep slopes susceptible to erosion
-) runoff and human use affecting water quality and aquatic ecosystems in the creek
-) inappropriate placement of infrastructure leading to soil erosion or species population fragmentation
-) weed spread resulting in competition with native species, including Blackberry competition with the Pale Pomaderris population
-) adjacent urbanisation decreasing the habitat range available to fauna (including Rosenberg's Goanna), increasing risks of predation or interference in habitat and breeding by domestic dogs, and increasing risk of roadkill.

Management considerations in developing sustainable visitor use of the Ginninderra Gorge are:

-) visitor experiences and infrastructure compatible with protection of the area’s Aboriginal sites and significance to the Aboriginal community
-) visitor experiences compatible with protection of biodiversity, water quality, the stability of steep slopes and the area’s scenic views
-) risks associated with rocky cliffs and steep slopes demonstrated by a history of rock climbing accidents when the area was a private reserve
-) location of trails, lookouts and other facilities in a way that minimises impacts on biodiversity while enabling visitors to appreciate the biodiversity and scenic landscape of the area.

Any works and activities in the area that have potential to impact on the Pale Pomaderris population will be subject to an assessment process under Part 10 of the *Environment Protection Biodiversity Conservation Act 1999*. Similarly, the presence of Rosenberg’s Goanna requires that proposals for development will need to be assessed by the NSW Office of Environment and Heritage under section 91 of the *Threatened Species Conservation Act 1995*.

Horse riding, cycling and dog walking will not be permitted on trails in the Ginninderra Gorge area due to the potential for erosion and impact on biodiversity. Due to the risks involved, the previous history of accidents and liability issues, and the presence of a nearby Aboriginal site, public rock climbing and abseiling will be prohibited until the Ginninderra Falls area is open to the public and visitor infrastructure is in place. This will be achieved in conjunction with the relevant landholders and the Yass Valley Shire Council. The potential for safe and environmentally sustainable rock climbing run by licensed operators at the Falls will then be investigated in consultation with Aboriginal custodians. Use of the area for emergency services training is covered in section 4.4.2.

Visitors to the area will be asked to keep to trails and encouraged to understand and appreciate the area’s biodiversity through interpretation. The Ginninderra Falls visitor node provides an opportunity for interpretation and education experiences linked to Ginninderra Gorge.

Enhanced measures for feral animal control (potentially fencing) and the reintroduction of native fauna species (potential fencing) will be considered in the next 5 years.

WHAT WE WANT TO ACHIEVE – Ginninderra Gorge Biodiversity Area	
<i>In the long term</i>	<i>In the next 5 years</i>
<ul style="list-style-type: none">) The ecological integrity and rich biodiversity of the Ginninderra Gorge and Ginninderra Falls has been protected and enhanced and there are thriving populations of significant and threatened species.) Ginninderra Gorge and the Falls are the signature visitor experience of the West Belconnen Conservation Reserve and are appreciated by the local community and visitors for their biodiversity, scenic values and best practice sustainable management. 	<ul style="list-style-type: none">) Research and planning for biodiversity management and sustainable visitor use of the area, which will begin to be developed for visitors at the end of the period of this Management Plan.) Visitor infrastructure master planning.

WHAT WE ARE GOING TO DO – Ginninderra Gorge Biodiversity Area		
	Actions	Priority
GG 1	Seek funding for further biodiversity surveys, studies and monitoring of the Ginninderra Gorge area, including surveys to ascertain the presence of the Spotted-tailed Quoll	1
GG 2	<p>Prepare a science-based Ginninderra Gorge Biodiversity Plan to provide a framework for ecosystem, biodiversity and visitor management of the Ginninderra Gorge area and including:</p> <ul style="list-style-type: none">) identification of further research required on the area’s ecosystems and biodiversity) guidelines for ecosystem and biodiversity management and restoration including weed and pest control, fire regimes, reintroduction of species) measures for management of water quality in the creek) cooperative management with NSW agencies, adjoining landholders and community groups) a monitoring program. 	4
GG 3	Prepare a science-based Rosenberg’s Goanna Management Plan (as a sub-plan to the Ginninderra Gorge Plan) that includes research on the use of the area by Rosenberg’s Goanna, habitat needs, measures to protect habitat and the animals, monitoring, and ways to facilitate public cooperation and participation in management.	1
GG 4	Prepare a science-based Pale Pomaderris Management Plan (as a sub-plan to the Ginninderra Gorge Plan) for protection of the population of this species at Ginninderra Gorge. The Plan should include consideration of measures to protect the population from impacts by browsing animals, weed spread and human impacts.	4
GG 5	Liaise with the relevant landholders and the Yass Valley Shire Council on ways to prohibit public rock climbing and abseiling at Ginninderra Falls during the period before the area is transferred to Trust management.	2 and ongoing
GG 6	<p>Conduct a sustainable visitor use study to investigate the environmental and social carrying capacities of recreation in the Ginninderra Gorge area to achieve sustainable visitor use (including impacts of different visitor activities on biodiversity and visitor safety) and develop guidelines for the design and location of visitor infrastructure in the area compatible with the Reserve Management Plan and the Ginninderra Gorge Biodiversity Plan.</p> <p>Include investigation of introduction of safe and environmentally sustainable rock climbing run by licensed operators in consultation with Aboriginal custodians.</p>	4
GG 7	Prepare a Ginninderra Gorge Visitor Infrastructure Master Plan based on the findings of the Ginninderra Gorge Plan and the sustainable visitor use study. This Master Plan should be coordinated with the Ginninderra Falls Visitor Node Master Plan (see Action VN 2).	5
GG 8	Apply best practice sediment and erosion controls to construction and infrastructure in the Ginninderra Gorge area.	Ongoing

HOW WE WILL EVALUATE OUTCOMES – Ginninderra Gorge Biodiversity Area

The details of evaluation and monitoring will be contained in the Ginninderra Gorge Biodiversity Plan.

- A. Monitoring of the condition of indicator species, threatened populations and threatening processes.
- B. Monitoring of the condition of the riparian and aquatic ecosystems.
- C. Monitoring of recreation impacts when the area is opened to recreation.
- D. Attitudes to the area and awareness of management measures through the visitor satisfaction survey.

5.5 Visitor nodes

Objective L

In the West Belconnen Conservation Reserve, larger group and higher impact activities will be concentrated in visitor nodes to protect values and provide a range of visitor opportunities.

A visitor node near the Murrumbidgee River will provide for enjoyment of the Reserve through picnicking, group activities and nature appreciation. A visitor node near (but set back from) Ginninderra Falls will be progressively developed to offer a range of world class visitor experiences and facilities for interpretation and learning. Most of the visitor infrastructure in this node will be located in the adjacent urban areas to minimise impacts on the Reserve.

Visitor nodes will provide road accessible recreation facilities for larger numbers of people and higher intensity uses than dispersed recreation in other parts of the Reserve. The concentration of visitor facilities in this way aligns with best practice approaches to the management of small protected areas. This strategy will assist in protecting the natural and cultural values of the Reserve, achieving a range of visitor opportunities and reducing the potential for conflict between different visitor uses.

The **Murrumbidgee River Visitor Node** will be in the ACT portion of the Reserve where the slopes above the river level out to form a small plain above the drop to the river. This visitor node will be the first visitor node to be developed in the Reserve and will provide for picnicking, group activities, nature activities, access to the river and trails. Access will be by a road from near the Strathnairn Arts Centre.

A preliminary concept for the Murrumbidgee River visitor node was developed as part of the West Belconnen Landscape and Open Space Strategy⁴⁰ prepared for the submission seeking approval of the West Belconnen development. The concept for the visitor node will be revised in the light of requirements in this Management Plan and a master plan will be developed for the site and road access prior to the beginning of construction. Major considerations in developing the master plan for the Murrumbidgee River Visitor Node are:

- J minimisation of impacts on Box–Gum Woodland and Pink-tailed Worm Lizard habitat, including the location of infrastructure and roads and trails leading from the visitor node in accordance with MNES approval conditions
- J conduct of surveys for the existence of threatened flora and fauna and development of measures to avoid or manage impacts on threatened populations in accordance with MNES approval conditions and ACT and NSW legislation
- J impacts on river water quality and riparian and aquatic ecosystems
- J compatibility with the provisions in section 5.2 of this Management Plan which requires the riparian zone to be managed for low impact recreation with minimal infrastructure
- J location of trails and any river viewing area above the level of floods and in places where the visual and environmental impacts are minimised
- J application of the Design Principles to Protect Natural and Cultural Landscape Values in section 4.3 of this Management Plan to reduce the intrusion of the visitor node into scenic views including the view from Shepherds Lookout

⁴⁰ McGregor Coxall (no date)

-)] application of sustainable design, energy efficiency and stormwater management standards to infrastructure and buildings equivalent to those used in the West Belconnen urban development.

The **Ginninderra Falls Visitor Node** will be located near, but set back from, a quarry site in the north of the Reserve near Ginninderra Falls. The site location has been chosen to reduce impacts on the biodiversity and scenic landscape of the Ginninderra Gorge while providing for visitor access to, and showcasing the values of, the Ginninderra Gorge and Ginninderra Falls. It is envisaged that most visitor infrastructure and buildings to support this node will be located outside the Reserve boundary in the adjoining urban area to minimise impacts on the Reserve.

Development of the Ginninderra Falls Visitor Node and the visitor infrastructure in the Ginninderra Gorge area will begin approximately 5 to 10 years after the commencement of this Management Plan. It is expected that the visitor node will be progressively developed to provide a range of visitor experiences and facilities which may include visitor information and a departure point for tours, interpretation, picnicking and large group facilities and space for indoor and outdoor events and functions. If feasible and compatible with this Management Plan, commercial enterprises, education and eco-accommodation facilities may be considered. There is potential for development of world class interpretation and learning experiences at the site to showcase Ginninderra Gorge, the Falls and the Reserve.

A master plan will be prepared to guide development of the Ginninderra Falls Visitor Node taking account of:

-)] measures for protection of the ecological integrity and biodiversity of the Ginninderra Gorge area identified in the Ginninderra Gorge Biodiversity Plan (Action GG 2)
-)] conduct of surveys for the existence of threatened flora and fauna and development of measures to avoid or manage impacts on threatened populations in accordance with MNES approval conditions
-)] the compatibility of proposed activities and structures with the Reserve Management Plan
-)] rehabilitation of the quarry site
-)] minimising impacts of the residents of West Belconnen
-)] measures for protecting and enabling the passage of wildlife
-)] application of the Design Principles to Protect Natural and Cultural Landscape Values in section 4.3 of this Management Plan
-)] application of sustainable design, energy efficiency and stormwater management standards to infrastructure and buildings equivalent to those used in the West Belconnen urban development

The draft master plan should be released for public comment before it is finalised. It should be prepared in conjunction with the Ginninderra Gorge Visitor Infrastructure Master Plan (Action GG6) to provide an integrated approach to management of the visitor node and the nearby Ginninderra Gorge.

In the longer term, consideration may be given to establishment of a third visitor node near the Murrumbidgee River in the north of the Reserve to provide access for kayaking and related activities. Vehicle access would be provided on the alignment of an existing track.

The Trust will develop design standards for Reserve infrastructure and facilities that apply the best-practice principles for sustainable design, environmental impacts, energy use and 'green' technology used for the West Belconnen urban development. As with the West Belconnen urban development, Construction Environment Management Plans will be prepared and implemented for each construction activity to ensure that potential environmental impacts are identified, sensitive values are protected and high standards of erosion and sediment control and impact mitigation measures are implemented.

To minimise environmental impacts, underground electricity cabling will be used for provision of power to facilities within the Reserve and self-contained systems may be used for the treatment of toilet waste.

WHAT WE WANT TO ACHIEVE – Visitor Nodes

<i>In the long term</i>	<i>In the next 5 years</i>
<p>) The Murrumbidgee River Visitor Node is an attractive area for picnicking, appreciating nature and the landscape, learning about ecosystem restoration, and accessing the river and trails to other parts of the Reserve. Visually, the visitor node blends into the scenic landscape.</p> <p>) The Ginninderra Falls Visitor Node provides a range of world class visitor experiences that showcase the Reserve, Ginninderra Gorge and Ginninderra Falls in sustainably-designed facilities that are compatible with the high biodiversity and scenic values of the nearby Ginninderra Gorge.</p> <p>) High standards of sustainable design and construction (compatible with the sustainability goals of the West Belconnen community development) are used in the development of Reserve infrastructure and facilities.</p>	<p>) Master planning for the Murrumbidgee River Visitor Node and the commencement of construction.</p> <p>) The commencement of master planning for the Ginninderra Falls Visitor Node towards the end of the period of this Management Plan.</p>

WHAT WE ARE GOING TO DO – Visitor Nodes

	Actions	Priority
VN 1	Prepare a Master Plan for the Murrumbidgee River Visitor Node and access road according to the requirements set out in section 5.3 of the Reserve Management Plan.	2
VN 2	Prepare a Master Plan for the Ginninderra Falls Visitor Node according to the requirements set out in section 5.4 of the Reserve Management Plan. This master plan should be prepared in conjunction with the Ginninderra Gorge Visitor Infrastructure Master Plan (Action GG 6) to enable an integrated approach to visitor infrastructure development.	5
VN 3	Prepare Reserve Infrastructure Design Standards that apply best-practice principles for sustainable design compatible with those applied to the West Belconnen urban development.	1
VN 4	Require Construction Environment Management Plans to be prepared, approved by the Trust and implemented for all construction activity in the Reserve. The Construction Environment Management Plans should include erosion and sediment controls, measures to mitigate weed spread (such as vehicle and machinery wash down protocols), protective measures for sensitive areas, procedures relating to Aboriginal sites, waste management procedures and post-construction remediation.	Ongoing

HOW WE WILL EVALUATE OUTCOMES – Visitor Nodes

- A. Monitoring of the condition of natural values derived from the relevant Master Plans, the Ecological Restoration Plan and associated sub-plans and the Ginninderra Gorge Biodiversity Plan.
- B. Monitoring of the condition of the riparian and aquatic ecosystems.
- C. Monitoring of recreation impacts when the area is opened to recreation.
- D. Attitudes to the area and awareness of management measures through the visitor satisfaction survey.

6 Management Operations

Chapter 6 provides strategies and actions to guide day to day management of the Reserve and implementation of the Reserve Management Plan.

Management strategies are described as follows:

-) **What we want to achieve** – desired outcomes for the Reserve in the long term and in the next 5 years
-) **What we are going to do** – management actions to achieve desired outcomes
-) **How we will evaluate outcomes** – performance indicators that will enable us to evaluate what we have achieved in the next 5 years

Actions are prioritised as follows:

Priority 1 – core plans and actions to be completed in year 1

Priority 2 – to be completed in years 2 to 3 (some are dependent on Priority 1 plans)

Priority 3 – to be completed in years 4 to 5

Priority 5 – actions scheduled for completion after year 5 (when this Management Plan will be reviewed). These actions are critical for consistent management of the Reserve.

Ongoing – actions that will be applied throughout the life of this Plan and future Plans.

Priorities reflect the stages in development of the Reserve. Actions required to plan for management of a particular stage are scheduled to be undertaken before development of that stage commences.

Objective M

Management operations in the Reserve will be conducted in a way that:

-) is environmentally sustainable
 -) provides employment and partnership opportunities for the local community, organisations and Aboriginal people
 -) minimises impacts of operations on visitors and residents
 -) collaborates with government agencies and utility managers to achieve outcomes acceptable for the protection of Reserve values and utility management requirements.
-

6.1 Conduct of Reserve operations

6.1.1 Management partnerships

Partnership arrangements will be made through contracts or other arrangements for the conduct of planning tasks, research, monitoring and management operations such as weed, pest and fire management. Potential partners include government agencies, research institutions, non-government organisations, specialist contractors, conservation groups, other community groups and volunteers. All management partners will be informed of, and required to comply with, the requirements of the Reserve Management Plan relevant to the activities being undertaken.

Arrangements for enforcement of conservation and related legislation in the Reserve will be developed in consultation with the ACT Government, the Yass Valley Shire Council, the NSW Department of Primary Industries and the NSW Office of Environment and Heritage.

Cross-border cooperative arrangements for policing and emergency response by the ACT on behalf of NSW are being developed for West Belconnen and will be applied to the Conservation Reserve. Pending the outcome of those negotiations ACT Police and Emergency Services will be responsible for policy and emergency response in Stage 1 of the Reserve as in other parts of the ACT.

6.1.2 Employment and partnership policy

The Environmental Management Trust seeks to achieve positive social and economic outcomes for the local community and Reserve stakeholders from the Canberra area.

The Trust will proactively seek to provide employment and partnership opportunities to the local community, the Aboriginal community and local organisations and institutions.

6.1.3 Management infrastructure and facilities

Staff offices and a works depot for the Reserve will be developed over time.

Initially the Reserve office and information centre will be in the West Belconnen urban area. Prior to the development of the Ginninderra Falls visitor node the location of the offices and visitor information centre in facilities on the site will be considered as part of the Master Plan for that area.

Consideration will be given to location of the works depot outside of the Reserve to minimise impacts on Reserve values.

Management infrastructure and facilities will be designed in accordance with the Reserve Infrastructure Design Standards (see Action VN 3). Construction Environment Management Plans will be prepared and implemented for all construction activity in the Reserve (see Action VN 4).

The location of management trails that provide vehicle access for management purposes will be addressed in the Trails Master Plan (Action VE 4 in section 4.4).

6.1.4 Operational planning

Day to day operations will be conducted in accordance with an **Operational Plan** that guides the detail and scheduling for implementation of the Reserve Management Plan and other Plan prepared under the Management Plan. The Operation Plan will cover management operations such as ecological restoration works; trail and infrastructure construction and maintenance; weed, pest and fire management; and visitor management and safety activities.

The Operational Plan will be periodically reviewed and updated to keep pace with operational requirements as the Reserve is developed.

The first Operational Plan will concentrate on works and activities in Stage 1 of the Reserve.

[NOTE – This is intended to be the ‘Land Management Plan’ referred to in the 23 March meeting. The term ‘Operational Plan’ is used to distinguish it from the names of the suite of other plans and the Management Plan itself.]

Reserve operations will be conducted in a way that minimises impacts on visitors and residents.

6.2 Utilities

Electricity easements and a ventilation shaft on the trunk sewer that passes under the Reserve are located within the Reserve boundaries. Several new ventilation shafts will be constructed in the Reserve on the trunk sewer for the West Belconnen urban development. Access to the easements will be needed by ActewAGL and the relevant NSW agencies for maintenance. Land uses and vegetation in the easements must comply with clearance requirements for powerline safety and protection. Access to the ventilation shafts by Icon Water will be needed for construction and maintenance.

The West Belconnen Concept Plan provides for control of recreation activities around the existing trunk sewer ventilation shaft due to the potential impacts of odour. Management of recreation and liaison with Icon Water in relation to this area is addressed Action VE 6 in section 4.4.

The West Belconnen Concept Plan establishes a 2.5 km clearance zone from the Lower Molonglo Water Quality Control Centre as a buffer within which only developments compatible with the treatment plant are permitted. This clearance zone covers part of the Reserve. The Trust will liaise with Icon Water and the ACT Environment Protection Authority on Reserve developments proposed in this clearance zone.

The Trust will liaise with ActewAGL and Icon Water on collaborative management arrangements that minimise impacts of these utilities on Reserve values and visitor recreation while meeting the utility management requirements.

WHAT WE WANT TO ACHIEVE – Management Operations	
In the long term	In the next 5 years
<ul style="list-style-type: none">) Well informed management partners who carry out management activities and operations in an effective manner that complies with the Reserve Management Plan and contributes to knowledge about the Reserve and the development of community stewardship.) A high rate of employment and partnership 	<ul style="list-style-type: none">) Preparation of an Operations Plan for Stage 1 of Reserve development.) Extension of the Operations Plan to apply to Stage 2 of Reserve development.) Employment of Trust staff and development of partnerships while encouraging employment of local people, organisations and the Aboriginal

WHAT WE WANT TO ACHIEVE – Management Operations	
<i>In the long term</i>	<i>In the next 5 years</i>
<p>participation by people from the local community, organisation and the Aboriginal community.</p> <p>) Establishment of Reserve staff offices (at the Ginninderra Falls visitor node if feasible) and a works depot (located outside the Reserve if feasible).</p> <p>) Facilities and services in the Reserve that apply best-practice sustainability and energy efficiency design and techniques.</p> <p>) Effective collaborative arrangements for conservation legislation, law enforcement, emergency response, electricity easements and sewer infrastructure with the relevant government agencies.</p>	<p>community.</p> <p>) Development of management partnerships.</p> <p>) Negotiations with government agencies and utility managers on collaborative arrangements.</p>

WHAT WE ARE GOING TO DO – Management Operations		
	Actions	Priority
MO 1	Prepare an Operations Plan for Stage 1 of the Reserve that is consistent with the requirements in the Reserve Management Plan and management provisions contained in other Plans prepared under the Reserve Management Plan.	1
MO 2	Revise the Operations Plan to reflect any new management requirements in Stage 1 and the development of Stage 2 of the Reserve.	4
MO 3	Develop management partnerships with government agencies, research institutions, non-government organisations, specialist contractors, conservation groups, other community groups and volunteers.	Ongoing
MO 4	Encourage employment of and partnerships with people from the local community, organisations and the Aboriginal community.	Ongoing
MO 5	Inform Reserve staff and management partners of the requirements of the Reserve Management Plan and relevant legislation, and safe and responsible conduct to protect the safety of operators and visitors and Reserve values.	Ongoing
MO 6	Negotiate with government agencies and utility managers on arrangements for law enforcement, emergency response and utility management in the Reserve.	Ongoing
MO 7	Consider the location of the Trust works depot outside of the Reserve to minimise impacts on Reserve values.	5
MO 8	Consider location of staff offices in the Ginninderra Falls visitor node to minimise impacts on Reserve values and make the offices accessible to visitors.	5

HOW WE WILL EVALUATE OUTCOMES – Management Operations

- A. Preparation and implementation of Operations Plans.
- B. Numbers of local people and organisations employed by the Trust or involved in management partnerships.
- C. Success of management outcomes assessed by the number of partnerships and their outputs (such as research reports, areas restored).
- D. Implementation of collaborative arrangements for law enforcement, emergency response and utility management.

Appendices

Appendix A - References

The main references used in the preparation of this Management Plan are listed below.

ACT Emergency Services Agency (2014). *ACT Strategic Bushfire Management Plan V.3*. ACT Government, Canberra.

ACT Government (2004). *Woodlands for Wildlife: ACT Lowland Woodland Conservation Strategy. Action Plan No. 27*. Environment ACT, Canberra.

ACT Government (2005). *A Vision Splendid of the Grassy Plains Extended: ACT Lowland Native Grassland Conservation Strategy. Action Plan No. 28*. Arts, Heritage and Environment ACT, Canberra.

ACT Government (2007). *Ribbons of Life: ACT Aquatic Species and Riparian Zone Conservation Strategy. Action Plan No. 29*. Department of Territory and Municipal Services, Canberra.

ACT Government (2010). *Aboriginal Cultural Heritage of the ACT*.

ACT Government (2012). *ACT Pest Management Strategy 2012-2022*. Environment and Sustainable Development Directorate, Canberra.

ACT Government (January 2013), *Recreational Fishing in the ACT*.

ACT Planning & Land Authority (March 2008). *Planning for Bushfire Risk Mitigation – General Code*.

Australian Capital Territory (ACT) (August 2011). *Heritage (Decision about Registration for Belconnen Farm, Belconnen) Notice 2011*. Notifiable Instrument NI 2011-494 made under the *Heritage Act 2004* section 42.

Australian Government (2006). *White Box–Yellow Box–Blakely’s Red Gum Grassy Woodlands and Derived Native Grasslands*, EPBC Act Policy Statement 3.5, Department of Environment and Heritage, Canberra.

Biosis (6 January 2013). *Draft West Belconnen Development Project: ACT Land Cultural Heritage Assessment*. Report Prepared for the Riverview Group (Confidential).

Biosis (10 January 2014), *Draft Aboriginal Cultural Heritage Assessment Report – West Belconnen Development Project, Yass, NSW*. Prepared for Riverview Group Pty Ltd (Confidential).

Department of Environment, Climate and Water NSW (April 2010). *Aboriginal cultural heritage consultation requirements for proponents 2010*.

Eco Logical Australia Pty Ltd (June 2014). *The West Belconnen Project – Bushfire Management Strategy*. Prepared for Riverview Group.

Department of Environment, Climate Change and Water NSW (May 2011). *National Recovery Plan for White Box-Yellow Box-Blakely’s Red Gum Grassy Woodland and Derived Native Grassland*. Department of Environment, Climate Change and Water NSW, Sydney.

Department of Primary Industries (August 2013), *NSW Recreational Fishing Catch and Release Handbook*.

Dudley N. ed. (2008). *Guidelines for Applying Protected Area Management Categories*. Gland, Switzerland.

Eric Martin & Associates (17 February 2013). *West Belconnen European Cultural Heritage Report. NSW Neighbours: Lot 4, 5, 61 and 62*. Prepared for the Riverview Group.

Eric Martin & Associates (17 February 2014). *West Belconnen European Cultural Heritage Report. NSW Land: Lot 1, 2, 3 and 7*. Prepared for the Riverview Group.

Eric Martin & Associates (24 February 2014). *West Belconnen European Cultural Heritage Report. ACT Land: Blocks 1605 and 1606*. Prepared for the Riverview Group.

Eric Martin & Associates (28 March 2014). *Belconnen Farm Conservation and Management Plan*. Report for Reid and Stevens Pty Ltd.

Finlayson D M (2008). *A Geological Guide to Canberra Region and Namadgi National Park*. Geological Society of Australia (ACT Division), Canberra

Gale, J (1907). *The Federal Capital. Dalgety or Canberra: Which?*

Geoff Butler & Associates (October 2009), *Conservation Management Plan for part of Ginninderra Creek.*

Geoff Butler & Associates (August 2014). *Weed Management Plan for Proposed Riverview Development West Belconnen.*

Ginninderra Catchment Group (2015). *A Preliminary Biodiversity Survey of the Ginninderra Falls Area.* A report commissioned by the Riverview Group.

Ginninderra Falls Association (no date). *The Murrumbidgee-Ginninderra Gorges National Park – a proposal.*

International Union for the Conservation of Nature (IUCN) (2014). *Protected Area Category IV*, www.iucn.org.

Johnston L, Skinner S, Ishiyama L and Sharp S (2009), *Survey of vegetation and habitat in key riparian zones: Murrumbidgee River, ACT.* Technical Report 22. Dept. of Territory and Municipal Services, ACT.

Kevin Mills and Associates (June 2014). *Ecological Studies West Belconnen – Australian Capital Territory.* The Riverview Group.

Koehn J and Clunie P (October 2010). *National Recovery Plan for the Murray Cod *Maccullochella peelii peelii*.* Victorian Government, Department of Sustainability and Environment.

McGregor Coxall (no date). *West Belconnen Landscape and Open Space Strategy.* Prepared for Riverview Projects (ACT) Pty Ltd & ACT Land Development Agency.

Nash K. and Hogg D. McC. (May 2013). *West Belconnen Woodland Areas: Confirmatory Ecological Assessment.* Prepared for the Riverview Group, Canberra.

NSW Government (2010). *National Recovery Plan for White Box–Yellow Box–Blakely’s Red Gum Grassy Woodland and Derived Native Grassland.* Department of Environment, Climate Change and Water NSW, Sydney.

NSW Department of Planning (30 April 2009). *LEP Practice Note 09-002: Standard Instrument for LEPs – Standard zones.*

NSW Office of Water (July 2012). *Controlled Activities on Waterfront Land: Guidelines for riparian corridors on waterfront land.*

NSW Government (2015). *Pale Pomaderris– Profile*, Office of Environment and Heritage, Sydney.

NSW Rural Fire Service (NSW RFS) (2006). *Planning for Bushfire Protection – a Guide for Councils, Planners, Fire Authorities and Developers.*

Osborne W and Wong D (10 May 2013). *The extent of habitat for the vulnerable Pink-tailed Worm Lizard (*Aprasia parapulchella*) in the West Belconnen-Ginninderra Creek investigation areas – confirmatory distribution surveys and mapping.* Institute for Applied Ecology, University of Canberra. Report commissioned by The Riverview Group Pty Ltd.

Rawlings K, Freudenberger D and Carr D (2010). *A guide to managing box gun grassy woodland.* Report for the Department of Environment, Water, Heritage and the Arts. Commonwealth of Australia, Canberra.

Robert Jessop Pty Ltd (August 2015). *West Belconnen Vegetation Survey – Summary.* Prepared for The Riverview Group.

Sharp S (March 2015). *Procedures Manual – Baseline Condition Assessment.* Report prepared for The Riverview Group.

Stolten et al (2013). *IUCN WCPA Best Practice Guidance on Recognising Protected Areas and Assigning Management Categories and Governance Types.* Best Practice Protected Area Guidelines Series No 21, Gland, Switzerland.

Threatened Species Scientific Committee (2008), *Approved Conservation Advice for Pomaderris pallida.*

Threatened Species Scientific Committee (2015). *Conservation Advice - Aprasia parapulchella Pink-tailed worm-lizard.*

TRC Tourism Pty Ltd 27 June 2014). *West Belconnen Sustainable Fisheries – A Scoping Report*. Prepared for Riverview Projects (ACT) Pty Ltd.

Umwelt (Australia) Pty Ltd (April 2016). *West Belconnen Project Strategic Assessment: Strategic Assessment Report*. Prepared on behalf of Riverview Projects Pty Ltd.

Worboys, G I, Lockwood M, Kothari A, Feary S and Pulsford I (eds) (2015). *Protected Area Governance and Management*, ANU Press, Canberra.

Appendix B – Approval Conditions for the West Belconnen Conservation Reserve

The following tables contain extracts from the relevant approval documents related to the West Belconnen Conservation Reserve and indicate the sections of the Management Plan where each requirements is addressed.

ACT Government Requirements

Approval Condition	Where it is addressed in the Management Plan
ACT West Belconnen Structure Plan	
2. The landscape setting and values of the site should be recognised and enhanced. Existing significant landscape features will be retained and protected.	Section 4.3, Actions L1 to L4.
10. The links between urban water management and potential impacts on flora, fauna, heritage and the conservation corridor should be recognised. Furthermore, appropriate sustainable urban water management measures will be implemented to manage runoff and reduce the number of run-off days to replicate, as closely as possible, pre-development peak flows protect the river corridor, water quality and downstream ecology.	Section 4.1.6.
11. Aboriginal and historic heritage place and objects will be recognised and significant sites conserved in public open space where appropriate.	Section 4.2.1, Action A1 to A8.
27. The landscape setting and values of West Belconnen will be recognised and sensitively incorporated into the urban design of the area. This includes the visual connection to the range of hills immediately west of the Murrumbidgee River, the distant Brindabella Ranges and the group of hills to the north of Ginninderra Creek.	Section 4.3, Actions L1 to L4.
29. Best practice water sensitive urban design principles will be adopted at all levels of the development to minimise potable water usage, manage overland flows, protect water quality and aquatic habitat in the Murrumbidgee River and Ginninderra Creek.	Section 4.1.6.
31. Aboriginal and European heritage places will be recognised and significant sites conserved in a manner agreed by the ACT Heritage Unit and in consultation with Registered Aboriginal Organisations.	Section 4.2, Actions AH2 and EH1.
32. Bushfire risk assessments and management plans will be prepared and implemented in accordance with relevant Government guidelines for bushfire mitigation.	Section 4.1.4 and Action ER 6.
37. The Murrumbidgee River corridor is recognised as an important natural and cultural asset to the ACT and wider region. It will be planned as an integral part of the National Capital Open Space System by providing for continuity of recreation use with surrounding open space and the river corridor.	Section 4.4.
39. Provision will be made in the conservation corridor to create a balance between spaces allocated for recreational activities and protecting the area's natural and cultural values in a sensitive manner.	Sections 4.1, 4.2 and 4.4.
42. Provision will be made for open space links between the Murrumbidgee River Corridor, Ginninderra Creek and Strathnairn	Section 4.4.4.

Approval Condition	Where it is addressed in the Management Plan
Village suitable for cycling, pedestrian and equestrian use.	
69. The Murrumbidgee River corridor and associated conservation area are to be managed to protect water quality, classified species and communities, bird habitats, high value woodlands and grasslands, and natural and cultural assets.	Sections 4.1, 5.1, 5.2, 5.3 and 5.4.
75. Provision will be made in the conservation corridor for recreational activities appropriate to the characteristics of the river and adjacent land, and in a manner that provides bushfire protection and reinforces and protects the natural and cultural values of the river corridor.	Sections 5.2 and 5.5.
76. The inner asset protection zone is to be located outside the river corridor boundary, within the urban area.	Section 4.1.4.
77. Conservation Management Plans are to be prepared for Aboriginal heritage places and objects.	Section 4.2.1, Action AH 3.
89. Strong recreational links are to be facilitated within West Belconnen and surrounding suburbs to allow safe, appropriate and convenient access to the Murrumbidgee River and conservation corridor.	Section 4.4.4.
109. Shared paths (bicycle/pedestrian) will provide access to key features within West Belconnen including the conservation corridor, Murrumbidgee River and Ginninderra Creek corridors, the group centre, schools and Strathnairn. The paths will also connect to existing shared paths that link West Belconnen with the wider Belconnen district, Canberra City and beyond.	Section 4.4.4.
101. A water sensitive urban design (WSUD) strategy will be adopted to control stormwater runoff from the West Belconnen development. The strategy will comply with current ACT WSUD policy documents and will comprehensively address issues relating to the management of water quality control and minimise adverse impacts on flow regimes into the Murrumbidgee River and Ginninderra Creek. Flow regimes should reduce the number of run-off days to replicate, as closely as possible, predevelopment peak flows.	Section 4.1.6.
111. The proposed conservation corridor and Murrumbidgee River offer opportunities for research, education, recreation and ecotourism. The potential of these places will be further explored as part of a separate master planning exercise.	Sections 4.4, 4.4.7 and 4.5.
West Belconnen Concept Plan (Part 2)	
10. Identified Aboriginal heritage places and objects are to be managed in accordance with <i>Heritage Act 2004</i> provisions.	Section 4.2.1, Actions AH 2 and AH 3.
18. Sewer Vents. No recreation activity that will encourage people to congregate within 130m of the sewer vent within the river corridor is permitted. A reduction in the dimension may be permitted with the endorsement of Icon Water.	Section 6.2
19. Lower Molonglo Water Quality Control Centre Clearance Zone. New uses are not permitted within the 2.45km clearance zone from the Lower Molonglo Water Quality Control Centre, as shown in Figure 3 [of the Concept Plan], other than development which is compatible with, and does not have an adverse impact on the treatment plant, as determined by Icon Water. The size of the clearance zone may be	Section 6.2.

Approval Condition	Where it is addressed in the Management Plan
adjusted subject to an appropriate independent audit process and approval of the Environment Protection Authority and Icon Water.	
28. The provisions of the Domestic Animals Act relating to cat containment apply.	Section 4.1.6, Action ER 9.

Yass Valley Local Environment Plan

Approval Conditions	Where it is addressed in the Management Plan
<i>[TO BE ADDED WHEN THE AMENDMENTS TO THE PLAN HAVE BEEN APPROVED.]</i>	

MNES Approval Conditions under EPBC Act [DRAFT]

Conservation Outcome Sought	Commitment	Where it is addressed in the Management Plan
Previously unidentified MNES		
Protection of Matters of National Environmental Significance that are identified in pre-construction surveys for permitted construction work.	Prior to development of WBCC infrastructure, site surveys of threatened flora and fauna species will be conducted and populations of threatened flora and fauna species will be avoided or impacts managed in accordance with the Reserve Management Plan	Sections 4.4.4, 5.5 and 6.1.3. Action VN 4
Box-Gum Woodland		
A conservation area that includes 100% of identified box gum woodland (70.7 ha)	Vary the Territory Plan, amend the National Capital Plan for all proposed land use changes. Zoning to be in place prior to commencement of construction in the ACT.	Contained within the Conservation Reserve – see Figure 6.
Preservation and enhancement of woodland habitats.	Manage activities in the West Belconnen Conservation Reserve in accordance with a Reserve Management Plan. The Trust is to seek approval of and implement the Plan. The Plan is to be approved by the ACT Conservator and Minister for the Environment (ACT component) and endorsed by the ACT Conservator (NSW component) in consultation with the NSW Office of Environment and Heritage. The Plan is to be finalised within 2 years of Ministerial endorsement of MNES plan and reviewed at intervals of no more than five years thereafter.	Management of Box-Gum Woodland is provided in section 5.1.2. The development and approval processes for the Reserve Management Plan are described in section 1.3.
Establishment of a land management governance regime.	Establish an Environmental Management Trust for management of the West Belconnen Conservation Reserve within 2	Section 1.3

Conservation Outcome Sought	Commitment	Where it is addressed in the Management Plan
	years of Ministerial endorsement of the MNES plan and prior to commencement of construction.	
Maintenance and enhancement of connectivity between Box Gum Woodland habitat areas. No appreciable long term net reduction in total Box Gum Woodland habitat areas.	All works that may affect Box Gum Woodland to be informed by relevant scientific expert advice. Roads and tracks to follow existing alignments where feasible and incorporate appropriate design techniques such as raised grating. Vehicle tracks are to be a maximum of 6 metres wide and other tracks/trails a maximum of 2.5m wide. Unused existing tracks are to be rehabilitated. Picnic and other facilities involving buildings and car parking are to avoid known high value habitat areas.	Section 5.1.2 and Actions BGW 2 and BGW 3.
Protect habitat from domestic predators.	Impose a cat containment policy in the ACT portion of the West Belconnen urban area and prohibit off-leash dogs in the Conservation Reserve. Cat Containment is to be mandated by the Territory Plan variation prior to commencement of any works. The dog control regime is to be established by the Trust.	Section 4.1.6 and Actions ER 9 and ER 10. Dog walking is addressed in sections 4.1.6 and 4.4.3.
	Adopt field data recorded by Nash & Hogg (2013) as baseline data. Conduct periodic field research to assess change in the extent and quality of Box-Gum Woodland habitat every two years from the date of endorsement. The monitoring period can be reviewed if impacts have stabilised.	Section 5.1.2 and Action BGW 2.
Establishment of a process of independent third party review.	Within 2 months of the end of each financial year, preparation of an annual report addressing MNES outcomes achieved in the previous year; lessons learned; and including a financial audit. The annual report is to be made publicly available and to be submitted to the ACT Conservator of Flora and Fauna.	Section 5.1.2 and Action BGW 7.
Pink-tailed Worm Lizard (PTWL)		
A conservation area that includes 90% of identified PTWL habitat (144.7 Ha).	Variation to the Territory Plan, amendment to the National Capital Plan and amendment to the Yass Valley Local Environment Plan for all proposed land use changes. ACT zoning is to be in place prior to commencement of construction in ACT. NSW zoning is to be in place prior to	Contained within the Conservation Reserve – see Figure 5.

Conservation Outcome Sought	Commitment	Where it is addressed in the Management Plan
	commencement of construction in NSW.	
Preservation and enhancement of PTWL habitats.	Preparation of a Reserve Management Plan - see under Box-Gum Woodland.	Management of PTWL habitat is provided in section 5.1.1.
Establishment of a land management governance regime.	Establishment of a Trust – see under Box-Gum Woodland.	Section 1.3
Maintenance and enhancement of connectivity between PTWL habitat areas. No appreciable long term net reduction in total PTWL habitat areas.	All works that may affect PTWL habitat to be informed by relevant scientific expert advice. Roads and tracks to follow existing alignments where feasible and incorporate appropriate design techniques such as raised grating. Vehicle tracks are to be a maximum of 6 metres wide and other tracks/trails a maximum of 2.5m wide. Unused existing tracks are to be rehabilitated. Picnic and other facilities involving buildings and car parking are to avoid known high value habitat areas.	Section 5.1.1 and Actions PTWL 2 and PTWL 4. Visitor infrastructure – sections 4.1.7, 4.4.4 and 5.5.
Pink Tailed Worm Lizards are protected from domestic predators.	Impose a cat containment policy in the ACT portion of the West Belconnen urban area and in the NSW portion in the future if suitable legislation comes into force. Prohibit off-leash dogs in the Conservation Reserve.	Section 4.1.6 and Actions ER 9 and ER 10. Dog walking is addressed in sections 4.1.6 and 4.4.3.
Ongoing monitoring of impacts on PTWL habitat.	Adopt field data recorded by Osborne & Wong (2013) as baseline data. Conduct periodic field research to assess change in the extent and quality of PTWL habitat every 2 years from the date of endorsement. The monitoring period may be reviewed if impacts have stabilised.	Section 4.1.1, Action PTWL 2.
Establishment of a process of independent third party review.	Within 2 months of the end of each financial year, preparation of an annual report addressing MNES outcomes achieved in the previous year; lessons learned; and including a financial audit. The annual report is to be made publicly available and to be submitted to the ACT Conservator of Flora and Fauna.	Section 5.1.2 and Action PTWL 6.

Appendix C – Reserve development stages

