

# Cumberland Biodiversity Strategy 2019



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# 1. Introduction

The landscape of the Cumberland Local Government Area (LGA) was traditionally managed by the Darug people for thousands of years. This included seasonal harvesting of food and resources and burning patches of the vegetation to favour certain species of plants and animals. The dominant vegetation across this part of the Cumberland Plain would, most likely, have been grassy woodland.

Farming and development in the area commenced in 1789 and progressively resulted in widespread changes to natural resources across the Cumberland Plain. The Cumberland LGA is now a highly urbanised environment containing gardens, parks, streetscapes, bushland, creeks and rivers. Around 2.6% of native vegetation remains in the LGA compared to what existed prior to European settlement. Many species, populations and ecological communities that would have once been in the area are no longer present, and many of those that remain are recognised as threatened.

In recent years, Cumberland Council, the community and others have acted to protect and rehabilitate some remaining patches of bushland in the LGA. Pockets of high biological diversity, or 'biodiversity,' remain. Further action is needed to reduce threats to biodiversity to sustain ecosystem services and benefit community health and wellbeing.

This Biodiversity Strategy presents a strategic and coordinated approach that has been developed by Council in consultation with the community to attract and effectively manage resources for biodiversity protection and enhancement in the Cumberland LGA.

## 1.1 COMMUNITY FOCUS

A 2017 Cumberland LGA community survey ranked the importance of 'protecting the natural environment' and 'tree management' as 'very high'. Council's Community Strategic Plan sets the direction for a clean and green future that will be supported by the following community outcomes:

- We have great natural and green spaces that suit a variety of uses
- We value the environment and have measures in place to protect it
- Our public spaces are clean and attractive.

This Strategy addresses community concern that biodiversity may be 'taken for granted', by highlighting:

- A strong and sustainable economy relies on having healthy ecosystems
- Biodiversity is important for the health and wellbeing of the community

- Nature and natural infrastructure are critical assets in strengthening cities' resilience to a broad range of shocks and stress
- Indigenous people have an interest in the conservation and sustainable use of native species and environments through their relationship with their traditional lands and waters.

#### 1.2 STRATEGY FRAMEWORK

The Strategy provides a framework for managing biodiversity over a ten-year period. It presents information about the importance and values of biodiversity. It sets the vision and identifies objectives and actions for future biodiversity management in three Key Focus Areas. The vision was developed in consultation with Council staff, Council's Aboriginal and Torres Strait Islander Consultative Committee and the broader community.

# Vision

'A CLEAN and GREEN environment for current and future generations to enjoy by **PROTECTING** and **ENHANCING** Cumberland Council's natural areas and green infrastructure!

KEY FOCUS AREA 1: Community awareness, engagement and action	KEY FOCUS AREA 2: Habitat connectivity and condition	KEY FOCUS AREA 3: Planning and innovation
KFA 1.1  Develop and implement biodiversity education initiatives to raise awareness of biodiversity and its values	KFA 2.1 Continue bush regeneration programs, including weed and pest control and revegetation	KFA 3.1 Embed biodiversity considerations into strategic plans and controls
KFA 1.2 Explore and progress engagement opportunities with the Aboriginal community in biodiversity management	KFA 2.2 Identify and progress opportunities that improve biodiversity connectivity for priority areas	KFA 3.2 Investigate opportunities to recover and recycle water, including Water Sensitive Urban Design opportunities
	KFA 2.3 Explore and collaborate on suitable opportunities with neighbouring Councils and regional organisations	KFA 3.3 Investigate opportunities to improve organisational capacity in biodiversity management
	<b>KFA 2.4</b> Develop baseline data and targets for biodiversity health	
	<b>KFA 2.5</b> Support delivery of Parramatta	

River Catchment Group's 'Parramatta River Masterplan'

Figure 1: Vision and Key Focus Areas

# 1. Introduction (continued)

# 1.3 LEGISLATIVE AND PLANNING CONTEXT

The Strategy aims to balance the needs and preferences of the community with Council's capabilities and resources. Key legislation and policies that have influenced development of the Strategy are outlined below.

## 1.3.1 International agreements and legislative obligations

Australia is signatory to a range of international agreements relevant to biodiversity. Our international obligations influence our legal framework. International agreements include the Convention on Biological Diversity, and Bilateral migratory bird agreements with Japan (JAMBA), China (CAMBA) and the Republic of Korea (ROKAMBA). Some of the key pieces of legislation that influence our operations include the Commonwealth Environment Protection and Biodiversity Conservation Act 1999 and the NSW Biodiversity Conservation Act 2016, which set requirements for protection and management of threatened species, populations and ecological communities.



Regent honey eater

### 1.3.2 Regional planning context

The Greater Sydney Commission has developed District Plans with planning priorities for the metropolitan region to 2056. The Central City District Plan includes the following priorities for sustainability relevant to the Cumberland LGA:

- C13: Protecting and improving the health and enjoyment of the District's waterways
- C15: Protecting and enhancing bushland, biodiversity and scenic and cultural landscapes
- C16: Increasing urban tree canopy cover and delivering Green Grid connections
- C19: Reducing carbon emissions and managing energy, water and waste efficiently
- C20: Adapting to the impacts of urban and natural hazards and climate change.

### 1.3.3 Local planning context

This Strategy provides direction for protecting and enhancing Cumberland's natural areas. The vision developed for this Strategy was developed in consultation with the community. As a communityfocused strategy, it helps deliver the Community Strategic Plan by addressing Strategic Goal 3 for a 'Clean and Green Community,' by protecting natural areas.

The Strategy supports the development of a new Local Environment Plan for Cumberland by providing guiding management principles in the areas of habitat preservation, wildlife corridor management, green infrastructure networks and biodiversity offset guidelines. These elements can inform the scope and application of planning controls in the Cumberland area.

The Strategy operates alongside the Environmental Management Framework and Waste and Resource Recovery Strategy, helping to reinforce the principles of sustainable development.

### 1.3.4 Key legislation

### Commonwealth Environment Protection and **Biodiversity Conservation Act 1999**

This is a national scheme for environmental protection and biodiversity conservation. It lists the triggers for significant impacts to endangered and threatened communities, such as the Cumberland Plain Woodland and Sydney Turpentine Ironbark Forest.

#### NSW Environmental Planning and Assessment Act 1979

This principal planning legislation for the State provides a framework for the overall environmental planning and assessment of development proposals. The Act provides for the preparation of environmental planning instruments (including a Local Environmental Plan or LEP).

### NSW Biodiversity Conservation Act 2016

This requires that councils consider the impact on threatened species, populations and communities in fulfilling their statutory responsibilities under the Environmental Planning & Assessment Act for development approvals.

### NSW Biosecurity Act 2015

This legislation provides a framework for the management of pests, disease and weeds across all lands.

### State Environmental Planning Policy 19

This Policy provides a statutory framework for protecting urban bushland and biodiversity within the LGA. The aim is to protect and preserve bushland by protecting remnant plant communities, retaining bushland and protecting native plants, animals and wildlife corridors.



Figure 2: Cumberland Council's planning framework

# 2. Biodiversity values and concepts

# 2.1 WHAT IS BIODIVERSITY AND WHY IS IT IMPORTANT?

Biological diversity, or biodiversity, is the variety of life forms in all terrestrial (land) and aquatic (water) environments on Earth. There are three levels of biodiversity:

- Genetic diversity the variety of genetic information contained in individual plants, animals and micro-organisms
- Species diversity the variety of species e.g. Grey Box and Forest Red Gum

 Ecosystem diversity – the variety of habitats, ecological communities and ecological processes. An ecosystem is a dynamic combination of plant, animal and micro-organism communities and their nonliving environment (e.g. soil, water and the climatic regime) interacting as a functional unit, e.g.
 Cumberland Plain Woodland ecological community.

# 2.1.1 Threats and challenges

Ongoing threats and chalenges to biodiversity in the Cumberland LGA are typical of urban areas and include:

- Habitat loss and degradation
- Fragmentation
- Vegetation clearing
- Light pollution
- Spread of weeds
- Pest and feral animals

The biodiversity value of an area is determined by the integrity of the vegetation based on its composition, structure and function, and the suitability of habitat.

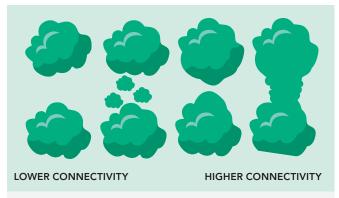
Biodiversity supports ecosystem services that are essential for human survival. Ecosystem services include clean air and water, pollination and temperature control. Ongoing threats to biodiversity in the Cumberland LGA include climate change, vegetation clearing, introduction and spread of weed species, fauna hunting by pest animals, and diseases.



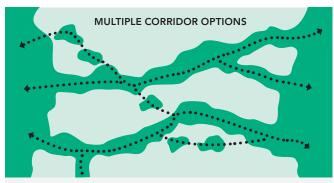
Figure 3: Ecosystem services (Source: www.teeb.org)

### 2.2 BIODIVERSITY PRINCIPLES

A range of management and design principles to guide how we will protect and expand areas of high biodiversity value within the Cumberland LGA are covered in this section. Approaches include improving connectivity, reducing fragmentation, and increasing the size of habitat patches by natural regeneration of native species in conjunction with weed control and vegetation.



Connectivity allows the movement of animals and the dispersal of plants across the LGA.



Benefits include stronger ecosystems, more genetic diversity, and safe routes through which animals can move.

Figure 4: Habitat connectivity creates stronger ecosystems

#### 2.2.1 Habitat

Habitat is the natural home or environment in which a plant or animal lives. Animals may use different habitats for breeding, roosting or feeding. For example, many parrot species feed in trees that have seeds and fruit but need hollows in which to nest and breed. We can increase available habitat by protecting existing habitat and adding features such as logs and suitable types of nesting boxes.

Increased habitat areas enhance available resources and allow more ecosystem niches, thereby supporting more species and larger, more sustainable populations. The size of the habitat patch should be as large as possible to reduce edge effects such as weed invasion, spill of artificial lighting, rubbish dumping and vandalism.

#### 2.2.2 Corridors

Biodiversity corridors (also known as wildlife corridors or ecological corridors) are areas of connected habitat across the landscape that:

- Allow the movement of animals and the dispersal of plants
- Ensure genetic exchange of plant and animal populations that may otherwise become extinct in the long term
- Allow recolonisation of habitat areas by plants and animals that have become locally extinct from events such as land clearing, fire, disease, fluctuating food supply and extreme weather
- Provide a relatively safe route for the movement of animals across the landscape.

Corridors through the Cumberland LGA should connect with district biodiversity corridors (such as the Green Grid) across western Sydney.

# 2. Biodiversity values and concepts (continued)

### 2.2.3 Green infrastructure

Green infrastructure is the network of green spaces, natural systems and semi-natural systems that are strategically planned, designed and managed in order to support a good quality of life in an urban environment. Elements of green infrastructure include roof gardens, residential gardens, local parks, streetscapes, service corridors, waterways, watersensitive urban design features and regional recreation areas. Some of the benefits of green infrastructure include increased biodiversity, improved microclimate, and improved amenity and community wellbeing.

A fully functioning ecological community that sustains a variety of naturally occurring species produces the highest biodiversity value. An example to explain this concept is as follows: a streetscape planted with Eucalyptus moluccana (Grey Box) and E. tereticornis (Forest Red Gum) trees, which are characteristic species of the critically endangered community Cumberland Plain Woodland, is of lower biodiversity value than a large patch of healthy Cumberland Plain Woodland supporting a variety of native species.

Carbon capture, or sequestration, is another benefit of green infrastructure. Plants and vegetation have the ability to store carbon, absorbing it from the environment, which offsets the impacts from harmful emissions. A network of green infrastructure and spaces has the added benefit of capturing carbon from the atmosphere and keeping air clean.

# 2.2.4 Biodiversity offsets and replacement planting

Developments and activities need to be designed and constructed to:

- 1. avoid environmental impacts
- 2. minimise environmental impacts
- 3. ameliorate or mitigate environmental impacts.

As a last resort, consideration may be given to 'offsetting' or compensating for an environmental impact. There are different offset schemes available and specialist advice is needed to determine which scheme, if any, is applicable. Some impacts cannot be offset because they are likely to contribute significantly to the risk of a threatened species or ecological community becoming extinct. Importantly, an offset area would need to be managed for conservation in perpetuity.

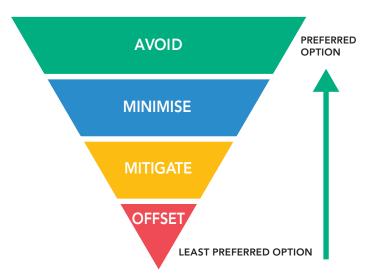


Figure 5: The biodiversity mitigation hierarchy

# 3. Biodiversity in Cumberland

### 3.1 LANDSCAPE

The Cumberland LGA is a highly urbanised landscape within the Cumberland Basin of western Sydney. It has gently undulating terrain with some flood-prone lands. Waterways in the area drain to the Georges River to the south or Parramatta River to the north-east.

# 3.2 VEGETATION COMMUNITIES AND SPECIES UNDER THREAT

Cumberland LGA has about 2.6% (less than 200 ha) of native vegetation cover, and ten of the eleven native vegetation communities that exist in the area are under threat. Many native plant and animal species recorded in the area are also endangered. Further information is provided in Tables 1-3.

Table 1: Vegetation communities in the Cumberland LGA

VEGETATION COMMUNITY	BC ACT STATUS	EPBC ACT STATUS	APPROXIMATE AREA (HA)	AREA AS PERCENTAGE OF LGA (7,156 HA)
Castlereagh Ironbark Forest	EEC	CEEC	57.9 ha	0.8%
Castlereagh Shale-Gravel Transition Forest	EEC	CEEC	1.8 ha	0.03%
Castlereagh Scribbly Gum Woodland	EEC	EEC	0.8 ha	0.01%
Cumberland River Flat Forest	EEC	-	32.0 ha	0.4%
Cumberland Swamp Oak Riparian Forest	EEC	-	16.1 ha	0.2%
Coastal Freshwater Wetland	EEC	-	4.2 ha	0.06%
Cumberland Shale Hills Woodland	CEEC	CEEC	2.2 ha	0.03%
Cumberland Shale Plains Woodland	CEEC	CEEC	70.3 ha	1%
Estuarine Mangrove Forest	_	_	1.6 ha	0.02%
Estuarine Saltmarsh	EEC	VEC	0.3 ha	<0.01%
Sydney Turpentine-Ironbark Forest	EEC	CEEC	0.4 ha	<0.01%
Total native vegetation			187.6 ha	2.57%

#### Key for table:

- BC Act NSW Biodiversity Conservation Act 2016
- EPBC Act Commonwealth Environment Protection and Biodiversity Conservation Act 1999
- Vulnerable ecological community (VEC) facing a high risk of extinction in Australia in the mediumterm future
- Endangered ecological community (EEC) facing a very high risk of extinction in Australia in the near future
- Critically endangered ecological community (CEEC) – facing an extremely high risk of extinction in Australia in the immediate future

### 3.3 AQUATIC BIODIVERSITY

The freshwater ecosystems of Cumberland are linked to their catchments and riparian corridors, and affect the water quality of the Parramatta River and Georges River downstream. The urbanised nature of Cumberland means that the aquatic habitats have relatively low biodiversity and poor water quality, although there are some more natural areas with relatively healthy and diverse aquatic ecosystems. Aquatic species in the area include the Eastern Long-Necked Turtle and Striped Marsh Frog. Improvements in catchment and riparian health, including pollution control and revegetation, will directly benefit aquatic ecosystems. Council is actively working toward improvements in aquatic health as a member of the Parramatta River Catchment Group.

# 3. Biodiversity in Cumberland (continued)

Table 2: Threatened plant species recorded in the LGA (BioNet 2018)

SCIENTIFIC NAME	COMMON NAME
Acacia pubescens	Downy Wattle
Callistemon linearifolius	Netted Bottle Brush
Epacris purpurascens var. purpurascens	
Persoonia nutans	Nodding Geebung
Pimelea spicata	Spiked Rice-flower
Pomaderris prunifolia	
Pultenaea pedunculata	Matted Bush-pea
Syzygium paniculatum	Magenta Lilly Pilly
Tetratheca glandulosa	
Wahlenbergia multicaulis	Tadgell's Bluebell



Magenta Lilly Pilly



Netted Bottle Brush

 
 Table 3: Threatened animal species recorded in the LGA
 (BioNet 2018)

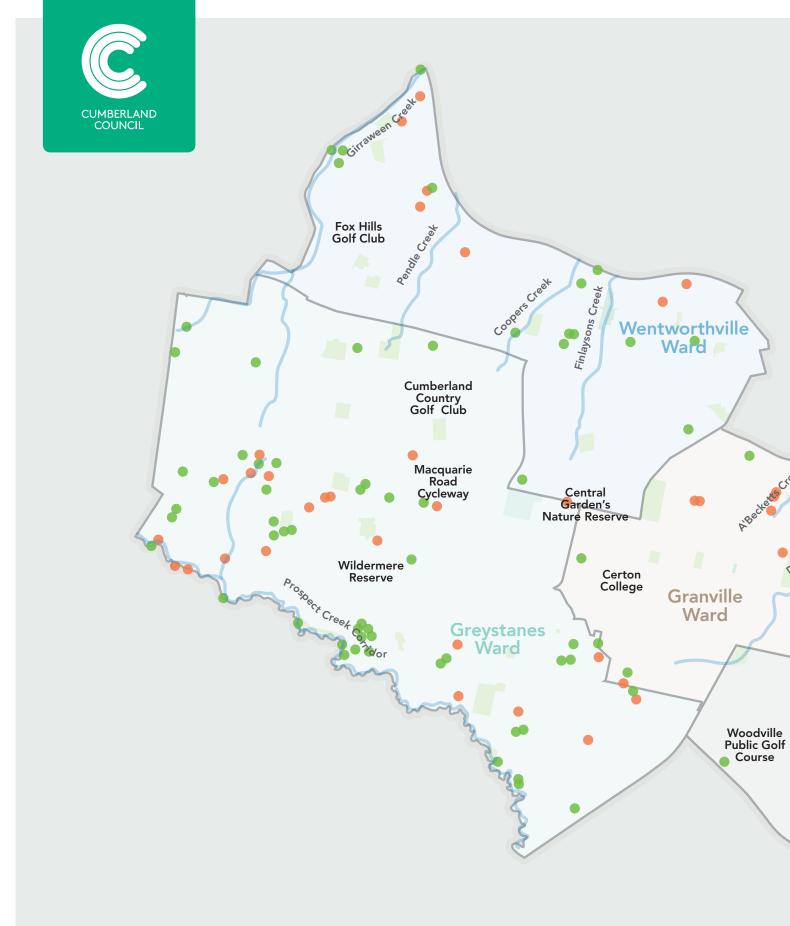
SCIENTIFIC NAME	COMMON NAME
Anthochaera phrygia	Regent Honeyeater
Dasyurus maculatus	Spotted-tailed Quoll
Falsistrellus tasmaniensis	Eastern False Pipistrelle
Hieraaetus morphnoides	Little Eagle
Lathamus discolor	Swift Parrot
Litoria aurea	Green and Golden Bell Frog
Meridolum corneovirens	Cumberland Plain Land Snail
Miniopterus schreibersii oceanensis	Eastern Bentwing-bat
Mormopterus norfolkensis	Eastern Freetail-bat
Ninox strenua	Powerful Owl
Petroica boodang	Scarlet Robin
Pteropus poliocephalus	Grey-headed Flying-fox
Saccolaimus flaviventris	Yellow-bellied Sheathtail-bat
Scoteanax rueppellii	Greater Broad-nosed Bat



Green and Golden Bell Frog



Grey-headed Flying-fox



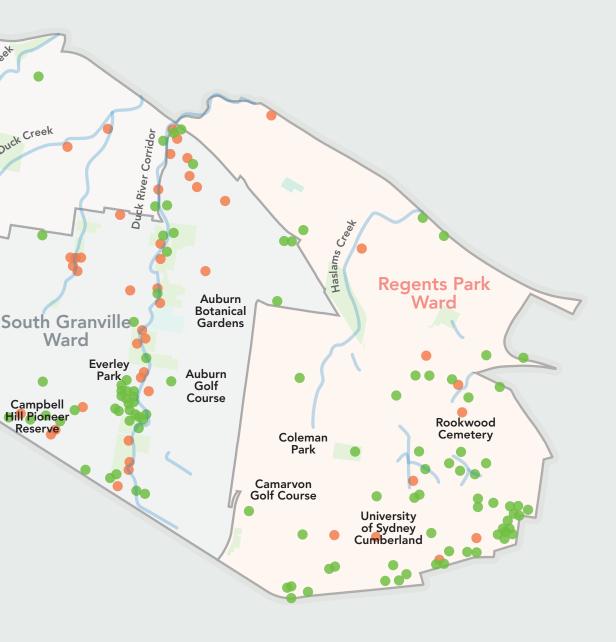


## **CUMBERLAND LGA**

# Native threatened species

Threatened Native Fauna Threatened Native Flora

Figure 6: Threatened native flora and fauna species in Cumberland



# 3. Biodiversity in Cumberland (continued)

## 3.4 MANAGEMENT HISTORY

In recent decades, efforts have been made to protect and enhance some areas of the natural environment in Cumberland LGA. These actions have mainly been resourced by local councils and/or community volunteers. Further information is provided in Table 4.



Increasing habitat and greenery - National Tree Day

Table 4: Past and ongoing biodiversity management activities within the Cumberland LGA

PROGRAM	DESCRIPTION	DURATION	MONITORING / FOLLOW-UP
Free Plants Giveaway	Council runs a free plants giveaway program. Residents receive up to 10 varieties of native shrubs and trees at various Council events throughout the year	Ongoing – annually	n/a
Habitat Stepping Stones	Encourage residents to create habitats for native wildlife by adding 3 elements – water, food, shelter	October 2017 – ongoing	Record of how many residents have signed up
Native Stingless Bee Hive Program	Council provides a limited number of beehives to residents	October 2017 – ongoing	Residents monitor and are responsible for the hive
Workshops and Events	Council hosts environmental and sustainability workshops for the community including worm farming, composting, native beehive program, permaculture, pollinator workshops	Ongoing – annually	n/a
Litter programs	Reduce litter in/around key locations across the LGA including Granville TAFE, parks and public spaces, and waterways	Ongoing	Council monitors gross pollutant traps periodically, along with litter count surveys
Clean up Australia Day	Council actively promotes and holds an annual Clean Up Australia Day event	Ongoing – annually	Litter collected and number of participants are recorded
Children's Services Sustainability Hub	This educational program inspires children to learn about positive messages about their environment and teaches sustainable practices in their daily lives. Each centre has a vegetable garden, worm farm and compost site	Ongoing – annually	n/a
Bushcare Volunteers	Council supports volunteer bushcare groups. These groups participate in weeding, planting and litter collection at Duck River and Lower Prospect Canal Reserve	Ongoing	Bushcare groups and Council teams monitor sites they work on
Bush Regeneration	Council undertakes bush regeneration activities throughout the LGA. Council continues to investigate expansion of the program, aligned with priorities and available funding.	Ongoing	Ongoing – targeted
Parramatta River Catchment Group biodiversity Corridor project	Environmental Trust Funded partnership project, mapping potential biodiversity corridors through the Parramatta River catchment (former Auburn LGA). Small component of revegetation carried out at targeted sites	2013– 2015	Targeted maintenance
Regional Fox Control Program	Duck River Corridor – Botanic Gardens through to Mona Park	2015– 2016	Ongoing – targeted

# 4. Action plan

Council will work with the community to accomplish the vision of a clean and green environment for current and future generations to enjoy by protecting and enhancing Cumberland Council's natural areas and green infrastructure. Actions to be implemented by Council address objectives for three key focus areas.

Actions will be monitored to determine if they are meeting the objectives of the key focus areas. The results will be reviewed and reported to the community each year to demonstrate effective use of public funds. Council's Annual Report to the community will identify:

- The types and locations of actions taken
- Lessons learnt for future action
- Measurable changes for the year against the strategic objectives
- Cumulative changes against the strategic objectives since implementation of the Biodiversity Strategy commenced.

A review and re-prioritisation of remaining actions will be undertaken at each review, to account for relevant funding opportunities, changing legislation or relevant conclusions from previous studies. The Action Plan will remain flexible to meet the changing needs of the Council over the life of the Strategy.

As part of Council's continuous improvement philosophy, project planning will include a review of relevant past strategies and plans.

A range of district and local priority areas have also been identified across Cumberland for biodiversity action, as shown in Figure 7. Council will align actions from Key Focus Areas in the strategy and delivery initiatives to support biodiversity outcomes at these locations.

# **Key Focus Area 1:** Community awareness, engagement and action Increase understanding and appreciation of the value of biodiversity **Objectives** Create opportunities for effective collaboration with our community Number of education and engagement initiatives delivered annually Measures Community satisfaction survey response for 'Environmental education programs' **Timeframe Actions** Yr 1 | Yr 2 | Yr 3 | Yr 4 | Yr 5 Develop and implement biodiversity education initiatives to raise **KFA 1.1** awareness of biodiversity and its values Explore and progress engagement opportunities with the KFA 1.2 Aboriginal community in biodiversity management



Local resident participating in Council's native bee hive program



Community Gardens in Cumberland - a place for biodiversity engagement and education



Duck River Corridor – a key link to the Green Grid

# Key Focus Area 2: Habitat connectivity and condition



			_				
Protect the health and enjoyment of natural areas						'	
Objectives	Improve condition and connectivity of priority areas in line with regional strategic plans						
	Protect and enhance bushland and biodiversity						
Community satisfaction survey response for 'Protecting the natural environment'							
D.A.	Biodiversity health indicators (subject to baseline being developed)						
Measures	Bushland management actions						
	Alignment with regional strategic plans						
A . 1.*		Time	frame				
Actions		Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	
KFA 2.1	Continue bush regeneration programs, including weed and pest control and revegetation						
KFA 2.2	Identify and progress opportunities that improve biodiversity connectivity for priority areas						
KFA 2.3	Explore and collaborate on suitable opportunities with neighbouring Councils and regional organisations						
KFA 2.4	Develop baseline data and targets for biodiversity health						
KFA 2.5	Support delivery of Parramatta River Catchment Group's 'Parramatta River Masterplan'						



Rainwater harvesting tanks at Children's Services Centres

# Key Focus Area 3: Planning and innovation

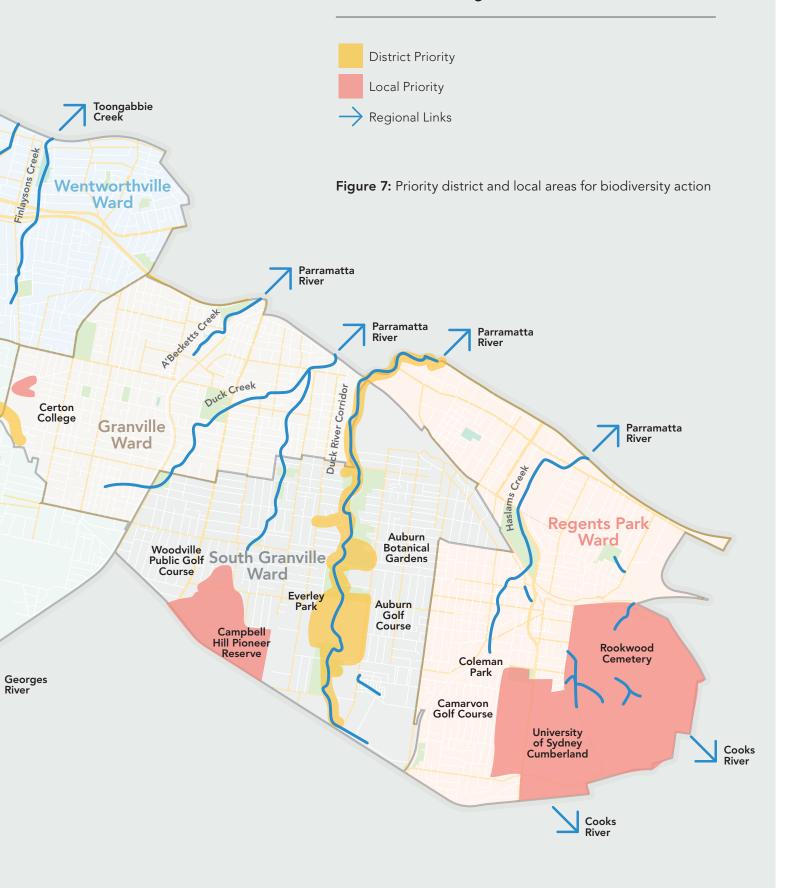


Objectives	Integrate biodiversity management into Council's planning and compliance systems							
N4	Community satisfaction survey response for 'Protection of green and open spaces'							
Measures	Establishment of processes and compliance tools to protect biodiversity							
Actions		Time	frame					
Actions		Yr 1	Yr 2	Yr 3	Yr 4	Yr 5		
KFA 3.1	Embed biodiversity considerations into strategic plans and controls							
KFA 3.2	Investigate opportunities to recover and recycle water, including Water Sensitive Urban Design opportunities							
KFA 3.3	Investigate opportunities to improve organisational capacity in biodiversity management							



## **CUMBERLAND LGA**

# Priority areas





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