EMRC

Collective Local Biodiversity Strategy

Report produced by the EMRC on behalf of the Town of Bassendean, the City of Bayswater and the City of Belmont

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Foreword

To be developed in conjunction with Mayors/CEOs of each Council involved.

Acronyms

DEC	Department of Environment and Conservation
DPI	Department for Planning and Infrastructure
EMRC	Eastern Metropolitan Regional Council
LNA	Local Natural Area
NACT	Natural Area Condition Targets
NMCG	North Metro Conservation Group
PBP	Perth Biodiversity Project
TEC	Threatened Ecological Communities
SRT	Swan River Trust

Acknowledgements

This local biodiversity strategy has been developed by the EMRC on behalf of the Town of Bassendean, the City of Bayswater and the City of Belmont with assistance and funding from the Perth Biodiversity Project a Local Government initiative funded through Perth Region NRM and supported by the Australian and State Government.

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- Cr Gerry Pule – Town of Bassendean (2007/2008)
- Mr Ron Van Delft – Bassendean Preservation Group
- Cr Alan Radford – City of Bayswater
- Ms Marion Cahill – North Metro Catchment Group
- Cr Glenys Godfrey (Mayor) – City of Belmont

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- Leah Pearson – EMRC/Town of Bassendean

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- Renata Zelinova

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Executive Summary

A local biodiversity strategy is a strategic commitment to the protection and enhancement of a network of local natural areas (LNAs).

This Draft Collective Biodiversity Strategy, developed for the Town of Bassendean and the Cities of Bayswater and Belmont, is based on the Local Government Biodiversity Planning Guidelines (2004). The focus of the strategy is the protection and effective management of natural areas directly managed by the three local governments. The collective approach enables the consideration of ecological linkages within a broad landscape beyond municipal boundaries.

Through the regional identity adopted by all six Councils in Perth's Eastern Region, the three Councils participating in this collective strategy are identified as the Swan River Precinct. To simplify references within the strategy, where all three Councils or the area under their auspices is referred to collectively, they are referred to as the Swan River Precinct.

The strategy was developed by the EMRC with input from a Stakeholder Working Group comprising environmental staff from all three local governments, representatives from WALGA's Perth Biodiversity Program (PBP) program, and community representatives. The development of the strategy was funded jointly by the three local governments and WALGA.

The Vision Statement for the Strategy is:

Urban biodiversity values are protected managed and enhanced in the Swan River Precinct of Perth's Eastern Region to enable future generations to experience continued social benefits and ecological services.

The draft strategy incorporates the following elements:

- Identification of the extent of the biodiversity resource within the combined Local Government area,
- Development of a vision, objectives and targets for the protection and management of natural areas and other biodiversity features within the Swan River Precinct,
- Assessment of Local Natural Areas within the Swan River Precinct,
- Identification of ecological linkages (biodiversity corridors) across the Swan River Precinct,
- Identification of broad management options for Local Natural Areas and ecological linkages within the Swan River Precinct,
- Provision of costing schedules for the management of natural areas and ecological linkages within the Swan River Precinct,
- Development of a preliminary framework for monitoring and review
- A preliminary review of existing Council policy and programs related to biodiversity conservation, and
- Recommendations for the ongoing implementation of the Strategy.

The area addressed through this strategy includes all lands within the three Councils, which collectively form the Swan River Precinct of Perth's Eastern Region.

Biodiversity is the variety of all life forms - the different plants, animals and micro-organisms, the genes they contain and the ecosystems of which they form a part.

The Swan River Precinct is located within a recognised global biodiversity hotspot, the Southwest Botanical Province, and although much of the area has been modified or developed for human use, there are still important biodiversity resources within the region, and a need to protect and conserve those resources and implement appropriate environmental management.

The main focus of this strategy is ecosystem diversity as it represents the most strategic way to conserve all levels of biodiversity. Vegetation complex mapping is the primary tool used to interpret and quantify ecological communities in the study area within the Swan River Precinct.

Specific biodiversity assets and values known or likely to occur in the region and identified and targeted for protection in this strategy include:

- Seven Bush Forever sites
- Nine species of flora and seven species of fauna as listed under the Environmental Protection and Biodiversity Conservation Act 1999
- One species of Declared Rare Flora
- Three species of Priority Flora and three species of Priority Fauna

No Threatened Ecological Communities are known from the region.

Biodiversity and the natural ecosystem functions that support biodiversity face many threats. In the Swan River Precinct, the following threats are identified and addressed where possible through the strategy:

- Clearing and habitat fragmentation
- Environmental weeds
- Erosion
- Feral animals
- Changing water regime and water quality
- Fire
- Lack of awareness
- Inappropriate use of local natural areas
- Plant disease
- Climate change

Natural area condition targets and resourcing targets are proposed through the strategy. These targets focus on protecting specific biodiversity features and functions, particularly:

- Representativeness of vegetation complexes present in the Swan River Precinct
- Diversity of structure and function
- Rarity – particularly threatened species and ecological communities
- Ecological processes with reference to linkages
- Wetland, streamline and estuarine fringing vegetation.

The strategy recognises the importance of ecological linkages within fragmented urban environments.

Two major regional linkages are identified; the Swan River and its foreshores and the linkage between the remaining bushland of Perth Airport and the river. Both of these linkages provide vital habitat for birds, including dispersion corridors, food and roosting or nesting sites.

The river has the additional value of being a major regional aquatic habitat that also has recreational, aesthetic, cultural and social values. Management of the river and its foreshores to enable its biodiversity values to be maintained and enhanced whilst also meeting the range of human use values requires constant attention to its changing needs and consistent application of best management practices.

The strategy also identifies ten local ecological linkages, three each in the Town of Bassendean and the City of Belmont and four in the City of Bayswater. The local linkages strengthen the

links between the regional linkages, and Bush Forever sites using local natural areas, reserves and waterways and drainage lines.

Due to the highly developed nature of the three local government areas, there are no fully vegetated linkages, therefore landscaping of public and private land within the linkages has an important role in enhancing the environmental values of each linkage.

Natural area condition targets and resourcing targets are set in the strategy to provide a focus for policy and management initiatives. The targets are presented following this summary. Potential biodiversity conservation actions identified to meet the targets include:

- Protection and management of local reserves
- Increased protection of existing bushland reserves
- Improved reserve management
- Strategic acquisition of lands for reserves
- More effective use of Local Planning Schemes and Councils' policies and local laws
- Policy development
- Amendments to Town and Local Planning Schemes
- Public Open Space provisions
- Private land conservation
- Plants to residents programs
- Education programs
- The development of partnerships to facilitate actions

There are also a number of initiatives to reduce threats to biodiversity within the precinct, including:

- Weed control
- Seed collection
- Enhancing natural areas within regional and local linkages
- Introduction or expansion of Geographic Information System (GIS) software
- Use of carbon offsets

All strategies require regular monitoring and review. The strategy therefore includes provisions for annual in-house monitoring and reporting within each Council's operating processes, however, it also contains provision for shared development of key performance indicators and three primary shared reporting actions:

- December 2009 – on high priority actions
- December 2011 – triennial review as a part of sound adaptive management
- December 2013 – final report and re-establishment of goals, targets and actions.

Strategies are only effective when their implementation is adequately resourced. It is recognised that local government's resources are constrained and therefore cost estimates have been provided for the key elements of the strategy where possible and therefore the strategy provides a basis for identifying sources of additional funding for initiatives, including grant funding opportunities and recommends exploring the feasibility of an environmental levy to fund major biodiversity and environmental initiatives.

A prioritised Action Plan is included to guide implementation of the strategy.

Summary of Targets

The following biodiversity targets were developed through this draft strategy.

Target for protection of vegetation contained within Local Government reserves

Enhance[1] and extend the area of remnant vegetation contained within reserves owned or managed by the Councils of the Swan River Precinct and where appropriate, improve the protection[2] status of the vegetation contained within each of these reserves.

Target for protection of vegetation contained outside Local Government reserves

Enhance the remnant vegetation contained outside reserves owned or managed by the Councils of the Swan River Precinct by lobbying and forming partnerships with the Federal Government (i.e. regarding Perth Airport), State Government and other owners or managers of public lands.

Target for protection of Threatened Ecological Communities

Should any Threatened Ecological Communities (TECs) be identified in the Swan River Precinct, the natural values of any reserve containing a TEC or which acts as a buffer to a TEC owned or managed by the Councils of the Swan River Precinct, Where appropriate, improve the condition status of the vegetation contained within each of these reserves.

Target for protection of Threatened Plants and Declared Rare Flora

Enhance any reserve found to contain Threatened, Declared Rare or Priority Flora owned or managed by the councils of the Swan River Precinct. Where appropriate, improve the condition status of the vegetation contained within each of these reserves.

Target for protection of Threatened and Specially Protected Fauna

Enhance the natural values of any reserve regularly utilised by Threatened, Specially Protected, Priority or other significant fauna and/or habitat for this fauna owned or managed by the Councils of the Swan River Precinct. Where appropriate, improve the protection status of the vegetation contained within each of these reserves.

[1] Enhance in the context of Local Biodiversity Planning, should in the first instance be the abatement of threats to ensure the long term viability of significant natural areas. This could be achieved, for example through investment in infrastructure such as fencing or conservation signage or through weed control (fauna protection). Once the threats have been minimised the improvement of function could potentially be investigated as part of the further enhancement of an area. For example revegetation could be considered at this stage.

[2] Although some protection is given for the remaining Local Natural Areas within the Town of Bassendean, the City of Bayswater and the City of Belmont by inclusion into the local reserve system, further protection could be provided by ensuring that they appear in the Metropolitan Regional Scheme as land zoned for the purpose of Parks and Recreation and changing the vesting purpose to reflect biodiversity conservation. These further levels of protection should therefore become actions of the biodiversity strategy.

Regional Ecological Linkage Target

Enhance the natural values of the following areas within the defined boundaries of the Regional Ecological Linkages to improve the viability of these linkages:

- Local Natural Areas;
- Streetscapes; and
- Reserves with remnant natural values.

Wetlands and Waterways Target

Enhance all wetlands, waterways and drainage lines, their buffers and associated riparian and upland vegetation contained within reserves owned or managed by the Councils of the Swan River Precinct. Where appropriate, improve the protection status of the vegetation contained within each of these reserves.

Resource Target

Manage all local government reserves within regional and local linkages to increase available habitat, and reduce disturbance and threatening processes.

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Part A: An Introduction to Biodiversity Planning

Success Hill at the mouth of Bennett Brook – Town of Bassendean
Photo courtesy of the North Metro Conservation Group

1 Introduction

The National Local Government Biodiversity Strategy, 1998 made a number of recommendations regarding the conservation of biodiversity by Local Government including but not limited to the following:

- Local Governments be encouraged to cooperate with each other to develop management plans at a regional level,
- Biodiversity be recognised as an important function of Local Government, and
- Training and access to information on biodiversity to Local Government be increased.

In response to this national strategy, the Perth Biodiversity Project (PBP) was developed as a partnership project between 31 Local Governments, WALGA, the Swan Catchment Council (now Perth Region NRM Inc.) and the Department for Planning and Infrastructure (DPI). As part of this project Local Government Biodiversity Planning Guidelines were developed to assist Local Governments strategically plan for the retention, protection and management of Perth's biodiversity.

These guidelines have traditionally been used to plan for the retention of biodiversity within the outer metropolitan Councils which contain large areas of remnant native vegetation within a number of different Town Planning zonings. The Town of Bassendean, the City of Bayswater and the City of Belmont will now test these guidelines in a highly urbanised setting.

Unlike outer metropolitan Councils, highly developed, urban municipalities have very small remaining proportions of natural areas and native vegetation with most of this remaining vegetation located within small, fragmented reserves under Government management.

Lightning Swamp Reserve – City of Bayswater (Photo provided by NMCG)

Due to the urbanised environment of the Swan River Precinct of Perth's Eastern Region[3] all remaining natural areas in this inner city landscape will be considered of high biodiversity value. In this way all natural areas providing vital habitat for the flora and fauna that inhabit our highly

[3] Through the regional identity adopted by all six Councils in Perth's Eastern Region, the three Councils participating in this collective strategy are identified as the Swan River Precinct. To simplify references within the strategy, where all three Councils or the area under their auspices is referred to collectively, they are referred to as the Swan River Precinct.

developed urban landscapes, a number of which are unique to the Bassendean soils complex, will be recognised. The loss of such habitat would be significant not only in terms of biodiversity, but for aesthetic values associated with having the natural environment as part of our city and for the sense of well being that natural areas provide.

Every remnant local tree and bushland reserve within the Swan River Precinct is of vital importance, for the simple reason that there are very few left. Biodiversity values can be enhanced through ecological linkages that not only include remnants and bushland reserve but also consider urban landscape forms such as lot/house densities that retain trees and vegetation on private property. These urban landscapes, such as backyards, provide areas which allow movement of species through the landscape as they would through remnant bushland and reserves.

A Collective Local Biodiversity Strategy has been developed for the Town of Bassendean, the City of Bayswater and the City of Belmont using the Local Government Biodiversity Planning Guidelines (2004). This strategy consists of the following elements:

- Identification of the extent of the biodiversity resource within the combined Local Government area,
- Development of a vision, objectives and targets for the protection and management of natural areas and other biodiversity features within the Swan River Precinct,
- Assessment of Local Natural Areas within the Swan River Precinct,
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- Identification of broad management options for Local Natural Areas and ecological linkages within the Swan River Precinct,
- Provision of costing schedules for the management of natural areas and ecological linkages within the Swan River Precinct,
- Development of a preliminary framework for monitoring and review,
- A preliminary review of existing Council policy and programs related to biodiversity conservation, and
- Recommendations for the ongoing implementation of the strategy.

The development of the strategy was guided by an Advisory Group that included membership of each of the three Councils and the Perth Biodiversity Project staff. This group met at regular intervals to provide guidance on the development of the strategy, provide specific information relevant to each Local Government and to review drafts. In addition, a Stakeholder Working Group was established that incorporated Council and community representation from participating Councils who provided guidance to the project team on significant issues and directions.

The undertaking of a collective Local Biodiversity Strategy will provide a strategic commitment to the protection and enhancement of a network of connected Local Natural Areas within the Swan River Precinct.

2 What is Biodiversity?

Biodiversity is the variety of all life forms - the different plants, animals and micro-organisms, the genes they contain, and the ecosystems of which they form a part. It is usually considered at three levels; genetic diversity; species diversity; and ecosystem diversity (Commonwealth of Australia, 1996).

Tomato Lake Bushland - City of Belmont

The main focus of this strategy will be ecosystem diversity as it represents the most strategic way to conserve all levels of biodiversity. Ecological communities will be used to describe ecosystem diversity. For the purposes of this strategy, vegetation complex mapping of natural areas will be used in order to interpret and quantify ecological communities in the study area within Perth's Eastern Region.

Vegetation complexes, as defined and mapped by Heddle, Loneragan and Havel (1980), are based on the pattern of vegetation at a regional scale and reflect landforms, soils and climate. There are four vegetation complexes represented in the Town of Bassendean, six vegetation complexes represented in the City of Bayswater and four vegetation complexes represented in the City of Belmont (these will be discussed further in **Section 4.1**).

Natural areas are used to describe any physical area that contains native species or ecological communities in a relatively natural state and hence contain biodiversity. Natural areas found in the study area within Perth's Eastern Region include:

- Areas of native vegetation - e.g. Success Hill, Lightning Swamp, Signal Hill,
- Vegetated or open wetlands - e.g. Ashfield Flats, Gobba Lake, Tomato Lake,
- Waterways - e.g. Swan River, Bennet Brook, drainage systems, and
- Bare ground - e.g. mudflats associated with the Swan River.

The term Local Natural Areas (LNA) has been created to define natural areas that exist outside Department of Environment and Conservation Managed Estate, Regional Parks and Bush Forever sites that are not managed by the Local Government.

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Local Natural Areas represent the land over which Local Government has the most control. The primary focus of the Collective Local Biodiversity Strategy will be on the protection and management of Local Government managed LNAs. Additionally, the strategy will include actions for the protection and management of significant biodiversity assets and on the management of the urban landscape to improve the regional and local connectivity or linkage between Natural Areas.

The River itself, with its aquatic biota and ecology, is not the specific subject of this strategy as much of the effort needed requires actions on land that is outside local government control. Where this strategy can contribute is through ensuring that local government actions to conserve and manage biodiversity values on reserves within its control, or planning decisions affecting the river, contribute to the natural ecology of the river through reducing threats and enhancing the biodiversity values of Local Natural Areas.

2.1 Measuring and describing biodiversity

As previously mentioned vegetation complexes and natural areas are used in order to interpret and quantify ecological communities in the Swan River Precinct. A measure of condition is also useful in helping to describe biodiversity for the purposes of local biodiversity planning.

In the Town of Bassendean, the City of Bayswater and the City of Belmont, vegetation condition mapping has been undertaken using the Keighery (1994) method on a number of reserves. Wetland values have been assessed using the methodology described in the Environmental Protection Authority (EPA) Bulletin 686 (1993) while channel wetlands/waterways have been assessed using the Shepherd and Siemon method (1999).

Lyginia barbata present at Jubilee Reserve, Town of Bassendean (photo provided by Florabase.

3 Why is Biodiversity Important?

Perth's biodiversity is part of the Southwest Botanical Province of Western Australia, which is internationally recognised as one of the world's top 25 biodiversity hotspots. This recognition is based on high levels of natural diversity together with high levels of threat to that diversity. It is one of the few hotspots to be found in a developed country and is currently the only internationally recognised hotspot for biodiversity conservation in Australia (Gole, 2006).

Further to this, biodiversity can also provide a number of ecological, biological, social and economic services.

Biodiversity is not only important for cultural identity but also provides valuable recreational activities such as bird watching and photography. The importance of providing an aesthetic natural ecosystem in which to escape the urban sprawl should not be underestimated.

Prickly Moses (Acacia pulchella) – common species found at Lightning Swamp

The main biological services provided by biodiversity are

- consumptive use values (personal use such as collecting bush food or firewood);
- productive use values (business opportunities such as seed collection, timber harvesting, honey production, wildflower picking etc);
- opportunity values (such as the potential future use of genetic resources);
- ecosystem service values (nutrient harvesting, carbon cycle, water cycle etc);
- amenity values;
- scientific and educational values;
- recreational values; and
- spiritual/philosophical values.

Within the Swan River Precinct, the main ecological services provided by biodiversity are the maintenance of hydrological cycles, protection from erosion, nutrient storage and pollutant breakdown and absorption. Increasing biodiversity may also improve the ability for ecological communities to recover from unpredictable events.

Improving expertise in managing natural areas biodiversity in an urban environment may also provide an economic service. For example, revegetation of areas using local provenance material could provide an income through the sale of carbon credits. The carbon credit market is currently undergoing development as the Australian Government develops its policy and statutory frameworks to underpin carbon markets. Local governments are monitoring the current situation to identify suitable opportunities for the generation of carbon credits from local government and community revegetation programs.

3.1 Biodiversity Protection

Eucalyptus rudis is found throughout the Swan River Precinct (Photo provided by FloraBase)

The importance of biodiversity values has been recognised by numerous international agreements and conventions, Federal law and State law.

International agreements are made by Federal Government and do not directly represent the commitment of Local Government. However, the agreements made under international agreements and conventions are usually translated into Federal law, which Local Government is required to adhere to.

The main Federal legislation with regard to biodiversity conservation is the *Environmental Protection and Biodiversity Conservation Act 1999*. This act addresses matters of national environmental significance.

The State's principal biodiversity conservation legislation is the *Wildlife Conservation Act (1950)* and the *Conservation and Land Management Act (1984)* (CALM Act).

The CALM Act applies to the public conservation reserve system and includes provisions for the establishment and management of national parks, nature reserves, conservation parks and marine parks. No formal conservation reserves currently exist within the Swan River Precinct.

The Wildlife Conservation Act provides for the protection of listed species of fauna and flora. A Biodiversity Conservation Act for WA is currently in development to replace the Wildlife Conservation Act and will include provisions for the protection, restoration and sustainable use of biodiversity.

The *Environmental Protection Act (1984)* includes provisions relating to biodiversity conservation including the ability for formal EPA assessment of impacts of proposals on biodiversity and regulation of land clearing in WA (through the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004).* This mechanism is a significant contribution towards protecting biodiversity from land clearing at the species, ecosystem and landscape scales.

The *Swan and Canning Rivers Management Act 2006* provides for the protection and management of the biodiversity of the Swan and Canning Rivers.

Other mechanisms for biodiversity protection and conservation include:

- Bush Forever – a State policy initiative which is a strategic plan that identifies regionally significant bushland to be retained and protected in the Swan Coastal Plain portion of the Perth metropolitan area (Western Australian Planning Commission, 2000).
- The control of development through the statutory land use planning processes of the Western Australian Planning Commission (Department for Planning and Infrastructure) and local government.

Biodiversity conservation is covered by numerous pieces of State legislation, including:

- The *Wildlife Conservation Act 1950,*
- The *Environmental Protection Act 1986,*
- The *Environmental Protection (Clearing of Native Vegetation) Regulations 2004,*
- The *Swan and Canning Rivers Management Act 2006.*

3.2 Threats to biodiversity

There are a number of threats to the management and ongoing viability of natural areas. They range from factors that can be controlled (such as weed invasion and pest animals) to factors that are global or exist outside the realm of the land manager's control (such as climate change and unplanned and indiscriminate use of fire) (WALGA, 2004).

The control of these threats in the Swan River Precinct will help improve the resilience of natural areas within the region and will help to reduce the spread of these threats across the wider Perth region. The Town of Bassendean, the City of Bayswater and the City of Belmont therefore have the opportunity not only to improve their own biodiversity assets but also to increase the viability of the biodiversity outside their borders.

The threats to biodiversity in the Swan River Precinct are described in the following sections.

3.2.1 Clearing and habitat fragmentation

Significant clearing of native vegetation has taken place throughout the study area within Perth's Eastern Region creating the highly urbanised and industrial landscape that can be seen today. Clearing has also taken place on reserved land in order to create recreational parks. The loss of individual trees, small areas of planted vegetation and tree loss associated with urban infill becomes a significant threat to linkages between LNAs. The remaining natural areas are therefore now highly fragmented across the landscape.

Clearance of native vegetation has led to habitat fragmentation (photo by NMCG)

Habitat fragmentation has many detrimental impacts including:

- Reduced habitat for individual species and isolation of species living in an area,
- Interference with the ability of populations to disperse and recolonise areas after disturbance or mortality, and
- Decreasing population size to below the threshold where it can be self-sustaining through reproduction.

The effect of habitat fragmentation in the Swan River Precinct needs to be carefully managed in order to protect the unique habitats that remain.

3.2.2 Changed water regimes and/or water quality

Urbanisation often results in significant alteration to water regimes. Wetlands are especially vulnerable to changes in water regime, as is evident in the death of some wetland vegetation around seasonally inundated areas that become permanent following urbanisation. Upland vegetation can also be affected by human-induced changes in water regime, such as the death

of banksias caused by the abstraction of groundwater, below-average rainfall and long hot summers.

Similarly, excessive nutrients, sediments and pollutants can have a significant effect on native vegetation, wetlands and waterways. Excessive nutrients and pollutants contribute to algal blooms, death of aquatic life in wetlands and promote the spread of weeds in both upland and wetland natural areas, and have potential to adversely affect the health of the Swan River and other watercourses, such as the Bayswater Brook (WALGA, 2004).

Stormwater drainage into the reserves of the Swan River Precinct is affecting the water availability and water quality in these reserves. These alterations need to be carefully managed in order to retain the biodiversity assets contained within the reserves.

Potential acid sulphate soils also occur naturally in the Swan River Precinct, including in the Ashfield Flats, Baigup Reserve and Ascot to name a few locations. The naturally occurring mineral sulfides are not a threat if left undisturbed, but disturbance, including drying out through lower water tables can lead to actual acid sulphate soils that can potentially adversely impact on biota and on human health and infrastructure.

3.2.3 Weeds

Environmental weeds that compete with and (displace) local native plant species are a significant threat to natural areas. Weeds compete with local native plant species for space, light and deprive local fauna of suitable habitat. Controlling weeds in natural areas is a significant, but essential, cost to the management of natural areas (adapted from WALGA, 2004).

Weed species found in the Swan River Precinct are numerous. Those species found during the natural area assessments are detailed in **Appendix 1**. These species need to be controlled in order to ensure that the diverse array of native species currently found within reserves is not displaced.

Bamboo invasion Hinds Reserve – City of Bayswater

Weeds can be declared under the *Agriculture and Related Resources Act 1976*. This Act provides for the management, control and prevention of certain plants, and prohibits or regulates the introduction and spread of certain plants for the protection of agriculture and related resources generally, and for incidental and other purposes. Although the prime purpose of the Act relates to protection of primary industry, the control of declared plants, which are highly invasive, also helps protect biodiversity within the State. Declared plant species within the Swan River Precinct are summarised in **Appendix 2**.

The Councils of the Swan River Precinct contain declared species with P1 and P2 status. P1 status prohibits movement of plants or seed. P2 plants have to be eradicated and managed in such a way as to limit the spread of plant parts or seed.

Many weeds in the Swan River Precinct may not be declared. All weed species threatening Local Natural Areas should be controlled regardless of declaration status.

Controlling weeds in the Swan River Precinct will also help to reduce the spread of these weeds to other natural areas within the Region and beyond.

3.2.4 Erosion

Erosion in the Swan River Precinct is causing physical decline of natural areas, for example along the Swan River. This causes disturbance to these areas which may result in species death or make them more susceptible to other threats. Erosion also contributes to sedimentation and eutrophication further downstream by mobilising nutrients.

An erosion event can therefore lead to degradation of multiple natural areas which may or may not be the responsibility of the Councils of the Swan River Precinct.

Erosion along drainage lines at Maylands Foreshore – City of Bayswater. Severe undercutting can be seen below the root zone (photo provided by NMCG).

3.2.5 Feral animals and introduced fauna

Feral animals are introduced animals that compete with and/or predate on native local fauna. They can also alter the structure, density and floristic composition of natural areas through grazing and soil disturbance (WALGA, 2004). Domestic pets can also prey on native fauna, creating further management problems. This is a highly contentious issue at local levels and each Council needs to identify its own response to this issue.

Sightings and other evidence of feral animals were noted during the natural area assessments. Feral animals in Perth's Eastern Region include: dogs, cats, rainbow lorikeets, European honey bees, rabbits, foxes, peaceful doves, and kookaburras.

3.2.6 Fire

Bushland across the inner Eastern Metropolitan area (Photo provided by Sandra Hohloch – DEC Regional Parks)

Fire is an important factor in determining what native species are present and where. Although many local ecosystems developed with fire as a natural disturbance, the fragmentation of bushland and the presence of weed species has created very difficult management conditions for fire in natural areas, particularly in urban settings where life and infrastructure protection are key factors.

Inappropriate fire regimes can alter the structure, density, and floristic composition of natural areas. Floristic communities and even individual flora species respond very differently to fire and it is important that enough information is gathered on the vegetation present to determine appropriate regimes. Impacts on fauna occur through direct mortality or through a lack of refuge areas during and in the recovery period after fire (WALGA, 2004).

There is some evidence from the natural area assessments that inappropriate fire regimes are being undertaken in some of the natural areas within the Swan River Precinct. Fire regimes should be monitored and altered if necessary in order to improve biodiversity while still maintaining safe fire practices. Fire can however often be the result of anti-social behaviour which can be difficult to control.

3.2.7 Lack of awareness

There is some evidence from the natural area assessments that historical revegetation works have not always used local native species or genetic stock, reflecting the stages in growing awareness of the importance of using local native species and genetic stock in revegetation. Using inappropriate propagation material in revegetation can have a damaging effect on the genetic integrity of natural areas as well as introducing species that although native to other parts of Australia, can be weeds in local areas.

To further improve its utilisation, local provenance propagating material can be collected and used on reserves, sources of material could be identified and mapped, and local seed orchards could be established (adapted from WALGA, 2004). Species lists for LNAs are important resources as local extinctions of plants and animals in small areas may occur. Species lists can facilitate the reintroduction of plant species into the LNAs if required in the future.

The apparent planting of non-native species in reserves by residents in some locations and the planting of highly invasive species in garden environments suggests a low level of awareness that may need to be addressed.

In small areas of natural vegetation within the strategy area impacts from trampling of vegetation and habitat (by foot traffic, bicycles etc.) can be severe. These bush areas are not large enough to cope with the level of use and activity. People may not appreciate the level of damage they are doing. This could be addressed through educational strategies including signage and management actions such as fencing to limit access.

3.2.8 Inappropriate human use

The Swan River and many local reserves are important recreational areas. Active or passive recreation facilities are designed to focus human use on these areas allowing lower usage levels in other areas, particularly vegetated areas, where biodiversity and natural ecological functioning take priority. In these areas, inappropriate access and uncontrolled recreational activities can degrade native vegetation through damage from vehicles and motorcycles or the creation of walking tracks that may result in erosion, allowing the introduction of weeds and disease. Clear, physical separation of the bushland areas from adjacent active recreation areas is important to prevent degradation.

Vehicle tracks at Maylands Foreshore – the City of Bayswater (photo provided by NMCG)

The use of boats on the Swan River can also disturb natural areas. This activity can cause significant erosion along the foreshore. This activity is being addressed through the implementation of the *Swan and Canning Rivers Management Act (2006).*

3.2.9 Plant Diseases

Plant diseases such as Phytophthora dieback disease can alter the structure and floristics of natural areas through causing the death of native vegetation. If a natural area is already being impacted by another threat, the ability to fight diseases can be reduced (adapted from WALGA, 2004).

It is therefore important to incorporate effective hygiene practices into the Swan River Precinct. For Local Government, this generally involves cleaning machinery, vehicles and footwear so that dieback infested soil, plant material or water is not tracked between reserve areas. Incorporating effective hygiene practices will help to protect the natural areas of this region and prevent spread of disease outside of these borders.

3.2.10 Climate Change

Despite the high level of complexity there is broad agreement that under current projected trends the impacts of climate change on biodiversity will be substantial, with the Southwest of WA considered to be at considerable risk.

Current and future climate change will affect biodiversity directly through changes to temperature, rainfall and extreme events, and through altering the nature and intensity of existing biodiversity pressures. Impacts most likely to affect the Swan River Precinct are:

- Acceleration of the spread of invasive weeds within disturbed ecosystems, and
- Inhibition of the ability of flora and fauna to adapt to climate change by migrating to more suitable environments due to the highly fragmented landscape.

The potential impact of climate change on biodiversity is significant and is becoming increasingly well-recognised, but is not well researched or understood. Human intervention, including translocation and breeding programs, may hold the key to the future survival of threatened and endangered species under a dramatic climate change scenario (adapted from the State of the Environment Report, DEC, 2007). The mitigation of other threatening processes will also contribute to the resilience of LNAs to cope with climate change. Until clearer guidance is available on specific management actions relevant to climate change management in small urban reserves, local governments can best sustain their local natural areas by managing to best practice and increasing resilience by managing threats.

4 The Local Biodiversity Strategy

The development of a Collective Local Biodiversity Strategy provides a strategic commitment to the protection and enhancement of a network of connected Local Natural Areas in the Swan River Precinct.

The focus of the strategy will be as follows:

1. Protection and management of Local Natural Areas
   1.1. the protection and management of Bush Forever sites and Local Natural Areas and significant biodiversity assets (such as threatened species) owned and managed by Local Government;
   1.2. collaboration with other stakeholders and land managers to protect and manage Bush Forever sites, natural areas and significant biodiversity assets (eg: threatened species, the Swan River etc) not currently under the direct management of Local Government;

2. Management of the urban landscape to improve the regional and local connectivity or linkage between Natural Areas (including controls on clearing of vegetation and trees, and the revegetation of parkland and private property with native plant species)
   2.1. reserves or land (cleared or disturbed) owned and managed by Local Government within regional and local linkage
   2.2. other land (cleared or disturbed)within regional and local linkage; and
   2.3.
3. The remaining landscape (minimal biodiversity values or activity).

A collective approach to the strategy enables the consideration of ecological linkages within a broad landscape not simply within municipal boundaries. The reduction of threats to biodiversity within the boundaries of each council will therefore also reduce the threats to natural areas across the Swan River Precinct. Reduction of threats to biodiversity will also help lower the cost of rehabilitation and maintenance works that are required.

The implementation of this collective local biodiversity strategy will ensure that:

- Focus reserve management practices on positive biodiversity conservation outcomes,
- Conserve and protect the remaining natural biodiversity in the Swan River Precinct for enjoyment by local residents now and in the future,
- Increase, where possible, and enhance the biodiversity resource;
- Protect and enhance native vegetation around waterways and wetlands to improve water quality;
- Improve the community's awareness of biodiversi
- Provide a basis for allocating financial resources

Success Hill – Town of Bassendean. The development of a Local Biodiversity Strategy will enable natural areas to be enjoyed in perpetuity

The development of this strategy supports the strategic direction for each Council in the Swan River Precinct (refer to Box 1) and will help achieve State and Federal objectives for biodiversity conservation.

Box 1: The Strategic Direction in the Swan River Precinct of Perth's Eastern Region

Town of Bassendean

The Strategic Plan 2007-17 includes the following objectives in the environmental enhancement key result area:

- Protect the natural environment
- Improve the Town's parks and reserves
- Improve Water Quality and Stormwater
- Enhance Town and Streetscapes

The key strategy for biodiversity to achieve these objectives is to implement the collective local Biodiversity Strategy with the City of Bayswater & City of Belmont.

City of Bayswater

The Plan for the Future 2006/2010 includes the following focus when managing the City:

- Infrastructure – a high level of management ensures that the assets of the City are protected, maintained and renewed. This also includes the physical and natural environment of the City.

City of Belmont

The Plan for the Future July 06 to June 08 includes the following objectives in the green Belmont key result area:

- Protect and enhance the quality and amenity of our natural environment
- Minimise pollution of the environment
- Use and manage our water resources in a sustainable manner
- Increase community and staff capacity to better protect and manage the natural environment.

The key performance indicator for this is to increase the area of biodiversity.

4.1 The scope of the Local Biodiversity Strategy

The scope of this strategy is the biodiversity of the Town of Bassendean, City of Bayswater and City of Belmont, with a particular focus on the biodiversity of Local Natural Areas (LNAs) that are under the management of the relevant local governments. It also includes recommended actions for the enhancement and protection of biodiversity on private land through the statutory land use planning and development processes and through education programs. It also addresses the importance of biodiversity on land managed by State or Australian Governments through partnerships and advocacy. The strategy also recognises the importance of locally native plant species in parks, domestic gardens and streetscapes.

Part B: The Biodiversity Resource and Increasing Protection

Lightning Swamp Reserve – City of Bayswater
Photo supplied by the North Metro Conservation Group.

5 Vision Statement

A vision is a broad aspirational statement that defines the desired condition of biodiversity within the next 50 years. This vision guides all actions and was developed with the Stakeholder Working Group to ensure that it aligned with Council and community expectations for the future.

The vision statement represents the overarching direction for biodiversity conservation and achievement of the targets (refer to Section 6) will allow for the accomplishment of this vision.

The vision statement determined by the Stakeholder Working Group is below:

"Urban biodiversity values are protected, managed and enhanced in the Swan River Precinct of Perth's Eastern Region to enable future generations to experience continued social benefits and ecological service".

Banksia menziesii (Firewood Banksia) *at Signal Hill Bushland*

6 An Introduction to Targets

As previously stated in Section 2, the local biodiversity strategy focuses mainly on land directly managed by the Councils of the Swan River Precinct. Secondary applications for this strategy include collaborating with the State Government and working with the community.

Targets have been developed in order to set priorities for bushland protection and to highlight the position of the Councils of the Swan River Precinct with regard to biodiversity conservation.

Two types of targets have been drafted with input from both the Advisory Group and the Stakeholder Working Group:

i. Natural Area Condition Targets
ii. Local Government Resourcing Targets

Natural Area Condition Targets focus on the protection and enhancement of natural areas containing specific biodiversity features. These targets recognise the standard ecological criteria

detailed in the Local Government Biodiversity Planning Guidelines for the Perth Metropolitan Region (2004), which are:

- Representation of ecological communities,
- Diversity,
- Rarity,
- Maintaining ecological processes or natural systems – connectivity, and
- Protecting wetland, streamline and estuarine fringing vegetation.

Local Government Resourcing Targets recognise the processes and components of a local biodiversity strategy that are required to achieve local biodiversity targets. These targets provide clear direction and required actions to implement the Strategy. These targets also help identify resourcing issues so that they can be addressed.

Both sets of targets have been drafted with the opportunities and constraints involved in achieving these targets in mind.

Lightning Swamp – City of Bayswater

Targets are subject to major review periodically. The first identified date for major review is December 2013 (see **section 8.10.7**)

Natural Area Condition Targets focus on specific biodiversity features and functions. These targets are based on protecting:

- Representation – Vegetation complexes,
- Diversity – maintaining as many different communities as possible in one area e.g. natural areas that contain both upland and wetland structural plant communities,
- Rarity – threatened species and ecological communities,
- Ecological processes - maintaining regional and local linkages, and
- Wetland, streamline and estuarine fringing vegetation.

	Bassendean			Bayswater			Belmont		
Vegetation Complex	**Pre European Extent**	**2005**		**Pre European Extent**	**2005**		**Pre European Extent**	**2005**	
	Total ha	**Total ha**	**%**	**Total ha**	**Total ha**	**%**	**Total ha**	**Total ha**	**%**
Swan Complex	245	13	5	259	19	7	44	7	16
Vasse Complex	-	-	-	12	3	27	-	-	-
Total	**1013**	**25**		**3208**	**33**		**3839**	**447**	

6.1 Vegetation

Current science indicates that 30% of the original extent of an ecological community is required to prevent exponential loss of species (Smith and Sivertsen 2001). In the Perth Metropolitan Region, the most common way to interpret and quantify ecological communities based on area is to use the vegetation complexes defined and mapped by Heddle, Loneragan and Havel (1980). These vegetation complexes are based on the patterning of vegetation at a regional scale reflected by an underlying key determining factors of landform, soil and climate.

In the Swan River Precinct, no vegetation complexes are present above 30% of the original extent (WALGA, 2007). Protecting natural areas above 30% is therefore not possible for the Town of Bassendean, the City of Bayswater and the City of Belmont. This emphasises the importance of the remaining natural areas. Where vegetation complexes fall below 10% or original extent the EPA recommends that these areas should be considered threatened (EPA Guidance Statement 10, 2006) with a high priority for conservation.

Table 1: **Native Vegetation extent in the Town of Bassendean, the City of Bayswater and the City of Belmont (Perth Biodiversity Project 2007) (Note: this data does not include Lightning Swamp)**

	Bassendean			Bayswater			Belmont		
Vegetation Complex	**Pre European Extent**	**2005**		**Pre European Extent**	**2005**		**Pre European Extent**	**2005**	
	Total ha	**Total ha**	**%**	**Total ha**	**Total ha**	**%**	**Total ha**	**Total ha**	**%**
Bassendean Complex-Central And\South	679	2	0	2750	8	0	2082	125	6
Guildford	88	10	12	96	1	2	201	2	1
Karrakatta Complex-Central And\South	-	-	-	32	2	5	-	-	-
Southern River Complex	1	0	14	59	0	0	1512	314	21

Section 2 also states that the local biodiversity strategy will focus on Local Natural Areas - areas outside the State conservation estate and Bush Forever. However, many of the Bush Forever sites within the Swan River Precinct are managed or partially managed by Local

Government. Local Government may also have some influence over the activities that occur on Bush Forever sites managed by other levels of Government.

Bush Forever is a 10 year strategic plan aiming to protect at least 10% of each of the 26 original vegetation complexes of the Swan Coastal Plain portion of the Perth Metropolitan Region. There are limitations on land use activities at listed Bush Forever sites, with greater potential for conservation and rehabilitation. When assessing Bush Forever sites, the presence of flora and fauna protected under the *Wildlife Conservation Act 1950* (Declared Rare Flora), DEC identified priority species and the *Environmental Protection and Biodiversity Act 1999* were considered. Additional considerations were also applied to bird species to recognise birds listed under the JAMBA and CAMBA agreements and other bird species considered significant by Bush Forever. Increasing protection of Bush Forever sites will therefore also help to meet the other targets presented in this section.

Bush Forever sites occurring in the Swan River Precinct are summarised in **Table 2** below. These sites were considered in the development of the vegetation targets.

Table 2: Bush Forever sites occurring within the Swan River Precinct (Bush Forever Volume 2: Directory of Directory of Bush Forever Sites, 2000)

Site No.	Site Name	Bushland Area (hectares)	Protection Status	Location	Land Manager
214	Ashfield Flats, Bassendean/ Ashfield	11.1	Parks and Recreation zoning	Town of Bassendean	Town of Bassendean, State Government
302	Swan River and Jane Brook, Ashfield to Upper Swan		Parks and Recreation zoning	Town of Bassendean (Part only)	Town of Bassendean, State Government, private ownership
305	Bennett Brook, Eden Hill to West Swan, including part of Success Hill	119.9 (site includes open water)	Parks and Recreation zoning	Town of Bassendean	Town of Bassendean, State Government
307	Lightning Swamp and adjacent bushland Noranda	72.6	Parks and Recreation zoning	City of Swan	City of Bayswater
313	Swan River Saltmarshes Bayswater/Maylands	38.6	Parks and Recreation zoning	City of Bayswater, City of Belmont	City of Bayswater, City of Belmont, State Government
314	Swan River Foreshore Mount Lawley/Maylands	16.7	Parks and Recreation zoning	City of Bayswater	City of Bayswater, State Government
386	Perth Airport and Adjacent Bushland	629.5 (site also includes open water)	Public Purposes zoning – controlled by the Commonwealth	City of Belmont	Commonwealth Government (City of Belmont & other Local Governments sit on a natural area committee)

6.1.1 Targets for Vegetation

The targets for vegetation are presented in **Box 2** and **Box 3** below.

Box 2: Target for protection of vegetation contained within Local Government reserves
Enhance[4] and extend the area of remnant vegetation contained within reserves owned or managed by the Councils of the Swan River Precinct and where appropriate, improve the protection[5] status of the vegetation contained within each of these reserves.

Box 3: Target for protection of vegetation contained outside Local Government reserves
Enhance the remnant vegetation contained outside reserves owned or managed by the councils of the Swan River Precinct by lobbying and forming partnerships with the State Government and other owners or managers of public lands.

6.2 Threatened Ecological Communities

Threatened Ecological Communities (TECs) are those included on the State Minister for the Environment endorsed listing. Some TECs are also protected under the *Environmental Protection and Biodiversity Act 1999,* however, none of the current TECs listed under this Act are found within the Swan River Precinct. . None of the current State listed TECs are recorded as occurring within the Swan River Precinct; however, occurrences of five State Listed TECs are recorded just outside of the Swan River Precinct:

Threatened Ecological Community (TEC	**Status**	**EPBC Listed**
Eucalyptus calophylla – Kingia australis woodlands on heavy soils, Swan Coastal Plain (Gibson et al. 1994: type 3a)	Critically endangered	Yes
Banksia attenuata woodland over species rich shrublands (Gibson et al. 1994: type 20a)	Endangered	
Banksia attenuata and/or Eucalyptus marginata woodlands of the eastern side of the Swan Coastal Plain (Gibson et al. 1994: type 20b)	Endangered	
Southern wet shrublands (Gibson et al. 1994: type 2)	Endangered	
Herb rich saline shrublands in clay pans (Gibson et al. 1994: type 7)	Vulnerable	

[4] Enhance in the context of Local Biodiversity Planning, should in the first instance be the abatement of threats to ensure the long term viability of significant natural areas. This could be achieved, for example through investment in infrastructure such as fencing or conservation signage or through weed control (fauna protection). Once the threats have been minimised the improvement of function could potentially be investigated as part of the further enhancement of an area. For example revegetation could be considered at this stage.

[5] Although some protection is given for the remaining Local Natural Areas within the Town of Bassendean, the City of Bayswater and the City of Belmont by inclusion into the local reserve system, further protection could be provided by ensuring that they appear in the Metropolitan Regional Scheme as land zoned for the purpose of Parks and Recreation and changing the vesting purpose to reflect biodiversity conservation. These further levels of protection could therefore become actions of the biodiversity strategy.

Future assessments may however reveal the presence of TECs within the Swan River Precinct or new TECs may be classified. As a precautionary approach, the target in **Box 4** has therefore been developed.

6.2.1 Target for Threatened Ecological Communities

Box 4: Target for protection of Threatened Ecological Communities
Should any Threatened Ecological Communities (TECs) be identified in the Swan River Precinct, the natural values of any reserve containing a TEC or that acts as a buffer to a TEC owned or managed by the councils of the Swan River Precinct, the reserve will be managed, where appropriate, to improve the condition status of the vegetation contained within each of these reserves.

The State Government now also recognises Priority Ecological Communities, which are possible TECs that do not meet TEC criteria or that are not adequately defined. These are ranked in order of priority for survey and evaluation of conservation status. These do not have the same status as Threatened Ecological Communities but should be identified and monitored where they occur. No Priority Ecological Communities are identified in the Bush Forever sites or reserves within the study area at this stage.

6.3 Flora

This section identifies species that are listed under relevant State and federal legislation.

The *Environmental Protection and Biodiversity Conservation Act 1999* protects a number of threatened plant species and their habitat. A search of the Department of Environment, Water, Heritage and the Arts environmental database identified a number of plant species and/or their habitat protected under this Act that may occur in the Swan River Precinct. This information is summarised in **Table 3** overleaf.

None of the species protected were found during the natural area assessments conducted in the bush reserves of the Swan River Precinct. *Caladenia huegelii* is however thought to occur in the City of Bayswater.

In Western Australia, rare flora is declared under the *Wildlife Conservation Act 1950*. It is an offence to take rare flora for any purpose on any lands without the written consent of the Minister for Environment. Declared rare flora likely to occur in the Swan River Precinct is summarised in **Table 3** overleaf.

In Western Australia, species under consideration by the Department of Environment and Conservation (DEC) for declaration as rare flora or species that are rare but not currently threatened are listed under DECs policy Statement No. 50: Setting priorities for the conservation of Western Australia's threatened flora and fauna. Priority species do not have statutory protection but their status should be considered in decision making processes.

Table 3a: Threatened Species and Declared Rare Species

Threatened Species - Plants		Declared Rare Flora	Presence
Species	**EPBC Status**		
Caladenia huegelii – Grand Spider-orchid	Endangered	Yes	Species or species habitat likely to occur within the **City of Belmont**
Conospermum undulatum – Wavy-leaved smokebush	Vulnerable	Yes	Species or species habitat likely to occur within the **City of Belmont (extant populations at Perth Airport bushland)**
Epiblema grandiflorum var. cyaneum — Baby Blue Orchid	Endangered		Species or species habitat likely to occur within the **City of Bayswater**
Macarthuria keigheryi – Keighery's Macathuria	Endangered	Yes	Species or species habitat likely to occur within the **City of Belmont (extant populations at Perth Airport bushland)**

Table 3b: Priority flora likely to occur in the Swan River Precinct is summarised in **Table 5** below.

Table 5: Priority Flora likely to occur in the Swan River Precinct (Department of Environment and Conservation, September 2007, NMCG October 2006)		
Priority Flora		
Species	**Priority**	**Location/Confirmation**
Carex tereticaulis	P1	
Schoenus pennisetis	P1	
Byblis gigantea	P2	
Amperea protensa	P3	
Aotus cordifolia	P3	
Cyathochaeta teretifolia	P3	
Isopogon drummondii	P3	
Platysace ramosissima	P3	
Stylidium longitubum		
Jacksonia sericea	P4	Lightning Swamp Noted during desktop assessment but not found during on-ground reserve assessments
Stylidium striatum	P4	
Verticordia lindleyi subsp. *lindleyi*	P4	
Villarsia submersa	P4	

The target for the protection of rare flora is presented in **Box 5**. Even though rare and priority flora are not identified in reserves in the Town of Bassendean, the target has been drafted to include all Councils. This is because future assessments may reveal the presence of Threatened, Declared Rare or Priority Flora or new species may be classified as requiring protection.

6.3.1 Threatened and Declared Rare Flora Target

Box 5: Target for protection of Threatened Plants and Declared Rare Flora

Enhance any reserve found to contain Threatened, Declared Rare or Priority Flora owned or managed by the councils of the Swan River Precinct. Where appropriate, improve the condition status of the vegetation contained within each of these reserves.

6.4 Fauna

This section identifies fauna with special protection status through both State and Australian Government legislation and establishes a relevant target.

The *Environmental Protection and Biodiversity Conservation Act 1999* protects a number of threatened fauna species and their habitat. A search of the Department of Environment, Water, Heritage and the Arts environmental database identified a number of fauna species and/or their habitat protected under this Act that may occur in the Swan River Precinct. This information is summarised in **Table 6** below.

Table 6: Fauna species protected under the *EPBC Act 1999* likely to occur in the Swan River Precinct (Department of Environment and Water Resources, August 2007)

Threatened Species - Birds			
Species	**Status**	**Presence**	**Confirmation**
Calyptorhynchus baudinii — Baudin's Black-Cockatoo	Vulnerable	Species or species habitat likely to occur within **Town of Bassendean, the City of Bayswater and the City of Belmont**	
Calyptorhynchus latirostris — Carnaby's Black-Cockatoo	Endangered	Species or species habitat likely to occur within **Town of Bassendean, the City of Bayswater and the City of Belmont**	Sighted during Bird Australia surveys
Threatened Species – Migratory Terrestrial Species			
Species	**Status**	**Presence**	**Confirmation**
Haliaeetus leucogaster - White-bellied Sea-Eagle	Migratory	Species or species habitat likely to occur within **Town of Bassendean, the City of Bayswater** and the **City of Belmont**	
Merops ornatus – Rainbow Bee-eater	Migratory	Species or species habitat likely to occur within **Town of Bassendean, the City of Bayswater** and the **City of Belmont**	Sighted during Bird Australia surveys
Threatened Species – Migratory Wetland Species			
Species	**Status**	**Presence**	**Confirmation**
Ardea alba – Great Egret	Migratory	Species or species habitat likely to occur within **Town of Bassendean, the City of Bayswater** and the **City of Belmont**	Sighted during Bird Australia surveys
Ardea ibis – Cattle Egret	Migratory	Species or species habitat likely to occur within **Town of Bassendean, the City of Bayswater** and the **City of Belmont**	
Threatened Species – Migratory Marine Species			
Species	**Status**	**Presence**	**Confirmation**
Apus pacificus – Fork-tailed Swift			

The list of migratory species, protected under the *EPBC Act 1999*, consists of those species listed under the following International Conventions:

- Japan-Australia Migratory Bird Agreement,
- China-Australia Migratory Bird Agreement and
- Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention).

Under the *Wildlife Conservation Act 1950*, all native species of fauna in Western Australia are protected and cannot be captured or killed without a licence. Some threatened species are declared as needing special protection under the Act. Specially protected fauna listed under the *Wildlife Protection (Specially Protected Fauna) Notice 2008 (2)* likely to occur within the Swan River Precinct is summarised below.

Table 7: Fauna Species Protected under the *Wildlife Conservation Act 1950 (*likely to) may occur in the Swan River Precinct

Specially Protected Fauna			
Species	**Location**	**Confirmation**	**Conservation Status**
Calyptorhynchus baudinii - Baudin's Black-Cockatoo	Town of Bassendean, City of Bayswater and the City of Belmont		Gazetted Rare
Calyptorhynchus latirostris - Carnaby's Black-Cockatoo	Town of Bassendean, City of Bayswater and the City of Belmont	Sighted during Bird Australia surveys	Gazetted Rare
Calyptorhynchus banksii naso – Forest Red-tailed Black-Cockatoo			Gazetted Rare
Falco peregrinus - Peregrine Falcon	City of Bayswater	Sighted during Bird Australia surveys	Other Specially Protected
Botaurus poicilioptilus - Australasian Bittern	River margins and wetlands		Gazetted Rare
Neelaps calonotus – Black-striped Snake			Priority 3
Ixobrychus minutus – Little Bittern	River margins and wetlands		Priority 4
Hydromys chrysogaster – Rakali or Water Rat	River margins		Priority 4
Isoodon obesulus fusciventer – Quenda, Southern Brown Bandicoot			Priority 5

Further to those species protected under Federal and State legislation, Bush Forever also recognises two other significant bird categories in the Perth Metropolitan Region:

- **Category 3:** Habitat specialists with reduced distribution on the Swan Coastal Plain and
- **Category 4:** Wide-ranging species with reduced populations on the Swan Coastal Plain locally extinct.

Since 2002 the Perth Biodiversity Project and Birds Australia WA have been conducting bird surveys in Local Government Reserves. The purpose of the bird surveys is to undertake an

inventory of bird species on the Reserves and, where possible, to link bird survey information with management and conservation strategies. The results of the bird surveys conducted in the Swan River Precinct are summarised in **Table 8** overleaf. The full survey results can be found in **Appendix 3**. To date, no surveys have been conducted within the City of Belmont.

The Councils of the Swan River Precinct will liaise with stakeholders, owners and managers of natural areas providing habitat for Threatened, Specially Protected, Priority or other significant fauna that are not under the direct Council management to enhance the condition and value of these Natural Areas for these significant fauna.

In recognition of the rare and significant fauna that occur, or are likely to occur due to the presence of fauna habitat, the target listed in **Box 6** has been developed.

New Holland Honeyeater

6.4.1 Threatened and Specially Protected Fauna Target

Box 6: Target for protection of Threatened and Specially Protected Fauna

Enhance the natural values of any reserve found to contain Threatened, Specially Protected, Priority or other significant fauna and/or habitat for this fauna owned or managed by the councils of the Swan River Precinct. Where appropriate, improve the protection status of the vegetation contained within each of these reserves.

Merops ornatus - Rainbow Bee-eater. *Species protected under the EPBC Act 1999 and is likely to occur throughout the Swan River Precinct*

Table 8: Summary of bird species found during PBP & Birds Australia Surveys which are recognised as being significant by Bush Forever (PBP/ Birds Australia WA, 2003-2004)									
		Town of Bassendean	City of Bayswater						
	Bird Species	Success Hill	Baigup Reserve	Bardon Park	Berringa Park	Gobba Lake	Hinds Reserve	Lightning Swamp	Maylands Peninsula
Bush Forever Category 3	Splendid Fairy Wren	✓						✓	
	Weebill	✓							
	Inland Thornbill	✓						✓	
	Yellow-rumped Thornbill	✓						✓	
	Grey-shrike Thrush	✓							
	White-browed Scrubwren	✓							
	Blue-billed Duck		✓			✓			
	Hardhead		✓			✓		✓	
	Dusky Moorhen		✓	✓	✓	✓			
	Musk Duck			✓	✓	✓			
	Variegated Fairy Wren				✓				
	Western Thornbill							✓	
	Black-faced Woodswallow							✓	
Bush Forever Category 4	White-cheeked Honeyeater	✓		✓	✓			✓	✓
	Brown Goshawk	✓	✓		✓			✓	
	Collared Sparrowhawk			✓	✓				✓
	Little Wattlebird	✓	✓	✓				✓	
	New Holland Honeyeater	✓	✓	✓	✓		✓	✓	✓
	Peregrine Falcon			✓					
	Swamp Harrier				✓				
	Nankeen Night Heron					✓			
	Carnaby's (Short-billed) Black Cockatoo	✓				✓			
	Galah							✓	
	Tawny-crowned Honeyeater							✓	

6.5 Regional and Local Linkages

Local Natural Areas (LNAs) in the Town of Bassendean, the City of Bayswater and City of Belmont represent significant biodiversity value in an inner metropolitan urban environment that has been significantly modified. The protection of these natural areas is imperative to the conservation of biodiversity, genetic diversity and ecological function of Bassendean Dunes vegetation communities. Linking these areas will help protect the remaining LNAs in the Swan River Precinct.

A number of specific actions have been identified that will enhance the natural values in both local and regional linkages. These include:

- Protection and management for local reserves (**Section 8.1**);
- Strategic acquisition of land for reserves (**Section 8.2.1**);
- Utilisation and amendment of Town and Local Planning Schemes (**Sections 8.3, 8.5** and **8.6**)
- Policy Development (**Section 8.4**), including policies for native vegetation in reserves, landscaping with local plants and local native vegetation);
- Private Land Conservation (**Section 8.7**), including through Plants to Residents programs and education programs.

Regional and local ecological linkages across the Swan River Precinct are detailed in Figure 1. Further details for regional and local linkages can be found in **Sections 6.5.1 to 6.5.6**.

6.5.1 Regional Linkages

Local Natural Areas within the Swan River Precinct are closely linked with the Swan River. The river acts as a corridor linking the Swan Coastal Plain to the Eastern Hills, thereby providing a vital link between bioregions in Western Australia. The Swan River represents the main regional ecological linkage within the Swan River Precinct.

Regional ecological linkages link protected regionally significant natural areas by retaining the best condition Local Natural Areas (LNAs) available between them that can act as stepping stones for flora and fauna. This increases the long-term viability of the regionally significant natural areas as well as the LNAs in the link.

Regional ecological linkages for the Perth Metropolitan Region (PMR) have been identified by the Perth Biodiversity Project (PBP) with input from the Department of Environment and Conservation (DEC) and the Department for Planning and Infrastructure (DPI). It is proposed that the regional ecological linkages proposed by PBP are accepted for inclusion in the Collective Biodiversity Strategy.

A further important regional linkage is the Swan Canning Riverpark, established under the Swan and Canning Rivers Management Act 2006. The Riverpark consists of the waterways and adjacent public lands of the Swan, Canning, Helena and Southern rivers. No private property is included in the Riverpark.

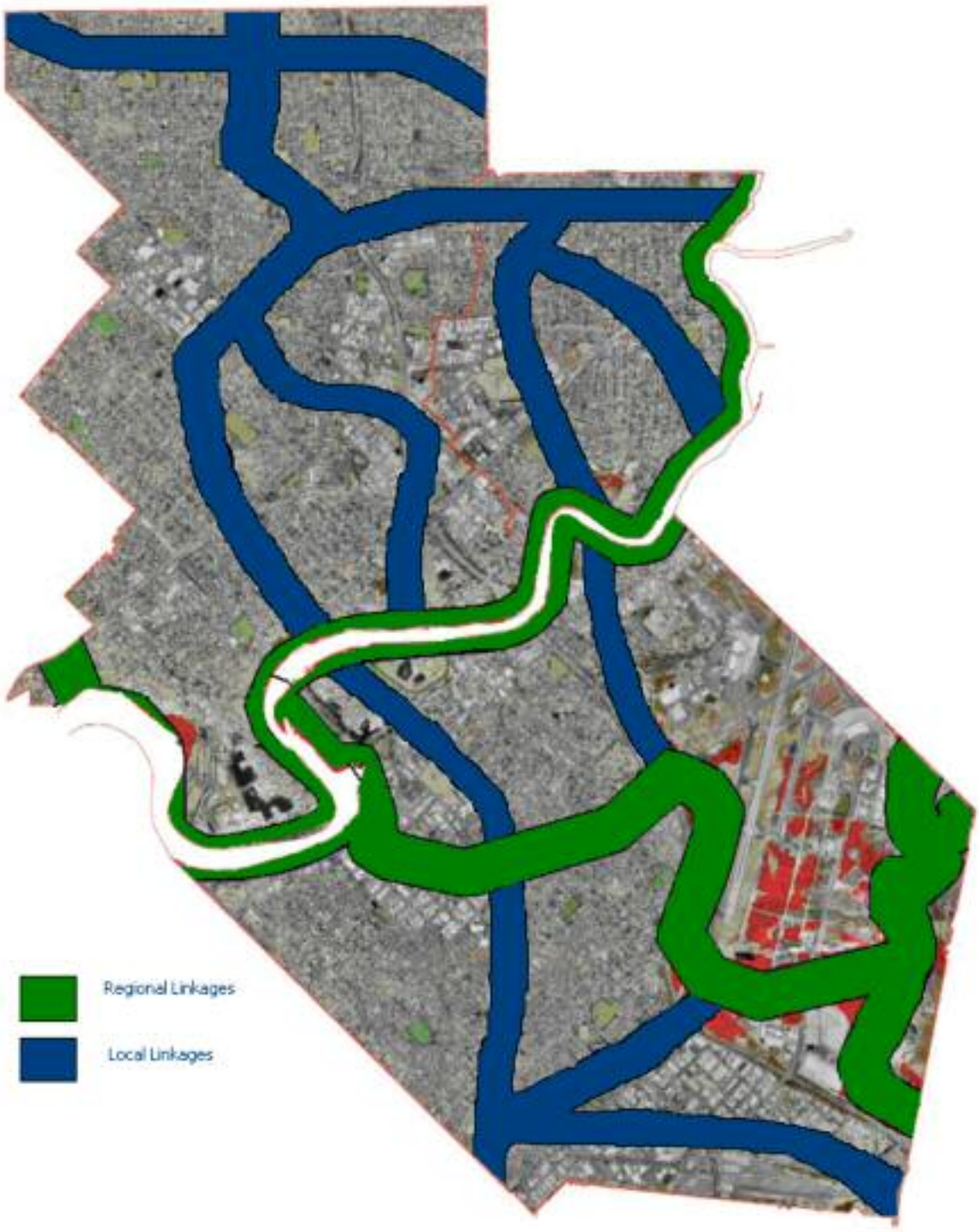

Figure 1: Regional and Local Linkages across the Swan River Precinct

6.5.2 Local Linkages

Local ecological linkages aim to link locally significant natural areas and regional linkages. Local ecological linkages are important in improving the viability of natural areas that may be too small or in too poor shape or condition to be viable on their own if isolated. The viability of areas is improved by including as many natural areas within each link and maximising the number of connections to each area.

Regeneration and revegetation activities and reconstruction can then be prioritised in less viable areas to improve their condition and increase their size. Protecting natural areas from threats, undertaking regeneration and revegetation activities within a linkage is important in improving the viability of urban linkages and locally significant natural areas.

Local ecological linkages have been identified within the Swan River Precinct. The following GIS datasets and mapping data were used to identify these linkages:

- Perth Bushland Mapping 2005 (PBP, 2005)
- Native Vegetation Extent by Ownership Category (PBP, 2001)
- Regional Ecological Linkages (PBP, 2001)
- Bush Forever Sites
- Wetlands and waterways
- Roads and railway lines
- Drainage lines
- Local ecological linkages, greenways and street scaping plans, if available

The following general principles were also used to identify the local linkages:

- Stepping stones of natural areas or areas which can potential be rehabilitated or reconstructed between larger intact areas should make up the linkages.
- The maximum distance between stepping stones is no greater than 1000m.
- Include as many stepping stones as possible.
- The number of linkages to any given natural area is maximised to improve its overall connectivity and long-term viability.
- Make linkages 500m in width to include enough natural areas to improve connectivity between the most significant natural areas.

* adapted from the Local Biodiversity Planning Guidelines for the Perth Metropolitan Region to suit an urban setting.

The following areas were considered as high priorities for inclusion in local linkages:

- Natural areas forming the most direct linkages between significant natural areas and/or regional ecological linkages.
- Natural areas that form a network of linkages across the north-south and east-west gradients of the Swan River Precinct.
- Natural areas located within 500m of Bush Forever sites.
- Riparian vegetation along waterways and drainage lines.

*adapted from the Local Biodiversity Planning Guidelines for the Perth Metropolitan Region to suit an urban setting.

Local linkages were developed across the entire Swan River Precinct rather than for each individual Council.

Local linkages for each of the Council of the Swan River Precinct are described in **Sections 6.5.3** to **6.5.5**.

6.5.3 Linkages within the Town of Bassendean

Regional and local ecological linkages in the Town of Bassendean are depicted in **Figure 2**. The reserves and other public facilities found within these linkages have been summarised in **Table 9** overleaf.

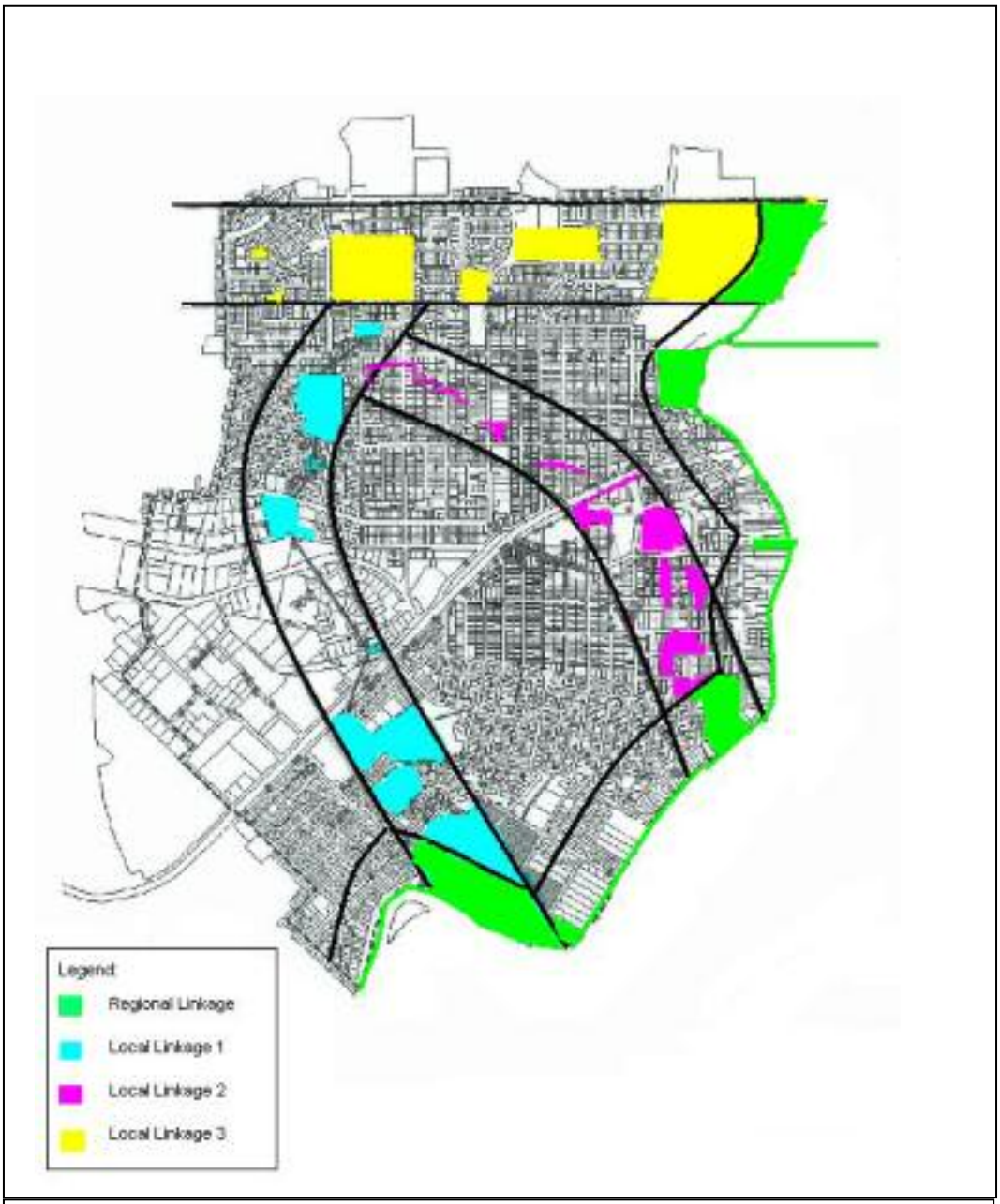

Figure 2: Regional and Local Linkages in the Town of Bassendean

Table 9: Reserves and other public facilities within the Regional and Local Linkages of the Town of Bassendean	
Reserve/ Public Facility	**Linkage**
Bennet Brook	Regional Linkage, Local Linkage 3
Success Hill	Regional Linkage
Point Reserve	Regional Linkage
Swan River Foreshore	Regional Linkage
Pickering Park	Regional Linkage, Local Linkage 2
Bindaring Park	Regional Linkage, Local Linkage 2
Sandy Beach Reserve	Regional Linkage, Local Linkage 1
Ashfield Flats	Regional Linkage, Local Linkage 1
Ashfield Parade Reserve	Regional Linkage
Kelly Park	Regional Linkage
Padbury Way Reserve	Local Linkage 1
Anzac Terrace Primary	Local Linkage 1
Mickleton Terrace Reserve	Local Linkage 1
Troy St Reserve	Local Linkage 1
Broadway Arboretum	Local Linkage 1
Ashfield Reserve	Local Linkage 1
Tom J Gardiner Park	Local Linkage 1
Ashfield Primary School	Local Linkage 1
Cyril Jackson Senior Campus	Local Linkage 1
Drainage Line (Railway Pde)	Local Linkage 1
Drainage Line (Fourth Ave)	Local Linkage 2
Drainage Line (Anzac Tce)	Local Linkage 2
Drainage Line (Ida St)	Local Linkage 2
Drainage Line (Carmen Way)	Local Linkage 2
Drainage Line (Iolanthe St)	Local Linkage 2
Anzac Terrace Reserve	Local Linkage 2
Steel Blue Oval (Bassendean Oval)	Local Linkage 2
Pickering Park	Local Linkage 2
Bassendean Primary School	Local Linkage 2
Casa Mia Montessori	Local Linkage 2
St Michaels	Local Linkage 2
Pyrton Site	Local Linkage 3
Mary Crescent Reserve	Local Linkage 3
Eden Hill Primary School	Local Linkage 3
Jubilee Reserve	Local Linkage 3
Colin Smith Reserve	Local Linkage 3
Freeland Square Reserve	Local Linkage 3

Broad management recommendations for the Town of Bassendean can be found in **Appendix 4.**

6.5.4 Linkages within the City of Bayswater

Regional and local linkages in the City of Bayswater are depicted in **Figure 3**. The reserves and other public facilities found within these linkages have been summarised in **Table 10**.

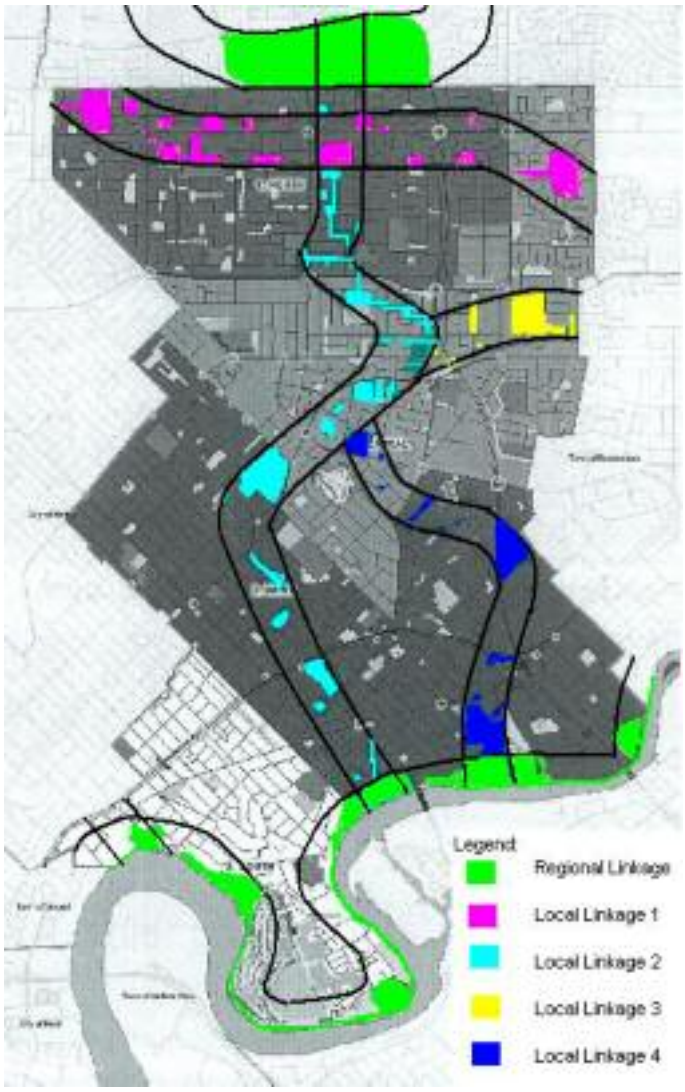

Figure 3: Regional and Local Linkages in the City of Bayswater

Table 10: Reserves and other public facilities found within ecological linkages in the City of Bayswater

Reserve/ Public Facility	Linkage
Lightning Swamp	Regional Linkage, Local Linkage 2
Bardon Park 24209	Regional Linkage
Berringa Park 34262	Regional Linkage
Maylands Golf Course Reserve 33966	Regional Linkage
Maylands Foreshore Reserve 33966	Regional Linkage
Clarkson Reserve 9323	Regional Linkage
Tranby Reserve	Regional Linkage
Tranby House Reserve 33202	Regional Linkage
Bath St Reserve 33202	Regional Linkage
Baigup Wetlands Reserve	Regional Linkage, Local Linkage 2
Hinds Reserve	Regional Linkage
Bayswater Riverside Gardens	Regional Linkage, Local Linkage 4
Railway Institute Reserve 25437	Regional Linkage
Claughton Reserve	Regional Linkage
Bunya Reserve 43325	Local Linkage 1

Table 10: Reserves and other public facilities found within ecological linkages in the City of Bayswater	
Reserve/ Public Facility	**Linkage**
Morley Senior High School	Local Linkage 1
Kirkpatrick Reserve	Local Linkage 1
WAWA Drainage Reserve 34915	Local Linkage 1
Thornber Reserve	Local Linkage 1
Millerick Reserve 43328, 26144	Local Linkage 1
Camboon Primary School	Local Linkage 1
Noranda Sporting Complex	Local Linkage 1
Noranda Sporting Complex Reserve 37277	Local Linkage 1
Robert Thompson Reserve 36515	Local Linkage 1
Holden Reserve 36843	Local Linkage 1
Strutt Reserve 37139	Local Linkage 1
Fitzpatrick Reserve 42183	Local Linkage 1
Noranda Primary School	Local Linkage 1
Deschamp Reserve 40589	Local Linkage 1, Local Linkage 2
McPherson Reserve 39364	Local Linkage 1
Shadwell Reserve 42714	Local Linkage 1
Tonkin Highway	Local Linkage 1, Local Linkage 4
Mahogany Park 41037	Local Linkage 1
WAWA Drainage Reserve 43184	Local Linkage 1
Arbor Park 39284	Local Linkage 1
Deschamp Drainage Reserve	Local Linkage 2
Farnham Reserve 43321	Local Linkage 2
Fedders Reserve 31531	Local Linkage 2
WAWA Drainage Reserve 31531	Local Linkage 2
WAWA Drainage Reserve 29533	Local Linkage 2
Crimea Park Reserve 32869, 29473	Local Linkage 2
Weld Square Reserve 43327	Local Linkage 2
Weld Square Primary School	Local Linkage 2
WAWA Drainage Reserve 30061	Local Linkage 2
Elstead Reserve	Local Linkage 2
City of Bayswater Reserve 40038	Local Linkage 2
City of Bayswater Reserve 40039	Local Linkage 2
Broun Park Reserve 26476	Local Linkage 2
Bayswater Waves	Local Linkage 2
Tom Cameron Park 41963	Local Linkage 2
Hawkins Reserve 26217	Local Linkage 2
McKenzie Reserve 26218	Local Linkage 2
Embelton Primary School	Local Linkage 2
John Forrest Senior High School	Local Linkage 2
Nora Hughes Park 32362	Local Linkage 2
Browns Lake Reserve 36054	Local Linkage 2
WAWA Drainage Reserve 32229	Local Linkage 2
Paterson Reserve 33305	Local Linkage 2
Essex St Reserve	Local Linkage 2
The Strand Reserve 45895	Local Linkage 2
Frank Drago Reserve 20957	Local Linkage 2
Swan Lake Reserve 42128	Local Linkage 2
John D'Orazio Park	Local Linkage 2
WAWA Drainage Reserve 32042	Local Linkage 2
Norco Way Reserve 28002	Local Linkage 2
Hampton Square Reserve	Local Linkage 3
WAWA Drainage Reserve 38592	Local Linkage 3
Reserve 48396	Local Linkage 3
Hampton Senior High School	Local Linkage 3
Battersea Reserve	Local Linkage 3

Table 10: Reserves and other public facilities found within ecological linkages in the City of Bayswater	
Reserve/ Public Facility	**Linkage**
City of Bayswater Drainage Reserve 33211	Local Linkage 3
Irwin Reserve 26061, 43326	Local Linkage 4
Drainage Reserve 27565	Local Linkage 4
WAWA Drainage Reserve 35009	Local Linkage 4
Railway Reserve 25980	Local Linkage 4
Whatley Crescent Railway Reserve 40032	Local Linkage 4
WAWA Drainage Reserve	Local Linkage 4
Charles Newman Gardens	Local Linkage 4
Reserve 41792	Local Linkage 4
Eric Singleton Bird Sanctuary	Local Linkage 4

Broad management recommendations for the City of Bayswater can be found in **Appendix 5**.

6.5.5 Linkages within the City of Belmont

Regional and local linkages in the City of Belmont are depicted in **Figure 4**. The reserves and other public facilities found within these linkages have been summarised in **Table 11** overleaf.

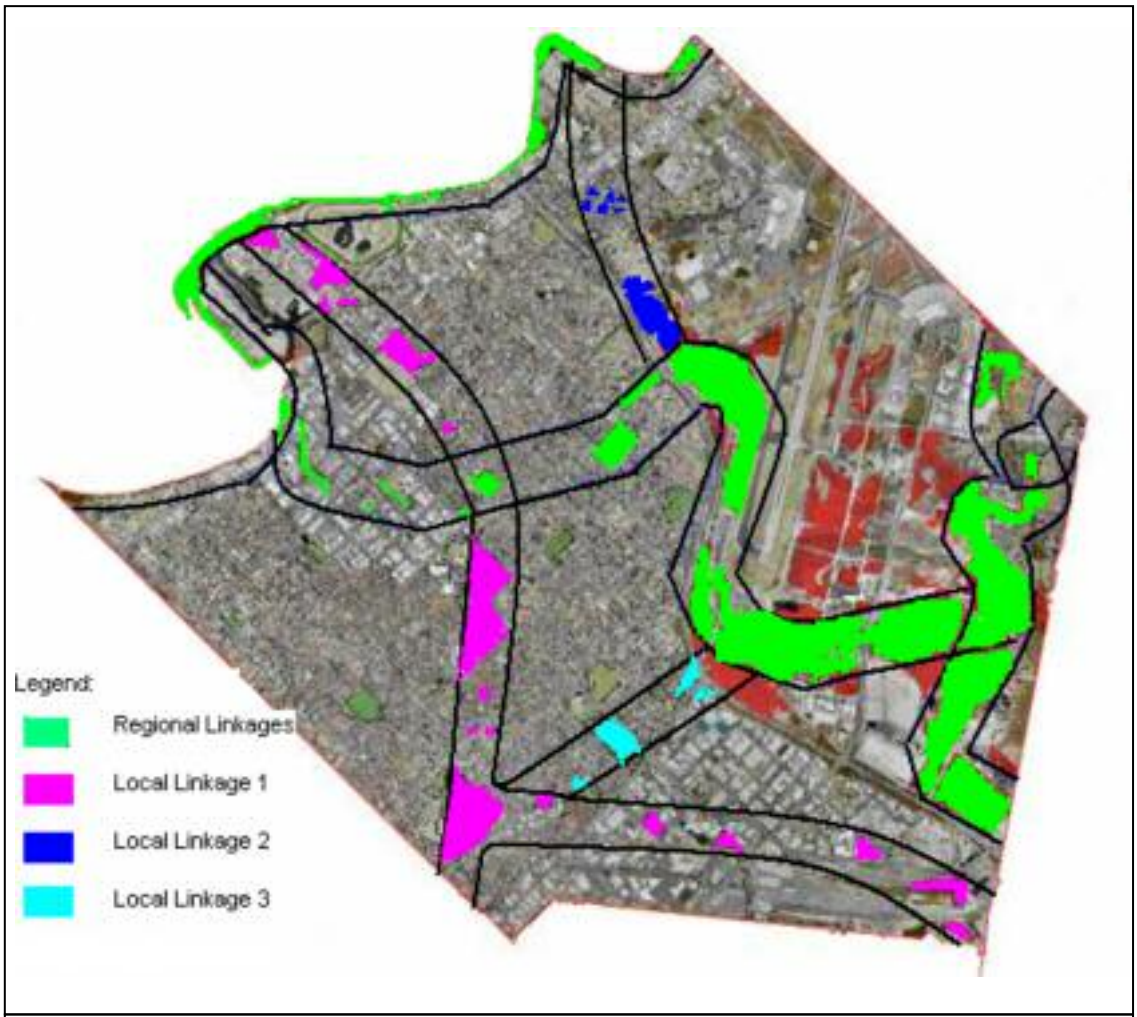

Figure 4: Regional and Local Linkages in the City of Belmont

Table 11: Reserves and other public facilities found within ecological linkages in the City of Belmont	
Reserve/ Public Facility	**Linkage**
Cracknell Park	Regional Linkage
Hardey Park	Regional Linkage
Adachi Park	Regional Linkage
Bristile Park	Regional Linkage
Swan River Foreshore	Regional Linkage, Local Linkage 1
Ascot Racecourse dampland	Regional Linkage
Ascot Racecourse	Regional Linkage
Gould Reserve	Regional Linkage
Ascot Water Playground	Regional Linkage
Hay Rd to Ivy St Swan River Floodplain	Regional Linkage
Garvey Park & Kayak Club	Regional Linkage, Local Linkage 2
Severin Walk	Regional Linkage
Signal Hill	Regional Linkage, Local Linkage 1
Belmay Primary	Regional Linkage
Redcliffe Park	Regional Linkage
Perth Airport	Regional Linkage, Local Linkage 1, Local Linkage 2
Harold Street Reserve	Local Linkage 1
Centenary Park	Local Linkage 1
Mustica Walk Reserve	Local Linkage 1
Alfred Reserve	Local Linkage 1
Belmont Senior High School	Local Linkage 1
Cloverdale Primary School	Local Linkage 1
Civic Centre/ Library	Local Linkage 1
Belmont Oasis	Local Linkage 1
Faulkner Park	Local Linkage 1
Belmont Forum	Local Linkage 1
Redgum Park	Local Linkage 1
Drainage Line	Local Linkage 1
Wicca Reserve	Local Linkage 1
Willow Lake Park	Local Linkage 1
Tomato Lake	Local Linkage 1
Australian Islamic College	Local Linkage 1
Peachey Park	Local Linkage 1
Noble Park	Local Linkage 1
Abernethy Road Kewdale Sump	Local Linkage 1
Aitken Way Sump	Local Linkage 1
Tonkin Kewdale Sump	Local Linkage 1
Frank Treen Memorial Park	Local Linkage 2
Redcliffe Primary	Local Linkage 2
Brearley Avenue Reserve	Local Linkage 2
Albert Jordan Park	Local Linkage 2
Forster Park	Local Linkage 3
Belmont Sprts and Recreation Club	Local Linkage 3
PH Dodd Reserve	Local Linkage 3
Kewdale Primary	Local Linkage 3
Tonkin Highway	Local Linkage 3

Broad management recommendations for the City of Belmont can be found in **Appendix 6**.

6.5.6 Linkage Target for the Swan River Precinct of Perth's Eastern Region

Box 7: Regional Ecological Linkage Target

Enhance the natural values of the following areas the defined boundaries of the Regional Ecological Linkages to improve the viability of these linkages:

- **Local Natural Areas**
- **Streetscapes**
- **Degraded reserves with remnant natural values**

6.6 Wetlands and Waterways

6.6.1 Wetlands

Wetlands are often species rich and can be essential to the survival of many bird species especially within an urban environment. At a national level, Ramsar Wetlands are protected under the *Environmental Protection Biodiversity Conservation Act 1999*. The Ramsar definition of a wetland (UNESCO, 1971) is adopted by the State Government. This definition will be used during the implementation of the Collective Biodiversity Strategy and is detailed below:

> "areas of marsh, fen, peatland or water, whether natural or artificial, permanent of temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed six metres"
>
> (State Government, 1997)

Wetlands are directly linked to their surrounding landscape. This landscape forms the catchment of the wetland, and activities that occur in the catchment can ultimately impact upon the health and functioning of the wetland. The Councils of the Swan River Precinct are within the same catchment as the Forrestdale and Thompson Lakes which together form a Ramsar wetland.

There are many different types of wetland, defined using the Ramsar definition above, that occur in the Swan River Precinct. These include:

- Floodplain areas
- Permanently inundated lakes (artificial and natural),
- Seasonally inundated wetlands (sumplands), and
- Seasonally waterlogged wetlands (damplands).

The State *Environmental Protection Act 1986* protects wetland habitats. Under this legislation environmental harm involving removal or destruction of, or damage to native vegetation or indigenous aquatic or terrestrial animals is prohibited.

The State *Environmental Protection (Clearing Native Vegetation) Regulations 2004* further protect the vegetation within the Conservation Category Wetlands (CCW) identified by the DEC geomorphic wetlands dataset. These wetlands are identified as Environmentally Sensitive Areas under the regulations and exemptions to the requirements of the regulations do not apply.

Further wetlands, as defined in other categories of the DEC geomorphic dataset, can also be found within the Swan River Precinct. Definitions of the wetland categories within this dataset can be found in **Appendix 7**.

The wetlands found within the Swan River Precinct are summarised in **Table 12** below.

Table 12: Wetlands of the Swan River Precinct

	Wetland Name	**Wetland Category**	**Other information**
Town of Bassendean	Ashfield Flats	Conservation Category, Resource Enhancement	Protected under *EP Act 1986 and Clearing Regulations 2004*. Defined by the DEC geomorphic dataset
	Bindaring Park/ Pickering Park	Conservation Category, Resource Enhancement, Multiple Use	Protected under *EP Act 1986 and Clearing Regulations 2004*. Defined by the DEC geomorphic dataset
	Success Hill	Multiple Use	Protected under *EP Act 1986*. Defined by the DEC geomorphic dataset
	Mary Crescent Reserve (Stormwater Drainage basin)	Artificial	Wetland using the Ramsar definition
	Wetland Name	**Wetland Type**	**Other information**
City of Bayswater	Bardon Park	Conservation Category, Multiple Use	Protected under *EP Act 1986 and Clearing Regulations 2004*. Defined by the DEC geomorphic dataset
	Baigup Wetlands	Conservation Category, Multiple Use	Protected under *EP Act 1986 and Clearing Regulations 2004*. Defined by the DEC geomorphic dataset
	Berringa Park	Conservation Category, Multiple Use	Protected under *EP Act 1986 and Clearing Regulations 2004*. Defined by the DEC geomorphic dataset
	Lightning Swamp	Conservation Category, Resource Enhancement	Protected under *EP Act 1986 and Clearing Regulations 2004*. Defined by the DEC geomorphic dataset
	Maylands Foreshore	Conservation Category, Multiple Use	Protected under *EP Act 1986 and Clearing Regulations 2004*. Defined by the DEC geomorphic dataset
	Eric Singleton Bird Sanctuary	Multiple Use	Protected under *EP Act 1986*. Defined by the DEC

Table 12: Wetlands of the Swan River Precinct			
	Wetland Name	**Wetland Category**	**Other information**
			geomorphic dataset
	Claughton Reserve	Conservation Category	Protected under *EP Act 1986 and Clearing Regulations 2004*. Defined by the DEC geomorphic dataset
	Gobba Lake	Artificial	Wetland using the Ramsar definition
	Swan Lake	Artificial	Wetland using the Ramsar definition
	Browns Lake	Artificial	Wetland using the Ramsar definition
	Wetland Name	**Wetland Type**	**Other information**
City of Belmont	Swan River Floodplain (Ivy St)	Conservation Category, Multiple Use	Protected under *EP Act 1986 and Clearing Regulations 2004*. Defined by the DEC geomorphic dataset
	Abernethy Road/ Kewdale Sump	Artificial	Wetland using the Ramsar definition
	Aitken Swamp	Artificial	Wetland using the Ramsar definition
	Tomato Lake	Conservation Category	Protected under *EP Act 1986 and Clearing Regulations 2004*. Defined by the DEC geomorphic dataset
	Willow Lake	Artificial	Wetland using the Ramsar definition
	Centenary Park	Artificial	Wetland using the Ramsar definition

6.6.2 Waterways

Waterways are natural areas that provide important breeding and feeding sites for fauna and can be important in the maintenance of life cycles for specialised plant groups. A waterway can be a creek, brook, river, or stream, and include a lake, estuary or inlet at its base. Waterways also include floodplains and wetland systems that overflow into rivers (Department of Environment, 2007).

Waterways in the Swan River Precinct are summarised in **Table 13** below.

Table 13: Waterways of the Swan River Precinct		
	Waterway Name	**Waterway Type**
Town of Bassendean	Swan River	River
	Bennet Brook	River
	Drainage lines	Drainage system
	Waterway Name	**Waterway Type**
City of Bayswater	Swan River	River
	Bayswater Brook (formerly Bayswater Main Drain)	Drainage system
	Other drainage lines	Drainage system
	Waterway Name	**Waterway Type**
City of Belmont	Swan River	River
	Brearley Avenue Drain	Drainage system
	South Belmont Main Drain	Drainage system
	Other drainage lines	Drainage system

Waterways in the Swan River Precinct are likely to be managed by a number of different landowners, organisations and legislation. The focus of the *Swan and Canning Rivers Management Act (2006)* is to develop better ways for government, industry and the community to work together to sustain the health and uses of the rivers. The River Protection Strategy required under the Act replaces *Riverplan* and sets out what needs to be done to maintain the health of our rivers. To ensure consistency and avoid duplication, the legislation also allows management programs that have been developed by others to be approved under this legislation where this is useful in achieving the objectives of the River Protection Strategy.

Further to this legislation, the Councils of the Swan River Precinct also recognise the importance of waterways by undertaking activities such as erosion control and revegetation. This helps to stabilise the habitat utilised by many flora and fauna species.

The Councils of the Swan River Precinct will liaise with State government, other stakeholders, and owners and managers of natural areas containing wetlands, waterways and drainage lines and associated riparian and upland vegetation that are not under the direct Council management to enhance the condition and value of these natural areas.

Management to reduce nutrient run off is a key component of wetlands and waterways management for LNAs.

6.6.3 Wetlands and Waterways Target

Box 8: Wetlands and Waterways Target

Enhance all wetlands, waterways and drainage lines, their buffers and associated riparian and upland vegetation contained within reserves owned or managed by the councils of the Swan River Precinct. Where appropriate, improve the protection status of the vegetation contained within each of these reserves.

7 Resourcing Targets

In order to achieve the Natural Area Condition Targets Local Governments must recognise the processes and components of a local biodiversity strategy. Resourcing targets will allow Councils to identify staffing and financial requirements necessary for implementation of various actions.

No specific resourcing targets have been set for the Swan River Precinct. However, resourcing issues should be considered with the aim of managing Local Government reserves. All reserves under control of Local Government should be appropriately managed to minimise disturbances and threats to natural biodiversity. Furthermore, the condition of natural areas and other biodiversity features on reserves managed by Local Government should be maintained in the short term and improved in the long term through planning and implementing effective management.

Resourcing is a key issue and challenging in the ever-growing demands for resources for local governments to meet increasing statutory requirements and growing community expectations. Implementation of this strategy will require resources, information and policy direction to allow biodiversity issues to be appropriately considered in the decision-making processes of councils.

Box 9: Resource Target

Manage all local Government reserves within regional and local linkages to reduce disturbance and threatening processes

Part C: Implementation

8 Potential Biodiversity Conservation Actions

Actions to increase the protection of natural areas will need to be developed for implementation by the Town of Bassendean, City of Bayswater and City of Belmont in order to meet the local biodiversity targets detailed in **Part B**. These actions aim to not only retain biodiversity values but also to protect them in perpetuity.

Potential actions to increase biodiversity protection within the Councils are detailed below. These actions are summarised in the Action Plan detailed in **Section 10**, together with the most suitable actions recommended on a priority basis for implementation by each independent Council. Support for the targets and actions from the community, land developers and State Government will increase the effectiveness of the biodiversity protection.

8.1 Protection and Management of Local Reserves

As noted earlier only about 9% of the remaining natural areas in the strategy area is actually managed by Local Government (approx. 40 ha of Bush Forever sites and 14 ha of local Natural Areas). Therefore achieving overall biodiversity gains over the strategy area will also require activities in the natural areas outside of direct Local Government control. Partnerships with State agencies and other landholders will enhance what can be achieved through actions on local government land.

8.1.1 Increasing Protection of Existing Bushland Reserves

Collectively there are 23 bushland reserves managed by Local Government within the Swan River Precinct. The Town of Bassendean manages four reserves, the City of Bayswater eight reserves, and the City of Belmont eleven reserves (listed in **Appendix 8)**. Each of these reserves has been assessed using the Natural Area Initial Assessment templates detailed in the Local Government Biodiversity Planning Guidelines for the Perth Metropolitan Region (WALGA, 2004). These assessments have been used to rank the reserves with regard to standard ecological criteria and viability. This information is summarised as a prioritisation table which can be found in **Appendix 8**.

The reserve assessments can be used to determine reserves of high biodiversity value that would benefit from increased protection status. Increasing the protection status of reserves can be achieved by changing the vesting purpose to include the purpose of ‘conservation’, ‘protection of rare flora’ or similar. This will allow Council to officially recognise the ecological significance of these reserves and provide a clear position with regards to their use.

Changing the vesting purpose of reserves may be particularly useful when assessing development or subdivision applications requiring planning approval. If such applications involved reserves vested as ‘conservation’, it will provide Councils with more scope to apply environmental limitations and protect areas with high biodiversity value.

It is important to note that within a highly urbanised setting, it is possible that bushland reserves are unlikely to be subject to high development pressure in the future. Consequently, increasing the protection status of reserves may be of limited effect. However, this is a very useful mechanism of protection that should be considered where appropriate.

Amending the zoning of the Metropolitan Regional Scheme (MRS) is another method of increasing the protection of existing bushland reserves. Zoning reserves Conservation and Recreation under the MRS, due to their regional ecological significance, would recognise their environmental value at a State level. However, once the reserve becomes integrated into the MRS, the approval of the Local Government may not be required for development applications. Councils may have less control over the reserve. Therefore this action is not considered a high priority for this strategy.

8.1.2 Improved Reserve Management

The reserve assessments have helped to improve the knowledge and understanding of biodiversity values on land managed by Local Governments in the Swan River Precinct. This increased knowledge can be used to improve the management of these reserves by identifying threatening processes and possible methods to alleviate them.

It is suggested that a Reserves Liaison Group be formed in each Council to ensure each reserve is managed more effectively. This will also ensure separate Council departments are working towards the same goals. A Reserves Liaison Group should involve the following departments within each Council:

- Environmental Services,
- Planning Services
- Parks and Gardens/Asset Services,
- Ranger Services (fire),
- Leisure Services
- Community Services, and
- Health Services/Waste management.

In order to improve reserve management coordination, regular meetings of the above departments are recommended. Meetings could be conducted on a quarterly basis, and focus on discussions in relation to management options that address the objectives of each department in the long term. It is possible that similar meetings may already be in existence within some Councils, however, establishment of a Reserves Liaison Group will formalise this process.

Where Councils have a community advisory committee with terms of reference including environmental issues, this may also be an avenue for community input on reserve management issues. This is left to the discretion of each Council.

An opportunity also exists to further formalise and coordinate reserve management within the Councils by developing a Reserves Action Plan for, as a first priority, the 23 bushland reserves identified in **Appendix 8**, and drawing on the information collated within the Natural Area Initial Assessments completed for each reserve. This plan would provide an overarching document for the management of all reserves within a Council, rather than developing individual management plans for every reserve. The plan should incorporate all of the Councils reserves so that the various

reserve values - conservation, recreation, parks, drainage - are considered. Guidance in the development of the Reserves Action Plan should be sought from the Reserves Liaison Group.

A Reserves Action Plan may also identify reserves that are not important for conservation or recreation and these reserves could be considered for sale or development as recreation areas. The process for reserves to be sold requires under-utilised reserves to be transferred to freehold title with the ownership made over to the Council - subject to a purchase price determined by Landgate (WALGA, 2004). The profit from such a venture could then be used to purchase reserves of higher biodiversity significance or be used for the management of existing reserves. This mechanism would need to be investigated through liaison with Landgate and the DPI.

Habitat protection and enhancement are also important components of reserve management. The Swan Helena Management Framework includes a project anticipated for 2009 that will focus on this aspect for foreshore areas and may provide opportunities for similar projects for habitat enhancement through other regional and local linkages. The Swan and Canning Rivers Foreshore Assessment and Management Strategy (Swan River Trust 2008) also provides a suitable framework to determining foreshore management priorities that are aligned with the trust's priorities.

Finally, to effectively improve reserve management, it is recommended reserves be periodically reassessed to monitor their condition and presence of rare species such as Declared Rare Flora (DRF). The frequency and scale of monitoring should be determined by the Reserves Liaison Group and incorporated into the Reserves Action Plan.

8.2 Strategic Acquisition of Lands

8.2.1 Acquisition for Reserves

The Swan Helena Management Framework (EMRC, 2007) identified a number of locations along the Swan River Precinct foreshores where public access is constrained by privately owned freehold title. The DPI is the lead agency in a long term program aimed at the acquisition of privately owned land along the foreshore and the conversion of titles into parks and recreation reserves.

Specific locations identified in the Swan Helena Management Framework where this is an issue are:

- Town of Bassendean
  - Portion of Ashfield Parade
  - Portion of Bassendean foreshore, especially between Sandy Beach Reserve and Pickering Park, and between Pickering Park and Daylesford House
- City of Bayswater
  - Near Bath St Reserve
- City of Belmont
  - Portion of Ascot Raceway foreshore
  - Fauntleroy Avenue

Although some of these areas were indicated in the Swan Helena Management Framework as being a high priority for local government, the current understanding is that the DPI's acquisition timeframe for these reserves is long term.

The high land values in the region will generally preclude a program of acquisition by Councils of remaining land with conservation values. Other mechanisms, however, can be used to consider conservation in the statutory land use planning and development process, particularly if any areas are identified as containing significant species or are contiguous with an existing local government managed bushland reserve.

Another mechanism that may occasionally apply is where there is the considered potential for Bush Forever sites currently under the management of State agencies to come under the management of local government for conservation purposes. Such changes would ordinarily include consideration of the management priorities and the resources available for undertaking the actions required.

8.3 Utilisation of the Town and Local Planning Scheme

The aims of the Councils' Town and Local Planning Schemes include:

- To protect and enhance the natural environment and natural resources of Bassendean and in particular urban bushland and the river environs (Bassendean Town Planning Scheme No.10);
- To protect and enhance environmental values and natural resources of the local government area and to promote ecologically sustainable land use and development (Belmont District Zoning Scheme No.14); and
- To set aside land for future public use as reserves (City of Bayswater District Town Planning Scheme No.24).

The development of the Collective Biodiversity Strategy supports these aims as they will ultimately assist with the protection and maintenance of biodiversity values.

Other existing Council documentation also has the potential to improve biodiversity values within the Swan River Precinct. These include the development of various plans relating to landscaping or reserve management. For example, the Gobba Lake Draft Landscaping Plan within the City of Bayswater highlights potential activities such as weed control and the addition of logs to provide tortoise habitat (Ecoscape, 2006). Existing management plans may also provide guidance to biodiversity conservation, such as the Lightning Swamp Bushland Management Plan, which details several management recommendations including controlling access and the completion of detailed flora and fauna surveys (City of Bayswater & Friends of Lightning Swamp, 2002).

Similarly, the Ashfield Reserve Concept Plan within the Town of Bassendean details environmental restoration activities, such as the establishment of rushes and sedges for bank stabilisation and prevention of further erosion (Syrinx Environmental, 2006). The Town of Bassendean has also identified several strategies and actions aimed at protecting the natural environment, one of which is the implementation of this Collective Biodiversity Strategy (The Town of Bassendean Strategic Plan for the Future 2007-2017).

Several documents within the City of Belmont refer directly to biodiversity conservation. The Environmental Plan contains an objective to protect, manage and enhance the biodiversity values of the natural environment (Belmont Environmental Plan 05-10). More specifically, the Council encourages new developments to use native vegetation species when preparing landscaping plans (Landscaping Plan Information Sheet, Fact Sheet No. 75), and supports the development of biodiversity corridors during planting programmes (City of Belmont Streetscape Strategy).

Each of the Councils' Local Planning Schemes and various other documents with components relating to the conservation of biodiversity are useful when making planning decisions. Their use is supported by this Collective Biodiversity Strategy. Ultimately, it is envisaged that such documents can make reference to this Collective Biodiversity Strategy when considering biodiversity values in the future.

An important assumption with regards to existing Planning Schemes and other council documents is that Local Government Officers possess the required skills and knowledge to correctly utilise them. Without the correct application of these documents, the benefits to biodiversity conservation will not be realised. Further discussion on education and training can be found in **Section 8.8**.

8.4 Policy Development

Local Planning Policies (LPP) are an option to Local Government to ensure natural areas facing development are assessed in a consistent manner. For example, a LPP for biodiversity conservation could ensure natural areas subject to development or subdivision are assessed for their biodiversity values and where possible retained and protected. Within the Swan River Precinct the majority of natural assets are confined to bushland reserves and are therefore unlikely to be subject to future development pressure. In addition, the majority of subdivisions are relatively small when compared to rural Local Governments. Consequently, the development of further LPP's are not considered a high priority option for this strategy.

Currently, there are some existing Local Planning Policies with limited relevance to biodiversity protection within the Swan River Precinct. Creation of lots less than 4000sqm in the Kewdale Industrial Estate will only be supported provided an environmental assessment of the land is carried out (Local Planning Policy No. 13, City of Belmont).

Another example is the Draft Policy relating to 'Street Trees' within the City of Bayswater. This policy is concerned with the maintenance of trees within the council and will ultimately have benefits to the retention of biodiversity (City of Bayswater Draft Street Trees Planning Policy).

In order to improve planning for biodiversity conservation, it is recommended that the Councils consider the development of additional policy documentation relevant to a highly urbanised environment. Such policies will complement the documents listed in **Section 8.3** and provide guidance to actions discussed in **Section 10**. Additional policies will also ensure biodiversity values are adequately considered in Council's land-use planning decision-making processes (Local Government Biodiversity Planning Guidelines for the Perth Metropolitan Region, 2004).

8.4.1 Planting Native Vegetation in Reserves Policy

Vegetation naturally found in a particular geographic region is adapted to the local environmental conditions and will provide functional ecological interactions with other localised flora and fauna. Native fauna species will have evolved to coincide with native vegetation, such that replacing locally native flora with those from another geographic region will upset the natural balance and eventually lead to a reduction in biodiversity.

The State Government is currently encouraging local governments to progressively review irrigated reserves through Hydrozoning as a part of developing Water Conservation Plans. Hydrozoning is the practice of establishing separate areas or zones to receive different amounts of irrigation water, including the use of local native species that, once established, require little if any irrigation.

For these reasons, it is recommended that Councils develop policies through their Hydrozoning initiatives recommending the planting of locally native species in Council reserves. This policy will guide Council or contract staff involved in planting vegetation within Council reserves on which species are most suitable for their individual location. This would prove especially beneficial to revegetation activities within bushland reserves, and any reserves occurring within regional or local linkages.

In order for this policy to achieve positive outcomes, implementation would need to be across all Council Departments. Consultation within the Reserves Liaison Group (**Section 8.1.2**) will assist this to happen.

8.4.2 Landscaping with Local Plants Policy

A Landscaping with Local Plants Policy is another recommended policy for Councils to adopt. This policy would encourage the use of native species in the same way as a Native Vegetation in Reserves Policy (**Section 8.4.1**). However, this policy would guide Council, residents and developers to use native and locally endemic species within its own operations in areas outside reserves. This would include the landscaping of public areas, public open space and streetscapes in areas such as verges, roads, shopping centres, civic buildings, roundabouts and so forth.

If Councils decide to develop this approach to landscaping, they will be demonstrating leadership within the community and setting a clear example for developers and private residents (**Section 8.7**) to follow (EMRC, 2007). These flow-on benefits will further assist in maintaining biodiversity values within highly urbanised environments by complementing regional and local ecological linkages (**Section 6.5**).

Consideration of the policy should be incorporated into the development approvals process. Effective liaison between developer, landscape architect and Council will ensure landscape plans are aiming towards the goal of maximising biodiversity values (adapted from EMRC Landscaping with Local Plants, 2007).

The Eastern Metropolitan Regional Council (EMRC) has developed a set of guidelines for Local Government to use with respect to this policy (EMRC Landscaping with Local Plants 2007). This document provides information on the guiding principles and Local Government practices associated with using local plants within landscaping activities. It also includes a list of local plant species appropriate for broad geographical regions.

Further opportunities and benefits of utilising native and locally endemic species in Council landscaping activities are discussed in **Section 8.7.1** and **Section 8.10.1**.

8.4.3 Local Native Vegetation Preservation Policy

Under the *Environmental Protection (Clearing of Native Vegetation) 2004* Regulations, Bush Forever sites and fringing vegetation of the Swan River and conservation category wetlands are classified as environmentally sensitive areas. For the purposes of Part V Division 2 of the *Environmental Protection Act (1986)*, all environmentally sensitive areas require clearing permits to remove native vegetation.

In order to afford greater protection for native vegetation outside environmentally sensitive areas, the introduction of a Local Native Vegetation Preservation policy should be considered. This policy should provide a clear statement to landholders that native vegetation shall not be removed without the prior approval of Council.

A Local Native Vegetation Preservation policy would improve the protection status of all forms of vegetation, including trees and associated understorey species. Further to the obvious benefits to biodiversity, the visual amenity of the local environment will also be enhanced. The policy should also be tied to improvements in procedures to ensure correct consideration and management of clearing issues.

8.5 Amendments to the Town and Local Planning Schemes

During times of Town and Local Planning Scheme reviews, there is an opportunity for Council to consider amendments relating to biodiversity conservation. These could include the inclusion of policies discussed in **Section 8.4**. It may also be prudent to alter the scheme to reflect the requirement for planning approval for all clearance of native vegetation; or adding the requirement for a full ecological assessment for all subdivision and development applications. Councils should consider their Local Planning Schemes individually and decide on the most appropriate course of action during periods of review.

Local Governments also occasionally receive development applications where owners adjacent to reserves seek use of a reserve such as, for instance, to access private property. These applications may adversely affect the biodiversity values of the reserve. Council processes need to ensure that all such applications are reviewed by Environmental Officers in the internal review and comment processes.

8.6 Urban Development

Urban development in the Swan River Precinct has led to large scale clearing of native vegetation and habitat fragmentation, which poses a significant threat to biodiversity (**Section 3.2.1**). It is therefore essential that future developments consider the issue of biodiversity conservation early in the planning process.

Specifically, this can be done in the form of Public Open Space (POS) contributions that should be directed towards reserve management and planning costs.

8.6.1 Public Open Space

The Western Australia Planning Commission's normal requirement in residential areas is that where practicable, 10% of the gross subdivisible area be given up free of cost by the subdivider and vested in the Crown under the provisions of Section 152 of the *Planning and Development Act (2005)* as a Reserve for Recreation (WAPC 2005).

This requirement can be utilised in order to protect natural areas in new subdivisions. Council is likely to need to provide a strong argument for the vesting purpose to be Recreation and Conservation or similar. Given the opportunity however, this will provide a mechanism for preventing the unnecessary clearing of high biodiversity value lands and protect them into the future.

8.7 Private Land Conservation

Of the remaining Local Natural Areas (LNA) occurring within the Swan River Precinct, only 8 ha of vegetation occur on privately owned land from a total of 96 ha (**Table 14**) (Addendum to Chapter 16 Local Biodiversity Planning Guidelines for the Perth Metropolitan Region, unpub. 2007). Comparative to rural Councils within the Perth Metropolitan Region, this is a very small area of land. As such, private land conservation incentives applicable to rural Councils, such as rate rebates and subdivision incentives for landholders signing voluntary conservation agreements are not considered appropriate courses of action for this strategy, however development applications could be considered on a case by case basis to determine the values of the natural areas, the landowners' intentions and possible methods to protect or manage sites within the scope of the development proposed.

Table 14: Vegetated Local Natural Areas within the Swan River Precinct by Ownership Categories (PBP, unpub. 2007)

Ownership	Local Government			Total(ha)
	Bassendean	Bayswater	Belmont	
Commonwealth (ha)	0	0	23	**23**
Local Gov't - Vested (ha)	2	2	1	**5**
Local Gov't – Freehold (ha)	3	2	4	**9**
Unknown (ha)	1	3	4	**8**
Private (ha)	0	3	1	**4**
Private – Commercial (ha)	1	2	1	**4**
State Gov't (ha)	0	10	32	**42**
Total(ha)	**7**	**22**	**67**	**96**

8.7.1 Plants to Residents Program

Despite the constraints associated with small areas of Local Natural Areas occurring within private ownership, there are still opportunities available to Councils to promote biodiversity conservation within private land in their municipality.

A 'Plants to Residents Program', similar to the one in place at the Shire of Kalamunda, will encourage revegetation of private residential properties with locally endemic species. This Program could provide a range of suitable trees, shrubs and groundcovers to local residents at a subsidised cost.

Planting of locally endemic species on private lands will provide valuable wildlife habitat and assist in alleviating the serious threat of habitat fragmentation by improving the effectiveness of ecological linkages. Councils should therefore focus on providing this service to residents living within regional and/or local linkages in the first instance, and develop the program across the entire municipality into the future. This could be achieved by letter-drops to residents; making them aware they are living within an identified ecological linkage and offering them the opportunity to purchase locally endemic plants at subsidised rates.

Benefits of using locally endemic species are not just limited to biodiversity. Residents themselves can benefit by saving money on fertilisers, weed control and watering which are significantly reduced when using locally adapted species. This will attract many residents and should see it widely utilised.

The Plants to Residents Program can be developed with reference to the 'Landscaping with Local Plants Policy' developed by EMRC (Refer to **Section 8.4.2**).

8.8 Education Programs

A lack of awareness has been highlighted as a threat to biodiversity (**Section 3.2.7)**. Increasing public awareness and appreciation of biodiversity conservation will have multiple benefits to biodiversity values throughout the Swan River Precinct. It will lead to stronger support in gaining appropriate resources from State and Federal Government, industry and the wider community for long-term conservation programs (Towards a Biodiversity Conservation Strategy for Western Australia 2004).

Increasing public awareness will likely increase the involvement within the numerous volunteer groups in the region; such as the Friends of Lightning Swamp, Friends of Signal Hill, or Bassendean Preservation Group. This will then have the added benefit of progressing on ground management actions within bushland reserves.

It is anticipated that the role of Councils within public awareness raising activities will be to act as official advisors and facilitators of community groups and members of the public. Technical advice and direction should be provided for general enquiries regarding biodiversity and involvement in on ground management of reserves.

An important aspect of biodiversity education also falls within Council's internal operations. Council Officers involved with the Reserves Liaison Group (**Section 8.1.2**) need to be aware of biodiversity issues within their municipality and how the

decisions they make have the potential to impact biodiversity values. They also need to be aware of how best to utilise existing documents discussed in **Section 8.3** and the overall biodiversity planning process.

Education and community awareness programs will be inherently linked to many other aspects of this strategy. For example, a 'Plants to Residents Program' (**Section 8.7.1**) will alert private residents to the benefits of planting locally endemic flora. Similarly, changing the vesting purpose of a reserve (**Section 8.1.1**) will require planning staff are aware of biodiversity issues within their Council. In this way, a variety of education programs should be viewed as an essential component of Council activities aiming to enhance biodiversity values throughout the region.

Councils of the Swan River Precinct already provide some environmental education. Accepting education programs as a recommended action within this strategy will allow for a more strategic inclusion of biodiversity education within Council activities.

Some examples of Education Programs that Councils could employ are:

- Fact Sheets on the Council website promoting biodiversity conservation (E.g. 'City of Belmont Fact Sheet No. E2 – Native Plants are Great – They Look Good Too');
- Marketing and promotion material such as community newsletters, signage, advertisements in the local paper and information displays at the local library;
- Community workshops aimed at raising awareness and creating support for urban biodiversity conservation;
- Provide assistance to local schools to participate in projects benefiting biodiversity such as tree-planting days;
- Conduct flora and fauna surveys within bushland reserves to create an awareness of the species present;
- Letter-drops to residents living within ecological linkages encouraging them to plant locally endemic species within their garden;
- Letter-drops to residents living adjacent to bushland reserves informing them of the impacts of dumping garden refuse in bushland;
- Provide training to Council staff likely to be involved in the biodiversity planning process; and
- Provide training to Council staff likely to be involved in the on-ground management of reserves.

8.9 Investigate Partnerships

The opportunity exists for Councils to work in collaboration with other government departments and organisations to further develop actions aimed at enhancing biodiversity values across the Swan River Precinct. This may involve investigating new partnerships or enhancing existing ones. Considering this is a Collective Biodiversity Strategy, liaison between the Town of Bassendean, City of Bayswater and City of Belmont should not be overlooked. Examples of possible partnerships are discussed in **Table 15** overleaf.

Table 15: Opportunities for partnerships between the Town of Bassendean, City of Bayswater and City of Belmont with other government departments and organisations.	
Department / Organisation	Possible Partnerships
Eastern Metropolitan Regional Council (EMRC)	Provision of various environmental consulting services; guidance with strategic or policy documents such as the Regional Environment Strategy and Landscaping with Local Plants Policy
Western Australian Local Government Association (WALGA) and Perth Biodiversity Project	Advice and support with the planning and implementation of the Collective Biodiversity Strategy; GIS and mapping information
Perth Region NRM Inc.	Coordination and delivery of Natural Resource Management (NRM) projects; awareness of environmental issues and integration between agencies
Department of Environment and Conservation (DEC)	Updates on locations of Declared Rare Flora, Priority fauna etc; technical advice on biodiversity issues, bushland management and mitigation of threatening processed through the Urban Nature Program and other programs Information on wetlands including revegetation of wetlands
Department for Planning and Infrastructure	Assistance and support with development and subdivisions affecting biodiversity values
Department of Water	Technical advice and support in relation to wetlands and waterways.
Swan River Trust	Support in the management of the Swan River and its biodiversity. Under the *Swan and Canning Rivers Management Act (2006)* the Swan River Trust and other bodies can enter into collaborative arrangements to implement management programs.
Main Roads Western Australia	Streetscaping for biodiversity enhancement
Water Corporation	Revegetation of drainage reserves
Schools	Revegetation of school grounds
Public Transit Authority	Revegetation of railway reserves
Perth Airport	Revegetation, seed collection
Community	Public comment on Biodiversity Strategy; on-ground management of reserves, education and awareness, these may include existing local groups within each Council area as well as new groups that may be established.

8.10 Actions to Reduce Threats to Biodiversity

Threats to biodiversity were previously discussed in **Part A**. There are numerous methods of minimising these threats to biodiversity. Some are currently being undertaken by Councils in the Swan River Precinct, such as weed control and the development of reserve management plans. A list of possible actions available to Councils is discussed below.

8.10.1 Landscaping for Biodiversity

As previously discussed in **Section 8.4.2**, the development of a Landscaping with Local Plants policy will provide direction to Council for various landscaping projects. It is a recommendation of this Collective Biodiversity Strategy for Councils to adopt such a policy. The use of locally endemic flora within Council landscaping, particularly within ecological linkages, will help to alleviate the threats posed by clearing and habitat fragmentation.

Replacing areas currently planted with exotic grasses with locally endemic species will provide multiple benefits. Invasive grasses often out-compete native species, create a fire hazard in the summer months, require comparatively larger quantities of water and fertilisers as well as Council funds for ongoing maintenance such as mowing and reticulation. Planting of locally endemic species will therefore save Council Officer time and funds as well as providing the benefit of reducing weeds and the risk of fire.

The use of native trees including Eucalypts along verges is far more effective in providing functions for native fauna compared to exotic species. If planted consistently along road reserves locally endemic species are capable of providing ecological linkages. This greatly benefits biodiversity by providing a suitable habitat for numerous invertebrate species, which in turn provides a food source for mammals, reptiles and birds.

8.10.2 Ongoing Weed Control

As described in **Section 3.2.3**, weeds are a serious threat to biodiversity. There are numerous weed species existing within the Swan River Precinct; a comprehensive list of the species observed during the natural area assessments can be found in **Appendix 1**.

Natural areas in need of weed control have been identified throughout the natural area assessments. Unfortunately, all natural areas are subject to some level of weed invasion, hence the requirement of ongoing weed control within all reserves, including particularly the 23 reserves with bushland remaining.

To allow for a more strategic approach to the management of weeds, it is recommended that ongoing weed control is a major component of the Reserve Action Plan discussed in **Section 8.1.2** and incorporated in bushland management guidelines, where used. This will allow for a coordinated approach to managing weeds in all Council reserves by highlighting priority weed species and problem areas. The information in the Natural Area Initial Assessment forms will be an important input in identifying priorities and actions.

Another opportunity available to Councils is the development of a separate Weed Control Strategy. This would further emphasise the importance of ongoing weed control within the Council and discuss detailed actions aimed at minimising weed impact on biodiversity values.

8.10.3 Seed Collection

The importance of using locally endemic species has previously been discussed in **Section 8.4.1**. For the same reasons, it is equally important to collect local provenance seed for use in revegetation projects. Local provenance seed is seed collected from as close to the revegetation site as possible, which will produce plants well adapted to the local environmental conditions. This will further enhance the gene pool of the existing flora already under threat from habitat fragmentation. On the contrary, collecting seed from distant sources may result in poorly adapted flora that contaminates the local genetic material.

Councils should therefore aim to collect seed from within their own reserves where possible and feasible given the size of the seed resources available, thus not adversely impacting on the viability of the source populations. Another possibility would be to collect seed from bushland surrounding Perth airport. The collection of local provenance seed will allow the propagation of revegetation material suitable for use within identified linkages. Local seed would be used as a priority in existing natural areas and revegetation adjoining existing natural areas.

8.10.4 Enhance Natural Areas within Regional and Local Linkages

Regional and local linkages have been identified for the Swan River Precinct (refer to Figures 1 - 4). The primary aim of these linkages is to improve the long-term viability of natural areas and provide connections to other natural areas for use by flora and fauna. This will assist to enhance biodiversity values within the region and alleviate the threat of habitat fragmentation.
Two major regional linkages have been identified. These are:

- The Swan River and foreshores
- Linkages to Perth Airport Bushland.

The Swan River and its foreshores are the defining landscape feature of this precinct and integral to the maintenance of biodiversity, including aquatic and avian fauna. Each Council has a substantial track record of foreshore protection and maintenance activities and projects for areas under their management.

The biodiversity values and importance of the bushland on the Perth Airport grounds have been recognised through Bush Forever and its registration on the Register of the National Estate and listing as an indicative place in the Australian Heritage List.

In addition to the regional linkages, a number of local linkages have been identified.

The enhancement of natural areas located within linkages will require significant input from Council. Many of the reserves/public facilities located within linkages contain degraded areas with minimal native vegetation. These areas will require a long-term strategic approach with the objective of minimising threats and subsequent ongoing revegetation.

Given that revegetation of linkages will require a long-term approach, the local linkages identified for each Council have been further prioritised to provide guidance on their individual biodiversity values. It is important to note that regional linkages should always be the highest priority, and the prioritisation of local linkages should be used as a guide only. Local linkages were prioritised according to the following characteristics:

- Local linkage connects with as many regional linkages as possible;
- Local linkage contains as many significant bushland reserves as possible; and
- Local linkage crosses as many Local Governments as possible.

The prioritised linkages for each Local Government are shown in **Table 16** overleaf:

Table 16: Prioritised linkages for the Town of Bassendean, City of Bayswater and City of Belmont			
Priority Number	Local Government		
	Bassendean	Bayswater	Belmont
1	Regional linkage	Regional linkage	Regional linkage
2	Local Linkage 1	Local linkage 5*	Local linkage 1
3	Local Linkage 3	Local Linkage 2	Local linkage 2
4	Local Linkage 2	Local Linkage 1	Local linkage 3
5	N/A	Local Linkage 4	N/A
6	N/A	Local Linkage 3	N/A

* Local Linkage 5 has been identified as the highest priority local linkage for the City of Bayswater due to its continuity and subsequent benefits to water quality. Refer to 'City of Bayswater Water Report' for further information.

Broad management recommendations and remediation works required for each of the reserves/public facilities within the linkages for each Local Government are detailed in **Appendix 4 - 6**. This information can be used as a guideline for coordinating revegetation activities.

Other sections of this Collective Biodiversity Strategy create opportunities for enhancing natural areas contained within linkages. In particular, the Plants to Residents program (**Section 8.7.1**) emphasises the benefits of planting locally endemic species on privately owned land within linkages. Similarly, the development of various policies (**Section 8.4**) provides an opportunity for Council to use locally endemic species, particularly in natural areas containing linkages. Revegetation activities should also utilise local provenance seed (**Section 8.10.3**).

8.10.5 Introduction or Expansion of Geographic Information System (GIS) software

GIS software is an invaluable asset applicable to many Council staff, especially staff working within biodiversity and environmental fields. This technology enables comprehensive desktop assessment of many environmental attributes before undertaking a site visit. This would be important in situations such as development and subdivision approvals where information such as the presence of rare species, which may not be flowering at the time, is less likely to be missed.

The GIS will also be useful during the assessment of natural areas for biodiversity values. Important information about a particular natural area can be stored in perpetuity and be easily accessed by all Council staff. Information would include but not be limited to the locations of significant flora and fauna populations, wetlands and their management category, as well as the ownership status of reserves and whether they form part of a regional or local linkage.

If GIS software is not an existing management tool within Local Government, it is recommended it be introduced. For Local Governments with existing GIS software, it is important to keep the associated layers updated in order to make decisions based on accurate information and thus requires a modest annual budget for maintenance and updating of the system.

As GIS software becomes more entrenched in Council planning and daily use, Council's could consider introducing the use of Global Positioning System (GPS) or

Personal Digital Assistant (PDA) systems. This will allow data collected in the field to be immediately downloaded into the GIS.

GPS or PDA systems would allow Council Officers to pinpoint biodiversity features or threats so that they could be entered onto the GIS. This information would assist in the management of Council land. For example, if the Council decided to target a particular weed species, officers could be trained to record this information whilst they are out in the field. This information could then be uploaded onto the GIS so that targeted weed control could be planned effectively.

8.10.6 Carbon Offsets or Trading

Other programs available to Councils may help to reduce the threat of climate change on biodiversity. This area is one that is currently undergoing significant change with the Australian Government's current progress on emissions reporting being implemented in 2009/2010, and legislation being considered on carbon trading through the Australian Parliament in 2009/2010. It is anticipated that both emissions reporting and particularly carbon trading will provide a range of opportunities that could potentially benefit local government's revegetation and planting programs and community revegetation programs.

One such current program, which provides an example of the existing opportunities, is Landcare Australia's CarbonSMART program. This program is an example of a national carbon pool to support Australia's biodiversity. Through this program landholders can earn money by planting and maintaining vegetation for biodiversity. Individuals and businesses can then buy carbon credits from these landholders (a management and brokerage fee is taken by Landcare Australia).

This program is currently run in NSW, however Landcare Australia are looking to expand nationally once a national carbon trading system is initiated. Programs such as this should be supported in the event that a carbon trading system is initiated by the Federal Government. The Town of Bassendean, City of Bayswater and City of Belmont may then benefit by planting out cleared reserves, particularly along linkages, and receive an income from carbon credits. At this stage there are some difficulties in being able to properly quantify and carbon stored in local native species, however, this knowledge is expected to improve in coming years. In a biodiversity context, local native species are always preferred for revegetation.

Councils of the Swan River Precinct are monitoring developments and opportunities, in conjunction with the EMRC, to identify opportunities relevant to the region.

8.10.7 Monitoring and Review

The implementation of the Collective Biodiversity Strategy will require regular monitoring and review to measure performance. This process will also assist the three local governments in reporting on the performance measures for implementation of the relevant sections of their corporate and strategic plans as outlined in **Box 1** on page 14.

The Stakeholder Working Group is a suitable body to review the progress on strategy implementation. The Stakeholder Working Group has expertise and officer support in regards to environmental management matters and organizational matters affecting resources and budget expenditure for each of the three local governments.

A major action has been defined that is of importance in monitoring and review: the definition of key performance indicators (KPIs) for the action plan. It was not possible to develop KPIs within the timeframe and resources available for the preparation of this strategy, but should be developed as a priority within the first 12 months to aid and guide effective adaptive management.

Given the collective nature of this strategy, it is recommended that each Council undertake annual reporting within its own structures for specific elements of the action plan, with a common report being prepared at the following points:

- June 2009 – Identification of KPIs
- December 2009 – report on progress with high priority actions
- December 2011 – Major triennial review, assessing progress against KPIs and confirming or updating targets
- December 2013 – Report on full implementation, including review of vision, targets and identification of future actions.

Annual reviews can be undertaken as part of the regular quarterly reporting to ensure that adequate budgets and resources are considered as part of the budget process. This annual review should be undertaken in March of each year to ensure there is sufficient time to include the outcomes in annual budget deliberations.

9 Potential Resourcing Actions

Implementation of the actions discussed in **Section 8** will require consideration as to the resources available to Council. A commitment to achieving the targets in **Part B** implies that both staffing and financial resources are available to Council. Potential resourcing actions are discussed in further detail below. Actions considered most suitable to each individual Council are prioritised in the Action Plan in **Section 10**.

9.1 Development of the Councils' Environmental Services

Over the past few years the Town of Bassendean, City of Bayswater and City of Belmont have employed Environmental Officers/Coordinators either independently or in conjunction with the Eastern Metropolitan Regional Council (EMRC). More recently, the introduction of other environmental staff, such as predominantly part-time Bushcare Officers, has been implemented to improve management of reserves. These environmental services are essential to achieving positive outcomes for biodiversity conservation.

In order to reduce the threats to biodiversity and implement biodiversity protection mechanisms, Councils could consider the employment of further environmental staff. This may include a Bushcare Officer (if one does not already exist) or negotiating additional hours for existing part-time Bushcare Officers. This will allow for a more coordinated approach to managing reserves and create additional opportunities to undertake on-ground activities such as weed control.

Another opportunity exists for each Council in the area of planning. Environmental planners provide Councils with the expertise to make informed land-use planning decisions without compromising existing biodiversity values. The creation of environmental planner positions would also facilitate development of policies such as those discussed in **Section 8.4**.

Depending on the need at each Council, such a position could be shared amongst more than one Council. It may also be a consideration to outsource this position to an organisation such as the Eastern Metropolitan Regional Council until a stable level of need is established.

9.2 Environmental Levy

Section 6.38 of the *Local Government Act (1995)* allows Councils to impose a service charge on a landowner or occupier to meet the cost of providing a prescribed service for the land. An opportunity exists for Council to consider introducing such a levy to raise funds for environmental programs such as biodiversity conservation, acquisition of assets and general management and improvement expenditures.

It is important to consult the community when considering an action such as an environmental levy, as it will directly impact on the local residents. A recent survey of five Local Governments in the Perth Metropolitan Region indicated 76% of respondents were willing to make some level of personal financial contribution to improve their local reserve (Catalyse 2007). The introduction of an environmental levy within the Swan River Precinct should therefore be considered as a feasible option to raise funds for biodiversity conservation. A similar community survey could be conducted in the Swan River Precinct to gauge support for an environmental levy in the Town of Bassendean, City of Bayswater and City of Belmont.

9.3 Grants and Funding Opportunities

Financial constraints may be a limiting factor for Local Government implementing biodiversity actions. Fortunately, a variety of both Federal and State funding opportunities are available to Local Governments and/or Community Groups creating opportunities for funding biodiversity related projects outside of the Council budget. A list of potential funding opportunities can be found in **Appendix 9** or through the following web-site: http://grantsdirectory.dlgrd.wa.gov.au/.

These grants may be utilised for private landholders to address biodiversity issues on their land or for community groups to implement biodiversity conservation activities on lands managed by Local Government. There are therefore opportunities for Local Government to work in close liaison with various community groups. Members of the community and Local Government are encouraged to apply for such grants.

Other funding opportunities, such as through partnerships with registered tax deductible gift recipients to raise tax deductible funds to support priorities, and carbon credits will be explored if and when opportunities are identified.

9.4 Cost Estimates

Management costs for reserves are highly variable and depend on local factors such as the degree of weediness, the type of weeds present, the need for riverbank stabilisation works. Other factors that can make a serious difference in the cost of reserve management include fire, as weed control needs are significantly higher in the 12-24 months following a fire. Therefore, resource requirements should be set on an individual basis.

Some common features though include the difference in magnitude of costs associated with primary weeding versus secondary weeding. Once a reserve has received significant primary weed management for 1-2 years, the magnitude of costs can reduce by a factor of two to a factor of five, so long as the primary cause of the weed infestation (eg, garden waste dumping) is addressed.

This Collective Biodiversity Strategy is focussed on enhancing and protecting biodiversity values within lands directly managed by Councils of the Swan River Precinct. Examples of some cost estimates for actions related to managing Council reserves are shown in **Appendix 10**. These estimates are based on information provided in the Local Government Biodiversity Planning Guidelines for the Perth Metropolitan Region (WALGA 2004), updated with advice from local consultancies to reflect current professional costs; further information can be found in these Guidelines. The cost estimates do not replace the need to acquire quotes for individual projects and should be used as a guide only.

Another resource currently in development and relevant to foreshore reserves is a joint Swan River Trust/EMRC project aimed at developing a management framework and broad costings for a range of foreshore stabilisation techniques. This project is underway at the time of writing the draft strategy and expected to report before the end of 2008.

10 Biodiversity Conservation Action Plan for Implementation

A number of options for the implementation of the targets proposed in **Part B** were discussed in **Section 8** and **9**. Actions selected as appropriate for each Council have been prioritised according to their individual biodiversity values and resourcing needs. The actions have been categorised with associated time frames for implementation according to the classifications in **Table 17** below.

It should be noted that where priority timeframes are consistent across Councils, this may represent opportunities for shared actions to take best advantage of economies of scale and share resources.

Table 17: Classification of priority actions for implementation in the Collective Biodiversity Strategy for the Town of Bassendean, City of Bayswater and City of Belmont

Priority Classification	Implementation Time Frame
High Priority Action	Implement within first year
Medium Priority Action	Implement within second and/or third years
Low Priority Action	Implement beyond third year or on an as-needs basis
N/A Action	Action not considered necessary for this Council

Consideration must also be given to projects which will require implementation over subsequent years, such as the revegetation of linkages. These actions may be grouped under more than one classification for this purpose.

The options considered most viable for the implementation by each individual Council are prioritised in the action plan in **Table 18** overleaf.

Table 18: Action Plan for the implementation of the Collective Biodiversity Strategy for the Town of Bassendean, City of Bayswater and City of Belmont			
Action	**Priority Classification**		
	Bassendean	**Bayswater**	**Belmont**
Biodiversity Conservation Actions (Section 9)			
Increasing Protection of Existing Bushland Reserves (Section 9.1.1)			
Increase the protection status of reserves by changing the vesting purpose to 'conservation' or similar.	L	L	N/A
Increase the protection status of reserves by amending the zoning of the Metropolitan Region Scheme.	L	L	N/A
Improved Reserve Management (Section 9.1.2)			
Formation of a Reserves Liaison Group within Council to coordinate management of reserves.	H	(Current practice)	H (Current practice)
Develop a Reserves Action Plan to provide guidance in the management of all Council reserves.	H	H	H (Current practice)
Conduct periodic reassessments of reserves to monitor their condition.	H	H	M (Current practice)
Strategic Acquisition of Lands (Section 9.2)			
Acquisition of reserves via DPI purchase of land privately owned land along key foreshores and incorporation into reserve system.	L	L	L
Utilisation of the Current Local Planning Scheme and other Council Documents (Section 9.3)			
Encourage the correct use of current Local Planning Schemes and other Council documents which create benefits to biodiversity.	H	M	H
Policy Development (Section 9.4)			
Develop a Local Planning Policy for biodiversity conservation.	H	M	N/A
Develop a Native Vegetation in Reserves Policy.	H	(Current practice)	H
Develop a Landscaping with Local Plants Policy.	H	(Current practice)	H
Develop a Local Native Vegetation Preservation Policy.	M	M	N/A
Amendments to the Local Planning Scheme (Section 9.5)			
Consider amendments to the Local Planning Scheme during periods of review.	H	N/A	N/A
Urban Development (Section 9.6)			
Ensure natural areas with high biodiversity value are included in the allocation of Public Open Space during subdivisions.	H	N/A	H – current practice
Promote tax concessions available to developers gifting natural areas.	H	N/A	H – current practice
Private Land Conservation (Section 9.7)			
Introduce a 'Plants to Residents' program providing locally endemic species to residents at a subsidised cost.	H	L-M	H – current practice
Education Programs (Section 9.8)M			
Ensure adequate education and awareness	H	H	H – current

Table 18: Action Plan for the implementation of the Collective Biodiversity Strategy for the Town of Bassendean, City of Bayswater and City of Belmont			
Action	**Priority Classification**		
	Bassendean	**Bayswater**	**Belmont**
Biodiversity Conservation Actions (Section 9)			
of biodiversity issues within both Council and the wider community.			practice
Council staff undergo training in components of the Collective Local Biodiversity Strategy relevant to their role.	M	M	M
Investigate Partnerships (Section 9.9)			
Investigate opportunities for partnerships with other government departments and organisations to enhance biodiversity.	H	H	H
Actions to Reduce Threats to Biodiversity (Section 9.10)			
Ensure locally endemic species are utilised in Council landscaping.	H	L	H- Current practice
Ensure ongoing weed control within reserves and include weed control as a major component of the Reserves Action Plan.	H	H	H- Current Practice
Develop a Weed Control Strategy.	H	H	M
Collect local provenance seed for use in revegetation projects.	H	where feasible	H Current practice
Enhance natural areas within regional and local linkages by minimising threats to biodiversity and the revegetation of reserves.	H	H	H
Introduction of GIS software as a management tool including regular updates of the layers in use.	H	H	H- Current practice
Support the habitat project through the implementation of the Swan Helena Management Framework	M	M	M
Introduction of GPS/PDA systems allowing for immediate download of field data into GIS.	L	H	L
Support the introduction of the CarbonSMART program or similar.	L	N/A	N/A (Current member of Carbon Neutral)
Identification of KPIs for Action Plan implementation	H	H	H
Preparation and consideration of report on implementation and progress of High Priority actions	H	H	H
Preparation and consideration of triennial review and confirmation/updating of targets	M	M	M
Preparation and consideration of 5 year implementation report and establishment of new action plan	L	L	L
Resourcing Actions (Section 10)			
Develop Councils' environmental service through employment of (or increased working hours) a Bushcare Officer.	H	(Current practice)	N/A
Develop Councils' environmental service through employment of an Environmental Planner.	H	M (if shared)	N/A
Investigate the feasibility of introducing an environmental levy to raise funds for	M	H	L

Table 18: Action Plan for the implementation of the Collective Biodiversity Strategy for the Town of Bassendean, City of Bayswater and City of Belmont			
Action	Priority Classification		
	Bassendean	Bayswater	Belmont
Biodiversity Conservation Actions (Section 9)			
environmental programs.			
Submit grant applications for biodiversity projects as a Local Government or in partnership with community groups.	H	H	M

11 Conclusion

The Town of Bassendean, City of Bayswater and City of Belmont have the opportunity to be the first Councils to utilise the Local Government Biodiversity Planning Guidelines within a highly urbanised setting. Unlike outer metropolitan Councils, highly developed urban municipalities have very small remaining proportions of natural areas with most of the remaining vegetation located within small, fragmented reserves under Government management.

Due to the urbanised environment all remaining natural areas in this inner city landscape should be considered of high biodiversity value. The undertaking of a Collective Local Biodiversity Strategy will provide a strategic commitment to the protection and enhancement of a network of connected Local Natural Areas within the Swan River Precinct.

The implementation of the action plan detailed in **Table 18** will allow Councils to progress towards enhancing and protecting the remaining biodiversity values within the region. This will ensure that biodiverse landscapes continue to exist well into the future.

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13 Appendices

Appendix 1: Weed species

Species recorded during Natural Area Assessments

Scientific Name	Common Name
Acacia iteaphylla	Flinders Range Wattle
Apiaceae sp	
Arctotheca calendula	Capeweed
Arundo donax	Giant Reed
Asparagus asparagoides	Bridal Creeper
Aster subulatus	
Atriplex prostrata	
Avena fatua	Wild Oat
	Bamboo
Brassica sp	Wild Turnip
Briza maxima	Blowfly Grass
Briza minor	Shivery Grass
Bromus hordeaceus	
Bromus sp	
Callistemon sp	Bottlebrush
Canna hybrid	Canna Lily
Carduus sp	Thistle
Carex divisa	
Carex inversa	
Chamaecytisus palmensis	Tagasaste
Chamelaucium uncinatum	Geraldton Wax
Colocasia esculenta	Taro
	Common Starwort
Conyza sp	Fleabane
Cortaderia selloana	Pampass Grass
Cotula coronipifolia	Water Buttons
Cynodon dactylon	Couch
Cyperus involucratus	
Cyperus sp.	Nutgrass
Echium plantagineum	Paterson's Curse
Ehrharta calycina	Perennial Veldt Grass
Eragrostis curvula	African Love Grass
Erodium cicutarium	Common Storksbill
Eucalyptus citriodora	Lemon-scented Gum
Eucalyptus robusta	Swamp Mahogany

Scientific Name	Common Name
Euphorbia terracina	Geraldton Carnation Weed
Ficus carica	Edible Fig
Freesia sp	Freesia
Fumaria capreolate	White Fumitory
Gladiolus caryophyllaceus	Pink Gladioli
Gomphocarpus fruticosus	Narrowleaf Cotton Bush
Hibiscus diversifolius	
Holcus lanatus	Yorkshire Fog
Homeria flaccida	Cape Tulip
Hordeum leporinum	Barley Grass
Hypochaeris sp	
Ipomoea indica	Morning Glory
Juncus microcephalus	
Lactuca serriola	Prickly Lettuce
Lagurus ovatus	Hare's Tail Grass
Lantana camara	Lantana
Lathyrus tingitanus	Tangier Pea
Lavandula sp	Lavendar sp
Lavatera trimestris	
Leptospermum laevigatem	Victorian Teatree
Lolium rigidum	Ryegrass
Lupinus sp.	Lupin
Medicago sp	Bur Medic
Melaleuca quinquinerva	
Moraea flaccida	One-leaf Cape Tulip
Olea europa	Olive
Oxalis sp	Soursop
Paspalum sp.	
Pelargonium capitatum	Rose Pelargonium
Pennisetum clandestinum	Kikuyu
Phalaris minor	Lesser Canary Grass
Phoenix dactylifera	Date Palm
Pinus radiata	Radiata Pine
Pinus sp	
Plantago lanceolata	Ribwort Plantain
Poa annua	Winter Grass
Portulaca sp	
Psoralea pinnata	Taylorina
Raphanus raphanistrum	Wild Radish
Ricinus communis	Castor Oil
Rorippa nasturtium-aquaticum	Water Cress
Rosa sp	Climbing Rose
Rubus fruiticosus	Blackberry

Scientific Name	Common Name
Rumex sp	Dock
Salix babylonica	Weeping Willow
Schinus terebinthifolia	Japanese Pepper
Solanum nigrum	Blackberry Nightshade
Sonchus sp	
Trifolium campestre	Hop Clover
Tropaeolum majus	Nasturtium
Typha orientalis	Bulrush
Ursinia sp	
Vicia sativa	Common Vetch
Washingtonia filifera	Cotton Palm
Watsonia bulbillifera	Watsonia
Yucca	
Zantedeschia aethiopica	Arum Lily

Appendix 2: Declared Plants in the Swan River Precinct

Declared plants are given certain classifications and can either be declared within a specific region or throughout the State under the *Agriculture and Related Resources Act (1976)*. The classifications are as follows:

P1: Prohibits movement of plants or their seeds within the State. This prohibits the movement of contaminated machinery and produce including livestock and fodder;

P2: Eradicate infestation to destroy and prevent propagation each year until no plants remain. The infested area must be managed in such a way that prevents the spread of seed or plant parts on or in livestock, fodder, grain, vehicles and/or machinery;

P3: Control infestation in such a way that prevents the spread of seed or plant parts within and from the property on or in livestock, fodder, grain, vehicles and/or machinery. Treat to destroy and prevent seed set all plants;

P4: Prevent the spread of infestation from the property on or in livestock, fodder, grain, vehicles and/or machinery. Treat to destroy and prevent seed set on all plants;

P5: Infestations on public lands must be controlled.

In the absence of a detailed weed map for the study area, the full list is provided.

Declared Plants within the Swan River Precinct (January 2007)

Declared Plant Species	Classification
Acacias (*Acacia* spp., all species not native to Australia (except *Acacia farnesiana*)	P1, P2; for the whole of the State.
African rue (*Peganum harmala*)	P1, P2; for the whole of the State
African thistle (*Berkheya rigida*)	P1, P2; for the whole of the State
Alligator weed (*Alternanthera philoxeroides*)	P1, P2; for the whole of the State
Aquarium Plants (all types)	P1; for the whole of the State
Arrowhead (*Sagittaria montevidensis*)	P1, P2; for the whole of the State
Artichoke thistle (*Cynara cardunculus*)	P1, P2; for the whole of the State
Arum lily (*Zantedeschia aethiopica*)	P1, P4; for the whole of the State
Athel pine (*Tamarix aphylla*)	P1; for the whole of the State
Bathurst burr (*Xanthium spinosum*)	P1; for the whole of the State P2; For the many municipal districts including the Town of Bassendean, the City of Bayswater and the City of Belmont
Bellyache bush (*Jatropha gossypifolia*)	P2; For the many municipal districts including the Town of Bassendean, the City of Bayswater and the City of Belmont P1; for the whole of the State
Blackberry (*Rubus laudatus, R. fruticosus* agg.- including *R. anglocandicans, R. rugosus, R. ulmifolius*)	P1; for the whole of the State
Boneseed, bitou bush (*Chrysanthemoides monilifera*)	P1, P2; for the whole of the State

Declared Plant Species	Classification
Bridal creeper (*Asparagus asparagoides*)	P1; for the whole of the State
Broomrape; branched broomrape (*Orobanche ramosa*; *Orobanche* spp except *O.minor*)	P1, P2; for the whole of the State
Cabomba (*Cabomba caroliniana*)	P1, P2; for the whole of the State
Camelthorn (*Alhagi maurorum*)	P1, P2; for the whole of the State
Canadian pond weed (*Elodea canadensis*)	P1, P2; for the whole of the State
Candle bush (*Senna alata*)	P1, P2; for the whole of the State except those areas constituted as townsites under Section 26 the Land Administration Act 1997.
Cape Tulip, one leaf; two leaf Cape tulip (*Moraea flaccida*, *Moraea miniata*)	P1; for the whole of the State
Chilean needle grass (*Nasella neesiana*)	P1; for the whole of the State
Chinee apple (*Ziziphus mauritiana*)	P1; For the many municipal districts including the Town of Bassendean, the City of Bayswater and the City of Belmont
Cleavers (*Galium aparine*)	P1, P2; for the whole of the State
Creeping knapweed (*Acroptilon repens*; *Rhaponticum repens*)	P1, P2; for the whole of the State
Devil's claw, small fruit; purpleflower Devil's claw (*Martynia annua, Proboscidea louisianica*)	P1, P2; for the whole of the State
Field bindweed (*Convolvulus arvensis*)	P1; for the whole of the State
Floating water chestnut (*Trapa* spp)	P1, P2; for the whole of the State
Golden dodder (*Cuscuta campestris*)	P1, P2; For the many municipal districts including the Town of Bassendean, the City of Bayswater and the City of Belmont
Gorse, Furse (*Ulex europaeus*)	P1; for the whole of the State P2; For the many municipal districts including the Town of Bassendean, the City of Bayswater and the City of Belmont
Harrisia cactus (*Harrisia martinii*)	P1, P2; for the whole of the State
Hoary cress (*Cardaria draba, Lepidium draba*)	P1, P2; for the whole of the State
Horsetails, common horsetail (*Equisetum arvense; Equisetum* spp)	P1, P2; for the whole of the State
Hydrocotyl (*Hydrocotyle ranunculoides*)	P1, P2; for the whole of the State
Hymananche (*Hymenanche aplexicaulis*)	P1, P2; for the whole of the State
Jointed goatgrass (*Aegilops cylindrica*)	P1, P2; for the whole of the State
Kochia (*Bassia scoparia*)	P1, P2; for the whole of the State
Lagarosiphon (*Lagarosiphon* spp.)	P1 P2; for the whole of the State
Lantana (*Lantana camara*)	P1; for the whole of the State
Leafy elodea (*Egeria densa*)	P1, P2; for the whole of the State
Mesquite (*Prosopis* spp.)	P; for the whole of the State with some exceptions in the North West P1; for the whole of the State
Mexican poppy (*Argemone mexicana* and *Argemone ochroleuca*)	P1; For the many municipal districts including the Town of Bassendean, the City of Bayswater and the City of Belmont P2; For the many municipal districts including the Town of Bassendean, the City of Bayswater and the City of Belmont

Declared Plant Species	Classification
Miconia (*Miconia* spp)	P1, P2; for the whole of the State
Needle burr, spiny amaranth (*Amaranthus spinosus*)	P1, P2; for the whole of the State
Nodding thistle (*Carduus nutans*)	P1, P2; for the whole of the State
Noogoora burr (*Xanthium strumarium* (=*X. occidentale*)	P1; for the whole of the State P2; For the many municipal districts including the Town of Bassendean, the City of Bayswater and the City of Belmont
Parkinsonia (*Parkinsonia aculeata*)	P1; for the whole of the State
Parrot's feather (*Myriophyllum aquaticum*)	P1, P2; for the whole of the State
Parthenium weed (*Parthenium hysterophorus*)	P1, P2; for the whole of the State
Patersons curse (*Echium plantagineum*)	P1; for the whole of the State
Penny cress (*Thlaspi arvense*)	P1, P2; for the whole of the State
Perennial thistle or Canada thistle (*Cirsium arvense*)	P1, P2; for the whole of the State
Physic nut (*Jatropha curcas*)	P1; for the whole of the State P2; For the many municipal districts including the Town of Bassendean, the City of Bayswater and the City of Belmont
Pond apple (*Anona glabra*)	P1, P2; for the whole of the State
Ragwort (*Senecio jacobaea*)	P1, P2; for the whole of the State
Rubber vine (*Cryptostegia grandiflora* and *Cryptostegia madagascariensis*)	P1, P2; for the whole of the State
Saffron thistle (*Carthamus lanatus*)	P1; for the whole of the State
Sagittaria (*Sagittaria platyphylla*)	P1, P2; for the whole of the State
Salvinia (*Salvinia molesta*)	P1, P2; for the whole of the State
Senegal tea (*Gymnocoronis spilanthoides*)	P1, P2; for the whole of the State
Sensitive plant common (*Mimosa pudica*)	P1, P2; for the whole of the State
Sensitive plant, giant (*Mimosa invisa*)	P1, P2; for the whole of the State
Sensitive plant, giant (*Mimosa pigra*)	P1, P2; for the whole of the State
Serrated tussock (*Nasella trichotoma*)	P1, P2; for the whole of the State
Shield pennywort (*Hydrocotyle verticillata*)	P1, P2; for the whole of the State
Siam weed (*Chromolaena odorata*)	P1, P2; for the whole of the State
Sicklepod, java bean (*Senna tora*, *Senna obtusifolia*)	P1, P2; for the whole of the State
Skeleton weed (*Chondrilla juncea*)	P1, P2; for the whole of the State
St. John's wort (*Hypericum perforatum*)	P1, P2; For the many municipal districts including the Town of Bassendean, the City of Bayswater and the City of Belmont
Thornapple, common, Fierce thornapple; Leichhardt's or Mexican thornapple; Hairy thornapple; Downy thornapple (*Datura stramonium, Datura ferox, Datura leichhardtii, Datura wrightii, Datura innoxia, Datura metel*)	P1; For the many municipal districts including the Town of Bassendean, the City of Bayswater and the City of Belmont
Three-horned bedstraw (*Galium tricornutum*)	P1, P2; for the whole of the State
Tutsan (Hypericum androsaemum)	P1, P2; for the whole of the State
Tutsan, flair (*Hypericum x inodorum*)	P4; for lands approved for cultivation by the Chief Officer. P2; for the whole of the State , except lands approved for cultivation by the Chief Officer.
Variegated thistle (*Silybum marianum*)	P1; for the whole of the State P2; For the many municipal districts including

Declared Plant Species	Classification
	the Town of Bassendean, the City of Bayswater and the City of Belmont
Water lettuce (*Pistia stratiotes*)	P1, P2; for the whole of the State
Willows (*Salix* spp, except weeping willow (*S.babilonica*), pussy wilow (*S.x calodendron*) and sterile pussy willow (*S.x reichardtii*))	P1; for the whole of the State
Witchweed (*Striga* spp - all non-indigenous Striga species)	P1, P2; for the whole of the State
Yellow burr weed (*Amsinckia* spp)	P1, P2; for the whole of the State

Appendix 3: Bird Species

The Perth Biodiversity Project (PBP) includes a bird survey component that evolved in a process of consultation and collaboration with Birds Australia WA. As part of this bird surveys were conducted at seven sites within the City of Bayswater and 1 site in the Town of Bassendean during Rounds 1& 2 of this aspect of PBP.

The bird surveys conducted within the City are listed below. This information has been adapted from the Perth Biodiversity Project Bird Surveys 1 and 2 survey reports found at http://www.councils.wa.gov.au/directory/walga/index.html/pbp/bird/pbpbirdsrd2report/view.

KEY TO CATEGORIES OF SIGNIFICANCE

Category 1: Bird species listed under the Wildlife Conservation Act 1950.
Category 2: Bird species listed on the Japan- and China Australia Migratory Bird Agreements (JAMBA & CAMBA)
Category 3: Bird species that are habitat specialists with a reduced distribution on the Swan Coastal Plain.
Category 4: Bird species that are wide-ranging with reduced populations on the Swan Coastal Plain, or are locally extinct.
Category R4: Bird species listed under the Wildlife Conservation (Specially Protected Fauna) Notice 1999.

Success Hill (Town of Bassendean): Reserve surveyed May 2003 – May 2004

Bird Species recorded in survey period	Breeding on survey site	Maximum Number Recorded (water dependent species only)	Frequency of occurrence		Significant species (Bush Forever)
			No. (number of surveys in which recorded)	% of surveys	
Conservation Zone					
Spotted Turtle-Dove*			2	15	
Galah			3	23	
Corella species (not identified to species level)			1	8	
Rainbow Lorikeet*			2	15	
Australian Ringneck			11	85	
Laughing Kookaburra			3	23	
Rainbow Bee-eater			2	15	
Splendid Fairy-wren			5	38	Category 3
Spotted Pardalote			1	8	
Striated Pardalote			3	23	
Weebill			1	8	Category 3
Western Gerygone			3	23	
Inland Thornbill			1	8	Category 3
Yellow-rumped Thornbill			4	31	Category 3
Red Wattlebird			8	62	
Singing Honeyeater			5	38	
Brown Honeyeater			11	85	

Bird Species recorded in survey period	Breeding on survey site	Maximum Number Recorded (water dependent species only)	Frequency of occurrence		Significant species (Bush Forever)
			No. (number of surveys in which recorded)	% of surveys	
White-cheeked Honeyeater			2	15	Category 4
Western Spinebill			5	38	
Grey Shrike-thrush			1	8	Category 3
Magpie-lark			4	31	
Grey Fantail			5	38	
Willie Wagtail			4	31	
Black-faced Cuckoo-shrike			4	31	
Grey Butcherbird			5	38	
Australian Magpie			10	77	
Australian Raven			11	85	
Welcome Swallow			1	8	
Tree Martin			2	15	
Silvereye			11	85	
Total = 31 species	**Total = 0**				**Total = 6**
Management Zone					
Australian Shelduck		2	2	15	
Australian Wood Duck		3	2	15	
Pacific Black Duck	Possible	6	12	92	
Grey Teal		2	2	15	
Darter		1	7	54	
Little Pied Cormorant		1	2	15	
Brown Goshawk		1	2	15	Category 4
Nankeen Kestrel			1	8	
Purple Swamphen		1	1	8	
Eurasian Coot		5	5	38	
Laughing Turtle Dove*			3	23	
Carnaby's (Short-billed) Black-Cockatoo			Incidental record	N/A	Category 1,4
Galah			3	23	
Rainbow Lorikeet			2	15	
Australian Ringneck			12	92	
Pallid Cuckoo			1	8	
Shining Bronze-Cuckoo			1	8	
Laughing Kookaburra			5	38	
Sacred Kingfisher			2	15	
Rainbow Bee-eater			1	8	
Splendid Fairy-wren			7	54	Category 3
Spotted Pardalote			2	15	
Striated Pardalote			9	69	
White-browed Scrubwren			1	8	Category 3
Weebill			5	38	Category 3
Western Gerygone			9	69	
Yellow-rumped Thornbill			2	23	Category 3
Red Wattlebird			10	77	
Little Wattlebird			1	8	Category 4
Singing Honeyeater			5	38	

Bird Species recorded in survey period	Breeding on survey site	Maximum Number Recorded (water dependent species only)	Frequency of occurrence		Significant species (Bush Forever)
			No. (number of surveys in which recorded)	% of surveys	
Brown Honeyeater			11	85	
New Holland Honeyeater			1	8	Category 4
Western Spinebill			5	38	
Rufous Whistler			1	8	
Magpie-lark			1	8	
Grey Fantail			10	77	
Willie Wagtail			2	15	
Black-faced Cuckoo-shrike			3	23	
Grey Butcherbird			3	23	
Australian Magpie			5	38	
Australian Raven			10	77	
European Goldfinch			1	8	
Silvereye			12	92	
Total species = 66	**Total species = 6**		**Total surveys = 12**		**Total species = 10**
Total, complete site = 74 species	**Total, complete site = 2 species**				**Total, complete site = 11 species**

Baigup Reserve (City of Bayswater): Reserve surveyed January 2003 – December 2003

Bird Species recorded in survey period	Breeding on survey site	Maximum Number Recorded (water dependent species only)	Frequency of occurrence		Significant species (Bush Forever)
			No. (number of surveys in which recorded)	% of surveys	
Blue-billed Duck		2	1	8	Category 3
Black Swan		1	3	25	
Australian Shelduck		8	2	17	
Pacific Black Duck	Confirmed	33	11	92	
Australasian Shoveler		4	3	25	
Grey Teal		31	8	67	
Hardhead		3	6	50	Category 3
Australasian Grebe	Confirmed	7	7	58	
Hoary-headed Grebe		3	1	8	
Darter		6	12	100	
Little Pied Cormorant		3	7	58	
Little Black Cormorant		1	2	17	
Great Cormorant		1	2	17	
Australian Pelican		7	8	67	
White-faced Heron		2	9	75	
Great Egret		1	5	42	

Bird Species recorded in survey period	Breeding on survey site	Maximum Number Recorded (water dependent species only)	Frequency of occurrence		Significant species (Bush Forever)
			No. (number of surveys in which recorded)	% of surveys	
Australian White Ibis		11	8	67	
Yellow-billed Spoonbill		4	8	67	
Black-shouldered Kite		1	6	50	
Brown Goshawk			1	8	Category 4
Collared Sparrowhawk			2	17	Category 4
Buff-banded Rail	Confirmed	5	4	33	
Baillon's Crake		1	1	8	
Spotless Crake		3	1	8	
Purple Swamphen	Confirmed	7	10	83	
Dusky Moorhen		5	10	83	Category 3
Eurasian Coot		19	11	92	
Common Sandpiper		1	2	17	Category 2
Black-winged Stilt		7	4	33	
Black-fronted Dotterel		5	4	33	
Red-kneed Dotterel			1	8	Category 2
Silver Gull			7	58	
Caspian Tern			1	8	
Crested Tern			2	17	
Laughing Turtle-Dove*			11	92	
Spotted Turtle-Dove*			6	50	
Galah			2	17	
Rainbow Lorikeet*			4	33	
Australian Ringneck			2	17	
Cuckoo			1	8	
Laughing Kookaburra			5	42	
Sacred Kingfisher			1	8	
Rainbow Bee-eater			4	33	
Striated Pardalote			1	8	
Western Gerygone			5	42	
Red Wattlebird			3	25	
Little Wattlebird			1	8	Category 4
Singing Honeyeater			11	92	
Brown Honeyeater			10	83	
New Holland Honeyeater			3	25	Category 4
White-cheeked Honeyeater			6	50	Category 5
Rufous Whistler			9	75	
Magpie-lark			7	58	
Grey Fantail			3	25	
Willie Wagtail			10	83	
Black-faced Cuckoo-shrike			3	25	
White-winged Triller	Possible		1	8	
Australian Magpie			9	75	
Australian Raven			10	83	
European Goldfinch*			3	25	
Mistletoebird	Possible		4	33	
Welcome Swallow			11	92	
Tree Martin			7	58	

Bird Species recorded in survey period	Breeding on survey site	Maximum Number Recorded (water dependent species only)	Frequency of occurrence		Significant species (Bush Forever)
			No. (number of surveys in which recorded)	% of surveys	
Clamorous Reed-Warbler			8	67	
Little Grassbird			6	50	
Silvereye			11	92	
Total species = 66	**Total species = 6**		**Total surveys = 12**		**Total species = 10**

Bardon Park (City of Bayswater): Reserve surveyed January 2003 – March 2004

Bird Species recorded in survey period	Breeding on survey site	Maximum Number Recorded (water dependent species only)	Frequency of occurrence		Significant species (Bush Forever)
			No. (number of surveys in which recorded)	% of surveys	
Musk Duck		8	4	27	Category 3
Pacific Black Duck		11	7	47	
Australasian Grebe		1	1	7	
Darter		2	2	13	
Little Pied Cormorant		1	5	33	
Little Black Cormorant		1	1	7	
Australian Pelican		1	2	13	
Great Egret		3	2	13	
Australian White Ibis			5	33	
Yellow-billed Spoonbill			1	7	
Osprey			1	7	
Black-shouldered Kite			1	7	
Collared Sparrowhawk			1	7	Category 4
Peregrine Falcon			1	7	Category 4, R4
Buff-banded Rail		1	1	7	
Dusky Moorhen		12	1	7	Category 3
Eurasian Coot		4	7	47	
Silver Gull		1	5	33	
Caspian Tern			2	13	
Laughing Turtle-Dove*			10	67	
Spotted Turtle-Dove*			8	53	
Rainbow Lorikeet*			2	13	
Laughing Kookaburra*			2	13	
Rainbow Bee-eater			2	13	
Striated Pardalote			1	7	
Western Gerygone			1	7	
Red Wattlebird			3	20	
Little Wattlebird			1	7	Category 4
Singing Honeyeater			15	100	
Brown Honeyeater			11	73	

Bird Species recorded in survey period	Breeding on survey site	Maximum Number Recorded (water dependent species only)	Frequency of occurrence		Significant species (Bush Forever)
			No. (number of surveys in which recorded)	% of surveys	
New Holland Honeyeater			7	47	Category 4
White-cheeked Honeyeater			4	27	Category 4
Willie Wagtail			15	100	
Black-faced Cuckoo-shrike			4	27	
Australian Magpie			4	27	
European Goldfinch*			1	7	
Welcome Swallow			4	27	
Tree Martin			4	27	
Clamorous Reed-Warbler		1	6	40	
Little Grassbird		4	2	13	
Silvereye			6	40	
Total species = 41	**Total species = 0**		**Total surveys = 15**		**Total species = 7**

Berringa Park (City of Bayswater):

Bird Species recorded in survey period	Breeding on survey site	Maximum Number Recorded (water dependent species only)	Frequency of occurrence		Significant species (Bush Forever)
			No. (number of surveys in which recorded)	% of surveys	
Musk Duck		31	5	42	Category 3
Black Swan		16	6	50	
Australian Shelduck		2	1	8	
Pacific Black Duck	Confirmed	40	11	92	
Grey Teal	Confirmed	26	6	50	
Chestnut Teal			1	8	
Australasian Grebe		2	1	8	
Hoary –headed Grebe		4	6	50	
Darter		8	6	50	
Little Pied Cormorant		1	5	42	
Pied Cormorant			1	8	
Little Black Cormorant		1	2	17	
Great Cormorant		16	4	33	
Australian Pelican		12	12	100	
White-faced Heron		10	6	50	
Great Egret		1	4	33	
Australian White Ibis		8	8	37	
Yellow-billed Spoonbill		1	3	25	
Osprey		1	2	17	
Black-shouldered Kite			1	8	
Whistling Kite			1	8	Category 4
Swamp Harrier		1	3	25	
Brown Goshawk			2	17	Category 4

Bird Species recorded in survey period	Breeding on survey site	Maximum Number Recorded (water dependent species only)	Frequency of occurrence		Significant species (Bush Forever)
			No. (number of surveys in which recorded)	% of surveys	
Collared Sparrowhawk			1	8	Category 4
Australian Hobby			2	17	
Buff-banded Rail		2	6	50	
Australian Spotted Crake		3	1	8	
Purple Swamphen		12	8	67	
Dusky Moorhen		3	3	25	Category 3
Eurasian Coot		34	12	100	
Common Greenshank		1	1	8	Category 2
Black-winged Stilt		4	5	42	
Black-fronted Dotterel		1	1	8	
Silver Gull		50	7	58	
Caspian Tern		9	7	58	
Crested Tern		1	3	25	
Laughing Turtle-Dove*			12	100	
Spotted Turtle-Dove*			12	100	
Galah			1	8	
Rainbow Lorikeet*			3	25	
Laughing Kookaburra*		1	8	67	
Rainbow Bee-eater			4	33	
Variegated Fairy-wren			1	8	Category 3
Striated Pardalote			2	17	
Red Wattlebird			4	33	
Singing Honeyeater			12	100	
Brown Honeyeater	Possible		11	92	
New Holland Honeyeater			2	17	Category 4
White-cheeked Honeyeater			9	75	Category 4
Rufous Whistler			6	50	
Magpie-lark			6	50	
Grey Fantail			3	25	
Willie Wagtail			12	100	
Black-faced Cuckoo-shrike			9	75	
White-winged Triller			1	8	
Australian Magpie			8	67	
Australian Raven			9	75	
Mistletoebird			3	25	
European Goldfinch*			1	8	
Welcome Swallow			11	92	
Tree Martin			8	67	
Clamorous Reed-Warbler	Confirmed	2	5	42	
Little Grassbird			11	92	
Silvereye			12	100	
Total species = 41	**Total species = 5**		**Total surveys = 12**		**Total species = 9**

Gobba Lake (City of Bayswater): Reserve surveyed January 2003 – March 2004

Bird Species recorded in survey period	Breeding on survey site	Maximum Number Recorded (water dependent species only)	Frequency of occurrence		Significant species (Bush Forever)
			No. (number of surveys in which recorded)	% of surveys	
Blue-billed Duck		2	6	40	Category 3
Musk Duck		1	1	7	Category 3
Black Swan		2	2	13	
Australian Shelduck		2	2	13	
Australian Wood Duck		2	2	13	
Pacific Black Duck		10	12	80	
Grey Teal		2	1	7	
Hardhead		7	11	73	Category 3
Australasian Grebe		6	11	73	
Darter		1	3	20	
Little Black Cormorant		1	3	20	
White-faced Heron		1	2	13	
Great Egret		2	4	27	
Nankeen Night Heron		1	1	7	Category 4
Yellow-billed Spoonbill		1	1	7	
Black-shouldered Kite			1	7	
Purple Swamphen		3	13	87	
Dusky Moorhen		4	7	47	Category 3
Eurasian Coot		8	15	100	
Laughing Turtle-Dove*			15	100	
Spotted Turtle-Dove*			4	27	
Carnaby's (Short-billed) Black Cockatoo			1	7	Category 1, 4
Galah			2	13	
Corella species (not identified to species level)			2	13	
Rainbow Lorikeet*			2	13	
Australian Ringneck			2	13	
Pallid Cuckoo			1	7	
Rainbow Bee-eater			5	33	
Striated Pardalote			2	13	
Red Wattlebird			6	40	
Singing Honeyeater			14	93	
Brown Honeyeater			11	73	
Magpie-lark			8	53	
Willie Wagtail			12	80	
Black-faced Cuckoo-shrike			8	53	
Australian Magpie			5	33	
Australian Raven			6	40	
Mistletoebird			1	7	
Welcome Swallow			4	27	
Tree Martin			5	33	
Clamorous Reed-Warbler			10	67	
Little Grassbird			1	7	
Silvereye			5	33	
Total species = 43	**Total**		**Total**		**Total**

Bird Species recorded in survey period	Breeding on survey site	Maximum Number Recorded (water dependent species only)	Frequency of occurrence		Significant species (Bush Forever)
			No. (number of surveys in which recorded)	% of surveys	
	species = 2		**surveys = 15**		**species = 6**

Hinds Reserve (City of Bayswater): Reserve surveyed January 2003 – December 2003

Bird Species recorded in survey period	Breeding on survey site	Maximum Number Recorded (water dependent species only)	Frequency of occurrence		Significant species (Bush Forever)
			No. (number of surveys in which recorded)	% of surveys	
Australian Wood Duck		2	1	8	
Pacific Black Duck		5	2	17	
Darter		1	1	8	
Australian Pelican		1	3	25	
White-faced Heron		1	1	8	
Eurasian Coot		1	1	8	
Silver Gull			6	50	
Caspian Tern			1	8	
Laughing Turtle-Dove*			10	83	
Spotted Turtle-Dove*			7	58	
Rainbow Lorikeet*			5	42	
Australian Ringneck			2	17	
Laughing Kookabuura*			2	17	
Rainbow Bee-eater			1	8	
Striated Pardalote			6	50	
Red Wattlebird			10	83	
Singing Honeyeater			11	92	
Brown Honeyeater			11	92	
New Holland Honeyeater			2	17	Category 4
Rufous Whistler			2	17	
Magpie-lark			6	50	
Willie Wagtail			11	92	
Black-faced Cuckoo-shrike			1	8	
Australian Magpie			8	67	
Australian Raven			5	42	
Welcome Swallow			6	50	
Tree Martin			3	25	
Silvereye			3	25	
Total species = 28	**Total species = 0**		**Total surveys = 12**		**Total species = 1**

Lightning Swamp (City of Bayswater): Reserve surveyed January 2003 – January 2004

Bird Species recorded in survey period	Breeding on survey site	Maximum Number Recorded (water dependent species only)	Frequency of occurrence		Significant species (Bush Forever)
			No. (number of surveys in which recorded)	% of surveys	
Australian Wood Duck		7	2	22	
Pacific Black Duck		8	6	67	
Grey Teal		1	2	22	
Hardhead		2	2	22	Category 3
Australasian Grebe	Possible	5	2	22	
Little Pied Cormorant	Confirmed	3	2	22	
Little Black Cormorant	Confirmed		1	11	
White-faced Heron		2	4	44	
Great Egret		2	2	22	
Australian White Ibis		1	1	11	
Black-shouldered Kite			1	11	
Swamp Harrier			1	11	
Brown Goshawk			1	11	Category 4
Australian Hobby			1	11	
Nankeen Kestrel			1	11	
Spotless Crake		1	1	11	
Eurasian Coot	Possible	1	1	11	
Black-fronted Dotterel		3	3	33	
Laughing Turtle-Dove*			8	89	
Spotted Turtle-Dove*			7	78	
Carnaby's (Short-billed) Black Cockatoo			4	44	
Galah			4	44	Category 1, 4
Corella species (not identified to species level)			1	11	
Rainbow Lorikeet*			5	56	
Australian Ringneck			6	67	
Red-capped Parrot			1	11	
Elegant Parrot			1	11	
Pallid Cuckoo			1	11	
Horsfield's Bronze Cuckoo			1	11	
Laughing Kookaburra*			1	11	
Sacred Kingfisher			2	22	
Rainbow Bee-eater	Confirmed		2	22	
Splendid Fairy-wren			5	56	Category 3
Striated Pardalote	Confirmed		8	89	
Western Gerygone			4	44	
Inland Thornbill			2	22	Category 3
Western Thornbill			1	11	Category 3
Yellow-rumped Thornbill	Possible		7	78	Category 3
Red Wattlebird			6	67	
Little Wattlebird			2	22	Category 4
Singing Honeyeater			9	100	
Brown Honeyeater			9	100	
New Holland Honeyeater			2	22	Category 4
White-cheeked Honeyeater			8	89	Category 4

Bird Species recorded in survey period	Breeding on survey site	Maximum Number Recorded (water dependent species only)	Frequency of occurrence		Significant species (Bush Forever)
			No. (number of surveys in which recorded)	% of surveys	
Tawny-crowned Honeyeater			2	22	Category 4
Western Spinebill			2	22	
Rufous Whistler			7	78	
Magpie-lark			6	67	
Grey Fantail			4	44	
Willie Wagtail			8	89	
Black-faced Cuckoo-shrike			7	78	
White-winged Triller			1	11	
Black-faced Woodswallow			2	22	Category 3
Australian Magpie	Confirmed		7	78	
Australian Raven			9	100	
Welcome Swallow			2	22	
Tree Martin			7	78	
Silvereye			7	78	
Total species = 58	**Total species = 8**		**Total surveys = 9**		**Total species = 12**

Maylands Peninsula (City of Bayswater): Reserve surveyed January 2003 – December 2003

Bird Species recorded in survey period	Breeding on survey site	Maximum Number Recorded (water dependent species only)	Frequency of occurrence		Significant species (Bush Forever)
			No. (number of surveys in which recorded)	% of surveys	
Black Swan		7	3	30	
Australian Shelduck		2	6	60	
Australian Wood Duck		4	1	10	
Pacific Black Duck	Confirmed	20	8	80	
Grey Teal	Confirmed	34	8	80	
Hoary-headed Grebe		2	5	50	
Darter		4	8	80	
Little Pied Cormorant		2	2	20	
Little Black Cormorant		2	2	20	
Great Cormorant			1	10	
Australian Pelican		18	9	90	
White-faced Heron		4	8	80	
Great Egret		2	3	30	
Australian White Ibis		6	6	60	
Yellow-billed Spoonbill		6	5	50	
Black-shouldered Kite		1	3	30	
Collared Sparrowhawk			1	10	Category 4
Buff-banded Rail	Confirmed	5	5	50	
Purple Swamphen		3	3	30	

Bird Species recorded in survey period	Breeding on survey site	Maximum Number Recorded (water dependent species only)	Frequency of occurrence		Significant species (Bush Forever)
			No. (number of surveys in which recorded)	% of surveys	
Eurasian Coot		27	7	70	
Common Sandpiper		1	1	10	Category 2
Black-winged Stilt		6	3	30	
Black-fronted Dotterel	Confirmed	2	3	30	
Silver Gull		20	7	70	
Caspian Tern		1	1	10	
Crested Tern		1	1	10	
Laughing Turtle-Dove*			7	70	
Spotted Turtle-Dove*			9	90	
Galah			3	30	
Rainbow Lorikeet*			3	30	
Australian Ringneck			4	40	
Pallid Cuckoo			2	20	
Sacred Kingfisher			1	10	
Rainbow Bee-eater			1	10	
Red Wattlebird			7	70	
Singing Honeyeater			10	100	
Brown Honeyeater			9	90	
New Holland Honeyeater			1	10	Category 4
White-cheeked Honeyeater			9	90	Category 4
Magpie-lark			7	70	
Grey Fantail			1	10	
Willie Wagtail			10	100	
Black-faced Cuckoo-shrike			5	50	
Australian Magpie			3	30	
Australian Raven			4	40	
Mistletoebird			2	20	
Welcome Swallow			6	60	
Tree Martin			5	50	
Little Grassbird		4	6	60	
Silvereye			1	10	
Total species = 50	**Total species = 4**		**Total surveys = 10**		**Total species = 4**

Appendix 4: Town of Bassendean reserve management recommendations and remediation works

Reserve	Linkage	Vegetation Condition	Area Suitable for Revegetation (Total Area) (ha)	Remediation Required	Other Information
Bindaring Park	Regional, Local Linkage 2	Degraded, completely degraded	3.74 (3.74)	Refer to Natural Area Assessment for detailed information on reserve characteristics and management recommendations.	
Pickering Park	Regional, Local Linkage 2	70% Completely Degraded; 30% Degraded	1 (3.4)	Removal of jetty and wooden and concrete structures. Revegetate from the bank to the path. Rehabilitate stormwater drain. Some work appears to have been done in the past however this work has not been followed up.	Removal of the jetty is in current budget. Grant funding is being sought for revegetation of bank area.
Bennett Brook	Regional, Local Linkage 3	Unknown	13	Not owned by Council so not high priority for remediation works.	Owned by Department for Planning and Infrastructure.
Success Hill	Regional	0.05% Excellent, 2.95% Very Good, 6% Good, 61% Degraded, 30% Completely Degraded	4.6 (21.5)	Refer to Natural Area Assessment for detailed information on reserve characteristics and management recommendations.	
Ashfield Flats	Regional, Local Linkage 1	15% Excellent, 7% Very Good, 15% Good, 16% Degraded, 47% Completely Degraded	18.3 (18.3)	Refer to Natural Area Assessment for detailed information on reserve characteristics and management recommendations.	
Sandy Beach Reserve	Regional, Local Linkage 1	100% Completely Degraded	1.3 (2.3)	Erosion control required. Areas near river suitable for revegetation. Practices need to be put into place to ensure mowing is not undertaken in revegetation areas and grass cuttings are not put in them. Overstorey trees present.	The construction of a path to delineate revegetation and recreation areas should be considered. Multiple owners?
Point Reserve	Regional	100% Completely	0.6 (1.6)	Overstorey trees present. Revegetate areas back	Multiple ownership?

Reserve	Linkage	Vegetation Condition	Area Suitable for Revegetation (Total Area) (ha)	Remediation Required	Other Information
		Degraded		from river. Erosion control required around jetty area.	
Kelly Park	Regional	Completely Degraded	0.2	To be determined. Consider through Water Conservation Planning	
Swan River Foreshore	Regional	Various	Unknown	Identify areas of Swan River Foreshore that are owned by Council, and then develop appropriate remediation requirements.	
Ashfield Parade Reserve	Regional	Degraded	Unknown	Refer to Environmental Officer.	Reserve not assessed.
Padbury Way Reserve	Local Linkage 1	100% Completely Degraded	0.3 (0.97)	The Eastern side of the reserve has more overstorey and seems to be less utilised by the public; this would be most suited to become a revegetation area.	There are no footpaths around the reserve. Verge overstorey plants have recently been planted. It should be ensured that these are local native species.
Mickleton Tce Reserve	Local Linkage 1	100% Completely Degraded	0.3 (1.48)	The edges of the reserve and the verges should be revegetated with overstorey, middle storey and understorey plants.	There are footpaths around the reserve. Revegetation with a variety of species on the verge should therefore be investigated.
Anzac Tce Primary School	Local Linkage 1	100% Completely Degraded	0.4 (4.2)	Revegetation opportunities around the oval and school should be investigated.	Opportunity for school involvement.
Troy Street Reserve	Local Linkage 1	100% Completely Degraded	0.3 (0.65)	Revegetation opportunities around the overstorey vegetation should be investigated.	
Broadway Arboretum	Local Linkage 1	100% Completely Degraded	3 (3.44)	This reserve has suffered from lack of maintenance since it was first developed. Rehabilitation of the areas is required and the Swan Coastal Plain area should be planted with species endemic to the local area.	There is a request out for the maintenance of this reserve.
Ashfield Reserve	Local Linkage 1	100% Completely Degraded	0.1 (8.1)	Revegetate 'entrance area' on the corner of Fisher and Haig. Some plants are already there, extend with understorey plants.	
Tom J Gardiner Park	Local Linkage 1	100% Completely Degraded	0.1 (1.6)	Revegetation areas within this reserve should be considered.	Primarily managed as a soccer field.

Reserve	Linkage	Vegetation Condition	Area Suitable for Revegetation (Total Area) (ha)	Remediation Required	Other Information
Drainage line (Railway Pde)	Local Linkage 1	100% Completely Degraded	0.2	There is minimal vegetation on this drainage line so revegetation should be considered.	Owned by the Water Corporation.
Ashfield Primary School	Local Linkage 1	100% Completely Degraded	0.2	Primary School children could work on reserve nearby.	
Cyril Jackson Senior Campus	Local Linkage 1	100% Completely Degraded	1	Revegetate area adjacent to Chapman Road as Overstorey trees already present and area seems to be disused.	
Drainage Lines (Fourth Avenue)	Local Linkage 2	100% Completely Degraded	0.1	1 Flame tree present. Revegetation of drainage lines in collaboration with Water Corp should be considered.	Owned by the Water Corporation.
Drainage line (Anzac Tce)	Local Linkage 2	100% Completely Degraded	0.1	Revegetation of drainage lines in collaboration with Water Corp should be considered.	Owned by the Water Corporation
Drainage line (Ida St)	Local Linkage 2	100% Completely Degraded	0.1	No trees present. Revegetation of drainage lines in collaboration with Water Corp should be considered.	Owned by the Water Corporation
Drainage line (Carmen Way)	Local Linkage 2	100% Completely Degraded	0.1	No trees present. Revegetation of drainage lines in collaboration with Water Corp should be considered.	Owned by the Water Corporation
Drainage line (Iolanthe Street)	Local Linkage 2	100% Completely Degraded	0.1	1 tree present. Revegetation of drainage lines in collaboration with Water Corp should be considered.	Owned by the Water Corporation
Anzac Tce Reserve	Local Linkage 2	100% Completely Degraded	0.3 (0.66)	Overstorey trees present. Revegetation areas and verge replanting should be considered.	Other small reserves along Anzac Tce are being mulched, revegetation of these reserves should be considered.
Bassendean Oval	Local Linkage 2	100% Completely Degraded	1 (5.95)	Revegetate around oval.	
Bassendean Primary School	Local Linkage 2	100% Completely Degraded	0.2 (2)	Revegetate verges outside school, revegetate around oval.	Opportunity for school involvement.

Reserve	Linkage	Vegetation Condition	Area Suitable for Revegetation (Total Area) (ha)	Remediation Required	Other Information
Casa Mia Montessori School	Local Linkage 2	100% Completely Degraded	0.1 (0.3)	Use locally endemic species wherever possible.	Opportunity for school involvement.
St Michaels School	Local Linkage 2	100% Completely Degraded	0.1 (0.8)	Use locally endemic species wherever possible.	Opportunity for school involvement.
Pyrton Site	Local Linkage 3	Unknown	3.5	Area not owned by Council so will have minimal control over any remediation works.	Owned by Department of Planning and Infrastructure.
Mary Crescent Reserve	Local Linkage 3	100% Completely Degraded	3.5 (6.3)	Revegetation with middle and understorey plants around mature tree areas. Rehabilitation of wetland area/ stormwater drain.	Frog habitat.
Eden Hill Primary School	Local Linkage 3	100% Completely Degraded	0.05	Investigate opportunities for replanting days with school especially around verges and oval.	Opportunity for school involvement.
Jubilee Reserve	Local Linkage 3	39% Good; 61% Completely Degraded	1.2 (13.8)	Repair of fencing. Close off and revegetate the firebreak at the Southern end of the reserve. Provision of bins. Weed control. Revegetation.	Refer to Natural Area Assessment for further information.
Colin Smith Reserve	Local Linkage 3	100% Completely Degraded	0.1 (0.5)	Revegetation with middle and understorey plants around mature tree areas. Playground area will need to be considered.	There are no paths around the reserve so revegetation of verges may be limited as people may trample. Overstorey plants could be used.
Freeland Square Reserve	Local Linkage 3	100% Completely Degraded	0.2 (0.34)	Revegetation with middle and understorey plants around mature tree areas. Playground area will need to be considered.	There are no paths around the reserve so revegetation of verges may be limited as people may trample. Overstorey plants could be used.

Appendix 5: City of Bayswater reserve management recommendations and remediation works

Reserve	Linkage	Vegetation Condition	Area Suitable for Revegetation (Total Area) (ha)	Remediation Required	Other Information
Lightning Swamp	Regional, Local Linkage 2	63% Very Good, 28% Good, 9% Degraded	72 (72)	Continue to work close to unauthorised tracks.	Refer to Natural Area Assessment for further information.
Bardon Park	Regional	23% Good, 55% Degraded, 22% Completely Degraded	1.44 (1.44)	Carry out continuous maintenance to control weeds.	Refer to Natural Area Assessment for further information.
Berringa Park	Regional	31% Excellent, 19% Very Good, 11% Good, 14% Degraded, 25% Completely Degraded	4.25 (4.25)	1. Liaise with residents on the Northern Edge of Property to limit source of weeds. 2. Slash empty blocks adjacent to the reserve to reduce weed seed source 3. Develop a revegetation plan for the site including weed mapping to prioritise weed control measures 4. Liaise with Golf Course regarding weed control on their boundary.	Refer to Natural Area Assessment for further information.
Maylands Golf Course Reserve	Regional	100% Completely Degraded	6 (52)	Many overstorey trees present but very little understorey. Opportunity for some revegetation that will not interfere with the golf course.	Liaise with Golf Course to encourage use of native species.
Maylands Foreshore Reserve	Regional	25% Very Good, 53% Good, 11% Degraded, 11% Completely Degraded	8 (8)	1. Complete a weed management/revegetation plan 2. Sign reserve 3. Create mowing strip around reserve to separate parkland 4. Prevent unauthorised vehicles 5. Erosion control on drainage lines.	Refer to Natural Area Assessment for further information.
Clarkson Reserve	Regional	50% Good, 50% Completely Degraded	1.2 (2.3)	Approximately half of this reserve contains vegetation in good condition adjacent to Maylands Foreshore Reserve; this would benefit from weed control, fencing, signage and further revegetation.	Important wildlife habitat.
Tranby Reserve	Regional	100% Completely Degraded	1.5 (4.3)	Opportunities for revegetation along foreshore and creation of revegetation beds under existing overstorey.	
Tranby House	Regional	100% Completely	0.1 (0.8)	Overstorey trees and some garden beds existing.	

Reserve	Linkage	Vegetation Condition	Area Suitable for Revegetation (Total Area) (ha)	Remediation Required	Other Information
Reserve		Degraded		Ensure garden beds are planted with locally endemic species. Revegetation along foreshore.	
Bath Street Reserve	Regional	100% Completely Degraded	0.1 (0.4)	Consider establishing revegetation beds using locally endemic species.	Reserve is primarily managed for public use.
Baigup Wetlands Reserve	Regional, Local Linkage 2	12% Excellent, 20% Very Good, 18% Good, 46% Degraded, 4% Completely Degraded	9.66 (9.66)	1. Liaise with residents adjacent to the reserve with regards to weed control on their properties. 2. Develop and implement a revegetation plan including strategies for prioritised weed control.	Refer to Natural Area Assessment for further information.
Hinds Reserve	Regional	46% Good, 48% Degraded, 6% Completely Degraded	0.77 (0.77)	1. Revegetation to establish understorey 2. Weed control in North East corner.	Refer to Natural Area Assessment for further information.
Bayswater Riverside Gardens	Regional, Local Linkage 4	100% Completely Degraded	3 (16)	Scattered trees within parkland exist. Revegetation to establish understorey especially along foreshore and drainage line coming from Eric Singleton Bird Sanctuary. Weed control and signage adjacent to bushland areas.	Area to the east of Bayswater Riverside Gardens (closer to Tonkin Hwy) contains vegetation in better condition which would benefit from management.
Railway Institute Reserve	Regional			To be determined. Consider through Water Conservation Planning	
Claughton Reserve	Regional	2% Good, 9% Degraded, 89% Completely Degraded	1 (1)	Ongoing weed control and revegetation of wetland.	Refer to Natural Area Assessment for further information.
Bunya Reserve	Local Linkage 1	100% Completely Degraded	0.2 (1.8)	Consider establishment of revegetation beds under existing trees.	
Bramwell Reserve	Local Linkage 1	100% Completely Degraded	0.1 (0.4)	Consider establishment of revegetation beds under existing trees.	
Morley Senior High School	Local Linkage 1	10% Good, 90% Completely Degraded	2.3 (10)	Revegetation should focus on areas of bush in good condition. Area will benefit from weed control, fencing and infill plantings with locally endemic species.	Opportunity for school participation with revegetation.
Kirkpatrick	Local	100% Completely	0.2 (1.3)	Consider establishment of revegetation beds	Reserve has drainage sump in

Reserve	Linkage	Vegetation Condition	Area Suitable for Revegetation (Total Area) (ha)	Remediation Required	Other Information
Reserve	Linkage 1	Degraded		under existing trees.	the middle.
WAWA Drainage Reserve 34915	Local Linkage 1	100% Completely Degraded		Refer to City of Bayswater for guidelines on managing drainage reserves. Consultation with Water Corporation required.	
Thornber Reserve	Local Linkage 1	100% Completely Degraded	0.02 (0.09)	Ensure locally endemic species are planted in existing garden beds.	
Millerick Reserve	Local Linkage 1	100% Completely Degraded	0.3 (1)	Overstorey trees with a scattering of *Xanthorrhoea* exists. Consider establishment of revegetation beds around these areas.	
Camboon Primary School	Local Linkage 1	12% Degraded, 88% Completely Degraded	0.8 (3.6)	Weed control and infill planting of native species, particularly in areas of native bush in south east corner.	Opportunity for school participation with revegetation.
Noranda Sporting Complex	Local Linkage 1	100% Completely Degraded	0.7 (9.8)	Small areas along eastern edge and south west corner contain *Xanthorrhoea* and overstorey trees. Consider establishment of revegetation beds in these areas.	Majority of reserve managed for public use.
Robert Thomson Reserve	Local Linkage 1	100% Completely Degraded	0.3 (3)	Fencing, weed control, signage and revegetation in the north east and north west corners where there are high densities of trees and some understorey.	
Holden Reserve	Local Linkage 1	100% Completely Degraded	0.1 (0.8)	Consider establishment of revegetation beds under existing trees.	
Strutt Reserve	Local Linkage 1	6% Degraded, 94% Completely Degraded	0.4 (2.8)	Fencing, weed control, signage and revegetation in the south west corner containing degraded bushland.	
Fitzpatrick Reserve	Local Linkage 1	100% Completely Degraded	0.1 (0.8)	Consider establishment of revegetation beds under existing trees.	
Noranda Primary School	Local Linkage 1	100% Completely Degraded	0.4 (2.2)	Use locally endemic species in garden beds. Consider establishment of revegetation beds. Weed control adjacent to bushland in Deschamp Reserve.	Opportunity for school participation with revegetation.
Deschamp Reserve	Local Linkage	21% Very Good, 79% Completely	1.2 (5.4)	Eastern section is fenced off and designated Bushland Conservation Area. This would benefit	

Reserve	Linkage	Vegetation Condition	Area Suitable for Revegetation (Total Area) (ha)	Remediation Required	Other Information
	1 and 2	Degraded		from weed control and mulch barriers around edges.	
McPherson Reserve	Local Linkage 1	22% Good, 78% Completely Degraded	0.4 (1.7)	Revegetation should focus on southern section containing good quality bushland. Weed control, rubbish removal, curbing, signage and infill planting.	
Tonkin Highway	Local Linkage 1,2 and 4	Various	5.7 (5.7)	Revegetation with locally endemic species.	Partnership with Main Roads will probably need to be established.
Shadwell Reserve	Local Linkage 1	100% Completely Degraded	0.3 (1.8)	Western section contains dense trees and some understorey species. Consider revegetation of this area. Signage, curbing, weed control and infill plantings.	
Mahogany Park	Local Linkage 1	100% Completely Degraded	0.1 (1)	Consider establishment of revegetation beds under existing trees.	
WAWA Drainage Reserve 43184	Local Linkage 1	100% Completely Degraded	0.5 (0.5)	Refer to City of Bayswater for guidelines on managing drainage reserves. Consultation with Water Corporation required.	
Arbor Park	Local Linkage 1	35% Good, 65% Completely Degraded	3.1 (9)	Several remnants of bushland remain which would benefit from weed control, curbing, infill planting and controlling access.	Parkland is managed as a dog exercise area
Deschamp Drainage Reserve	Local Linkage 2	100% Completely Degraded	0.8 (0.8)	Refer to City of Bayswater for guidelines on managing drainage reserves. Consultation with Water Corporation required.	
Farnham Reserve	Local Linkage 2	100% Completely Degraded	0.1 (0.5)	Consider establishment of revegetation beds under existing trees.	
Fedders Reserve	Local Linkage 2	100% Completely Degraded	0 (0.1)	Minimal opportunity for revegetation due to small size of reserve and existing playgrounds. Protect established trees.	
WAWA Drainage Reserve 31531	Local Linkage 2	100% Completely Degraded		Refer to City of Bayswater for guidelines on managing drainage reserves. Consultation with Water Corporation required.	
WAWA Drainage Reserve 29533	Local Linkage 2	100% Completely Degraded		Refer to City of Bayswater for guidelines on managing drainage reserves. Consultation with Water Corporation required.	

Reserve	Linkage	Vegetation Condition	Area Suitable for Revegetation (Total Area) (ha)	Remediation Required	Other Information
Crimea Park Reserve	Local Linkage 2	8% Degraded, 92% Completely Degraded	0.1 (0.6)	Southern section has drainage sump which could be revegetated to provide useful wildlife habitat. Weed control and planting required.	
Weld Square Reserve	Local Linkage 2	100% Completely Degraded	0.3 (2.3)	Consider revegetation activities along edge of drainage line and adjacent to bushland in Weld Square Primary School. Create mulch barriers to control weeds.	
Weld Square Primary School	Local Linkage 2	38% Good, 62% Completely Degraded	1.7 (4.3)	Fence bushland areas. Weed control. Rubbish removal. Plant locally endemic species.	Bushland is part of Swan Alcoa Landcare Program. Opportunity for school participation with revegetation.
WAWA Drainage Reserve 30061	Local Linkage 2	100% Completely degraded.		Refer to City of Bayswater for guidelines on managing drainage reserves. Consultation with Water Corporation required.	
Elstead Reserve	Local Linkage 2	100% Completely Degraded	0.1 (1.4)	Consider establishment of revegetation beds under existing trees.	Reserve is primarily managed as a soccer ground.
City of Bayswater Reserve 40038	Local Linkage 2			To be determined. Consider through Water Conservation Planning	
City of Bayswater Reserve 40039	Local Linkage 2			To be determined. Consider through Water Conservation Planning	
Tom Cameron Park	Local Linkage 2	100% Completely Degraded	0.2 (1)	Consider establishment of revegetation beds under existing trees.	
Broun Park	Local Linkage 2	100% Completely Degraded	0.3 (1.9)	Consider establishment of revegetation beds under existing trees.	
Bayswater Waves Aquatic Centre	Local Linkage 2	100% Completely Degraded	0.5 (3.4)	Replace exotic species in garden beds with locally endemic species. Establish understorey species around existing trees.	
Hawkins Reserve	Local Linkage 2	100% Completely Degraded	0.1 (0.4)	Maintain existing garden bed containing Kangaroo Paws. Consider establishing other garden beds along edges of reserve.	
McKenzie Reserve	Local Linkage	100% Completely Degraded	0.3 (1.2)	Consider establishment of revegetation beds under existing trees.	

Reserve	Linkage	Vegetation Condition	Area Suitable for Revegetation (Total Area) (ha)	Remediation Required	Other Information
	2				
Embleton Primary School	Local Linkage 2	100% Completely Degraded	1 (5)	Weed control and infill planting along school boundary and areas with existing vegetation. Use locally endemic species in garden beds.	Opportunity for school participation with revegetation.
John Forest Senior High School	Local Linkage 2	100% Completely Degraded	1.4 (8.9)	Use locally endemic species in garden beds. Consider revegetation of areas with no other uses.	Opportunity for school participation with revegetation.
Nora Hughes Park	Local Linkage 2	5% Good, 95% Completely Degraded	0.5 (1.9)	Rubbish removal, weed control and revegetation particularly around the lake. Create mulch barrier to control weeds.	Important wildlife habitat.
Browns Lake Reserve	Local Linkage 2	30% Very Good, 70% Completely Degraded	0.5 (1.6)	Maintain mulch barrier around lake. Revegetate using locally endemic species as required.	Important wildlife habitat.
WAWA Drainage Reserve 32229	Local Linkage 2	100% Degraded		Component of ''Living Streams'' project. Refer to City of Bayswater for guidelines on managing drainage reserves. Consultation with Water Corporation required.	
Paterson Reserve	Local Linkage 2	100% Completely Degraded	0.1 (0.6)	Create mulch barrier to control weeds adjacent to drainage line. Consider establishment of revegetation beds under existing trees.	
Essex Street Reserve	Local Linkage 2	100% Completely Degraded	0.1 (0.8)	Consider establishment of revegetation beds under existing trees.	
The Strand Reserve	Local Linkage 2	100% Completely Degraded	0.1 (0.3)	Consider establishment of revegetation beds under existing trees.	
Frank Drago Reserve	Local Linkage 2	100% Completely Degraded	0.2 (6.1)	Replace exotic species in garden beds with locally endemic species. Consider establishment of revegetation beds under existing trees.	Reserve is primarily managed for various sports so revegetation should not compromise this.
Swan Lake Reserve	Local Linkage 2	100% Completely Degraded	0.3 (0.7)	Focus on the lake and fringing vegetation. Extensive weed control, mulch barrier, revegetation using locally endemic species.	Can become valuable wildlife habitat.
John D'Orazio Park	Local Linkage 2	100% Completely Degraded	0.1 (0.4)	Further develop vegetation beds using locally endemic species. Ongoing weed control.	
WAWA Drainage Reserve 32042	Local Linkage	100% Completely Degraded	0.2 (0.5)	Refer to City of Bayswater for guidelines on managing drainage reserves. Consultation with Water Corporation required.	

Reserve	Linkage	Vegetation Condition	Area Suitable for Revegetation (Total Area) (ha)	Remediation Required	Other Information
	2				
Norco Way Reserve	Local Linkage 2	100% Completely Degraded	0 (>0.1)	Minimal opportunity for revegetation due to small size of reserve and existing playgrounds. Protect established trees.	
Hampton Square Reserve	Local Linkage 3	100% Completely Degraded	0.5 (2.4)	Consider establishment of revegetation beds under existing trees, particularly around the edges where some high densities of trees occur.	
WAWA Drainage Reserve 38592	Local Linkage 3	100% Completely Degraded		Refer to City of Bayswater for guidelines on managing drainage reserves. Consultation with Water Corporation required.	
Reserve 48396	Local Linkage 3			To be determined. Consider through Water Conservation Planning	
Hampton Senior High School	Local Linkage 3	100% Completely Degraded	1.2 (10.5)	Section along eastern edge has some overstorey and understorey species and could be revegetated with weed control and plantings.	Opportunity for school participation with revegetation.
Battersea Reserve	Local Linkage 3	100% Completely Degraded	0.2 (1.3)	Consider establishment of revegetation beds under existing trees, particularly where overstorey trees and *Xanthorrhoea* occur.	
City of Bayswater Drainage Reserve 33211	Local Linkage 3	100% Completely Degraded	0.2 (0.2)	Refer to City of Bayswater for guidelines on managing drainage reserves. Consultation with Water Corporation required.	
Irwin Reserve	Local Linkage 4	100% Completely Degraded	0.1 (0.2)	Consider establishment of revegetation beds under existing trees.	
Drainage Reserve 27565	Local Linkage 4	100% Completely Degraded		Refer to City of Bayswater for guidelines on managing drainage reserves. Consultation with Water Corporation required.	
WAWA Drainage Reserve 35009	Local Linkage 4	100% Completely Degraded		Refer to City of Bayswater for guidelines on managing drainage reserves. Consultation with Water Corporation required.	
Railway Reserve 25980	Local Linkage 4	100% Completely Degraded		Weed control and establish understorey species.	Liaison with Public Transit Authority.
Whatley Crescent	Local Linkage	100% Completely Degraded	0.5 (0.5)	Weed control and establish understorey species.	Liaison with Public Transit Authority.

Reserve	Linkage	Vegetation Condition	Area Suitable for Revegetation (Total Area) (ha)	Remediation Required	Other Information
Railway Reserve	4				
WAWA Drainage Reserve	Local Linkage 4	100% Completely Degraded		Refer to City of Bayswater for guidelines on managing drainage reserves. Consultation with Water Corporation required.	
Charles Newman Gardens	Local Linkage 4	100% Completely Degraded	0.1 (0.2)	Further develop vegetation beds using locally endemic species. Ongoing weed control.	
Reserve 41792	Local Linkage 4	100% Completely Degraded	(2)	Currently used for stockpiling gravel and sand. Consider revegetation around edges and adjacent to drainage reserve.	Revegetation options depend on the future use of this reserve.
Eric Singleton Bird Sanctuary	Local Linkage 4	2% Good, 94% Degraded, 4% Completely Degraded	6.2 (6.2)	Site to be developed as a nutrient stripping pond.	Refer to Natural Area Assessment for further information.

Appendix 6: City of Belmont reserve management recommendations and remediation works

Reserve	Linkage	Vegetation Condition	Area Suitable for Revegetation (Total Area) (ha)	Remediation Required	Other Information
Cracknell Park	Regional	100% Completely Degraded	0.25 (0.67)	Revegetation of the foreshore has occurred and is fenced off. There is potential for further revegetation areas to be developed. These areas could include the entrance area and slopes, the areas adjacent to the path between the playground and the foreshore picnic area and the area between the lower path and the river.	Picnic area and playground are established; any conservation works will have to be sympathetic to this.
Hardey Park	Regional	100% Completely Degraded	0.5 (2.29)	Signage. Drainage mat. Seed collection (provenance seed). Staged weeding of bamboo etc at rivers edge but retain until natives are planted (for stabilisation).	Refer to Natural Area Assessment for further information.
Adachi Park	Regional	100% Completely Degraded	0.5 (1.24)	Weed control required near housing. Areas of revegetation require weeding and infill planting over the coming years. There are some sedges along the river. Further revegetation areas could be established between the path and the river. Drain needs to be weeded and rehabilitated with extra plants. Weed control required in Adachi garden area. Management plan and annual budget would help rehabilitation of this site.	
Bristile Park	Regional	100% Completely Degraded	0.1 (0.31)	Some sedges on shoreline. Revegetation areas should be established between the path and the river. This will also help with erosion. Stormwater drain well vegetated but minor weed control and revegetation should be considered.	
Ascot Waters	Regional	100% Completely Degraded	4.2 (9.7)	Drains need to be revegetated. Revegetation has taken place on the shoreline; this should be extended to the path. Wetland areas have been established well.	
Swan River Foreshore Area	Regional, Local Linkage 1	Unknown	22.58 (22.58)	Work with the State Government for the rehabilitation of this area. Work in this area will ensure that work conducted by Council elsewhere along the river is not compromised.	
Ascot Racecourse	Regional	25% Excellent, 5% Good, 60%	1.06 (1.06)	Rubbish removal on a regular basis. Staged removal of weeds moving from most significant area to more degraded areas.	Refer to Natural Area Assessment

Reserve	Linkage	Vegetation Condition	Area Suitable for Revegetation (Total Area) (ha)	Remediation Required	Other Information
Dampland		Degraded, 10% Completely Degraded		Rehabilitation of degraded area including spot weeding on target species. River restoration work is required using dead trees and foreshore revegetation.	for further information.
Ascot Racecourse	Regional	Unknown	3.8 (5.5)	Work with the Racecourse to ensure that work conducted elsewhere along the foreshore is not compromised. Encouragement of revegetation works may also help to reduce nutrient input into the river.	
Gould Reserve	Regional	100% Completely Degraded	0.2 (0.91)	Minimal vegetation on shoreline, severe erosion, some overstorey present but basically parkland cleared. Revegetation along the shoreline is required.	This is the end of the pathway along the river.
Ascot Water Playground	Regional	100% Completely Degraded	0.1 (0.1)	Overstorey present around pools.	Permanently closed and fenced off, future plans need to be checked.
Hay Road to Ivy Street Swan River Floodplain	Regional	3% Good, 50% Degraded, 47% Completely Degraded	1.98 (1.98)	Investigate killing bees in hollows. Remove rubbish. Remove declared weeds. Leave fallen timber. Improve signage and education. Remove woody weeds.	Refer to Natural Area Assessment for further information.
Garvey Park Area 1	Regional, Local Linkage 2	30% Excellent, 20% Very Good, 50% Good	(4.4)	Refer to Natural Area Assessment for detailed information on reserve characteristics and management recommendations.	
Garvey Park Area 3 & 4	Regional, Local Linkage 2	20% Good, 60% Degraded, 20% Completely Degraded	(2.5)	Refer to Natural Area Assessment for detailed information on reserve characteristics and management recommendations.	
Severin Walk	Regional	100% Completely Degraded	1 (1.85)	Overstorey present, severe erosion, revegetation occurring. Revegetation should continue along both banks, throughout reserve and along pathway. Species endemic to the local area should be used. Weed control required in some areas but generally weeds are being controlled well.	'Be Active' logo was sighted; joint venture with community services/tourism should be investigated.
Signal Hill	Regional,	70% Very	3.51 (3.57)	Continue annual veldt grass control. Ongoing fire management	Ensure operators

Reserve	Linkage	Vegetation Condition	Area Suitable for Revegetation (Total Area) (ha)	Remediation Required	Other Information
	Local Linkage 1	Good, 16% Good, 4% Degraded, 10% Completely Degraded		program. No deliberate burn off, maintain firebreaks strategy for safety of residents. Continue to revegetate in completely degraded to degraded areas using seed collected on site. Attempt to encourage people to keep to formal tracks by blocking the visual entrances and tracks e.g. by moving brush. Manage the edge weeds before they become a problem.	can distinguish between veldt grass and native *Stipa spp.* Refer to Natural Area Assessment for further information.
Belmay Primary	Regional	100% Completely Degraded	1.35	Significant number of overstorey plants. No understorey, limited middlestorey. Revegetation using species endemic to the local area should be investigated.	Opportunity for school involvement.
Redcliffe Park	Regional	100% Completely Degraded	1.5 (7.84)	Revegetation around lake is occurring. This needs to be maintained and extended. Use locally endemic species for revegetation. The section between the path and the lake should be mostly revegetated with limited grassed sections.	
Perth Airport	Regional, Local Linkage 1, 2 and 3	Unknown	Approx 300ha in linkages	Unknown. Council should maintain a good relationship with the Airport for input on revegetation projects and proposed developments in the area.	Owned and managed by the Commonwealth.
Harold Street Reserve	Local Linkage 1	100% Completely Degraded	0.1 (0.53)	Parkland cleared. Potential for revegetation areas to be established. Revegetation of the drainage areas should be considered.	
Centenary Park	Local Linkage 1	100% Completely Degraded	1.95 (8.76)	Island would benefit from middle/understorey planting. The drain has been revegetated but would benefit from infill planting. Revegetation and weed control are required around lake to remove grassy banks and replace with locally endemic species. Install mulch barrier. Eventually revegetating up to path should be considered. There are some overstorey plants around the oval however grassy area around lake would benefit from the provision of more trees. Feature revegetation beds should also be considered.	Large number of bird species present.
Mustica Walk Reserve	Local Linkage 1	100% Completely Degraded	0.1 (0.52)	Overstorey trees present, parkland cleared. Revegetation with ground covers and a few middlestorey plants should be considered. Safety will however need to be considered as high visibility will have to be maintained.	
Alfred Reserve	Local Linkage 1	100% Completely	0.1 (0.25)	Verge planting with locally native species. Establish revegetation areas however child safety will need to be considered so largely	

Reserve	Linkage	Vegetation Condition	Area Suitable for Revegetation (Total Area) (ha)	Remediation Required	Other Information
		Degraded		groundcovers should probably be used.	
Belmont Senior High School	Local Linkage 1	100% Completely Degraded	1 (7.28)	Verge planting and revegetation areas around oval.	Opportunity for school involvement.
Cloverdale Primary	Local Linkage 1	100% Completely Degraded	0.2 (4.83)	Verge planting and investigation of revegetation areas.	Opportunity for school involvement.
Belmont Oasis	Local Linkage 1	100% Completely Degraded	0.1 (0.94)	Landscaping with locally native species where possible.	
Council Civic Centre	Local Linkage 1	100% Completely Degraded		Landscaping with locally native species where possible.	
Faulkner Park	Local Linkage 1	100% Completely Degraded	0.3 (11.44)	Landscaping should include plants native to the local area. Revegetation areas should be considered around areas of native trees and grass trees.	
Belmont Forum	Local Linkage 1	100% Completely Degraded		Encourage landscaping with locally native species.	
Redgum Park	LL1	100% Completely Degraded	0.1 (0.3)	Verge planting and investigation of revegetation areas.	
Drainage Line	LL1	100% Completely Degraded		Weed control and revegetation using locally endemic species.	Liaison with Water Corporation.
Wicca Reserve	Local Linkage 1	100% Completely Degraded	0.3 (1.68)	Revegetation beds have been established. A few middlestorey and some understorey/groundcovers should be established in these areas. Some verge planting may also be possible.	
Willow Lake Reserve	Local Linkage 1	100% Completely Degraded	0.45 (1.13)	Revegetation beds have been established. A few middlestorey and some understorey/groundcovers should be established in these areas. Revegetation and weed control around lake should continue to establish locally endemic species in this area.	
Tomato Lake	Local Linkage 1	60% Good, 30% Degraded, 10% Completely	10 (20.23)	Infill planting of restoration area should be considered. Establishment of revegetation beds in grassed areas. Revegetation of grassy banks all the way around lake. Revegetate between lake and path all the way around lake	Refer to Natural Area Assessment for further information.

Reserve	Linkage	Vegetation Condition	Area Suitable for Revegetation (Total Area) (ha)	Remediation Required	Other Information
		Degraded		allowing for some picnic areas. Seed should be collected from good quality bushland area and used on-site. Weed control required on some of islands. Revegetation of car park area should be conducted to buffer the better quality bushland and to suppress weeds.	
Australian Islamic College	Local Linkage 1	100% Completely Degraded	0.2 (10.3)	Verge plantings.	Opportunity for college involvement.
Peachey Park	Local Linkage 1	100% Completely Degraded	0.1 (2.03)	Revegetation beds should be established. Verge plantings should be considered.	
Noble Park	Local Linkage 1	50% Degraded 50% Completely Degraded	1.5 (1.91)	Understorey, middlestorey and overstorey all present. Sedges are present around lake. Regeneration is occurring. Weed control and infill planting is required. Revegetation of drainage lines should be conducted. Install Mulch barrier. Vegetated area should be extended.	
Abernethy Road Kewdale Sump	Local Linkage 1	20% Degraded, 80% Completely Degraded	1 (1.68)	Habitat value for birds and frogs however most natural values already destroyed. Investigate utility as a biofilter for water quality in Canning River.	Refer to Natural Area Assessment for further information.
Aitken Way Sump	Local Linkage 1	25% Good, 75% Completely Degraded	1 (2.7)	Removal of garden rubbish. Fence to impede vehicles. Weed control of community 2 – Watsonia, Pelargonium, perennial Veldt, bridal creeper. Possible installation of a mulch buffer. Monitor and control if required Typha community. Reshape compensation basin for waterbird habitat and revegetate.	Refer to Natural Area Assessment for further information
Tonkin Kewdale Sump	Local Linkage 1	Unknown	(0.93)	Dieback assessment, investigation of groundwater levels, botanical survey.	Refer to Natural Area Assessment for further information
Redcliffe Primary	Local Linkage 2	100% Completely Degraded	1.06 (4.15)	Some weed control and revegetation could occur between school and Tonkin Highway. Verge Planting.	Opportunity for school involvement.
Brearley Avenue Reserve	Local Linkage 2	100% Completely Degraded	2 (4.48)	Parkland cleared. Potential for revegetation areas to be established. Revegetation of the drainage areas is required. The possibility of collecting seed from Perth Airport bushland for propagation should be investigated. Streetscaping should also use locally native species.	

Reserve	Linkage	Vegetation Condition	Area Suitable for Revegetation (Total Area) (ha)	Remediation Required	Other Information
Frank Treen Memorial Park	Local Linkage 2	Unknown	0.1 (0.2)	Consider verge planting using locally endemic species.	
Albert Jordan Park	Local Linkage 2			To be determined. Consider through Water Conservation Planning	
Forster Park	Local Linkage 3	100% Completely Degraded	0.8 (7.52)	Verge planting, establishment of revegetation beds, rehabilitation of drain on Scott Road.	
Belmont Sports and Recreation Club	Local Linkage 3	100% Completely Degraded	1 (3.91)	Establishment of revegetation beds around buildings and tennis court. Vegetated area around athletics track should undergo extensive grassy weed control and middle and understorey revegetation.	
PH Dodd Reserve	Local Linkage 3	100% Degraded	2.45 (2.45)	Overstorey, middlestorey and understorey present. Some banksia death may indicate the presence of dieback. Regeneration occurring. Verge revegetation would provide buffer. The reserve would benefit from weed control and some revegetation.	
Kewdale Primary	Local Linkage 3	100% Completely Degraded	1 (4)	South east corner of school contains vegetation which could be rehabilitated by controlling access, weed control and revegetation.	Opportunity for school involvement.
Tonkin Highway	Local Linkage 3	100% Completely Degraded	25 (25.5)	Revegetation with locally native species.	Partnership with Main Roads will probably need to be established.

Appendix 7: Wetland Categories

The wetland categories as defined in the Department of Environment and Conservation geomorphic dataset are detailed below. This information is taken from the Water and Rivers Commission Position Statement: Wetlands that was produced by the Water and Rivers Commission (now the Department of Water) in 2001.

Management Category	**General Description**	**Management Objectives**
C – **Conservation** (incorporates EPA Bulletin 686 categories H and C)	Wetlands support a high level of ecological attributes and functions.	Highest priority wetlands. Objective is preservation of wetland attributes and functions through various mechanisms including: • reservation in national parks, crown reserves and State owned land, • protection under Environmental Protection Policies, and • wetland covenanting by landowners. These are the most valuable wetlands and the Commission will oppose any activity that may lead to further loss or degradation. No development.
R - **Resource enhancement** (incorporates EPA Bulletin 686 categories O and R)	Wetlands which may have been partially modified but still support substantial ecological attributes and functions.	Priority wetlands. Ultimate objective is for management, restoration and protection towards improving their conservation value. These wetlands have the potential to be restored to conservation category. This can be achieved by restoring wetland structure, function and biodiversity. Protection is recommended through a number of mechanisms.
M - **Multiple use** (aligned with EPA Bulletin 686 category M)	Wetlands with few important ecological attributes and functions remaining.	Use, development and management should be considered in the context of ecologically sustainable development and best management practice catchment planning through landcare. Should be considered in strategic planning

Appendix 8: Swan River Precinct bushland reserves prioritised by ecological viability

Name of Area	Local Government	Area (Ha)	Criteria Score	Overall Viability	Vegetation complex
Ashfield Flats	Town of Bassendean	18.3	1A	18.04	Swan
Success Hill Reserve	Town of Bassendean	21.5	1A	14.14	Guildford
Jubilee Reserve	Town of Bassendean	1.2	1A	10.78	Bassendean Complex Central and South
Bindaring Park	Town of Bassendean	3.74	1A	6.7	Bassendean Complex Central and South
Lightning Swamp	City of Bayswater	72	1A	19.08	Bassendean Complex Central and South
Maylands Foreshore Reserve	City of Bayswater	8	1A	12.34	
Baigup	City of Bayswater	9.66	1A	11.3	Swan
Berringa Park	City of Bayswater	4.25	1A	11.09	Swan
Eric Singleton Bird Sanctuary	City of Bayswater	6.2	1A	10.46	Swan
Bardon Park	City of Bayswater	1.44	1A	10.02	Swan
Hinds Reserve	City of Bayswater	0.77	1A	9.3	Swan
Claughton Reserve	City of Bayswater	1	1A	5.76	Swan
Garvey Park Area 1	City of Belmont	4.4	1A	14.1	Swan
Goodwood Parade Estuarine Dampland	City of Belmont	1.83	1A	12.16	Bassendean Complex Central and South
Signal Hill	City of Belmont	3.506	1A	11.42	Bassendean Complex Central and South
Tomato Lake Bushland	City of Belmont	2	1A	10	Bassendean Complex Central and South
Garvey Park Area 3 & 4	City of Belmont	2.5	1A	9.5	Swan
Swan River Floodplain, Hay Rd to Ivy St	City of Belmont	1.977	1A	7.68	Guildford/ Southern River/ Swan
Ascot Racecourse Foreshore Estuarine Dampland	City of Belmont	1.056	1A	6.4	Swan
Aitken Way Sump (Aitken Swamp)	City of Belmont	2.7	1A	5	Southern River
Hardey Park	City of Belmont	0.44	1A	4.95	Bassendean Complex Central and South
Tonkin Kewdale Sump	City of Belmont	0.93	1A	4.5	Southern River
Abernethy Road, Kewdale Sump	City of Belmont	1.68	1A	4.4	Southern River

Appendix 9: Potential funding opportunities for biodiversity conservation

This list is indicative only and is not exhaustive. A complete list is available through Easy Grants, through www.ourcommunity.com.au

Fund Name	Provider	Locality	Eligibility	Limit	Dates	Further Information
Community Grants	Australian Ethical Investment	Australia-wide	Community Groups	$5,000	Available mid-April	www.austethical.com.au
Communityhelp Grants Program	NRMA	Australia-wide	Community Groups	$5,000	Opens: 4/2/2008, Closes:28/3/2008	www.nrma.com/grants
Macquarie Bank Foundation	Macquarie Bank Foundation	Australia-wide	Both	None	Throughout the year	www.macquarie.com.au
National Feral Animal Control Program	Dept of Agriculture, Fisheries and Forestry	Australia-wide	Both	$100,000	Throughout the year	www.daff.gov.au
The George Alexander Fund	The George Alexander Fund	Australia-wide	Both	$150,000	Throughout the year	www.gafoundation.org.au
The Ian Potter Foundation	The Ian Potter Foundation	Australia-wide	Community Groups	None	27/03/2008	www.ianpotter.org.au
The Norman Wettenhall Foundation	The Norman Wettenhall Foundation	Australia-wide	Both	None	Throughout the year	www.nwf.org.au
Australia Post Community Development Grant	Australia Post	Australia-wide	Community Groups	$3,300	TBA	www.landcareonline.com
Westpac Operation Backyard	Westpac	Australia-wide	Both	None	TBA	www.westpac.com.au
Gordon Reid Conservation of Natural Heritage Grants	Lotterywest	WA	Both	$15,000	Continuous	www.lotterywest.wa.gov.au
Caring for Our Country	Department of Environment, Water, Heritage and the Arts (DEWHA)	Australia Wide	Both		Annually	www.nrm.gov.au

Appendix 10: Examples of cost estimates for management activities

Activity	Cost	Notes
Develop reserve management plan	$5000 - $30000	Cost depends on site characteristics and information already existing
Conduct botanical survey	$70 - $110/hour at 2-3 hours per ha	Cost depends on site characteristics and information already existing
Conduct fauna survey	$110 - $140/hour at 2-3 hours per ha	Cost depends on site characteristics and information already existing
Vegetation condition mapping	$70 - $110/hour at 2-3 hours per ha	Cost depends on site characteristics and information already existing. This has recently been completed for all bushland reserves in each Council
Weed mapping	$50 - $80/hour at 2-3 hours per ha	Cost depends on site characteristics and information already existing
Phytophthora dieback mapping	$1000-$1500 <10ha reserve	Samples may also be required at a cost of $70 per sample
Reconstruction of upland reserve	$10.50/sq metre	Includes weed control, seedling establishment, plant guards, watering in and replacement plantings over 5 years
Weed control spray	$600/ha grassy weeds $70/hr woody weeds	Cost depends on site characteristics such as density of weeds. Many sites will require multiple sprays.
Local provenance seed collection	$1400-$1750/day	Includes team of 4 people collecting, processing and storing seed
Purchase of tube stock	$0.95 - $1.65/plant	Cost depends on the size of seedlings and the order