



Parramatta Park

# Biodiversity Strategy



PARRAMATTA  
PARK

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## SUMMARY

Parramatta Park is an iconic piece of Australia’s cultural history. It is one of 11 historic places that combine to form the World Heritage –listed Australian Convict Sites. Set against the Parramatta CBD, the Park contains fragments of remnant and reconstructed ecosystems that once covered the Cumberland Plain.

In this challenging urban setting, the Parramatta Park Trust has a strategy to manage and enhance the Park’s biodiversity.

### Statement of Intent – A Future Vision

Parramatta Park will be a multi-purpose urban park for future generations. It will provide the community with contact to Australia’s natural elements through waterways, bushland and interaction with native animals. The Park will:

- showcase Cumberland Plain Woodland and River-Flat Eucalypt Forest
- be home to healthy waterways supporting a diverse web of life
- provide habitat refuge for native fauna in the centre of a growing population
- be a place for the community to connect with and enjoy the natural environment.

The Park will be a vibrant place for the Western Sydney community. Its natural heritage will be showcased to attract a range of visitors. Patches of Cumberland Plain Woodland will highlight the groundcover diversity of the grassy woodland. Parramatta River will have large timber snags, overhanging vegetation and regenerating riverbank species. It will provide habitat for populations of native species as well as sites for nature walks, recreational fishing and swimming. The sheltered northern areas of Domain Creek and Murrays Garden Creek will provide a refuge for native fauna. The Flying-fox camp will benefit from improved understory and regenerating roosting trees to provide protection from weather extremes expected from climate change.

### Caring for Country

The Trust acknowledges the Barramattagul of the Darug people, the traditional custodians of the land on which the Park is situated. The Trust will work in a respectful manner with the Darug people in Caring for Country and treat the Darug people, their cultural heritage, customs and beliefs with respect.



*Flying Fox colony in the Park*

## INTRODUCTION

The Parramatta Park Biodiversity Strategy provides a practical framework for managing the Park's natural assets. The Strategy balances the requirements for improving biodiversity values with the important World Heritage-listed cultural assets within the context of a major urban park.

The Strategy should be read in conjunction with three context-setting documents: the Parramatta Park Conservation and Management Plan (2008), the Old Government House and Domain, Parramatta Park Management Plan (2009) and the Parramatta Park Landscape Master Plan (2002). The Strategy may be a useful resource as each of these plans are reviewed and updated.

The Trust's consultation with external stakeholders and the community fed into this Strategy, ensuring the Park is managed in a way that is appropriate to its position in the wider catchment. Input and advice was sought from:

- Parramatta City Council
- Holroyd City Council
- Office of Environment and Heritage, Heritage Division
- Office of Environment and Heritage, Ecosystems and Threatened Species Team
- National Trust, Old Government House.

A site walk with Darug Aboriginal Groups and further written feedback from Aboriginal elders who could not attend the walk also fed into the Strategy, as did public feedback during the exhibition of the draft Strategy.

## GEOGRAPHICAL CONTEXT

### Location

Parramatta Park is located on the Parramatta River in the suburb of Parramatta and within the Parramatta Local Government Area (LGA). The Park's western edge is the boundary to Westmead and its south western edge runs along the boundary of neighbouring Holroyd LGA.

As such, the Park sits centrally between Parramatta and Holroyd LGAs which, combined, encompass 100 square kilometres and a population of 266,000. Both LGAs will experience significant population growth over the coming decades, and which will largely be achieved through medium and high density housing. The eastern boundary of the Park borders the Parramatta Central Business District (CBD). The Metropolitan Strategy for Sydney 2014 anticipates Parramatta CBD to be the fastest growing centre outside of the Global Sydney CBD over the next 20 years. Parramatta is earmarked to become the Premier Regional City and the second CBD in the Sydney Metropolitan Area.

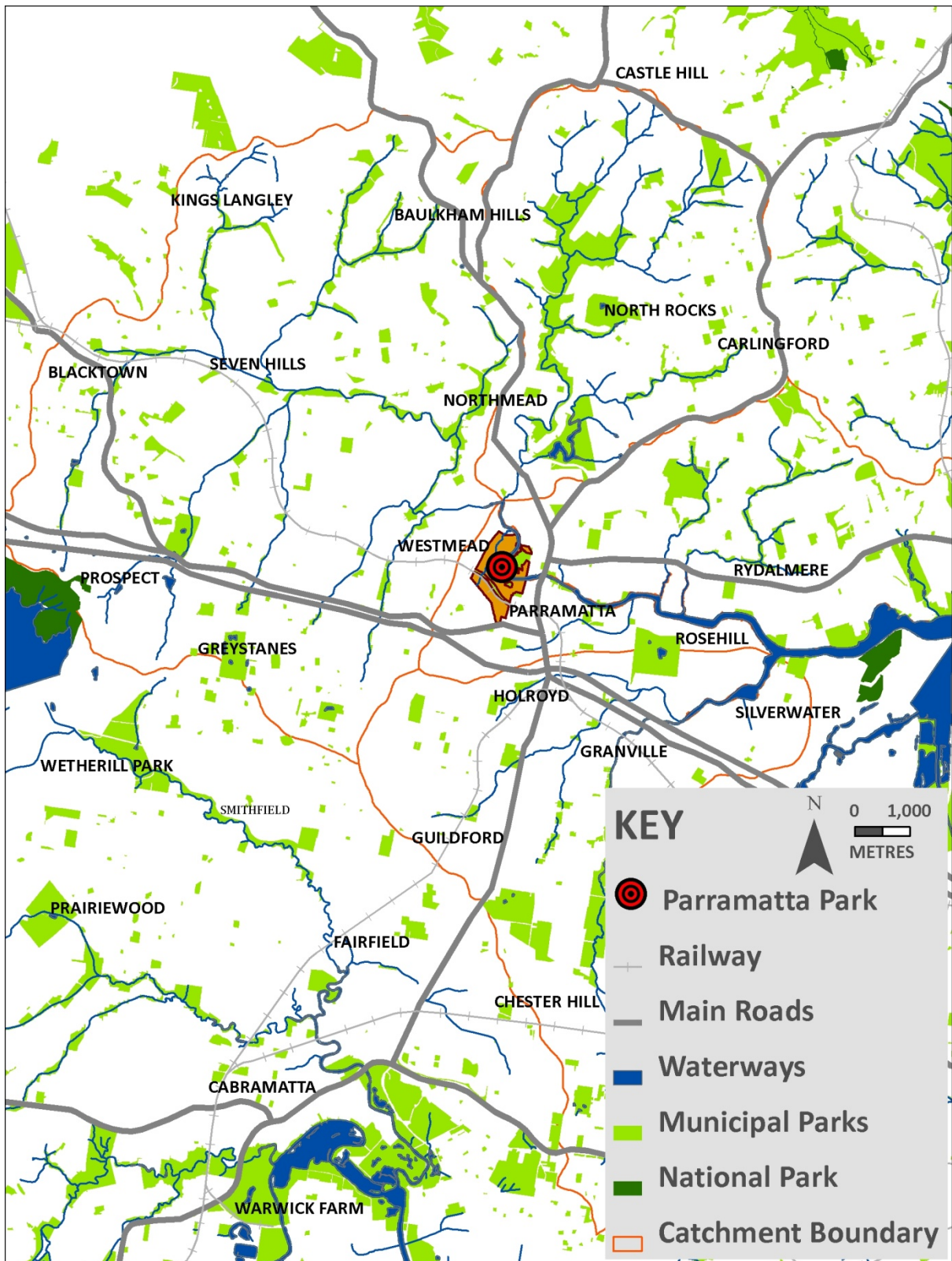
In recent years, Parramatta Park has attracted approximately two million visitors annually, and, with the neighbouring area developing, is showing a significant upward trend creating an increased demand on natural areas and open space.

### *Biodiversity*

Biodiversity is the variety of life on earth. It is the important foundation to the function and provision of ecological services such as the provision of clean water, pollination of plants, control of disease and recreational benefits.

In this, the UN decade of Biodiversity (2011 – 2020), the Trust is managing the Park's natural assets in line with the 12 principles of the Convention of Biological Diversity's Ecosystem Approach. This approach recognises that humans, with their cultural diversity, are an integral component of many ecosystems – a concept that is particularly important within the context of the Park's significant cultural heritage and urban setting.

## Parramatta Park Wider Context



# Parramatta Park



## Aboriginal and Cultural Heritage

The Park is significant as a cultural heritage landscape, sitting at the core of the territory of the Barramattagul of the Darug people. It represents the past and future of the Darug and broader Aboriginal communities.

The Park also includes examples of threatened vegetation communities, cultural plantings and built landmarks such as the Boer War Memorial and the gatehouses that mark the main entrances.

Old Government House, The Dairy and the gatehouses are the Park's key built heritage elements. Equally significant cultural landscape elements include The Domain and The Crescent.

The Park is listed on the State Heritage Register and the National Heritage Register. The Old Government House and Domain is one of 11 sites that form the Australian Convict Sites, inscribed on the UNESCO World Heritage List in 2010. The Trust is, through this listing, responsible for managing the site's landscape values, and does this by studying the visual impact of the current urban environment and any projects liable to affect those values.

The important visual aspects and landmark qualities of the site are:

- Aboriginal archeological evidence of camp sites and activities
- the visual prominence of Old Government House, as well as the visibility of the building and its landscape within the context of Parramatta
- landscape elements such as the River; buildings and monuments; broad lawns, formal drives and water bodies; the relationship to Parramatta's town plan; and cultural plantings.

Considering and understanding these important aspects in this Strategy will preserve the integrity of the site's historical importance.

## Geology and Soils

Two geological systems exist in the Park: the Wianamatta Group of shales and the underlying Triassic sediments of Hawkesbury Sandstone. The higher areas of the Park are dominated by shale derived soils. These areas are typical of Cumberland Plain landscapes: a landform of rolling hills and plains with a compacted, poor-draining highly-sodic soil that limits the vegetation type to open forests. The creek and river drainage system of the Parramatta River catchment has carved through the shales to reveal sandstone outcrops and cliffs prevalent in the river valley.

The Park comprises five differing soil types and bedrock formations:

- Wianamatta Group – in the southern portion of the Park
- Sandstone – in the northern portion of the Park
- Riverine alluvial – associated with Parramatta River
- Alluvium and shale over sandstone – deposited alluvial matter from the Parramatta River in the central eastern portion of the Park
- Ashfield Shale – in the remaining portions of the Park.

## Landform and Land Use

The Park's topography is the result of the interaction of natural systems (geology, vegetation, water movement) and cultural modification. This topography has, in turn, influenced land use and occupation. The Park's landform has affected land use in a number of ways:

- Lower areas were suited to intensive farming with access to fresh water and better soils for crops.
- Elevated flat areas in the western domain provided favourable camp sites for Aboriginal activities.

- Elevated edges offered vistas - e.g. The Redoubt, Mrs. Macquarie's 'Hameau', Lycett's view of Parramatta.
- North facing slopes provided a favourable aspect for crops and vines.
- Steep slopes beside the river have retained their original vegetated character.
- The road and pedestrian path network responds to the topography, generally following contours. The major ridge lines correlate with paths that were formalised during the Park's Vice-Regal period.

Dramatic changes have been made since European settlement. Changing land uses upstream altered the flow and flood regimes of the river. It is now controlled by weirs and is a static, broad body of water. The Crescent was filled to form an amphitheatre, and the construction of sporting facilities (the stadium, swimming pools, school fields, bowling green and golf course) and transport infrastructure (roads and railway corridor) have all impacted the Park's topography.

## Waterways

Water has been a critical feature of the Park, for both Aboriginal and non-Aboriginal people.

Natural water forms have been used and altered to suit different uses. New water forms have been created since European settlement by damming and ponding the Parramatta River and adjacent creeks. The major serpentine pond along Parramatta River became a major focus of the Park and was used for active public recreation such as boating and swimming.

Creeks and ponds in the Western and Eastern Domain areas have been subject to high levels of siltation and weed invasion. The ponds were designed in the 19th Century as ornamental lakelets and water bodies for stock. All of these water forms have changed configuration and are now part of the urban catchment of Parramatta and Toongabbie and Darling Mills Creek.



*Little Coogee along the Parramatta River*

The main waterways are:

- Parramatta River
- Domain Creek
- Murray Garden Creek.

### *Parramatta River*

Parramatta River flows through the Park and was vital to the survival of the Darug Nations Burrattagal Tribe who used the River to fish for daily foods and for fresh water. The River was the original water supply for Parramatta and a weir built at Marsden Street dammed the River during Macquarie's governorship. A second weir further upstream created a controlled river height along the length of the Park. A third weir also acts as a causeway for vehicle crossing.



Fishways installed on the Marsden Street weir and the causeway, but not the weir furthest upstream, allow the migration of Australian native species into the Park stretch of Parramatta River. Recent monitoring suggests Australian Bass has successfully migrated into the Park's stretch of river but Sea Mullet has not utilised the Marsden Street weir fishway. Exotic Common Carp and Native Long Finned Eel are the most abundant species between the two main weirs.

Erosion control and stream bank revegetation works undertaken by the Trust through grant funding in 2010 included a variety of soft engineering works along eight sites within the Park. All sites have enjoyed new habitat and vegetation growth.



*Erosion control and stream bank revegetation in the Park*

### ***Domain Creek***

Domain Creek is a first order stream that starts in Westmead in Holroyd LGA, enters the Park at the former Parramatta Golf Course, flows under the railway line through West Domain and the Cattle Paddocks and connects with Parramatta River near Wisteria Gardens. It has a number of engineered structures including piping, culverts, dams and gross pollutant traps (GPTs).

Domain Creek can be divided into three sections within the Park:

- The former Parramatta Golf Course section was redesigned and rehabilitated in early 2000 to act as a stormwater retention basin for the adjoining urban development. It has an energy dissipater, a GPT and sediment control ponds fringed with native vegetation.
- West Domain and Cattle Paddocks were cleared for grazing and modified for watering points for cattle. The area has undergone extensive revegetation since the 1990s and includes an interpretive Aboriginal food trail.

- Coleman Oval sits downstream of the main road crossing and is more naturalised due to the wider riparian vegetation. It is habitat for reptiles, birds and mammals.



*Domain Creek*

A final section flows through Wisteria Gardens (outside the Park) before entering the Parramatta River. This section has formed stone banks and a series of weirs.

Domain Creek was included in a wider study by Parramatta City Council in 2009/2010 to determine the biological health of the waterways around Parramatta. The survey site for Domain Creek was below the road crossing culvert in the Coleman Oval section. Water quality and biological indicators identified the creek as poor quality and while the site is separated from upstream by the road culvert, this is a likely indicator for the entire creek, as it is of similar structure with similar impacts. Mosquito Fish are abundant in this stretch of waterway.

### *Murray Garden Creek*

Murray Garden Creek near the George Street Gatehouse is heavily impacted by development. It enters the Park from a concrete stormwater drain under the bowling green from the RSL Club. A GPT is located at this point. Within the Park the

historic culvert at the George Street Gatehouse entrance divides it into two sections:

- Murray Garden – a landscaped garden area immediately after the Creek enters the Park
- Macquarie Dam – a more naturalised section with riparian vegetation that has been geomorphologically modified with evidence of a dam and other infilling removing a former habitat island along the O’Connell Street edge.

This downstream section provides the best opportunity for natural habitat.

## **Bushland and Park Flora**

The Park contains a mixture of indigenous, Australian native and exotic species from all significant historic periods.

The waterways and the ridgeline above The Crescent contain remnant and reconstructed bushland of Shale Plain Woodland: Cumberland Plain Woodland and Riverflat Eucalypt Forest on coastal floodplain in the Sydney basin.

Both vegetation communities are listed as Endangered Ecological Communities under the NSW *Threatened Species Conservation Act 1995* (TSC Act).

Cumberland Plain Woodland is also listed under the Commonwealth *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act). National Parks and Wildlife Service (NPWS) mapping of vegetation on the Cumberland Plain in 2002 identified a number of vegetation communities as occurring within the Park, including alluvial



*Important vegetation is found in the Park*

woodland, shale sandstone transition forest (high sandstone influence), shale sandstone transition forest (low sandstone influence) and shale plains woodland.

Flora surveys conducted by the Trust in 2014 found that the amount of exotic weed species was generally low to moderate reflecting a history of ongoing bush regeneration. The highest abundance of weeds is herbs and grasses in the ground layer. Many of the zones occur close to Parramatta River or along associated creeks and drainage lines and are subject to flooding, creating a dynamic environment prone to weed movements and re-infestations. Native species richness through most of the site was assessed as low or very low. Generally, the vegetation has good canopy cover but lacks a diverse understorey, particularly in the shrub and ground layers.

The major tree species is Forest Red Gum which dominates the slopes and ridges with the occasional Broad-leaved Ironbark and Grey Box. Rough-barked Apple, Broad-leaved Apple and River Oak dominate the riparian zone interspersed with Narrow-leaved Paperbark on swampy ground, and White Feather Honey myrtle and Prickly-leaved Paperbark in groups on the slightly better drained terrain adjacent to the creek lines. Pines, English Oaks, rainforest trees and Jacarandas provide a contrast to the native and indigenous trees and provide a reference to both the Vice Regal Domain period and the 19th Century Park period. A mixture of various introduced grass species is also evident throughout the Park.



*Park vegetation at The Crescent ridgeline*

## Remnant and Reconstructed Bushland Habitat



## Fauna

The Grey-headed Flying-fox is the only threatened species recorded within the Park, and is listed as vulnerable under both the TSC Act and EPBC Act. Other bat species recorded close to the Park and likely to utilise habitats within and adjoining the Park include the Southern Myotis and Eastern Bent-wing Bat.

The waterways are dominated by exotic Common Carp and Mosquito Fish but also have native Long-finned eel, Australian Bass, Cox's Gudgeon and Firetailed Gudgeon.

Reptiles, typical of suburban waterways, are often sighted in the quieter habitats in the Park. Eastern Long-necked Turtles, Red-bellied Black Snakes, Blue-tongue Lizards and, particularly, Eastern Water Dragons have been seen.



*Grey-headed Flying Fox*



*Eastern Long-necked Turtle*

At least 40 bird species are regulars to the Park. They include a variety of waterbirds and woodland species such as Dusky Moorhen, Red-rumped Parrots and Azure Kingfisher. The White Ibis and Noisy Miner are over abundant and problematic; the Trust monitors Ibis numbers and implements an annual Ibis control program of nest disturbance.

The Trust must also deal with the impacts of Indian Mynahs, feral Pigeons and domestic Mallard ducks, rabbits, European fox and rats. Most issues arise when people feed or leave food scraps for these feral animals.



*Spoonbill foraging*

# BIODIVERSITY TIMELINE

## Assumed Vegetation Prior to European Settlement

This map is derived from the NPWS 2002 vegetation model and is not reliable at the scale applied here. It is possible, with the clay dominated soils, that Shale Plains Woodland would be more dominant at the expense of Shale Sandstone Transition Forest.



## Timeline

### *Barramattagal of the Darug: pre 1788*

The Aborigines arrived in a landscape that was relatively stable with little renewal of landforms or soils. The resulting vegetation formed from the effects of a drying continent, poor soils, isolation and fire.

The Park area was important to the Barramattagal as a place of freshwater ponds with tidal estuarine salt water that supported abundant animal life (fish, possums, kangaroos, wallabies, birds and eels). Patches of the land were regularly burnt to support hunting and the area is presumed to have developed a 'park-like' character with large trees spaced well apart and a grassy understorey. Vegetation type is presumed to have been a mixture of Cumberland Plain Woodland to the south and west, Sydney Sandstone complex to the north-west and Turpentine Ironbark Forest to the north-east.

### *Colonisation: 1788-1810*

The land was cleared except for patches of indigenous trees, which were retained to give protection from the west. Alluvial soils in the vicinity of the River were used to establish farming and clay soils above the riverside alluvium were used primarily for cereal crops. Grazing of livestock was introduced.

The creeks were modified and small earthworks to contain freshwater for farm use occurred.

### *Macquarie and the Governor's Domain 1810-1857*

This was a significant period for the Park's development. Land was re-ordered, boundaries adjusted and a new character developed as a private estate based on the aesthetics of the 18th Century Picturesque English Landscape garden. For example, rows and avenues of exotic English Oak and hedged Lemon trees were planted. Native trees were retained on a grassed surface and native and exotic pines were planted, along with exotic pasture grasses. More substantial weirs and dams were placed along Parramatta River and the creeks to supply freshwater and alter flows and fish migration.

### *The Park: 1857 to the Parramatta Park Trust Establishment 1995*

The Park was established in 1857 and the Park's evolution as recreational parklands continued. Many tree planting schemes were proposed but no single scheme was adopted, creating a mix of native plants along with flowering and autumn foliage plants.

Rows of Stone Pines, English Oak and Bunya Pines and groups of dark foliage rainforest species - Hoop pines, Cook's pines, Moreton Bay Figs and Brush Box – providing accent planting. Other native and exotic species were planted but many did not survive; notable exceptions are the Lemon Scented Gum, Forest Red Gum, Turpentine and Jacarandas, and the Weeping Willows proliferated along the margins of the water bodies.

In the late 1940s, many Stone Pines were replanted, particularly on the northern side of the River. Further plantings of native tree species, including Tallowwood and Blue Gum, provided a new layer of vegetation overlaying the remnants of earlier planting regimes.

### *1990s to Current*

The 1990s saw a conscious attempt to reconstruct the diminished Cumberland Plain Woodland within the Park, particularly in the Western Domain area and the ridgeline skirting The Crescent. Grant-funded works continued to improve environmental quality and included stormwater management on Domain Creek, improvements to stream banks on Parramatta River, ongoing management of the reconstructed woodlands and recognition of the importance of the Grey-headed Flying-fox camp.

## BIODIVERSITY STRATEGY FRAMEWORK

The Biodiversity Strategy is framed by other documents and is implemented within the context of these documents. The Strategy adopts the Ecosystem approach and works to the 12 principles identified by the Convention on Biological Diversity.

The vision for the Park is to:

- improve the quality and diversity of the Park user experience
- prioritise cultural heritage and the natural environment and increase community interaction with both
- continue the environmental restoration program
- celebrate the Park's assets and renew focus on cultural tourism, events and programs
- increase revenue opportunities to support this vision.

The Park will be a multi-purpose urban Park for future generations, providing the community with contact to the natural elements of Australia through exemplar waterways, bushland and interaction with native animals. The Park will:

- showcase examples of Cumberland Plain Woodland and River-Flat Eucalypt Forest
- include healthy waterways that support a diverse web of life
- provide habitat refuge for native fauna in the centre of a growing city population
- be a place for the community to stay connected with and appreciate the natural world.

### *Landscape Master Plan 2002 – Biodiversity Objectives*

The Master Plan's objectives are:

- To conserve the indigenous woodland fabric and existing indigenous vegetation.
- To re-establish a sustainable ecology that reflects the indigenous qualities of the Parramatta River.
- To reconstruct Domain Creek to its former configuration as a series of lakelets.
- To establish the Murray's Creek island as a cultural landscape and reinterpret.
- To provide educational opportunities for the interpretation of the Park's environmental qualities to benefit Park visitors.

### *Biodiversity Strategy Outcomes*

The Strategy outcomes will be:

- improved indigenous woodland structure, native species diversity and habitat values
- improved aquatic habitat, species diversity and water quality
- better understanding of the Trust's actions in managing the environment
- shared knowledge and learning that support biodiversity in the Upper Parramatta River Catchment
- increased appreciation of natural places and connectedness and community stewardship.

To address the Biodiversity outcomes, the Strategy details actions under four themes.

### *Key Strategy Frameworks*

- Parramatta Park Trust Act 2001
- Old Government House and Domain, Parramatta Park Management Plan 2009
- Parramatta Park Conservation and Management Plan 2008
- Landscape Master Plan 2002
- Cumberland Plain Recovery Plan 2010
- Metropolitan Strategy for Sydney to 2031



## **THEME 1 - WATERWAYS**

### **GOALS**

- To provide creeks and waterways of clean flowing water, thriving with abundant native species
- To provide clean water for recreational activities including swimming, fishing, and exploring
- To make Parramatta River a spectacular visual amenity that is the centrepiece of the Park.

## **THEME 2 - BUSHLAND AND PARK FLORA**

### **GOALS**

- To showcase the natural heritage of the Cumberland Plain and the diversity of native grasses and flowering herbs
- To create small pockets of isolation as refuge for nature
- To provide habitat opportunities amongst recreational spaces and open parklands.

## **THEME 3 - FAUNA**

### **GOAL**

- To provide a home for a diversity of native animals.

## **THEME 4 - KNOWLEDGE**

### **GOALS**

- To provide a greater understanding and appreciation of the inherent beauty of the natural heritage of the Park
- To work with the Darug community to foster a wider appreciation of the sense of nature and Caring for Country among all Park users
- To continue to improve management of a highly urbanised ecology through greater understanding.

## **BIODIVERSITY CHALLENGES**

Managing the biodiversity of Parramatta Park is not without its challenges. Historical land use and heritage values, the proximity to Parramatta CBD and the surrounding urban development will continue to exert pressure. Coupled with climate change, the pressure on the biodiversity of the Parklands will become more pronounced.

The increase in population in the immediate surrounds will help the Trust to connect people with nature, yet it will be a challenge to balance permitted uses with ecosystem functions. Increased human activity can also result in undesirable or potentially illegal activity that can damage natural settings.

The expected increase in temperatures and dry periods from climate change will lead to more water use across the Park to maintain the recreational setting. Storms and wet weather will alter the hydrology of the creeks and the River, which are already under altered regimes. These conditions may

increase insects and other pest species. How native flora and fauna will cope and adapt is unknown; the Trust will have to be flexible in management to adapt as necessary.

## FUNDING THE STRATEGY

The Trust is a NSW Government agency. The Trust needs to commit recurrent funding and secure additional long-term funds to continue to manage and improve the biodiversity of the Park.

Existing recurrent budgets cannot fund the management approaches to meet biodiversity objectives. The Trust will need to source additional resources through commercial revenue, grants, partnerships, external support, staff effort and in-kind support.

The Trust will commit funds for regular, routine maintenance of biodiversity assets to preserve the baseline asset. Commercial revenue from long-term Park business opportunities will provide revenue that can provide some level of security to commit to longer-term actions. Grant funding will be sourced where it aligns with the Biodiversity Strategy and where the return to the asset will be beneficial without adding to long-term maintenance costs. External funds may be sourced from sponsorships, partnerships or contributions from volunteering or green events. Partnership building will ensure this source of resourcing is effective and continuous.

Delivering the Strategy will largely depend on the security of resources. The Strategy identifies likely funding sources for its management approaches, acknowledging that some approaches will not be possible without these alternative funding sources. The key sources of funding are:

- Trust funds from NSW Government budget and commercial sources such as Park business leases or revenue streams
- grant schemes from all tiers of government such as the Environmental Trust
- external sources such as Local Government partnerships that benefit both parties, corporate sponsorship, contributions from philanthropy and in-kind, largely physical volunteer labour.

## DELIVERING THE STRATEGY

### Theme 1 – Waterways

<i>Actions</i>	<i>Management Approach</i>	<i>Priority</i>	<i>Funding</i>
<b>Improve aquatic habitats</b>	Secure large woody debris into streams for habitat.	Medium	Government grants and external sources.
	Revegetate key locations on waterways with on-bank and in-stream vegetation.	High	Trust funds, Government grants and external sources.
<b>Undertake erosion and sediment control</b>	De-silt pools to maintain pool-riffle sequence.	Medium	Government grants.
	Identify opportunities for improving sediment control through water sensitive urban design in the Park's landscape work.	Medium	Trust funds, Government grants and external sources.
<b>Reduce the impact of pests species</b>	Seek opportunities for carp control in Parramatta River.	Low	Trust funds, Government grants and external sources.
	Coordinate with Parramatta City Council to control aquatic weeds.	High	Trust funds and external sources.
<b>Reduce the impacts of gross pollutants in waterways</b>	Review stormwater inflows and gross pollutant control methods at each source.	High	Trust funds and external sources.
	Reconfigure stormwater control.	Medium	Government grants and external sources.

## Theme 2 – Bushland and Park Flora

<i>Actions</i>	<i>Management Approach</i>	<i>Priority</i>	<i>Funding</i>
<b>Improve bushland diversity by prioritising riparian zones, Endangered Ecological Communities and sites with high habitat value and minimal human intrusion</b>	Revegetate bushland in and around Flying-Fox camp with future replacement canopy and understorey roosting habitat species.	High	Government grants.
	Expand and improve vegetation along Parramatta River to improve links to bushland corridors upstream and coordinate with other landholders where possible.	Medium	Government grants and external sources.
	Ensure species chosen to revegetate showcase Cumberland Plain diversity.	High	Trust funds, Government grants and external sources.
<b>Maintain tree health and habitat through arboreal management that maintains hollows and foraging opportunities</b>	Include hollow creation when dead wooding or crown lifting Park trees.	High	Trust funds.
	Relocate suitably-sized timber to bushland and riparian areas.	Medium	Trust funds.
	Avoid, where possible, the use of systemic pesticides.	High	Trust funds.
	Use an annual planting program to ensure a diverse age structure of plants, particularly trees at key riparian sites.	Medium	Trust funds and external sources.
<b>Manage significant cultural heritage views/vistas</b>	Use selective species planting, regeneration and pruning of bushland areas to maintain key views/vistas.	High	Trust funds.

### Theme 3 – Fauna

<i>Actions</i>	<i>Management Approach</i>	<i>Priority</i>	<i>Funding</i>
<b>Reduce the impact of pest species, including over abundant natives</b>	Coordinate baiting and virus releases with the Feral Animal Control Group.	Medium	Trust funds and external sources.
	Manage Ibis numbers through annual nest disturbance.	Medium	Trust funds.
	Seek opportunities for carp control in Parramatta River.	Low	Government grants and external sources.
	Investigate disturbance techniques for Indian Mynah and Noisy Miner and undertake actions.	Low	Trust funds and external sources.
	Review the existing rodent control program to determine off-target impacts and implement changes if necessary.	Low	External sources.
<b>Improve habitat opportunities for native species</b>	Include hollow creation when dead wooding or crown lifting Park trees.	High	Trust funds.
	Relocate suitably-sized timber to bushland and riparian areas.	Medium	Trust funds and external sources.
<b>Manage the Flying-fox colony</b>	Implement and review the Flying-fox Management Plan.	Medium	Trust funds, Government grants and external sources.

## Theme 4 – Knowledge

<i>Actions</i>	<i>Management Approach</i>	<i>Priority</i>	<i>Funding</i>
<b>Improve links with the Darug community to enhance cultural connections with the Cumberland Plain biodiversity</b>	Use a social procurement approach to undertake management approaches where possible.	High	Trust funds, Government grants and external sources.
	Select species to revegetate that provide cultural links to the Darug community and the Cumberland Plain diversity.	High	Trust funds, Government grants and external sources.
	Include Darug language and Darug cultural interpretation of biodiversity in Park interpretive signage.	Low	Trust funds, Government grants and external sources.
<b>Utilise opportunities for biodiversity improvement through training programs and community involvement, including partnerships with neighbouring Councils, relevant NSW Government agencies and NGOs</b>	Partner with Registered Training Organisations (RTOs) to provide sites for practical work.	Medium	Trust funds, Government grants and external sources.
	Facilitate the ability for community or corporate groups to undertake environmental work.		Government grants and external sources.
	Apply for Government training programs to operate within the Park.		Government grants and external sources.
	Meet regularly with Parramatta City Council for project and program updates.	High	Trust funds.
	Participate in the Upper Parramatta River Catchment Group.	Medium	Trust funds.
	Participate in Sydney Feral Animal Control Group.	Medium	Trust funds and external sources.

<b>Improve knowledge of the Park's natural assets</b>	Undertake a basic field survey of flora prior to bushland management actions.	Medium	Trust funds.
	Support local and regional fauna surveys by ensuring Parramatta Park sites are included in field surveys and analysis.	Medium	Government grants and external sources.
<b>Encourage volunteers to contribute to biodiversity outcomes</b>	Identify volunteer sites for planting and management that will contribute to biodiversity outcomes.	Medium	Trust funds.
	Facilitate opportunities for volunteer organisations to operate in the Park and have input into outcomes.	Low	Trust funds, Government grants and external sources.
	Target existing volunteer organisations to enhance biodiversity in multi-purpose volunteering (for example, heritage or Men's Shed groups volunteering to maintain the Governor Phillip Walking Track and surrounding biodiversity).	Medium	Trust funds, Government grants and external sources
<b>Continue to provide the community with information on the Park's natural environment</b>	Incorporate ecological information in digitally-enabled interpretation and self-guided tours.	Low	Government grants.
	Review and update the Park's interpretive signage as part of a Park-wide interpretive signage approach.	Low	Trust funds and Government grants.
	Support community education and school education when approached by external educational institutions.	Low	External sources.

## Further Reading Material

- Old Government House and Domain, Parramatta Park Management Plan 2009
- Parramatta Park Conservation and Management Plan 2008
- Landscape Master Plan 2002
- Cumberland Plain Recovery Plan 2010
- Metropolitan Strategy for Sydney to 2031
- Australia's Biodiversity Conservation Strategy 2010 - 2030
- Convention on Biological Diversity [www.cbd.int](http://www.cbd.int)

## Map Data

- Parramatta Park Trust
- Office of Environment and Heritage
- Land and Property Information
- All imagery in this document is owned by the Parramatta Park Trust.







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