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# Biodiversity Conservation Strategy



Sundew *Drosera auriculata* Alan Kwok (2019)

# Executive summary

The Hornsby LGA contains a diverse array of landscapes with significant conservation values and hosts a diversity of native flora, fauna and invertebrates – many of which are threatened with extinction. The biophysical qualities of the LGA also contribute to Hornsby's character and identity as the *Bushland Shire*.

Both locally and globally, the need to safeguard biodiversity in light of rapid land-use and climatic change pressures has never been more acute than today – and the next 20 years will be critical. This presents a challenge for Council to carefully balance projected population growth targets and associated development against the protection of biodiversity values in the lands and waters under its management.

Currently, several specific state government initiatives as well as supporting policies at the international, national and regional level suggest a range of measures toward the protection and management of biodiversity. These include the Greater Sydney Commission's *District Plan*, the NSW Government Architect's Office *Greener Places* and a specific focus on Green Infrastructure Networks.

The method that underpinned the *Hornsby Biodiversity Conservation Strategy 2020* relied upon three interlinked stages:

- Review of policies, mapping data and best practice
- Community workshops with a Green Infrastructure focus
- Synthesis and development of recommendations and priorities

As a result of this Strategy the following strategies have been developed including:

- Strategy 1: Protect and conserve ecological values*
- Strategy 2: Connect urban habitats*
- Strategy 3: Restore disturbed ecosystems to enhance ecological value and function*
- Strategy 4: Create new ecosystems*
- Strategy 5: Connect people to nature*

Importantly, the spatial definition of these recommendations is made through a series of maps that aim to manage long-term threats and challenges as well as potential benefits. Each strategy recommends several actions for implementation by Council in the future as resources become available.

This strategy, the *Hornsby Biodiversity Conservation Strategy 2020*, offers a range of recommended actions that sit alongside several other key strategies prepared in support of a new *Local Strategic Planning Statement*.



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## Key terms

Biodiversity – ‘the variability among living organisms from all sources, including terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystem’. [1]

Bushland – ‘land on which there is vegetation which is either a remainder of the natural vegetation of the land or, if altered, is still representative of the structure and floristics of the natural vegetation’. [2]

Charrette – ‘time-limited, multiparty design event organized to generate a collaboratively produced plan for a sustainable community’. [3]

Corridors – ‘Corridors are narrow, linear remnants of habitat that connect otherwise isolated habitat patches’ [4] or ‘a narrow strip, stepping stone, or series of stepping stones of hospitable territory traversing inhospitable territory providing access from one area to another’. [5, 6]

Green Infrastructure – Green infrastructure is the ecological framework for environmental, social, and economic health – in short, our natural life-support system. [7]

It is important to note that due to long-standing Aboriginal land management practices the Australian landscape (and the Hornsby LGA) was subject to a complex human-managed fire-stick farming practice. This means that the term ‘natural vegetation’ is erroneous, however due to a broad understanding of what the term represents, i.e. pre-European or ‘1788’ vegetation, it is used throughout this Plan.



## Acronyms

AILA – Australian Institute of Landscape Architects  
 AILDm – Australian Institute of Landscape Designers and Managers  
 BCT – Biodiversity Conservation Trust  
 CAMBA – China-Australian Migratory Bird Agreement  
 CBD – Central Business District  
 CBD – Convention on Biological Diversity  
 CEEC – Critically Endangered Ecological Community  
 DA – Development Application  
 DCP – Development Control Plan  
 EPBC – Environmental Protection Biodiversity Conservation (Act)  
 ESD – Ecologically Sustainable Development  
 GI – Green Infrastructure  
 GIF – Green Infrastructure Framework  
 GIS – Geographic Information System  
 GPT – Gross Pollutant Trap  
 HLEP – Hornsby Local Environment Plan  
 HSC – Hornsby Shire Council  
 IBRA – Interim Biogeographic Regionalisation of Australia  
 JAMBA – Japan-Australia Migratory Bird Agreement  
 LGA – Local Government Area  
 LEP – Local Environment Plan  
 LPI NSW – Land and Planning Information NSW  
 LSPS – Local Strategic Planning Statement  
 NPWS – National Parks and Wildlife Service (NSW)  
 NRS – National Reserve System  
 NSW – New South Wales  
 OEHL – The Office of Environment and Heritage  
 p.a. – per annum  
 RMS – Roads and Maritime Services (NSW)  
 SEPP – State Environmental Planning Policy  
 SGG – Sydney Green Grid  
 SOS – Save Our Species  
 STIF – Sydney Turpentine Ironbark Forest  
 TBD – To Be Determined  
 TEC – Threatened Ecological Community (includes Endangered and Critically Endangered Ecological communities)  
 UHI – Urban Heat Island  
 WWTP – Waste Water Treatment Plant



**Fig 1. The Australian Brush Turkey, *Alectura lathami*, a common visitor to Hornsby bushland and gardens**

(1)



# **1. Introducing the Hornsby Biodiversity Conservation Strategy**

An overview of the Strategy's  
vision, goals, approach, study  
area and timeframes

## Strategy's vision

The Strategy has been developed to have regard to the challenge set by the Government Architect of New South Wales in its *Greener Places 2020* framework and the supporting *Greener Places Design Guide* [8]. This guide suggests that Local Councils approach the:

*'...conservation of urban habitat and biodiversity in a holistic way that not only directs strategic planning but also acts at the management level... in the form of maps identifying core, transition, and habitat connection areas, with development controls and land management provisions suited to the local area' [8]*

The 20-year vision proposed through this report is as follows:

*Hornsby Shire and its' residents value the ongoing protection and conservation of the natural environment, its biodiversity and protected areas. The area's biodiversity is sustained and enriched through the significant areas of remnant and healthy bushland vegetation, waterways and wetlands, and estuarine habitat that exist within and surrounding the Shire.*

Hornsby Shire Council is equipped to ensure biodiversity is well managed, resilient and adaptable to land-use change. Council recognise that the connection and conservation of natural assets will contribute to the community's health and well-being, maintain a sense of place and enhance biodiversity values in the Shire.

This *Hornsby Biodiversity Conservation Strategy* encourages a balance of the best available scientific knowledge with community feedback to present a suite of recommendations, tools and priorities that are to be integrated into Council operations.

The Strategy is based upon and applies the best

available scientific knowledge and incorporates community contributions as a suite of recommendations, tools and priorities that are integrated into Council operations.

The *Hornsby Community Strategic Plan* is closely aligned with the Greater Sydney Commission's *North District Plan* (March 2018) [9] and sets the broad strategic direction for Council's operations aligned to a ten-year vision for the LGA (Local Government Area). It is framed through four key themes. These are:

1. Liveable
2. Sustainable
3. Productive
4. Collaborative

The *Hornsby Community Strategic Plan* outlines these four themes in detail to inform Council's delivery program and operational planning, including benchmarks against which goals can be measured over time. Themes relating to biodiversity management and protection include those concerning *liveability* and *sustainability*.

Though the *productive* and *collaborative* themes don't address biodiversity directly, the report encourages the community to engage in sustainable transport options where possible 'including walking and cycling' and 'promote the Shire's tourist attractions'. Transport infrastructure such as this could also double as biodiversity wildlife corridors. [10]



Fig 2. Rainbow Lorikeet, *Trichoglossus haematodus*

(1)

## The Strategy's goals

The purpose of this *Hornsby Biodiversity Conservation Strategy* is to guide both Council and the community to conserve and manage Hornsby LGA's biodiversity. The strategy is an umbrella document that brings together a wide range of information on the biodiversity of Hornsby. The strategy considers why biodiversity conservation is important and provides priorities for action. The strategy aims to conserve both terrestrial and aquatic biodiversity and their habitats.

The development of this *Hornsby Biodiversity Conservation Strategy* will assist Hornsby Shire Council to best protect and conserve, manage and sustain the biodiversity that exists within its boundaries. This will enable Hornsby Shire Council to:

1. Conserve, manage and enhance biodiversity upon both public and private lands within the LGA
2. Identify 'best practice' methods for managing and conserving biodiversity
3. Identify, locate and prioritise a novel Green Infrastructure network across the LGA
4. Collect and update biodiversity conservation information
5. Ensure environmental planning instruments and processes provide a strategic approach to achieving biodiversity conservation outcomes

## The Strategy's approach

This Strategy has been prepared through the following key approaches:

1. Ensure review of best practice
2. Mapping and data analysis
3. Outlining biodiversity values of the LGA
4. Engagement with community stakeholders through a series of workshops
5. The spatial articulation of biodiversity features, concepts, themes; opportunities and constraints; and threatening processes and challenges

6. Specific development of a Green Infrastructure Framework
7. Key management recommendations, strategies, tools and actions
8. Provide a well-defined vision to guide future key actions, especially those over the next three years

## Improving our understanding of biodiversity

Biodiversity monitoring and research is embedded into the Strategy. Monitoring is the process of determining status and tracking changes in living organisms and the ecological complexes of which they are a part. Biodiversity monitoring is important because it is used to evaluate the integrity of ecosystems, their responses to disturbances, and the success of actions taken to conserve or recover biodiversity. Research addresses questions and tests hypotheses about how these ecosystems function and change and how they interact with stressors. Ecological research provides the context for interpreting these monitoring results. Policy and management needs guide the development of monitoring.

An expanded and funded research and monitoring program will provide the necessary information and data baselines to conserve and protect Hornsby LGA's diverse ecosystems and vegetation into the future .

## Study area

The *Hornsby Biodiversity Conservation Strategy* focuses upon all lands within the Hornsby Shire Local Government Area (LGA). It provides strategic recommendations for the preservation of biodiversity across lands managed and/or owned by Council, Aboriginal groups, National Parks, NSW Government lands, private interests and that which forms part of the NSW Marine Estate.

## Timeframe

The *Hornsby Biodiversity Conservation Strategy* provides strategic recommendations that will assist Council to achieve the biodiversity objectives of the Greater Sydney Commission's *North District Plan 2018* and the Government Architects Office NSW's *Bushland and Waterway Guide*. It sets a strategic approach to the management and conservation of biodiversity over a 20-year period, while supporting Council with its decision-making and prioritisation of action.

The final section of this report 'Strategies and Actions for Biodiversity Conservation' documents all actions identified by this Strategy and is prioritised with zero to one year (high), one to four years (medium), four to ten years (low) as well as ongoing actions.

## Monitoring, reporting and periodic review

An important purpose of preparing and implementing the *Hornsby Biodiversity Conservation Strategy* is to strengthen the resilience of natural systems and to support sustainable growth across the LGA. To maintain focus, highlight successes and provide early warning of problems, it is important to monitor and review progress towards these outcomes at regular intervals. This approach will also assist in developing and applying an approach

of continuous improvement in biodiversity management.

Council's IP&R reporting system (including annual and longer operational reporting and longer interval strategic reporting) provides the opportunity to formally report on implementation of this Strategy.

The *Hornsby Biodiversity Conservation Strategy* will be reviewed within a 10-year period to ensure Council, agencies and community are effectively progressing toward conservation and management of Hornsby Shire's biodiversity. Council will also promote successes in biodiversity management through the education, engagement and communication activities recommended within this Strategy.



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Fig 3. Southern Leaf-tailed Gecko *Phyllurus platurus*

## **2. Background: The Biodiversity of the Hornsby LGA**

Biodiversity is important both for the benefits that it can provide to humans as well as for its own intrinsic value. This section of the report defines this term and introduces some of the noteworthy aspects of biodiversity in the Hornsby LGA. It also situates this report with respect to current and future threats and challenges.



Fig 4. Hornsby Shire Council seen within the Sydney context



## What is biodiversity

Biodiversity has been defined by the *Convention on Biological Diversity* (CBD) as:

*‘the variability among living organisms from all sources, including terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystem’.*[1]

Spanning more than 7,500,000 square kilometres the Australian continent possesses a unique biological diversity (referred to hereafter as ‘biodiversity’) distributed across thirty-three degrees of latitude from the tropics in the north to Tasmania in the south. Across the breadth of this island continent Steffen [12] estimates that Australia comprises between seven and ten per cent of the world’s total species, including approximately 200,000 terrestrial species, many unknown to science and significantly endemic [13]. This means that in ecological terms Australia is globally important.

The Hornsby LGA possesses a high degree of biodiversity. This can be attributed to the diversity of habitats within the LGA, as well as the high percentage of vegetation cover – or bushland – within large and representative protected areas, council reserves on lands managed by other agencies (i.e. RMS) and private properties. This biodiversity is a significant and defining feature of the ‘Bushland Shire’ and one that requires safeguarding for future generations. It also offers an enduring connection and is of continued significant place to the area’s Indigenous people to practice their culture.

Indeed, the Hornsby Shire’s bushland provides life-sustaining benefits to humans through the transformations of resources (or environmental assets, including land, water, vegetation and atmosphere) into a flow of essential goods and services (e.g. clean air, water, and food). These

ecosystem services are therefore critical for maintaining the health and wellbeing of Hornsby citizens.

## Hornsby LGA overview

### Location

The Hornsby LGA is bounded by The Hills Shire, City of Parramatta, City of Ryde and the Ku-ring-gai, Northern Beaches and the Central Coast Councils. Significant portions of the Hornsby Shire are within existing protected areas, the largest of these being Berowra Valley National Park, Ku-ring-gai Chase National Park, Marramarra National Park and Muogamarra Nature Reserve, see Fig 4.

### Geology and landform

The Hornsby LGA forms part of the Sydney Basin Bioregion and is located on the geological formation known as the Hornsby Plateau. Lying within the Sydney Basin Bioregion and the Central Coast Botanical Subdivision and thus has characteristics of both across the Hornsby Plateau and Hawkesbury Valley which form the major physiographic regions of the area. The Hornsby Plateau is capped in places by Wianamatta Shales. Further north and east the deeply dissected sandstone Hawkesbury valleys occur which feature the drowned river system of the Hawkesbury River and its tributary creeks, see Fig. 5.

The estuaries were formed during the end of the last ice age and stabilised approximately 6,000 years ago. Berowra Creek is a major tributary of the lower Hawkesbury River, entering the Hawkesbury River some 25 kilometres from the ocean. The estuary itself extends for over 23 kilometres in a southerly direction from the Hawkesbury River to the tidal limit at Rocky Fall Rapids. Marramarra Creek estuary extends in a westerly direction from near the confluence of Berowra Creek and the Hawkesbury River for over seven kilometres. Berowra Creek estuary

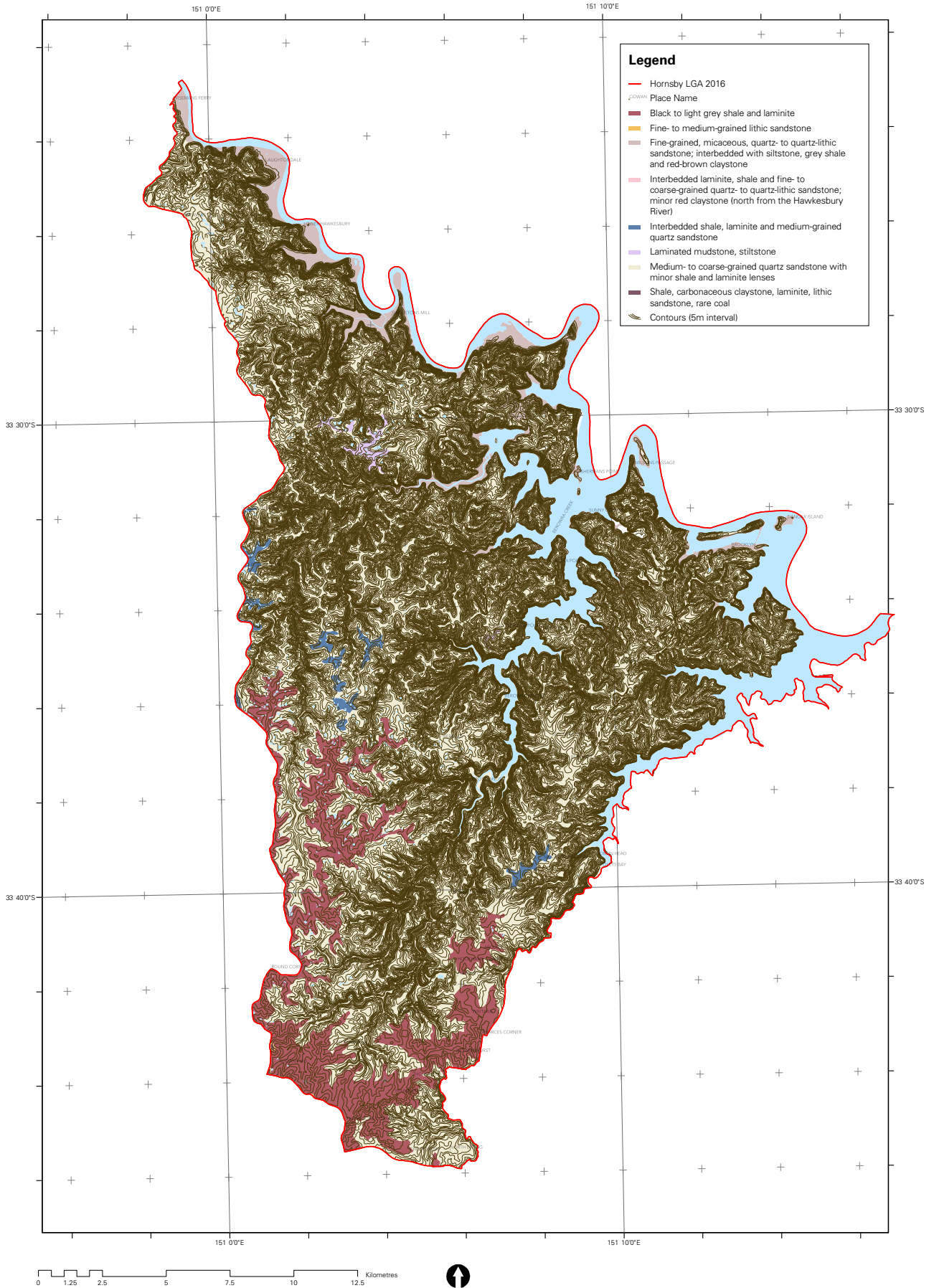


Fig 5. Hornsby Shire Geology and Landform

is a drowned river valley, comprising steeply incised gorges with surrounding plateau areas. The upper estuary, upstream of the Woolwash, is very shallow with depths often less than 1 metre. The channel becomes deeper and reaches a depth of approximately 7 metres at Berowra Waters. Through the middle estuary, and particularly at Calabash Point, there are a number of deep holes up to 17 metres deep which provide habitats and influence the flushing characteristics of the estuary. The lower estuary is generally around 5 metres deep, although at the Hawkesbury River bar the depth is only 3m. The lower west zone of the estuary, Marramara Creek, is much shallower with depths of 2 metres or less. The shallow muddy bays provide ecologically productive environments. Big Bay is one such area and has regional significance because of its mangrove community.

The underlying geology of Hornsby LGA is formed predominantly of sandstone, with a capping of shale on the higher ridgelines. Shale capping extends along some of the major road systems including Old Northern Road from Castle Hill to Glenorie, and along Galston, Arcadia and Bay Roads through Galston, to Arcadia and Berrilee. Away from the ridgelines further downslope sandstone geology appears. Towards the northern end of Old Northern Road near Forest Glen, Maroota and Fiddletown, the shale cappings have become discontinuous due to large scale erosion of the shale over millions of years. [14] Several other types of geology occur in very limited areas such as volcanic diatremes around Hornsby and Westleigh, sand deposits at Maroota, and geologies associated with the Hawkesbury River and other riparian areas, namely, Narrabeen shales and alluvial flats.

### The changing vegetation patterns of Hornsby

Pre-1788 vegetation patterns reflect land management and burning practices that had taken place for more than 60,000 years. This was vegetation managed in a sustainable manner by

Aboriginal people, although their specific fire practices have not been fully understood or well acknowledged until recent years. As such the current vegetation patination - including many fire dependent vegetation communities and species - represents a landscape, flora and fauna that exists in the absence of the firestick farming practices by original inhabitants.

In 1788, shale areas were covered with tall open forest of 30 metres or more in height. To this day, trees suited in these more fertile soils include Grey Ironbarks, Turpentine, White Stringybarks and less commonly Red Mahoganies, with Blackbutts and Sydney Blue Gums growing where conditions were particularly favourable (ranging across an area approximating the contemporary location of Wahroonga/Hornsby south to the M2 and west to Cherrybrook). In these forests an understorey of smaller trees and shrubs include Forest Oak, Hickory Wattle and Cheese Tree in the drier areas and Sweet Pittosporum trees, vines and ferns in the moister drainage lines. This landscape supports several types of Threatened Ecological Community (TEC) including Sydney Turpentine-Ironbark Forest and Blue Gum High Forest [19]. In areas where shale gives way to sandstone on the ridgelines a transitional area often occurs characterised by a distinctive assemblage of species, often including the Grey Gum (the favoured food tree of koalas) and Stringybarks.

Bushland on sandstone country features a tremendous variety of habitats and plant species in a relatively small area of sandstone terrain. The sandstone topography gives rise to a great variety of habitats because of its rugged nature – ridgetops, slopes of varying steepness facing north, east, south or west each with different characteristics of sunlight and moisture availability, gullies and valley floors with varying amounts of deposited soil with differing degrees of shale influence from soil washed down over time from the shale cappings. The variety of habitats includes:

- woodland on ridgetops and exposed north and west facing slopes;
- open forest on the more sheltered east and south facing slopes and on lower parts of exposed slopes;
- dense open forest where valleys were sheltered and enriched by shale-derived soil, for example, Blackbutts and Coachwoods grew at the bottom of Galston Gorge; riparian scrub supporting a distinctive group of species on small sandstone creek lines;
- patches of shrubby heaths and sedge heaths where lenses of shale were found within the sandstone, giving rise to local variation in soil fertility and drainage.

Along the banks of the Hawkesbury River downstream from Wisemans Ferry and along the lower reaches of Berowra and Marramarra Creeks, Narrabeen shales and sandstones appear. Rough-barked Angophora and Forest Oak characterise the open forest on the more fertile Narrabeen-based soils.

The hydrological system of the Hornsby LGA may be divided into four catchments:

- Berowra Creek (Colah Creek, Still Creek, Georges Creek, Pyes Creek, Larool Creek, Waitara Creek, Tunks Creek and Calna Creek)
- Lane Cove River (Terrys Creek, Devlins Creek and Browns Waterhole)
- Cowan Creek (Hornsby Creek, Cockle Creek and Murray Anderson Creek); and
- Hawkesbury River (Some of the creeks include Mill Creek, Dalgety's Creek, Ashdale Creek and Pumpkin Point Creek).

Some creek reaches were characterised by wide, sandy flat-based ponds, or sandstone with cobbles in the cracks at the base of the creek, others featured rapids, riffles, rock chutes, waterfalls and potholes, yet others had boulders with underlying rock shelves, or sand and

mud based streams. Creek characteristics and morphology within each catchment continue to change due to natural processes and accelerated sedimentation through urbanisation.

Estuarine vegetation of the Hawkesbury River, Marramarra, Berowra and Cowan Creeks and other tributaries were characterised by small areas of saltmarsh, stands of mangroves and seagrass beds. Of particular significance were large mangrove forests in Big Bay, Marramarra Creek which feature the Grey Mangrove and River Mangrove. Saltmarshes existed in small pockets above mangrove stands in areas of land that were intermittently inundated by tides. Seagrasses were characterised by Eelgrass (*Zostera* spp.) in the Hawkesbury, Berowra Creek and Cowan Creek and Strapweed in scattered beds in Cowan Creek.

#### Contemporary vegetation patterns

Historic patterns of settlement left poor infertile soils of the sandstone country and the inhospitable terrain undeveloped with clearing and farming taking place on gentler topography and more fertile soils.

Many rural properties have an arable area on shale nearest the road and back onto steeper sandstone bushland near creek lines. Hence the plants and animals now remaining on the richer shale soils or flatter land are rare and poorly conserved in Hornsby. As a result of these patterns, over 50% of Hornsby's plant communities are not conserved in any parks or reserves and two other vegetation communities (Swamp Sclerophyll Forest on Coastal Floodplains and Freshwater Swamp) have almost totally been removed through clearing. [16]

Native vegetation that remains on shale is generally as small remnants around the edges of cleared agricultural land or as small backyard patches in urban areas such as Pennant Hills and Beecroft. These small remnants are often invaded by weeds, but each shale vegetation

'About 15% of native vegetation is in close to natural [pre-European] conditions' [15]

remnant is important because there is so little of this type of vegetation left. In the whole Sydney area, less than 2% remains of the original area of Sydney Turpentine-Ironbark Forest and Blue Gum High Forest remains [127]. Because only small remnants remain, no single remnant of this rare forest is likely to contain representatives of all the plant species native to the shale. Therefore, each remnant patch is valuable for the species it does contain, including the soil seed bank. Some may contain native plant species that occur in very few other places and are often confined to narrow roadsides and although the remnants may be weed infested, all the native smaller trees, shrubs, ground cover plants and grasses in the remnant shale vegetation patches are important, not just canopy trees. [14]

Most of the native vegetation that remains in the rural area is on sandstone. Sandstone terrain is much more rugged than that of the shale, and its soils are sandy, infertile and often very shallow, making them unsuitable for agriculture. It is for these reasons that so much of the sandstone still retains its native vegetation, now extensively protected through Marramarra, Berowra Valley and Ku-ring-gai Chase National Parks.

Two types of sandstone habitat are particularly vulnerable to loss and degradation – ridgetops, likely to be cleared because they are level and easily accessible, and creek banks and valley floors, prone to weed invasion. A number of rare species occur only in the Hornsby area in sandstone habitat, so areas such as these are in need of special consideration for conservation. Creeklines become invaded by weeds when their nutrient-rich soil is washed down by stormwater from developed areas. As such, developments need to be more closely managed to prevent soil erosion, to prevent weed invasion along with other actions that will also protect water quality and aquatic ecosystems.

Transition areas between shale and sandstone are also vulnerable like the other level ridgetop

areas. This habitat is limited in area and is also likely to have Shale/Sandstone Transition Forest, an Endangered Ecological Community, as well as threatened species such as the rare Heart-leaved Stringybark on Tunks Ridge. Transition areas, like other ecotones, are highly diverse communities with a mix of shale and sandstone species. Other transition communities include Duffys Forest also an Endangered Ecological Community.

A small number of diatremes or outcrops of volcanic rock occur, namely off Fagans Ridge and Coba Ridge, in Cabbage Tree Hollow, Pyes Creek, Old Mans Valley and within Muogamarra Nature Reserve. Species composition varies between these scattered volcanic outcrops and reflects their greater soil fertility.

The deep sand deposits that are being mined at Maroota are geologically unique within the Sydney area, and, where they remain, support native vegetation with a number of rare or uncommon species.

Smaller areas of alluvial land amongst steep sandstone hillsides along the Hawkesbury River near Wisemans Ferry and downstream support distinctive riparian and wetland groups of plant species – these are vulnerable because of their accessibility for clearing and their limited extent [14].



(2)

**Fig 6. Waratah, *Telopea speciosissima***

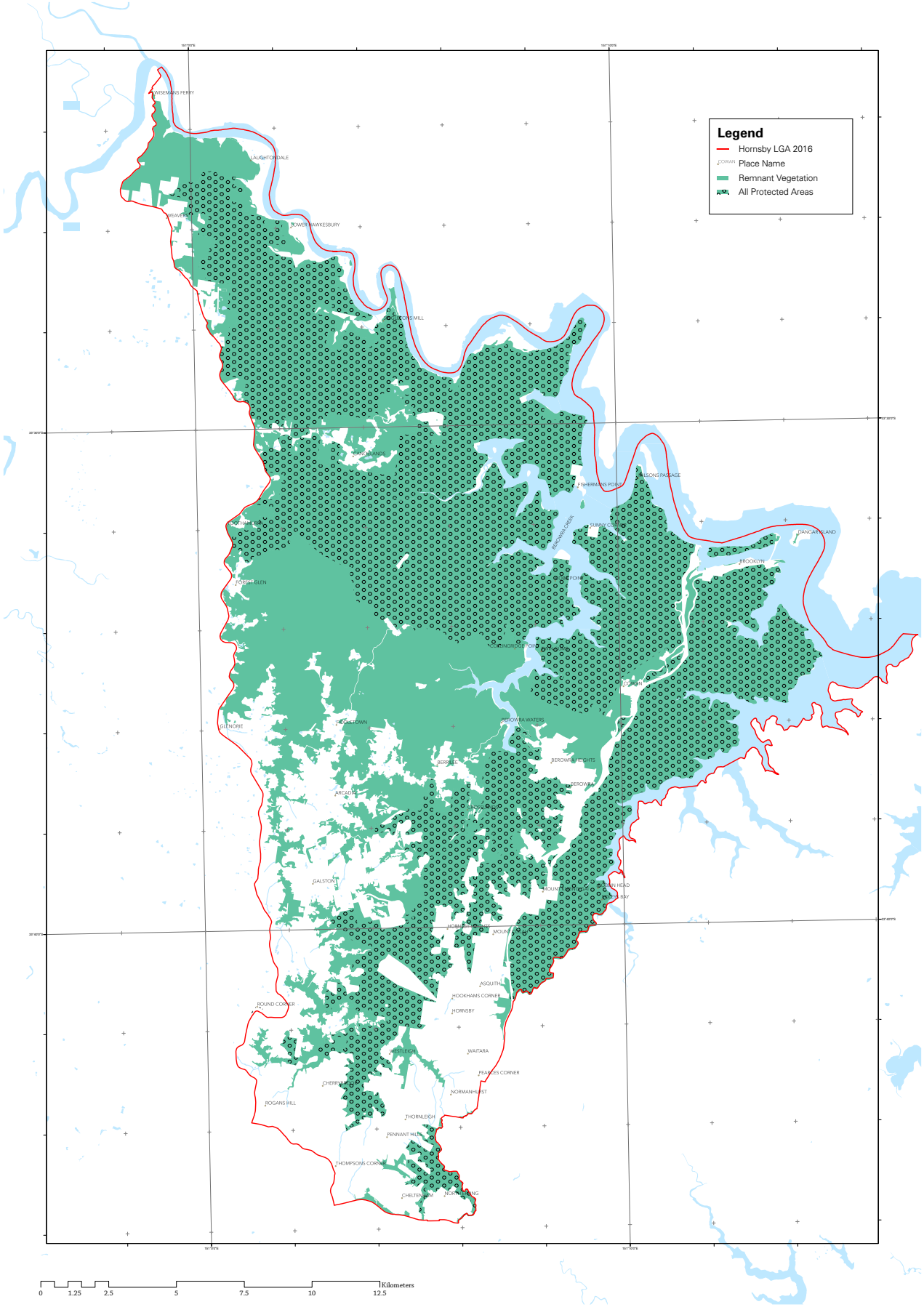


Fig 7. Remnant vegetation of Hornsby Shire

## The biodiversity of the Hornsby LGA

### The ‘Bushland’ Shire

The Hornsby LGA is characterised by a matrix of protected areas, vegetated, agricultural, urban and suburban lands. The *2006 Hornsby Biodiversity and Conservation Strategy* identified that the percentage of vegetation cover was equal to 69% of the Shire; this percentage is now 73.6%. This is made up of 49.2% Protected Areas and Bushland Reserves, see Fig. 7.

Over 1,000 native vascular plants and 388 terrestrial vertebrate animals are known to occur in the bushland of the Hornsby Shire. The number of invertebrate species is unknown, as is the number of aquatic species, although survey of aquatic bioindicators found 230 discrete taxa of macroinvertebrates and 8 native fish species. [17] According to the *Atlas of Living Australia* and *BioNet recorded data from (2010 – 2019) within the Shire* the recorded number of species are more than: 660 fauna species, 1200 flora species and 90 fungi species, refer to Appendix 1.

### Ecological communities

Smith & Smith [18] mapped and described Hornsby’s ecological communities in 2008 and this fine scale mapping revealed 34 communities,

see Fig 9. These are equivalent to ten vegetation communities as listed in the NSW Biodiversity Act [19], as several have no comparison, e.g. *Mangrove Swamp*. Of these, 12 are listed TECs of which three are critically endangered: *Blue Gum High Forest in the Sydney Basin Bioregion*, *Sydney Turpentine-Ironbark Forest* and *Shale/Sandstone Transition Forest in the Sydney Basin Bioregion*, see Fig. 10. Council undertook a review and update of vegetation mapping in 2017 to improve accuracy across the LGA, this utilises the descriptions by Smith & Smith. [20]

Listed below are all Threatened Ecological Communities of the Hornsby LGA:

- Blue Gum High Forest in the Sydney Basin Bioregion (CE)
- Sydney Turpentine-Ironbark Forest (CE)
- Duffys Forest Ecological Community in the Sydney Basin Bioregion (E)
- Shale/Sandstone Transition Forest in the Sydney Basin Bioregion (CE)
- Shale Gravel Transition Forest in the Sydney Basin Bioregion (E)
- Coastal Upland Swamp in the Sydney Basin Bioregion (E)
- River-Flat Eucalypt Forest on Coastal Floodplains of the NSW North Coast, Sydney Basin and South East Corner Bioregions (E)
- Swamp Oak Floodplain Forest of the NSW North Coast, Sydney Basin and South East Corner Bioregions (E)
- Swamp Sclerophyll Forest on Coastal Floodplains of the NSW North Coast, Swamp Sydney Basin and South East Corner Forests Bioregions (E)
- Coastal Saltmarsh in the NSW North Coast, Sydney Basin and South East Saltmarshes Corner Bioregions (E)
- Freshwater Wetlands on Coastal Floodplains of the NSW North Coast, Sydney Basin and South East Corner Bioregions (E)

E – Endangered; CE – Critically Endangered

Note: the land area of the Shire reduced in size due to LGA boundary change to its current 45503.75 ha in 2016. This has influenced these calculations.



(3)

(4)

Fig 8. Sydney Turpentine *Synocarpia glomulifera*

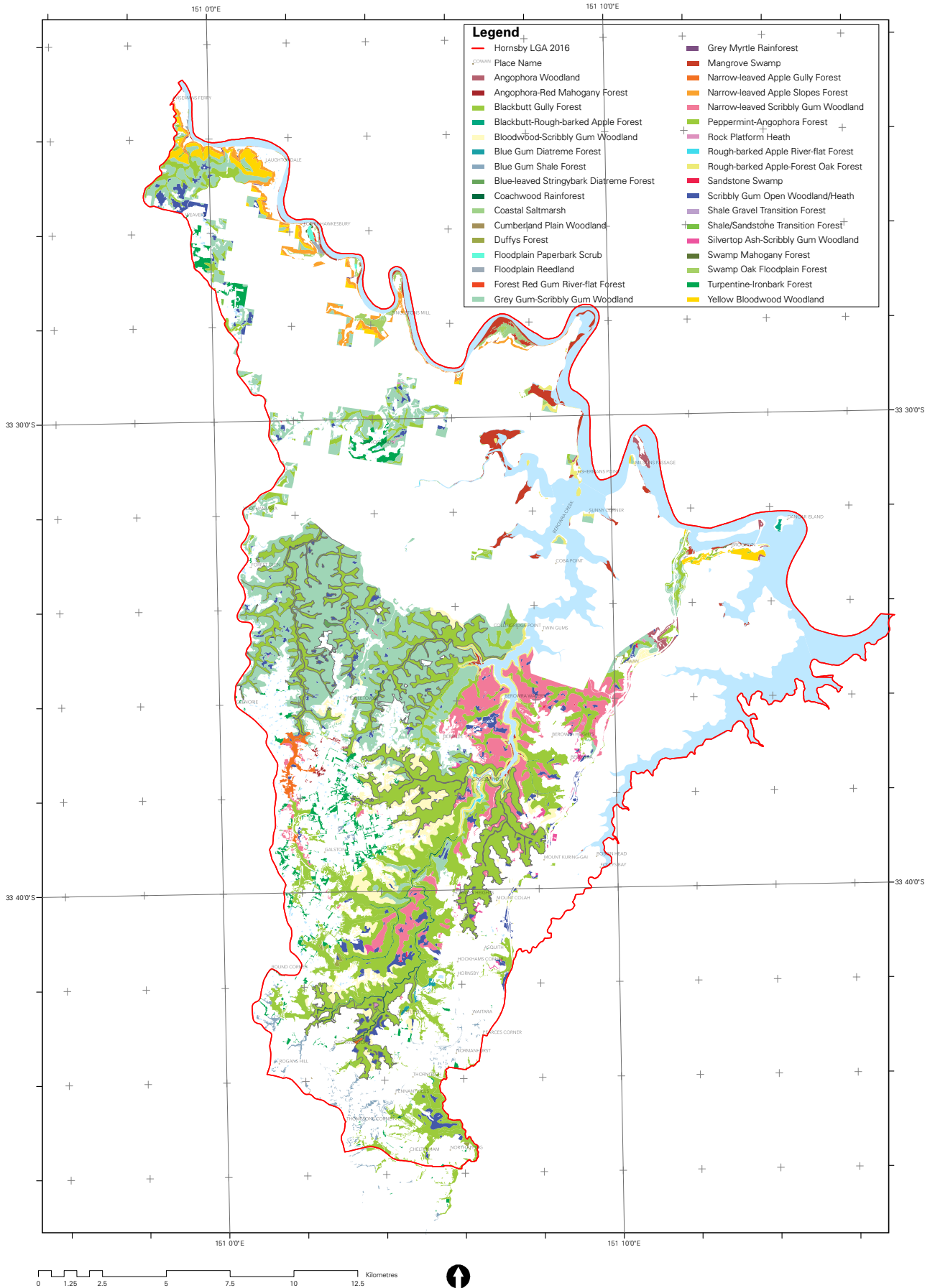


Fig 9. Hornsby's Ecological Communities as described by Smith & Smith



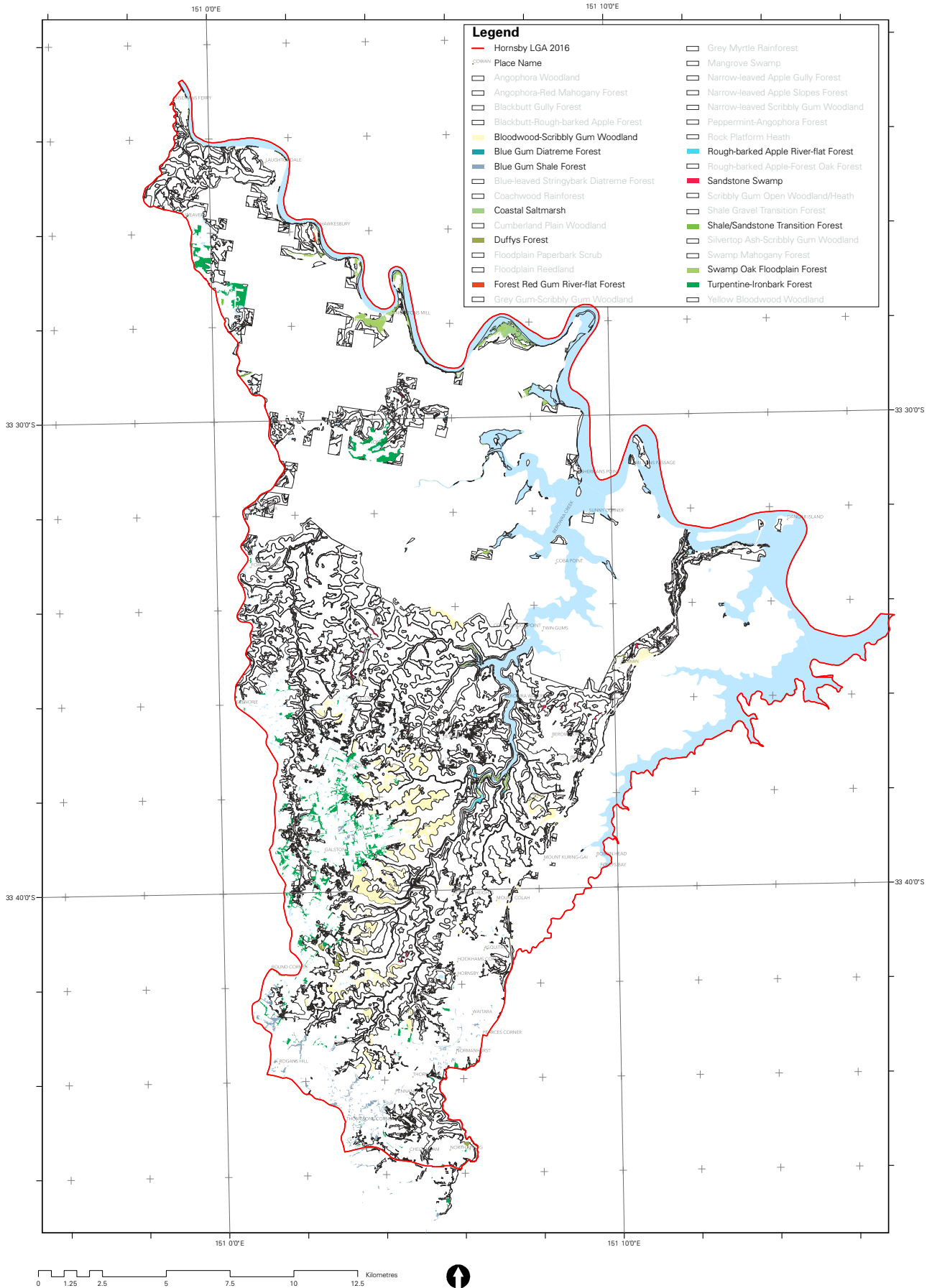


Fig 10. Hornsby's Threatened Ecological Communities

Ecological Community	Significance level				
	National	NSW	Regional	Local	Other
<i>Blue Gum Shale Forest</i>	X	X			
<i>Blue Gum Diatreme Forest</i>	X	X			
<i>Turpentine-Ironbark Forest</i>	X	X			
<i>Shale/Sandstone Transition Forest</i>	X	X			
<i>Shale Gravel Transition Forest</i>	X	X			
<i>Peppermint-Angophora Forest</i>	X	X			
<i>Sandstone Swamp</i>	X	X			
<i>Coastal Saltmarsh</i>	X	X			
<i>Posidonia australis Seameadows</i>	X	X			
<i>Duffys Forest</i>		X			
<i>Forest Red Gum River-flat Forest</i>		X			
<i>Swamp Oak Floodplain Forest</i>		X			
<i>Floodplain Paperbark Scrub</i>		X			
<i>Floodplain Reedland</i>		X			
<i>Swamp Mahogany Forest</i>		X			
<i>Freshwater Floodplain Wetlands</i>		X			
<i>Rough-barked Apple River-flat Forest</i>		X			
<i>Coachwood Rainforest</i>			X		
<i>Grey Myrtle Rainforest</i>			X		
<i>Angophora-Red Mahogany Forest</i>			X		
<i>Blue-leaved Stringybark Diatreme Forest</i>			X		
<i>Rough-barked Apple-Forest Oak Forest</i>			X		
<i>Narrow-leaved Apple Slopes Forest</i>			X		
<i>Angophora Woodland</i>			X		
<i>Narrow-leaved Apple Gully Forest</i>			X		
<i>Rock Platform Heath</i>			X		
<i>Seagrass Meadow</i>			X		
<i>Blackbutt-Rough-barked Apple Forest</i>			X		
<i>Blackbutt Gully Forest</i>				X	
<i>Silvertop Ash-Scribbly Gum Woodland</i>				X	
<i>Mangrove Swamp</i>				X	
<i>Grey Gum-Scribbly Gum Woodland</i>					X
<i>Narrow-leaved Scribbly Gum Woodland</i>					X
<i>Scribbly Gum Open-woodland/Heath</i>					X
<i>Yellow Bloodwood Woodland</i>					X
<i>Bloodwood- Scribbly Gum Woodland</i>					X
<i>Narrow- leaved Scribbly Gum Woodland</i>					X

Table 1. Ecological Communities of the Hornsby LGA and their significance

In addition, a number of ecological communities have been identified to be locally significant, these are noted alongside their significance at national, state and regional levels, according to Smith & Smith [18] as collated by EcoLogical Australia [20]. Refer to Table 1.

There are currently 497 entities listed under the Biodiversity Conservation Act. Of the 497 NSW listings there are: 215 vulnerable species; 132 endangered species; 33 critically endangered species; 0 extinct species; 35 endangered populations; 50 endangered ecological communities; and, four vulnerable ecological communities'. [21]



(1) **Fig 11. Jacky Lizard, *Amphibolurus muricatus***

**'Reductions to the range or abundance of many native species indicate a pattern of overall decline in biodiversity over the long term [15]'**

According to the 2006 Hornsby Biodiversity Conservation Strategy:

*The NSW Scientific Committee listing of Sydney Turpentine-Ironbark Forest estimated that only 0.05% of the original vegetation community remains. It is important to note that this listing also defines individual remnant trees as being part of the Endangered Ecological Community. Likewise the Scientific Committee listing for Blue Gum High Forest recognised that only 1% of the original forest remains. Note: 'Endangered Ecological Communities' in this 2006 strategy referred to both 'endangered' and 'critically endangered' ecological communities. These are now referred to as TEC's.*

In the 2017 Hornsby Vegetation Map identified 17,003 ha of vegetation. [20] This included 666 ha of TEC and a potential further 151 ha of potential relic TEC (subject to field validation). This accounted for 3.9% of the total LGA's vegetation. For example, only 54 ha of (confirmed) Blue Gum Shale Forest, or 0.32% of all TEC; and 20 ha of (confirmed) Blue Gum Diatreme Forest, or 0.11% of all TEC exist within the LGA, often existing as *'...clumps of trees in urban landscapes in less developed sites such as Council reserves, large backyards, creek lines and schoolyards'*. In addition, there are only 323 ha confirmed (and a further 143 ha) of Sydney Turpentine-Ironbark, or 1.89% of all TEC.

Areas such as these are significant as they *'contain genetic material indigenous to the area and provide habitat for native fauna including threatened species and endangered populations [and] form parts of corridors and urban habitat links and contribute to the landscape character of the suburb.'* [22]

Annual reporting of current vegetation cover (and resolution of potential relics) across the Hornsby LGA is highly recommended.

### Box 1. Threatened Ecological Communities across the Hornsby LGA

Plant species which only occur at 2% of sites have been classified as regionally and locally significant in that they may become locally extinct in 20 years if not recognised and afforded conservation status and protection [22]. Endangered plant species known to occur in the Hornsby LGA include Bauer's Midge Orchid (*Genoplesium baueri*) and the Narrow-leaf Finger Fern (*Grammitis stenophylla*). According to Smith and Smith (1990 & 2006) [16, 18] a number of plant and animal communities are inadequately conserved, even if they may present at all in the major reserves.

'Since 2015, the number of  
threatened species listings has  
increased by 3%' [15]

#### Terrestrial biodiversity outside the reserve system

Currently 26.4% of the Hornsby LGA (or 12,012 ha) has been cleared and a number of plant and animal communities are inadequately conserved. These include two floodplain communities that appear to have been almost completely removed from the Hornsby LGA by previous clearing. Also, remnant bushland on the more fertile Wianamatta Shale, volcanic diatremes and the Hawkesbury River floodplain remain unprotected. Historically, such areas had been extensively cleared due to flat topography and arability and are hence now quite rare. Fig. 13 shows the protected areas, according to *Land and Planning Information NSW*.

#### Threatened species

There are 50 threatened fauna species listed to occur in the LGA, these include the endangered Southern Brown Bandicoot (*Isodon obesulus obesulus*), Dural Land Snail (*Pommerhelix duralensis*) and the migratory Swift Parrot (*Lathamus discolor*), refer to Appendix 1.

Of these, 15 species found in the LGA have a Commonwealth Status, refer to Table 2. Fauna ecology and habitat requirements varies considerably between species, with some requiring tree hollows for nesting i.e. Gang Gangs (*Callocephalon fimbriatum*) preference is for hollows in eucalyptus (10 cm in diameter or larger and a minimum of 9 m above the ground) while others can require dense vegetation and debris for habitat such as the Red-crowned Toadlet (*Pseudophryne australis*). Some examples of species habitat and ecology requirements can be found in Appendix 2.



Fig 12. Giant Burrowing Frog, *Heleioporus australiacus*

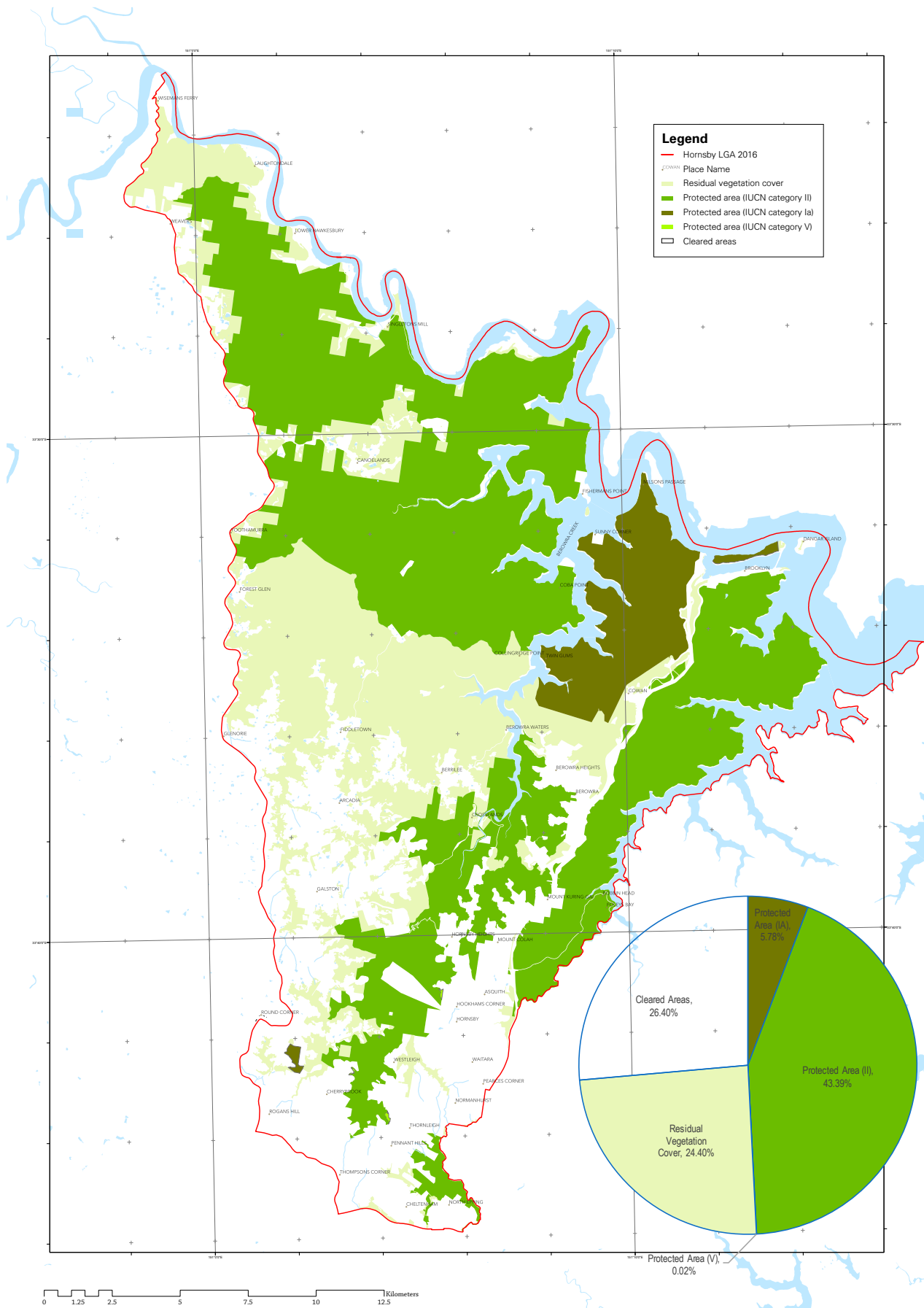


Fig 13. Protected areas in the Hornsby LGA

Scientific Name	Common name	Conservation Status NSW (Biodiversity Conservation Act 2016 )	Commonwealth Status (under EPBC ACT)
<i>Anthochaera Phrygia</i>	Regent Honeyeater	Critically Endangered	Critically Endangered
<i>Chalinobius dwyeri</i>	Large-eared Pied Bat	Vulnerable	Vulnerable
<i>Dasyurus maculatus</i>	Spotted-Tailed Quoll	Vulnerable	Endangered
<i>Dermochelys coriacea</i>	Leatherback Turtle	Endangered	Endangered
<i>Eubalaena australis</i>	Southern Right Whale	Endangered	Endangered
<i>Heleioporus australiacus</i>	Giant Burrowing Frog	Vulnerable	Vulnerable
<i>Isodon obesulus</i>	Southern Brown Bandicoot	Endangered	Endangered
<i>Lathamus discolor</i>	Swift Parrot	Endangered	Critically Endangered
<i>Litoria aurea</i>	Green and Golden Bell Frog	Endangered	Vulnerable
<i>Macronectes giganteus</i>	Southern Giant Petrel	Endangered	Endangered
<i>Phascolarctos cinereus</i>	Koala	Vulnerable	Vulnerable
<i>Pommerhelix duralensis</i>	Dural Woodland Snail; Dural Land Snail	Endangered	Endangered
<i>Petauroides Volans</i>	Greater Glider	Not listed	Vulnerable
<i>Pteropus poliocephalus</i>	Grey-Headed Flying-Fox	Vulnerable	Vulnerable
<i>Pseudomys novaehollandiae</i>	New Holland Mouse	Not listed	Vulnerable

**Table 2. Threatened fauna species with commonwealth status**

### *Migratory species*

A comprehensive assessment of migratory species and potential habitat has not been undertaken in the Hornsby LGA and is a high priority, as habitats in Australia form a critical part of a migratory flyway around the world. A number of migratory species listed on the Japan-Australia Migratory Bird Agreement (JAMBA) and China-Australian Migratory Bird Agreement (CAMBA) migratory bird agreements annually visit sites in the Hornsby area and rely on these habitats for resting and feeding prior to returning to the northern hemisphere. A number of vagrant or nomadic species occur in Hornsby such as the endangered species including the Swift Parrot (*Lathamus discolor*) and the vulnerable species Eastern Osprey (*Pandion cristatus*).

According to the NSW State of the Environment Report 2019: '64% of native mammals for which there are sufficient data have experienced long-term decline in range'[15]



Fig 14. Short beaked Echidna, *Tachyglossus aculeatus*

### **Social and cultural patterns of the Hornsby LGA**

The Hornsby Shire Council covers an area of 455km<sup>2</sup>, contains 142,667 people (2016 census) and is located in Sydney's northern suburbs, approx. 25km from the city centre. The traditional owners of the area are the Darug and Guringai people.

Hornsby LGA is a mix of urban areas with freestanding homes, low rise townhouses and high-rise buildings, large rural areas and a predominance of bushland. According to the *Hornsby Shire Community Strategic Plan 2018-2028* 'Two-thirds of the Shire comprises national park and bushland, with major waterways and rural landscape in the northern part of the Shire.' [10] Indeed, the natural environment is one of the main attractors for residents in the shire. Commonly referred to as the 'Bushland Shire', the vision for the LGA was identified as a 'creating a living environment' and community previously ranked bushland management as the third most important function of council (Customer Satisfaction Survey & Biodiversity Strategy 2005). The zoning for the LGA is shown in Fig. 15.

(1)

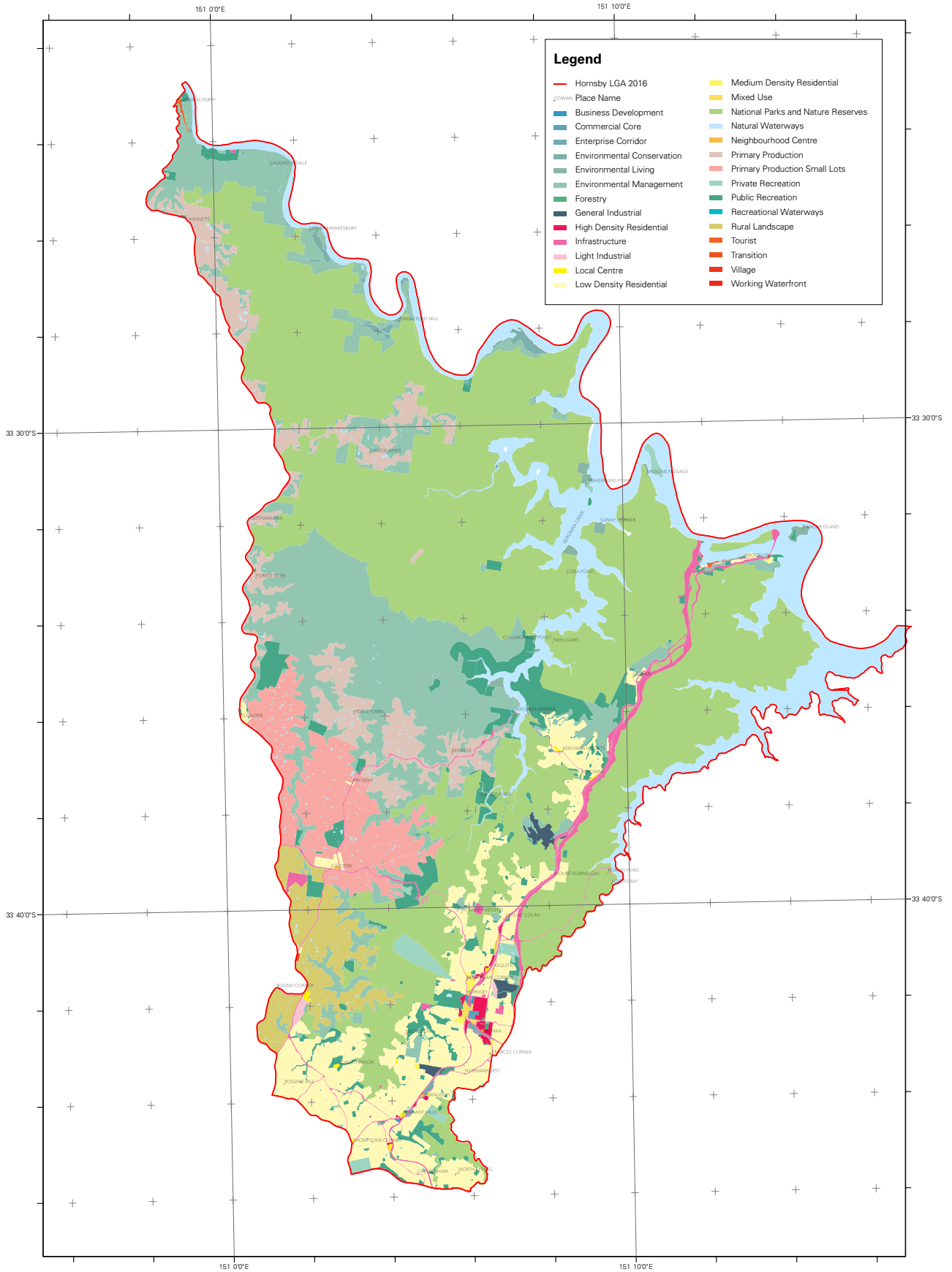


Fig 15. Land use zoning in Hornsby Local Environmental Plan 2013: a matrix of protected areas, vegetated, agricultural, urban and suburban lands



## Environmental threats and challenges

### Australia

Australia’s biodiversity is on the decline due to the impacts from a range of threats. These include development, land-clearing, land-use change and urbanisation, habitat fragmentation and degradation; invasive species, weeds and exotic and pest species; climate change; and fire and diseases [23-26], refer to Appendix 3 for commonwealth and local threats.

Overall, climate change impacts on biodiversity are considered to be the greatest long-term threat to biodiversity and is recognised as a key threatening process under the *NSW Biodiversity Conservation Act 2016* and the *Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth). See Fig. 16.

‘Average temperatures for the past decade have been 0.99°C above 1910-1939 levels’ [15]

‘In the five years to June 2017 the NSW population increased by 550,000 an average annual growth rate of 1.5%’ [15]

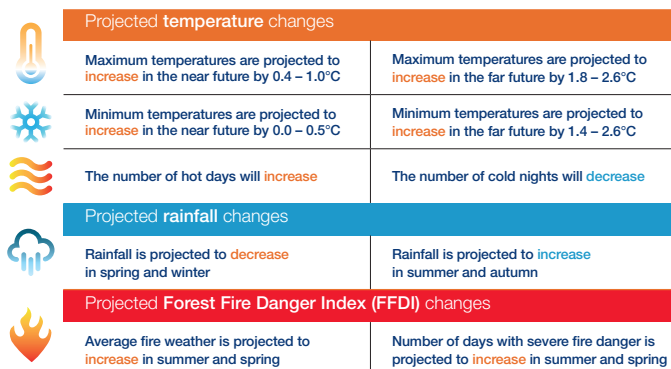


Fig 16. Climate change indicators for NSW [128]

### Threats specific to the Hornsby LGA

Greater Sydney continues to grow in size and its population is projected to increase from 4.5 million in 2013 to 7.9 million by 2053 [27]. A target that will be provided for through ambitious residential infill targets, the highest of any Australian capital city at 70%. [28] What does this mean for the management and planning of biodiversity in Hornsby? As population growth continues the LGA will face increasing pressure for additional housing and development.

A number of key threatening processes have been identified in the Pittwater Interim Biogeographic Regionalisation of Australia (IBRA) Subregion [21], see Table 3. Such threats include changing fire, water cycle and hydrologic regimes and the increase of impervious surfaces increase flow intensity, reduces groundwater recharge. Further threats are detailed below.

#### Terrestrial-aquatic interface threats and challenges

The upper reaches of the Lane Cove River catchment are dominated by housing, commercial areas and Lane Cove National Park bushland lower in the catchment. The creeks are characterised by weed invasion, streambed siltation, rubbish dumping, sewer overflows, bank erosion and poor water quality.

The Cowan Creek catchment, land uses include extensive light industrial areas, large commercial shopping centres and developed urban areas. Ku-ring-gai Chase National Park also covers a large part of the catchment. Some creeks are in very good condition, however, some have been converted to open drains, and others have rubbish dumped along the banks, weed invasion and streambed siltation.

The Hawkesbury River catchment includes the Wisemans Ferry/Maroota region and the Brooklyn area which drains directly to the Hawkesbury River. Landuses include small farming ventures, market gardening, extractive

industries, housing, marinas, boat ramps, aquaculture and fishing (commercial and recreational).

The Berowra Creek catchment is bounded to the south by Castle Hill Road and Pennant Hills Road, to the west by Old Northern Road, to the north by the Canoelands Ridge and to the east by the Pacific Highway. The catchment is highly developed in the south with the residential, industrial and commercial development of Hornsby and its surrounding suburbs. The north of the catchment is predominantly bushland and comprises Marramarra National Park, Muogamarra Nature Reserve and Berowra Valley Regional Park. The semi-rural areas of Arcadia, Galston and Glenorie are situated to the west of the creek. Some parts of the tributary creeks in the Berowra Creek catchment feature weed invasion, garden plants and waste, streambed siltation, rubbish and gross pollutants from stormwater drains, bank erosion, undercutting, tree death and poor water quality. In general, those catchments with more bushland have better waterway health, and contain a broader section of aquatic macroinvertebrates.

The catchment contains two waste water treatment plants (WWTP), Hornsby Heights WWTP and West Hornsby WWTP. Water quality and aquatic macroinvertebrate indicators of ecosystem health improve with distance downstream from the WWTPs. Some semi-rural areas around Arcadia, Galston and Glenorie remain unsewered and rely on on-site treatment. Galston and Glenorie town centres are now connected to sewer. Many of the river settlements, such as Berowra Waters and Calabash Bay, Neverfail, Coba, Marramarra, Sunny Corner, Milsons Passage, rely on on-site sewage treatment systems and tank water.

Estuarine vegetation in the Hawkesbury River and creeks is being impacted upon by a variety of processes, resulting in loss of saltmarsh due in part to mangrove encroachment (via expansion of mangrove areas due to sediment accretion) and physical damage to seagrass beds due to propellers and outboard motors and anchor damage.

'Under NSW legislation there are currently 1,025 species and 112 ecological communities listed as threatened' [15]



Fig 17. The Grey-headed Flying Fox, *Pteropus poliocephalus*, is listed as 'Vulnerable'

Threat	Impact
<i>Habitat Loss/ Change</i>	<p>Alteration of habitat following subsidence due to longwall mining</p> <p>Alteration to the natural flow regimes of rivers and streams and their floodplains and wetlands</p> <p>Anthropogenic Climate Change</p> <p>Bushrock removal</p> <p>Clearing of native vegetation</p> <p>High frequency fire resulting in the disruption of life cycle processes in plants and animals and loss of vegetation structure and composition</p> <p>Loss of Hollow-bearing Trees</p> <p>Loss or degradation (or both) of sites used for hill-topping by butterflies</p> <p>Removal of dead wood and dead trees</p>
<i>Disease</i>	<p>Infection by Psittacine Circoviral (beak and feather) Disease affecting endangered psittacine species and populations</p> <p>Infection of frogs by amphibian chytrid causing the disease chytridiomycosis</p> <p>Infection of native plants by <i>Phytophthora cinnamomi</i></p> <p>Introduction and establishment of Exotic Rust Fungi of the order <i>Pucciniales</i> pathogenic on plants of the family Myrtaceae</p>
<i>Pest Animal</i>	<p>Aggressive exclusion of birds from woodland and forest habitat by abundant Noisy Miners, <i>Manorina melanocephala</i> (Latham, 1802)</p> <p>Competition and grazing by the feral European Rabbit, <i>Oryctolagus cuniculus</i> (L.)</p> <p>Competition and habitat degradation by Feral Goats, <i>Capra hircus</i> Linnaeus 1758</p> <p>Competition from feral honey bees, <i>Apis mellifera</i> L.</p> <p>Herbivory and environmental degradation caused by feral deer</p> <p>Importation of Red Imported Fire Ants <i>Solenopsis invicta</i> Buren 1972</p> <p>Introduction of the Large Earth Bumblebee <i>Bombus terrestris</i> (L.)</p> <p>Invasion and establishment of the Cane Toad (<i>Bufo marinus</i>)</p> <p>Invasion of the Yellow Crazy Ant, <i>Anoplolepis gracilipes</i> (Fr. Smith) into NSW</p> <p>Predation and hybridisation by Feral Dogs, <i>Canis lupus familiaris</i></p> <p>Predation by <i>Gambusia holbrooki</i> Girard, 1859 (Plague Minnow or Mosquito Fish)</p> <p>Predation by the European Red Fox <i>Vulpes vulpes</i> (Linnaeus, 1758)</p> <p>Predation by the Feral Cat <i>Felis catus</i> (Linnaeus, 1758)</p> <p>Predation, habitat degradation, competition and disease transmission by Feral Pigs, <i>Sus scrofa</i> Linnaeus 1758</p>
<i>Weeds</i>	<p>Invasion and establishment of exotic vines and scramblers</p> <p>Invasion and establishment of Scotch Broom (<i>Cytisus scoparius</i>)</p> <p>Invasion of native plant communities by African Olive <i>Olea europaea subsp. cuspidata</i> (Wall. ex G. Don) Cif.</p> <p>Invasion of native plant communities by <i>Chrysanthemoides monilifera</i></p> <p>Invasion of native plant communities by exotic perennial grasses</p> <p>Invasion, establishment and spread of Lantana (<i>Lantana camara</i> L. sens. Lat)</p> <p>Loss and degradation of native plant and animal habitat by invasion of escaped garden plants, including aquatic plants</p>
<i>Other Threats</i>	<p>Forest eucalypt dieback associated with over-abundant psyllids and Bell Miners</p>

Table 3. Key threatening processes – Pittwater IBRA Subregion

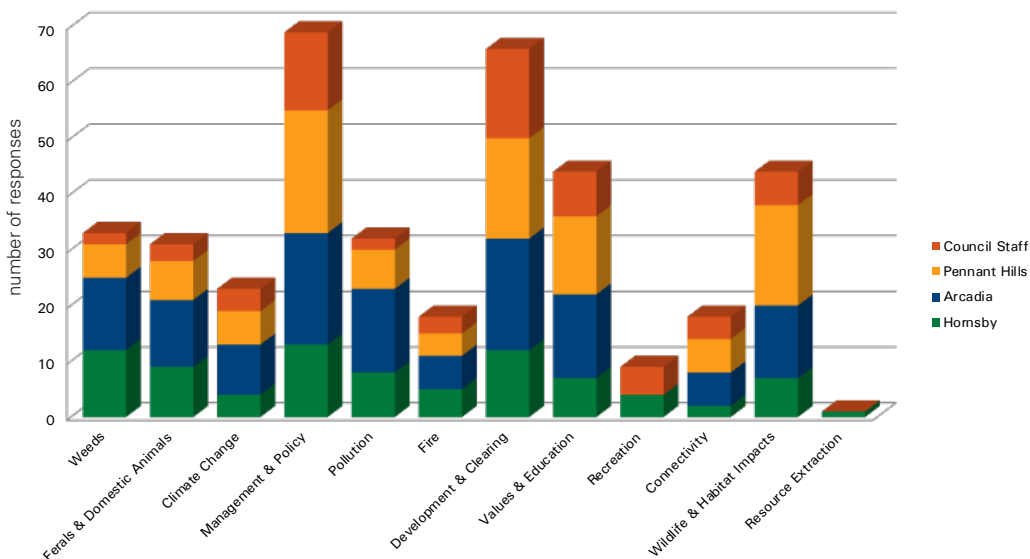
**What the community said about biodiversity threats and challenges**

The major threats to the conservation of biodiversity in the Hornsby LGA were identified through community and council workshops and are recorded in order of priority, see Fig. 18, refer to Appendix 4. The main areas include:

- Management and Policy: i.e. funding, State and local policies
- Development and Clearing: i.e. pressure of population increase and legal and illegal clearing
- Wildlife and Habitat Impact: i.e. loss of remnant trees/hollow bearing trees, habitat fragmentation
- Values and Education: i.e. lacking knowledge and empathy for biodiversity

Other threats identified during community workshops:

- Weeds: i.e. dispersal via public lands and waterways, escape from home gardens and domestic dumping
- Pollution: i.e. stormwater/runoff pollution and impacts to water quality
- Feral and domestic animals: i.e. direct impact of feral (e.g. foxes) and domestic animals (e.g. cats) on wildlife
- Climate Change: i.e. migration and adaption of species due to shifting normal range
- Connectivity: i.e. bushland fragmentation and lack of ecological corridors
- Recreation: i.e. Illegal mountain bike/ other access tracks through bushland and protected habitat
- Fire: i.e. mismanaged fire regimes, lack of ecological knowledge used in planning burns
- Resource extraction: i.e. sand mining



**Fig 18. Community and Council staff feedback about the most significant threats and challenges to Hornsby's biodiversity**

## Biodiversity management in the Hornsby LGA

A long term, integrated and adaptive approach to manage the broad range of threats is required for the Hornsby LGA.

It is vital that any approach undertaken manages the integrity of biodiversity within the LGA, through the conservation and protection of bushland, reserves, and protected areas. It is important to consider both the biodiversity in terms of protecting ecological patterns and processes, as well as individual species. This means that a management approach needs to ensure the safeguarding and effective management of both the individual species as well as the holistic habitat within which they exist.

‘Extra conservation on both Crown and private land supplements the protected area network and provides vegetation corridors linking larger public reserves’[15]

Biodiversity can be conserved and protected within the LGA through a number of techniques and this Strategy outlines five strategies:

*Strategy 1: Protect and conserve ecological values*

*Strategy 2: Connect Urban Habitat*

*Strategy 3: Restore disturbed ecosystems to enhance ecological value and function*

*Strategy 4: Create new ecosystems*

*Strategy 5: Connect people to nature*

A high percentage of remnant vegetation in the Hornsby LGA occurs on private properties (see Hornsby *Urban Forest Strategy*) across both rural and urban lands and the conservation and management of biodiversity must be undertaken across both of these. Increasing evidence suggests that urban ecology is also a critical element in maintaining biodiversity in a region. For example, urban wetlands, waterways, remnant vegetation, solitary native and exotic trees, backyard and verge gardens can support a range of fauna species. These include residents i.e. Long-nosed Bandicoots (*Perameles nasuta*) and Common Ringtail Possums (*Pseudocheirus peregrinus*), migratory species i.e. Swift Parrot (*Lathamus discolor*) and transient species i.e. Grey Headed Flying Fox (*Pteropus poliocephalus*).

To this end, understanding of the broader biodiversity of the region is critical. A good place to start is to understand the existing international, national, regional and local policies.



**Fig 19.** The Red-Crowned Toadlet, *Pseudophryne australis*, is listed as ‘Vulnerable’



### **3. Background: policy and planning context**

A range of policies exist at the International, National, Regional, and Local scale that influence future biodiversity and its management in the Hornsby LGA.

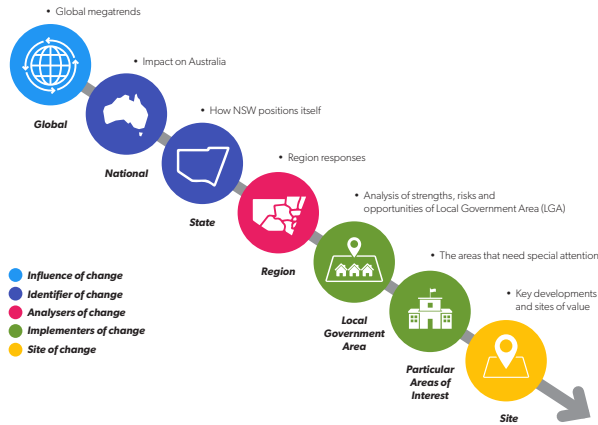


Fig 20. Diagram of the relationship of criticality of thinking across scales, from global to site

## Overview

When considering the development of the *Hornsby Biodiversity Conservation Strategy* a range of policies and planning approaches were considered, reflecting the approach of the *Local Strategic Planning Statement (LSPS)*. This section will provide an overview of these policies that operate at international, national, regional and local levels.

## International and national policies

### UN Convention on Biological Diversity

Australia ratified the Convention on Biological Diversity (CBD) in 1993 [1]. The CBD represented a significant achievement internationally in the conservation of biological diversity, the sustainable use of its components, and the fair and equitable sharing of its benefits.

### Australia’s Biodiversity Conservation Strategy 2010–2030

National biodiversity strategies and action plans are the principal reporting instruments under the CBD. In Australia this occurs through *Australia’s Biodiversity Conservation Strategy 2010–2030* [29]. This promotes the conservation of biodiversity and ecologically sustainable development through a cooperative approach involving government, community, landholders and Indigenous peoples. Major priorities include the restoration of fragmented landscapes and aquatic systems to improve ecological connectivity and ensure long-term resilience, health, and viability.

### Commonwealth Environment Protection and Biodiversity Conservation Act 1999

The Environment Protection and Biodiversity Conservation Act (EPBC) [30] provides the highest order of biodiversity protection at the national level. This legal framework seeks ‘to protect and manage nationally and internationally important flora, fauna, ecological communities and heritage places’ of ‘national environmental significance’ [31] and maintains listings of threatened species and ecological communities as well as threatening processes and long-term trends.



Fig 21. Peron’s tree frog, *Litoria peronii*, often finds refuge within domestic environments



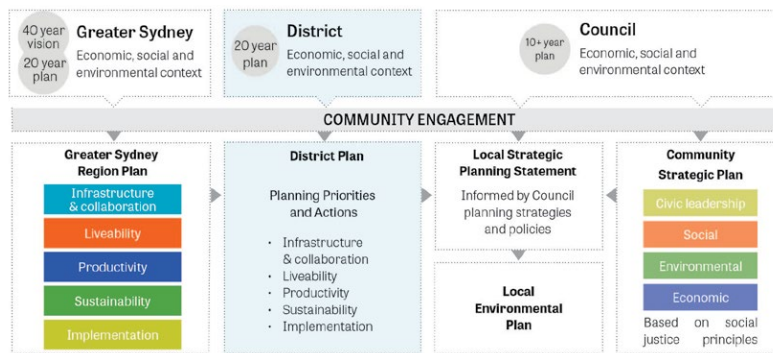


Fig 22. Relationship between regional, district and local plans

## State and regional legislation and policies

### Environmental Planning and Assessment Act 1979

Numerous acts and policies influence the protection and/or management of species, ecological communities and habitat across NSW. The Environmental Planning and Assessment Act (EP&A Act) [11] is the central component of planning law and aims to encourage protection of the environment and ecologically sustainable development under which others follow.

### NSW Biodiversity Conservation Act 2017

The Biodiversity Conservation Act 2016 No 63 [19] replaced the NSW Threatened Species Conservation Act [32] in 2017. Both outline the mechanisms through which species, populations and ecological communities may be declared endangered, vulnerable or critically endangered.

### Biosecurity Act 2015

This Act provides for the prevention, elimination, minimisation and management of biosecurity risks; and for other purposes. The biosecurity framework and tools safeguard our economy, environment and community. Supporting factsheets provide a summary of management arrangements for weed biosecurity risks in NSW. [36]

### State Environmental Planning Policies

A range of *State Environmental Planning Policies* (SEPPs) also affect the management and planning of biodiversity across NSW. These concern the protection of remnant vegetation, habitat and specific species through wildlife corridors and vegetation links and rules surrounding environmentally sensitive areas. The *Coastal Management* SEPP updates and consolidates SEPP 14 (Coastal Wetlands), SEPP 26 (Littoral Rainforests) and SEPP 71 (Coastal

Protection), including Clause 5.5 of the Standard Instrument - Principal Local Environment Plan. See further information in Appendix 6. Furthermore, planning of biodiversity is subject to the *Bush Fire Environmental Assessment Code*. [129]

### Threatened Ecological Communities Strategy 2017

This document outlines how NSW Government's *Saving our Species* (SoS) program creates conservation strategies for ensuring the survival of threatened ecological communities. [37]

### NSW Government's Biodiversity Conservation Investment Strategy 2018

The *NSW Government Biodiversity Conservation Investment Strategy* gives actions to the *Threatened Ecological Communities Strategy* by outlining a range of different actions that are available to landholders, cognisant that much of the land under question is not in the ownership of the Hornsby Shire Council. In the Greater Sydney region, management initiatives focus on both the protection of state and/or nationally listed threatened and endangered ecological communities, and on reinforcing the connections between areas of native vegetation, including urban bushland.

Restoration projects aim to manage threats to these communities such as weed invasion and stock damage, and to restore connections across the landscape by protecting and restoring habitat linkages. Such areas can also provide a focus for tourism and recreation, have cultural significance, and enhance the productivity of our farmlands. [38]

### Regional and District Planning

Authored by the Greater Sydney Commission, the *Greater Sydney Regional Plan A Metropolis of Three Cities* [33]:

- sets a 40-year vision (to 2056) and establishes a 20-year plan to manage growth and change for Greater Sydney in the context of social,

economic and environmental matters

- informs district and local plans and the assessment of planning proposals
- assists infrastructure agencies to plan and deliver for growth and change and to align their infrastructure plans to place-based outcomes
- informs the private sector and the wider community of the growth management and infrastructure investment intentions of government.

The *North District Plan* [9] is one of five District based documents that provides guidance for implementing the *Greater Sydney Plan*. This 20-year plan provides a bridge between regional and local planning. It informs local environmental plans, community strategic plans and the assessment of planning proposals. The District Plan also helps council to plan and deliver for growth and change, and to align their local planning strategies to place-based outcomes, see Fig. 22.

Ten key directions and six priorities articulate a planning response and are of direct relevance to this *Hornsby Biodiversity Conservation Strategy* due to their specific focus upon the planning, management and protection of biodiversity. The key relevant objectives include those noted in Box 2.

### Greener Places and the Sydney Green Grid 2017

Greener Places, an ‘urban green infrastructure’ policy produced by the Government Architect’s Office NSW provides a useful guide to the planning, design, and delivery of green infrastructure across NSW. Its aim is to showcase how green infrastructure can create healthier, more liveable, and sustainable urban environment with better community access [34]. Four key principles, noted in Box 3, guide its delivery, while Fig. 23 demonstrates the spatial planning of the *Sydney Green Grid*, one that is defined by a layered system of hydrological, ecological and recreational *grids*.

**Integration:** This involves combining urban, grey and green infrastructure to aid critical ecosystem services.  
**Connectivity:** Involves establishing corridors of connected urban habitat to strengthen and preserve biodiversity.  
**Multifunctionality:** Spaces are to provide not only benefits for social, economic or environmental systems, but to all simultaneously.  
**Participation:** Describes a planning process open to all and incorporating multi-disciplinary knowledge and skills

Box 3. Delivery of Green Infrastructure through the Greener Places document



Fig 23. The Sydney Green Grid

**Objective 27: Biodiversity is protected, urban bushland and remnant vegetation is enhanced**

This objective is supported by three biodiversity-related actions:

- support landscape-scale biodiversity conservation and the restoration of bushland corridors (66a)
- manage urban bushland and remnant vegetation as green infrastructure (66b)
- manage urban development and urban bushland to reduce edge-effect impacts (66c)

**Objective 28: Scenic and cultural landscapes are protected****Objective 29: Environmental, social and economic values in rural areas are protected and enhanced**

This objective is supported by three biodiversity-related actions:

- Maintain or enhance the values of the Metropolitan Rural Area using place-based planning to deliver targeted environmental, social and economic outcomes. (69)
- Limit urban development to within the Urban Area (70)

**Objective 30: Urban tree canopy cover is increased**

This objective is supported by three biodiversity-related actions:

- Expand urban tree canopy in the public realm (71)
- Progressively refine the detailed design and delivery of: Greater Sydney Green Grid priority corridors (72a); opportunities for connections that form the long-term vision of the network (72b); walking and cycling links for transport as well as leisure and recreational trips (72c)

**Objective 31: Public open space is accessible, protected and enhanced**

- delivering, or complementing the Greater Sydney Green Grid (73f)

**Objective 32: The Green Grid links parks, open spaces, bushland and walking and cycling paths**

*Appendix 5 contains a copy of planning priorities N15, N16, N17, N18, N19, N20 and N22.*

**Box 2. Biodiversity-focused objectives from the Greater Sydney Regional Plan: North District Plan****North District: Sydney Green Grid spatial framework and project opportunities 2018**

The *Sydney Green Grid North District* delivers further detail on the *Sydney Green Grid* at the regional level, including the Hornsby LGA. However, this study is limited and instead suggests that ‘...reports should be undertaken to assess the future delivery and implementation strategies of Green Grid projects.’ [35]

**The Greener Places 2020 framework and the supporting Greener Places Design Guide.**

The Strategy has been developed to have regard to the challenge set by the Government Architect of New South Wales in its Greener Places 2020 framework [8] and the supporting Green Places Design Guide. The *Bushland and Waterways Guide* is one of several guideline documents included in this framework that support and facilitate implementation of *Greener Places*. [8] As such it proposes that Councils work to ‘provide habitats or establish connections between habitats and populations through green infrastructure planning and design’, see Box 4.

STRATEGY 1: Connect urban habitats  
 STRATEGY 2: Protect and conserve ecological values  
 STRATEGY 3: Restore disturbed ecosystems to enhance ecological value and function  
 STRATEGY 4: Create new ecosystems  
 STRATEGY 5: Connect people to nature

**Box 4. Specific actions mandated for local government from the Bushland and Waterways Guide**

## Local policies

### Hornsby Local Environment Plan

The *Hornsby Local Environment Plan* [39] or HLEP is the legislated document that guides Council to help maintain, enhance and protect biodiversity values by balancing its protection in light of development and change.

Box 5 provides an overview of the specific Terrestrial Biodiversity objectives.

The HLEP also maintains the Terrestrial Biodiversity Map, see Fig. 25. This is currently based on old and incomplete data and should be updated.

### Hornsby Development Control Plan

The *Hornsby Development Control Plan* (DCP) was made under Section 74C of the *Environmental Planning and Assessment Act 1979* (EP&A Act) and was adopted by Council on 19 December 2012. The DCP came into effect on 11 October 2013. Key objectives of the DCP of direct relevance to this Plan including to: *'protect and enhance the natural and built environment and ensure that satisfactory measures are incorporated to ameliorate any impacts arising from development,'* as well



(1)

Fig 24. Sulphur-Crested Cockatoo, *Cacatua galerita*

### 6.4 Terrestrial biodiversity

(1) The objective of this clause is to maintain terrestrial biodiversity by: (a) protecting native fauna and flora, and (b) protecting the ecological processes necessary for their continued existence, and

(c) encouraging the conservation and recovery of native fauna and flora and their habitats.

(2) This clause applies to land identified as "Biodiversity" on the Terrestrial Biodiversity Map.

(3) Before determining a development application for development on land to which this clause applies, the consent authority must consider:

(a) whether the development is likely to have:

(i) any adverse impact on the condition, ecological value and significance of the fauna and flora on the land, and

(ii) any adverse impact on the importance of the vegetation on the land to the habitat and survival of native fauna, and

(iii) any potential to fragment, disturb or diminish the biodiversity structure, function and composition of the land, and (iv) any adverse impact on the habitat elements providing connectivity on the land, and

(b) any appropriate measures proposed to avoid, minimise or mitigate the impacts of the development.

(4) Development consent must not be granted to development on land to which this clause applies unless the consent authority is satisfied that:

(a) the development is designed, sited and will be managed to avoid any significant adverse environmental impact, or

(b) if that impact cannot be reasonably avoided by adopting feasible alternatives—the development is designed, sited and will be managed to minimise that impact, or

(c) if that impact cannot be minimised—the development will be managed to mitigate that impact.

Box 5. The 2013 Hornsby LEP: key objectives





(1)

**Fig 26. King Parrot, *Alisterus scapularis***

as ensuring that 'development incorporates the principles of Ecologically Sustainable Development (ESD)'. [40]

The DCP specifically aims to:

- achieve an improvement in the quality and extent of existing indigenous vegetation in Hornsby LGA,
- maintain biodiversity on private properties, and
- to conserve and recreate biodiversity connectivity across fragmented Landscapes.

### Biodiversity Conservation Strategy

The *Hornsby Biodiversity Strategy* [22] was prepared in 2006 and has guided Council to date. This provided the basis for planning and policy decisions to date and contained a review of current challenges, relevant international, regional and local. It also collated critical benchmark information about species richness, ecological community diversity and an account of threats and challenges.

### Other Hornsby Shire Council planning overlays

A range of other land-use overlays and preservation orders exist across the council including *General and Landscape Conservation Areas*; and *Archaeological, General and Landscape* items. These are mentioned as they offer other examples of types of planning overlays that may be applicable to this report, see Fig. 27.

### Hornsby Shire Council Green Offset Code

The *Green Offset Code* provides guidance on the approach undertaken to offset the loss of biodiversity in the Hornsby LGA whilst integrating the regulatory requirements of state planning and environmental legislation. Application of the Code occurs once the development (or

permit) assessment process has considered the biodiversity conservation principles of 'avoid, minimise and mitigate'. The Code is then applied where there is a residual loss of biodiversity and biodiversity values. The existing Code aligns with Council *Biodiversity Conservation Strategy 2006*, *NSW Environmental Planning and Assessment Act 1979*, *NSW Threatened Species Conservation Act (superseded) 1995* and *Environment Protection and Biodiversity Conservation Act 2016*. [41, 42]

### Local Strategic Planning Statement

A Local Strategic Planning Statement (LSPS) is a pivotal tool for local strategic planning in NSW. The purpose of a LSPS is to set out:

- the 20-year vision for landuse in the local area
- the special characteristics that contribute to local identity
- shared community values to be maintained and enhanced
- how growth and change will be managed into the future

### The Sustainable Hornsby 2040 Strategy

The *Sustainable Hornsby 2040 Strategy* sets the framework for Council and the community as we embark on our journey to embed sustainability into our daily lives. Environmental sustainability underpins the four pillars of our Corporate Framework of liveable, sustainable, productive and collaborative. Sustainable Hornsby 2040 forms the overarching Strategy that brings together the following supporting documents: the *Waste Matters Strategy*, *Biodiversity Conservation Strategy*, *Urban Forest Strategy*, *Water Sensitive Hornsby Strategy*, *Climate Wise Hornsby Plan* and the *Walking and Cycling Strategy*. Additionally, Council is developing a draft *Bushfire Risk Management Strategy* and *Coastal Management Program* to inform preparedness and emergency response to Natural Hazards. In combination, this strategic work will provide the foundation on which we will work with our community on local responses that connect to global concerns.

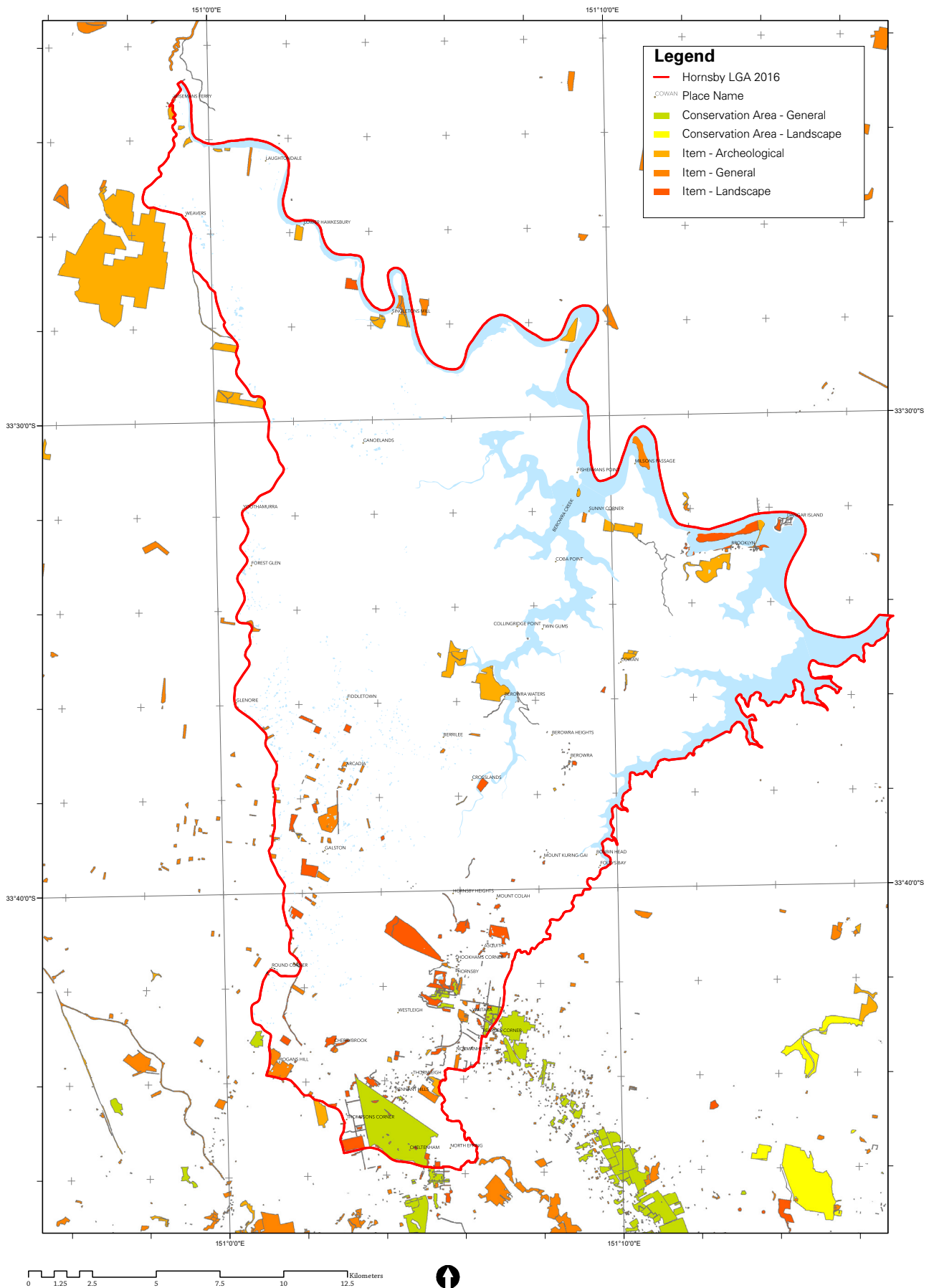


Fig 27. Additional relevant planning controls for the Hornsby Shire



Honey Flower *Lambertia formosa* Alan Kwok (2019)



## **4. Background: the green infrastructure approach**

This section introduces green infrastructure theory and practice. This report makes a case for its usefulness through an examination of its methods, benefits and a range of projects.

## Rethinking infrastructure: from grey to green

Typically we define *infrastructure* as 'the basic physical and organizational structures and facilities (e.g. buildings, roads, power supplies) needed for the operation of a society or enterprise' [43], often referred to as 'grey' infrastructure. The concept of *Critical National Infrastructure* is well established: this defines the power, transportation and communications networks, food and water supply systems and other infrastructure components without which basic economic and social systems 'cannot effectively function' [44]. Such infrastructures are often centralised, single purpose and efficiency-based [45] and provide ubiquitous levels of service across regional and urban locations in a systemic and efficient way [45].

While already familiar with *grey* infrastructure, the idea of *green* infrastructure is less well known and not something the public may typically appreciate. However, increasingly the adoption of an *infrastructural* approach to ecological planning and design brings the language and delivery of traditionally recognised grey infrastructures (such as sewers, electricity, roads and rail) to a novel green application as a useful spatial framework through which to consider landscapes across diverse land-uses and scales.

Some diversity and variability in the definition of the term green infrastructure [7, 46-50], see Box 6.

**Benedict & McMahon:**

Green infrastructure is the ecological framework for environmental, social, and economic health – in short, our natural life-support system. [7]

**The Government Architect's Office, NSW:**

'Green infrastructure is the network of green spaces, natural systems and semi-natural systems including parks, rivers, bushland and private gardens that are planned, designed and managed to support a good quality of life in an urban environment.' [34] Habitat corridors can be identified along street verges, around ovals and parks, in hospital and school grounds, gardens, and along railway and motorway corridors so that planning controls, management mechanisms, incentives, and education programs can be developed to protect, enhance, and create the opportunities they offer to habitat connectivity.

**The Australian Institute of Landscape Architects (AILA):**

'residential gardens to local parks and housing estates, streetscapes and highway verges, services and communications corridors, waterways and regional recreation areas'. [51]

Box 6. Definitions and types green infrastructure

Green infrastructure offers a broad range of ecosystem services and benefits, has a variety of types and operates over a range of spatial scales. Types of Green infrastructure may include designs at the continental scale; planning at the regional scale such as National Parks and large urban parks; and local scale including public places and waterfronts; down to the domestic, such as gardens, green roofs and other smaller scale green spaces, see Fig. 28.

Green infrastructure also offers a new approach to address environmental challenges and threats, earlier mentioned in this report (see section 2, Background: The Biodiversity of the Hornsby LGA). Green infrastructure is useful for several reasons:

- Is policy-ready and offers a way to translate ecological design and planning into spatial reality
- Articulates well-established (best practice) landscape ecological design principles and enables ecological connectivity
- Offers a diverse array of benefits in an ecological, cultural and economic sense

**Increasing size and complexity**



Fig 28. Example of Green Infrastructure at different scales

## Green infrastructure is policy ready

Support for green infrastructure already exists in NSW State Planning Policy and the NSW Government has incorporated the concept of 'green infrastructure as essential infrastructure' in the latest Sydney Metropolitan Plan and five District Plans, see Box 7. According to the *North District Plan* 'green infrastructure is the network of green spaces, natural systems, and semi-natural systems that support sustainable communities'; and 'as our cities grow, Australian governments should focus on maintaining and enhancing green infrastructure and the public realm to ensure they remain liveable'. [9, 34, 52]

Similarly, the *Green Grid*, *Better Placed* and *Greener Places* policies and accompanying manuals offer guidance on urban tree canopy, open space for recreation and connecting bushland and waterways and offer insights into government and community may collaborate. [8] *Greener Places* notes several desired outcomes relating for biodiversity protection and/or management:

- Protection and enhancement of natural resources and biodiversity by improving the quality of watercourses, creating green habitat corridors and protecting endangered ecological communities
- Promotion of social, cultural, recreational and educational opportunities within natural, cultural and heritage landscapes.
- Restoration and enhancement of wetland habitats and increased accessibility to them
- Creation of new ecosystems that support biodiversity such as constructed wetlands and green roofs. [8]

*Greener Places* specifically aims to use the green infrastructure to:

- 'create a network of healthy and attractive new and upgraded city environments, sustainable routes and spaces'
- 'perform essential ecosystem services'. (p. 24)
- 'protect, conserve and enhance NSW's network of green and open natural and cultural spaces (p. 20) [8]

In addition, The *Australian Institute of Landscape Architects* (AILA), in their 2009 *Green Infrastructure* policy [51] suggest that 'an integrated national spatial framework for landscape-scale conservation and regeneration' is necessary and for the inclusion of green infrastructure 'into planning documents to influence land management decisions' and outlines as priority to 'map regional and local opportunities for existing/potential green infrastructure networks ... as a matter of urgency'. This was further re-iterated in 2015. [53]

The earlier *2006 Hornsby Biodiversity Strategy* also mentioned that studies that specifically planned for ecological corridors had been proposed [54] and indicated that '...links/corridors were awaiting work and/or protection during publication of report.'

However, such proposals take time to develop; and, the statutory embrace of green infrastructure and its principles is limited to date. For example, while the *Sydney Green Grid North District* [35] offers a worthy ambition, no further detail for the region in question and minimal suggestions for methodology are provided to assist local governments to enact the next level of planning, the critical step of implementation means that a further step is required, see Box 7, with further information in Appendix 5.

### **Planning Priority N16 Protecting and Enhancing bushland and biodiversity**

66. Protect and enhance biodiversity by:

- supporting landscape-scale biodiversity conservation and the restoration of bushland corridors
- managing urban bushland and remnant vegetation as green infrastructure
- managing urban development and urban bushland to reduce edge-effect impacts. [9]

### **Planning Priority N18 Better managing rural areas**

This offers specific advice toward the 'creation of protected biodiversity corridors, buffers to support investment in rural industries and protection of scenic landscapes' [9] and acknowledges that rural areas – which form a large part of the HSC - are valuable assets to the District and to Greater Sydney. Key relevant actions related to biodiversity protection and/or management for N18 are:

69. Maintain or enhance the values of the Metropolitan Rural Area using place-based planning to deliver targeted environmental, social and economic outcomes.

70. Limit urban development to within the Urban Area. [9]

### **Planning Priority N19 Increasing urban tree canopy cover and delivering Green Grid connections**

This outlines a series of key values for increasing the urban forest with tangible benefits for mitigating the UHI effect, providing amenity and air quality as well as connections to the SGG for both recreational, active transport and biodiversity benefits while acknowledging the pressures on the urban forest by increasing densification and the delivery of grey infrastructure. It also specifies several key projects that directly concern HSC, including Lane Cove National Park and Lane Cove River and the Great North Walk. Key relevant actions related to biodiversity protection and/or management for N19 are:

71. Expand urban tree canopy in the public realm.

72. Progressively refine the detailed design and delivery of:

- Greater Sydney Green Grid priority corridors
- opportunities for connections that form the long-term vision of the network
- walking and cycling links for transport as well as leisure and recreational trips. [9]

### **Planning Priority N20 Delivering high quality open space**

This priority contains specific advice about the benefits of POS as places for nature-based recreation, helping to 'connect communities to the natural landscape' while recognising the simultaneous need to manage to 'minimise impacts on biodiversity' [9].

School grounds and repurposed golf courses

f. delivering, or complementing the Greater Sydney Green Grid. [9]

### **Planning Priority N22 Adapting to the impacts of urban and natural hazards and climate change**

This priority outlines several key risks that face the region. Arguably the most significant of these is the relationship between fire management and biodiversity. Specific considerations toward '...clearing vegetation around developments on bushfire-prone land can help reduce risks from bushfire, but must be balanced with protecting bushland, and its ecological processes and systems' and notes that these challenges 'will be exacerbated by climate change'

Key relevant actions related to biodiversity protection and/or management for N22 are:

80. Support initiatives that respond to the impacts of climate change.

81. Avoid locating new urban development in areas exposed to natural and urban hazards and consider options to limit the intensification of development in existing urban areas most exposed to hazards.

82. Mitigate the urban heat island effect and reduce vulnerability to extreme heat. [9]

## Green infrastructure's environmental benefits

The European Commission [55] suggests the integration of green infrastructure into many other policies including 'agriculture, forestry, water, marine and fisheries, climate change mitigation and adaptation, transport, energy and land use' and specifically names green infrastructure as 'one of the main tools to tackle threats on biodiversity resulting from habitat fragmentation, land use change and loss of habitats'.

The ecological connectivity that green infrastructure facilitates underpins the precautionary principle across numerous policies. This includes planning for corridors across all scales via the National Biodiversity Strategy and Action Plan(s) [57]. Increasing ecological connectivity is an important consideration when considering fragmented landscapes and may help to mitigate species extinction – especially critical in a time of climate change and shifting distributions.

Green infrastructure initiatives may include a spectrum of benefits from small scale insertions of habitat and micro-climatic benefit via green roofs and walls at a local street level [58]; to active transport and recreation at the neighbourhood level; whilst simultaneously benefitting ecological and hydrological systems at regional scales [59]. This may result in increased habitat and ecological connectivity that could simultaneously mitigate urban heat island effects when scaled up across a metropolitan region as:

*'An interconnected network of natural areas and other open spaces that conserves natural ecosystem values and functions, sustains clear air and water, and provides a wide array of benefits to people and wildlife.'* [7]

Further benefits include the specific delivery of ecosystem services [60] such as: stormwater management; social vulnerability; green space; air quality; urban heat island amelioration; and, landscape connectivity [61].

Indeed, green infrastructure's multifunctionality is one of its most recognisable qualities [46, 62, 63] and the concept could be considered as 'a melting pot for innovative planning approaches in the field of nature conservation and green space planning' [64]. Further benefits are noted in Box 8.

Green infrastructure offers a range of benefits to 'people, the environment and economy' [8] with key proposed benefits relevant to biodiversity being:

- Enriches soil and provides pollinators (birds and insects) vital to food production
- Richer biodiversity, genetic variation, and variety of habitats increases resilience to climate change and long-term ecosystem function
- Regulates climate and reduces urban heat-island effect
- Reduces stormwater run-off erosion and flooding, improves water quality in riparian areas and provides non-potable water supply
- Improves air quality and sequesters greenhouse gases [8]

### Box 8. Recognised green infrastructure benefits

## Green infrastructure can help articulate landscape ecological principles

Landscape Ecology teaches us of the need to reconnect landscapes and green infrastructure provides a useful mechanism to help facilitate the connectivity that landscapes require. In addition we know that certain patterns and processes facilitate better biodiversity outcomes and for this we need to be familiar with and understand the *patch-corridor-matrix* typology alongside several *guiding principles*.

### Patch, corridor and matrix

Forman and Godron [65] suggested that: *'every element in a landscape, e.g., from suburbia to forest wilderness, can be readily identified as a patch (wide), a corridor (narrow), or the background matrix'*. [66]

A *'patch'* can be defined as a *'relatively homogeneous area that differs from its surroundings'* [67]. Patches in the Australian context exist as areas of vegetation that remain from a previous extant vegetation cover. When discussing patches both species and location should be specified and Forman & Godron [65] also note that *'the size, shape, and nature of the edge are particularly important patch characteristics'*. Patches occur in a variety of sizes and may also be referred to as *hubs, nodes* or *core areas*.

*'Corridors'* have a wider range of definitions: *'corridors are narrow, linear remnants of habitat that connect otherwise isolated habitat patches'*. [4] or a *'narrow strip, stepping stone, or series of stepping stones of hospitable territory traversing inhospitable territory providing access from one area to another.* [5, 6, 8] Multiple corridors when combined form *'networks'* that are distinct from the background matrix.

The *'matrix'* refers to the background within which patches and corridors exist and is composed of *'an array of natural and anthropogenically-derived features which tend to act as barriers to, or conduits for, biotic movement'* [68]. In ecological planning a simplistic binary notion of landscape as *suitable*, as *hostile* or offering a *gradient* of resistance to connectivity prevails and often guides decision-making and planning.

### Guiding principles

Guiding principles drawn from Landscape Ecology permeate the creation of green infrastructure projects. Dramstad, Olson, Forman [69] authored the useful reference guide *'Landscape Ecology Principles in Landscape Architecture and Land-use Planning'*, which offers a toolkit of approaches and rules of thumb [70], see Fig. 29. These will now be briefly introduced.

#### Single Large or Several Small

First advocated by MacArthur and Wilson [71] the benefits of larger contiguous patches in lieu of multiple small – known as *Single Large or Several Small* (SLOSS) – was in turn supported by Diamond [72] but contested by Simberloff [73]. The contention here is based upon the principle of minimising the *edge effect* [6], where remnant patches with large perimeter to area ratios are potentially more susceptible to external influences. Such incursions by weeds – and also increased predation from surrounding habitat patches and matrix – may be related to size of patch and the external matrix, with such dynamics commonly referred to as *source-sink* relationship. [6, 74-77]

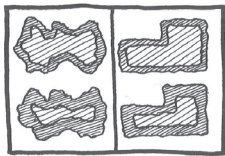
However a synopsis such as this can be overly simplistic, as many species prefer edge conditions and may benefit from greater access to light (in the instance of primary succession plant colonisation); or, for faunal species, the advantageous foraging patterns associated with such an edge.

'Weeds and pest animals threaten over 70% of threatened species and endangered ecological communities in NSW' [15]

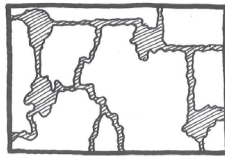
In spite of possessing a potentially undesirable greater area to perimeter ratio as multiple distributed patches, further benefits of several small areas (in lieu of single large) include that these may sample a greater representation of a given landscape. This may ensure potential for independent metapopulations and species longevity in the case of patch extinction or

as a result of catastrophic events (such as fire, disease or land clearing). Furthermore, management actions are more easily coordinated across a small number of areas with low perimeter to area ratio.

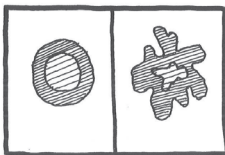
Several figures outlining particular landscape patterns of benefit are consolidated in Fig. 29.



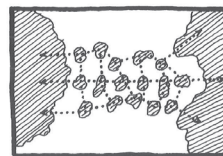
*Edge curvilinearity and width:*  
Curvilinearity and width of an edge combine to determine the total of edge habitat within a landscape.



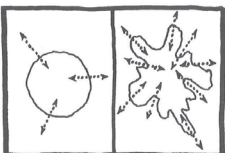
*Dispersal and small connected patch:*  
Small patches or nodes along an existing network are effective in providing habitat in which individuals pause and/or breed, resulting in a higher survival rate for dispersing individuals and, hence, more dispersing individuals in the network.



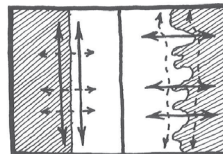
*Edge and interior species:*  
A more convoluted patch will have a higher proportion of edge habitat, thereby slightly increasing the number of edge species, but sharply decreasing the number of interior species including those of conservation importance.



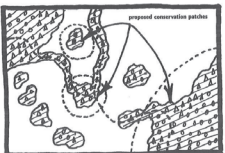
*Cluster of stepping stones:*  
The optimal spatial arrangement of a cluster of stepping stones between large patches provides alternative or redundant routes, while maintaining an overall linearly-oriented array between the large patches.



*Interaction with surroundings:*  
The more convoluted the shape of a patch, the more interaction, whether positive or negative, there is between the patch and the surrounding matrix.



*Straight and curvilinear boundaries:*  
A straight boundary tends to have more species movement along it, whereas a convoluted boundary is more likely to have movement across it.



*Patch selection for conservation:*  
The selection of patches for conservation should be based on their:  
1) contribution to the overall system, i.e. how well the location of a patch relates or links to other patches within the landscape or region; and, 2) unusual or distinctive characteristics, e.g. whether a patch has any rare, threatened or endemic species present.

Fig 29. Various Landscape Ecology principles spatially explained by Dramstad, Olson and Forman



### *Corridor physiology*

Ecological *corridors* are simply elongated patches of a particular shape with one distinction: that their *presumed* function is for migration and not habitat, although in a functional (and not structural) sense [78], see Box 9.

While long and thin corridors offer the worst shape with extremely large area to perimeter ratios, corridor width is another area of on-going debate and is of particular interest to those who wish to implement green infrastructure proposals according to the best scientific rationale [79]. Recalling that the intent of corridors is to sustain robust connectivity for genetic material movement [80-83], there is unfortunately no clear consensus regarding neither number, length nor width but rather in much research was dependent upon focal species and geographical location [81, 84-88].

This may therefore mean that the 'wider the better' [89] as multi-functional corridors; long and thin reserves (for example, rivers and linear vegetation strips along roadways) may actually contain 'more vegetation types and habitats than a square reserve of similar area' and thus offer better representation of a landscape and its resident biota [6]. Or, that discontinuous or *stepping stone* linkage types may even be preferred by many highly mobile species such as birds, although these vary in their critical distance and are species dependent.

When discussing corridors and the matrix it is also important to distinguish between the structural and functional qualities of corridors. *Functional* connectivity refers to how the behaviour of a dispersing individual is affected by landscape structure and elements; whereas *structural* connectivity depends on the spatial configuration of habitat patches in the landscape and is dictated by patch vicinity and the presence of barriers [90]. Correspondingly, corridors may not always be good for biodiversity protection and management (for instance, acting as vectors for disease or weeds) and should always be considered as species-specific.

### **Box 9. Structural versus Functional connectivity**

### A review of green infrastructure best practice across scales

Attempts to orchestrate green infrastructure approaches to landscape and biodiversity planning are often referred to as 'ecological', 'landscape' or 'green' networks. Worldwide enthusiasm for this type of planning has grown and a vast range of initiatives, plans and projects that exist at a wide range of scales.

For instance, NSW specifically endorses the concept of connectivity through several key projects [91] that attempt to maintain ecological processes across multiple scales [92] including the *Great Eastern Ranges Initiative* [93], see Fig. 30.

### Urban connectivity conservation

Numerous smaller scale connectivity conservation projects of relevance also exist. In Australia and overseas, these operate across predominantly urban areas in limited geographical areas, leading to a finer grain of resolution. Such projects include the *Sydney Green Grid* [94], Fig. 31; the *Perth Biodiversity Network* [95], see Fig. 32 and the *Singapore Park Connectors*, and *The GreenWay* (Inner West Council) see Fig. 33 and 34.

These demonstrate the tractability and appeal of connectivity conservation, even in urban settings and they are also mentioned here as the origins of both lie not with biodiversity protection, but rather take inspiration from urban planning and specifically the *greenway* movement [48, 96]. This is a critical point as biodiversity preservation and enhancement has a symbiotic relationship with green infrastructure, with both benefiting each other, even if the motivations are mixed.

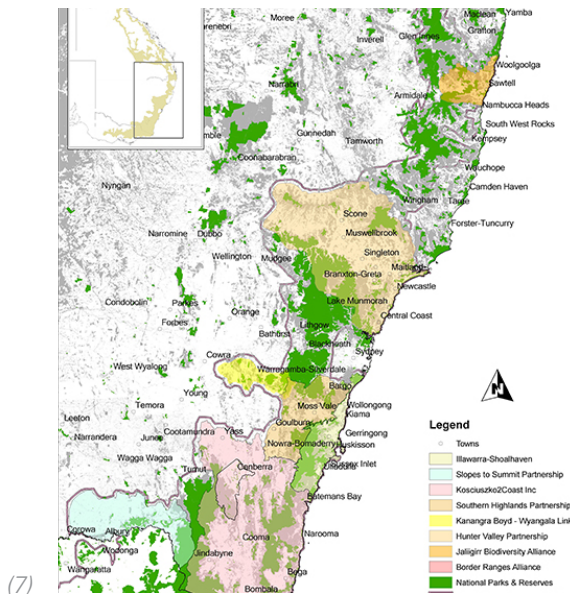


Fig 30. Great Eastern Ranges Initiative

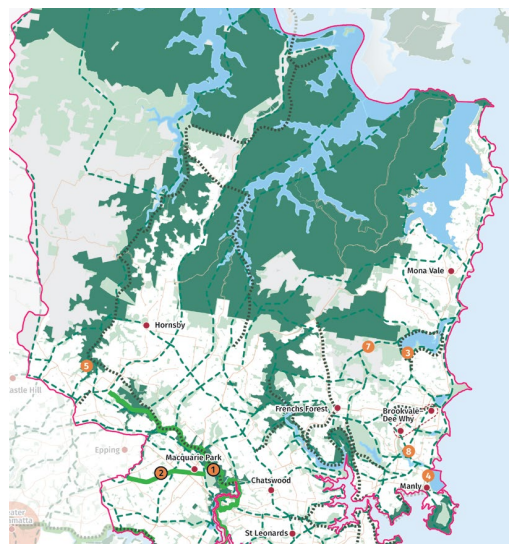


Fig 31. Sydney Green Grid

(9)

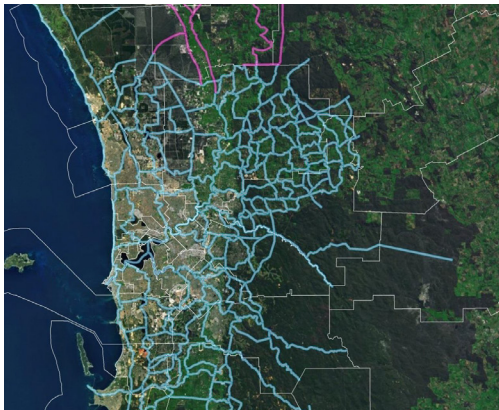


Fig 32. Perth Biodiversity Network



(10)

Fig 33. Singapore Park Connectors



(11)



(12)

Fig 34. The GreenWay, Inner West Council, NSW

### Constructed green infrastructure at the smallest scale

The ecological corridors that form green infrastructure networks are considered to be an effective mechanism to maintain the long-term viability of wildlife and remnant vegetation and can play important ecological functions, including: the maintenance of genetic exchange, enabling re-colonisation and providing a route for the dispersal of flora and fauna across inhospitable habitats - including migratory and nomadic species [97]. Several examples are indicated in Fig. 35-39 that demonstrate examples of the types of components that may make up green infrastructure at the smallest scale.



(13)

Fig 35. Ku-ring-gai Council - Possum crossing



(14)

Fig 36. Ecological corridor/ecoduct - Arnhem, Netherlands



Fig 37. Ecological corridor/ecoduct - Banff National Park, Canada



(17)



Fig 38. Christmas Island crab crossing structure



(18)

Fig 39. Ecological Corridor/ecoduct -Butterfly bridge New York



## **5. The development of a Green Infrastructure Framework for Hornsby LGA**

This section introduces the development of the Green Infrastructure Framework for Hornsby, accompanied by a series of maps and detailed examples.

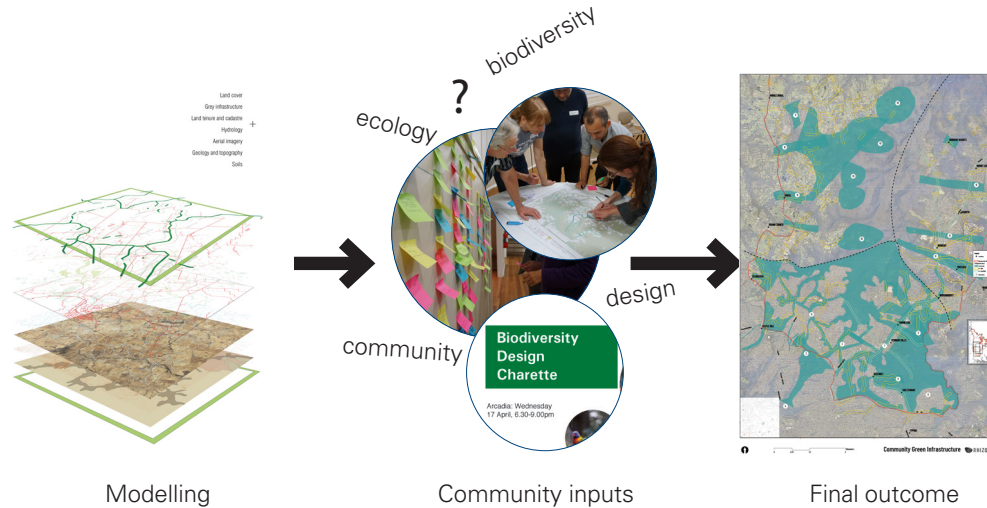


Fig 40. Graphic of the method that led to the *Green Infrastructure Framework*

### The need for precision – from large to small

This report proposes a *Green Infrastructure Framework* for Hornsby LGA. This was developed based on the need to spatially articulate landscape ecological science principles, and to express a response to several specific policies and the commitment of the NSW Government to green infrastructure as a key strategy for the protection of biodiversity and its future in the region.

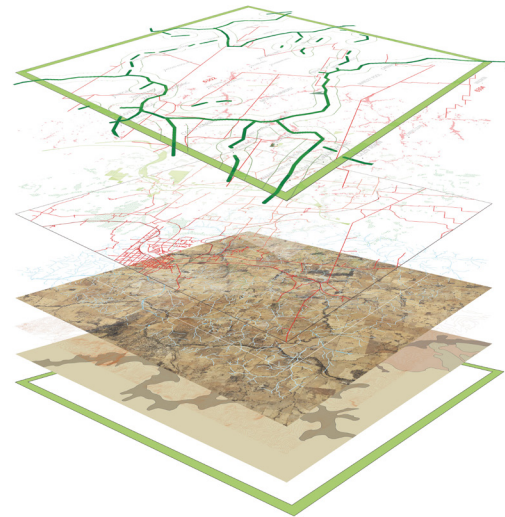
This report proposes that ‘illustration leads to demonstration’ [89] and that the strength of the Framework lies partly in its inherent *boldness*; and its *visualisation*. There is value in a ‘simplistic, pattern-based view of corridors and habitats’ as readily accessible visuals. Such visuals hold great appeal and have captured the imagination of ecologists, policy makers and the public alike who are excited by the ability to find solutions to the fragmented landscapes, communities and species on the edge of extinction through bridging scale [98, 99] with positive action.

However, across distance, land-use and tenure green infrastructure often bridges lands in an untested and spatially inaccurate manner. This has led Jongman et al. to consider that the key challenge for connectivity conservation is not ideation but rather scale: ‘Ecological networks need to be developed at the field and regional scales, and at the national and trans-national scales’. [100] The real challenge therefore is implementation [101] and a reflection that Sydney’s *Green Grid* echoes: ‘further detail is required’.

This report will now discuss the method that led to the development of the Framework, see Fig. 40, and begins with the first stage: *Ecological modelling*.



Land cover  
 Grey infrastructure  
 Land tenure and cadastre  
 Hydrology +  
 Aerial imagery  
 Geology and topography  
 Soils



## Ecological modelling

The key to successful ecological performance is actual corridor design [102]. Unfortunately there is no consensus on the best method, metrics, nor modelling from ecological scientists [103] and Diamond reminds us that ‘ecology is impossible to predict’ [104]. However, numerous Geographical Information System (GIS)-based ecological prioritisation tools and ecological modelling software have been developed to attempt such designs. These programs overlay and analyse multiple data sets and model connectivity conservation designs across landscapes. Such modelling adds the ability to work across scales [103] and often relies upon circuit theory and other approaches from outside the ecological sciences with a typical design process involving GIS, see Fig. 41.

The *Green Infrastructure Framework* was first developed through a weighted landscape model and the ecological connectivity tool, *Linkage Mapper*. In this landscape model the higher the value, the more the likelihood of its selection by modelling algorithms as path (or linkage) for connectivity function. Higher value lands included agricultural lands, significant

hydrological features and remnant vegetation. Lower values were assigned to urban areas and other intensive land-uses. This created a modelled green infrastructure design with 100m wide corridors to which the *Sydney Green Grid* [94] was also added as a separate visually accessible layer.

## Refining the green infrastructure framework

The second stage sought to adjust the *Green Infrastructure Framework* where local knowledge and skills adjusted the design to better suit both the ecological as well as the cultural landscape within which the proposal would operate.

Fig 41. Graphic of the ecological modelling process

Doerr suggests that even if the perfect methodology – or design – could be agreed upon, it is the actual implementation of green infrastructure that is the real challenge [105]. This entails additional buy-in from stakeholders, adjustment to planning policies and mechanisms, sourcing potential avenues for funding and further detailed design to meet landscape specifics. For this reason, community participation was sought as a starting point and used to iteratively adjust and reconfigure the *Green Infrastructure Framework*. These were then further developed, to create a final, accurate *Green Infrastructure Framework*, as illustrated in Fig. 42. Here at the largest scale, the Framework knits together stakeholders design efforts and energies, combining biodiversity planning with landscape reality and reconnecting fragmented landscapes and community back together again.

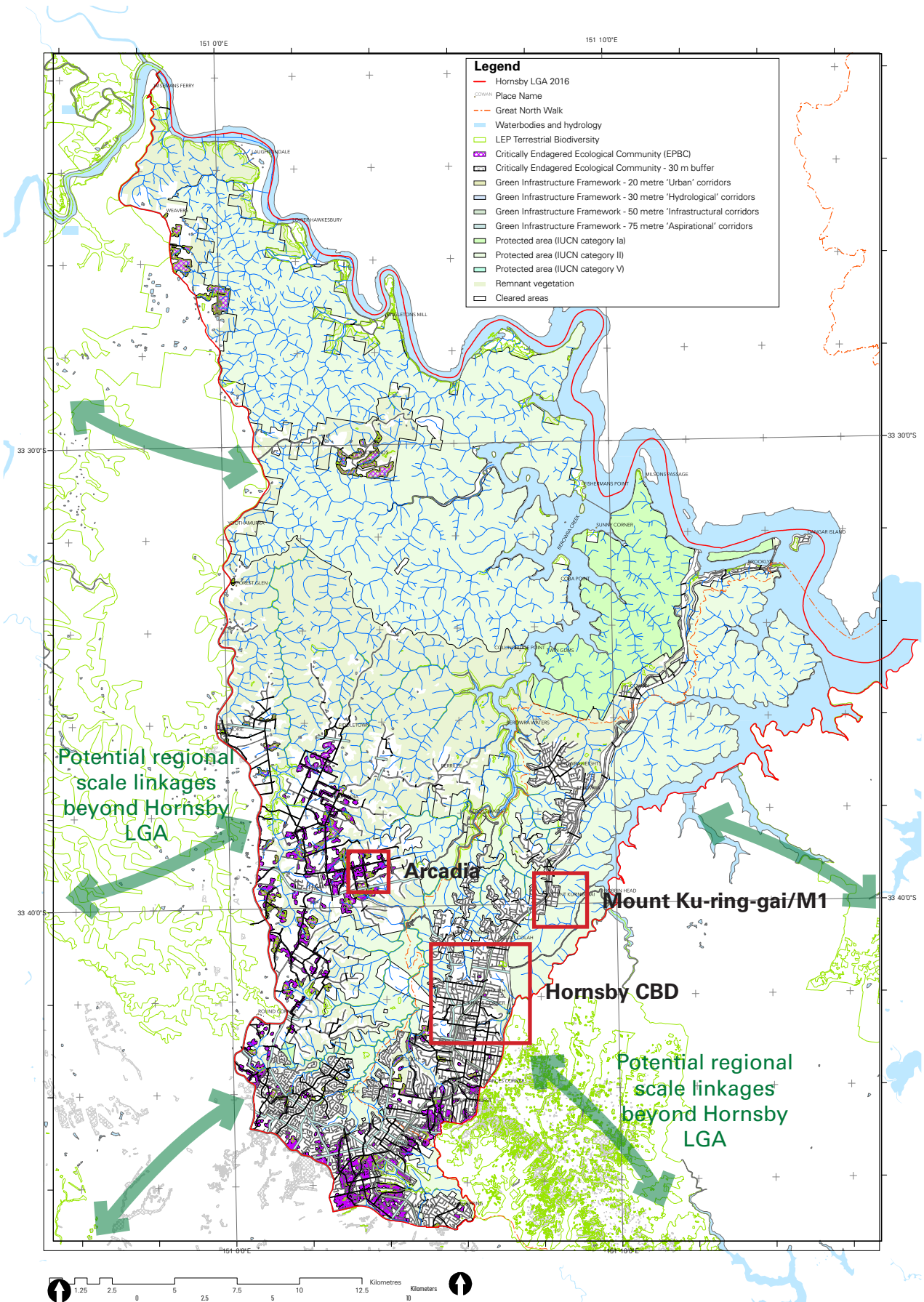
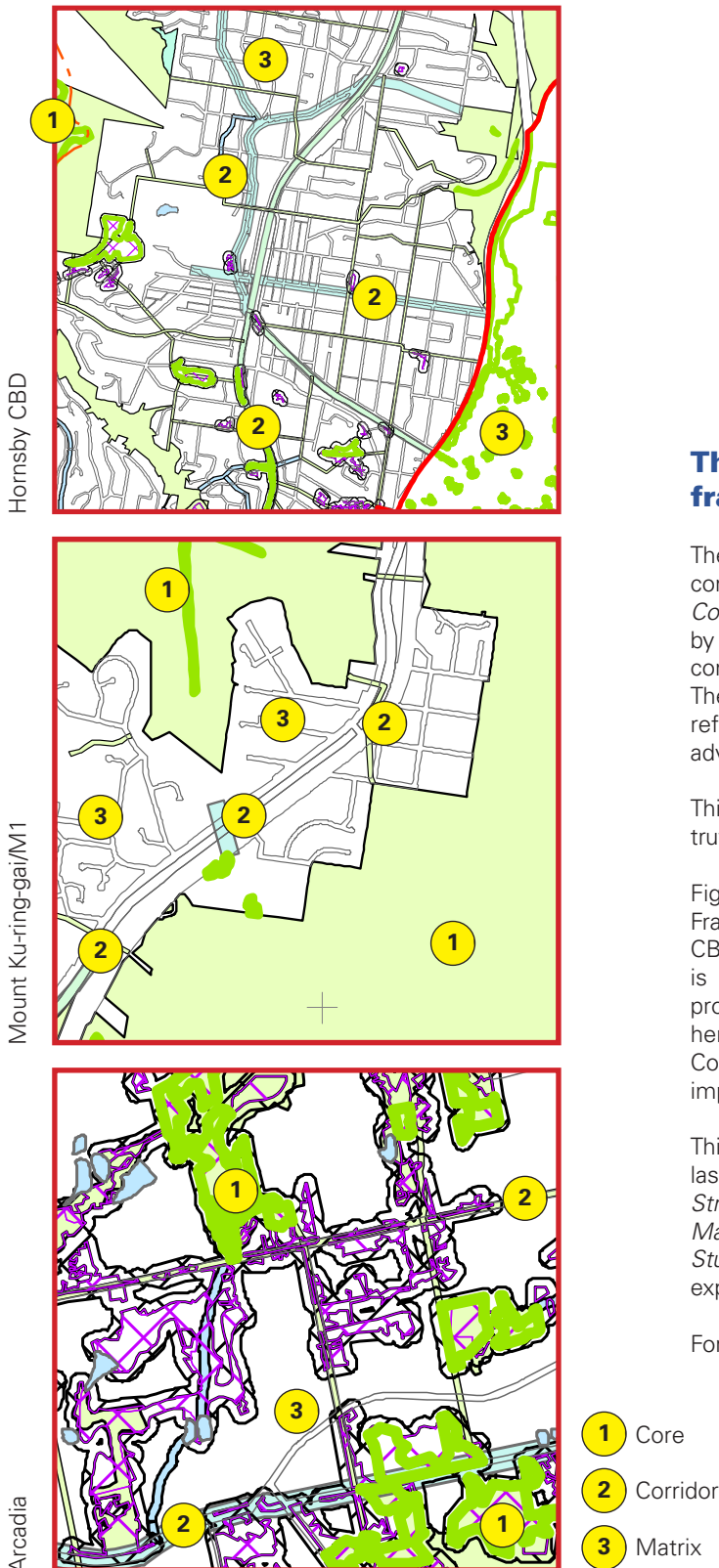


Fig 42. Final Green Infrastructure Framework



### The final green infrastructure framework for Hornsby LGA

The final resultant framework is a critical component of this *Hornsby Biodiversity Conservation Strategy*. This framework is typified by a diversity of linkages that visualise potential connections between disparate habitat patches. These vary in size according to the process of refinement by community, staff and external advice.

This framework will still require additional ground-truthing of ideas with relevant stakeholders.

Fig. 43 demonstrates three examples of the Framework in three different locations: Hornsby CBD, Mount Ku-ring-gai and Arcadia. Noticeable is the *core-corridor-matrix* typology of the proposed biodiversity lands in question. It is here that the need for further detail (and relevant Council approvals) are required and planning implications can be further resolved.

This detail will be considered further in the last part of this report, the *Recommendations, Strategies and Actions for Biodiversity Management and Protection*. While the *Case Study* section of this report provides further exploration and illustration of these ideas.

For further detail see Appendix 7.

Fig 43. The Framework retains the core-corridor-matrix typology



Cherrynose Cicada *Macrotristria angularis* Alan Kwok (2019)

## **6. Strategies and actions for biodiversity conservation**

This section introduces the breadth of recommendations toward biodiversity management and protection in the Hornsby LGA. These tools, strategies and actions were revealed through literature and best practice review, community and Council staff engagement and include a prioritisation of recommendations and related timeframes, including recommendations toward a new Local Strategic Planning Statement process due to conclude in early 2020.

## Recommendations: a matrix of strategies, actions and mechanisms

Council operations, policies, guidelines and development approval processes are critical mechanisms to mitigate threats to biodiversity. Reviewing and developing these in the short and long term and taking positive steps including adopting innovative programs, incentive initiatives and design and development of infrastructure.

A matrix of five interconnected strategies have been identified to assist Hornsby Shire Council and community to meet their broad objectives of biodiversity and conservation management. Beneath these strategies, a range of specific actions have been categorised and assigned a level of priority.

Indicative timeframes are presented in Table 4. The implementation timeframes have been developed to align with Councils Integrated Planning & Reporting framework to integrate with operations and strategic delivery. Implementation will be determined by resourcing availability and priorities set by Council through is operational and delivery programs.

These five strategies align with those outlined in the *Bushland and Waterways Guide*. [8]

Indicative timeframes are noted as below:

Timeframe for completion	Priority Level
0-1 year	H (High)
1-4 years	M (Medium)
4-10 years	L (Low)
Continuous work	O (Ongoing)

Table 4. Indicative timeframes for implementation

### Strategy 1: Protect and conserve ecological values

The protection and conservation of existing remnant ecosystems is crucial to the prevention of further habitat and biodiversity loss and the viability of green infrastructure. Remnant ecosystems provide important habitat resources for urban biodiversity, and community access to natural landscapes. In addition, ecological values across other land-use types including parks, waterways and restored areas will be increasingly recognised for their ecological value.

### Strategy 2: Connect urban habitat

Species diversity and genetic health relies on the total area of habitat, proximity of habitats, and the capacity of species to move between habitats. Green infrastructure corridors allows plants and animals to recolonise areas where they have become locally extinct so they can be enjoyed by future generations and have long-term viability. They also allow species to find alternative habitat in times of major disasters such as fire or flood, and escape major threats such as clearing or disease. It is important to understand the existing network of green and blue habitats and their links. Where links between existing habitats are incomplete, approaches - such as the Green Infrastructure Framework - are needed that help to restore both corridor and stepping-stone habitat connections. Urban green and blue grid corridors and networks can also provide a range of social benefits including improved recreation opportunities and neighbourhood destinations.

### Strategy 3: Restore disturbed ecosystems to enhance ecological value and function

Where ecosystems have been disturbed, restoration is the preferred option to improve habitat structure and function and support biodiversity. Restoration not only includes bush regeneration and weed management in the reserve system, which is statutorily required, but also refers to urban habitat corridors where the built form as well as gardens, street verges, parks, and large institutional properties etc. can all play a role in improving habitat through the way they are designed and managed. Specific actions will vary depending on location; condition; identified values; past, current, and anticipated pressures; and what is feasible and practical.

### Strategy 4: Create new ecosystems

Where habitat linkages are needed within a corridor in areas devoid of habitat, new ecosystems can be created. Green infrastructure and water-sensitive urban design elements, such as green roofs, wetlands, and bio swales, can provide habitats and ecosystem services. More effective urban green spaces can be created when the improvement of the space considers multiple benefits at the design stage including improved economic, social, and environmental outcomes.

### Strategy 5: Connect people to nature

People connect with nature through sport, recreation, education, bushwalking, volunteer activities, and health-related activities. Daily exposure to nature can be improved using urban design features such as biodiverse green walls or street trees, and by providing appropriate infrastructure to support sustainable recreation in natural areas through the provision of appropriate access such as walking/biking tracks, picnic areas and lookouts. These connections are fundamental to benefit people but also the environment. Improving people's connection to nature may support longer term land management as people are motivated to care for and enhance their natural spaces. A broad education, engagement and citizen science program within the Hornsby Shire Council will support new and existing programs to encourage and enhance biodiversity and conservation management.

These five strategies are expanded in further detail over the following pages and are interspersed with several examples of other practical measures (in boxes).

Fig 44. Bar-sided forest-skink  
*Eulamprus tenuis*



Alan Kwok (2019)

## Strategy 1: Protect and conserve ecological values

ID	Task - Description	Indicator(s)	Strategic/ Legislative Driver	Prior- ity
1.0.0	Strategy 1: Protect and Conserve Ecological Values			
1.1.0	Planning instruments - include LEP and DCP planning controls to connect, protect, restore, enhance and create urban habitat			
1.1.1	Assess and update the 'terrestrial biodiversity' lands coverage to ensure consistency with existing Council biodiversity policies	> Terrestrial biodiversity lands coverage is assessed and updated	EP&A Act	H
1.1.2	Implement the revised HLEP 2013 Terrestrial Biodiversity Map	> Terrestrial biodiversity lands coverage within the revised LEP is implemented	EP&A Act	H
1.1.3	Assess the capacity of local strategic planning instruments (e.g. LEPs, DCPs) and land management documents to support the implementation of a Green Infrastructure Framework	> The Green Infrastructure Framework is included within the LEP and mapped > Planning mechanisms to support implementation of a GIF are assessed in consultation with DPIE	Northern District Plan, Green Infrastructure Policy	H
1.1.4	Review current biodiversity conservation management within the HDCP	> Biodiversity conservation management provisions within HDCP reviewed and updated to consider biodiversity where appropriate	EP&A Act	M
1.2.0	Management and policy instruments - incorporate the goal to protect and conserve biodiversity in all relevant management and policy			
1.2.1	Assess Plans of Management for Natural Areas to enhance biodiversity conservation outcomes	> Plans of Management for Natural Areas assessed	Local Government Act, Crown Lands Act	H
1.2.2	Assess opportunities for the establishment and preservation of buffer zones around TECs, threatened species, remnant vegetation and riparian zones across the Shire	> Existing buffer zones reviewed to align with best practice planning measures > opportunities to establish new buffers considered where appropriate	EP&A Act, Biodiversity Conservation Act, EPBC Act	H
1.2.3	Identify mechanisms to inform residents of significant biodiversity features and remnant vegetation on their land	> Review property messaging to ensure biodiversity values are adequately identified	EP&A Act, Biodiversity Conservation Act	H
1.2.4	Assess potential new standards for bird safe buildings, including information material, guidelines for retrofitting and DA assessment	> Policy and guidelines are assessed	EP&A Act	M
1.2.5	Prepare/review guidelines for vegetation management and compliance	> Vegetation management guidelines and compliance prepared	EP&A Act, Northern District Plan, Biodiversity Conservation Act	H
1.2.6	Maintain policy position on companion animal management and strengthen delivery if required	> Strategies for effective pet - biodiversity interactions identified, including: - Policy on micro chipped pets reviewed and maintained - Cat de-sexing program maintained - Opportunity and value of pet exclusion zones/curfews	Companion Animals Act	0
1.2.7	Promote and support Wildlife Protection Areas, Wildlife Refuges and Conservation Covenants on private lands	> Wildlife Protection Areas, Wildlife Refuges and Conservation Covenants implemented in collaboration with land owners	EP&A Act, Biodiversity Conservation Act	0
1.2.8	Prepare strategies, policies and guidelines that support best practice management of stormwater on Council managed lands	> WSUD policy reviewed, prepared, and implemented > HSC to capture, harvest, and re-use urban stormwater and wastewater to create new habitat prepared and implemented	Northern District Plan, Water Sensitive Hornsby	0
1.2.9	Maintain green wall and roof provisions for new developments/retrofits	> Green wall and green roof provisions (HDCP 1C.2.9g) assessed > Prepare guidance note for green walls and roofs prepared	Urban Forest	H
1.2.10	Assess opportunities to maximise biodiversity on private and public lands	Opportunities to maximise biodiversity on private and public lands assessed including: > Ensure natural assets (bushland, creek lines etc) are managed via a dedicated natural assets management plan which forms part of Councils corporate asset management system > Prepare operational guideline to diversify and augment Council plantings to include under/mid storey spp. > New policies and instruments are prepared > Landscape Plans to include specific controls for ecological focused local provenance planting > Development approvals consider opportunity to support enhancement of the GIF > Lobby government for improved biodiversity considerations in 10/50 legislation > Implement Design Review Panel with knowledge and competence in Biodiversity Conservation and protection	Northern District Plan, Biodiversity Conservation Act	0



ID	Task - Description	Indicator(s)	Strategic/ Legislative Driver	Prior- ity
1.3.0	Incentive mechanisms - provide incentive mechanisms to prioritise biodiversity conservation			
1.3.1	Identify, promote and implement conservation incentive schemes offered through governments, research institutions and private sector	<ul style="list-style-type: none"> <li>&gt; Conservation incentives identified, promoted and implemented</li> <li>&gt; Opportunities for incentive schemes focussed on Rural Lands biodiversity protection assessed and promoted</li> <li>&gt; Investigate incentives that promote regional connectivity</li> </ul>	Northern District Plan, Biodiversity Conservation Act, Open Space Acquisition Strategy	0
1.3.2	Prepare guidelines and identify special incentives to prioritise biodiversity on private lands	<ul style="list-style-type: none"> <li>&gt; Assess opportunities for rates incentives for Land for Wildlife or Biodiversity Conservation Trust-eligible private lands</li> <li>&gt; Guidelines and incentives prepared to support biodiversity conservation on private lands including habitat for wildlife, pools to ponds and backyard bees program</li> </ul>	Northern District Plan, Biodiversity Conservation Act, EPBC Act, Save Our Species Program	M
1.4.0	Minimise edge effects - minimise edge effects on core, transition and corridor areas			
1.4.1	Assess core, transition and key corridor areas to target management actions that reduces edge effects, and supports biodiversity enhancement	<ul style="list-style-type: none"> <li>Core, transition and key corridor areas assessed to:</li> <li>&gt; Establish ecological targets to inform corridor establishment</li> <li>&gt; Support biodiversity enhancement</li> </ul>	Northern District Plan, Biodiversity Conservation Act, Save Our Species Program	H
1.4.2	Prepare strategies that reduce edge effect impacts for biodiversity and wildlife	<ul style="list-style-type: none"> <li>&gt; Review of existing DCP controls undertaken</li> <li>&gt; Limit private encroachment on public bushland, open space and waterway foreshore areas investigated</li> <li>&gt; Fauna-friendly guidelines for fencing (for creek lines and lands adjacent to recognised biodiversity lands) developed</li> </ul>	Northern District Plan, Biodiversity Conservation Act, EPBC Act, Save Our Species Program	H
1.4.3	Assess 'dark sky' policies and develop measures to limit light pollution disturbance to wildlife	<ul style="list-style-type: none"> <li>&gt; Dark sky policy and controls assessed (including council street and facilities lighting and private property)</li> <li>&gt; Case study locations identified and investigated</li> </ul>	Biodiversity Conservation Act	M
1.5.0	Climate change - manage for species under climate change scenarios into the future			
1.5.1	Prepare a vulnerability assessment to determine future impact of climate change on biodiversity values	<ul style="list-style-type: none"> <li>&gt; Vulnerability assessment prepared</li> </ul>	Northern District Plan, Biodiversity Conservation Act	H
1.5.2	Prepare biodiversity adaptation strategy to minimise climate impacts through policy, planning instruments and operational activities	<ul style="list-style-type: none"> <li>&gt; Biodiversity adaptation strategy prepared</li> <li>&gt; Prepare future 'novel ecosystems' through adaptive planning strategies</li> </ul>	Northern District Plan, Biodiversity Conservation Act	M
1.5.3	Maintain seed banking program	<ul style="list-style-type: none"> <li>&gt; Maintain seed bank that is viable, comprehensive and representative of the LGA's species/communities</li> </ul>	Save Our Species Program	0
1.6.0	Biodiversity intelligence - develop comprehensive biodiversity baseline data and monitoring			
1.6.1	Prepare biodiversity monitoring program for council managed lands (as part of a wider Natural Resources Monitoring Program)	<ul style="list-style-type: none"> <li>&gt; Biodiversity monitoring program prepared to include: <ul style="list-style-type: none"> <li>- Understanding and application of best practice approaches to monitoring (what, when, where, how, why and how is the information to be used?)</li> <li>- Identify new tools for biodiversity monitoring, planning and management (e.g. Photogrammetry, LIDAR and Artificial Intelligence)</li> <li>- Targeted baseline surveys on threatened flora and fauna species and TECs</li> <li>- weed invasion assessments for Council reserves</li> <li>- Trends in presence, absence and abundance of threatened, migratory and feral species</li> <li>- Condition of remnant vegetation, TECs and threatened species</li> <li>- Ecohealth program (Physical/Chemical Parameters, macroinvertebrates, geomorphology, riparian vegetation assessments)</li> <li>- Water quality monitoring program and contaminated sites</li> <li>- Citizen-based science</li> <li>- Vegetation Management Plans and biodiversity related consent conditions</li> </ul> </li> </ul>	Save Our Species Program, Biodiversity Conservation Act	H
1.6.2	Implement monitoring program for council managed lands	<ul style="list-style-type: none"> <li>&gt; Annual monitoring program for Council managed lands implemented</li> </ul>	Save Our Species Program, Biodiversity Conservation Act	0
1.6.3	Implement surveys to measure community awareness of local biodiversity values and issues	<ul style="list-style-type: none"> <li>&gt; Resident biodiversity awareness surveys undertaken</li> </ul>	Save Our Species Program, Biodiversity Conservation Act	0

ID	Task - Description	Indicator(s)	Strategic/ Legislative Driver	Priority
1.6.4	Prepare and implement private property surveys to benchmark existing site conditions and gather new data on biodiversity	> Annual surveys to benchmark site conditions implemented	Save Our Species Program, Biodiversity Conservation Act	0
1.6.5	Assess and update vegetation mapping (including GIF corridors)	> Vegetation mapping updated and maintained (including TECs, GIF corridors and weed spp.)	EP&A Act, Biodiversity Conservation Act	0
1.6.6	Establish a monitoring program for fire related activities	> Monitoring plan for fire management activities prepared to include: <ul style="list-style-type: none"> <li>- identification of resources (\$/staff)</li> <li>- pre/post hazard mitigation works ecological data collection and analysis protocols</li> <li>- Integration with appropriate restoration goals</li> <li>- effectiveness of communication processes</li> </ul> > NSW RFS reporting on land clearing approvals under the Bushfire Environmental Assessment Code (annual report, application-based notification to Council) > Council land clearing approvals on private lands	Rural Fires Act, EP&A Act	H
1.6.7	Assess the condition and biodiversity value of roadside vegetation	> Roadside vegetation condition and value assessed	Biodiversity Conservation Act	H
1.6.8	Identify keystone species distribution to guide bushland management prioritisation	> Keystone species presence identified to inform remnant vegetation policy	Biodiversity Conservation Act	M
1.6.9	Assess presence of migratory species and manage potential habitat accordingly	> Presence of migratory species assessed > Habitat and potential habitat of migratory species protected and enhanced	Biodiversity Conservation Act	M

### Virtual fencing

Virtual Fencing as a wildlife safety solution are designed to reduce wildlife road collision incidents. It is a proven technology in the USA and Europe for all species and sizes of wildlife (with application since 2003). Currently, a product has been designed and tested to meet Australian wildlife and conditions and is being used in Tasmania and Queensland. It has been found to be an effective measure in reducing wildlife incidents in Australia. '.....While there was no spatial replication in this trial, a reduction in total roadkill rate, and in the most commonly affected species, by 50% suggests that these devices have enormous potential to substantially reduce roadkill rates' [108]

'The Virtual Fencing device is activated by approaching headlights, which causes it to emit a combination of sound and light stimuli that alert and repel animals from the road side. This alert system of audible alert and blue and yellow strobe-type LED lights are an innovative concept based on proven technologies. The devices are placed at 25-metre intervals on alternating sides of the road. They are triggered in sequence by the vehicle headlight as a car approaches along the road, forming a virtual fence' [109]

### Reduction of speed limits between dusk to dawn

Wildlife signage is an international tool used to influence behaviour change and build public awareness of wildlife crossing roads. The installation of signage (advising of dusk and dawn speed limits) at known wildlife crossing hotspots can potentially mitigate roadkill [110]. Flashing lights can also be attached to signage to warn drivers of hotspots for wildlife crossings. [111]



(19)

Strategy 2: Connect urban habitats

ID	Task - Description	Indicator(s)	Strategic/ Legislative Driver	Prior- ity
2.0.0	Strategy 2: Connect Urban Habitats			
2.1.0	Green Infrastructure Framework (GIF) - collaborate with NSW GAO's Green Grid initiative and implement across Hornsby Shire, monitor progress			
2.1.1	Identify a GIF which includes core, transition, and corridor areas	> Opportunities for creation of GIF mapped and identified > Work with other landowners to expand GIF within and adjacent to Hornsby Shire (i.e. National Park expansion)	Northern District Plan, Green Infrastructure Policy, Sydney Green Grid	H
2.1.2	Assess mechanisms to link and identify GIF and conservation values to land title	> Mechanisms to link GIF and conservation values to land title are assessed	Northern District Plan, Green Infrastructure Policy, EP&A Act	0
2.1.3	Assess the application of the GIF within public domain and precinct planning	> Consultation with Council staff undertaken regarding potential for application across Council	Northern District Plan, Green Infrastructure Policy	0
2.1.4	Assess benefits and impacts of GIF on biodiversity	> benefits and impacts of GIF on flora and fauna assessed > consider ecological guilds and focus species in corridor implementation	Northern District Plan, Green Infrastructure Policy	0
2.2.0	Biodiversity offsetting - leverage biodiversity offsetting mechanisms to strategically identify, protect and restore habitat			
2.2.1	Review and implement a biodiversity offsets policy to support conservation on private and public land	> Green offsets policy implemented and reviewed	EP&A Act, BC Act, EPBC Act, Northern District Plan, Green Infrastructure Policy	H
2.3.0	Regional connection - review operations, policies and guidelines on lands managed by other agencies within and adjacent to the Shire to improve biodiversity and connection			
2.3.1	Assess opportunities for large-scale planning and joint initiatives to link the GIF with protected areas and corridors beyond Council boundaries	> Opportunities for regional connectivity of HSC GIF are assessed (through economic, social and environmental factors) including: - Lane Cove National Park (via over and underpass bridges) - Ku-ring-gai Chase National Park (via over and underpass bridges) - Cumberland State Forest	Northern District Plan, Green Infrastructure Policy, EP&A Act, Biodiversity Conservation Act, Saving our Species	0
2.3.2	Maintain collaboration with partner land managers and fire agencies to facilitate best practice bushfire management on a landscape scale	> Consider biodiversity conservation goals in fire planning, management and hazard reduction activity > Aboriginal cultural burning practices be considered in the application of and inclusion in fire management practices maintained > Implement bushfire management activities within the framework of the Hornsby Ku-ring-gai Bushfire Risk Management planning process	Rural Fires Act	0
2.3.3	Assess opportunities for reserve network expansion on council managed, other public lands and adjacent estuarine areas	> Opportunities for reserve network expansion over underrepresented vegetation types and geological features (Volcanic Diatremes, Wianamatta Shale and Hawkesbury River Floodplain) is assessed > Opportunities for protected area establishment in marine areas is considered in liaison with relevant NSW Government Agencies. > Work with other landowners to expand GIF within and adjacent to Hornsby Shire (i.e. National Park expansion)	Biodiversity Conservation Act, National Parks & Wildlife Act, Hornsby Open Space Acquisition Strategy	H
2.4.0	Natural area recreation - provide recreation opportunities within the GIF that connects people to nature			
2.4.1	Prepare a Natural Areas Recreational Strategy	> Natural Areas Recreational Strategy prepared to support: - diverse nature-based recreation opportunities are available and accessible - community connections with nature through participation in sustainable nature based recreation - environmental protection through well managed nature based recreation - community awareness of the cultural heritage significance within the Shire's natural areas	Northern District Plan, Walking & Cycling Strategy	H

## Strategy 3: Restore disturbed ecosystems to enhance ecological value and function

ID	Task - Description	Indicator(s)	Strategic/ Legislative Driver	Prior- ity
3.0.0	Strategy 3: Restore disturbed ecosystems to enhance ecological value and function			
3.1.0	Mitigating threats - address threats and impacts to biodiversity			
3.1.1	Implement best practice in the application of chemical use in the maintenance of public open space	<ul style="list-style-type: none"> <li>&gt; Opportunities to reduce reliance on chemical application (resolve use of Glyphosate) investigated</li> <li>&gt; Best practice for fertiliser/pesticide/herbicide implemented</li> <li>&gt; Non-pesticide use overlay for lands with 50m of recognised waterway implemented</li> </ul>	Sydney Green Grid, North District Plan, POEO Act	0
3.1.2	Prepare and implement a guide for on ground environmental works	> Guide for on ground site works to support natural regeneration and revegetation (i.e. fencing, planting, weed mats etc) prepared	POEO Act	M
3.1.3	Maintain the Bush Regeneration Program on Council-managed lands	<ul style="list-style-type: none"> <li>&gt; Ecological restoration of bushland reserves is strategically prioritised</li> <li>&gt; Bush regeneration projects are implemented</li> </ul>	Biodiversity Conservation Act, Local Government Act, Sydney Green Grid, North District Plan	H
3.1.4	Maintain HSC Community Nursery programs and support Native Plant sales and giveaways	> HSC Community Nursery programs maintained	25,000 Trees	0
3.1.5	Identify barriers to fauna movement and implement appropriate design solutions	<ul style="list-style-type: none"> <li>&gt; Barriers to fauna movement are identified and mapped, including: <ul style="list-style-type: none"> <li>- Artificial barriers to fish and aquatic species passage</li> <li>- Wildlife canopy and underpass crossings</li> </ul> </li> <li>&gt; Design solutions implemented where feasible</li> </ul>	Sydney Green Grid, North District Plan	M
3.1.6	Assess and prioritise ecological restoration activities associated with bushfire incidents and mitigation activities	<ul style="list-style-type: none"> <li>&gt; Maintain council obligations under Bushfire Environmental Assessment Code</li> <li>&gt; Prepare general ecological assessment/ evaluation guidelines (identify resources, set priorities and targets according to ecological restoration principles) to inform site-based action plans</li> </ul>	Rural Fires Act, Bush Fire Environmental Assessment Code	0
3.1.7	Maintain a council On Site Sewage Management System inspection program	> OSSM inspection, compliance and education program maintained	POEO Act, Local Government Act, North District Plan	0
3.2.0	Implement best practice weed and feral animal control and management to improve the health of lands and waterways			
3.2.1	Prepare and implement Biosecurity Management policies and plans	> A Biosecurity Management Policy has been prepared and is reviewed annually	Biosecurity Act	H
3.2.2	Maintain council operations in line with obligations under the NSW Biosecurity Act 2015	<ul style="list-style-type: none"> <li>&gt; Council operations at risk of breaching biosecurity legislation identified and addressed</li> <li>&gt; Relevant biosecurity information is communicated to Councillors, managers, other staff, and the public, and they are made aware of their biosecurity duties</li> <li>&gt; Biosecurity content on the Council's website is up-to-date and regularly reviewed</li> <li>&gt; Point of contact maintained for Council's compliance with biosecurity orders issued</li> <li>&gt; Biosecurity issues outside the scope of Commonwealth, State and Regional biosecurity legislation, policies, and plans, and strategies, that have importance to the LGA or align with strong community expectations (e.g. fox, rabbit or cat control) have been assessed for their significance and appropriate programs implemented</li> <li>&gt; Opportunities for Council to partner and collaborate in relation to biosecurity issues, (e.g. regional pest animals projects or local collaborations with NSW NPWS) have been identify and implemented</li> </ul>	Biosecurity Act	0
3.2.3	Represent Council at relevant biosecurity related forums, workshops, conventions	> Council's membership and attendance at relevant biosecurity related forums, workshops, conventions etc (e.g. Sydney North Vertebrate Pest Committee; Sydney Weeds Network; National Weed Conference) has been maintained and input provided as necessary	Biosecurity Act	0
3.2.4	Perform Council's functions under the NSW Biosecurity Act 2015 as the delegated local control authority for weed biosecurity within the Hornsby LGA	<ul style="list-style-type: none"> <li>&gt; The biosecurity officer maintains relevant biosecurity training and certification</li> <li>&gt; Programs of priority weed inspections and surveillance of all land tenures within the LGA, focusing on high risk pathways, sites and assets have been prepared and implemented</li> <li>&gt; Where priority weed species have been located, the landholder has been informed of their legal obligations and regulatory enforcement to ensure compliance has been taken where necessary</li> <li>&gt; Where new weed incursions are identified, the procedures outlined in Greater Sydney Weed Committee New Weed Incursion Plan 2017 – 2022 have been implemented</li> <li>&gt; Opportunities for grant funding to assist in the delivery of Council's functions have been identified and applied for</li> <li>&gt; Records and maps for actions and activities relating to Council's functions under the Biosecurity Act 2015 have been prepared and maintained</li> <li>&gt; Regular reports using required standards and formats have been prepared</li> <li>&gt; A program of capacity building and mentoring within HSC and the community (e.g. community events, displays, demonstrations, workshops, training, conference) has been implemented</li> </ul>	Biosecurity Act	0

3.2.5	Maintain and improve management of high priority weed species on Council managed lands	<ul style="list-style-type: none"> <li>&gt; Programs of priority weed inspections and surveillance of all land tenures within the LGA are prepared and implemented.</li> <li>&gt; Identify priority weed species on HSC land and implement appropriate control measure</li> <li>&gt; identify priority weed species on non-HSC land and implement actions to inform the landholder of their legal obligations or implement regulatory enforcement to ensure compliance if necessary</li> <li>&gt; identify the presence of new weed incursions and implement the procedures outlined in Greater Sydney Weed Committee New Weed Incursion Plan 2017 – 2022</li> </ul>	Biosecurity Act	0
3.2.6	Maintain council membership in the Sydney Weeds Committee and other relevant committees	> Maintain HSC representation and membership at relevant biosecurity related forums, workshops, conventions etc. and provide input when necessary (e.g. Sydney North Vertebrate Pest Committee; Sydney Weeds Network)	Biosecurity Act	0
3.2.7	Identify opportunities to work with private landholders to control weed species	> Methods to work with landholders identified and spatially prioritised (i.e. creek lines, riparian buffers, TEC's etc)	Biosecurity Act	0
3.2.8	Support the implementation of Regional Strategic Pest Animal planning	> Regional Strategic Pest Animal planning supported through implementing HSC's role in the partnership activities	Save Our Species Program	0
3.3.0	Infrastructure management - prioritise biodiversity conservation when installing or renewing infrastructure			
3.3.1	Assess feasibility of placing all new infrastructure underground to enable streetscape planting	<ul style="list-style-type: none"> <li>&gt; Assess targeted placement of electrical infrastructure underground on GIF-nominated streets</li> <li>&gt; Methods to future-proof and consolidate infrastructure and underground services identified</li> </ul>		0
3.3.2	Implement guidelines for species selection for public spaces and street tree plantings (i.e. parks, verges & streetscapes) to improve biodiversity on council managed lands	<ul style="list-style-type: none"> <li>&gt; Guidelines for plant selection created and implemented</li> <li>&gt; Street Tree Master Plan proposed within the Urban Forest Strategy encourages use of species and locations that improve local biodiversity</li> <li>&gt; Plant selection processes that supports threatened fauna species needs (e.g. heavy fruiting species will favour Grey Headed Flying Foxes and Gang Gang) are maintained</li> </ul>	Urban Forest, Water Sensitive Hornsby	0

**Habitat for Wildlife program**

This program aims to increase communities, awareness, knowledge and appreciation of wildlife in their urban area and backyards (wildlife, plant populations and communities). This is achieved through delivering a range of education programs and incentives to enable and encourage individuals to make changes at the domestic scale. Examples of the implementation of an urban/backyard program include: the Backyard Buddies program, an education initiative of the Foundation for National Parks & Wildlife; and, the Central Coast 'Habitat for Wildlife' program. [114] According to the Department of Environment (2002) the "cumulative effect of individual action can significantly contribute to the overall health of urban ecosystems and to the survival of threatened species and conservation of biodiversity, maintaining that special "living" quality enjoyed in many urban areas of New South Wales"[115].

**Incentives program: Green Globe Awards**

This program incentivises individuals, businesses and groups to take positive actions to achieve positive change in the environment. A similar small-scale Hornsby Council run program, could provide positive reinforcement to individuals, community organisations and businesses.

'Supporting sustainability leaders across NSW for 20 years, the annual Green Globe Awards are NSW's most respected environmental awards for leadership, commitment and innovation in sustainability. We recognise and celebrate collaboration and partnerships within our communities that encourage others to act and achieve positive change and protect our environment'.

Of most relevance is the Natural Environment Award, which: 'recognises those who are committed to conserving NSW's unique biodiversity'. This award recognises and celebrates conservation leadership striving to protect and preserve NSW's precious natural environment, including our ecosystems, threatened species (both plants and animals), natural habitats, land and soil and water resources'. [116]



(22)

**Green Globe Awards categories**

Our award categories reflect the immense diversity of sustainability work taking place across NSW. To learn more about our inspiring finalists read their stories on the individual Award category pages.

<p><b>Built Environment Award</b> Recognises the most sustainable building project for design and/or management in NSW.</p>	<p><b>Business Leadership Award</b> Businesses that are leading the way in their industry to improve environmental outcomes.</p>	<p><b>Climate Change Leadership Award</b> Projects, organisations and people who are working to minimise the impacts of climate change.</p>
<p><b>Community Leadership Award</b> Recognises community leaders who have made a positive change to the community through their environmental work.</p>	<p><b>Innovation Award</b> Organisations who are doing new and exciting things to help the environment.</p>	<p><b>Natural Environment Award</b> Recognises those who are committed to conserving NSW's unique biodiversity.</p>
<p><b>Public Sector Leadership Award</b> NSW state and local government departments and agencies that are integrating strong environmental practices.</p>	<p><b>Resource Efficiency Award</b> Organisations that are leading the way to conserve resources and reduce waste in New South Wales.</p>	<p><b>Sustainability Champion Award</b> Celebrates people who fly the sustainability flag by helping others to make changes.</p>

(23)

**Box.11 Habitat for Wildlife and incentive programs**

## Strategy 4: Create new ecosystems

ID	Task - Description	Indicator(s)	Strategic/ Legislative Driver	Prior- ity
4.0.0	Strategy 4: Create new ecosystems			
4.1.0	Implementing GIF in urban areas			
4.1.1	Prepare Green corridors schematics to demonstrate planning principles in wildlife corridors	> Green corridor schematics prepared	Sydney Green Grid, North District Plan	H
4.1.2	Assess potential buy-back arrangements and other enduring protection mechanisms for areas recognised as critical linkages in GIF (inclusive of TECs and buffer areas)	> Opportunities and critical linkages are assessed (including Cost Benefit Analysis)	Sydney Green Grid, North District Plan	0
4.2.0	Catchment remediation - implement projects which capture, treat and reuse stormwater to create and improve habitats and waterway condition			
4.2.1	Implement and enforce requirements to include appropriate stormwater treatment, re-use, retention and detention systems on new public domain projects	> New public domain developments consider appropriate stormwater treatment, re-use, retention and detention systems > Prepare guidance note for increasing permeable surfaces	Water Sensitive Hornsby, POEO Act, EP&A Act	0
4.2.2	Assess adequacy of onsite rain and grey water treatment/reuse devices for existing and new development	> Onsite rain and grey water treatment/ reuse devices for existing and new development are assessed	Water Sensitive Hornsby	0
4.2.3	Identify mechanisms and prepare strategy to improve water quality in dams across rural areas	> Urban dams mapped and strategies prepared as required	Water Sensitive Hornsby	0
4.2.4	Maintain monitoring data to inform and prioritise infrastructure renewal for wastewater systems	> Monitoring data used to inform renewal of wastewater infrastructure	POEO Act	0

**Installation of canopy crossings**

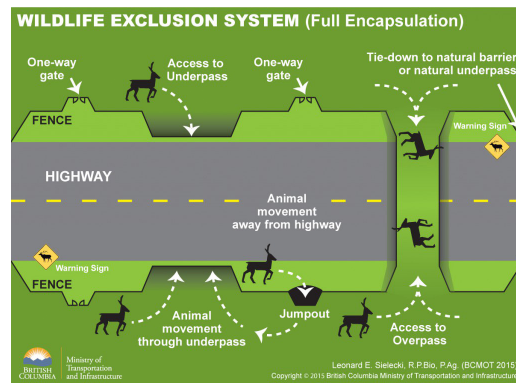
Canopy crossings have been designed (i.e. single rope, ladder-like bridges and tunnel-shaped bridges) and installed in various locations throughout Australia to enable species to cross roads safely. 'Installation of the canopy crossings was relatively quick and cheap, and it is recommended that they are installed at other locations where ringtail possum roadkill is frequent, particularly if the site is more conducive to such a construction'. [110] Research suggests that canopy bridges can assist with mammals crossing roads and reduce the risk of road-kill and potential for isolation between subpopulations. [112]

**Development of large-scale crossing infrastructure**

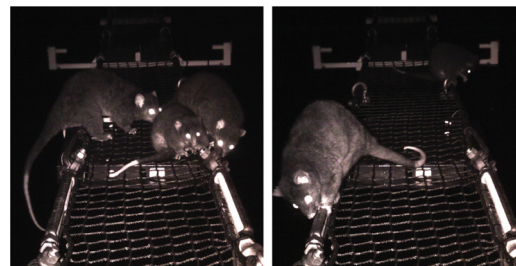
In Banff National Park (Alberta, Canada) six overpasses and 38 underpasses were built to enable the safe passage of bears, moose, deer, wolves, elk, and many other species over the Trans-Canada Highway. An important aspect of this project was the fencing that abuts the road and acts to direct wildlife under (or over) the Highway. Banff offers an internationally recognised example of saving individual animals from road incidents as well as long-term chances of species survival.

**Bird safe building design**

Bird collisions with buildings is a growing area of concern. Well-designed buildings in terms of layout, landscaping, lighting and exterior envelope can reduce the rate of bird collisions. Building with extensive glass are more hazardous for birds (for example towers), as they are invisible obstacle with reflective surfaces. Secondly lighting can be an issue for nocturnal and migrating birds (as an attractant). North America is leading the way with nationally accepted standards for bird-safe designs and materials. [113]



(20)



(21)

**Box 12. Connectivity infrastructure**

## Strategy 5: Connect people to nature

ID	Task - Description	Indicator(s)	Strategic/ Legislative Driver	Prior- ity
5.0.0	Strategy 5: Connect people to nature			
5.1.0	Community engagement - implement coordinated community engagement and education to improve awareness of benefits and foster acceptance of biodiversity values			
5.1.1	Prepare a Natural Resources communication, engagement and education strategy	> Natural Resources communication, engagement and education strategy prepared	Sydney Green Grid, North District Plan	H
5.1.2	Assess opportunities for eco-tourism and passive recreation surrounding both aquatic and terrestrial ecosystems	> Opportunities to provide access to bushland areas, parks and greenspaces are identified	Economic Development & Tourism Strategy, Coastal Management Programs	0
5.1.3	Prepare interactive mapping/citizen science interface	> Interactive mapping/citizen science interface prepared > Innovative technological platforms assessed and maintained	NSW Citizen Science Position Statement	0
5.1.4	Identify regular networking opportunities through program of themed events, film nights, guest speakers and site visits	> Opportunities for themed events identified and implemented, including: - Events, tours delivered - Community and group planting days identified and expanded - Council's guided bushwalk program continued	Sydney Green Grid, North District Plan	0
5.2.0	Targeted education - produce targeted education material and opportunities with several themes			
5.2.1	Implement staff, contractor and volunteer training as appropriate to increase awareness of biodiversity and conservation values	> Internal Council staff training program and materials implemented		0
5.2.2	Implement community education program in support of natural resources strategic themes	> Prepare and implement a 'War on Weeds' program > Prepare and implement a 'River Conscious Resident' program > Maintain and promote Council's local provenance plant species lists/nursery availability and 'Wildlife Friendly Gardens' program > 'Hawkesbury River Day' assessed and implemented	Sydney Green Grid, North District Plan	0
5.2.3	Identify and expand community and group planting days	> Community and group planting days identified, and sites expanded/increased with a diversity of participants involved	BC Act, Sydney Green Grid	0
5.2.4	Identify opportunities to partner with NSW Government to deliver workshops for sustainable management of rural land	> Partnership opportunities are identified	Rural Lands Study	0
5.2.5	Identify opportunities to attract high profile media personalities to workshops	> High profile personalities identified		0
5.3.0	Community partnerships - Identify opportunities to build greater ecological literacy through partnerships with local and regional primary, secondary and tertiary institutions to encourage citizen science engagement programs			
5.3.1	Identify opportunities to recognise and support individuals, community groups, businesses and schools' efforts and achievements in biodiversity conservation	> Opportunities for recognition (integration into existing council awards programs) identified	Sydney Green Grid, North District Plan	0
5.3.2	Maintain Council's Bushcare programs and related initiatives	> Council's Bushcare program maintained and related initiatives managed	EP&A Act	0
5.3.3	Identify education/monitoring/compliance avenues, for example: campaign for tree protection 'Don't be a Lopper/Dob in a Chopper'	> Campaigns identified	EP&A Act	M
5.3.4	Identify suite of citizen science tools with a clear presence on Council's website and Council events which incorporate community partnerships (i.e. Streamwatch, Men's Sheds, Scout groups, etc)	> Integration of Citizen Science into Council programs implemented > HSC staff to participate in 'Australian Citizen Science' Association (working groups, regional chapter and conference) identified	Sydney Green Grid, North District Plan	0
5.3.5	Identify opportunities for collaboration with local Indigenous communities and consultative bodies	> Collaborative opportunities identified	Council driven	0
5.3.6	Identify opportunities for collaboration with tertiary institutions	> Collaborative opportunities identified		0



5.4.0 Accountability - Communication, reporting and dissemination of information				
5.4.1	Identify opportunities to promote HSC's ecological research and biodiversity through publishing and conferences	> Opportunities to promote HSC's ecological research and biodiversity assessed and implemented		0
5.4.2	Maintain communications around Council's biodiversity priorities and action to community and stakeholders	> Provision of advice on operations, policies and guidelines maintained for lands managed by other agencies within and adjacent to Shire > Biodiversity research and Strategy implementation reported > ALA and BioNET data prepared > Continue involvement in regional partnership programs	Local Government Act	0

**Bushland policy: Bush Forever**

The Bush Forever policy, plans to protect the unique biodiversity of Swan Coastal Plain (Western Australia). According to State Planning Policy 2.8 Bushland Policy for the Perth Metropolitan Region 'The aim of the Bush Forever policy is to provide a policy and implementation framework that will ensure bushland protection and management issues in the Perth Metropolitan Region are appropriately addressed and integrated with broader land use planning and decision-making. This will secure long-term protection of biodiversity and associated environmental values. The policy recognises the protection and management of significant bushland areas as a fundamental consideration in the planning process, while also seeking to integrate and balance wider environmental, social and economic considerations. In general terms, the policy does not prevent development where it is consistent with the measures in this policy and other planning and environmental considerations'. As a result of this policy, representative sites from each of the 26 vegetation types found around Perth were set aside for special protection. [117]

**Additions to 'Areas of outstanding biodiversity values' estate**

According to the NSW Biodiversity Conservation Act 2016 [19]: Areas of outstanding biodiversity values (3.2) may be declared providing:

- (1) (a) the area is important at a state, national or global scale, and
- (b) the area makes a significant contribution to the persistence of at least one of the following:
  - (i) multiple species or at least one threatened species or ecological community,
  - (ii) irreplaceable biological distinctiveness,
  - (iii) ecological processes or ecological integrity,
  - (iv) outstanding ecological value for education or scientific research.

**Unwanted cats on property**

The City of Swan (WA) has implemented local laws that 'prohibit cats from entering private property without the property owner/occupier's consent. Cat owners are responsible to ensure that their cats do not enter private property - this can be done by keeping cats inside or within an outdoor cat run'. [118] Furthermore, the 'Cat Act 2011' requires the identification, registration and sterilisation of domestic cats, and gives Local Governments the power to administer and enforce the legislation. The legislation encourages responsible cat ownership and aims to reduce the number of unwanted cats in the community. Microchipping and registration also make it easier to identify the cat and reunite it with its owner'. Furthermore, in accordance with the local law any cats found on private property can be impounded. [119]



White Faced Heron *Egretta novaehollandiae* Alan Kwok (2019)

# Appendices

A range of appendices with supporting information accompany this report.

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## Appendix 1: Full list of species in Hornsby LGA

### Legend

The following legend is applicable to all species lists in the appendix where noted

<b>NSW Status</b>	<b>BIONET</b>
Code	Definition (Act)
1	Sensitivity Class 1 (Sensitive Species Data Policy)
2	Sensitivity Class 2 (Sensitive Species Data Policy)
3	Sensitivity Class 3 (Sensitive Species Data Policy)
CH	Critical Habitat (Threatened Species Conservation Act 1995)
E1	Endangered (Threatened Species Conservation Act 1995)
E2	Endangered Population (Threatened Species Conservation Act 1995)
E3	Endangered Ecological Community (Threatened Species Conservation Act 1995)
E4	Presumed Extinct (Threatened Species Conservation Act 1995)
E4A	Critically Endangered (Threatened Species Conservation Act 1995)
E4B	Critically Endangered Ecological Community (Threatened Species Conservation Act 1995)
FCE	Critically Endangered Fish (Fisheries Management Act 1994)
FE	Endangered Fish (Fisheries Management Act 1994)
FEC	Endangered Ecological Community of Fish (Fisheries Management Act 1994)
FEP	Endangered Population of Fish (Fisheries Management Act 1994)
FKTP	Key Threatening Process of Fish (Fisheries Management Act 1994)
FP	Protected Fish (Fisheries Management Act 1994)
FV	Vulnerable Fish (Fisheries Management Act 1994)
FX	Extinct Fish (Fisheries Management Act 1994)
KTP	Key Threatening Process (Threatened Species Conservation Act 1995)
P	Protected (National Parks & Wildlife Act 1974)
V	Vulnerable (Threatened Species Conservation Act 1995)
V2	Vulnerable Ecological Community (Threatened Species Conservation Act 1995)
<b>Commonwealth Status</b>	
Code	Definition (Act)
C	Listed on China Australia Migratory Bird Agreement
CD	Conservation Dependent (Commonwealth EPBC Act 1999)
CE	Critically Endangered (Commonwealth EPBC Act 1999)
E	Endangered (Commonwealth EPBC Act 1999)
J	Listed on Japan Australia Migratory Bird Agreement
K	Listed on Republic of Korea Australia Migratory Bird Agreement
KTP	Key Threatening Process (Commonwealth EPBC Act 1999)
V	Vulnerable (Commonwealth EPBC Act 1999)
X	Extinct (Commonwealth EPBC Act 1999)
XW	Extinct in the Wild (Commonwealth EPBC Act 1999)

## Flora

Scientific Name	Common name	Status		Source
		NSW	C'wealth	
<i>Abutilon</i> spp.	Lantern-bush			BioNet (2010- )
<i>Acacia baileyana</i>	Bailey's Wattle;Cootamundra Wattle			ALA (2010 - );BioNet (2010- )
<i>Acacia binervata</i>				ALA (2010 - )
<i>Acacia binervia</i>	Coast Myall			ALA (2010 - );BioNet (2010- )
<i>Acacia brownii</i>	Heath Wattle			ALA (2010 - );BioNet (2010- )
<i>Acacia buxifolia</i>				ALA (2010 - )
<i>Acacia bynoeana</i>	Bynoe's Wattle	E1	V	ALA (2010 - );BioNet (2010- )
<i>Acacia decurrens</i>	Sydney Green Wattle;Early Black Wattle;Black Wattle			Hornsby Shire Council, 2013;ALA (2010 - );BioNet (2010- )
<i>Acacia echinula</i>	Hedgehog Wattle			ALA (2010 - );BioNet (2010- )
<i>Acacia elata</i>	Cedar Wattle;Mountain Cedar Wattle			ALA (2010 - );BioNet (2010- )
<i>Acacia falcata</i>	Sickle Wattle			ALA (2010 - );BioNet (2010- )
<i>Acacia falciformis</i>	Black Wattle;Broad-leaved Hickory			ALA (2010 - );BioNet (2010- )
<i>Acacia filicifolia</i>	Fern-Leaved Wattle;Fern-leaved Wattle			ALA (2010 - );BioNet (2010- )
<i>Acacia fimbriata</i>	Fringed Wattle			ALA (2010 - );BioNet (2010- )
<i>Acacia floribunda</i>	White Sally Wattle;Gossamer Wattle;White Sally			Hornsby Shire Council, 2013;ALA (2010 - );BioNet (2010- )
<i>Acacia gordonii</i>			E	Species or species habitat likely to occur within area
<i>Acacia hakeoides</i>				ALA (2010 - )
<i>Acacia hispidula</i>				ALA (2010 - );BioNet (2010- )
<i>Acacia implexa</i>	Hickory;Hickory Wattle			Hornsby Shire Council, 2013;ALA (2010 - );BioNet (2010- )
<i>Acacia irrorata</i>	Green Wattle			ALA (2010 - );BioNet (2010- )
<i>Acacia irrorata</i> subsp. <i>irrorata</i>	Green Wattle			BioNet (2010- )
<i>Acacia linearifolia</i>	Narrow-leaved Wattle			ALA (2010 - );BioNet (2010- )
<i>Acacia lineata</i>				ALA (2010 - )
<i>Acacia linifolia</i>	White Wattle			ALA (2010 - );BioNet (2010- )
<i>Acacia longifolia</i>	Sydney Golden Wattle			Hornsby Shire Council, 2013;ALA (2010 - );BioNet (2010- )
<i>Acacia longifolia</i> subsp. <i>longifolia</i>	Sydney Golden Wattle			BioNet (2010- )
<i>Acacia longissima</i>	Long-leaf Wattle			ALA (2010 - );BioNet (2010- )
<i>Acacia mearnsii</i>	Black Wattle			ALA (2010 - );BioNet (2010- )
<i>Acacia melanoxylon</i>	Blackwood			ALA (2010 - );BioNet (2010- )
<i>Acacia minyura</i>				ALA (2010 - )
<i>Acacia myrtifolia</i>	Red-stemmed Wattle			ALA (2010 - );BioNet (2010- )
<i>Acacia obtusifolia</i>				ALA (2010 - );BioNet (2010- )
<i>Acacia oxycedrus</i>	Spike Wattle			ALA (2010 - );BioNet (2010- )
<i>Acacia parramattensis</i>	Parramatta Green Wattle			Hornsby Shire Council, 2013

<i>Acacia parramattensis</i>	Parramatta Green Wattle;Parramatta Wattle			ALA (2010 - );BioNet (2010- )
<i>Acacia parvipinnula</i>	Silver-stemmed wattle;Silver-stemmed Wattle			ALA (2010 - );BioNet (2010- )
<i>Acacia podalyriifolia</i>	Mount Morgan Wattle;Queensland Silver Wattle			ALA (2010 - );BioNet (2010- )
<i>Acacia prominens</i>	Golden Rain Wattle;Gosford Wattle			ALA (2010 - );BioNet (2010- )
<i>Acacia pubescens</i>	Downy Wattle, Hairy Stemmed Wattle [18800]		V	Species or species habitat known to occur within area
<i>Acacia schinoides</i>	Green Cedar Wattle			Hornsby Shire Council, 2013
<i>Acacia stricta</i>	Hop Wattle;Straight Wattle			ALA (2010 - );BioNet (2010- )
<i>Acacia suaveolens</i>	Sweet Wattle			ALA (2010 - );BioNet (2010- )
<i>Acacia terminalis</i>	Sunshine Wattle			ALA (2010 - );BioNet (2010- )
<i>Acacia terminalis subsp. angustifolia</i>				BioNet (2010- )
<i>Acacia terminalis subsp. longiaxialis</i>				BioNet (2010- )
<i>Acacia terminalis subsp. terminalis</i>			E	Hornsby Shire Council, 2019
<i>Acacia ulicifolia</i>	Juniper Wattle;Prickly Moses			ALA (2010 - );BioNet (2010- )
<i>Acacia vestita</i>	Weeping Boree			ALA (2010 - );BioNet (2010- )
<i>Acer negundo</i>	Ash-Leaved Maple;Box Elder			ALA (2010 - );BioNet (2010- )
<i>Acianthus caudatus</i>	Mayfly Orchid	P		ALA (2010 - );BioNet (2010- )
<i>Acianthus exsertus</i>	Mosquito Orchid	P		ALA (2010 - );BioNet (2010- )
<i>Acianthus fornicatus</i>	Pixie Caps	P		ALA (2010 - );BioNet (2010- )
<i>Acianthus pusillus</i>	Gnat Orchid	P		ALA (2010 - );BioNet (2010- )
<i>Acianthus sp. A</i>				ALA (2010 - )
<i>Acianthus spp.</i>	Mosquito Orchid	P		BioNet (2010- )
<i>Acmena smithii</i>	Lilly Pilly			Hornsby Shire Council, 2013;BioNet (2010- )
<i>Acrotriche divaricata</i>				ALA (2010 - );BioNet (2010- )
<i>Actinotus helianthi</i>	Flannel Flower	P		ALA (2010 - );BioNet (2010- )
<i>Actinotus minor</i>	Lesser Flannel Flower			ALA (2010 - );BioNet (2010- )
<i>Adansonia gregorii</i>				ALA (2010 - )
<i>Adiantum aethiopicum</i>	Common Maidenhair	P		ALA (2010 - );BioNet (2010- )
<i>Adiantum formosum</i>	Giant Maidenhair	P		ALA (2010 - );BioNet (2010- )
<i>Adiantum hispidulum</i>	Rosy Maidenhair;Rough Maidenhair	P		ALA (2010 - );BioNet (2010- )
<i>Aegiceras corniculatum</i>	River Mangrove			ALA (2010 - );BioNet (2010- )
<i>Agapanthus praecox</i>	African Lily			ALA (2010 - )
<i>Alania cunninghamii</i>				ALA (2010 - )
<i>Alania endlicheri</i>				BioNet (2010- )
<i>Alectryon tomentosus</i>	Hairy Bird's Eye			ALA (2010 - );BioNet (2010- )
<i>Allocasuarina distyla</i>				ALA (2010 - );BioNet (2010- )
<i>Allocasuarina littoralis</i>	Black She-oak;Black She-Oak			Hornsby Shire Council, 2013;ALA (2010 - );BioNet (2010- )
<i>Allocasuarina paludosa</i>				ALA (2010 - );BioNet (2010- )
<i>Allocasuarina torulosa</i>	Forest Oak			Hornsby Shire Council, 2013;ALA (2010 - );BioNet (2010- )

<i>Allocasuarina verticillata</i>				ALA (2010 - )
<i>Allocasuarina glareicola</i>	[21932]		E	Species or species habitat may occur within area
<i>Alocasia brisbanensis</i>				ALA (2010 - );BioNet (2010- )
<i>Alphitonia excelsa</i>	Red Ash			Hornsby Shire Council, 2013;ALA (2010 - );BioNet (2010- )
<i>Alpinia caerulea</i>	Native Ginger			ALA (2010 - );BioNet (2010- )
<i>Alstroemeria psittacina</i>				ALA (2010 - )
<i>Alternanthera denticulata</i>	Lesser Joyweed			ALA (2010 - );BioNet (2010- )
<i>Amperea xiphoclada</i>				ALA (2010 - );BioNet (2010- )
<i>Amperea xiphoclada</i> var. <i>papillata</i>				BioNet (2010- )
<i>Amperea xiphoclada</i> var. <i>xiphoclada</i>				BioNet (2010- )
<i>Amyema congener</i>				ALA (2010 - )
<i>Amyema congener</i> sub-sp. <i>congener</i>				BioNet (2010- )
<i>Amyema miquelii</i>	Box Mistletoe			ALA (2010 - );BioNet (2010- )
<i>Ancistrachne maidenii</i>	Ancistrachne Maidenii		V	ALA (2010 - )
<i>Angophora bakeri</i>	Narrow-leaved Apple			ALA (2010 - );BioNet (2010- )
<i>Angophora costata</i>	Rusty Gum;Sydney Red Gum			ALA (2010 - );BioNet (2010- )
<i>Angophora costata</i> x <i>hispida</i>				BioNet (2010- )
<i>Angophora floribunda</i>	Rough-barked Apple			ALA (2010 - );BioNet (2010- )
<i>Angophora hispida</i>	Dwarf Apple			ALA (2010 - );BioNet (2010- )
<i>Anisopogon avenaceus</i>	Oat Spear-Grass;Oat Spear-grass			ALA (2010 - );BioNet (2010- )
<i>Anredera cordifolia</i>	Madeira Vine			ALA (2010 - );BioNet (2010- )
<i>Anthosachne scabra</i>	Wheatgrass, Common Wheat-grass			ALA (2010 - );BioNet (2010- )
<i>Aotus ericoides</i>				ALA (2010 - );BioNet (2010- )
<i>Aponogeton</i> spp.				BioNet (2010- )
<i>Araucaria cunninghamii</i>				ALA (2010 - )
<i>Archontophoenix cunninghamiana</i>	Bangalow Palm	P		ALA (2010 - );BioNet (2010- )
<i>Archontophoenix</i> spp.		P		BioNet (2010- )
<i>Aristida benthamii</i>	Three-awned spear grass			ALA (2010 - );BioNet (2010- )
<i>Aristida benthamii</i> var. <i>benthamii</i>				BioNet (2010- )
<i>Aristida benthamii</i> var. <i>spinulifera</i>				BioNet (2010- )
<i>Aristida echinata</i>				ALA (2010 - );BioNet (2010- )
<i>Aristida jerichoensis</i> var. <i>jerichoensis</i>	Jericho Wiregrass			BioNet (2010- )
<i>Aristida jerichoensis</i> var. <i>subspinulifera</i>	Jericho Wiregrass			BioNet (2010- )
<i>Aristida personata</i>				ALA (2010 - );BioNet (2010- )
<i>Aristida ramosa</i>	Purple Wiregrass			ALA (2010 - );BioNet (2010- )
<i>Aristida</i> spp.	A Wiregrass			BioNet (2010- )
<i>Aristida vagans</i>	Threeawn Speargrass			ALA (2010 - );BioNet (2010- )
<i>Aristida warburgii</i>				ALA (2010 - );BioNet (2010- )
<i>Arthrochilus</i> spp.		P		BioNet (2010- )

<i>Arthropodium milleflorum</i>	Pale Vanilla-lily			ALA (2010 - );BioNet (2010- )
<i>Arthropodium minus</i>	Small Vanilla Lily			ALA (2010 - );BioNet (2010- )
<i>Asplenium australasicum</i>	Birds-Nest Fern;Bird's Nest Fern	P		ALA (2010 - );BioNet (2010- )
<i>Asplenium flabellifolium</i>	Butterfly Fern;Necklace Fern			ALA (2010 - );BioNet (2010- )
<i>Asterolasia correifolia</i>				ALA (2010 - );BioNet (2010- )
<i>Asterolasia elegans</i>		E1	E	ALA (2010 - );BioNet (2010- )
<i>Astroloma humifusum</i>	Native Cranberry			ALA (2010 - );BioNet (2010- )
<i>Astroloma pinifolium</i>	Pine Heath			ALA (2010 - );BioNet (2010- )
<i>Astrotricha floccosa</i>				ALA (2010 - );BioNet (2010- )
<i>Astrotricha latifolia</i>				ALA (2010 - );BioNet (2010- )
<i>Astrotricha ledifolia</i>	Common Star-Hair			ALA (2010 - );BioNet (2010- )
<i>Astrotricha longifolia</i>				ALA (2010 - );BioNet (2010- )
<i>Astrotricha obovata</i>				ALA (2010 - );BioNet (2010- )
<i>Astrotricha sp. Quor-robolong</i>				ALA (2010 - )
<i>Astrotricha crassifolia</i>	Thick-leaf Star-hair [10352]		V	Species or species habitat likely to occur within area
<i>Aurantcarpa rhombifolia</i>				ALA (2010 - )
<i>Austromyrtus tenuifolia</i>				ALA (2010 - );BioNet (2010- )
<i>Austrostipa nodosa</i>	Needle Grass;A Speargrass			ALA (2010 - );BioNet (2010- )
<i>Austrostipa pubescens</i>				ALA (2010 - );BioNet (2010- )
<i>Austrostipa ramosissima</i>	Stout Bamboo Grass			ALA (2010 - );BioNet (2010- )
<i>Austrostipa rudis</i>				ALA (2010 - )
<i>Austrostipa rudis subsp. rudis</i>				BioNet (2010- )
<i>Austrostipa spp.</i>	A Speargrass			BioNet (2010- )
<i>Austrostipa verticillata</i>				ALA (2010 - )
<i>Avicennia marina</i>	Grey Mangrove			Hornsby Shire Council, 2013
<i>Avicennia marina subsp. australasica</i>	Grey Mangrove			BioNet (2010- )
<i>Backhousia myrtifolia</i>	Grey Myrtle			ALA (2010 - );BioNet (2010- )
<i>Baeckea brevifolia</i>				ALA (2010 - );BioNet (2010- )
<i>Baeckea diosmifolia</i>	Fringed Baeckea			ALA (2010 - );BioNet (2010- )
<i>Baeckea linifolia</i>	Weeping Baeckea	P		ALA (2010 - );BioNet (2010- )
<i>Baloskion gracile</i>				ALA (2010 - );BioNet (2010- )
<i>Baloskion tetraphyllum</i>				ALA (2010 - );BioNet (2010- )
<i>Banksia attenuata</i>	Slender Banksia			ALA (2010 - )
<i>Banksia ericifolia</i>	Heath Banksia;Heath-leaved Banksia			ALA (2010 - );BioNet (2010- )
<i>Banksia ericifolia subsp. ericifolia</i>				BioNet (2010- )
<i>Banksia integrifolia</i>	Coastal Banksia;Coast Banksia			ALA (2010 - );BioNet (2010- )
<i>Banksia integrifolia subsp. integrifolia</i>	Coastal Banksia			BioNet (2010- )
<i>Banksia marginata</i>	Silver Banksia			ALA (2010 - );BioNet (2010- )
<i>Banksia oblongifolia</i>	Fern-leaved Banksia			ALA (2010 - );BioNet (2010- )
<i>Banksia serrata</i>	Old Man Banksia;Old Man;Old-man Banksia			Hornsby Shire Council, 2013;ALA (2010 - );BioNet (2010- )
<i>Banksia spinulosa</i>	Hairpin Banksia	P		ALA (2010 - );BioNet (2010- )



<i>Banksia spinulosa</i> var. <i>spinulosa</i>		P		BioNet (2010- )
<i>Banksia</i> spp.				BioNet (2010- )
<i>Bauera microphylla</i>				ALA (2010 - );BioNet (2010- )
<i>Bauera rubioides</i>	River Rose			ALA (2010 - );BioNet (2010- )
<i>Baumea acuta</i>				BioNet (2010- )
<i>Baumea articulata</i>	Jointed Twig-rush			ALA (2010 - );BioNet (2010- )
<i>Baumea juncea</i>				ALA (2010 - );BioNet (2010- )
<i>Baumea rubiginosa</i>				ALA (2010 - );BioNet (2010- )
<i>Billardiera mutabilis</i>	Apple Berry;Climbing Apple Berry			ALA (2010 - );BioNet (2010- )
<i>Billardiera scandens</i>	Hairy Apple Berry			ALA (2010 - );BioNet (2010- )
<i>Blandfordia nobilis</i>	Christmas Bells	P		ALA (2010 - );BioNet (2010- )
<i>Blechnum ambiguum</i>				ALA (2010 - );BioNet (2010- )
<i>Blechnum camfieldii</i>				ALA (2010 - );BioNet (2010- )
<i>Blechnum cartilagineum</i>	Gristle Fern			ALA (2010 - );BioNet (2010- )
<i>Blechnum contiguum</i>				ALA (2010 - )
<i>Blechnum indicum</i>				ALA (2010 - )
<i>Blechnum neohollandicum</i>				BioNet (2010- )
<i>Blechnum nudum</i>	Fishbone Water Fern			ALA (2010 - );BioNet (2010- )
<i>Blechnum spinulosum</i>	Small Rasp Fern			BioNet (2010- )
<i>Blechnum wattsii</i>	Hard Water Fern			ALA (2010 - );BioNet (2010- )
<i>Bolboschoenus fluviatilis</i>	Kukuraho;Marsh Club-rush			ALA (2010 - );BioNet (2010- )
<i>Boronia floribunda</i>	Pale-pink Boronia	P		ALA (2010 - );BioNet (2010- )
<i>Boronia fraseri</i>		P		ALA (2010 - );BioNet (2010- )
<i>Boronia ledifolia</i>	Labrador Tea-Leaved Boronia;Sydney Boronia	P		ALA (2010 - );BioNet (2010- )
<i>Boronia pinnata</i>		P		ALA (2010 - );BioNet (2010- )
<i>Boronia rigens</i>	Stiff Boronia	P		ALA (2010 - );BioNet (2010- )
<i>Boronia serrulata</i>	Rose Boronia	P		ALA (2010 - );BioNet (2010- )
<i>Bossiaea ensata</i>	Sword Bossiaea			ALA (2010 - );BioNet (2010- )
<i>Bossiaea heterophylla</i>	Variable Bossiaea			ALA (2010 - );BioNet (2010- )
<i>Bossiaea lenticularis</i>				ALA (2010 - );BioNet (2010- )
<i>Bossiaea obcordata</i>	Spiny Bossiaea			ALA (2010 - );BioNet (2010- )
<i>Bossiaea prostrata</i>	Creeping Bossiaea			ALA (2010 - );BioNet (2010- )
<i>Bossiaea rhombifolia</i>				ALA (2010 - );BioNet (2010- )
<i>Bossiaea scolopendria</i>				ALA (2010 - );BioNet (2010- )
<i>Bossiaea</i> spp.				BioNet (2010- )
<i>Bossiaea stephensonii</i>				ALA (2010 - );BioNet (2010- )
<i>Bothriochloa macra</i>	Redleg Grass			ALA (2010 - )
<i>Brachychiton acerifolius</i>	Illawarra Flame Tree			ALA (2010 - );BioNet (2010- )
<i>Brachychiton populneus</i>	Kurrajong			ALA (2010 - );BioNet (2010- )
<i>Brachychiton populneus</i> subsp. <i>populneus</i>				BioNet (2010- )
<i>Brachyloma daphnoides</i>	Daphne Heath			ALA (2010 - );BioNet (2010- )
<i>Brachyloma daphnoides</i> subsp. <i>daphnoides</i>				BioNet (2010- )
<i>Brachyscome angustifolia</i>				BioNet (2010- )
<i>Brachyscome linearifolia</i>				ALA (2010 - );BioNet (2010- )

<i>Breynia oblongifolia</i>	Coffee Bush			ALA (2010 - );BioNet (2010- )
<i>Brunonia australis</i>	Blue Pincushion			ALA (2010 - );BioNet (2010- )
<i>Brunoniella australis</i>	Blue Trumpet			ALA (2010 - );BioNet (2010- )
<i>Brunoniella pumilio</i>	Dwarf Blue Trumpet			ALA (2010 - );BioNet (2010- )
<i>Bryophyllum proliferum</i>				ALA (2010 - )
<i>Bulbophyllum exiguum</i>		P		ALA (2010 - );BioNet (2010- )
<i>Burchardia umbellata</i>	Milkmaids			ALA (2010 - );BioNet (2010- )
<i>Bursaria spinosa</i>	Native Blackthorn			ALA (2010 - );BioNet (2010- )
<i>Bursaria spinosa subsp. spinosa</i>	Native Blackthorn			BioNet (2010- )
<i>Caesia parviflora var. parviflora</i>				BioNet (2010- )
<i>Caesia parviflora var. vittata</i>				BioNet (2010- )
<i>Caladenia carnea</i>	Pink Fingers	P		ALA (2010 - );BioNet (2010- )
<i>Caladenia catenata</i>	Pink Fingers;White Caladenia	P		ALA (2010 - );BioNet (2010- )
<i>Caladenia tessellata</i>	Thick-lipped Spider-orchid, Daddy Long-legs	V,3	V	
<i>Calandrinia pickeringii</i>				ALA (2010 - );BioNet (2010- )
<i>Caleana major</i>	Large Duck Orchid	P		ALA (2010 - );BioNet (2010- )
<i>Callicoma serratifolia</i>	Black Wattle			ALA (2010 - );BioNet (2010- )
<i>Callisia fragrans</i>				ALA (2010 - )
<i>Callistemon citrinus</i>	Crimson Bottlebrush			ALA (2010 - );BioNet (2010- )
<i>Callistemon linearifolius</i>	Netted Bottle Brush	V,3		Hornsby Shire Council, 2013;ALA (2010 - );BioNet (2010- )
<i>Callistemon linearis</i>	Narrow-leaved Bottlebrush			ALA (2010 - );BioNet (2010- )
<i>Callistemon rigidus</i>	Stiff Bottlebrush			BioNet (2010- )
<i>Callistemon salignus</i>	Willow Bottlebrush			Hornsby Shire Council, 2013;ALA (2010 - );BioNet (2010- )
<i>Callistemon viminalis</i>	Weeping Bottlebrush			ALA (2010 - );BioNet (2010- )
<i>Callitris muelleri</i>				ALA (2010 - );BioNet (2010- )
<i>Callitris rhomboidea</i>	Oyster Bay Cypress Pine;Port Jackson Pine			ALA (2010 - );BioNet (2010- )
<i>Callitris spp.</i>				BioNet (2010- )
<i>Calochilus campestris</i>	Copper Beard Orchid	P		ALA (2010 - );BioNet (2010- )
<i>Calochilus paludosus</i>	Copper Beard Orchid;Red Beard Orchid	P		ALA (2010 - );BioNet (2010- )
<i>Calochilus spp.</i>		P		BioNet (2010- )
<i>Calochlaena dubia</i>	Rainbow Fern			ALA (2010 - );BioNet (2010- )
<i>Calotis lappulacea</i>	Bur Daisy;Yellow Burr-daisy			ALA (2010 - );BioNet (2010- )
<i>Calyptocarpus vialis</i>				ALA (2010 - )
<i>Calystegia marginata</i>				ALA (2010 - )
<i>Calytrix tetragona</i>	Common Fringe-myrtle			ALA (2010 - );BioNet (2010- )
<i>Carduus nutans</i>	Bastard Scotch Thistle			ALA (2010 - )
<i>Carex appressa</i>	Southern Cutty Grass;Tall Sedge			ALA (2010 - );BioNet (2010- )
<i>Carex fascicularis</i>	Tassel Sedge			ALA (2010 - );BioNet (2010- )
<i>Carex inversa</i>	Creeping Lawn Sedge;Knob Sedge			ALA (2010 - );BioNet (2010- )
<i>Carex pumila</i>				ALA (2010 - );BioNet (2010- )

<i>Carex spp.</i>				BioNet (2010- )
<i>Cassinia aculeata</i>	Australian Tauhinu;Dolly Bush			ALA (2010 - );BioNet (2010- )
<i>Cassinia denticulata</i>				ALA (2010 - );BioNet (2010- )
<i>Cassinia spp.</i>				BioNet (2010- )
<i>Cassinia uncata</i>	Sticky Cassinia			ALA (2010 - );BioNet (2010- )
<i>Cassytha glabella</i>				ALA (2010 - );BioNet (2010- )
<i>Cassytha glabella f. glabella</i>				BioNet (2010- )
<i>Cassytha pubescens</i>	Dodder-Laurel;Downy Dodder-laurel			ALA (2010 - );BioNet (2010- )
<i>Cassytha spp.</i>				BioNet (2010- )
<i>Castanospermum australe</i>	Australian Chesnut;Black Bean			ALA (2010 - );BioNet (2010- )
<i>Casuarina cunninghamiana</i>	Beefwood			ALA (2010 - )
<i>Casuarina cunninghamiana subsp. cunninghamiana</i>	River Oak			BioNet (2010- )
<i>Casuarina glauca</i>	Swamp Oak			ALA (2010 - );BioNet (2010- )
<i>Caustis flexuosa</i>	Curly Wig	P		ALA (2010 - );BioNet (2010- )
<i>Caustis pentandra</i>	Thick Twist Rush	P		ALA (2010 - );BioNet (2010- )
<i>Caustis recurvata</i>		P		ALA (2010 - );BioNet (2010- )
<i>Cayratia clematidea</i>	Native Grape			ALA (2010 - );BioNet (2010- )
<i>Celastrus australis</i>	Staff Climber			ALA (2010 - );BioNet (2010- )
<i>Cenchrus caliculatus</i>				ALA (2010 - )
<i>Centella asiatica</i>	Arthritis Herb;Indian Pennywort			ALA (2010 - );BioNet (2010- )
<i>Centipeda minima</i>	Sneezeweed			ALA (2010 - )
<i>Centrolepis fascicularis</i>				ALA (2010 - );BioNet (2010- )
<i>Ceratopetalum apetalum</i>	Coachwood			ALA (2010 - );BioNet (2010- )
<i>Ceratopetalum gum-miferum</i>	Christmas Bush (Nsw);Christmas Bush			ALA (2010 - );BioNet (2010- )
<i>Cheilanthes austrotenuifolia</i>	Rock Fern			ALA (2010 - );BioNet (2010- )
<i>Cheilanthes distans</i>	Woolly Cloak Fern;Bristly Cloak Fern			ALA (2010 - );BioNet (2010- )
<i>Cheilanthes sieberi</i>	Rock Fern			ALA (2010 - );BioNet (2010- )
<i>Cheilanthes sieberi subsp. sieberi</i>	Rock Fern			BioNet (2010- )
<i>Chiloglottis diphylla</i>		P		ALA (2010 - );BioNet (2010- )
<i>Chiloglottis reflexa</i>		P		ALA (2010 - );BioNet (2010- )
<i>Chiloglottis seminuda</i>	Bare-Tip Wasp-Orchid	P		ALA (2010 - );BioNet (2010- )
<i>Chiloglottis spp.</i>		P		BioNet (2010- )
<i>Chiloglottis valida</i>	Alpine Bird-Orchid			ALA (2010 - )
<i>Chloanthes stoechadis</i>				ALA (2010 - );BioNet (2010- )
<i>Chloris truncata</i>	Windmill Grass			ALA (2010 - );BioNet (2010- )
<i>Chordifex dimorphus</i>				ALA (2010 - );BioNet (2010- )
<i>Chordifex fastigiatus</i>				ALA (2010 - );BioNet (2010- )
<i>Choretrum candollei</i>	White Sour Bush			ALA (2010 - );BioNet (2010- )
<i>Christella dentata</i>	Soft Fern			ALA (2010 - )
<i>Cissus antarctica</i>	Kangaroo Vine;Water Vine			ALA (2010 - );BioNet (2010- )
<i>Cissus hypoglauca</i>	Giant Water Vine			ALA (2010 - );BioNet (2010- )

<i>Clematis aristata</i>	Old Man's Beard			ALA (2010 - );BioNet (2010- )
<i>Clematis glycinoides</i>	Headache Vine			ALA (2010 - );BioNet (2010- )
<i>Clematis glycinoides</i> var. <i>glycinoides</i>				BioNet (2010- )
<i>Clerodendrum tomentosum</i>	Hairy Clerodendrum			ALA (2010 - );BioNet (2010- )
<i>Cololejeunea minutissima</i>				ALA (2010 - )
<i>Comesperma ericinum</i>	Pyramid Flower			ALA (2010 - );BioNet (2010- )
<i>Comesperma sphaerocarpum</i>				ALA (2010 - );BioNet (2010- )
<i>Comesperma volubile</i>				ALA (2010 - );BioNet (2010- )
<i>Commelina cyanea</i>	Native Wandering Jew			ALA (2010 - );BioNet (2010- )
<i>Conospermum ericifolium</i>				ALA (2010 - );BioNet (2010- )
<i>Conospermum longifolium</i>	Long Leaf Smoke-bush			ALA (2010 - );BioNet (2010- )
<i>Conospermum longifolium</i> subsp. <i>longifolium</i>				BioNet (2010- )
<i>Cordyline stricta</i>	Narrow-leaved Palm Lily	P		ALA (2010 - );BioNet (2010- )
<i>Coronidium elatum</i>				ALA (2010 - );BioNet (2010- )
<i>Coronidium scorpioides</i>	Button Everlasting			ALA (2010 - );BioNet (2010- )
<i>Correa alba</i> var. <i>alba</i>	White Correa			BioNet (2010- )
<i>Correa reflexa</i>	Common Correa;Native Fuschia			ALA (2010 - );BioNet (2010- )
<i>Correa reflexa</i> var. <i>reflexa</i>	Native Fuschia			BioNet (2010- )
<i>Corybas aconitiflorus</i>	Spurred Helmet Orchid	P		ALA (2010 - );BioNet (2010- )
<i>Corybas fimbriatus</i>	Fringed Helmet Orchid	P		ALA (2010 - );BioNet (2010- )
<i>Corybas pruinosus</i>				ALA (2010 - )
<i>Corybas undulatus</i>	Tailed Helmet Orchid	P		ALA (2010 - );BioNet (2010- )
<i>Corymbia citriodora</i>	Lemon-scented Gum			ALA (2010 - );BioNet (2010- )
<i>Corymbia eximia</i>	Yellow Bloodwood			ALA (2010 - );BioNet (2010- )
<i>Corymbia gummifera</i>	Red Bloodwood			Hornsby Shire Council, 2013;ALA (2010 - );BioNet (2010- )
<i>Corymbia maculata</i>	Spotted Gum			ALA (2010 - );BioNet (2010- )
<i>Corymbia</i> spp.				BioNet (2010- )
<i>Cotula australis</i>	Common Cotula			ALA (2010 - );BioNet (2010- )
<i>Crassula sieberiana</i>	Australian Stonecrop			ALA (2010 - );BioNet (2010- )
<i>Crassula</i> spp.	Stonecrop			BioNet (2010- )
<i>Crowea exalata</i>				ALA (2010 - )
<i>Crowea exalata</i> subsp. <i>exalata</i>		P		BioNet (2010- )
<i>Crowea saligna</i>		P		ALA (2010 - );BioNet (2010- )
<i>Cryptandra amara</i>	Bitter Cryptandra			ALA (2010 - );BioNet (2010- )
<i>Cryptandra amara</i> var. <i>amara</i>				BioNet (2010- )
<i>Cryptocarya glaucescens</i>	Jackwood			Hornsby Shire Council, 2013;ALA (2010 - );BioNet (2010- )
<i>Cryptostylis erecta</i>	Tartan Tongue Orchid	P		ALA (2010 - );BioNet (2010- )
<i>Cryptostylis subulata</i>	Duck Bill Orchid;Large Tongue Orchid	P		ALA (2010 - );BioNet (2010- )
<i>Cryptostylis hunteriana</i>	Leafless Tongue-orchid [19533]		V	Species or species habitat likely to occur within area

<i>Cupaniopsis anacardioides</i>	Tuckeroo			ALA (2010 - );BioNet (2010- )
<i>Cuphea hyssopifolia</i>	Elfin Herb			ALA (2010 - )
<i>Cyanthillium cinereum</i>				ALA (2010 - )
<i>Cyathea australis</i>	Rough Treefern	P		ALA (2010 - );BioNet (2010- )
<i>Cyathea cooperi</i>	Cicatrice Tree Fern;Straw Treefern	P		ALA (2010 - );BioNet (2010- )
<i>Cyathea leichhardtiana</i>	Prickly Treefern	P		ALA (2010 - );BioNet (2010- )
<i>Cyathochaeta diandra</i>				ALA (2010 - );BioNet (2010- )
<i>Cyclosorus dentatus</i>	Binung			BioNet (2010- )
<i>Cymbidium suave</i>	Snake Orchid	P		ALA (2010 - );BioNet (2010- )
<i>Cymbopogon refractus</i>	Barbed Wire Grass			ALA (2010 - );BioNet (2010- )
<i>Cynanchum elegans</i>	White-flowered Wax Plant [12533]		E	Species or species habitat likely to occur within area
<i>Cynodon dactylon</i>	Couch;Common Couch			ALA (2010 - );BioNet (2010- )
<i>Cynodon spp.</i>				BioNet (2010- )
<i>Cyperus exaltatus</i>				ALA (2010 - );BioNet (2010- )
<i>Cyperus gracilis</i>	Slender Flat-sedge			ALA (2010 - );BioNet (2010- )
<i>Cyperus haspan</i>				ALA (2010 - )
<i>Cyperus haspan subsp. haspan</i>				BioNet (2010- )
<i>Cyperus imbecillis</i>				ALA (2010 - );BioNet (2010- )
<i>Cyperus mirus</i>				ALA (2010 - );BioNet (2010- )
<i>Cyperus polystachyos</i>	Bunchy Flat-Sedge			ALA (2010 - );BioNet (2010- )
<i>Cyperus sanguinolentus</i>				ALA (2010 - );BioNet (2010- )
<i>Cyperus spp.</i>				BioNet (2010- )
<i>Cyperus tetraphyllus</i>				ALA (2010 - );BioNet (2010- )
<i>Cyrtostylis reniformis</i>	Gnat Orchid	P		ALA (2010 - );BioNet (2010- )
<i>Cyrtostylis spp.</i>		P		BioNet (2010- )
<i>Cytisus scoparius</i>	Broom			ALA (2010 - )
<i>Cytisus scoparius subsp. scoparius</i>	English Broom			BioNet (2010- )
<i>Dampiera purpurea</i>				ALA (2010 - );BioNet (2010- )
<i>Dampiera scottiana</i>				ALA (2010 - );BioNet (2010- )
<i>Dampiera stricta</i>				ALA (2010 - );BioNet (2010- )
<i>Darwinia biflora</i>		V	V	ALA (2010 - );BioNet (2010- )
<i>Darwinia fascicularis</i>				ALA (2010 - );BioNet (2010- )
<i>Darwinia fascicularis subsp. fascicularis</i>				BioNet (2010- )
<i>Darwinia fascicularis subsp. oligantha</i>	Darwinia fascicularis subsp. oligantha	E2		BioNet (2010- )
<i>Darwinia peduncularis</i>	Darwinia Peduncularis	V		ALA (2010 - );BioNet (2010- )
<i>Darwinia procera</i>				ALA (2010 - );BioNet (2010- )
<i>Davidsonia jerseyana</i>				ALA (2010 - )
<i>Daviesia alata</i>				ALA (2010 - );BioNet (2010- )
<i>Daviesia corymbosa</i>				ALA (2010 - );BioNet (2010- )
<i>Daviesia leptophylla</i>				ALA (2010 - );BioNet (2010- )
<i>Daviesia ulicifolia</i>	Gorse Bitter Pea			ALA (2010 - );BioNet (2010- )
<i>Daviesia ulicifolia subsp. ulicifolia</i>				BioNet (2010- )
<i>Dendrobium linguiforme</i>	Tongue Orchid	P		ALA (2010 - );BioNet (2010- )

<i>Dendrobium speciosum</i>	Rock Lily	P		ALA (2010 - );BioNet (2010- )
<i>Dendrobium speciosum</i> <i>var. speciosum</i>	Rock Orchid	P		BioNet (2010- )
<i>Dendrophthoe vitellina</i>				ALA (2010 - );BioNet (2010- )
<i>Denhamia silvestris</i>	Narrow-leaved Orangebark			ALA (2010 - );BioNet (2010- )
<i>Desmodium brachypodium</i>	Large Tick-trefoil			ALA (2010 - );BioNet (2010- )
<i>Desmodium gunnii</i>	Slender Tick-trefoil			ALA (2010 - );BioNet (2010- )
<i>Desmodium rhytidophyllum</i>				ALA (2010 - );BioNet (2010- )
<i>Desmodium varians</i>	Slender Tick-trefoil			ALA (2010 - );BioNet (2010- )
<i>Deyeuxia quadriseta</i>	Bent Grass			ALA (2010 - );BioNet (2010- )
<i>Dianella caerulea</i>	Blue Flax-Lily;Blue Flax-lily			ALA (2010 - );BioNet (2010- )
<i>Dianella caerulea var. assera</i>				BioNet (2010- )
<i>Dianella caerulea var. caerulea</i>				BioNet (2010- )
<i>Dianella caerulea var. producta</i>				BioNet (2010- )
<i>Dianella longifolia</i>	Flax-Lily;Blueberry Lily			ALA (2010 - );BioNet (2010- )
<i>Dianella longifolia var. longifolia</i>	A Blue Flax Lily			BioNet (2010- )
<i>Dianella prunina</i>				ALA (2010 - );BioNet (2010- )
<i>Dianella revoluta</i>	Black-Anther Flax-Lily;Blueberry Lily			ALA (2010 - );BioNet (2010- )
<i>Dianella revoluta var. revoluta</i>	A Blue Flax Lily			BioNet (2010- )
<i>Dichelachne crinita</i>	Long-Hair Plume Grass;Long-hair Plumegrass			ALA (2010 - );BioNet (2010- )
<i>Dichelachne inaequiglumis</i>	Short-Hair Plume Grass			ALA (2010 - );BioNet (2010- )
<i>Dichelachne micrantha</i>	Purple Plume Grass;Shorthair Plumegrass			ALA (2010 - );BioNet (2010- )
<i>Dichelachne parva</i>				ALA (2010 - );BioNet (2010- )
<i>Dichelachne rara</i>	Short-Hair Plume Grass			ALA (2010 - );BioNet (2010- )
<i>Dichelachne sieberiana</i>	Short-Hair Plume Grass			ALA (2010 - );BioNet (2010- )
<i>Dichondra repens</i>	Creeping Dichondra;Kidney Weed			ALA (2010 - );BioNet (2010- )
<i>Dicksonia antarctica</i>	Soft Tree Fern;Soft Treefern	P		ALA (2010 - );BioNet (2010- )
<i>Dicranopteris linearis var. linearis</i>		P		BioNet (2010- )
<i>Dictymia brownii</i>	Strap Fern			ALA (2010 - );BioNet (2010- )
<i>Dietes bicolor</i>				ALA (2010 - )
<i>Digitaria parviflora</i>	Small-flowered Finger Grass			ALA (2010 - );BioNet (2010- )
<i>Digitaria ramularis</i>	Finger Panic Grass			ALA (2010 - );BioNet (2010- )
<i>Dillwynia acicularis</i>				ALA (2010 - );BioNet (2010- )
<i>Dillwynia elegans</i>				ALA (2010 - );BioNet (2010- )
<i>Dillwynia floribunda</i>				ALA (2010 - );BioNet (2010- )
<i>Dillwynia retorta</i>				ALA (2010 - );BioNet (2010- )
<i>Dillwynia rudis</i>				ALA (2010 - );BioNet (2010- )
<i>Dimorphotheca fruticosa</i>				ALA (2010 - )
<i>Diploglottis australis</i>	Native Tamarind			ALA (2010 - );BioNet (2010- )
<i>Dipodium punctatum</i>		P		ALA (2010 - );BioNet (2010- )

<i>Dipodium roseum</i>				ALA (2010 - )
<i>Dipodium variegatum</i>		P		ALA (2010 - );BioNet (2010- )
<i>Dodonaea multijuga</i>				ALA (2010 - );BioNet (2010- )
<i>Dodonaea pinnata</i>				ALA (2010 - );BioNet (2010- )
<i>Dodonaea triangularis</i>	Hopbush			ALA (2010 - );BioNet (2010- )
<i>Dodonaea triquetra</i>	Large-leaf Hop-bush			ALA (2010 - );BioNet (2010- )
<i>Doodia aspera</i>				ALA (2010 - )
<i>Doodia australis</i>	Common Rasp Fern			ALA (2010 - );BioNet (2010- )
<i>Doodia caudata</i>				ALA (2010 - )
<i>Doodia linearis</i>				ALA (2010 - )
<i>Doryanthes excelsa</i>	Giant Lily;Gymea Lily	P		ALA (2010 - );BioNet (2010- )
<i>Doryphora sassafras</i>	Sassafras			ALA (2010 - );BioNet (2010- )
<i>Dracophyllum secundum</i>				ALA (2010 - );BioNet (2010- )
<i>Drosera auriculata</i>				ALA (2010 - );BioNet (2010- )
<i>Drosera binata</i>	Forked Sundew			ALA (2010 - );BioNet (2010- )
<i>Drosera peltata</i>	A Sundew			ALA (2010 - );BioNet (2010- )
<i>Drosera pygmaea</i>	Tiny Sundew;Pymgy Sundew			ALA (2010 - );BioNet (2010- )
<i>Drosera spatulata</i>				ALA (2010 - );BioNet (2010- )
<i>Duboisia myoporoides</i>	Corkwood			ALA (2010 - );BioNet (2010- )
<i>Echinopogon caespitosus</i>	Tufted Hedgehog Grass;Bushy Hedgehog-grass			ALA (2010 - );BioNet (2010- )
<i>Echinopogon caespitosus</i> <i>var. caespitosus</i>	Tufted Hedgehog Grass			BioNet (2010- )
<i>Echinopogon ovatus</i>	Forest Hedgehog Grass			ALA (2010 - );BioNet (2010- )
<i>Echinopogon spp.</i>	A Hedgehog Grass			BioNet (2010- )
<i>Einadia hastata</i>	Berry Saltbush			ALA (2010 - );BioNet (2010- )
<i>Einadia nutans</i>	Climbing Saltbush			ALA (2010 - );BioNet (2010- )
<i>Einadia polygonoides</i>	Knotweed Goosefoot			ALA (2010 - );BioNet (2010- )
<i>Einadia trigonos</i>	Fishweed			ALA (2010 - );BioNet (2010- )
<i>Elaeocarpus eumundi</i>				ALA (2010 - )
<i>Elaeocarpus reticulatus</i>	Blueberry Ash			ALA (2010 - );BioNet (2010- )
<i>Elatostema reticulatum</i>				ALA (2010 - );BioNet (2010- )
<i>Eleocharis pusilla</i>				ALA (2010 - );BioNet (2010- )
<i>Eleocharis sphacelata</i>	Bamboo Spike Sedge;Tall Spike Rush			ALA (2010 - );BioNet (2010- )
<i>Empodisma minus</i>	Wire Rush			ALA (2010 - );BioNet (2010- )
<i>Entolasia marginata</i>	Bordered Panic Grass;Bordered Panic			ALA (2010 - );BioNet (2010- )
<i>Entolasia stricta</i>	Wiry Panic			ALA (2010 - );BioNet (2010- )
<i>Entolasia whiteana</i>				ALA (2010 - );BioNet (2010- )
<i>Entosthodon apophysatus</i>				ALA (2010 - )
<i>Epacris crassifolia</i>				ALA (2010 - );BioNet (2010- )
<i>Epacris longiflora</i>	Fuchsia Heath			ALA (2010 - );BioNet (2010- )
<i>Epacris microphylla</i>	Coral Heath			ALA (2010 - );BioNet (2010- )
<i>Epacris obtusifolia</i>	Blunt-Leaf Heath;Blunt-leaf Heath			ALA (2010 - );BioNet (2010- )
<i>Epacris pulchella</i>	Wallum Heath			ALA (2010 - );BioNet (2010- )
<i>Epacris purpurascens</i>				ALA (2010 - );BioNet (2010- )

<i>Epacris purpurascens</i> var. <i>purpurascens</i>		V		BioNet (2010- )
<i>Epacris</i> spp.				BioNet (2010- )
<i>Epaltes australis</i>	Spreading Nut-heads			BioNet (2010- )
<i>Epilobium hirtigerum</i>				ALA (2010 - );BioNet (2010- )
<i>Eragrostis benthamii</i>				BioNet (2010- )
<i>Eragrostis brownii</i>	Brown's Lovegrass			ALA (2010 - );BioNet (2010- )
<i>Eragrostis leptostachya</i>	Paddock Lovegrass			ALA (2010 - );BioNet (2010- )
<i>Eragrostis parviflora</i>	Weeping Lovegrass			ALA (2010 - );BioNet (2010- )
<i>Eragrostis</i> spp.	A Lovegrass			BioNet (2010- )
<i>Erigeron bonariense</i>				ALA (2010 - )
<i>Erigeron canadensis</i>				ALA (2010 - )
<i>Erigeron sumatrensis</i>				ALA (2010 - )
<i>Eriocaulon australe</i>				ALA (2010 - )
<i>Eriochilus petricola</i>		P		ALA (2010 - );BioNet (2010- )
<i>Eriochloa procera</i>	Spring Grass			ALA (2010 - );BioNet (2010- )
<i>Eriostemon australasius</i>		P		ALA (2010 - );BioNet (2010- )
<i>Eucalyptus acmenoides</i>	White Mahogany			ALA (2010 - );BioNet (2010- )
<i>Eucalyptus agglomerata</i>	Blue-Leaved Stringybark;Blue-leaved Stringybark			ALA (2010 - );BioNet (2010- )
<i>Eucalyptus baileyana</i>				ALA (2010 - )
<i>Eucalyptus bakeri</i>				ALA (2010 - )
<i>Eucalyptus beyeriana</i>				ALA (2010 - );BioNet (2010- )
<i>Eucalyptus botryoides</i>	Bangalay			ALA (2010 - );BioNet (2010- )
<i>Eucalyptus burgessiana</i>				ALA (2010 - )
<i>Eucalyptus camfieldii</i>	Heart Leaved Stringybark;Cam-fields Stringybark		V	Hornsby Shire Council, 2013;ALA (2010 - )
<i>Eucalyptus capitellata</i>	Brown Stringybark			ALA (2010 - );BioNet (2010- );Hornsby Shire Council, 2013
<i>Eucalyptus crebra</i>	Narrow-leaved Ironbark			ALA (2010 - );BioNet (2010- );Hornsby Shire Council, 2013
<i>Eucalyptus deanei</i>	Mountain Blue Gum			ALA (2010 - );BioNet (2010- )
<i>Eucalyptus elata</i>	River Peppermint			Hornsby Shire Council, 2013
<i>Eucalyptus eugenioides</i>	Thin-Leaved Stringybark;Thin-leaved Stringybark			ALA (2010 - );BioNet (2010- );Hornsby Shire Council, 2013
<i>Eucalyptus fibrosa</i>	Broad leaf Ironbark;Red Iron-bark			Hornsby Shire Council, 2013;ALA (2010 - );BioNet (2010- )
<i>Eucalyptus globoidea</i>	White Stringybark			Hornsby Shire Council, 2013;ALA (2010 - );BioNet (2010- )
<i>Eucalyptus globulus</i>	Blue Gum			ALA (2010 - );BioNet (2010- )
<i>Eucalyptus grandis</i>	Flooded Gum			ALA (2010 - );BioNet (2010- )
<i>Eucalyptus haemastoma</i>	Broad-leaved Scribbly Gum			Hornsby Shire Council, 2013;ALA (2010 - );BioNet (2010- )
<i>Eucalyptus leucoxydon</i>	Red-Flowered Yellow Gum			ALA (2010 - )
<i>Eucalyptus longiflora</i>	Woollybutt			Hornsby Shire Council, 2013
<i>Eucalyptus luehmanianna</i>	Yellow Top Mallee Ash			Hornsby Shire Council, 2013;ALA (2010 - );BioNet (2010- )
<i>Eucalyptus melliodora</i>	Yellow Box			ALA (2010 - );BioNet (2010- )



<i>Eucalyptus microcorys</i>	Tallowwood			ALA (2010 - );BioNet (2010- )
<i>Eucalyptus multicaulis</i>	Whipstick Ash			ALA (2010 - );BioNet (2010- )
<i>Eucalyptus nicholii</i>	Narrow-leaved Peppermint, Narrow-leaved Black Peppermint		V	
<i>Eucalyptus obliqua</i>	Messmate Stringybark;Messmate			ALA (2010 - );BioNet (2010- )
<i>Eucalyptus oblonga</i>	Common Sandstone Stringybark			Hornsby Shire Council, 2013
<i>Eucalyptus paniculata</i>	Grey Ironbark			Hornsby Shire Council, 2013
<i>Eucalyptus paniculata</i> <i>subsp. paniculata</i>				BioNet (2010- )
<i>Eucalyptus pilularis</i>	Blackbutt			Hornsby Shire Council, 2013
<i>Eucalyptus piperita</i>	Sydney Peppermint			Hornsby Shire Council, 2013
<i>Eucalyptus punctata</i>	Gray Gum;Grey Gum			ALA (2010 - );BioNet (2010- )
<i>Eucalyptus racemosa</i>	Narrow-leaved Scribbly Gum			ALA (2010 - );BioNet (2010- )
<i>Eucalyptus radiata</i>	Gray Peppermint;Narrow-leaved Peppermint			ALA (2010 - );BioNet (2010- )
<i>Eucalyptus regnans</i>	Giant Gum			ALA (2010 - )
<i>Eucalyptus resinifera</i>	Red Mahogany			ALA (2010 - );BioNet (2010- )
<i>Eucalyptus resinifera</i> <i>subsp. resinifera</i>				BioNet (2010- )
<i>Eucalyptus robusta</i>	Swamp Mahogany			ALA (2010 - );BioNet (2010- )
<i>Eucalyptus saligna</i>	Sydney Blue Gum			ALA (2010 - );BioNet (2010- )
<i>Eucalyptus sclerophylla</i>	Hard-leaved Scribbly Gum			BioNet (2010- )
<i>Eucalyptus scoparia</i>	Wallangarra White Gum		V	ALA (2010 - )
<i>Eucalyptus siderophloia</i>	Northern Grey Ironbark			Hornsby Shire Council, 2013
<i>Eucalyptus sideroxylon</i>	Mugga Ironbox;Mugga Ironbark			ALA (2010 - );BioNet (2010- )
<i>Eucalyptus sieberi</i>	Black Mountain Ash;Silvertop Ash			ALA (2010 - );BioNet (2010- )
<i>Eucalyptus sp. Cattai</i>	(Gregson s.n., 28 Aug 1954) [89499]		CE	Species or species habitat likely to occur within area
<i>Eucalyptus sparsifolia</i>	Narrow-leaved Stringybark			ALA (2010 - );BioNet (2010- )
<i>Eucalyptus spp.</i>				BioNet (2010- )
<i>Eucalyptus squamosa</i>	Scaly Bark			ALA (2010 - );BioNet (2010- )
<i>Eucalyptus tereticornis</i>	Forest Red Gum			ALA (2010 - );BioNet (2010- )
<i>Eucalyptus umbra</i>	Broad-leaved White Mahogany			ALA (2010 - );BioNet (2010- )
<i>Eucalyptus woollsiana</i>				ALA (2010 - )
<i>Euchiton involucratus</i>	Creeping Cudweed;Star Cudweed			ALA (2010 - );BioNet (2010- )
<i>Euchiton japonicus</i>				ALA (2010 - );BioNet (2010- )
<i>Euchiton sphaericus</i>	Common Cudweed;Star Cudweed			ALA (2010 - );BioNet (2010- )
<i>Euphorbia maculata</i>	Nodding Spurge			ALA (2010 - )
<i>Euphorbia prostrata</i>				ALA (2010 - )
<i>Eupomatia laurina</i>	Bolwarra			ALA (2010 - );BioNet (2010- )
<i>Eurychorda complanata</i>				ALA (2010 - );BioNet (2010- )
<i>Euryomyrtus ramosissima</i>	Rosy Baeckea			ALA (2010 - );BioNet (2010- )
<i>Euryomyrtus ramosissima</i> <i>subsp. ramosissima</i>				BioNet (2010- )
<i>Eustrephus latifolius</i>	Wombat Berry			ALA (2010 - );BioNet (2010- )

<i>Exocarpos cupressiformis</i>	Cherry Ballart			ALA (2010 - );BioNet (2010- )
<i>Exocarpos strictus</i>	Dwarf Cherry			ALA (2010 - );BioNet (2010- )
<i>Ficinia nodosa</i>				ALA (2010 - )
<i>Ficus coronata</i>	Creek Sandpaper Fig			ALA (2010 - );BioNet (2010- )
<i>Ficus obliqua</i>	Small-leaved Fig			ALA (2010 - );BioNet (2010- )
<i>Ficus rubiginosa</i>	Botany Bay Fig;Port Jackson Fig			ALA (2010 - );BioNet (2010- )
<i>Fissidens pallidus</i>				ALA (2010 - )
<i>Foeniculum vulgare</i>	Fennel			ALA (2010 - )
<i>Fraxinus angustifolia</i>	Claret Ash			ALA (2010 - )
<i>Freesia leichtlinii</i>				ALA (2010 - )
<i>Fumaria muralis</i>	Scrambling Fumitory			ALA (2010 - )
<i>Gahnia aspera</i>	Rough Saw-sedge			ALA (2010 - );BioNet (2010- )
<i>Gahnia clarkei</i>	Tall Saw-sedge			ALA (2010 - );BioNet (2010- )
<i>Gahnia erythrocarpa</i>				ALA (2010 - );BioNet (2010- )
<i>Gahnia insignis</i>				ALA (2010 - )
<i>Gahnia melanocarpa</i>	Black Fruit Saw-sedge			ALA (2010 - );BioNet (2010- )
<i>Gahnia microstachya</i>	Slender Saw-Sedge			ALA (2010 - );BioNet (2010- )
<i>Gahnia radula</i>	Thatch Saw-Sedge			ALA (2010 - );BioNet (2010- )
<i>Gahnia sieberiana</i>	Red-fruit Saw-sedge	P		ALA (2010 - );BioNet (2010- )
<i>Galenia pubescens</i>				ALA (2010 - )
<i>Galium australe</i>	Tangled Bedstraw	E1		
<i>Galium binifolium</i>				ALA (2010 - );BioNet (2010- )
<i>Galium propinquum</i>	Maori Bedstraw			ALA (2010 - );BioNet (2010- )
<i>Geitonoplesium cymosum</i>	Scrambling Lily			ALA (2010 - );BioNet (2010- )
<i>Genoplesium baueri</i>	Bauer's Midge Orchid;Yellow Gnat-orchid		E	ALA (2010 - );BioNet (2010- )
<i>Genoplesium fimbriatum</i>	Fringed Midge Orchid	P		ALA (2010 - );BioNet (2010- )
<i>Genoplesium nudis-capum</i>	Dense Midge Orchid	P		ALA (2010 - );BioNet (2010- )
<i>Genoplesium plumosum</i>	Plumed Midge-orchid, Tallong Midge Orchid		E	
<i>Genoplesium ruppii</i>		P		ALA (2010 - );BioNet (2010- )
<i>Geranium homeanum</i>	Pinakitere			ALA (2010 - );BioNet (2010- )
<i>Geranium molle</i>	Dove's-Foot Cranesbill			ALA (2010 - )
<i>Geranium solanderi</i>	Matua-Kūmara;Native Geranium			ALA (2010 - );BioNet (2010- )
<i>Gibasis pellucida</i>				ALA (2010 - )
<i>Glebionis coronaria</i>				ALA (2010 - )
<i>Gleichenia dicarpa</i>	Matua-Rarauhe;Pouched Coral Fern			ALA (2010 - );BioNet (2010- )
<i>Gleichenia microphylla</i>	Carrier Tangle Fern;Scrambling Coral Fern			ALA (2010 - );BioNet (2010- )
<i>Gleichenia rupestris</i>				ALA (2010 - );BioNet (2010- )
<i>Glochidion ferdinandi</i> var. <i>ferdinandi</i>	Cheese Tree			BioNet (2010- )
<i>Glochidion ferdinandi</i> var. <i>pubens</i>	Hairy Cheese Tree			BioNet (2010- )
<i>Glossodia minor</i>	Small Waxlip Orchid	P		ALA (2010 - );BioNet (2010- )
<i>Glycine clandestina</i>	Twining Glycine;Twining glycine			ALA (2010 - );BioNet (2010- )

<i>Glycine microphylla</i>	Small-leaf Glycine			ALA (2010 - );BioNet (2010- )
<i>Glycine tabacina</i>	Variable Glycine			ALA (2010 - );BioNet (2010- )
<i>Gomphocarpus physocarpus</i>	Balloon Cotton Bush			ALA (2010 - )
<i>Gompholobium glabratum</i>	Dainty Wedge Pea			ALA (2010 - );BioNet (2010- )
<i>Gompholobium grandiflorum</i>	Large Wedge Pea			ALA (2010 - );BioNet (2010- )
<i>Gompholobium latifolium</i>	Golden Glory Pea			ALA (2010 - );BioNet (2010- )
<i>Gompholobium minus</i>	Dwarf Wedge Pea			ALA (2010 - );BioNet (2010- )
<i>Gonocarpus chinensis</i>				ALA (2010 - )
<i>Gonocarpus chinensis subsp. verrucosus</i>				BioNet (2010- )
<i>Gonocarpus micranthus</i>	Piripiri			ALA (2010 - );BioNet (2010- )
<i>Gonocarpus micranthus subsp. micranthus</i>				BioNet (2010- )
<i>Gonocarpus tetragynus</i>	Poverty Raspwort			ALA (2010 - );BioNet (2010- )
<i>Gonocarpus teucrioides</i>	Germander Raspwort			ALA (2010 - );BioNet (2010- )
<i>Goodenia bellidifolia</i>				ALA (2010 - );BioNet (2010- )
<i>Goodenia bellidifolia subsp. bellidifolia</i>				BioNet (2010- )
<i>Goodenia dimorpha var. dimorpha</i>				BioNet (2010- )
<i>Goodenia hederacea</i>	Ivy Goodenia			ALA (2010 - );BioNet (2010- )
<i>Goodenia hederacea subsp. hederacea</i>				BioNet (2010- )
<i>Goodenia heteromera</i>				ALA (2010 - )
<i>Goodenia heterophylla</i>				ALA (2010 - );BioNet (2010- )
<i>Goodenia heterophylla subsp. heterophylla</i>				BioNet (2010- )
<i>Goodenia heterophylla subsp. montana</i>				BioNet (2010- )
<i>Goodenia ovata</i>	Hop Goodenia			ALA (2010 - );BioNet (2010- )
<i>Goodenia paniculata</i>				ALA (2010 - );BioNet (2010- )
<i>Grammitis billardierei</i>	Finger Fern			BioNet (2010- )
<i>Grammitis stenophylla</i>	Narrow-leaf Finger Fern	E1,3		ALA (2010 - );BioNet (2010- )
<i>Grevillea buxifolia</i>	Grey Spider Flower			ALA (2010 - );BioNet (2010- )
<i>Grevillea buxifolia subsp. buxifolia</i>				BioNet (2010- )
<i>Grevillea caleyi</i>	Caley's Grevillea		CE	
<i>Grevillea juniperina</i>				ALA (2010 - )
<i>Grevillea linearifolia</i>	Linear-leaf Grevillea			ALA (2010 - );BioNet (2010- )
<i>Grevillea longifolia</i>		P		ALA (2010 - );BioNet (2010- )
<i>Grevillea mucronulata</i>				ALA (2010 - );BioNet (2010- )
<i>Grevillea parviflora</i>				ALA (2010 - )
<i>Grevillea parviflora subsp. supplicans</i>		E1		BioNet (2010- )
<i>Grevillea robusta</i>	Silky Oak			ALA (2010 - );BioNet (2010- )
<i>Grevillea sericea</i>	Pink Spider Flower			ALA (2010 - );BioNet (2010- )
<i>Grevillea sericea subsp. sericea</i>				BioNet (2010- )
<i>Grevillea shiressii</i>		V	V	

<i>Grevillea speciosa</i>	Red Spider Flower			ALA (2010 - );BioNet (2010- )
<i>Gymnoschoenus sphaerocephalus</i>	Button Grass			ALA (2010 - );BioNet (2010- )
<i>Gymnostachys anceps</i>	Settler's Flax;Settler's Twine			ALA (2010 - );BioNet (2010- )
<i>Gynochthodes jasminoides</i>	Sweet Morinda			ALA (2010 - );BioNet (2010- )
<i>Haemodorum corymbosum</i>				ALA (2010 - );BioNet (2010- )
<i>Haemodorum planifolium</i>				ALA (2010 - );BioNet (2010- )
<i>Hakea bakeriana</i>				ALA (2010 - );BioNet (2010- )
<i>Hakea dactyloides</i>	Finger Hakea			ALA (2010 - );BioNet (2010- );Hornsby Shire Council, 2013
<i>Hakea gibbosa</i>				ALA (2010 - );BioNet (2010- )
<i>Hakea laevipes</i>				ALA (2010 - );BioNet (2010- )
<i>Hakea laevipes subsp. laevipes</i>				BioNet (2010- )
<i>Hakea propinqua</i>				ALA (2010 - );BioNet (2010- )
<i>Hakea salicifolia</i>	Willow-Leaved Hakea;Willow-leaved Hakea			ALA (2010 - );BioNet (2010- )
<i>Hakea salicifolia subsp. salicifolia</i>				BioNet (2010- )
<i>Hakea sericea</i>	Needle Bush;Needlebush			ALA (2010 - );BioNet (2010- )
<i>Hakea teretifolia</i>	Dagger Hakea;Needlebush			ALA (2010 - );BioNet (2010- )
<i>Hakea teretifolia subsp. teretifolia</i>				BioNet (2010- )
<i>Haloragis exalata subsp. exalata</i>	Wingless Raspwort, Square Raspwort	V	V	
<i>Haloragodendron lucasii</i>		E1	E	
<i>Hardenbergia violacea</i>	Purple Coral Pea;False Sarsaparilla			ALA (2010 - );BioNet (2010- )
<i>Harmogia densifolia</i>				ALA (2010 - );BioNet (2010- )
<i>Hemarthria uncinata</i>	Matgrass			ALA (2010 - );BioNet (2010- )
<i>Hemarthria uncinata var. uncinata</i>				BioNet (2010- )
<i>Hemigenia purpurea</i>				ALA (2010 - );BioNet (2010- )
<i>Hibbertia acicularis</i>				ALA (2010 - );BioNet (2010- )
<i>Hibbertia aspera</i>	Rough Guinea Flower			ALA (2010 - );BioNet (2010- )
<i>Hibbertia aspera subsp. aspera</i>				BioNet (2010- )
<i>Hibbertia bracteata</i>				ALA (2010 - );BioNet (2010- )
<i>Hibbertia cistiflora</i>				ALA (2010 - )
<i>Hibbertia cistiflora subsp. cistiflora</i>				BioNet (2010- )
<i>Hibbertia crinita</i>	Mount Hope Guinea-Flower			ALA (2010 - )
<i>Hibbertia dentata</i>	Twining Guinea Flower			ALA (2010 - );BioNet (2010- )
<i>Hibbertia diffusa</i>	Wedge Guinea Flower			ALA (2010 - );BioNet (2010- )
<i>Hibbertia empetrifolia</i>				ALA (2010 - )
<i>Hibbertia empetrifolia subsp. empetrifolia</i>				BioNet (2010- )
<i>Hibbertia hypericoides</i>				ALA (2010 - )
<i>Hibbertia linearis</i>				ALA (2010 - );BioNet (2010- )
<i>Hibbertia monogyne</i>	Leafy Guinea-Flower			ALA (2010 - );BioNet (2010- )

<i>Hibbertia obtusifolia</i>	Grey Guinea-Flower;Hoary Guinea Flower			ALA (2010 - );BioNet (2010- )
<i>Hibbertia puberula</i>	Hibbertia Puberula			ALA (2010 - )
<i>Hibbertia riparia</i>				BioNet (2010- )
<i>Hibbertia scandens</i>	Guinea Flower;Climbing Guinea Flower			ALA (2010 - );BioNet (2010- )
<i>Hibbertia spanantha</i>	Julian's Hibbertia	E4a	CE	ALA (2010 - )
<i>Hibbertia superans</i>		E1		BioNet (2010- )
<i>Hibiscus heterophyllus</i>				ALA (2010 - )
<i>Hibiscus heterophyllus subsp. heterophyllus</i>	Native Rosella			BioNet (2010- )
<i>Histiopteris incisa</i>	Histiopteris;Bat's Wing Fern			ALA (2010 - );BioNet (2010- )
<i>Homalanthus populifolius</i>	Bleeding Heart Tree			ALA (2010 - );BioNet (2010- )
<i>Hovea linearis</i>				ALA (2010 - );BioNet (2010- )
<i>Hovea longifolia</i>	Rusty Pods			ALA (2010 - );BioNet (2010- )
<i>Howea forsteriana</i>	Thatch Palm;Kentia Palm	P		ALA (2010 - );BioNet (2010- )
<i>Hybanthus monopetalus</i>	Slender Violet-bush			ALA (2010 - );BioNet (2010- )
<i>Hybanthus vernonii</i>				ALA (2010 - );BioNet (2010- )
<i>Hybanthus vernonii subsp. vernonii</i>				BioNet (2010- )
<i>Hydrocotyle hirta</i>	Hairy Pennywort			ALA (2010 - );BioNet (2010- )
<i>Hydrocotyle laxiflora</i>	Stinking Pennywort			ALA (2010 - );BioNet (2010- )
<i>Hydrocotyle sibthorpioides</i>				ALA (2010 - );BioNet (2010- )
<i>Hydrocotyle tripartita</i>	Pennywort			BioNet (2010- )
<i>Hymenophyllum cupressiforme</i>	Common Filmy Fern			ALA (2010 - );BioNet (2010- )
<i>Hymenosporum flavum</i>	Australian Frangipani;Native Frangipani			ALA (2010 - );BioNet (2010- )
<i>Hypericum gramineum</i>	Rolled-Leaf Hypericum;Small St John's Wort			ALA (2010 - );BioNet (2010- )
<i>Hypericum japonicum</i>	Matted Saint John's Wort			ALA (2010 - );BioNet (2010- )
<i>Hypolaena fastigiata</i>				ALA (2010 - );BioNet (2010- )
<i>Hypolepis muelleri</i>	Harsh Ground Fern			ALA (2010 - );BioNet (2010- )
<i>Imperata cylindrica</i>	Blady Grass			ALA (2010 - );BioNet (2010- )
<i>Indigofera australis</i>	Australian Indigo			ALA (2010 - );BioNet (2010- )
<i>Indigofera decora</i>	Chinese Indigo			ALA (2010 - )
<i>Inga edulis</i>	Icecream Bean			ALA (2010 - )
<i>Isolepis inundata</i>	Club-rush			ALA (2010 - );BioNet (2010- )
<i>Isopogon anemonifolius</i>	Broad-leaf Drumsticks	P		ALA (2010 - );BioNet (2010- )
<i>Isopogon anethifolius</i>	Narrow-leaf Drumsticks	P		ALA (2010 - );BioNet (2010- )
<i>Jacksonia scoparia</i>	Dogwood			ALA (2010 - );BioNet (2010- )
<i>Jasminum mesnyi</i>	Primrose Jasmine			ALA (2010 - );BioNet (2010- )
<i>Juncus continuus</i>				ALA (2010 - );BioNet (2010- )
<i>Juncus kraussii subsp. australiensis</i>	Sea Rush			BioNet (2010- )
<i>Juncus mollis</i>				ALA (2010 - );BioNet (2010- )
<i>Juncus pauciflorus</i>	Common Rush			ALA (2010 - );BioNet (2010- )
<i>Juncus planifolius</i>	Flat-Leaved Rush			ALA (2010 - );BioNet (2010- )
<i>Juncus prismatocarpus</i>	Angled-Fruit Rush			ALA (2010 - );BioNet (2010- )
<i>Juncus spp.</i>	A Rush			BioNet (2010- )

<i>Juncus usitatus</i>	Common Rush			ALA (2010 - );BioNet (2010- )
<i>Kennedia rubicunda</i>	Dusky Coral Pea			ALA (2010 - );BioNet (2010- )
<i>Kunzea ambigua</i>	Tick Bush	P		ALA (2010 - );BioNet (2010- )
<i>Kunzea capitata</i>		P		ALA (2010 - );BioNet (2010- )
<i>Kunzea rupestris</i>		V	V	ALA (2010 - );BioNet (2010- )
<i>Lachnagrostis filiformis</i>	New Zealand Wind Grass			ALA (2010 - );BioNet (2010- )
<i>Lactuca sativa</i>	Lettuce			ALA (2010 - )
<i>Lagenifera stipitata</i>	Blue Bottle-daisy			BioNet (2010- )
<i>Lagenophora gracilis</i>	Slender Lagenophora			ALA (2010 - );BioNet (2010- )
<i>Lagenophora stipitata</i>	Common Lagenophora			ALA (2010 - );BioNet (2010- )
<i>Lambertia formosa</i>	Mountain Devil			ALA (2010 - );BioNet (2010- )
<i>Lasiopetalum ferrugineum</i>	Rusty Velvet-Bush			ALA (2010 - );BioNet (2010- )
<i>Lasiopetalum ferrugineum var. ferrugineum</i>				BioNet (2010- )
<i>Lasiopetalum joyceae</i>		V	V	ALA (2010 - );BioNet (2010- )
<i>Lasiopetalum macrophyllum</i>	Shrubby Velvet-bush			ALA (2010 - );BioNet (2010- )
<i>Lasiopetalum rufum</i>				ALA (2010 - );BioNet (2010- )
<i>Lastreopsis decomposita</i>	Trim Shield Fern			ALA (2010 - );BioNet (2010- )
<i>Lastreopsis microsora</i>				ALA (2010 - )
<i>Lastreopsis microsora subsp. microsora</i>	Creeping Shield Fern			BioNet (2010- )
<i>Laxmannia compacta</i>				ALA (2010 - );BioNet (2010- )
<i>Laxmannia gracilis</i>	Slender Wire Lily			ALA (2010 - );BioNet (2010- )
<i>Leionema dentatum</i>	Toothed Phebalium			ALA (2010 - );BioNet (2010- )
<i>Lemna trisulca</i>				ALA (2010 - )
<i>Lepidium pseudohyssopifolium</i>	Peppercress			ALA (2010 - );BioNet (2010- )
<i>Lepidosperma concavum</i>				ALA (2010 - );BioNet (2010- )
<i>Lepidosperma elatius</i>				ALA (2010 - );BioNet (2010- )
<i>Lepidosperma filiforme</i>				ALA (2010 - );BioNet (2010- )
<i>Lepidosperma gunnii</i>				ALA (2010 - );BioNet (2010- )
<i>Lepidosperma latens</i>				ALA (2010 - );BioNet (2010- )
<i>Lepidosperma laterale</i>	Sword Sedge;Variable Sword-sedge			ALA (2010 - );BioNet (2010- )
<i>Lepidosperma neesii</i>	Stiff Rapier-Sedge			ALA (2010 - );BioNet (2010- )
<i>Lepidosperma urophorum</i>				ALA (2010 - );BioNet (2010- )
<i>Lepidosperma viscidum</i>	Sticky Sword-Sedge			ALA (2010 - );BioNet (2010- )
<i>Lepironia articulata</i>				ALA (2010 - );BioNet (2010- )
<i>Leptocarpus tenax</i>				ALA (2010 - );BioNet (2010- )
<i>Leptomeria acida</i>	Sour Currant Bush			ALA (2010 - );BioNet (2010- )
<i>Leptospermum arachnoides</i>				ALA (2010 - );BioNet (2010- )
<i>Leptospermum deanei</i>	Deane's Tea-tree		V	Hornsby Shire Council (2019)
<i>Leptospermum grandifolium</i>	Woolly Teatree			ALA (2010 - );BioNet (2010- )
<i>Leptospermum juniperinum</i>	Prickly Tea-tree			ALA (2010 - );BioNet (2010- )
<i>Leptospermum laevigatum</i>	Coastal Tea Tree;Coast Teatree			ALA (2010 - );BioNet (2010- )

<i>Leptospermum parvifolium</i>				ALA (2010 - );BioNet (2010- )
<i>Leptospermum peterstonii</i>	Lemon-Scented Tea Tree;Lemon-scented Teatree			ALA (2010 - );BioNet (2010- )
<i>Leptospermum polyanthum</i>				ALA (2010 - );BioNet (2010- )
<i>Leptospermum polygalifolium</i>	Tantoon			ALA (2010 - );BioNet (2010- )
<i>Leptospermum polygalifolium subsp. polygalifolium</i>				BioNet (2010- )
<i>Leptospermum squarrosus</i>				ALA (2010 - );BioNet (2010- )
<i>Leptospermum trinervium</i>	Slender Tea-tree			ALA (2010 - );BioNet (2010- )
<i>Lepyrodia muelleri</i>				ALA (2010 - );BioNet (2010- )
<i>Lepyrodia scariosa</i>				ALA (2010 - );BioNet (2010- )
<i>Leucopogon affinis</i>				ALA (2010 - )
<i>Leucopogon amplexicaulis</i>	Beard-heath			ALA (2010 - );BioNet (2010- )
<i>Leucopogon appressus</i>				ALA (2010 - );BioNet (2010- )
<i>Leucopogon ericoides</i>	Pink Beard-heath			ALA (2010 - );BioNet (2010- )
<i>Leucopogon esquamatus</i>	Swamp Beard-Heath			ALA (2010 - );BioNet (2010- )
<i>Leucopogon juniperinus</i>	Prickly Beard-heath			ALA (2010 - );BioNet (2010- )
<i>Leucopogon lanceolatus</i>				BioNet (2010- )
<i>Leucopogon lanceolatus var. lanceolatus</i>				BioNet (2010- )
<i>Leucopogon microphyllus</i>	Hairy Beard-Heath			ALA (2010 - );BioNet (2010- )
<i>Leucopogon microphyllus var. microphyllus</i>				BioNet (2010- )
<i>Leucopogon muticus</i>	Blunt Beard-heath			ALA (2010 - );BioNet (2010- )
<i>Leucopogon setiger</i>				ALA (2010 - );BioNet (2010- )
<i>Leucopogon spp.</i>	A Beard-heath			BioNet (2010- )
<i>Lindsaea linearis</i>	Screw Fern			ALA (2010 - );BioNet (2010- )
<i>Lindsaea microphylla</i>	Lacy Wedge Fern			ALA (2010 - );BioNet (2010- )
<i>Lissanthe strigosa subsp. subulata</i>	Peach Heath			BioNet (2010- )
<i>Livistona australis</i>	Australian Fan Palm;Cabbage Palm	P		ALA (2010 - );BioNet (2010- )
<i>Lobelia anceps</i>	New Zealand Lobelia			ALA (2010 - );BioNet (2010- )
<i>Lobelia dentata</i>				ALA (2010 - );BioNet (2010- )
<i>Lobelia pedunculata</i>				ALA (2010 - )
<i>Logania albiflora</i>				ALA (2010 - );BioNet (2010- )
<i>Logania pusilla</i>	Tiny Logania			ALA (2010 - );BioNet (2010- )
<i>Lomandra brevis</i>				ALA (2010 - );BioNet (2010- )
<i>Lomandra confertifolia</i>	Matrush			ALA (2010 - );BioNet (2010- )
<i>Lomandra confertifolia subsp. rubiginosa</i>				BioNet (2010- )
<i>Lomandra cylindrica</i>	Needle Mat-Rush			ALA (2010 - );BioNet (2010- )
<i>Lomandra filiformis</i>	Wattle Matt-rush			ALA (2010 - );BioNet (2010- )
<i>Lomandra filiformis subsp. coriacea</i>	Wattle Matt-rush			BioNet (2010- )

<i>Lomandra filiformis</i> subsp. <i>filiformis</i>				BioNet (2010- )
<i>Lomandra fluviatilis</i>				ALA (2010 - );BioNet (2010- )
<i>Lomandra glauca</i>	Pale Mat-rush			ALA (2010 - );BioNet (2010- )
<i>Lomandra gracilis</i>				ALA (2010 - );BioNet (2010- )
<i>Lomandra longifolia</i>	Spiny-Headed Mat Rush;Spiny-headed Mat-rush			ALA (2010 - );BioNet (2010- )
<i>Lomandra micrantha</i>				ALA (2010 - )
<i>Lomandra micrantha</i> subsp. <i>tuberculata</i>	Small-flowered Mat-rush			BioNet (2010- )
<i>Lomandra multiflora</i>				ALA (2010 - )
<i>Lomandra multiflora</i> subsp. <i>multiflora</i>	Many-flowered Mat-rush			BioNet (2010- )
<i>Lomandra obliqua</i>				ALA (2010 - );BioNet (2010- )
<i>Lomatia myricoides</i>	River Lomatia			ALA (2010 - );BioNet (2010- )
<i>Lomatia myricoides</i> x <i>silaifolia</i>				BioNet (2010- )
<i>Lomatia silaifolia</i>	Crinkle Bush	P		ALA (2010 - );BioNet (2010- )
<i>Lonicera sempervirens</i>				ALA (2010 - )
<i>Lophostemon confertus</i>	Brisbane Box;Brush Box			ALA (2010 - );BioNet (2010- )
<i>Lotus angustissimus</i>	Slender Birdsfoot Trefoil			ALA (2010 - )
<i>Ludwigia peploides</i>	Primrose Willow			ALA (2010 - )
<i>Lunularia cruciata</i>				ALA (2010 - )
<i>Lycopodiella lateralis</i>	Slender Clubmoss			ALA (2010 - );BioNet (2010- )
<i>Lycopodium deuterodensum</i>	Puakarimu;Bushy Clubmoss	P		ALA (2010 - );BioNet (2010- )
<i>Lyperanthus suaveolens</i>	Brown Beaks	P		ALA (2010 - );BioNet (2010- )
<i>Lythrum hyssopifolia</i>	Hyssop Loosestrife			ALA (2010 - )
<i>Macadamia integrifolia</i>	Smooth-Leaved Queensland Nut			ALA (2010 - )
<i>Macadamia tetraphylla</i>	Californian Nut			ALA (2010 - )
<i>Macrozamia communis</i>	Burrawang	P		ALA (2010 - );BioNet (2010- )
<i>Macrozamia flexuosa</i>		P		ALA (2010 - );BioNet (2010- )
<i>Macrozamia spiralis</i>		P		ALA (2010 - );BioNet (2010- )
<i>Malus pumila</i>				ALA (2010 - )
<i>Marchantia berteroana</i>				ALA (2010 - )
<i>Marsdenia rostrata</i>	Milk Vine			ALA (2010 - );BioNet (2010- )
<i>Marsdenia suaveolens</i>	Scented Marsdenia			ALA (2010 - );BioNet (2010- )
<i>Marsdenia viridiflora</i>				ALA (2010 - )
<i>Marsdenia viridiflora</i> subsp. <i>viridiflora</i>	Native Pear			BioNet (2010- )
<i>Melaleuca armillaris</i>				ALA (2010 - )
<i>Melaleuca armillaris</i> subsp. <i>armillaris</i>	Bracelet Honey-myrtle			BioNet (2010- )
<i>Melaleuca biconvexa</i>	Biconvex Paperbark	V	V	Hornsby Shire Council (2019)
<i>Melaleuca deanei</i>	Deane's Paperbark	V	V	ALA (2010 - );BioNet (2010- )
<i>Melaleuca decora</i>	White feather honey-myrtle			Hornsby Shire Council, 2013
<i>Melaleuca ericifolia</i>	Swamp Paperbark			ALA (2010 - );BioNet (2010- )
<i>Melaleuca hypericifolia</i>	Hillock bush			ALA (2010 - );BioNet (2010- )
<i>Melaleuca linariifolia</i>	Flax-leaved Paperbark			ALA (2010 - );BioNet (2010- )
<i>Melaleuca quinquenervia</i>	Broad-leaved Paperbark			ALA (2010 - );BioNet (2010- )



<i>Melaleuca sieberi</i>				ALA (2010 - );BioNet (2010- )
<i>Melaleuca styphelioides</i>	Prickly-leaved Tea Tree			ALA (2010 - );BioNet (2010- )
<i>Melaleuca thymifolia</i>				ALA (2010 - )
<i>Melia azedarach</i>	Bead Tree;White Cedar			ALA (2010 - );BioNet (2010- )
<i>Melianthus major</i>	Cape Honey Flower			ALA (2010 - )
<i>Melichrus procumbens</i>	Jam Tarts			ALA (2010 - );BioNet (2010- )
<i>Melichrus urceolatus</i>	Urn Heath			ALA (2010 - );BioNet (2010- )
<i>Micrantheum ericoides</i>				ALA (2010 - );BioNet (2010- )
<i>Microlaena stipoides</i>	Meadow Rice Grass;Weeping Grass			ALA (2010 - );BioNet (2010- )
<i>Microlaena stipoides var. stipoides</i>	Weeping Grass			BioNet (2010- )
<i>Micromyrtus blakelyi</i>		V	V	ALA (2010 - );BioNet (2010- )
<i>Micromyrtus ciliata</i>	Fringed Heath-Myrtle;Fringed Heath-myrtle			ALA (2010 - );BioNet (2010- )
<i>Microtis parviflora</i>	Slender Onion Orchid	P		ALA (2010 - );BioNet (2010- )
<i>Microtis rara</i>	Scented Onion Orchid	P		ALA (2010 - );BioNet (2010- )
<i>Microtis unifolia</i>	Common Onion Orchid	P		ALA (2010 - );BioNet (2010- )
<i>Mirbelia rubiifolia</i>	Heathy Mirbelia			ALA (2010 - );BioNet (2010- )
<i>Mirbelia speciosa</i>				ALA (2010 - )
<i>Mirbelia speciosa subsp. speciosa</i>				BioNet (2010- )
<i>Mitrasacme pilosa</i>				BioNet (2010- )
<i>Mitrasacme polymorpha</i>				ALA (2010 - );BioNet (2010- )
<i>Monotaxis linifolia</i>				ALA (2010 - );BioNet (2010- )
<i>Monotoca elliptica</i>	Tree Broom-heath			ALA (2010 - );BioNet (2010- )
<i>Monotoca scoparia</i>				ALA (2010 - );BioNet (2010- )
<i>Muehlenbeckia gracillima</i>	Slender Lignum			ALA (2010 - );BioNet (2010- )
<i>Muellerina celastroides</i>				ALA (2010 - );BioNet (2010- )
<i>Muellerina eucalyptoides</i>				ALA (2010 - );BioNet (2010- )
<i>Musa x paradisiaca</i>				ALA (2010 - )
<i>Myoporum acuminatum</i>	Boobialla			ALA (2010 - );BioNet (2010- )
<i>Myoporum montanum</i>	Boobialla			ALA (2010 - )
<i>Myrsine howittiana</i>	Brush Muttonwood			ALA (2010 - );BioNet (2010- )
<i>Myrsine variabilis</i>				ALA (2010 - );BioNet (2010- )
<i>Nematolepis squamea subsp. squamea</i>	Satinwood			BioNet (2010- )
<i>Nephrolepis cordifolia</i>	Erect Sword Fern;Fishbone Fern			ALA (2010 - );BioNet (2010- )
<i>Notelaea longifolia</i>	Large Mock-olive			ALA (2010 - );BioNet (2010- )
<i>Notelaea longifolia f. longifolia</i>				BioNet (2010- )
<i>Notelaea ovata</i>				ALA (2010 - );BioNet (2010- )
<i>Notogrammitis billardiarei</i>				ALA (2010 - )
<i>Notothixos subaureus</i>	Golden Mistletoe			ALA (2010 - );BioNet (2010- )
<i>Ochrosperma lineare</i>				ALA (2010 - )
<i>Olax stricta</i>				ALA (2010 - );BioNet (2010- )
<i>Olearia cordata</i>			V	Hornsby Shire Council, 2019
<i>Olearia microphylla</i>				ALA (2010 - );BioNet (2010- )
<i>Olearia tomentosa</i>	Toothed Daisy Bush;Toothed Daisy-bush			ALA (2010 - );BioNet (2010- )

<i>Omalanthus populifolius</i>	Bleeding Heart			Hornsby Shire Council, 2013
<i>Omphacomeria acerba</i>				ALA (2010 - );BioNet (2010- )
<i>Onopordum acanthium</i>	Cotton Thistle			ALA (2010 - )
<i>Opercularia aspera</i>	Coarse Stinkweed			ALA (2010 - );BioNet (2010- )
<i>Opercularia diphylla</i>	Stinkweed			ALA (2010 - );BioNet (2010- )
<i>Opercularia hispida</i>	Hairy Stinkweed			ALA (2010 - );BioNet (2010- )
<i>Opercularia varia</i>	Variable Stinkweed			ALA (2010 - );BioNet (2010- )
<i>Ophioglossum lusitanicum</i>				ALA (2010 - )
<i>Oplismenus aemulus</i>				ALA (2010 - );BioNet (2010- )
<i>Oplismenus hirtellus</i>				ALA (2010 - )
<i>Oplismenus imbecillis</i>				BioNet (2010- )
<i>Oplismenus spp.</i>				BioNet (2010- )
<i>Orthoceras strictum</i>	Bird's-mouth Orchid	P		ALA (2010 - );BioNet (2010- )
<i>Osteospermum fruticosum</i>				BioNet (2010- )
<i>Oxalis chnoodes</i>				ALA (2010 - );BioNet (2010- )
<i>Oxalis exilis</i>	Creeping Oxalis			ALA (2010 - );BioNet (2010- )
<i>Oxalis perennans</i>	Woody-Root Oxalis			ALA (2010 - );BioNet (2010- )
<i>Oxalis rubens</i>	Wood Sorrel			ALA (2010 - );BioNet (2010- )
<i>Ozothamnus diosmifolius</i>	White Dogwood			ALA (2010 - );BioNet (2010- )
<i>Palmeria spp.</i>				BioNet (2010- )
<i>Pandorea pandorana</i>	Lance Wood;Wonga Wonga Vine			ALA (2010 - );BioNet (2010- )
<i>Pandorea pandorana subsp. pandorana</i>	Wonga Wonga Vine			BioNet (2010- )
<i>Panicum simile</i>	Two-colour Panic			ALA (2010 - );BioNet (2010- )
<i>Paraserianthes lophantha</i>	Brush Wattle			ALA (2010 - )
<i>Parsonia straminea</i>	Common Silkpod			ALA (2010 - );BioNet (2010- )
<i>Paspalidium criniforme</i>				ALA (2010 - );BioNet (2010- )
<i>Paspalidium distans</i>				ALA (2010 - );BioNet (2010- )
<i>Passiflora herbertiana</i>				ALA (2010 - );BioNet (2010- )
<i>Passiflora suberosa</i>	Corky Passion Flower;Cork Passionfruit			ALA (2010 - );BioNet (2010- )
<i>Passiflora subpeltata</i>	White Passion Fruit;White Passionflower			ALA (2010 - );BioNet (2010- )
<i>Passiflora tarminiana</i>	Banana Passionfruit			BioNet (2010- )
<i>Patersonia fragilis</i>	Swamp Iris			ALA (2010 - );BioNet (2010- )
<i>Patersonia glabrata</i>	Leafy Purple-flag			ALA (2010 - );BioNet (2010- )
<i>Patersonia longifolia</i>				BioNet (2010- )
<i>Patersonia sericea</i>	Silky Purple-Flag			ALA (2010 - );BioNet (2010- )
<i>Pelargonium inodorum</i>	Kōpata			ALA (2010 - );BioNet (2010- )
<i>Pellaea falcata</i>	Australian Cliff Brake;Sickle Fern			ALA (2010 - );BioNet (2010- )
<i>Persicaria decipiens</i>	Slender Knotweed			ALA (2010 - );BioNet (2010- )
<i>Persicaria hydropiper</i>	Water Pepper			ALA (2010 - );BioNet (2010- )
<i>Persicaria lapathifolia</i>	Pale Knotweed			ALA (2010 - );BioNet (2010- )
<i>Persicaria strigosa</i>				ALA (2010 - );BioNet (2010- )
<i>Persoonia hirsuta</i>	Hairy Geebung	E1	E	
<i>Persoonia isophylla</i>		P		ALA (2010 - );BioNet (2010- )

<i>Persoonia lanceolata</i>	Lance Leaf Geebung	P		ALA (2010 - );BioNet (2010- )
<i>Persoonia laurina</i>	Laurel Geebung	P		ALA (2010 - );BioNet (2010- )
<i>Persoonia laurina subsp. laurina</i>		P		BioNet (2010- )
<i>Persoonia levis</i>	Broad Leaved Geebung;Broad-leaved Geebung	P		ALA (2010 - );BioNet (2010- )
<i>Persoonia linearis</i>	Narrow-leaved Geebung	P		ALA (2010 - );BioNet (2010- )
<i>Persoonia mollis</i>				ALA (2010 - )
<i>Persoonia mollis subsp. maxima</i>		E1,P	E	BioNet (2010- )
<i>Persoonia pinifolia</i>	Pine-leaved Geebung	P		ALA (2010 - );BioNet (2010- )
<i>Persoonia mollis subsp. maxima</i>	[56075]		E	Species or species habitat known to occur within area
<i>Petalostylis labicheoides</i>				ALA (2010 - )
<i>Petrophile pedunculata</i>		P		ALA (2010 - );BioNet (2010- )
<i>Petrophile pulchella</i>	Conesticks	P		ALA (2010 - );BioNet (2010- )
<i>Petrophile sessilis</i>		P		ALA (2010 - );BioNet (2010- )
<i>Phebalium squamulosum</i>	Scaly Phebalium	P		ALA (2010 - );BioNet (2010- )
<i>Phebalium squamulosum subsp. argenteum</i>		P		BioNet (2010- )
<i>Phebalium squamulosum subsp. squamulosum</i>		P		BioNet (2010- )
<i>Philotheca buxifolia</i>		P		ALA (2010 - );BioNet (2010- )
<i>Philotheca buxifolia subsp. obovata</i>		P		BioNet (2010- )
<i>Philotheca hispidula</i>		P		ALA (2010 - );BioNet (2010- )
<i>Philotheca myoporoides</i>	Long-leaf Wax Flower	P		ALA (2010 - );BioNet (2010- )
<i>Philotheca salsolifolia</i>		P		ALA (2010 - );BioNet (2010- )
<i>Philotheca salsolifolia subsp. salsolifolia</i>		P		BioNet (2010- )
<i>Philydrum lanuginosum</i>	Frogsmouth			ALA (2010 - );BioNet (2010- )
<i>Phragmites australis</i>	Common Reed			ALA (2010 - );BioNet (2010- )
<i>Phyllanthus gunnii</i>				ALA (2010 - )
<i>Phyllanthus hirtellus</i>	Thyme Spurge			ALA (2010 - );BioNet (2010- )
<i>Phyllota grandiflora</i>	Heath Phyllota			ALA (2010 - );BioNet (2010- )
<i>Phyllota phyllicoides</i>	Heath Phyllota			ALA (2010 - );BioNet (2010- )
<i>Pimelea curviflora</i>	Rice Flower			ALA (2010 - );BioNet (2010- )
<i>Pimelea curviflora var. curviflora</i>		V	V	BioNet (2010- )
<i>Pimelea latifolia</i>				ALA (2010 - );BioNet (2010- )
<i>Pimelea linifolia</i>	Slender Rice Flower			ALA (2010 - );BioNet (2010- )
<i>Pimelea linifolia subsp. caesia</i>				BioNet (2010- )
<i>Pimelea linifolia subsp. linifolia</i>				BioNet (2010- )
<i>Pimelea spicata</i>	Spiked Rice-flower [20834]		E	Species or species habitat may occur within area
<i>Pittosporum multiflorum</i>	Orange Thorn			ALA (2010 - );BioNet (2010- )
<i>Pittosporum revolutum</i>	Rough Fruit Pittosporum			ALA (2010 - );BioNet (2010- )
<i>Pittosporum undulatum</i>	Australian Daphne;Sweet Pittosporum			ALA (2010 - );BioNet (2010- )
<i>Plantago debilis</i>	Shade Plantain			ALA (2010 - );BioNet (2010- )

<i>Plantago gaudichaudii</i>	Swamp Plantain; Narrow Plantain			ALA (2010 - ); BioNet (2010- )
<i>Platanus hispanica</i>				ALA (2010 - )
<i>Platyserium bifurcatum</i>	Elk's-Horn Fern; Elkhorn Fern	P		ALA (2010 - ); BioNet (2010- )
<i>Platylobium formosum</i>				ALA (2010 - ); BioNet (2010- )
<i>Platylobium formosum</i> subsp. <i>formosum</i>				BioNet (2010- )
<i>Platylobium parviflorum</i>	Small-flowered Flat-pea			ALA (2010 - ); BioNet (2010- )
<i>Platysace clelandii</i>				ALA (2010 - ); BioNet (2010- )
<i>Platysace ericoides</i>				ALA (2010 - ); BioNet (2010- )
<i>Platysace lanceolata</i>	Shrubby Platysace			ALA (2010 - ); BioNet (2010- )
<i>Platysace linearifolia</i>				ALA (2010 - ); BioNet (2010- )
<i>Plectorrhiza tridentata</i>	Tangle Orchid	P		ALA (2010 - ); BioNet (2010- )
<i>Plectranthus parviflorus</i>	Cockspur			ALA (2010 - ); BioNet (2010- )
<i>Plectranthus</i> spp.				BioNet (2010- )
<i>Plumbago auriculata</i>	Cape Leadwort			ALA (2010 - )
<i>Poa affinis</i>				ALA (2010 - ); BioNet (2010- )
<i>Poa labillardierei</i> var. <i>labillardierei</i>	Tussock			BioNet (2010- )
<i>Podocarpus elatus</i>	Brown Pine (Aust.)			ALA (2010 - )
<i>Podocarpus spinulosus</i>	Spiny-leaf Podocarp			BioNet (2010- )
<i>Polyscias sambucifolia</i>	Elderberry Panax			ALA (2010 - ); BioNet (2010- )
<i>Polyscias sambucifolia</i> subsp. <i>sambucifolia</i>				BioNet (2010- )
<i>Pomaderris discolor</i>	Eastern Pomaderris			ALA (2010 - ); BioNet (2010- )
<i>Pomaderris elliptica</i> sub- sp. <i>elliptica</i>				BioNet (2010- )
<i>Pomaderris ferruginea</i>				ALA (2010 - ); BioNet (2010- )
<i>Pomaderris intermedia</i>	Lemon Dogwood			ALA (2010 - ); BioNet (2010- )
<i>Pomaderris lanigera</i>	Woolly Pomaderris			ALA (2010 - ); BioNet (2010- )
<i>Pomaderris ligustrina</i>	Privet Pomaderris			ALA (2010 - ); BioNet (2010- )
<i>Pomaderris ligustrina</i> subsp. <i>ligustrina</i>				BioNet (2010- )
<i>Pomax umbellata</i>	Pomax			ALA (2010 - ); BioNet (2010- )
<i>Poranthera corymbosa</i>				ALA (2010 - ); BioNet (2010- )
<i>Poranthera ericifolia</i>				ALA (2010 - ); BioNet (2010- )
<i>Poranthera microphylla</i>	Small Poranthera			ALA (2010 - ); BioNet (2010- )
<i>Portulaca oleracea</i>	Purslane; Pigweed			ALA (2010 - ); BioNet (2010- )
<i>Posidonia australis</i>	Strapweed	E (local)	E (local)	ALA (2010 - )
<i>Prasophyllum petilum</i>	Petite Leek-Orchid			ALA (2010 - )
<i>Pratia pedunculata</i>	Matted Pratia			BioNet (2010- )
<i>Pratia purpurascens</i>	White Root; Whiteroot			ALA (2010 - ); BioNet (2010- )
<i>Prostanthera denticulata</i>	Rough Mint-bush			ALA (2010 - ); BioNet (2010- )
<i>Prostanthera howelliae</i>	Prostanthera			ALA (2010 - ); BioNet (2010- )
<i>Prostanthera linearis</i>	Narrow-Leaved Mint-Bush; Nar- row-leaved Mint-bush			ALA (2010 - ); BioNet (2010- )
<i>Prostanthera ovalifolia</i>				ALA (2010 - ); BioNet (2010- )
<i>Prostanthera</i> spp.				BioNet (2010- )

<i>Prostanthera junonis</i>	Somersby Mintbush [64960]		E	Species or species habitat may occur within area
<i>Prunus avium</i>	Cherry			ALA (2010 - )
<i>Pseuderanthemum variabile</i>	Pastel Flower			ALA (2010 - );BioNet (2010- )
<i>Pseudognaphalium luteoalbum</i>	Pukatea;Jersey Cudweed			ALA (2010 - );BioNet (2010- )
<i>Psidium guajava</i>	Yellow Guava			ALA (2010 - )
<i>Psilotum nudum</i>	Skeleton Fork Fern;Skeleton Fork-Fern			ALA (2010 - );BioNet (2010- )
<i>Pteridium esculentum</i>	Austral Bracken;Bracken			ALA (2010 - );BioNet (2010- )
<i>Pteris tremula</i>	Australian Bracken;Tender Brake			ALA (2010 - );BioNet (2010- )
<i>Pteris vittata</i>	Chinese Brake			ALA (2010 - );BioNet (2010- )
<i>Pterostylis acuminata</i>	Pointed Greenhood	P		ALA (2010 - );BioNet (2010- )
<i>Pterostylis chlorogramma</i>				ALA (2010 - )
<i>Pterostylis curta</i>	Blunt Greenhood	P		ALA (2010 - );BioNet (2010- )
<i>Pterostylis grandiflora</i>	Cobra Greenhood	P		ALA (2010 - );BioNet (2010- )
<i>Pterostylis longifolia</i>	Tall Greenhood	P		BioNet (2010- )
<i>Pterostylis nana</i>				ALA (2010 - )
<i>Pterostylis nigricans</i>				
<i>Pterostylis nutans</i>	Nodding Greenhood	P		ALA (2010 - );BioNet (2010- )
<i>Pterostylis parviflora</i>	Tiny Greenhood	P		ALA (2010 - );BioNet (2010- )
<i>Pterostylis spp.</i>	Greenhood	P		BioNet (2010- )
<i>Pterostylis saxicola</i>	Sydney Plains Greenhood [64537]		E	Species or species habitat may occur within area
<i>Ptilothrix deusta</i>				ALA (2010 - );BioNet (2010- )
<i>Pultenaea blakelyi</i>	Blakely's Bush-Pea			ALA (2010 - );BioNet (2010- )
<i>Pultenaea daphnoides</i>	Pultenaea;Large-leaf Bush-pea			ALA (2010 - );BioNet (2010- )
<i>Pultenaea ferruginea</i>				ALA (2010 - );BioNet (2010- )
<i>Pultenaea flexilis</i>				ALA (2010 - );BioNet (2010- )
<i>Pultenaea hispidula</i>				ALA (2010 - )
<i>Pultenaea linophylla</i>				ALA (2010 - );BioNet (2010- )
<i>Pultenaea mollis</i>	Guinea Flower Bush Pea, Soft Bush-Pea			ALA (2010 - );BioNet (2010- )
<i>Pultenaea paleacea</i>	Spreublutige;Chaffy Bush-pea			ALA (2010 - );BioNet (2010- )
<i>Pultenaea polifolia</i>	Dusky Bush-Pea;Dusky Bush-pea			ALA (2010 - );BioNet (2010- )
<i>Pultenaea retusa</i>	Mt Kaye Bush-Pea			ALA (2010 - );BioNet (2010- )
<i>Pultenaea rosmarinifolia</i>				ALA (2010 - );BioNet (2010- )
<i>Pultenaea scabra</i>	Rough Bush-Pea			ALA (2010 - );BioNet (2010- )
<i>Pultenaea stipularis</i>				ALA (2010 - );BioNet (2010- )
<i>Pultenaea tuberculata</i>				ALA (2010 - );BioNet (2010- )
<i>Pultenaea villosa</i>	Hairy Bush-pea			ALA (2010 - );BioNet (2010- )
<i>Pyrrosia rupestris</i>	Rock Felt Fern			ALA (2010 - );BioNet (2010- )
<i>Ranunculus inundatus</i>	River Buttercup			ALA (2010 - );BioNet (2010- )
<i>Ranunculus plebeius</i>	Forest Buttercup			ALA (2010 - );BioNet (2010- )
<i>Rapanea variabilis</i>	Muttonwood			Hornsby Shire Council, 2013
<i>Rhizanthella slateri</i>	Eastern Underground Orchid [11768]		E	Species or species habitat may occur within area
<i>Rhodamnia rubescens</i>	Scrub Turpentine	CE		Hornsby Shire Council, 2013

<i>Rhododendron indicum</i>	Azalea			ALA (2010 - )
<i>Rhytidosporum procumbens</i>	White Marianth			ALA (2010 - );BioNet (2010- )
<i>Ricinocarpus pinifolius</i>	Wedding Bush			ALA (2010 - );BioNet (2010- )
<i>Rorippa spp.</i>				BioNet (2010- )
<i>Rosmarinus officinalis</i>	Rosemary			ALA (2010 - )
<i>Rubus anglocandicans</i>	Blackberry			ALA (2010 - );BioNet (2010- )
<i>Rubus parvifolius</i>	Native Raspberry			ALA (2010 - );BioNet (2010- )
<i>Rumex brownii</i>	Hooked Dock;Swamp Dock			ALA (2010 - );BioNet (2010- )
<i>Rumex spp.</i>	Dock			BioNet (2010- )
<i>Russula flocktoniae</i>				ALA (2010 - )
<i>Rytidosperma fulvum</i>	Wallaby Grass			ALA (2010 - );BioNet (2010- )
<i>Rytidosperma pallidum</i>	Redanther Wallaby Grass; Silvertop Wallaby Grass			ALA (2010 - );BioNet (2010- )
<i>Rytidosperma racemosum</i> var. <i>racemosum</i>	Wallaby Grass			BioNet (2010- )
<i>Rytidosperma tenuius</i>	A Wallaby Grass			ALA (2010 - );BioNet (2010- )
<i>Sacciolepis indica</i>	Indian Cupscale Grass			ALA (2010 - );BioNet (2010- )
<i>Sambucus spp.</i>				BioNet (2010- )
<i>Samolus repens</i>	Māakoako;Creeping Brook-weed			ALA (2010 - );BioNet (2010- )
<i>Sannantha pluriflora</i>				ALA (2010 - );BioNet (2010- )
<i>Sarcochilus australis</i>	Butterfly Orchid	P		ALA (2010 - );BioNet (2010- )
<i>Sarcopetalum harveyanum</i>	Pearl Vine			ALA (2010 - );BioNet (2010- )
<i>Scaevola ramosissima</i>	Purple Fan-flower			ALA (2010 - );BioNet (2010- )
<i>Schefflera arboricola</i>	Miniature Umbrella Tree			ALA (2010 - )
<i>Schelhammera undulata</i>	Lilac Lily			ALA (2010 - );BioNet (2010- )
<i>Schizaea bifida</i>	Forked Comb Fern			ALA (2010 - );BioNet (2010- )
<i>Schizaea dichotoma</i>	Fan Fern;Branched Comb Fern			ALA (2010 - );BioNet (2010- )
<i>Schizaea rupestris</i>				ALA (2010 - );BioNet (2010- )
<i>Schizomeria ovata</i>	Crabapple			ALA (2010 - );BioNet (2010- )
<i>Schoenoplectus mucronatus</i>				ALA (2010 - );BioNet (2010- )
<i>Schoenus apogon</i>	Fluke Bogrush			ALA (2010 - );BioNet (2010- )
<i>Schoenus brevifolius</i>				ALA (2010 - );BioNet (2010- )
<i>Schoenus ericetorum</i>				ALA (2010 - );BioNet (2010- )
<i>Schoenus imberbis</i>	Beardless Bog-Rush			ALA (2010 - );BioNet (2010- )
<i>Schoenus maschalinus</i>	Dwarf Bog Rush			ALA (2010 - );BioNet (2010- )
<i>Schoenus melanostachys</i>				ALA (2010 - );BioNet (2010- )
<i>Schoenus moorei</i>				ALA (2010 - );BioNet (2010- )
<i>Schoenus turbinatus</i>				ALA (2010 - );BioNet (2010- )
<i>Schoenus villosus</i>				ALA (2010 - );BioNet (2010- )
<i>Selaginella uliginosa</i>	Swamp Selaginella			ALA (2010 - );BioNet (2010- )
<i>Senecio bathurstianus</i>				ALA (2010 - );BioNet (2010- )
<i>Senecio behrianus</i>				ALA (2010 - )
<i>Senecio bipinnatisectus</i>	Australian Fireweed			ALA (2010 - );BioNet (2010- )
<i>Senecio diaschides</i>	Fireweed			ALA (2010 - );BioNet (2010- )
<i>Senecio hispidulus</i>	Fireweed;Hill Fireweed			ALA (2010 - );BioNet (2010- )
<i>Senecio linearifolius</i>	Fireweed Groundsel			ALA (2010 - );BioNet (2010- )

<i>Senecio macranthus</i>				ALA (2010 - )
<i>Senecio madagascariensis</i>	Fireweed			ALA (2010 - );BioNet (2010- )
<i>Senecio prenanthoides</i>				ALA (2010 - );BioNet (2010- )
<i>Senecio quadridentatus</i>	Cotton Fireweed			ALA (2010 - );BioNet (2010- )
<i>Senecio tenuiflorus</i>	A fireweed			ALA (2010 - );BioNet (2010- )
<i>Sigesbeckia orientalis subsp. orientalis</i>	Indian Weed			BioNet (2010- )
<i>Smilax australis</i>	Lawyer Vine			ALA (2010 - );BioNet (2010- )
<i>Smilax glycyphylla</i>	Sweet Sarsparilla			ALA (2010 - );BioNet (2010- )
<i>Solandra maxima</i>	Cup of Gold			ALA (2010 - )
<i>Solanum americanum</i>	Poroporo;Glossy Nightshade			ALA (2010 - );BioNet (2010- )
<i>Solanum aviculare</i>	Bullibul;Kangaroo Apple			ALA (2010 - );BioNet (2010- )
<i>Solanum prinophyllum</i>	Forest Nightshade			ALA (2010 - );BioNet (2010- )
<i>Solanum pungetium</i>	Eastern Nightshade			ALA (2010 - );BioNet (2010- )
<i>Solenogyne bellioides</i>	Solengyne			ALA (2010 - );BioNet (2010- )
<i>Spathodea campanulata</i>	African Tulip Tree			ALA (2010 - )
<i>Sphaerobolium minus</i>				ALA (2010 - );BioNet (2010- )
<i>Sphaeromorphaea australis</i>				ALA (2010 - )
<i>Sphagnum falcatum</i>				ALA (2010 - )
<i>Sporobolus creber</i>	Slender Rat's Tail Grass			ALA (2010 - );BioNet (2010- )
<i>Sporobolus elongatus</i>	Slender Rat's Tail Grass			ALA (2010 - );BioNet (2010- )
<i>Sporobolus virginicus</i>	Seashore Dropseed			ALA (2010 - );BioNet (2010- )
<i>Sprengelia incarnata</i>	Pink Swamp Heath	P		ALA (2010 - );BioNet (2010- )
<i>Stackhousia nuda</i>				ALA (2010 - );BioNet (2010- )
<i>Stackhousia viminea</i>	Slender Stackhousia			ALA (2010 - );BioNet (2010- )
<i>Stellaria flaccida</i>				ALA (2010 - );BioNet (2010- )
<i>Stenocarpus salignus</i>	Scrub Beefwood			ALA (2010 - );BioNet (2010- )
<i>Stenocarpus sinuatus</i>	Fire Tree;Firewheel Tree			ALA (2010 - );BioNet (2010- )
<i>Stephania japonica var. discolor</i>	Snake Vine			BioNet (2010- )
<i>Sticherus flabellatus</i>				ALA (2010 - )
<i>Sticherus flabellatus var. flabellatus</i>	Umbrella Fern	P		BioNet (2010- )
<i>Sticherus lobatus</i>	Spreading Fan Fern;Spreading Shield Fern			ALA (2010 - );BioNet (2010- )
<i>Stylidium graminifolium</i>	Grass Triggerplant			ALA (2010 - );BioNet (2010- )
<i>Stylidium lineare</i>	Narrow-leaved Triggerplant			ALA (2010 - );BioNet (2010- )
<i>Stylidium productum</i>				ALA (2010 - );BioNet (2010- )
<i>Styphelia angustifolia</i>				ALA (2010 - );BioNet (2010- )
<i>Styphelia laeta</i>				ALA (2010 - )
<i>Styphelia laeta subsp. laeta</i>				BioNet (2010- )
<i>Styphelia triflora</i>	Pink Five-Corners			ALA (2010 - );BioNet (2010- )
<i>Styphelia tubiflora</i>	Red Five-Corner			ALA (2010 - );BioNet (2010- )
<i>Syncarpia glomulifera</i>	Turpentine Tree;Turpentine			ALA (2010 - );BioNet (2010- )
<i>Syncarpia glomulifera subsp. glomulifera</i>				BioNet (2010- )
<i>Synoum glandulosum</i>				ALA (2010 - )

<i>Synoum glandulosum</i> <i>subsp. glandulosum</i>	Scentless Rosewood			BioNet (2010- )
<i>Syzygium australe</i>	Brush Cherry			ALA (2010 - );BioNet (2010- )
<i>Syzygium oleosum</i>				ALA (2010 - )
<i>Syzygium paniculatum</i>	Brush Cherry;Magenta Lilly Pilly	E1	V	ALA (2010 - );BioNet (2010- )
<i>Syzygium smithii</i>				ALA (2010 - )
<i>Tasmannia insipida</i>	Brush Pepperbush			ALA (2010 - );BioNet (2010- )
<i>Telmatoblechnum indicum</i>	Swamp Water Fern			BioNet (2010- )
<i>Telopea speciosissima</i>	New South Wales Waratah;Waratah	P		ALA (2010 - );BioNet (2010- )
<i>Tetragonia tetragonoides</i>	New Zealand Spinach			BioNet (2010- )
<i>Tetragonia tetragonoides</i>	New Zealand Spinach			ALA (2010 - )
<i>Tetralia capillaris</i>				ALA (2010 - );BioNet (2010- )
<i>Tetarrhena juncea</i>	Wiry Ricegrass			ALA (2010 - );BioNet (2010- )
<i>Tetradlea ericifolia</i>				ALA (2010 - );BioNet (2010- )
<i>Tetradlea glandulosa</i>	Tetradlea Glandulosa	V		ALA (2010 - );BioNet (2010- )
<i>Tetradlea thymifolia</i>	Black-eyed Susan			ALA (2010 - );BioNet (2010- )
<i>Thelionema caespitosum</i>	Tufted Blue-lily			ALA (2010 - );BioNet (2010- )
<i>Thelionema umbellatum</i>	Clustered Lily			ALA (2010 - );BioNet (2010- )
<i>Thelymitra carnea</i>	Tiny Sun Orchid	P		ALA (2010 - );BioNet (2010- )
<i>Thelymitra ixioides</i>	Small Spotted Sun-Orchid			ALA (2010 - )
<i>Thelymitra ixioides</i> var. <i>ixioides</i>	Dotted Sun Orchid	P		BioNet (2010- )
<i>Thelymitra</i> spp.		P		BioNet (2010- )
<i>Themeda triandra</i>	Kangaroo Grass			ALA (2010 - );BioNet (2010- )
<i>Thesium australe</i>	Austral Toadflax, Toadflax [15202]		V	Species or species habitat may occur within area
<i>Thysanotus juncifolius</i>				ALA (2010 - );BioNet (2010- )
<i>Thysanotus tuberosus</i>	Common Fringe-lily			ALA (2010 - );BioNet (2010- )
<i>Thysanotus tuberosus</i> <i>subsp. tuberosus</i>				BioNet (2010- )
<i>Tillandsia usneoides</i>	Spanish Moss			ALA (2010 - )
<i>Todea barbara</i>	Hard Todea;King Fern	P		ALA (2010 - );BioNet (2010- )
<i>Toona australis</i>	Red Cedar			Hornsby Shire Council, 2013
<i>Toona ciliata</i>	Red Cedar			ALA (2010 - );BioNet (2010- )
<i>Trema tomentosa</i> var. <i>aspera</i>	Native Peach			BioNet (2010- )
<i>Tricoryne elatior</i>	Yellow Autumn-lily			ALA (2010 - );BioNet (2010- )
<i>Tricoryne simplex</i>				ALA (2010 - );BioNet (2010- )
<i>Tricostularia pauciflora</i>	Needle Bog-Rush			ALA (2010 - );BioNet (2010- )
<i>Trifolium arvense</i>	Haresfoot Clover			ALA (2010 - )
<i>Triglochin striata</i>	Streaked Arrowgrass			ALA (2010 - );BioNet (2010- )
<i>Tristania neriifolia</i>	Water Gum			ALA (2010 - );BioNet (2010- )
<i>Tristaniopsis collina</i>	Mountain Water Gum			ALA (2010 - );BioNet (2010- )
<i>Tristaniopsis laurina</i>	Kanooka			ALA (2010 - );BioNet (2010- )
<i>Trochocarpa laurina</i>	Tree Heath			ALA (2010 - );BioNet (2010- )
<i>Tylophora barbata</i>	Bearded Tylophora			ALA (2010 - );BioNet (2010- )
<i>Typha domingensis</i>	Cumbungi;Narrow-leaved Cumbungi			ALA (2010 - );BioNet (2010- )



<i>Typha orientalis</i>	Broadleaf Cumbungi;Broad-leaved Cumbungi			ALA (2010 - );BioNet (2010- )
<i>Urtica incisa</i>	Ongaonga;Stinging Nettle			ALA (2010 - );BioNet (2010- )
<i>Utricularia lateriflora</i>	Small Bladderwort			ALA (2010 - );BioNet (2010- )
<i>Velleia lyrata</i>				ALA (2010 - );BioNet (2010- )
<i>Verbena rigida</i>	Creeping Verbena			ALA (2010 - )
<i>Vernonia cinerea</i>	Ironweed			ALA (2010 - );BioNet (2010- )
<i>Vernonia cinerea var. cinerea</i>				BioNet (2010- )
<i>Veronica plebeia</i>	Australian Speedwell;Trailing Speedwell			ALA (2010 - );BioNet (2010- )
<i>Viminaria juncea</i>	Native Broom			ALA (2010 - );BioNet (2010- )
<i>Viola hederacea</i>	Australian Native Violet;Ivy-leaved Violet			ALA (2010 - );BioNet (2010- )
<i>Viola silicestrus</i>				ALA (2010 - )
<i>Vittadinia cuneata</i>	Purple Fuzzweed			ALA (2010 - )
<i>Wahlenbergia communis</i>				ALA (2010 - )
<i>Wahlenbergia gracilentia</i>				ALA (2010 - )
<i>Wahlenbergia gracilis</i>	Sprawling Bluebell			ALA (2010 - );BioNet (2010- )
<i>Wahlenbergia luteola</i>	Bluebell			ALA (2010 - );BioNet (2010- )
<i>Washingtonia robusta</i>	Skyduster;Washington Fan Palm			ALA (2010 - );BioNet (2010- )
<i>Westringia fruticosa</i>	Coastal Rosemary			ALA (2010 - );BioNet (2010- )
<i>Wikstroemia indica</i>				ALA (2010 - );BioNet (2010- )
<i>Woolfsia pungens</i>				ALA (2010 - );BioNet (2010- )
<i>Xanthium strumarium</i>	Burweed			ALA (2010 - )
<i>Xanthorrhoea arborea</i>		P		ALA (2010 - );BioNet (2010- )
<i>Xanthorrhoea concava</i>		P		ALA (2010 - );BioNet (2010- )
<i>Xanthorrhoea latifolia</i>		P		ALA (2010 - );BioNet (2010- )
<i>Xanthorrhoea macrone-ma</i>		P		ALA (2010 - );BioNet (2010- )
<i>Xanthorrhoea media</i>		P		ALA (2010 - );BioNet (2010- )
<i>Xanthorrhoea minor</i>		P		ALA (2010 - );BioNet (2010- )
<i>Xanthorrhoea minor subsp. minor</i>		P		BioNet (2010- )
<i>Xanthorrhoea resinosa</i>		P		ALA (2010 - );BioNet (2010- )
<i>Xanthosia pilosa</i>	Woolly Xanthosia			ALA (2010 - );BioNet (2010- )
<i>Xanthosia tridentata</i>	Hill Xanthosia;Rock Xanthosia			ALA (2010 - );BioNet (2010- )
<i>Xylomelum pyriforme</i>	Woody Pear	P		ALA (2010 - );BioNet (2010- )
<i>Xyris bracteata</i>				ALA (2010 - );BioNet (2010- )
<i>Xyris gracilis</i>				ALA (2010 - );BioNet (2010- )
<i>Zieria involucrata</i>		E1	V	ALA (2010 - );BioNet (2010- )
<i>Zieria laevigata</i>	Smooth Zieria			ALA (2010 - );BioNet (2010- )
<i>Zieria pilosa</i>	Pilose-leafed Zieria			ALA (2010 - );BioNet (2010- )
<i>Zieria smithii</i>	Sandfly Zieria			ALA (2010 - );BioNet (2010- )

## Fauna

Scientific Name	Common name	Status		
		NSW	C'wealth	Source
<i>Acanthagenys rufogularis</i>	Spiny-Cheeked Honeyeater			ALA (2010 - )
<i>Acanthiza apicalis</i>	Inland Thornbill			ALA (2010 - )
<i>Acanthiza pusilla</i>	Brown Thornbill	P		ALA (2010 - );BioNet (2010- )
<i>Acanthiza chrysorrhoa</i>	Yellow-Rumped Thornbill	P		ALA (2010 - );BioNet (2010- )
<i>Acanthiza reguloides</i>	Buff-Rumped Thornbill	P		ALA (2010 - );BioNet (2010- )
<i>Acanthiza lineata</i>	Striated Thornbill	P		ALA (2010 - );BioNet (2010- )
<i>Acanthiza nana</i>	Yellow Thornbill	P		ALA (2010 - );BioNet (2010- )
<i>Acanthophis antarcticus</i>	Common Death Adder	P		ALA (2010 - ); BioNet (2010- )
<i>Acanthorhynchus tenuirostris</i>	Eastern Spinebill	P		ALA (2010 - ); BioNet (2010- )
<i>Accipiter fasciatus</i>	Brown Goshawk	P		ALA (2010 - );BioNet (2010- )
<i>Accipiter novaehollandiae</i>	Grey Goshawk	P		ALA (2010 - );BioNet (2010- )
<i>Accipiter cirrocephalus</i>	Collared Sparrowhawk	P		ALA (2010 - );BioNet (2010- )
<i>Achaearana decorata</i>				ALA (2010 - )
<i>Acosmeryx anceus</i>				ALA (2010 - )
<i>Acritoscincus platynotus</i>	Red-Throated Skink			ALA (2010 - )
<i>Acrobates pygmaeus</i>	Feathertail Glider	P		BioNet (2010- )
<i>Acrocephalus australis</i>	Australian Reed Warbler			ALA (2010 - )
<i>Adelotus brevis</i>	Tusked Frog			ALA (2010 - )
<i>Aegotheles cristatus</i>	Australian Owlet-Nightjar	P		ALA (2010 - );BioNet (2010- )
<i>Aenetus tegulatus</i>				ALA (2010 - )
<i>Aeolochroma metarhodata</i>				ALA (2010 - )
<i>Agarista agricola</i>				ALA (2010 - )
<i>Agrotis infusa</i>	Bogong Moth			ALA (2010 - )
<i>Agrotis munda</i>				ALA (2010 - )
<i>Alectura lathami</i>	Australian Brush-turkey	P		ALA (2010 - ); BioNet (2010- )
<i>Aleeta curvicauda</i>				ALA (2010 - )
<i>Alisterus scapularis</i>	Australian King-Parrot	P		ALA (2010 - ); BioNet (2010- )
<i>Amalosia lesueurii</i>	Lesueur's Velvet Gecko	P		ALA (2010 - ); BioNet (2010- )
<i>Amata nigriceps</i>				ALA (2010 - )
<i>Amegilla bombiformis</i>				ALA (2010 - )
<i>Amegilla chlorocyanea</i>	Blue Banded Bee			ALA (2010 - )
<i>Amegilla cingulata</i>				ALA (2010 - )
<i>Amphibolurus muricatus</i>	Jacky Lizard	P		ALA (2010 - ); BioNet (2010- )
<i>Anas platyrhynchos</i>	Mallard Duck			ALA (2010 - )
<i>Anas superciliosa</i>	Pacific Black Duck	P		ALA (2010 - );BioNet (2010- )
<i>Anas castanea</i>	Chestnut Teal			ALA (2010 - )
<i>Anas gracilis</i>	Grey Teal			ALA (2010 - )
<i>Anguilla reinhardtii</i>	Longfin Eel			ALA (2010 - )
<i>Anhinga novaehollandiae</i>	Australasian Darter	P		BioNet (2010- )
<i>Anilius nigrescens</i>	Blackish Blind Snake	P		ALA (2010 - ); BioNet (2010- )
<i>Anilius sp.</i>	blind snake	P		BioNet (2010- )
<i>Anomalopus swansoni</i>	Punctate Worm-Skink			ALA (2010 - )
<i>Anoplognathus viriditarsis</i>				ALA (2010 - )

<i>Antechinus stuartii</i>	Brown Antechinus	P		ALA (2010 - ); BioNet (2010- )
<i>Antechinus swainsonii</i>	Dusky Antechinus	P		BioNet (2010- )
<i>Anthochaera chrysoptera</i>	Little Wattlebird	P		ALA (2010 - );BioNet (2010- )
<i>Anthochaera lunulata</i>	Western Wattlebird			ALA (2010 - )
<i>Anthochaera carunculata</i>	Red Wattlebird	P		ALA (2010 - );ALA (2010 - ); BioNet (2010- )
<i>Anthochaera paradoxa</i>	Yellow Wattlebird			ALA (2010 - )
<i>Anthochaera phrygia</i>	Regent Honeyeater	E4a	CE	HSC (2013)
<i>Anthophiloptera dryas</i>				ALA (2010 - )
<i>Anthus novaeseelandiae</i>	Australian Pipit	P		ALA (2010 - );BioNet (2010- )
<i>Aphis nerii</i>	Oleander Aphid			ALA (2010 - )
<i>Apiomorpha sessilis</i>				ALA (2010 - )
<i>Apis mellifera</i>	Honey Bee			ALA (2010 - )
<i>Apolinus lividigaster</i>				ALA (2010 - )
<i>Aprosmictus erythrop- terus</i>	Red-Winged Parrot			ALA (2010 - )
<i>Apus pacificus</i>	Fork-Tailed Swift			ALA (2010 - )
<i>Aquila audax</i>	Wedge-Tailed Eagle	P		ALA (2010 - );BioNet (2010- )
<i>Arachnura higginsii</i>				ALA (2010 - )
<i>Araneus albotriangulus</i>				ALA (2010 - )
<i>Arasia mollicoma</i>				ALA (2010 - )
<i>Archimantis latistyla</i>				ALA (2010 - )
<i>Ardea pacifica</i>	White-Necked Heron	P		ALA (2010 - );BioNet (2010- )
<i>Ardea ibis</i>	Cattle Egret	P	C,J	ALA (2010 - );BioNet (2010- )
<i>Ardea modesta</i>	Eastern Great Egret			ALA (2010 - )
<i>Ardea alba</i>				ALA (2010 - )
<i>Argiope keyserlingi</i>				ALA (2010 - )
<i>Argiope mascordi</i>				ALA (2010 - )
<i>Argyrodes rainbowi</i>				ALA (2010 - )
<i>Arhodia lasiocamparia</i>				ALA (2010 - )
<i>Aridaeus thoracicus</i>				ALA (2010 - )
<i>Arkys lancearius</i>				ALA (2010 - )
<i>Artamus cyanopterus</i>	Dusky Woodswallow	V		ALA (2010 - )
<i>Artoriopsis expolita</i>				ALA (2010 - )
<i>Asteron huntii</i>				ALA (2010 - )
<i>Asura lydia</i>				ALA (2010 - )
<i>Athetis tenuis</i>				ALA (2010 - )
<i>Atractomorpha australis</i>	Australian Grass Pyrgomorph			ALA (2010 - )
<i>Atrapsalta corticina</i>				ALA (2010 - )
<i>Atrapsalta encaustica</i>	Black Squeaker			ALA (2010 - )
<i>Atrax robustus</i>	Sydney Funnel-Web Spider			ALA (2010 - ); BioNet (2010- )
<i>Austracantha minax</i>				ALA (2010 - )
<i>Australomimetes mac- ulosus</i>				ALA (2010 - )
<i>Australomisidia pilula</i>				ALA (2010 - )
<i>Austroagrion watsoni</i>				ALA (2010 - )
<i>Austroargiolestes icteromelas</i>				ALA (2010 - )
<i>Austroargiolestes isa- bellae</i>				ALA (2010 - )

<i>Austrochloritis sydneyensis</i>	Sydney Bristle Snail			ALA (2010 - )
<i>Austrolestes cingulatus</i>				ALA (2010 - )
<i>Austrolestes leda</i>				ALA (2010 - )
<i>Austronomus australis</i>	White-Striped Freetail-Bat	P		ALA (2010 - ); BioNet (2010- )
<i>Austropyrgus nepeanensis</i>				ALA (2010 - )
<i>Austrosalomona falcata</i>				ALA (2010 - )
<i>Aviceda subcristata</i>	Pacific Baza	P		ALA (2010 - );BioNet (2010- )
<i>Aythya australis</i>	Hardhead			ALA (2010 - )
<i>Badumna insignis</i>	Black House Spider			ALA (2010 - )
<i>Badumna longinqua</i>	Grey House Spider			ALA (2010 - )
<i>Battalus adamparsonsi</i>				ALA (2010 - )
<i>Battalus rugosus</i>				ALA (2010 - )
<i>Bembicium nanum</i>	Striped-Mouth Conniwink			ALA (2010 - )
<i>Biziura lobata</i>	Musk Duck			ALA (2010 - )
<i>Boiga irregularis</i>	Brown Tree Snake	P		BioNet (2010- )
<i>Bolemoreus frenatus</i>	Bridled Honeyeater			ALA (2010 - )
<i>Bradybaena similaris</i>				ALA (2010 - )
<i>Brevicoryne brassicae</i>	Cabbage Aphid			ALA (2010 - )
<i>Burhinus grallarius</i>	Bush Stone-Curlew			ALA (2010 - )
<i>Butorides striatus</i>	Striated Heron			ALA (2010 - )
<i>Cacatua galerita</i>	Sulphur-Crested Cockatoo	P		ALA (2010 - );BioNet (2010- )
<i>Cacatua sanguinea</i>	Little Corella	P		ALA (2010 - );BioNet (2010- )
<i>Cacatua tenuirostris</i>	Long-Billed Corella	P		ALA (2010 - );BioNet (2010- )
<i>Cacomantis variolosus</i>	Brush Cuckoo			ALA (2010 - )
<i>Cacomantis flabelliformis</i>	Fan-Tailed Cuckoo	P		ALA (2010 - );BioNet (2010- )
<i>Cacomantis pallidus</i>	Pallid Cuckoo			ALA (2010 - )
<i>Cacophis squamulosus</i>	Golden-Crowned Snake	P		ALA (2010 - ); BioNet (2010- )
<i>Caligavis chrysops</i>	Yellow-Faced Honeyeater	P		ALA (2010 - ); BioNet (2010- )
<i>Callocephalon fimbriatum</i>	Gang-Gang Cockatoo	V,P,3		ALA (2010 - ); BioNET (2010- );
<i>Calyptorhynchus banksii</i>	Red-Tailed Black Cockatoo			ALA (2010 - )
<i>Calyptorhynchus lathami</i>	Glossy Black-Cockatoo	V,P,2		ALA (2010 - ); BioNET (2010- ); HSC (2013)
<i>Calyptorhynchus funereus</i>	Yellow-Tailed Black-Cockatoo	P		ALA (2010 - );BioNet (2010- )
<i>Camponotus aeneopilosus</i>				ALA (2010 - )
<i>Camponotus consobrinus</i>				ALA (2010 - )
<i>Camponotus nigriceps</i>				ALA (2010 - )
<i>Cebysa leucotelus</i>	Lichen Case Moth			ALA (2010 - )
<i>Celaenia excavata</i>				ALA (2010 - )
<i>Centroina kota</i>				ALA (2010 - )
<i>Centropus phasianinus</i>	Pheasant Coucal			ALA (2010 - )
<i>Cercartetus nanus</i>	Eastern Pygmy-Possum	V,P		ALA (2010 - ); BioNet (2010- )
<i>Cercophonius squama</i>				ALA (2010 - )
<i>Cernuella virgata</i>	Vineyard Snail			ALA (2010 - )
<i>Ceyx azureus</i>	Azure Kingfisher			ALA (2010 - )
<i>Chalcophaps indica</i>	Emerald Dove			ALA (2010 - )
<i>Chalinolobus dwyeri</i>	Large-eared Pied Bat	V, P	V	

<i>Chalinolobus gouldii</i>	Gould's Watted Bat	P		ALA (2010 - ); BioNet (2010- )
<i>Chalinolobus morio</i>	Chocolate Watted Bat	P		ALA (2010 - ); BioNet (2010- )
<i>Chauliognathus lugubris</i>	Plague Soldier Beetle			ALA (2010 - )
<i>Chelepteryx collesi</i>				ALA (2010 - )
<i>Chelodina longicollis</i>	Eastern Long-Necked Turtle			ALA (2010 - )
<i>Chelodina expansa</i>	Broad-Shelled Turtle			ALA (2010 - )
<i>Chelodina longicollis</i>	Eastern Snake-necked Turtle	P		BioNet (2010- )
<i>Chelonia mydas</i>	Green Turtle			ALA (2010 - )
<i>Chenonetta jubata</i>	Australian Wood Duck	P		ALA (2010 - ); BioNet (2010- )
<i>Chondropyga dorsalis</i>	Cowboy Beetle			ALA (2010 - )
<i>Chroicocephalus novae-hollandiae</i>	Silver Gull	P		ALA (2010 - ); BioNet (2010- )
<i>Chrysococcyx basalis</i>	Horsfield's Bronze-Cuckoo			ALA (2010 - )
<i>Chrysococcyx lucidus</i>	Shining Bronze-Cuckoo	P		ALA (2010 - );BioNet (2010- )
<i>Chrysodeixis argentifera</i>				ALA (2010 - )
<i>Chrysolopus spectabilis</i>	Diamond Weevil			ALA (2010 - )
<i>Cinclosoma punctatum</i>	Spotted Quail-Thrush	P		ALA (2010 - );BioNet (2010- )
<i>Circopetes obtusata</i>				ALA (2010 - )
<i>Circus approximans</i>	Swamp Harrier			ALA (2010 - )
<i>Cisticola exilis</i>	Golden-Headed Cisticola			ALA (2010 - )
<i>Climacteris picumnus</i>	Brown Treecreeper	V		ALA (2010 - )
<i>Clubiona cycladata</i>				ALA (2010 - )
<i>Coccinella transversalis</i>				ALA (2010 - )
<i>Coelophora inaequalis</i>	Variable Ladybird			ALA (2010 - )
<i>Coequosa triangularis</i>				ALA (2010 - )
<i>Colluricincla harmonica</i>	Grey Shrike-Thrush	P		ALA (2010 - );BioNet (2010- )
<i>Columba livia</i>	Rock Pigeon			ALA (2010 - )
<i>Columba leucomela</i>	White-Headed Pigeon	P		ALA (2010 - );BioNet (2010- )
<i>Comptosia neosobria</i>				ALA (2010 - )
<i>Concinnia tenuis</i>	Barred-Sided Skink	P		ALA (2010 - );BioNet (2010- )
<i>Conocephalomima barameda</i>				ALA (2010 - )
<i>Coptotermes acinaciformis</i>	Subterranean Termite			ALA (2010 - )
<i>Coptotermes frenchi</i>				ALA (2010 - )
<i>Coracina novaehollandiae</i>	Black-Faced Cuckoo-Shrike	P		ALA (2010 - );BioNet (2010- )
<i>Coracina papuensis</i>	White-Bellied Cuckoo-Shrike	P		ALA (2010 - );BioNet (2010- )
<i>Corcorax melanorhaphos</i>	White-Winged Cough			ALA (2010 - )
<i>Cordulephya pygmaea</i>				ALA (2010 - )
<i>Cormobates leucophaea</i>	White-Throated Treecreeper	P		ALA (2010 - ); BioNet (2010- )
<i>Cormocephalus westwoodi</i>				ALA (2010 - )
<i>Cornu aspersum</i>				ALA (2010 - )
<i>Corvus coronoides</i>	Australian Raven	P		ALA (2010 - ); BioNet (2010- )
<i>Corvus mellori</i>	Little Raven			ALA (2010 - )
<i>Corvus orru</i>	Torresian Crow			ALA (2010 - )
<i>Coryphistes ruficollis</i>	Bark-Mimicking Grasshopper			ALA (2010 - )
<i>Cosmodes elegans</i>				ALA (2010 - )
<i>Coturnix ypsilophora</i>	Brown Quail	P		ALA (2010 - );BioNet (2010- )

<i>Cracticus nigrogularis</i>	Pied Butcherbird	P		ALA (2010 - ); BioNet (2010- )
<i>Cracticus tibicen</i>	Australian Magpie	P		ALA (2010 - ); BioNet (2010- )
<i>Cracticus torquatus</i>	Grey Butcherbird	P		ALA (2010 - ); BioNet (2010- )
<i>Crinia signifera</i>	Common Eastern Froglet	P		ALA (2010 - ); BioNet (2010- )
<i>Crocothemis nigrifrons</i>				ALA (2010 - )
<i>Cruria synopla</i>				ALA (2010 - )
<i>Cryphaea xyliina</i>				ALA (2010 - )
<i>Cryptachaea gigantipes</i>				ALA (2010 - )
<i>Cryptoblepharus pulcher</i>	Elegant Snake-Eyed Skink			ALA (2010 - )
<i>Cryptoblepharus virgatus</i>	Striped Snake-Eyed Skink-Cream-striped Shinning-skink	P		ALA (2010 - ); BioNet (2010- )
<i>Ctenotus inornatus</i>	Bar-Shouldered Ctenotus			ALA (2010 - )
<i>Ctenotus robustus</i>	Robust Ctenotus	P		ALA (2010 - ); BioNet (2010- )
<i>Ctenotus taeniolatus</i>	Copper-tailed Skink	P		BioNet (2010- )
<i>Cuculus optatus</i>	Oriental Cuckoo			ALA (2010 - )
<i>Cyclochila australasiae</i>	Masked Devil			ALA (2010 - )
<i>Cygnus atratus</i>	Black Swan			ALA (2010 - )
<i>Cylindrococcus spiniferus</i>	Casuarina Gall			ALA (2010 - )
<i>Cymbacha ocellata</i>				ALA (2010 - )
<i>Cyprinus carpio</i>	European Carp			ALA (2010 - )
<i>Cystosoma saundersii</i>	Bladder Cicada			ALA (2010 - )
<i>Dacelo leachii</i>	Blue-Winged Kookaburra			ALA (2010 - )
<i>Dacelo novaeguineae</i>	Kookaburra			ALA (2010 - )
<i>Dacelo novaeguineae</i>	Laughing Kookaburra	P		BioNet (2010- )
<i>Dapanoptera richmondiana</i>				ALA (2010 - )
<i>Daphoenositta chrysoptera</i>	Varied Sittella	V,P		ALA (2010 - );BioNet (2010- )
<i>Dasypodia selenophora</i>	Moon Moth			ALA (2010 - )
<i>Dasyurus maculatus</i>	BindjulangSpotted-tailed Quoll	V,P	E	ALA (2010 - ); BioNet (2010- )
<i>Deinopis subrufa</i>				ALA (2010 - )
<i>Delias nigrina</i>	Black Jezebel			ALA (2010 - )
<i>Demansia psammophis</i>	Yellow-Faced Whip Snake	P		ALA (2010 - ); BioNet (2010- )
<i>Dendrelaphis punctulatus</i>	Common Tree Snake	P		ALA (2010 - ); BioNet (2010- )
<i>Dermochelys coriacea</i>	Leatherback Turtle	E1, P	E	OEH
<i>Dicaeum hirundinaceum</i>	Mistletoebird	P		ALA (2010 - );BioNet (2010- )
<i>Dicrurus bracteatus</i>	Spangled Drongo			ALA (2010 - )
<i>Dideopsis aegrota</i>				ALA (2010 - )
<i>Didymuria violescens</i>				ALA (2010 - )
<i>Diphlebia lestoides</i>				ALA (2010 - )
<i>Diplacodes bipunctata</i>				ALA (2010 - )
<i>Diplacodes haematodes</i>				ALA (2010 - )
<i>Diplacodes melanopsis</i>				ALA (2010 - )
<i>Diplopseustis perieresalis</i>				ALA (2010 - )
<i>Diporiphora nobbi</i>	Nobbi Dragon			ALA (2010 - )
<i>Dolichoderus doriae</i>				ALA (2010 - )
<i>Dugong dugon</i>	Dugong	E1, P		
<i>Ecnolagria grandis</i>				ALA (2010 - )
<i>Egernia cunninghami</i>	Cunningham's Skink	P		ALA (2010 - ); BioNet (2010- )

<i>Egretta garzetta</i>	Little Egret			ALA (2010 - )
<i>Egretta novaehollandiae</i>	White-faced Heron	P		ALA (2010 - ); BioNet (2010- )
<i>Egretta sacra</i>	Eastern Reef Egret			ALA (2010 - )
<i>Elanus axillaris</i>	Black-shouldered Kite	P		ALA (2010 - ); BioNet (2010- )
<i>Elhamma australasiae</i>				ALA (2010 - )
<i>Ellipsidion humerale</i>				ALA (2010 - )
<i>Entometa fervens</i>				ALA (2010 - )
<i>Entomyzon cyanotis</i>	Blue-Faced Honeyeater			ALA (2010 - )
<i>Eolophus roseicapillus</i>	Galah	P		ALA (2010 - ); BioNet (2010- )
<i>Eopsaltria australis</i>	Eastern Yellow Robin	P		ALA (2010 - );BioNet (2010- )
<i>Eopsaltria georgiana</i>	White-Breasted Robin			ALA (2010 - )
<i>Ephippiorhynchus asiaticus</i>	Black-Necked Stork			ALA (2010 - )
<i>Epicoma melanospila</i>				ALA (2010 - )
<i>Erigone prominens</i>				ALA (2010 - )
<i>Eriophora transmarina</i>				ALA (2010 - )
<i>Eubalaena australis</i>	Southern Right Whale	E1,P	E	OEH (2004)
<i>Eucalyptolyma maideni</i>				ALA (2010 - )
<i>Eudynamys orientalis</i>	Pacific KoelEastern Koel	P		ALA (2010 - ); BioNet (2010- )
<i>Eulamprus quoyii</i>	Eastern Water-skink	P		ALA (2010 - ); BioNet (2010- )
<i>Eumerus argyrogaster</i>				ALA (2010 - )
<i>Eupoecila australasiae</i>	Fiddler Beetle			ALA (2010 - )
<i>Eurostopodus mystacalis</i>	White-Throated Nightjar	P		ALA (2010 - );BioNet (2010- )
<i>Eurymela rubrolimbata</i>				ALA (2010 - )
<i>Eurynassa australis</i>				ALA (2010 - )
<i>Euryopsis superba</i>				ALA (2010 - )
<i>Eurystomus orientalis</i>	Dollarbird	P		ALA (2010 - ); BioNet (2010- )
<i>Eutane terminalis</i>				ALA (2010 - )
<i>Falco longipennis</i>	Australian Hobby			ALA (2010 - )
<i>Falco peregrinus</i>	Peregrine Falcon	P		ALA (2010 - );BioNet (2010- )
<i>Falco subniger</i>	Black Falcon			ALA (2010 - )
<i>Falco cenchroides</i>	Nankeen Kestrel			ALA (2010 - )
<i>Falco hypoleucos</i>	Grey Falcon	E1, P		
<i>Falcunculus frontatus</i>	Crested Shrike-Tit			ALA (2010 - )
<i>Falcunculus frontatus frontatus</i>	Eastern Shrike-tit	P		BioNet (2010- )
<i>Falsistrellus tasmaniensis</i>	Eastern False Pipistrelle	V,P		ALA (2010 - ); BioNET (2010- ); HSC (2013)
<i>Fodina ostorius</i>				ALA (2010 - )
<i>Fulica atra</i>	Eurasian Coot	P		ALA (2010 - ); BioNet (2010- )
<i>Galanga laberculata</i>	Double-Spotted Cicada			ALA (2010 - )
<i>Gallinago hardwickii</i>	Latham's Snipe	P	C,J,K	ALA (2010 - );BioNet (2010- )
<i>Gallinula tenebrosa</i>	Dusky Moorhen	P		ALA (2010 - );BioNet (2010- )
<i>Gallirallus philippensis</i>	Banded Rail			ALA (2010 - )
<i>Gastrimargus musicus</i>	Yellow-Winged Locust			ALA (2010 - )
<i>Gavicalis fasciogularis</i>	Mangrove Honeyeater			ALA (2010 - )
<i>Geitoneura acantha</i>	Ringed Xenica			ALA (2010 - )
<i>Geopelia humeralis</i>	Bar-shouldered Dove	P		ALA (2010 - ); BioNet (2010- )
<i>Geopelia striata</i>	Peaceful Dove	P		ALA (2010 - ); BioNet (2010- )

<i>Gerygone fusca</i>	Western Gerygone			ALA (2010 - )
<i>Gerygone levigaster</i>	Mangrove Gerygone	P		BioNet (2010- )
<i>Gerygone mouki</i>	Brown Gerygone	P		ALA (2010 - ); BioNet (2010- )
<i>Gerygone olivacea</i>	White-throated Gerygone	P		ALA (2010 - ); BioNet (2010- )
<i>Glenoleon pulchellus</i>				ALA (2010 - )
<i>Gliciphila melanops</i>	Tawny-Crowned Honeyeater			ALA (2010 - )
<i>Glossopsitta concinna</i>	Musk Lorikeet	P		ALA (2010 - ); BioNet (2010- )
<i>Glossopsitta pusilla</i>	Little Lorikeet	V, P		OEH (2017)
<i>Goniaea australasiae</i>	Gumleaf Grasshopper			ALA (2010 - )
<i>Grallina cyanoleuca</i>	Magpie-lark	P		ALA (2010 - ); BioNet (2010- )
<i>Graycassis chichester</i>				ALA (2010 - )
<i>Grus rubicunda</i>	Brolga			ALA (2010 - )
<i>Haemopsalta rubea</i>				ALA (2010 - )
<i>Haliaeetus leucogaster</i>	White-Bellied Sea-Eagle	V,P	C	ALA (2010 - );BioNet (2010- )
<i>Haliastur indus</i>	Brahminy Kite			ALA (2010 - )
<i>Haliastur sphenurus</i>	Whistling Kite	P		ALA (2010 - ); BioNet (2010- )
<i>Halmus chalybeus</i>	Steelblue Ladybird			ALA (2010 - )
<i>Haritalodes derogata</i>				ALA (2010 - )
<i>Harmonia conformis</i>	Large Spotted Ladybird			ALA (2010 - )
<i>Harmonia testudinaria</i>				ALA (2010 - )
<i>Heleioporus australiacus</i>	Giant Burrowing Frog	V,P	V	ALA (2010 - ); BioNET (2010- ); HSC (2013)
<i>Hemiaspis signata</i>	Black-Bellied Swamp Snake	P		ALA (2010 - ); BioNet (2010- )
<i>Hemibelideus lemuroides</i>	Lemuroid Ringtail Possum			ALA (2010 - )
<i>Hemicordulia australiae</i>				ALA (2010 - )
<i>Hemidactylus frenatus</i>	House Gecko			ALA (2010 - )
<i>Henicopsaltria eydouxii</i>	Razor Grinder			ALA (2010 - )
<i>Hesperilla mastersi</i>	Master's Skipper			ALA (2010 - )
<i>Heteromicta pachytera</i>				ALA (2010 - )
<i>Heteronympha merope</i>	Common Brown			ALA (2010 - )
<i>Heteronympha mirifica</i>	Wonder Brown			ALA (2010 - )
<i>Heteropoda longipes</i>				ALA (2010 - )
<i>Heterotermes ferox</i>				ALA (2010 - )
<i>Hieraaetus morphnoides</i>	Little Eagle	V,P		ALA (2010 - );BioNet (2010- ); HSC (2013)
<i>Hirundapus caudacutus</i>	Spine-Tailed SwiftWhite-throated Needletail	P	C,J,K	ALA (2010 - ); BioNet (2010- )
<i>Hirundo neoxena</i>	Welcome Swallow	P		ALA (2010 - );ALA (2010 - ); BioNet (2010- )
<i>Hoggicosa bicolor</i>				ALA (2010 - )
<i>Homo sapiens</i>				ALA (2010 - )
<i>Hylacola pyrrhopygia</i>	Chestnut-Rumped Heathwren			ALA (2010 - )
<i>Illeis galbula</i>				ALA (2010 - )
<i>Intelligama lesueurii</i>	Water DragonEastern Water Dragon	P		ALA (2010 - ); BioNet (2010- )
<i>Intruda signata</i>				ALA (2010 - )
<i>Iridomyrmex purpureus</i>				ALA (2010 - )
<i>Ischnura aurora</i>	Australian Damselfly			ALA (2010 - )
<i>Ischnura heterosticta</i>				ALA (2010 - )
<i>Isidorella newcombi</i>				ALA (2010 - )



<i>Isoodon obesulus</i>	Southern Brown Bandicoot	E1,P	E	ALA (2010 - ), HSC (2013)
<i>Isopedella pessleri</i>				ALA (2010 - )
<i>Ixobrychus flavicollis</i>	Black Bittern	V, P		OEH (2018)
<i>Ixodes holocyclus</i>				ALA (2010 - )
<i>Jalmenus evagoras</i>	Imperial Hairstreak			ALA (2010 - )
<i>Junonia villida</i>	Meadow Argus			ALA (2010 - )
<i>Kaiya terama</i>				ALA (2010 - )
<i>Kongobatha diademata</i>				ALA (2010 - )
<i>Lampona braemar</i>				ALA (2010 - )
<i>Lamprolina aeneipennis</i>				ALA (2010 - )
<i>Lampromicra aerea</i>				ALA (2010 - )
<i>Lampropholis delicata</i>	Dark-Flecked Garden Sunskink	P		ALA (2010 - ); BioNet (2010- )
<i>Lampropholis guichenoti</i>	Pale-Flecked Garden Sunskink	P		ALA (2010 - ); BioNet (2010- )
<i>Lampropholis sp.</i>	unidentified grass skink	P		BioNet (2010- )
<i>Lathamus discolor</i>	Swift Parrot		CE	ALA (2010 - ); BioNET (2010- ); HSC (2013)
<i>Latrodectus hasseltii</i>	Redback Spider			ALA (2010 - )
<i>Leioproctus boltoni</i>				ALA (2010 - )
<i>Leptomymex erythrocephalus</i>				ALA (2010 - )
<i>Leptomymex wiburdi</i>				ALA (2010 - )
<i>Leucauge dromedaria</i>				ALA (2010 - )
<i>Leucauge granulata</i>				ALA (2010 - )
<i>Leucosarcia melanoleuca</i>	Wonga Pigeon	P		ALA (2010 - ); BioNet (2010- )
<i>Lewinia pectoralis</i>	Lewin's Rail			ALA (2010 - )
<i>Lialis burtonis</i>	Burton's Snake-lizard	P		ALA (2010 - ); BioNet (2010- )
<i>Lichenostomus melanops</i>	Yellow-Tufted Honeyeater	P		ALA (2010 - ); BioNet (2010- )
<i>Lichmera indistincta</i>	Brown Honeyeater			ALA (2010 - )
<i>Limax maximus</i>	Leopard Slug			ALA (2010 - )
<i>Limnodynastes dumerilii</i>	Eastern Banjo Frog	P		ALA (2010 - ); BioNet (2010- )
<i>Limnodynastes peronii</i>	Brown-striped Frog	P		ALA (2010 - ); BioNet (2010- )
<i>Liopholis whitii</i>	White's Skink	P		ALA (2010 - ); BioNet (2010- )
<i>Litoria aurea</i>	Green and Golden Bell Frog	E	V	ALA (2010 - )
<i>Litoria caerulea</i>	Green Tree Frog	P		ALA (2010 - ); BioNet (2010- )
<i>Litoria dentata</i>	Bleating Tree Frog	P		ALA (2010 - ); BioNet (2010- )
<i>Litoria ewingii</i>	Brown Tree Frog			ALA (2010 - )
<i>Litoria fallax</i>	Eastern Dwarf Tree Frog	P		ALA (2010 - ); BioNet (2010- )
<i>Litoria lesueuri</i>	Lesueur's Frog	P		ALA (2010 - ); BioNet (2010- )
<i>Litoria peronii</i>	Peron's Tree Frog	P		ALA (2010 - ); BioNet (2010- )
<i>Litoria phyllochroa</i>	Leaf-green Tree Frog	P		ALA (2010 - ); BioNet (2010- )
<i>Litoria raniformis</i>	Southern Bell Frog			ALA (2010 - )
<i>Litoria verreauxii</i>	Verreaux's Frog	P		ALA (2010 - ); BioNet (2010- )
<i>Litoria wilcoxii</i>	Wilcox's Frog			ALA (2010 - )
<i>Lonchura punctulata</i>	Nutmeg Munia			ALA (2010 - )
<i>Lophochroa leadbeateri</i>	Major Mitchell's Cockatoo			ALA (2010 - )
<i>Lophoictinia isura</i>	Square-tailed Kite	V,P,3		ALA (2010 - ); BioNet (2010- )
<i>Lopholaimus antarcticus</i>	Topknot Pigeon			ALA (2010 - )
<i>Lynamorpha rosea</i>	Litchi Stink Bug			ALA (2010 - )
<i>Macquaria colonorum</i>	Estuary Perch			ALA (2010 - )

<i>Macronectes giganteus</i>	Southern Giant Petrel	E1	E	OEH (2017)
<i>Macropus giganteus</i>	Eastern Grey Kangaroo	P		ALA (2010 - ); BioNet (2010- )
<i>Macropus rufogriseus</i>	Red-necked Wallaby	P		ALA (2010 - ); BioNet (2010- )
<i>Macropygia amboinensis</i>	Brown Cuckoo-Dove	P		ALA (2010 - );BioNet (2010- )
<i>Macrotristria angularis</i>	Cherry-nose			ALA (2010 - )
<i>Malurus lamberti</i>	Variagated Fairy-Wren	P		ALA (2010 - );BioNet (2010- )
<i>Malurus pulcherrimus</i>	Blue-Breasted Fairy-Wren			ALA (2010 - )
<i>Malurus cyaneus</i>	Superb Fairy-Wren	P		ALA (2010 - );BioNet (2010- )
<i>Manorina melanophrys</i>	Bell Miner	P		ALA (2010 - );BioNet (2010- )
<i>Manorina flavigula</i>	Yellow-Throated Miner			ALA (2010 - )
<i>Manorina melanocephala</i>	Noisy Miner	P		ALA (2010 - );BioNet (2010- )
<i>Maratus rainbowi</i>				ALA (2010 - )
<i>Maratus volans</i>	Peacock spider			ALA (2010 - ); BioNet (2010- )
<i>Maroga melanostigma</i>				ALA (2010 - )
<i>Megadolomedes australianus</i>				ALA (2010 - )
<i>Megalurus gramineus</i>	Little Grassbird			ALA (2010 - )
<i>Meliphaga lewinii</i>	Lewin's Honeyeater	P		ALA (2010 - );BioNet (2010- )
<i>Melithreptus brevirostris</i>	Brown-Headed Honeyeater			ALA (2010 - )
<i>Melithreptus gularis</i>	Black-Chinned Honeyeater			ALA (2010 - )
<i>Melithreptus lunatus</i>	White-Naped Honeyeater	P		ALA (2010 - );BioNet (2010- )
<i>Menura novaehollandiae</i>	Superb Lyrebird	P		ALA (2010 - );BioNet (2010- )
<i>Meranoplus minor</i>				ALA (2010 - )
<i>Meridolum middenense</i>	Mona Vale Woodland Snail			ALA (2010 - )
<i>Merops ornatus</i>	Rainbow Bee-Eater			ALA (2010 - )
<i>Methana marginalis</i>				ALA (2010 - )
<i>Microcarbo melanoleucos</i>	Little Pied Cormorant	P		ALA (2010 - ); BioNet (2010- )
<i>Microeca fascinans</i>	Jacky Winter	P		ALA (2010 - ); BioNet (2010- )
<i>Miniopterus australis</i>	Little Bentwing-Bat	V,P		ALA (2010 - ); BioNet (2010- )
<i>Miniopterus schreibersii</i>	Bent-Wing Bat			ALA (2010 - )
<i>Miniopterus schreibersii oceanensis</i>	Eastern Bentwing-bat	V,P		BioNet (2010- ); HSC (2013)
<i>Mituliodon tarantulinus</i>				ALA (2010 - )
<i>Mixophyes fasciolatus</i>	Great Barred Frog			ALA (2010 - )
<i>Mixophyes iteratus</i>	Giant Barred Frog			ALA (2010 - )
<i>Mnesampela lenaea</i>				ALA (2010 - )
<i>Molycris mammosa</i>				ALA (2010 - )
<i>Monarcha melanopsis</i>	Black-Faced Monarch	P		ALA (2010 - );BioNet (2010- )
<i>Monteithiella humeralis</i>				ALA (2010 - )
<i>Morebilus plagusius</i>				ALA (2010 - )
<i>Morelia spilota</i>	Carpet Python	P		ALA (2010 - ); BioNet (2010- )
<i>Morelia spilota spilota</i>	Diamond Python	P		BioNet (2010- )
<i>Mormopterus ridei</i>	Ride's Free-Tailed Bat			ALA (2010 - )
<i>Mormopterus norfolken-sis</i>	Eastern Free-tailed Bat	V, P		BioNet (2010- ); HSC (2013)
<i>Mormopterus spp.</i>	mastiff-bat	P		BioNet (2010- )
<i>Musca domestica</i>	House Fly			ALA (2010 - )
<i>Musgraveia sulciventris</i>	Bronze Orange Bug			ALA (2010 - )

<i>Myiagra cyanoleuca</i>	Satin Flycatcher			ALA (2010 - )
<i>Myiagra rubecula</i>	Leaden Flycatcher	P		ALA (2010 - );BioNet (2010- )
<i>Myiagra inquieta</i>	Restless Flycatcher			ALA (2010 - )
<i>Myotis macropus</i>	Southern Myotis	V,P		ALA (2010 - ); BioNet (2010- ) HSC (2013)
<i>Myrmecia forficata</i>				ALA (2010 - )
<i>Myrmecia gulosa</i>				ALA (2010 - )
<i>Myrmecia nigrocincta</i>				ALA (2010 - )
<i>Myrmecia pilosula</i>				ALA (2010 - )
<i>Myrmecia tarsata</i>				ALA (2010 - )
<i>Myzomela obscura</i>	Dusky Honeyeater			ALA (2010 - )
<i>Myzomela sanguinolenta</i>	Scarlet Honeyeater	P		ALA (2010 - );BioNet (2010- )
<i>Naupactus leucoloma</i>	White-Fringed Weevil			ALA (2010 - )
<i>Nausinoe pueritia</i>				ALA (2010 - )
<i>Neato kioloa</i>				ALA (2010 - )
<i>Neochmia temporalis</i>	Red-Browed Finch	P		ALA (2010 - );BioNet (2010- )
<i>Neophema pulchella</i>	Turquoise Parrot	V, P		ALA (2010 - )
<i>Neorrhina punctatum</i>				ALA (2010 - )
<i>Neotemnopteryx australis</i>				ALA (2010 - )
<i>Nephila edulis</i>	Golden Orbweb Spider			ALA (2010 - )
<i>Nephila pilipes</i>	Giant Wood-Spider			ALA (2010 - )
<i>Nephila plumipes</i>	Humped Golden Orb-Weaving Spider			ALA (2010 - )
<i>Nesoptilotis flavicollis</i>	Yellow-Throated Honeyeater			ALA (2010 - )
<i>Nesoptilotis leucotis</i>	White-Eared Honeyeater	P		ALA (2010 - ); BioNet (2010- )
<i>Nicodamus peregrinus</i>				ALA (2010 - )
<i>Ninox connivens</i>	Barking Owl	V,P,3		ALA (2010 - ), HSC (2013)
<i>Ninox novaeseelandiae</i>	Southern Boobook	P		ALA (2010 - );BioNet (2010- )
<i>Ninox strenua</i>	Powerful Owl	V,P,3		ALA (2010 - ), HSC (2013)
<i>Norfolius howensis</i>				ALA (2010 - )
<i>Notarcha aurolinealis</i>				ALA (2010 - )
<i>Nycticorax caledonicus</i>	Nankeen Night-Heron	P		ALA (2010 - ); BioNet (2010- )
<i>Nyctophilus geoffroyi</i>	Lesser Long-eared Bat	P		BioNet (2010- )
<i>Nyctophilus gouldi</i>	Gould's Long-Eared Bat	P		ALA (2010 - ); BioNet (2010- )
<i>Nymphes myrmeleonoides</i>				ALA (2010 - )
<i>Nyssus albopunctata</i>				ALA (2010 - )
<i>Nyssus coloripes</i>				ALA (2010 - )
<i>Nyssus Jaredwardeni</i>				ALA (2010 - )
<i>Ocyphaps lophotes</i>	Crested Pigeon	P		ALA (2010 - ); BioNet (2010- )
<i>Oecobius navus</i>				ALA (2010 - )
<i>Omoedus orbiculatus</i>				ALA (2010 - )
<i>Oncodamus bidens</i>				ALA (2010 - )
<i>Opisthuncus mordax</i>				ALA (2010 - )
<i>Opisthuncus parcedentatus</i>				ALA (2010 - )
<i>Opisthuncus polyphemus</i>				ALA (2010 - )
<i>Orectolobus maculatus</i>	Spotted Wobbegong			ALA (2010 - )
<i>Origma solitaria</i>	Rockwarbler			ALA (2010 - )

<i>Oriolus sagittatus</i>	Olive-Backed Oriole	P		ALA (2010 - );BioNet (2010- )
<i>Orthetrum caledonicum</i>				ALA (2010 - )
<i>Orthetrum villosovittatum</i>				ALA (2010 - )
<i>Orthodera ministralis</i>	Green Mantid			ALA (2010 - )
<i>Orthogonis ornatipennis</i>				ALA (2010 - )
<i>Oxyopes gracilipes</i>				ALA (2010 - )
<i>Pachycephala rufiventris</i>	Rufous Whistler	P		ALA (2010 - );BioNet (2010- )
<i>Pachycephala melanura</i>	Mangrove Golden Whistler			ALA (2010 - )
<i>Pachycephala pectoralis</i>	Golden Whistler	P		ALA (2010 - )
<i>Pandion cristatus</i>	Eastern Osprey	V,P3		BioNet (2010- ); HSC (2013)
<i>Papilio aegeus</i>	Orchard Swallowtail Butterfly			ALA (2010 - )
<i>Paraembolides boycei</i>				ALA (2010 - )
<i>Paramatachia ashtonensis</i>				ALA (2010 - )
<i>Paraphilaeus daemellii</i>				ALA (2010 - )
<i>Parasesarma erythodactyla</i>				ALA (2010 - )
<i>Parasteatoda tepidarium</i>				ALA (2010 - )
<i>Pardalotus striatus</i>	Striated Pardalote	P		ALA (2010 - );BioNet (2010- )
<i>Pardalotus punctatus</i>	Spotted Pardalote	P		ALA (2010 - );BioNet (2010- )
<i>Parvipsitta pusilla</i>	Little Lorikeet	V,P		ALA (2010 - );BioNet (2010- ); HSC (2013)
<i>Pauropsalta mneme</i>	Ticker			ALA (2010 - )
<i>Pediana regina</i>				ALA (2010 - )
<i>Pelecanus conspicillatus</i>	Australian Pelican	P		ALA (2010 - ); BioNet (2010- )
<i>Perameles nasuta</i>	Long-nosed Bandicoot	P		ALA (2010 - ); BioNet (2010- )
<i>Perga affinis</i>				ALA (2010 - )
<i>Petauroides volans</i>	Greater Glider	P	V	OEH (2004)
<i>Petaurus breviceps</i>	Sugar Glider	P		ALA (2010 - ); BioNet (2010- )
<i>Petrochelidon nigricans</i>	Tree Martin			ALA (2010 - )
<i>Petrochelidon ariel</i>	Fairy Martin			ALA (2010 - )
<i>Petroica rosea</i>	Rose Robin			ALA (2010 - )
<i>Petroica goodenovii</i>	Red-Capped Robin			ALA (2010 - )
<i>Petroica boodang</i>	Scarlet Robin	V,P		OEH (1993)
<i>Petroica phoenicea</i>	Flame Robin	V,P		OEH (1989)
<i>Phalacrocorax carbo</i>	Great Cormorant			ALA (2010 - )
<i>Phalacrocorax sulcirostris</i>	Little Black Cormorant			ALA (2010 - )
<i>Phalaenoides glycinae</i>	Grapevine Moth			ALA (2010 - )
<i>Phaps chalcoptera</i>	Common Bronzewing	P		ALA (2010 - );BioNet (2010- )
<i>Phaps elegans</i>	Brush Bronzewing			ALA (2010 - )
<i>Phascogale tapoatafa</i>	Brush-tailed Phascogale	V,P		OEH (2009)
<i>Phascolarctos cinereus</i>	Koala	V,P	V	ALA (2010 - ); BioNET (2010- ); HSC (2013)
<i>Philemon citreogularis</i>	Little Friarbird			ALA (2010 - )
<i>Philemon corniculatus</i>	Noisy Friarbird	P		ALA (2010 - );BioNet (2010- )
<i>Philoponella congregabilis</i>				ALA (2010 - )
<i>Pholcus phalangioides</i>	Daddy Longlegs Spider			ALA (2010 - )
<i>Pholodes sinistraria</i>				ALA (2010 - )

<i>Phonognatha graeffei</i>				ALA (2010 - )
<i>Phrissogonus laticostata</i>				ALA (2010 - )
<i>Phylidonyris niger</i>	White-Cheeked Honeyeater	P		ALA (2010 - );BioNet (2010- )
<i>Phylidonyris novaehollandiae</i>	New Holland Honeyeater	P		ALA (2010 - );BioNet (2010- )
<i>Phyllurus platurus</i>	Broad-Tailed Gecko	P		ALA (2010 - ); BioNet (2010- )
<i>Pieris rapae</i>	Cabbage White Butterfly			ALA (2010 - )
<i>Planigale maculata</i>	Common Planigale			ALA (2010 - )
<i>Platalea regia</i>	Royal Spoonbill			ALA (2010 - )
<i>Platybrachys decemmacula</i>				ALA (2010 - )
<i>Platycercus elegans</i>	Crimson Rosella	P		ALA (2010 - );BioNet (2010- )
<i>Platycercus eximius</i>	Eastern Rosella	P		ALA (2010 - );BioNet (2010- )
<i>Plebs eburnus</i>				ALA (2010 - )
<i>Plecia dimidiata</i>				ALA (2010 - )
<i>Pluvialis squatarola</i>	Grey Plover	P	C,J,K	BioNet (2010- )
<i>Podacanthus typhon</i>	Large Pink-Winged Stick-Insect			ALA (2010 - )
<i>Podargus strigoides</i>	Tawny Frogmouth	P		ALA (2010 - ); BioNet (2010- )
<i>Poecilopta kgari</i>				ALA (2010 - )
<i>Poecilopta venusta</i>				ALA (2010 - )
<i>Poecilometis parilis</i>				ALA (2010 - )
<i>Poecilopachys australasia</i>	Two-Spined Spider			ALA (2010 - )
<i>Pogona barbata</i>	Bearded Dragon	P		ALA (2010 - ); BioNet (2010- )
<i>Poliocephalus poliocephalus</i>	Hoary-headed Grebe	P		BioNet (2010- )
<i>Polyrhachis ammon</i>				ALA (2010 - )
<i>Polyrhachis semiaurata</i>				ALA (2010 - )
<i>Polyzosteria limbata</i>				ALA (2010 - )
<i>Pomatostomus temporalis temporalis</i>	Grey-crowned Babbler (eastern subspecies)	V,P		OEH (2005)
<i>Pommerhelix duralensis</i>	Dural Woodland Snail/Dural Land Snail	E1	E	ALA (2010 - ); BioNet (2010- )
<i>Poppepsalta notialis</i>				ALA (2010 - )
<i>Porcellio scaber</i>				ALA (2010 - )
<i>Porphyrio porphyrio</i>	Purple Swamphen	P		ALA (2010 - );BioNet (2010- )
<i>Porzana tabuensis</i>	Spotless Crake			ALA (2010 - )
<i>Pristhesancus plagipennis</i>	Bee-Killer			ALA (2010 - )
<i>Procambridgea grayi</i>				ALA (2010 - )
<i>Prostheclina pallida</i>				ALA (2010 - )
<i>Psaltoda harrisii</i>	Yellowbelly			ALA (2010 - )
<i>Psaltoda moerens</i>	Redeye			ALA (2010 - )
<i>Psaltoda plaga</i>	Black Prince			ALA (2010 - )
<i>Psednura musgravei</i>	Musgrave's Psednura			ALA (2010 - )
<i>Psephotus haematonotus</i>	Red-Rumped Parrot			ALA (2010 - )
<i>Pseudagrion microcephalum</i>				ALA (2010 - )
<i>Pseudechis porphyriacus</i>	Red-Bellied Black Snake	P		ALA (2010 - ); BioNet (2010- )
<i>Pseudocheirus peregrinus</i>	Common Ringtail Possum	P		ALA (2010 - ); BioNet (2010- )

<i>Pseudomantis albofimbriata</i>				ALA (2010 - )
<i>Pseudomys gracilicaudatus</i>	Eastern Chestnut Mouse	V,P		OEH (2000)
<i>Pseudomys novaehollandiae</i>	New Holland Mouse	P	V	OEH (1973)
<i>Pseudonaja textilis</i>	Eastern Brown Snake	P		ALA (2010 - ); BioNet (2010- )
<i>Pseudophryne australis</i>	Red-Crowned Toadlet	V,P		ALA (2010 - ); BioNet (2010- ) HSC (2013)
<i>Pseudophryne bibronii</i>	Bibron's Toadlet	P		BioNet (2010- )
<i>Psophodes olivaceus</i>	Eastern Whipbird	P		ALA (2010 - );BioNet (2010- )
<i>Pteropus alecto</i>	Black Flying-Fox			ALA (2010 - )
<i>Pteropus poliocephalus</i>	Grey-Headed Flying-Fox	V,P	V	ALA (2010 - ); BioNET (2010- ); HSC (2013)
<i>Ptilinopus superbus</i>	Superb Fruit-Dove	V,P		OEH (2018)
<i>Ptilonorhynchus violaceus</i>	Satin Bowerbird	P		ALA (2010 - ); BioNet (2010- )
<i>Ptilotula fusca</i>	Fuscous Honeyeater			ALA (2010 - )
<i>Ptilotula penicillata</i>	White-Plumed Honeyeater	P		ALA (2010 - );BioNet (2010- )
<i>Pungalina plurilineata</i>				ALA (2010 - )
<i>Pycnoptilus floccosus</i>	Pilotbird			ALA (2010 - )
<i>Pygopus lepidopodus</i>	Common Scaly-Foot	P		ALA (2010 - ); BioNet (2010- )
<i>Rattus fuscipes</i>	Bush Rat	P		ALA (2010 - ); BioNet (2010- )
<i>Rattus lutreolus</i>	Swamp Rat	P		ALA (2010 - ); BioNet (2010- )
<i>Rhantus suturalis</i>				ALA (2010 - )
<i>Rhinolophus megaphyllus</i>	Eastern Horseshoe-bat	P		ALA (2010 - ); BioNet (2010- )
<i>Rhinotia hemisticta</i>				ALA (2010 - )
<i>Rhipidura rufifrons</i>	Rufous Fantail	P		ALA (2010 - );BioNet (2010- )
<i>Rhipidura albiscapa</i>	Grey Fantail	P		ALA (2010 - );BioNet (2010- )
<i>Rhipidura leucophrys</i>	Willie Wagtail	P		ALA (2010 - );BioNet (2010- )
<i>Rhytidoponera metallica</i>				ALA (2010 - )
<i>Rodolia cardinalis</i>	Cardinal Ladybird			ALA (2010 - )
<i>Rutilia cingulata</i>				ALA (2010 - )
<i>Saccolaimus flaviventris</i>	Yellow-Bellied Sheath-tail-Bat	V,P		ALA (2010 - ); BioNet (2010- )
<i>Saiphos equalis</i>	Three-toed Skink	P		ALA (2010 - ); BioNet (2010- )
<i>Saltuarius swaini</i>	Southern Leaf-Tailed Gecko			ALA (2010 - )
<i>Saproscincus mustelinus</i>	Weasel Skink	P		ALA (2010 - ); BioNet (2010- )
<i>Schedorhinotermes intermedius</i>				ALA (2010 - )
<i>Scolopendra morsitans</i>				ALA (2010 - )
<i>Scolypopa australis</i>	Passionvine Hopper			ALA (2010 - )
<i>Scopula rubraria</i>				ALA (2010 - )
<i>Scoteanax rueppellii</i>	Greater Broad-Nosed Bat	V,P		ALA (2010 - ); BioNET (2010- ); HSC (2013)
<i>Scythrops novaehollandiae</i>	Channel-Billed Cuckoo	P		ALA (2010 - ); BioNet (2010- )
<i>Sericornis magnirostra</i>	Large-Billed Scrubwren			ALA (2010 - )
<i>Sericornis frontalis</i>	White-Browed Scrubwren	P		ALA (2010 - );BioNet (2010- )
<i>Sericulus chrysocephalus</i>	Regent Bowerbird			ALA (2010 - )
<i>Servaea incana</i>				ALA (2010 - )
<i>Servaea villosa</i>				ALA (2010 - )
<i>Sidymella trapezia</i>				ALA (2010 - )

<i>Smeringopus natalensis</i>				ALA (2010 - )
<i>Smicronis brevirostris</i>	Weebill			ALA (2010 - )
<i>Sondra aurea</i>				ALA (2010 - )
<i>Speiredonia spectans</i>				ALA (2010 - )
<i>Sphecotheses vieilloti</i>	Australasian Figbird	P		ALA (2010 - ); BioNet (2010- )
<i>Spilosoma canescens</i>				ALA (2010 - )
<i>Spodoptera exempta</i>				ALA (2010 - )
<i>Spodoptera litura</i>	Tropical Armyworm			ALA (2010 - )
<i>Spodoptera picta</i>				ALA (2010 - )
<i>Stagonopleura guttata</i>	Diamond Firetail	V,P		
<i>Stenoderus suturalis</i>				ALA (2010 - )
<i>Stephanopis barbipes</i>				ALA (2010 - )
<i>Stiphidion facetum</i>	Crinoline Spider, Sombrero Spider, Hammock-Web Spider			ALA (2010 - )
<i>Stipiturus malachurus</i>	Southern Emu-wren	P		BioNet (2010- )
<i>Stizoptera bichenovii</i>	Double-Barred Finch	P		ALA (2010 - );BioNet (2010- )
<i>Stomiopera flava</i>	Yellow Honeyeater			ALA (2010 - )
<i>Strepera fuliginosa</i>	Black Currawong			ALA (2010 - )
<i>Strepera graculina</i>	Pied Currawong	P		ALA (2010 - );BioNet (2010- )
<i>Streptopelia chinensis</i>	Spotted Dove			ALA (2010 - )
<i>Sylvicola dubius</i>				ALA (2010 - )
<i>Tachybaptus novaehollandiae</i>	Australasian Grebe	P		ALA (2010 - ); BioNet (2010- )
<i>Tachyglossus aculeatus</i>	Short-Beaked Echidna	P		ALA (2010 - ); BioNet (2010- )
<i>Taeniopygia guttata</i>	Zebra Finch			ALA (2010 - )
<i>Taiwanassimineia affinis</i>				ALA (2010 - )
<i>Tamasa tristigma</i>	Brown Bunyip			ALA (2010 - )
<i>Tamopsis brisbanensis</i>				ALA (2010 - )
<i>Tamopsis eucalypti</i>				ALA (2010 - )
<i>Tamopsis platycephala</i>				ALA (2010 - )
<i>Tectocoris diophthalmus</i>	Cotton Harlequin Bug			ALA (2010 - )
<i>Telephlebia godeffroyi</i>				ALA (2010 - )
<i>Tenodera australasiae</i>	Purplewinged Mantid			ALA (2010 - )
<i>Testacella haliotidea</i>	Shelled Slug			ALA (2010 - )
<i>Tetragnatha demissa</i>				ALA (2010 - )
<i>Tetragonula carbonaria</i>				ALA (2010 - )
<i>Tetramorium confusum</i>				ALA (2010 - )
<i>Thalasseus bergii</i>	Crested Tern			ALA (2010 - )
<i>Theridion pyramidale</i>				ALA (2010 - )
<i>Theridion theridioides</i>				ALA (2010 - )
<i>Theseus modestus</i>				ALA (2010 - )
<i>Thopha saccata</i>	Double Drummer			ALA (2010 - )
<i>Threskiornis molucca</i>	Australian White Ibis	P		ALA (2010 - ); BioNet (2010- )
<i>Threskiornis spinicollis</i>	Straw-Necked Ibis	P		ALA (2010 - ); BioNet (2010- )
<i>Tibellus tenellus</i>				ALA (2010 - )
<i>Tiliqua rugosa</i>	Shingle-Back			ALA (2010 - )
<i>Tiliqua scincoides</i>	Eastern Blue-Tongue	P		ALA (2010 - ); BioNet (2010- )
<i>Tisiphone abeona</i>	Swordgrass Brown			ALA (2010 - )
<i>Todiramphus sanctus</i>	Sacred Kingfisher	P		ALA (2010 - );BioNet (2010- )

<i>Torbia perficita</i>				ALA (2010 - )
<i>Toxopsoidea kathleenae</i>				ALA (2010 - )
<i>Toxorhynchites speciosus</i>				ALA (2010 - )
<i>Trachycosmus sculptilis</i>				ALA (2010 - )
<i>Trapezites praxedes</i>	Southern Silver Ochre			ALA (2010 - )
<i>Tregellasia capito</i>	Pale-Yellow Robin			ALA (2010 - )
<i>Triboniophorus graeffei</i>	Red-Triangle Slug			ALA (2010 - )
<i>Tribonyx mortierii</i>	Tasmanian Native-Hen			ALA (2010 - )
<i>Trichoglossus chlorolepidotus</i>	Scaly-breasted Lorikeet	P		ALA (2010 - ); BioNet (2010- )
<i>Trichoglossus haematodus</i>	Rainbow Lorikeet	P		ALA (2010 - ); BioNet (2010- )
<i>Trichoglossus haematodus moluccanus</i>		P		BioNet (2010- )
<i>Trichosurus cunninghami</i>	Mountain Brushtail Possum	P		BioNet (2010- )
<i>Trichosurus vulpecula</i>	Australian Brushtail Possum/ Common Brushtail Possum	P		ALA (2010 - ); BioNet (2010- )
<i>Tyto novaehollandiae</i>	Masked Owl	V,P,3		ALA (2010 - );BioNet (2010- )
<i>Tyto tenebricosa</i>	Sooty Owl	V,P,3		ALA (2010 - );BioNet (2010- )
<i>Tyto alba</i>	Barn Owl			ALA (2010 - )
<i>Tyto javanica</i>	Eastern Barn Owl	P		BioNet (2010- )
<i>Underwoodisaurus milii</i>	Thick-tailed Gecko	P		ALA (2010 - ); BioNet (2010- )
<i>Uperoleia laevigata</i>	Smooth Toadlet	P		ALA (2010 - ); BioNet (2010- )
<i>Vanellus miles</i>	Masked Plover			ALA (2010 - )
<i>Vanellus miles</i>	Masked Lapwing	P		BioNet (2010- )
<i>Vanessa itea</i>	Yellow Admiral			ALA (2010 - )
<i>Vanessa kershawi</i>	Australian Painted Lady			ALA (2010 - )
<i>Varanus gouldii</i>	Gould's Goanna	P		ALA (2010 - ); BioNet (2010- )
<i>Varanus rosenbergi</i>	Heath Monitor Rosenberg's Goanna	V,P		ALA (2010 - ); BioNet (2010- )
<i>Varanus varius</i>	Lace Monitor	P		ALA (2010 - ); BioNet (2010- )
<i>Venatrix pictiventris</i>				ALA (2010 - )
<i>Vespadelus darlingtoni</i>	Large Forest Bat	P		ALA (2010 - ); BioNet (2010- )
<i>Vespadelus pumilus</i>	Eastern Forest Bat	P		ALA (2010 - ); BioNet (2010- )
<i>Vespadelus regulus</i>	Southern Forest Bat	P		ALA (2010 - ); BioNet (2010- )
<i>Vespadelus vulturnus</i>	Little Forest Bat	P		ALA (2010 - ); BioNet (2010- )
<i>Wallabia bicolor</i>	Swamp Wallaby	P		ALA (2010 - ); BioNet (2010- )
<i>Wingia aurata</i>				ALA (2010 - )
<i>Xanthagrion erythronerum</i>				ALA (2010 - )
<i>Xanthotis macleayanus</i>	Macleay's Honeyeater			ALA (2010 - )
<i>Yoyetta celis</i>				ALA (2010 - )
<i>Yoyetta repetens</i>				ALA (2010 - )
<i>Zelotypia stacyi</i>				ALA (2010 - )
<i>Zonopetala clerota</i>				ALA (2010 - )
<i>Zoothera lunulata</i>	Bassian Thrush			ALA (2010 - )
<i>Zosterops lateralis</i>	Silvereye	P		ALA (2010 - ); BioNet (2010- )



## Fungi

Species Name	Common Name	Source
<i>Agaricus rotalis</i>		ALA (2010 - )
<i>Amauroderma rude</i>		ALA (2010 - )
<i>Aseroe rubra</i>	Puapua a Autahi	ALA (2010 - )
<i>Asteromella pistaciarum</i>		ALA (2010 - )
<i>Battarrea phalloides</i>		ALA (2010 - )
<i>Botryobasidium subcoronatum</i>		ALA (2010 - )
<i>Botryosphaeria rhodina</i>		ALA (2010 - )
<i>Candida boleticola</i>		ALA (2010 - )
<i>Cantharellus concinnus</i>		ALA (2010 - )
<i>Cladophialophora chaetospora</i>		ALA (2010 - )
<i>Cladophialophora potulentorum</i>		ALA (2010 - )
<i>Cladosporium langeronii</i>		ALA (2010 - )
<i>Cladosporium sphaerospermum</i>		ALA (2010 - )
<i>Clonostachys rosea</i>		ALA (2010 - )
<i>Cochliobolus eragrostidis</i>		ALA (2010 - )
<i>Cortinarius abnormis</i>		ALA (2010 - )
<i>Cortinarius ardesiacus</i>		ALA (2010 - )
<i>Cortinarius argyrius</i>		ALA (2010 - )
<i>Cortinarius austrocyaneus</i>		ALA (2010 - )
<i>Cortinarius eutactus</i>		ALA (2010 - )
<i>Cortinarius kula</i>		ALA (2010 - )
<i>Cortinarius picoides</i>		ALA (2010 - )
<i>Cortinarius rotundisporus</i>		ALA (2010 - )
<i>Cortinarius vibratilis</i>		ALA (2010 - )
<i>Cortinarius walpolensis</i>		ALA (2010 - )
<i>Cryptococcus dimennae</i>		ALA (2010 - )
<i>Cryptococcus podzolicus</i>		ALA (2010 - )
<i>Cryptococcus terreus</i>		ALA (2010 - )
<i>Cuphophyllus pratensis</i> (Fr.) Bon (Pers.)		ALA (2010 - )
<i>Cytospora eucalypticola</i>		ALA (2010 - )
<i>Cytospora variostromatica</i>		ALA (2010 - )
<i>Davidiella tassiana</i>		ALA (2010 - )
<i>Diaporthe nothofagi</i>		ALA (2010 - )
<i>Entoloma chalybeum</i>		ALA (2010 - )
<i>Entoloma nothofagi</i>		ALA (2010 - )
<i>Epicoccum purpurascens</i>		ALA (2010 - )
<i>Flavoparmelia caperata</i>		ALA (2010 - )
<i>Fusarium oxysporum</i>		ALA (2010 - )
<i>Geastrum pectinatum</i>		ALA (2010 - )
<i>Gliomastix murorum</i>		ALA (2010 - )
<i>Gymnopus luxurians</i>		ALA (2010 - )
<i>Hyphodontia abieticola</i>		ALA (2010 - )
<i>Hypomyces chrysospermus</i>	Bolete Mould	ALA (2010 - )
<i>Ileodictyon gracile</i>		ALA (2010 - )
<i>Inocybe emergens</i>		ALA (2010 - )
<i>Laccaria lateritia</i>		ALA (2010 - )

<i>Lactarius clarkeae</i>		ALA (2010 - )
<i>Mortierella humilis</i>		ALA (2010 - )
<i>Mortierella parvispora</i>		ALA (2010 - )
<i>Neurospora terricola</i>		ALA (2010 - )
<i>Omphalotus nidiformis</i>		ALA (2010 - )
<i>Paecilomyces carneus</i>		ALA (2010 - )
<i>Paecilomyces leycattanus</i>		ALA (2010 - )
<i>Paraconiothyrium variabile</i>		ALA (2010 - )
<i>Penicillium citreonigrum</i>		ALA (2010 - )
<i>Penicillium resedanum</i>		ALA (2010 - )
<i>Penicillium spinulosum</i>		ALA (2010 - )
<i>Penicillium velutinum</i>		ALA (2010 - )
<i>Pestalotiopsis trachycarpicola</i>		ALA (2010 - )
<i>Phaeohelotium succineoguttulatum</i>		ALA (2010 - )
<i>Phaeothecoidea minutispora</i>		ALA (2010 - )
<i>Phlebopus marginatus</i>		ALA (2010 - )
<i>Phlogicylindrium eucalyptorum</i>		ALA (2010 - )
<i>Pisolithus albus</i>		ALA (2010 - )
<i>Pisolithus marmoratus</i>		ALA (2010 - )
<i>Psathyrella candolleana</i>	Pale Brittlestem	ALA (2010 - )
<i>Psilolechia lucida</i>		ALA (2010 - )
<i>Pycnoporus coccineus</i>		ALA (2010 - )
<i>Readeriella tasmanica</i>		ALA (2010 - )
<i>Rhodotorula nothofagi</i>		ALA (2010 - )
<i>Serendipita vermifera</i>		ALA (2010 - )
<i>Spiromastix warcupii</i>		ALA (2010 - )
<i>Sporidiobolus johnsonii</i>		ALA (2010 - )
<i>Sydowia eucalypti</i>		ALA (2010 - )
<i>Talaromyces coalescens</i>		ALA (2010 - )
<i>Talaromyces flavus</i>		ALA (2010 - )
<i>Talaromyces mimosinus</i>		ALA (2010 - )
<i>Talaromyces pseudostromaticus</i>		ALA (2010 - )
<i>Teratosphaeria associata</i>		ALA (2010 - )
<i>Teratosphaeria complicata</i>		ALA (2010 - )
<i>Teratosphaeria mexicana</i>		ALA (2010 - )
<i>Thanatephorus cucumeris</i>		ALA (2010 - )
<i>Trametes versicolor</i>	Turkeytail	ALA (2010 - )
<i>Trichoderma spirale</i>		ALA (2010 - )
<i>Trichoderma tomentosum</i>		ALA (2010 - )
<i>Trichoderma velutinum</i>		ALA (2010 - )
<i>Trichoderma virens</i>		ALA (2010 - )
<i>Umbelopsis dimorpha</i>		ALA (2010 - )
<i>Umbelopsis fusiformis</i>		ALA (2010 - )
<i>Umbelopsis ramanniana</i>		ALA (2010 - )
<i>Umbelopsis westeae</i>		ALA (2010 - )
<i>Verticillium leptobactrum</i>		ALA (2010 - )

## Appendix 2: Examples of threatened faunal species habitat and ecology requirements [121]

Scientific Name	Common name	Habitat and Ecology
<i>Callocephalon fimbriatum</i>	Gang-Gang Cockatoo	<i>In spring and summer, generally found in tall mountain forests and woodlands, particularly in heavily timbered and mature wet sclerophyll forests. In autumn and winter, the species often moves to lower altitudes in drier more open eucalypt forests and woodlands, particularly box-gum and box-ironbark assemblages, or in dry forest in coastal areas and often found in urban areas. May also occur in sub-alpine Snow Gum (Eucalyptus pauciflora) woodland and occasionally in temperate rainforests. Favours old growth forest and woodland attributes for nesting and roosting. Nests are located in hollows that are 10 cm in diameter or larger and at least 9 m above the ground in eucalypts.</i>
<i>Calyptorhynchus lathamii</i>	Glossy Black-Cockatoo	<i>Inhabits open forest and woodlands of the coast and the Great Dividing Range where stands of sheoak occur. Black Sheoak (Allocasuarina littoralis) and Forest Sheoak (A. torulosa) are important foods. Inland populations feed on a wide range of sheoaks, including Drooping Sheoak, Allocasuarina diminuta, and A. gymnathera. Belah is also utilised and may be a critical food source for some populations. In the Riverina, birds are associated with hills and rocky rises supporting Drooping Sheoak, but also recorded in open woodlands dominated by Belah (Casuarina cristata). Feeds almost exclusively on the seeds of several species of she-oak (Casuarina and Allocasuarina species), shredding the cones with the massive bill. Dependent on large hollow-bearing eucalypts for nest sites. A single egg is laid between March and May.</i>
<i>Cercartetus nanus</i>	Eastern Pygmy-Possum	<i>Found in a broad range of habitats from rainforest through sclerophyll (including Box-Ironbark) forest and woodland to heath, but in most areas woodlands and heath appear to be preferred, except in north-eastern NSW where they are most frequently encountered in rainforest. Feeds largely on nectar and pollen collected from banksias, eucalypts and bottlebrushes; an important pollinator of heathland plants such as banksias; soft fruits are eaten when flowers are unavailable. Also feeds on insects throughout the year; this feed source may be more important in habitats where flowers are less abundant such as wet forests. Shelters in tree hollows, rotten stumps, holes in the ground, abandoned bird-nests, Ringtail Possum (Pseudocheirus peregrinus) dreys or thickets of vegetation, (e.g. grass-tree skirts); nest-building appears to be restricted to breeding females; tree hollows are favoured but spherical nests have been found under the bark of eucalypts and in shredded bark in tree forks. Appear to be mainly solitary, each individual using several nests, with males having non-exclusive home-ranges of about 0.68 hectares and females about 0.35 hectares. Young can be born whenever food sources are available, however most births occur between late spring and early autumn. Agile climbers, but can be caught on the ground in traps, pitfalls or postholes; generally nocturnal. Frequently spends time in torpor especially in winter, with body curled, ears folded and internal temperature close to the surroundings.</i>
<i>Daphoenositta chrysoptera</i>	Varied Sittella	<i>Inhabits eucalypt forests and woodlands, especially those containing rough-barked species and mature smooth-barked gums with dead branches, mallee and Acacia woodland. Feeds on arthropods gleaned from crevices in rough or decorticating bark, dead branches, standing dead trees and small branches and twigs in the tree canopy. Builds a cup-shaped nest of plant fibres and cobwebs in an upright tree fork high in the living tree canopy, and often re-uses the same fork or tree in successive years. Generation length is estimated to be 5 years.</i>
<i>Dasyurus maculatus</i>	Spotted-Tailed Quoll	<i>Recorded across a range of habitat types, including rainforest, open forest, woodland, coastal heath and inland riparian forest, from the sub-alpine zone to the coastline. Individual animals use hollow-bearing trees, fallen logs, small caves, rock outcrops and rocky-cliff faces as den sites. Mostly nocturnal, although will hunt during the day; spends most of the time on the ground, although also an excellent climber and will hunt possums and gliders in tree hollows and prey on roosting birds. Use communal 'latrine sites', often on flat rocks among boulder fields, rocky cliff-faces or along rocky stream beds or banks. Such sites may be visited by multiple individuals and can be recognised by the accumulation of the sometimes characteristic 'twisty-shaped' faeces deposited by animals. A generalist predator with a preference for medium-sized (500g-5kg) mammals. Consumes a variety of prey, including gliders, possums, small wallabies, rats, birds, bandicoots, rabbits, reptiles and insects. Also eats carrion and takes domestic fowl. Females occupy home ranges up to about 750 hectares and males up to 3500 hectares. Are known to traverse their home ranges along densely vegetated creeklines. Average litter size is five; both sexes mature at about one year of age. Life expectancy in the wild is about 3-4 years.</i>
<i>Falsistrellus tasmaniensis</i>	Eastern False Pipistrelle	<i>Prefers moist habitats, with trees taller than 20 m. Generally roosts in eucalypt hollows, but has also been found under loose bark on trees or in buildings. Hunts beetles, moths, weevils and other flying insects above or just below the tree canopy. Hibernates in winter. Females are pregnant in late spring to early summer.</i>
<i>Haliaeetus leucogaster</i>	White-Bellied Sea-Eagle	<i>Habitats are characterised by the presence of large areas of open water including larger rivers, swamps, lakes, and the sea. Occurs at sites near the sea or sea-shore, such as around bays and inlets, beaches, reefs, lagoons, estuaries and mangroves; and at, or in the vicinity of freshwater swamps, lakes, reservoirs, billabongs and saltmarsh. Terrestrial habitats include coastal dunes, tidal flats, grassland, heathland, woodland, and forest (including rainforest). Breeding habitat consists of mature tall open forest, open forest, tall woodland, and swamp sclerophyll forest close to foraging habitat. Nest trees are typically large emergent eucalypts and often have emergent dead branches or large dead trees nearby which are used as 'guard roosts'. Nests are large structures built from sticks and lined with leaves or grass. Feed mainly on fish and freshwater turtles, but also waterbirds, reptiles, mammals and carrion. Hunts its prey from a perch or whilst in flight (by circling slowly, or by sailing along 10–20 m above the shore). Prey is usually carried to a feeding platform or (if small) consumed in flight, but some items are eaten on the ground. May be solitary, or live in pairs or small family groups consisting of a pair of adults and dependent young. Typically lays two eggs between June and September with young birds remaining in the nest for 65-70 days.</i>

<i>Heleioporus australiacus</i>	Giant Burrowing Frog	<p>Found in heath, woodland and open dry sclerophyll forest on a variety of soil types except those that are clay based. Spends more than 95% of its time in non-breeding habitat in areas up to 300 m from breeding sites. Whilst in non-breeding habitat it burrows below the soil surface or in the leaf litter. Individual frogs occupy a series of burrow sites, some of which are used repeatedly. The home ranges of both sexes appear to be non-overlapping suggesting exclusivity of non-breeding habitat. Home ranges are approximately 0.04 ha in size.</p> <p>Individuals move into the breeding site either immediately before or following heavy rain and occupy these sites for up to 10 days. Most individuals will not attempt to breed every year.</p> <p>The Giant Burrowing Frog has a generalist diet and studies to date indicate that they eat mainly invertebrates including ants, beetles, cockroaches, spiders, centipedes and scorpions.</p> <p>When breeding, frogs will call from open spaces, under vegetation or rocks or from within burrows in the creek bank. Males show strong territoriality at breeding sites. This species breeds mainly in autumn, but has been recorded calling throughout the year. Egg masses are foamy with an average of approximately 500-800 eggs and are laid in burrows or under vegetation in small pools. After rains, tadpoles are washed into larger pools where they complete their development in ponds or ponded areas of the creekline. Tadpole development ranges from around 12 weeks duration to up to 12 months with late developing tadpoles overwintering and completing development when warmer temperatures return.</p> <p>Breeding habitat of this species is generally soaks or pools within first or second order streams. They are also commonly recorded from 'hanging swamp' seepage lines and where small pools form from the collected water.</p> <p>This frog is a slow growing and long-lived species, living up to 10 years of age, possibly longer.</p>
<i>Hieraaetus morphnoides</i>	Little Eagle	<p>Occupies open eucalypt forest, woodland or open woodland. Sheoak or Acacia woodlands and riparian woodlands of interior NSW are also used.</p> <p>Nests in tall living trees within a remnant patch, where pairs build a large stick nest in winter.</p> <p>Lays two or three eggs during spring, and young fledge in early summer.</p> <p>Preys on birds, reptiles and mammals, occasionally adding large insects and carrion.</p>
<i>Isoodon obesulus</i>	Southern Brown Bandicoot	<p>Occupies open eucalypt forest, woodland or open woodland. Sheoak or Acacia woodlands and riparian woodlands of interior NSW are also used.</p> <p>Nests in tall living trees within a remnant patch, where pairs build a large stick nest in winter.</p> <p>Lays two or three eggs during spring, and young fledge in early summer.</p> <p>Preys on birds, reptiles and mammals, occasionally adding large insects and carrion.</p>
<i>Lathamus discolor</i>	Swift Parrot	<p>Migrates to the Australian south-east mainland between February and October.</p> <p>On the mainland they occur in areas where eucalypts are flowering profusely or where there are abundant lerp (from sap-sucking bugs) infestations.</p> <p>Favoured feed trees include winter flowering species such as Swamp Mahogany (<i>Eucalyptus robusta</i>), Spotted Gum (<i>Corymbia maculata</i>), Red Bloodwood (<i>C. gummifera</i>), Forest Red Gum (<i>E. tereticornis</i>), Mugga Ironbark (<i>E. sideroxylon</i>), and White Box (<i>E. albens</i>).</p> <p>Commonly used lerp infested trees include Inland Grey Box <i>E. microcarpa</i>, Grey Box <i>E. moluccana</i>, Blackbutt <i>E. pilularis</i>, and Yellow Box <i>E. melliodora</i>.</p> <p>Return to some foraging sites on a cyclic basis depending on food availability.</p> <p>Following winter they return to Tasmania where they breed from September to January, nesting in old trees with hollows and feeding in forests dominated by Tasmanian Blue Gum <i>Eucalyptus globulus</i>.</p>
<i>Lophoictinia isura</i>	Square-tailed Kite	<p>Occupies open eucalypt forest, woodland or open woodland. Sheoak or Acacia woodlands and riparian woodlands of interior NSW are also used.</p> <p>Nests in tall living trees within a remnant patch, where pairs build a large stick nest in winter.</p> <p>Lays two or three eggs during spring, and young fledge in early summer.</p> <p>Preys on birds, reptiles and mammals, occasionally adding large insects and carrion.</p>
<i>Miniopterus australis</i>	Little Bentwing-Bat	<p>Moist eucalypt forest, rainforest, vine thicket, wet and dry sclerophyll forest, Melaleuca swamps, dense coastal forests and banksia scrub. Generally found in well-timbered areas.</p> <p>Little Bentwing-bats roost in caves, tunnels, tree hollows, abandoned mines, stormwater drains, culverts, bridges and sometimes buildings during the day, and at night forage for small insects beneath the canopy of densely vegetated habitats.</p> <p>They often share roosting sites with the Common Bentwing-bat and, in winter, the two species may form mixed clusters.</p> <p>In NSW the largest maternity colony is in close association with a large maternity colony of Eastern Bentwing-bats (<i>Miniopterus schreibersii</i>) and appears to depend on the large colony to provide the high temperatures needed to rear its young.</p> <p>Maternity colonies form in spring and birthing occurs in early summer. Males and juveniles disperse in summer.</p> <p>Only five nursery sites /maternity colonies are known in Australia.</p>
<i>Miniopterus schreibersii oceanensis</i>	Eastern Bentwing-bat	<p>Caves are the primary roosting habitat, but also use derelict mines, storm-water tunnels, buildings and other man-made structures. Form discrete populations centred on a maternity cave that is used annually in spring and summer for the birth and rearing of young.</p> <p>Maternity caves have very specific temperature and humidity regimes.</p> <p>At other times of the year, populations disperse within about 300 km range of maternity caves.</p> <p>Cold caves are used for hibernation in southern Australia.</p> <p>Breeding or roosting colonies can number from 100 to 150,000 individuals.</p> <p>Hunt in forested areas, catching moths and other flying insects above the tree tops.</p>
<i>Myotis macropus</i>	Southern Myotis	<p>Generally roost in groups of 10 - 15 close to water in caves, mine shafts, hollow-bearing trees, storm water channels, buildings, under bridges and in dense foliage.</p> <p>Forage over streams and pools catching insects and small fish by raking their feet across the water surface.</p> <p>In NSW females have one young each year usually in November or December.</p>
<i>Ninox connivens</i>	Barking Owl	<p>Inhabits woodland and open forest, including fragmented remnants and partly cleared farmland. It is flexible in its habitat use, and hunting can extend in to closed forest and more open areas. Sometimes able to successfully breed along timbered watercourses in heavily cleared habitats (e.g. western NSW) due to the higher density of prey on these fertile riparian soils.</p> <p>Roost in shaded portions of tree canopies, including tall midstorey trees with dense foliage such as Acacia and Casuarina species.</p> <p>During nesting season, the male perches in a nearby tree overlooking the hollow entrance.</p> <p>Preferentially hunts small arboreal mammals such as Squirrel Gliders and Common Ringtail Possums, but when loss of tree hollows decreases these prey populations the owl becomes more reliant on birds, invertebrates and terrestrial mammals such as rodents and rabbits. Can catch bats and moths on the wing, but typically hunts by sallying from a tall perch.</p> <p>Requires very large permanent territories in most habitats due to sparse prey densities. Monogamous pairs hunt over as much as 6000 hectares, with 2000 hectares being more typical in NSW habitats.</p> <p>Two or three eggs are laid in hollows of large, old trees. Living eucalypts are preferred though dead trees are also used. Nest sites are used repeatedly over years by a pair, but they may switch sites if disturbed by predators (e.g. goannas).</p> <p>Nesting occurs during mid-winter and spring, being variable between pairs and among years. As a rule of thumb, laying occurs during August and fledging in November. The female incubates for 5 weeks, roosts outside the hollow when chicks are 4 weeks old, then fledging occurs 2-3 weeks later. Young are dependent for several months.</p> <p>Territorial pairs respond strongly to recordings of Barking Owl calls from up to 6 km away, though humans rarely hear this response farther than 1.5 km. Because disturbance reduces the pair's foraging time, and can pull the female off her eggs even on cold nights, recordings should not be broadcast unnecessarily nor during the nesting season.</p>

<i>Ninox (Rhabdoglaux) strenua</i>	Powerful Owl	<p>The Powerful Owl inhabits a range of vegetation types, from woodland and open sclerophyll forest to tall open wet forest and rainforest.</p> <p>The Powerful Owl requires large tracts of forest or woodland habitat but can occur in fragmented landscapes as well. The species breeds and hunts in open or closed sclerophyll forest or woodlands and occasionally hunts in open habitats. It roosts by day in dense vegetation comprising species such as Turpentine <i>Syncarpia glomulifera</i>, Black She-oak <i>Allocasuarina littoralis</i>, Black-wood <i>Acacia melanoxylon</i>, Rough-barked Apple <i>Angophora floribunda</i>, Cherry Ballart <i>Exocarpus cupressiformis</i> and a number of eucalypt species.</p> <p>The main prey items are medium-sized arboreal marsupials, particularly the Greater Glider, Common Ringtail Possum and Sugar Glider. There may be marked regional differences in the prey taken by Powerful Owls. For example in southern NSW, Ringtail Possum make up the bulk of prey in the lowland or coastal habitat. At higher elevations, such as the tableland forests, the Greater Glider may constitute almost all of the prey for a pair of Powerful Owls. Flying foxes are important prey in some areas; birds comprise about 10-50% of the diet depending on the availability of preferred mammals. As most prey species require hollows and a shrub layer, these are important habitat components for the owl.</p> <p>Pairs of Powerful Owls demonstrate high fidelity to a large territory, the size of which varies with habitat quality and thus prey densities. In good habitats a mere 400 can support a pair; where hollow trees and prey have been depleted the owls need up to 4000 ha.</p> <p>Powerful Owls nest in large tree hollows (at least 0.5 m deep), in large eucalypts (diameter at breast height of 80-240 cm) that are at least 150 years old. While the female and young are in the nest hollow the male Powerful Owl roosts nearby (10-200 m) guarding them, often choosing a dense "grove" of trees that provide concealment from other birds that harass him.</p> <p>Powerful Owls are monogamous and mate for life. Nesting occurs from late autumn to mid-winter, but is slightly earlier in north-eastern NSW (late summer - mid autumn). Clutches consist of two dull white eggs and incubation lasts approximately 38 days.</p>
<i>Pandion cristatus</i>	Eastern Osprey	<p>Favour coastal areas, especially the mouths of large rivers, lagoons and lakes.</p> <p>Feed on fish over clear, open water.</p> <p>Breed from July to September in NSW. Nests are made high up in dead trees or in dead crowns of live trees, usually within one kilometre of the sea.</p> <p>Incubation of 2-3 eggs, usually by the female, is about 40 days. Female remains with young almost until they fly, usually after about nine weeks in the nest.</p>
<i>Glossopsitta pusilla</i>	Little Lorikeet	<p>Forages primarily in the canopy of open Eucalyptus forest and woodland, yet also finds food in Angophora, Melaleuca and other tree species. Riparian habitats are particularly used, due to higher soil fertility and hence greater productivity.</p> <p>Isolated flowering trees in open country, e.g. paddocks, roadside remnants and urban trees also help sustain viable populations of the species.</p> <p>Feeds mostly on nectar and pollen, occasionally on native fruits such as mistletoe, and only rarely in orchards</p> <p>Gregarious, travelling and feeding in small flocks (&lt;10), though often with other lorikeets. Flocks numbering hundreds are still occasionally observed and may have been the norm in past centuries.</p> <p>Roosts in treetops, often distant from feeding areas.</p> <p>Nests in proximity to feeding areas if possible, most typically selecting hollows in the limb or trunk of smooth-barked Eucalypts. Entrance is small (3 cm) and usually high above the ground (2-15 m). These nest sites are often used repeatedly for decades, suggesting that preferred sites are limited. Riparian trees often chosen, including species like <i>Allocasuarina</i>.</p> <p>Nesting season extends from May to September. In years when flowering is prolific, Little Lorikeet pairs can breed twice, producing 3-4 young per attempt. However, the survival rate of fledglings is unknown.</p>
<i>Phascolarctos cinereus</i>	Koala	<p>Inhabit eucalypt woodlands and forests.</p> <p>Feed on the foliage of more than 70 eucalypt species and 30 non-eucalypt species, but in any one area will select preferred browse species.</p> <p>Inactive for most of the day, feeding and moving mostly at night.</p> <p>Spend most of their time in trees, but will descend and traverse open ground to move between trees.</p> <p>Home range size varies with quality of habitat, ranging from less than two ha to several hundred hectares in size.</p> <p>Generally solitary, but have complex social hierarchies based on a dominant male with a territory overlapping several females and sub-ordinate males on the periphery.</p> <p>Females breed at two years of age and produce one young per year.</p>
<i>Pommerhelix duralensis</i>	Dural Woodland Snail; Dural Land Snail	<p>The species has a strong affinity for communities in the interface region between shale-derived and sandstone-derived soils, with forested habitats that have good native cover and woody debris.</p> <p>It favours sheltering under rocks or inside curled-up bark. It does not burrow nor climb. The species has also been observed resting in exposed areas, such as on exposed rock or leaf litter, however it will also shelter beneath leaves, rocks and light woody debris.</p> <p>Migration and dispersal is limited, with overnight straight-line distances of under 1 metre identified in the literature and studies.</p> <p>The species is active from approximately one hour after dusk until dawn and no confirmed diurnal activity is reported. It exhibits no roost-site behaviour.</p> <p>The species is known to aestivate, and secretes an epiphragm to protect against dessication.</p> <p>The main food sources are hyphae and fruiting bodies of native fungi. It is possible other detritus may be consumed.</p> <p>Reproduction rates are very low, with few eggs (about 32) per season. Mortality is 90% in the first year, and 99.8% within four-five years.</p>
<i>Pseudophryne australis</i>	Red-Crowned Toadlet	<p>Occurs in open forests, mostly on Hawkesbury and Narrabeen Sandstones.</p> <p>Inhabits periodically wet drainage lines below sandstone ridges that often have shale lenses or cappings.</p> <p>Shelters under rocks and amongst masses of dense vegetation or thick piles of leaf litter.</p> <p>Breeding congregations occur in dense vegetation and debris beside ephemeral creeks and gutters. Red-crowned Toadlets have not been recorded breeding in waters that are even mildly polluted or with a pH outside the range 5.5 to 6.5.</p> <p>Eggs are laid in moist leaf litter, from where they are washed by heavy rain; a large proportion of the development of the tadpoles takes place in the egg.</p> <p>Disperses outside the breeding period, when they are found under rocks and logs on sandstone ridges and forage amongst leaf-litter.</p> <p>Red-crowned Toadlets are quite a localised species that appear to be largely restricted to the immediate vicinity of suitable breeding habitat. Red-crowned Toadlets are usually found as small colonies scattered along ridges coinciding with the positions of suitable refuges near breeding sites. Due to this tendency for discrete populations to concentrate at particular sites, a relatively small localised disturbance may have a significant impact on a local population if it occurs on a favoured breeding or refuge site.</p>
<i>Pteropus poliocephalus</i>	Grey-Headed Flying-Fox	<p>Occur in subtropical and temperate rainforests, tall sclerophyll forests and woodlands, heaths and swamps as well as urban gardens and cultivated fruit crops.</p> <p>Roosting camps are generally located within 20 km of a regular food source and are commonly found in gullies, close to water, in vegetation with a dense canopy.</p> <p>Individual camps may have tens of thousands of animals and are used for mating, and for giving birth and rearing young.</p> <p>Annual mating commences in January and conception occurs in April or May; a single young is born in October or November.</p> <p>Site fidelity to camps is high; some camps have been used for over a century.</p> <p>Can travel up to 50 km from the camp to forage; commuting distances are more often &lt;20 km.</p> <p>Feed on the nectar and pollen of native trees, in particular Eucalyptus, Melaleuca and Banksia, and fruits of rainforest trees and vines.</p> <p>Also forage in cultivated gardens and fruit crops.</p>

<i>Saccolaimus flaviventris</i>	Yellow-Bellied Sheath-tail-Bat	<p>Roosts singly or in groups of up to six, in tree hollows and buildings; in treeless areas they are known to utilise mammal burrows. When foraging for insects, flies high and fast over the forest canopy, but lower in more open country.</p> <p>Forages in most habitats across its very wide range, with and without trees; appears to defend an aerial territory.</p> <p>Breeding has been recorded from December to mid-March, when a single young is born.</p> <p>Seasonal movements are unknown; there is speculation about a migration to southern Australia in late summer and autumn.</p>
<i>Scoteanax rueppellii</i>	Greater Broad-Nosed Bat	<p>Utilises a variety of habitats from woodland through to moist and dry eucalypt forest and rainforest, though it is most commonly found in tall wet forest.</p> <p>Although this species usually roosts in tree hollows, it has also been found in buildings.</p> <p>Forages after sunset, flying slowly and directly along creek and river corridors at an altitude of 3 - 6 m.</p> <p>Open woodland habitat and dry open forest suits the direct flight of this species as it searches for beetles and other large, slow-flying insects; this species has been known to eat other bat species.</p> <p>Little is known of its reproductive cycle, however a single young is born in January; prior to birth, females congregate at maternity sites located in suitable trees, where they appear to exclude males during the birth and raising of the single young.</p>
<i>Tyto novaehollandiae</i>	Masked Owl	<p>Lives in dry eucalypt forests and woodlands from sea level to 1100 m.</p> <p>A forest owl, but often hunts along the edges of forests, including roadsides.</p> <p>The typical diet consists of tree-dwelling and ground mammals, especially rats.</p> <p>Pairs have a large home-range of 500 to 1000 hectares.</p> <p>Roosts and breeds in moist eucalypt forested gullies, using large tree hollows or sometimes caves for nesting.</p>
<i>Tyto tenebricosa</i>	Sooty Owl	<p>Occurs in rainforest, including dry rainforest, subtropical and warm temperate rainforest, as well as moist eucalypt forests.</p> <p>Roosts by day in the hollow of a tall forest tree or in heavy vegetation; hunts by night for small ground mammals or tree-dwelling mammals such as the Common Ringtail Possum (<i>Pseudocheirus peregrinus</i>) or Sugar Glider (<i>Petaurus breviceps</i>).</p> <p>Nests in very large tree-hollows.</p>
<i>Varanus rosenbergi</i>	Heath Monitor; Rosenberg's monitor	<p>Found in heath, open forest and woodland.</p> <p>Associated with termites, the mounds of which this species nests in; termite mounds are a critical habitat component.</p> <p>Individuals require large areas of habitat.</p> <p>Feeds on carrion, birds, eggs, reptiles and small mammals.</p> <p>Shelters in hollow logs, rock crevices and in burrows, which they may dig for themselves, or they may use other species' burrows, such as rabbit warrens.</p> <p>Runs along the ground when pursued (as opposed to the Lace Monitor, which climbs trees).</p> <p>Lays up to 14 eggs in a termite mound; the hatchlings dig themselves out of the mounds.</p> <p>Generally slow moving; on the tablelands likely only to be seen on the hottest days.</p>
<i>Anthochaera phrygia</i>	Regent Honeyeater	<p>The Regent Honeyeater is a flagship threatened woodland bird whose conservation will benefit a large suite of other threatened and declining woodland fauna. The species inhabits dry open forest and woodland, particularly Box-Ironbark woodland, and riparian forests of River Sheoak. Regent Honeyeaters inhabit woodlands that support a significantly high abundance and species richness of bird species. These woodlands have significantly large numbers of mature trees, high canopy cover and abundance of mistletoes.</p> <p>Every few years non-breeding flocks are seen foraging in flowering coastal Swamp Mahogany and Spotted Gum forests, particularly on the central coast and occasionally on the upper north coast. Birds are occasionally seen on the south coast.</p> <p>In the last 10 years Regent Honeyeaters have been recorded in urban areas around Albury where woodlands tree species such as Mugga Ironbark and Yellow Box were planted 20 years ago.</p> <p>The Regent Honeyeater is a generalist forager, although it feeds mainly on the nectar from a relatively small number of eucalypts that produce high volumes of nectar. Key eucalypt species include Mugga Ironbark, Yellow Box, White Box and Swamp Mahogany. Other tree species may be regionally important. For example the Lower Hunter Spotted Gum forests have recently been demonstrated to support regular breeding events. Flowering of associated species such as Thin-leaved Stringybark <i>Eucalyptus eugenioides</i> and other Stringybark species, and Broad-leaved Ironbark <i>E. fibrosa</i> can also contribute important nectar flows at times.</p> <p>Nectar and fruit from the mistletoes <i>Amyema miquelii</i>, <i>A. pendula</i> and <i>A. cambagei</i> are also utilised. When nectar is scarce lerp and honeydew can comprise a large proportion of the diet. Insects make up about 15% of the total diet and are important components of the diet of nestlings.</p> <p>Colour-banding of Regent Honeyeater has shown that the species can undertake large-scale nomadic movements in the order of hundreds of kilometres. However, the exact nature of these movements is still poorly understood. It is likely that movements are dependent on spatial and temporal flowering and other resource patterns. To successfully manage the recovery of this species a full understanding of the habitats used in the non-breeding season is critical.</p> <p>There are three known key breeding areas, two of them in NSW - Capertee Valley and Bundarra-Barraba regions. The species breeds between July and January in Box-Ironbark and other temperate woodlands and riparian gallery forest dominated by River Sheoak. Regent Honeyeaters usually nest in horizontal branches or forks in tall mature eucalypts and Sheoaks. Also nest in mistletoe haustoria.</p> <p>An open cup-shaped nest is constructed of bark, grass, twigs and wool by the female. Two or three eggs are laid and incubated by the female for 14 days. Nestlings are brooded and fed by both parents at an average rate of 23 times per hour and fledge after 16 days. Fledglings fed by both parents 29 times per hour.</p>

### Appendix 3: Threatening processes

Key Threatening Processes to biodiversity as listed by the NSW Biodiversity Conservation Act 2016 [19] Schedule 4 (Section 4.31)

**Aggressive exclusion of birds from woodland and forest habitat by abundant Noisy Miners, *Manorina melanocephala* (Latham, 1802)**

Alteration of habitat following subsidence due to longwall mining

Alteration to the natural flow regimes of rivers and streams and their floodplains and wetlands (as described in the final determination of the Scientific Committee to list the threatening process)

Anthropogenic Climate Change

**Bushrock removal (as described in the final determination of the Scientific Committee to list the threatening process)**

**Clearing of native vegetation (as defined and described in the final determination of the Scientific Committee to list the key threatening process)**

Competition and grazing by the feral European Rabbit, *Oryctolagus cuniculus* (L.)

Competition and habitat degradation by Feral Goats, *Capra hircus* Linnaeus 1758

Competition from feral honey bees, *Apis mellifera* L.

Death or injury to marine species following capture in shark control programs on ocean beaches (as described in the final determination of the Scientific Committee to list the key threatening process)

Entanglement in or ingestion of anthropogenic debris in marine and estuarine environments (as described in the final determination of the Scientific Committee to list the key threatening process)

**Forest eucalypt dieback associated with over-abundant psyllids and Bell Miners**

Habitat degradation and loss by Feral Horses (brumbies, wild horses), *Equus caballus* Linnaeus 1758

Herbivory and environmental degradation caused by feral deer

High frequency fire resulting in the disruption of life cycle processes in plants and animals and loss of vegetation structure and composition

Importation of Red Imported Fire Ants *Solenopsis invicta* Buren 1972

Infection by Psittacine Circoviral (beak and feather) Disease affecting endangered psittacine species and populations

**Infection of frogs by amphibian chytrid causing the disease chytridiomycosis**

**Infection of native plants by *Phytophthora cinnamomi***

**Introduction and establishment of Exotic Rust Fungi of the order *Pucciniales* pathogenic on plants of the family Myrtaceae**

Introduction of the Large Earth Bumblebee *Bombus terrestris* (L.)

**Invasion and establishment of exotic vines and scramblers**

**Invasion and establishment of Scotch Broom (*Cytisus scoparius*)**

Invasion and establishment of the Cane Toad (*Bufo marinus*)

Invasion, establishment and spread of Lantana (*Lantana camara* L. sens. lat)

Invasion of native plant communities by African Olive *Olea europaea subsp. cuspidata* (Wall. ex G. Don) Cif.

Invasion of native plant communities by *Chrysanthemoides monilifera*

Invasion of native plant communities by exotic perennial grasses

Invasion of the Yellow Crazy Ant, *Anoplolepis gracilipes* (Fr. Smith) into NSW

**Loss and degradation of native plant and animal habitat by invasion of escaped garden plants, including aquatic plants**

**Loss of hollow-bearing trees**

Loss or degradation (or both) of sites used for hill-topping by butterflies

Predation and hybridisation by Feral Dogs, *Canis lupus familiaris*

Predation by *Gambusia holbrooki* Girard, 1859 (Plague Minnow or Mosquito Fish) (as described in the final determination of the Scientific Committee to list the threatening process)

Predation by the European Red Fox *Vulpes vulpes* (Linnaeus, 1758)

Predation by the Feral Cat *Felis catus* (Linnaeus, 1758)

Predation by the Ship Rat *Rattus rattus* on Lord Howe Island

Predation, habitat degradation, competition and disease transmission by Feral Pigs, *Sus scrofa* Linnaeus 1758

**Removal of dead wood and dead trees**

(Those most relevant to HSC in **bold**)

## Appendix 4: Detail of community and council derived threats & challenges

### Community and stakeholder engagement approach

In order to clearly identify the concerns and vested interests of the community in conservation and biodiversity management of the Hornsby LGA, three community engagement workshops were completed at Hornsby, Arcadia and Pennant Hills.

Three community engagement workshops were held in Hornsby, Arcadia and Pennant Hills in April 2019 to assist in the formulation of the *Hornsby Biodiversity Conservation Strategy*. The workshops enabled participants to clearly provide their knowledge of the Hornsby LGA through a series of hands-on tasks and general discussion.

Information gathered, and maps developed, through the course of these workshops was then coupled with input from Council's Natural Resources staff.

Through this process, the following topics were considered:

- Identifying and locating points of ecological significance
- Brainstorming threats and challenges to Hornsby Shire Council biodiversity
- Re-designing green infrastructure models and identifying priority areas for management
- Devising management techniques for conserving biodiversity

A total of 321 responses were provided by community at the three workshops held at Hornsby, Arcadia and Pennant Hills, identifying the threats and challenges citizens considered to be of concern to maintaining biodiversity values of the LGA. Refer to Fig. 46 for community stakeholder's response to threats and challenges to biodiversity.

The response to threats and challenges varied amongst the localities (refer to Figure 12).

- The Hornsby workshop participants identified the most common concern to biodiversity to be Management and Policy (16%) and equally weighted concerns for Weeds (14%) and Development and Clearing (14%).
- The Arcadia workshop participants identified Development and Clearing and Management and Policy to of equal concern (15%) to biodiversity, followed by Values and Education (12%) and Pollution (12 %).
- Pennant Hills identified the most common concern to biodiversity to be Management and Policy (20%), Development and Clearing (17%); followed by Wildlife and Habitat Impacts (17%).
- The response from NRM council staff was similar.

The workshops identified priority areas for managing biodiversity (and threats) within the Shire, identified and tested green infrastructure networks and underpinned the prioritisation action matrix. Overall key findings from the workshops identified that council land, private lands (semi-rural and urban) and other government lands (National Parks and other State managed lands i.e. transport corridors – railway, motorway) are all significant to the conservation of biodiversity. This highlights the importance of Hornsby Shire Council working in partnership with all landholders and land managers within and adjacent to the Shire.

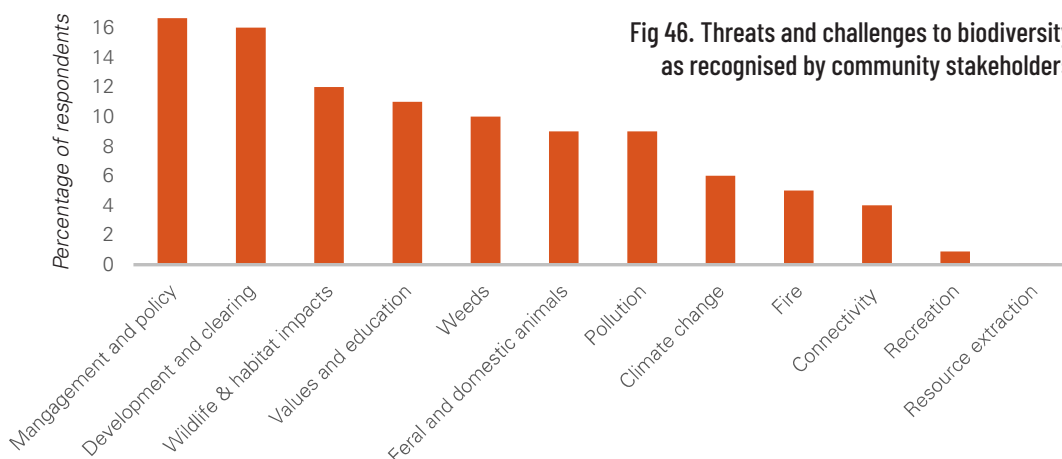


Fig 46. Threats and challenges to biodiversity as recognised by community stakeholders



## Appendix 5: North District Plan priorities

### Planning Priority N15 Protecting and improving the health and enjoyment of Sydney Harbour and the District's waterways

This relates to catchment-scale co-ordination of water quality and water way health as well as recreation and aquaculture opportunities and the 'management of waterways as green infrastructure.' [9] Key relevant actions related to biodiversity protection and/or management for N15 are:

- 62. *Protect environmentally sensitive areas of waterways and the coastal environment areas.*
- 63. *Enhance sustainability and liveability by improving and managing access to waterways, foreshores and the coast for recreation, tourism, cultural events and water-based transport.*
- 64. *Improve the health of catchments and waterways through a risk-based approach to managing the cumulative impacts of development including coordinated monitoring of outcomes.*
- 65. *Work towards reinstating more natural conditions in highly modified urban waterways*

### Planning Priority N16 Protecting and enhancing bushland and biodiversity

This promotes the value of bushland and biodiversity for its contribution to safeguarding threatened species, investing in 'connected bushland corridors and protecting large pockets of remnant vegetation' whether in council owned or private land through a range of incentives including 'biodiversity stewardship agreements, conservation agreements and wildlife refuge agreements' and 'strengthening the protection of bushland in urban areas will help to conserve the District's biodiversity, preserve its scenic landscape, and enhance its tourist and recreational values.' [9] It also advocates that 'remnant vegetation should be recognised as an asset ...incorporated into the planning and design.' [9] Key relevant actions related to biodiversity protection and/or management for N16 are:

- 66. *Protect and enhance biodiversity by:*
  - a. *supporting landscape-scale biodiversity conservation and the restoration of bushland corridors*
  - b. *managing urban bushland and remnant vegetation as green infrastructure*
  - c. *managing urban development and urban bushland to reduce edge-effect impacts.*

### Planning Priority N17 Protecting and enhancing scenic and cultural landscapes

This priority outlines the importance of the value of scenic and cultural landscapes as central and complementary to the protection of the region's 'biodiversity and habitat' and 'links to Aboriginal cultural heritage'. Key relevant actions related to biodiversity protection and/or management for N17 are:

- 67. *Identify and protect scenic and cultural landscapes.*
- 68. *Enhance and protect views of scenic and cultural landscapes from the public realm.*

### Planning Priority N18 Better managing rural areas

This offers specific advice toward the 'creation of protected biodiversity corridors, buffers to support investment in rural industries and protection of scenic landscapes' [9] and acknowledges that rural areas – which form a large part of the HSC - are valuable assets to the District and to Greater Sydney. Key relevant actions related to biodiversity protection and/or management for N18 are:

- 69. *Maintain or enhance the values of the Metropolitan Rural Area using place-based planning to deliver targeted environmental, social and economic outcomes.*
- 70. *Limit urban development to within the Urban Area.*

### Planning Priority N19 Increasing urban tree canopy cover and delivering Green Grid connections

This outlines a series of key values for increasing the urban forest with tangible benefits for mitigating the UHI effect, providing amenity and air quality as well as connections to the SGG for both recreational, active transport and biodiversity benefits while acknowledging the pressures on the urban forest by increasing densification and the delivery of grey infrastructure. It also specifies several key projects that directly concern HSC, including Lane Cove National Park and Lane Cove River and the Great North Walk. Key relevant actions related to biodiversity protection and/or management for N19 are:

- 71. *Expand urban tree canopy in the public realm.*
- 72. *Progressively refine the detailed design and delivery of:*
  - a. *Greater Sydney Green Grid priority corridors*
  - b. *opportunities for connections that form the long-term vision of the network*
  - c. *walking and cycling links for transport as well as leisure and recreational trips.*

### **Planning Priority N20 Delivering high quality open space**

This priority contains specific advice about the benefits of POS as places for nature-based recreation, helping to 'connect communities to the natural landscape' while recognising the simultaneous need to manage to 'minimise impacts on biodiversity' [9]. Key relevant actions related to biodiversity protection and/or management for N20 are:

- 73. Maximise the use of existing open space and protect, enhance and expand public open space by:*
- a. providing opportunities to expand a network of diverse, accessible, high quality open spaces that respond to the needs and values of communities as populations grow*
  - b. investigating opportunities to provide new open space so that all residential areas are within 400 metres of open space and all high density residential areas (over 60 dwellings per hectare) are within 200 metres of open space*
  - c. requiring large urban renewal initiatives to demonstrate how the quantity of, or access to, high quality and diverse local open space is maintained or improved*
  - d. planning new neighbourhoods with a sufficient quantity and quality of new open space*
  - e. delivering shared and co-located sports and recreational facilities including shared school grounds and repurposed golf courses*
  - f. delivering, or complementing the Greater Sydney Green Grid*
  - g. providing walking and cycling links for transport as well as leisure and recreational trips.*

### **Planning Priority N22 Adapting to the impacts of urban and natural hazards and climate change**

This priority outlines several key risks that face the region. Arguably the most significant of these is the relationship between fire management and biodiversity. Specific considerations toward '...clearing vegetation around

developments on bushfire-prone land can help reduce risks from bushfire, but must be balanced with protecting bushland, and its ecological processes and systems' and notes that these challenges 'will be exacerbated by climate change'. [9]

Key relevant actions related to biodiversity protection and/or management for N22 are:

- 80. Support initiatives that respond to the impacts of climate change.*
- 81. Avoid locating new urban development in areas exposed to natural and urban hazards and consider options to limit the intensification of development in existing urban areas most exposed to hazards.*
- 82. Mitigate the urban heat island effect and reduce vulnerability to extreme heat.*

## Appendix 6: SEPPs relating to biodiversity management and protection

### State Environmental Planning Policy No 19—Bushland in Urban Areas

This policy applies to the Hornsby Shire Council area, though does not apply to areas that fall under the National Parks and Wildlife Act 1974, or the Forestry Act 1916.

The general aim of this Policy is to protect and preserve bushland within urban areas.

Specifically it aims:

- (a) to protect the remnants of plant communities which were once characteristic of land now within an urban area,
- (b) to retain bushland in parcels of a size and configuration which will enable the existing plant and animal communities to survive in the long term,
- (c) to protect rare and endangered flora and fauna species,
- (d) to protect habitats for native flora and fauna,
- (e) to protect wildlife corridors and vegetation links with other nearby bushland,
- (f) to protect bushland as a natural stabiliser of the soil surface,
- (g) to protect bushland for its scenic values, and to retain the unique visual identity of the landscape,
- (h) to protect significant geological features,
- (i) to protect existing landforms, such as natural drainage lines, watercourses and foreshores
- (j) to protect archaeological relics,
- (k) to protect the recreational potential of bushland,
- (l) to protect the educational potential of bushland,
- (m) to maintain bushland in locations which are readily accessible to the community, and
- (n) to promote the management of bushland in a manner which protects and enhances the quality of the bushland and facilitates public enjoyment of the bushland compatible with its conservation.

### State Environmental Planning Policy No 44—Koala Habitat Protection [123]

The State Environmental Planning Policy No 44—Koala Habitat Protection was initially prepared on 13 February 1995 and aims to establish controls to manage and conserve koala habitat to reverse the current trend of koala population decline. This requires management plans for development consent in core koala habitat areas, encourages identification of such areas and encourages the inclusion of these areas in environmental protection zones. It does not apply to land dedicated or reserved under the *National Parks and Wildlife Act 1974* or to land dedicated under the *Forestry Act 1916* as a State forest or flora reserve.

A council requires information 'from a person who is qualified and experienced in tree identification' before determining potential koala habitat and requires information 'from a person with appropriate qualifications and experience in biological science and fauna survey and management' before determining a core koala habitat. (State Environmental Planning Policy No 44—Koala Habitat Protection, 1995 p. 4)

### State Environmental Planning Policy (Vegetation in Non- Rural Areas) 2017

This policy aims to 'protect the biodiversity values of trees and other vegetation in non-rural areas of the State', and 'to preserve the amenity of non-rural areas of the State through the preservation of trees and other vegetation.' [124]

The clearing of vegetation in non-rural areas can be allowed both with and without certain consents from governing authorities. Depending on the case, this authority can be given through council permit, or by authority of the Native Vegetation Panel. In either case clearing must be in accordance with the terms set out by the approval.

#### **State Environmental Planning Policy (Exempt and Complying Development Codes) 2008**

This policy provides development codes for NSW in order to assess development applications in accordance with environmental impacts. The policy includes a definition of an *environmentally sensitive area* as:

(g) land identified in this or any other environmental planning instrument as being of high Aboriginal cultural significance or high biodiversity significance [125]

Division 2 of Part 1 of the document provides general conditions for exempt and complying development. The key requirement for exempt development relating to biodiversity is that development:

(b1) must not be carried out on land that is a declared area of outstanding biodiversity value under the Biodiversity Conservation Act 2016 or declared critical habitat under Part 7A of the Fisheries Management Act 1994, [125]

For complying development, the key general requirement relating to biodiversity is that development must not:

(e) except as otherwise provided by this Policy, be on land that is within an environmentally sensitive area. [125]

To be complying development specified for the Housing Code, the Low Rise Medium Density Housing Code, the Rural Housing Code or the Greenfield Housing Code, the development must not be carried out on:

(d1) land that is subject to a private land conservation agreement under the Biodiversity Conservation Act 2016 or that is a set aside area under section 60ZC of the Local Land Services Act 2013, or

(e) land identified by an environmental planning instrument as being:

(iii) within an ecologically sensitive area, or (iv) environmentally sensitive land, [125]

Complying development for the Commercial and Industrial (New Buildings and Additions) Code, the development must not be carried out on:

(d1) land that is subject to a private land conservation agreement under the Biodiversity Conservation Act 2016 or that is a set aside area under section 60ZC of the Local Land Services Act 2013, or

(e) land that is subject to a biobanking agreement under Part 7A of the Threatened Species Conservation Act 1995 or a property vegetation plan approved under the Native Vegetation Act 2003, or

(f) land identified by an environmental planning instrument as being:

(iii) within an ecologically sensitive area, or (iv) environmentally sensitive land, or [125]

Setbacks of industrial buildings that fall under the Commercial and Industrial (New Buildings and Additions) Code where adjacent to an environmentally sensitive area must be 'at least 10m and an area of at least 3m in width of that setback must be a landscaped area.' [125]

#### **State Environmental Planning Policy (Infrastructure) 2007**

This Policy aims to '*facilitate the effective delivery of infrastructure across the State.*' [126] Relating to biodiversity, this policy categorises infrastructure into different environmental assessment categories, and also identifies where certain development can be exempt where environmental impact is minimal.

#### **State Environmental Planning Policy (Coastal Management) 2018**

The aim of this Policy is to promote an integrated and co-ordinated approach to land use planning in the coastal zone in a manner consistent with the objects of the Coastal Management Act 2016, including the management objectives for each coastal management area, by—

(a) managing development in the coastal zone and protecting the environmental assets of the coast, and

(b) establishing a framework for land use planning to guide decision-making in the coastal zone, and

(c) mapping the 4 coastal management areas that comprise the NSW coastal zone for the purpose of the definitions in the Coastal Management Act 2016.

## Appendix 7: Overview of the Green Infrastructure Framework - case studies and illustrations

The following pages show a range of preliminary studies that demonstrate the potential of the five strategies in action across several different locations in the Hornsby LGA.

The Green Infrastructure Framework sets out a vision for the longevity of the biodiversity of the Hornsby LGA through three key steps:

- Halting clearing and the protection of lands including potential new conservation estate and conservation buffers around recognised TECs
- Creation of a network of corridors of various widths, depending on location
- Reliance on future commitment to explore the Green Infrastructure Framework's detailed design and further planning with local stakeholders at the local scale (i.e. implementation at the scale of the garden, street and neighbourhood)

Proposed ecological corridors will connect through and beyond the Hornsby LGA. These will stitch fragmented ecologies back together again as well as providing a mechanism to deal with issues including WSUD, urban heat island, active transport and recreation. In addition to 30 metre buffers around recognised TECs, five corridor types and widths are proposed:

- 20 metre 'urban' corridors
- 30 metre 'hydrological' corridors
- 50 metre 'infrastructural' corridors
- 75 metre 'aspirational' corridors

### TECs + 30 metre buffers

Buffers around TECs have been set as 30 metres in line with relevant environmental protection advice. [120] This is suggested as the minimum distance to help protect existing vegetation root structure. Buffers will be ground-truthed on site to ensure flexibility and possible exemptions, e.g. buffers that exist within existing parks and playgrounds and sports infrastructure.

### 20 metre 'urban' corridors

The 20 metre 'urban' corridors reflect the average width of Council-managed streets. These streets could be populated with a range of street-tree plantings and understorey, inclusive of road and verge space. In addition, WSUD and permeable paving interventions could also harvest rainwater and filter pollutants before they are slowly released into the ground and adjacent waterways. Set backs in these streets could be generous to facilitate more urban green, while road width and traffic calming measures might also be narrowed to create a more secluded environment. Overhead powerlines could be placed underground to help build the urban canopy.

### 30 metre 'hydrological' corridors

The 30 metre 'hydrological' corridors are based upon the minimum offset set for creeklines in rural areas throughout NSW. Both rural and urban creeklines should be granted similar protection and could be correspondingly be 'daylighted' (or uncovered as open creekbeds) to better demonstrate the hydrological system. Additional habitat through revegetation and artificial wetlands could also help to slow and purify these waters.

### 50 metre 'infrastructural' corridors

The 50 metre 'infrastructural' corridors are associated with major road and rail routes and correspondingly have different stakeholders. Elsewhere in Australia (e.g. Perth) rail reserves have simultaneously been used for biodiversity protection and as thickly densely planted spaces offer shaded locations for active transport (i.e. cyclepaths). Barrier mitigation within these corridors would need to be carefully considered to reduce wildlife impacts.

### 75 metre 'aspirational' corridors

The 75 metre 'infrastructural' corridors are indicative of the scale of corridors that could provide regional scale connectivity to fragmented landscapes. Captured through separate planning overlay, these may be associated with dedicated fauna overpasses and underpasses at key barriers; while where intersecting with the urban fabric a spectrum of approaches could be considered over a long time period. These could include targeted increase to urban forest canopy, adjusting of fences and the creation of microhabitats. Education and behavioural change regarding pet ownership could also be considered; while long term acquisition of key properties could also be an option.

### Case studies

Five case studies serve as examples of the potential of the Green Infrastructure Framework and give spatial form to the idea. Annotated drawings provide a tangible link back to relevant recommendations, potential management and also illustrate other relevant planning instruments including existing HELP and heritage and landscape overlays. The five case study areas are:

- Hornsby
- Pennant Hills
- Cherrybrook
- Galston
- Berowra Heights/Motorway

Appendix 8 provides a full map set of the Green Infrastructure Framework across the total Council area, combined with other relevant conservation or land protection-focused designations.

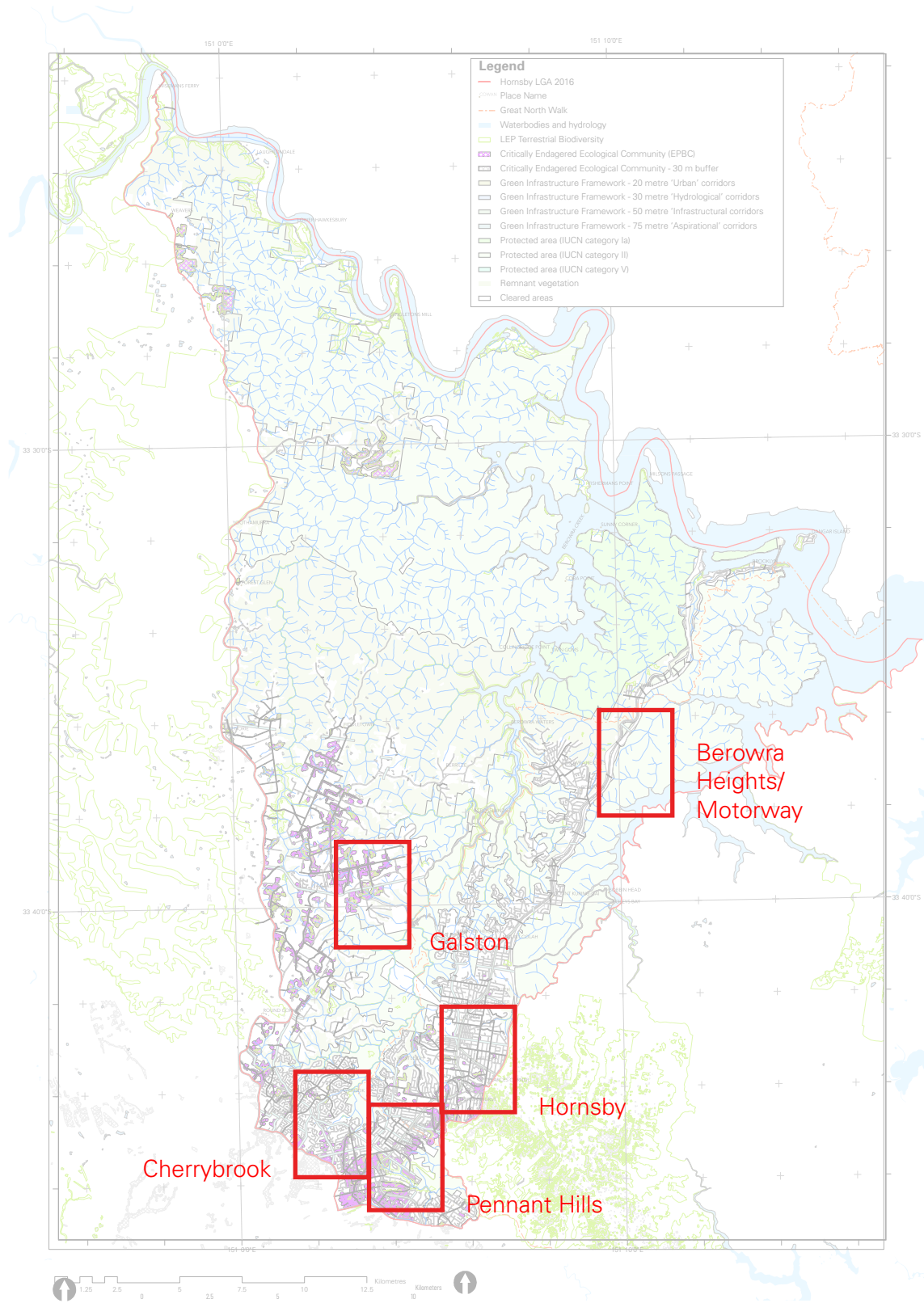


Fig 45. Green Infrastructure Framework overview





### Hornsby case study

The Hornsby case study demonstrates a range of actions in an urban context. The GIF provides the armature to increase urban canopy, the potential to ameliorate water quality and increase available habitat and ecological connectivity through a network of green spaces and linkages. Sites such as the old quarry are also recognized as potential major ecological assets. The proposed increase in urban canopy brings the possibility to mitigate the urban heat island and its impacts on health and biodiversity alike.

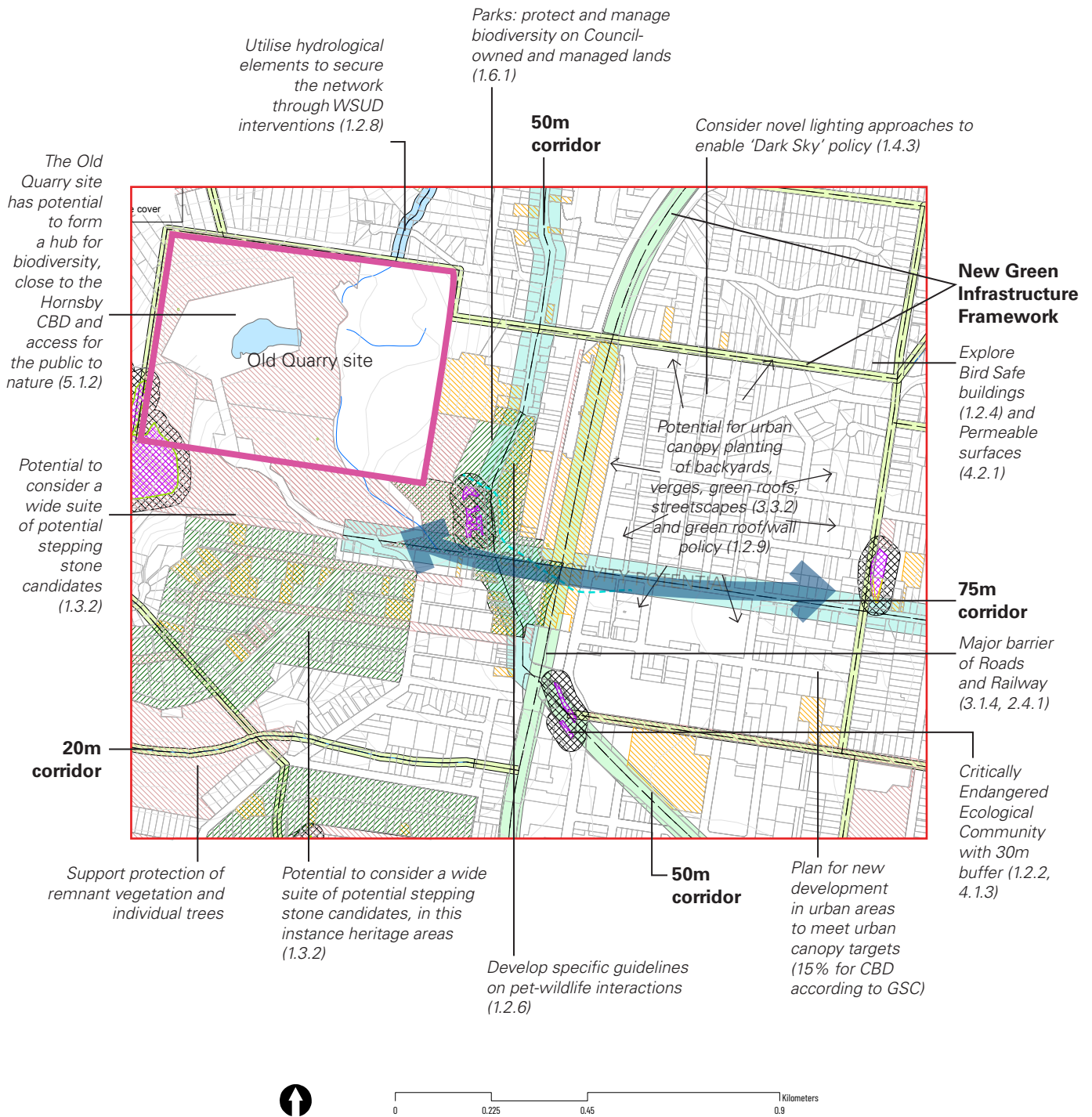
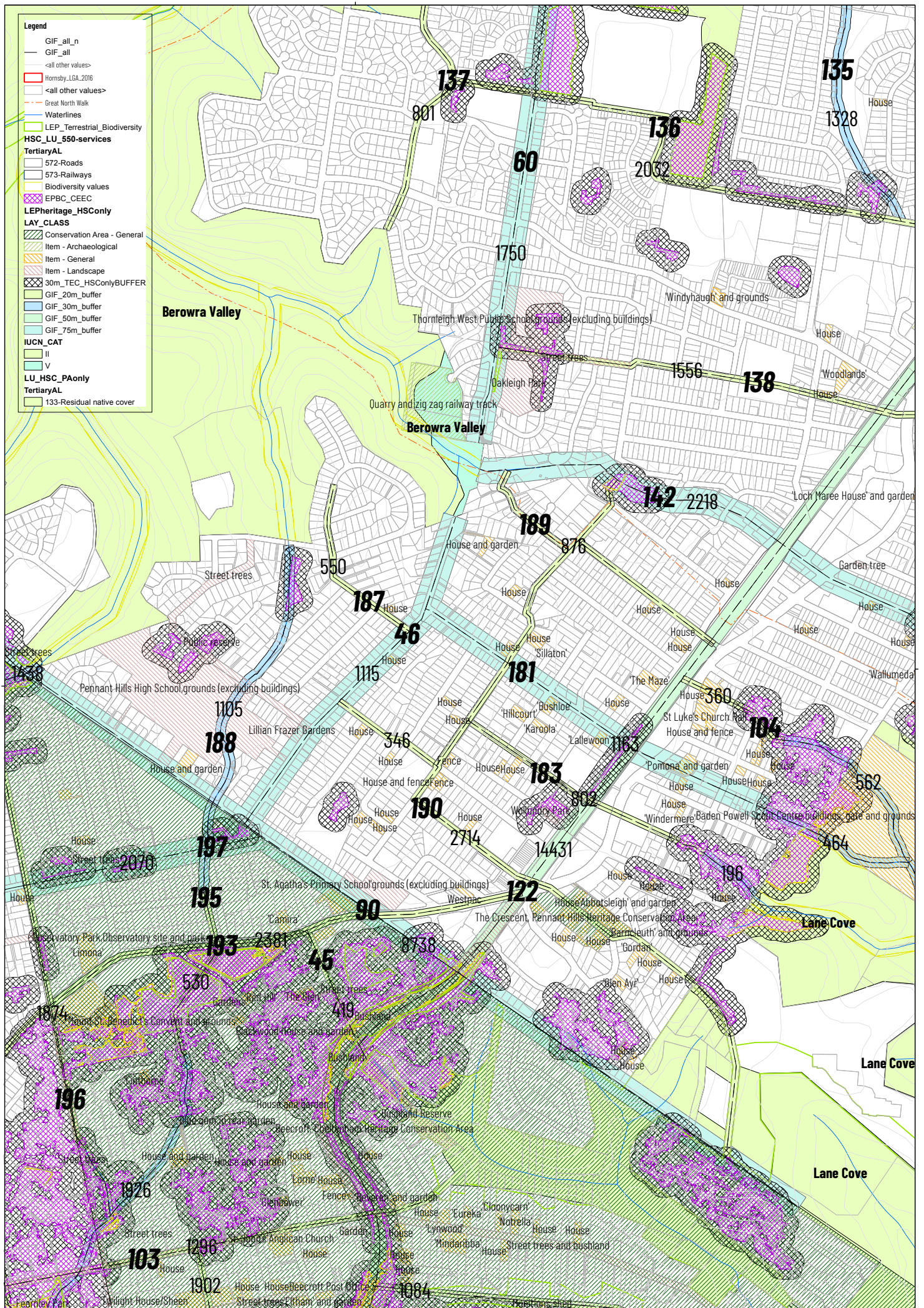


Fig 47. Hornsby case study



### Pennant Hills case study

The Pennant Hills case study illustrates the complexity and potential mechanisms to reconnect two expansive natural areas - Lane Cove River and Berowra Valley National Parks - with a vegetated corridor(s) of regional significance. In this highly built up area, barriers such as Pennant Hills Road and the railway would require further design consideration; while in the suburbs a range of urban forest and street tree plantings could help provide the valuable stepping stones for ecological movement.

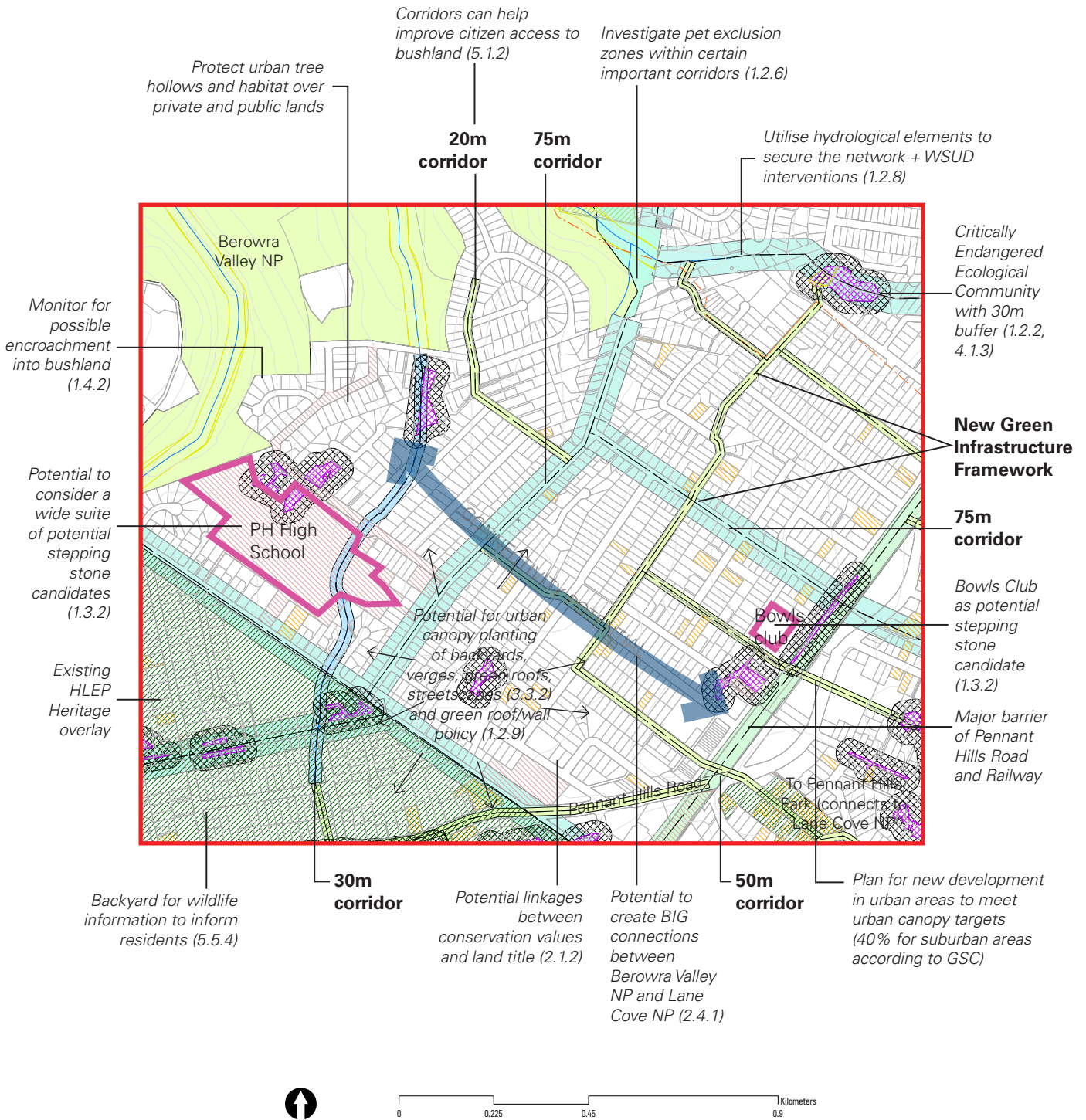
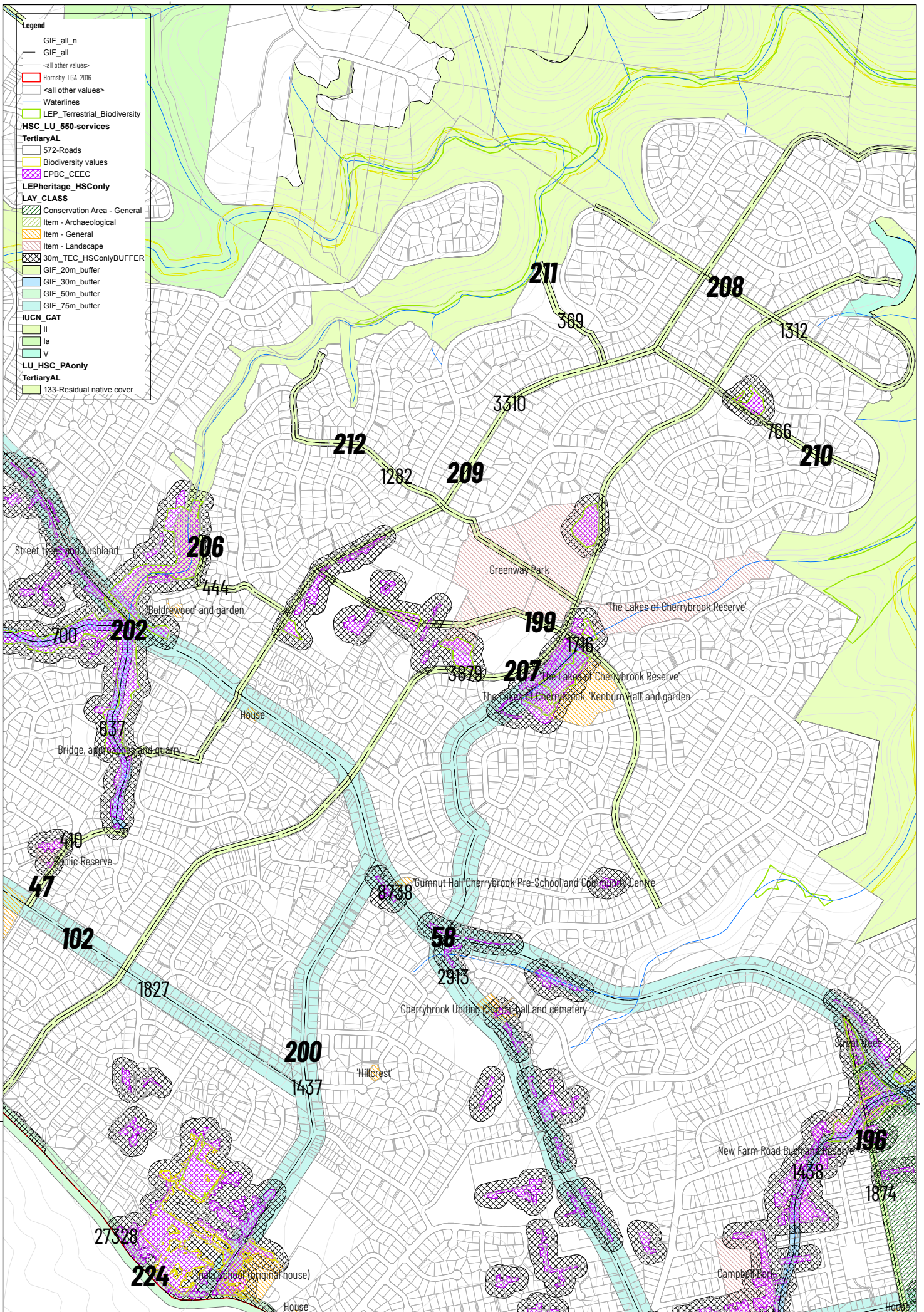


Fig 48. Pennant Hills case study



### Cherrybrook case study

The Cherrybrook case study highlights the potential to retrofit a suburban area to better facilitate biodiversity outcomes. In this location a range of corridors of varying widths stitch back together the fragmented ecology and enable the protection of habitat in the Bushland Shire. A targeted education approach with the area’s residents could help guide a range of biodiversity-focused actions at the local scale while contributing to the network as a whole while also contributing to the local sense of place.

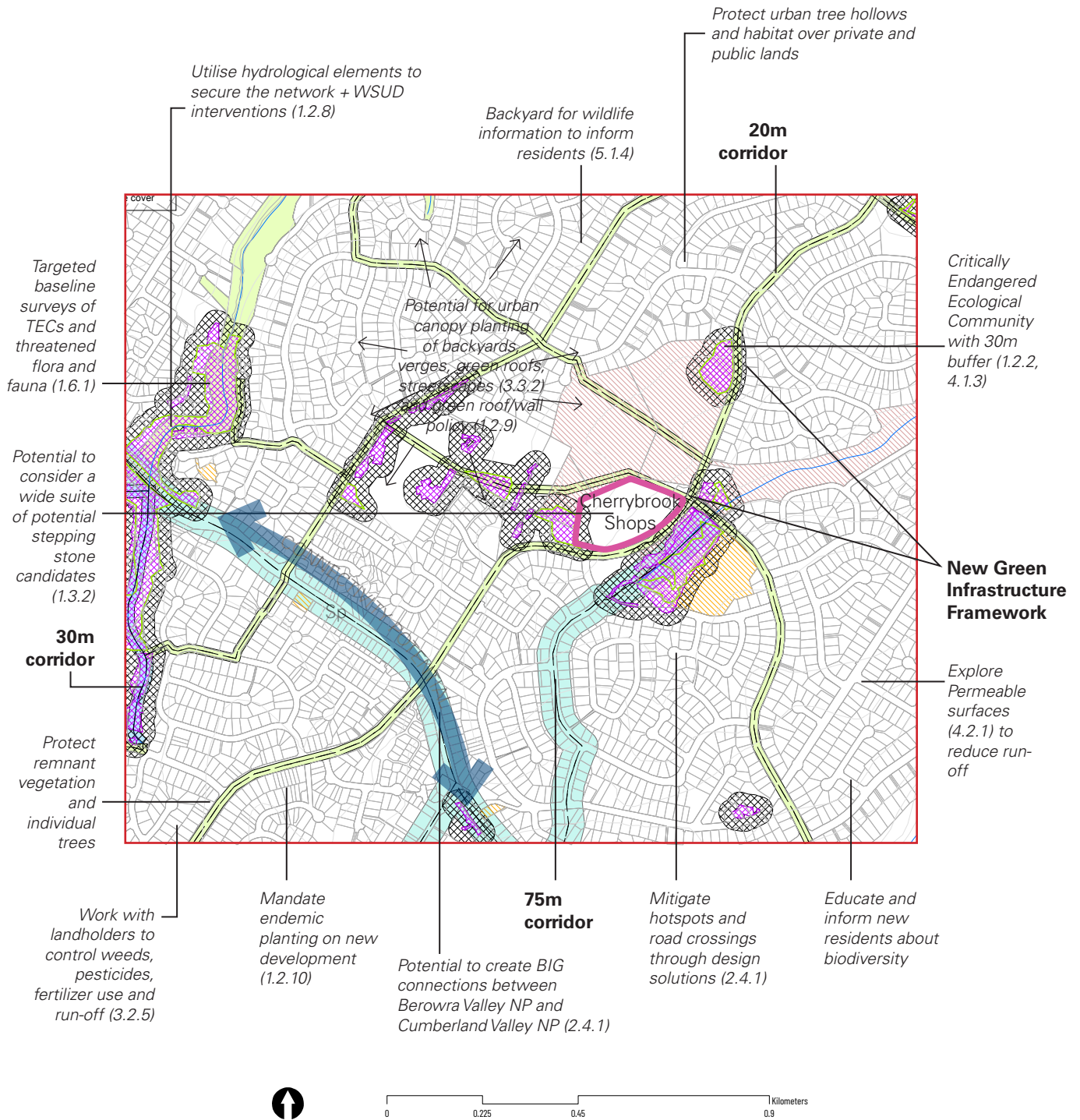
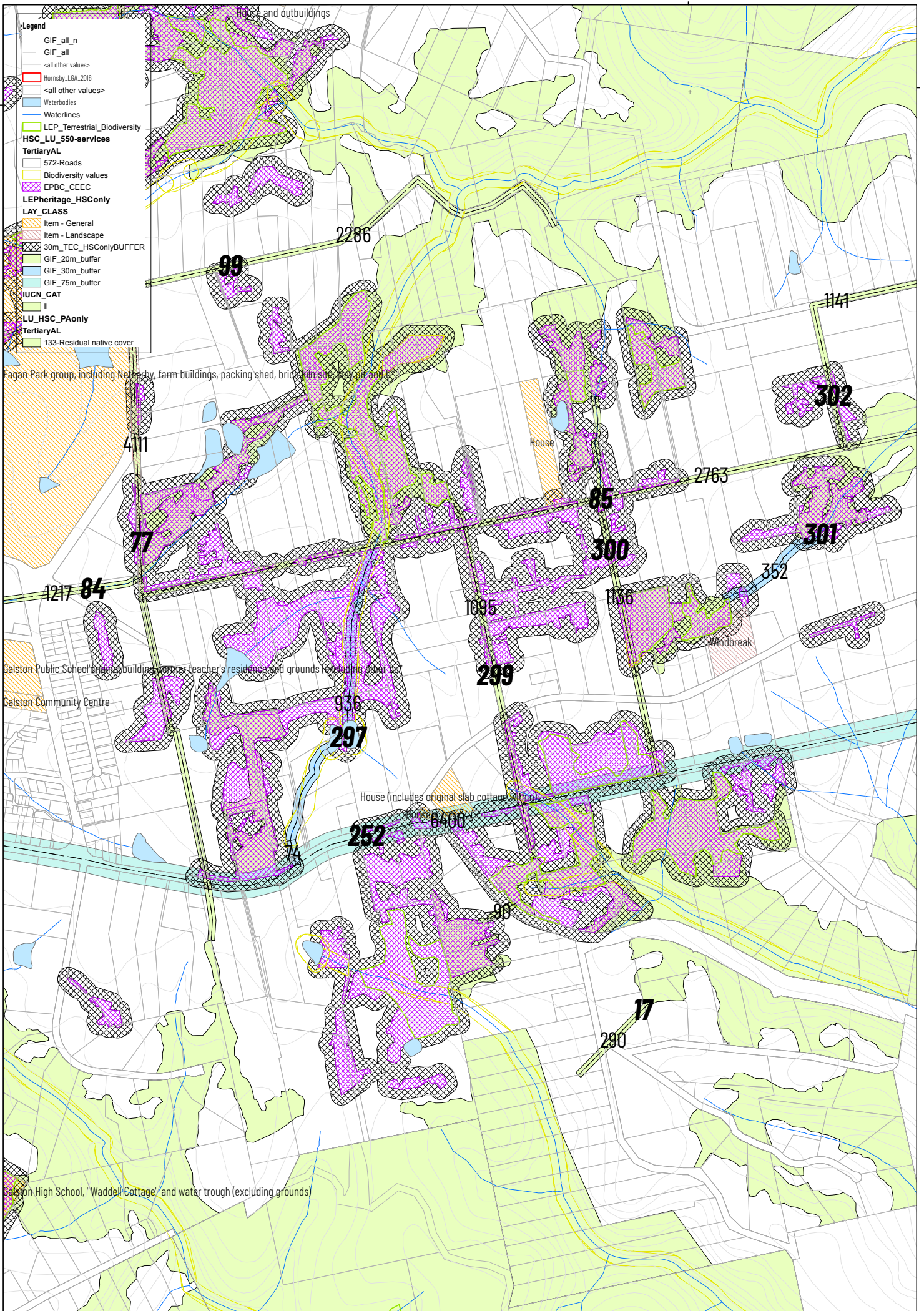


Fig 49. Cherrybrook case study



### Galston case study

In this rural part of the Hornsby Shire, the GIF works to connect the substantial remaining TECs that exist through the buffering of remaining patches and through the interconnection of the landscape via rural roads and hydrological features. A range of other potential actions work in unison with this approach including the introduction of paddock trees and hollows protection, the potential introduction of stocking rates, working more closely with landholders with weeds and trialing virtual fencing. Such measures will assist both biodiversity as well as waterway amelioration.

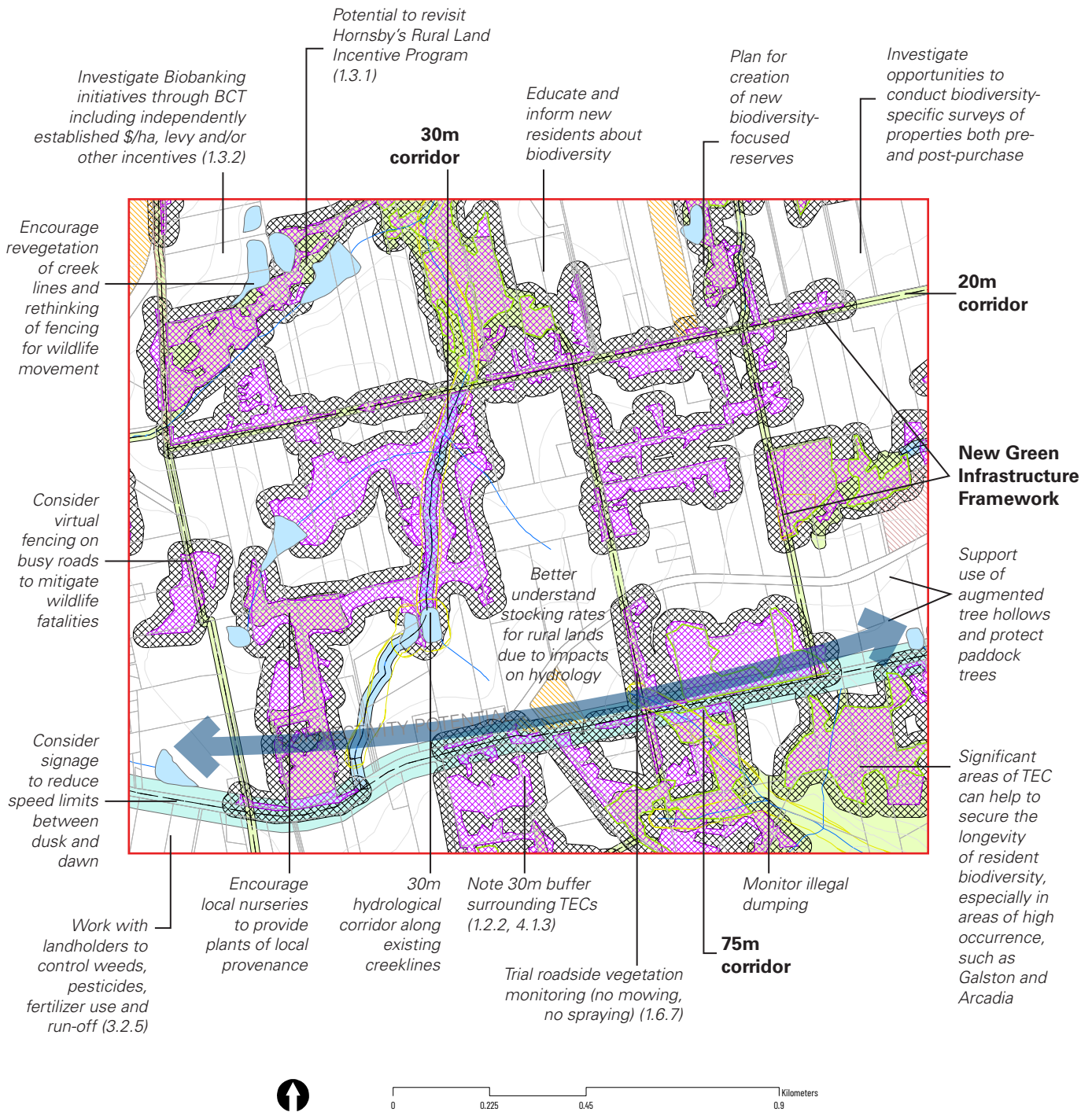
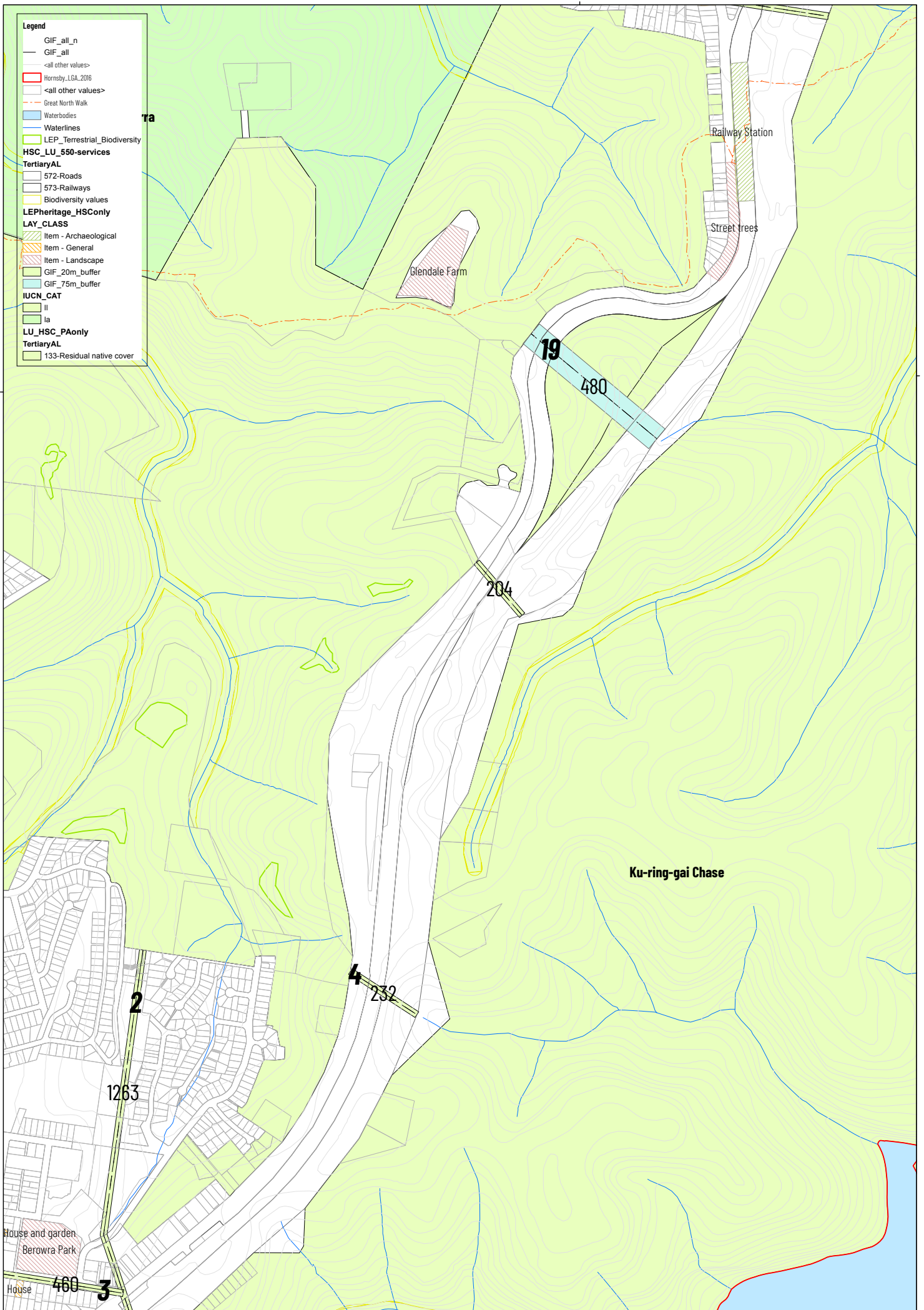


Fig 50. Galston case study





### Berowra Heights/Motorway case study

The primary objective of this case study is to demonstrate the potential to reconnect the large bushland/national park areas that are currently bisected by the motorway and rail corridor. This barrier prevents the potential for genetic exchange between sub-populations on either side and also results in animal collisions. This new green linkage could take the form of tunnel or eco-duct (wildlife bridge) and become an icon for the Bushland Shires appreciation of its bush and wildlife.

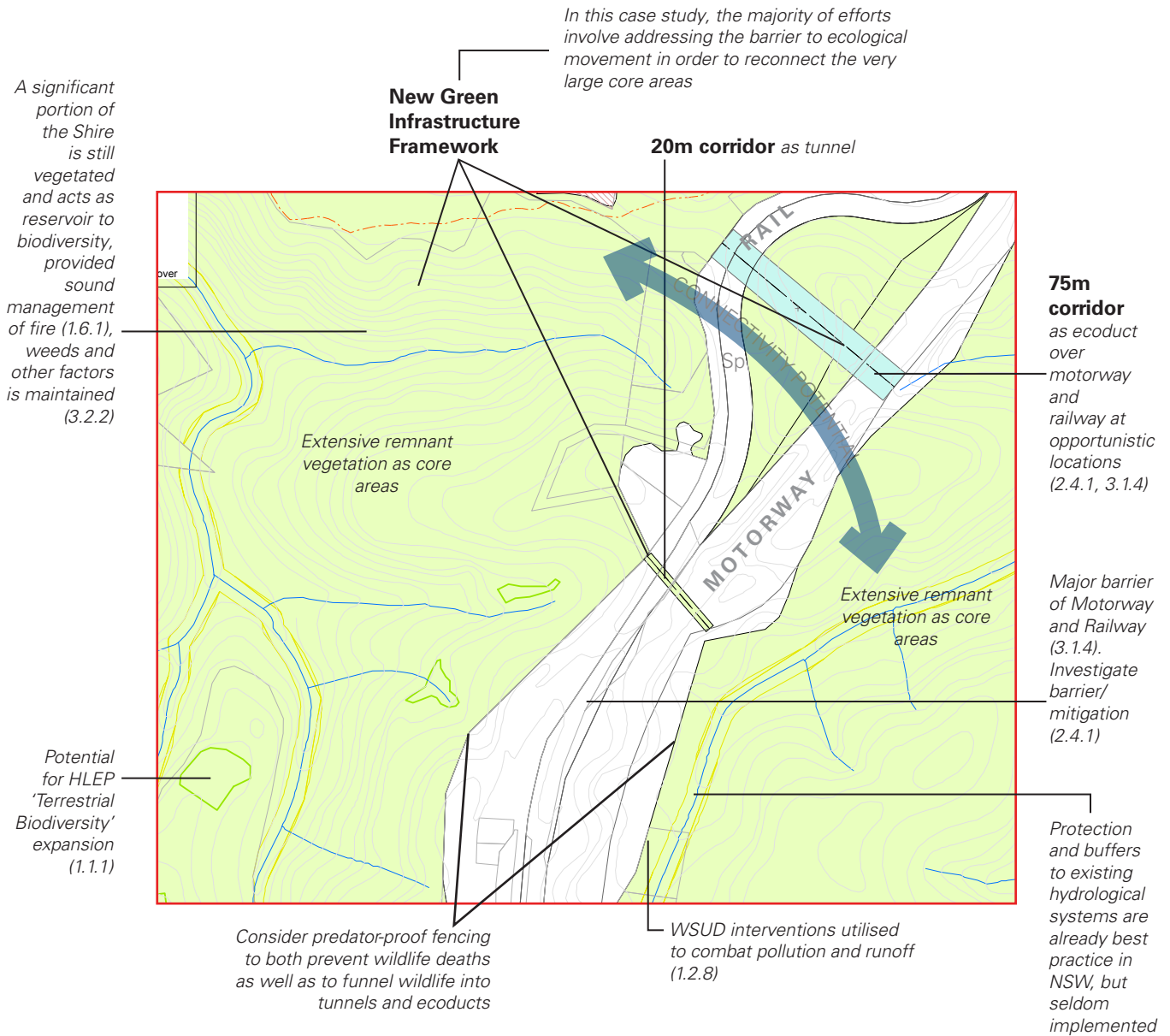


Fig 51. Berowra Heights/Motorway case study

### 20 metre 'urban' corridors

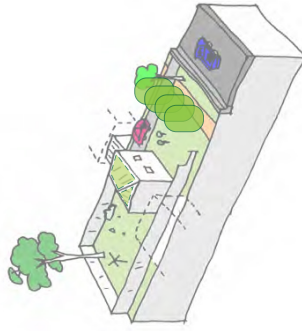
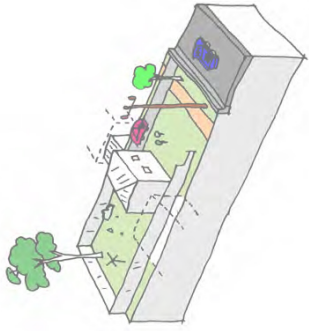
The 20 metre 'urban' corridors reflect the average width of Council-managed streets. These streets could be populated with a range of street-tree plantings and under-storey, inclusive of road and verge space. In addition, WSUD and permeable paving interventions could also harvest rainwater and filter pollutants before they are slowly released into the ground and adjacent waterways. Set backs in these streets could be generous to facilitate more urban green, while road width and traffic calming measures might also be narrowed to create a more secluded environment. Overhead powerlines could be placed underground to help build the urban canopy.

#### Example location: Shepherd Drive, Cherrybrook

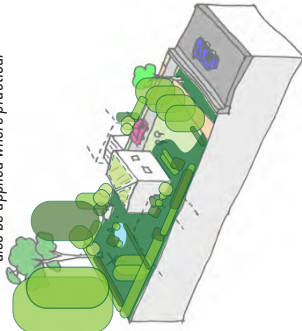
This corridor example is located in a suburban context where improvements to biodiversity will entail working closely with existing landholders as well as several key target actions:

- 1 Interconnect street canopy by filling vacant street tree sites with appropriate endemic species and retaining and actively managing habitat trees via street tree planting plan
- 2 Protect and enhance front setbacks through DCP and apply deep soil requirements
- 3 Select replacement of carparks, driveways and other impervious surfaces with additional trees and vegetation and increase opportunities for deep soil/associated planting zones
- 4 Targeted road narrowing and strategic installation of WSUD approaches to include additional shade trees and vegetation understorey to augment micro and macrohabitat
- 5 Increase faunal movement through redesign of fencelines (e.g. replacement with hedges)
- 6 Maintenance of pedestrian passage and contributions to civic aesthetics and amenity
- 7 Work with AusGrid for aerial cable bundling/undergrounding of powerlines to facilitate urban canopy growth
- 8 Potential to collaborate with landholders and community groups to increase urban forest, support and encourage local residents to join the Gardens for Wildlife program
- 9 Reinvigorate Tree Protection Orders to effectively safeguard mature habitat and hollow-bearing trees on private lands
- 10 Behavioural change and education including garden landscaping, cat and dog control, fertiliser and pesticide use to improve stream and invertebrate health
- 11 Although beyond the corridor, the greening of roofs and the installation of green walls is encouraged

Many suburban housing lots do not perform particularly well when considering biodiversity. Poor habitat includes large expanses of lawn reliant on fertiliser and pesticides that make their way into streams and creeks. A lack of shade trees contribute to the urban heat island, while understorey is often absent. Roaming dogs and cats can also reduce species numbers



Removing powerlines leaves additional space for carefully selected street trees that are replanted in available locations to consider both resident biodiversity and amenity. Green roofs and walls could also be applied where practical



Fences and other barriers are removed and a wide diversity of habitat and understorey re-instated. Lawn area and corresponding pesticide and fertiliser use is reduced. Ponds and fauna friendly pet practices are introduced to the suburban garden to provide more space for biodiversity

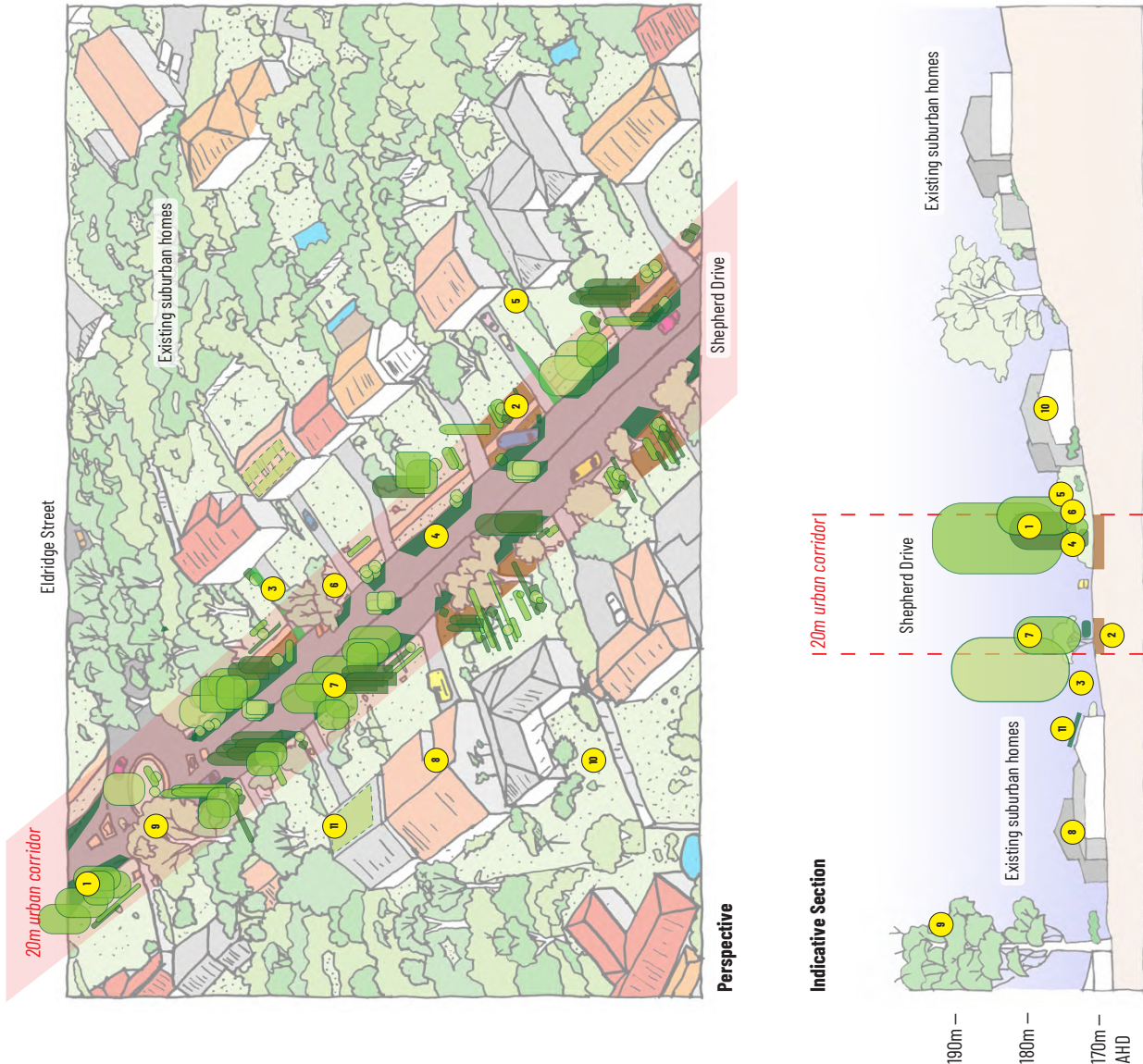


Fig 52. Green Infrastructure Framework visualisation: 20 metre 'urban' corridor

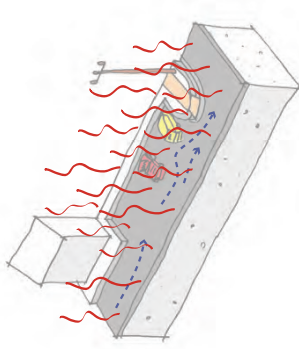
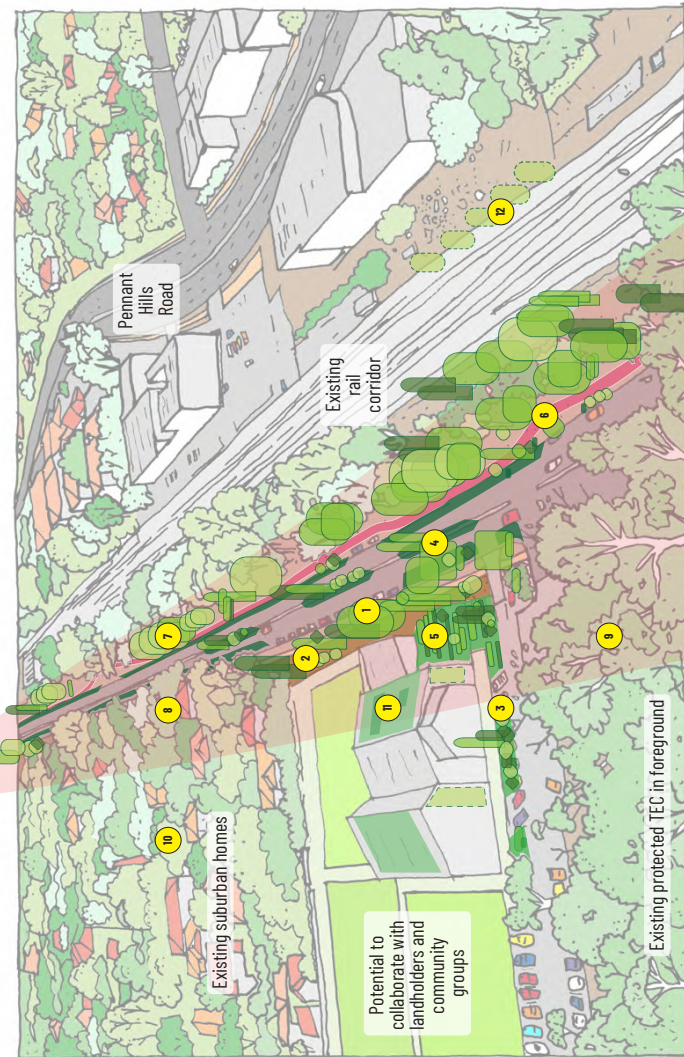
### 50 metre 'infrastructural' corridors

The 50 metre 'infrastructural' corridors are associated with major road and rail routes and correspondingly have different stakeholders. Elsewhere in Australia (e.g. Perth) rail reserves have simultaneously been used for biodiversity protection and as thickly densely planted spaces offer shaded locations for active transport (i.e. cyclepaths). Barrier mitigation within these corridors would need to be carefully considered to reduce wildlife impacts.

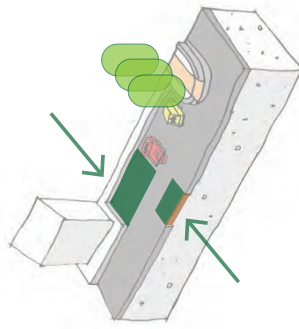
#### Location: Yarrara Road, Pennant Hills

This location highlights the potential role of major infrastructural systems (i.e. road and rail) as reconfigured green spaces for biodiversity. This will include both Council-managed roads as well as potential actions with private landholders and other stakeholders e.g. Pennant Hills Bowling Club and Sydney Trains. Key actions:

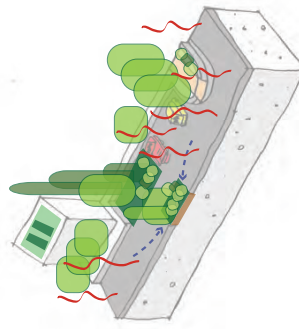
- 1 Interconnect street canopy by filling vacant street tree sites with appropriate endemic species and retaining and actively managing habitat trees via street tree planting plan
- 2 Protect and enhance front setbacks through DCP and apply deep soil requirements
- 3 Select replacement of carparks, driveways and other impervious surfaces with additional trees and vegetation and increase opportunities for deep soil/associated planting zones
- 4 Targeted road narrowing and strategic installation of WSUD approaches to include additional shade trees and vegetation understorey to augment micro and macrohabitat
- 5 Increase faunal movement through redesign of fences (e.g. replacement with hedges) and support green-blue infrastructure in public and private realm e.g. raingardens, small-scale wetlands
- 6 Maintenance of pedestrian passage and contributions to civic aesthetics and amenity, potential cycle route along rail corridor powerlines to facilitate urban canopy growth
- 7 Work with AusGrid for aerial cable bundling/undergrounding of powerlines to collaborate with landholders and community groups to increase urban forest, support and encourage local residents to join the Gardens for Wildlife program
- 8 Reinvigorate Tree Protection Orders to effectively safeguard mature habitat and hollow-bearing trees on private lands
- 9 Behavioural change and education including garden landscaping, cat and dog control, fertiliser and pesticide use to improve stream and invertebrate health
- 10 The greening of roofs and the installation of green walls is encouraged pursuant to the development of relevant Council policy and position
- 11 Work with Sydney trains to identify parcels of land that support and maintain for biodiversity and rail safety outcomes



Carparks and roadways contain minimal habitat for biodiversity, are significant contributors to urban heat island effect and source of often polluted run off into urban waterways



Removing powerlines leaves more space for street trees and swales and microhabitat are created in place of impervious surfaces



Vegetating impervious surfaces such as these and the provision of green roofs and walls helps to create space for trees and biodiversity to thrive and lead to less heat and less runoff

Fig 53. Green Infrastructure Framework visualisation: 50 metre 'infrastructural' corridor

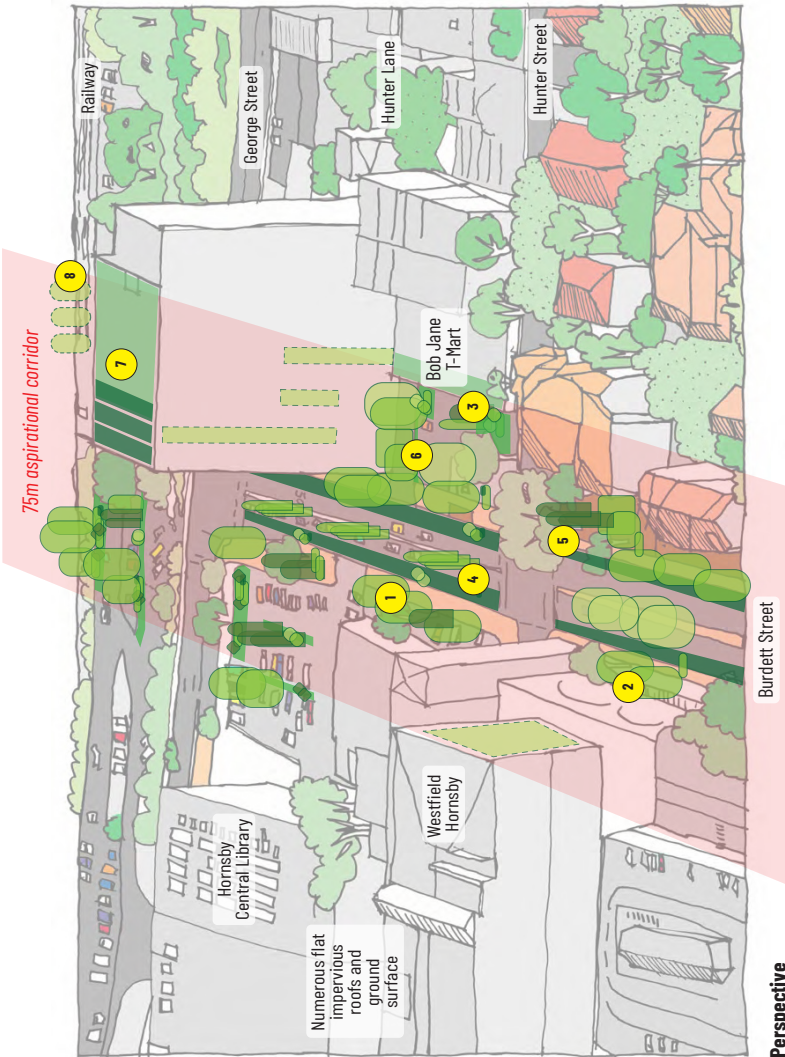
### 75 metre 'aspirational' corridors

The 75 metre 'infrastructural' corridors are indicative of the scale of corridors that could provide regional scale connectivity to fragmented landscapes. Captured through separate planning overlay, these may be associated with dedicated fauna overpasses and underpasses at key barriers; while where intersecting with the urban fabric a spectrum of approaches could be considered over a long time period. These could include targeted increase to urban forest canopy, adjusting of fences and the creation of microhabitats. Education and behavioural change regarding pet ownership could also be considered; while long term acquisition of key properties could also be an option.

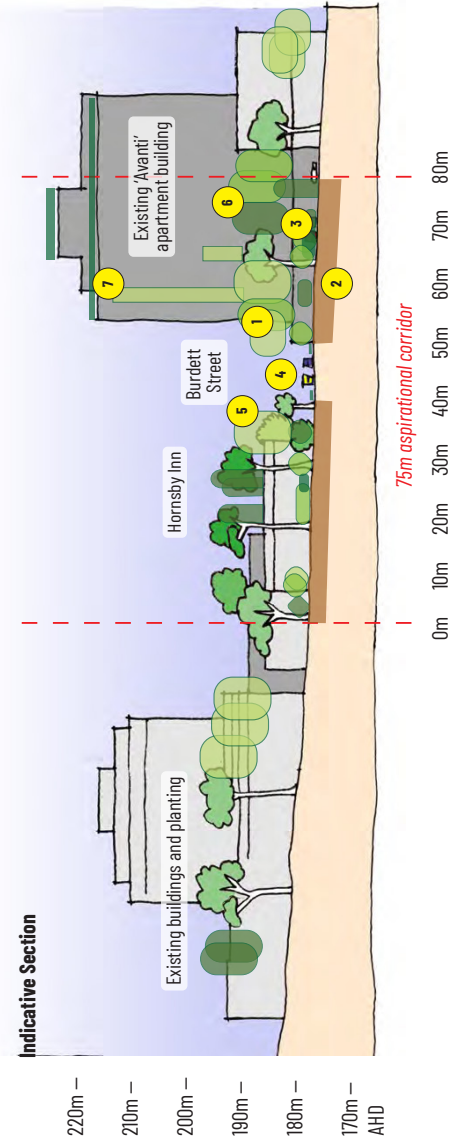
#### Location: Burdett Street, Hornsby CBD

This central Hornsby location exemplifies the potential of corridor design in a contested urban context. Here, a dense urban environment includes tall buildings and large areas of roads and impervious parking surfaces. Potential green space for biodiversity could be considered through selective road narrowing, the installation of permeable surfaces and WSUD, green roofs and walls as well as particular considerations and planning provisions surrounding land-use change and redevelopment. For instance particular development controls could facilitate the retention and expansion of urban vegetation through specific set-back and deep soil requirements and will likely require engineered solutions for trees - tree pits, structural soils for street trees to interconnect tree canopy as well as specific attention to the creation of understorey. Further biodiversity benefits through working closely with existing landholders are noted below:

- 1 Interconnect street canopy and support biodiversity by filling vacant street tree sites with mix of species appropriate for highly constrained urban environment and retaining and actively managing habitat trees via street tree planting plan
- 2 Protect and enhance front setbacks through DCP and apply deep soil requirements for commercial and med-high residential supported by solid landscape character statement
- 3 Select replacement of carparks, driveways and other impervious surfaces with additional trees and vegetation and increase opportunities for deep soil/associated planting zones
- 4 Targeted road narrowing and strategic installation of WSUD approaches to include additional shade trees and vegetation understorey to augment micro and macrohabitat
- 5 Work with AusGrid for aerial cable bundling/undergrounding of powerlines to facilitate urban canopy growth
- 6 Potential to collaborate with major landholders and community groups to increase urban forest
- 7 Green roofs/walls and bird friendly building design will be encouraged through the development of relevant Council policy
- 8 Work with Sydney trains to identify parcels of land that support and maintain for biodiversity and rail safety outcomes

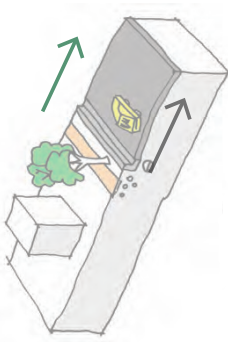


Perspective

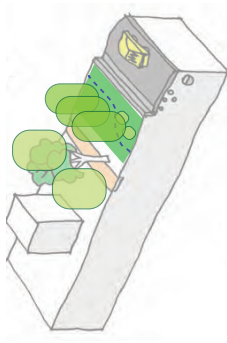


Indicative Section

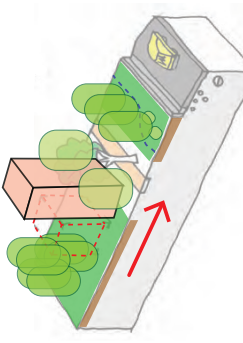
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210m —  
200m —  
190m —  
180m —  
170m —  
AHD



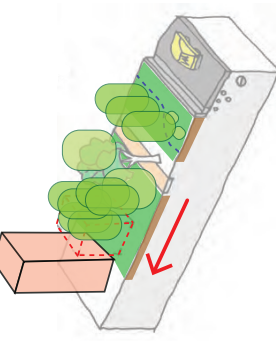
Narrowing of road and movement of services and infrastructure above and below ground to create additional space for street trees, understorey biodiversity planting and WSUD



Medium-high density residential and commercial zones to consider new provisions around both permeability and green factors with developments dependent upon point-based assessment for urban biodiversity and greening, i.e. Ground based landscaping, retention of existing vegetation, deep soil zones, green walls and roofs.



Future redevelopment to the front of the lot creates green space and deep soil zone further from the G/F corridor



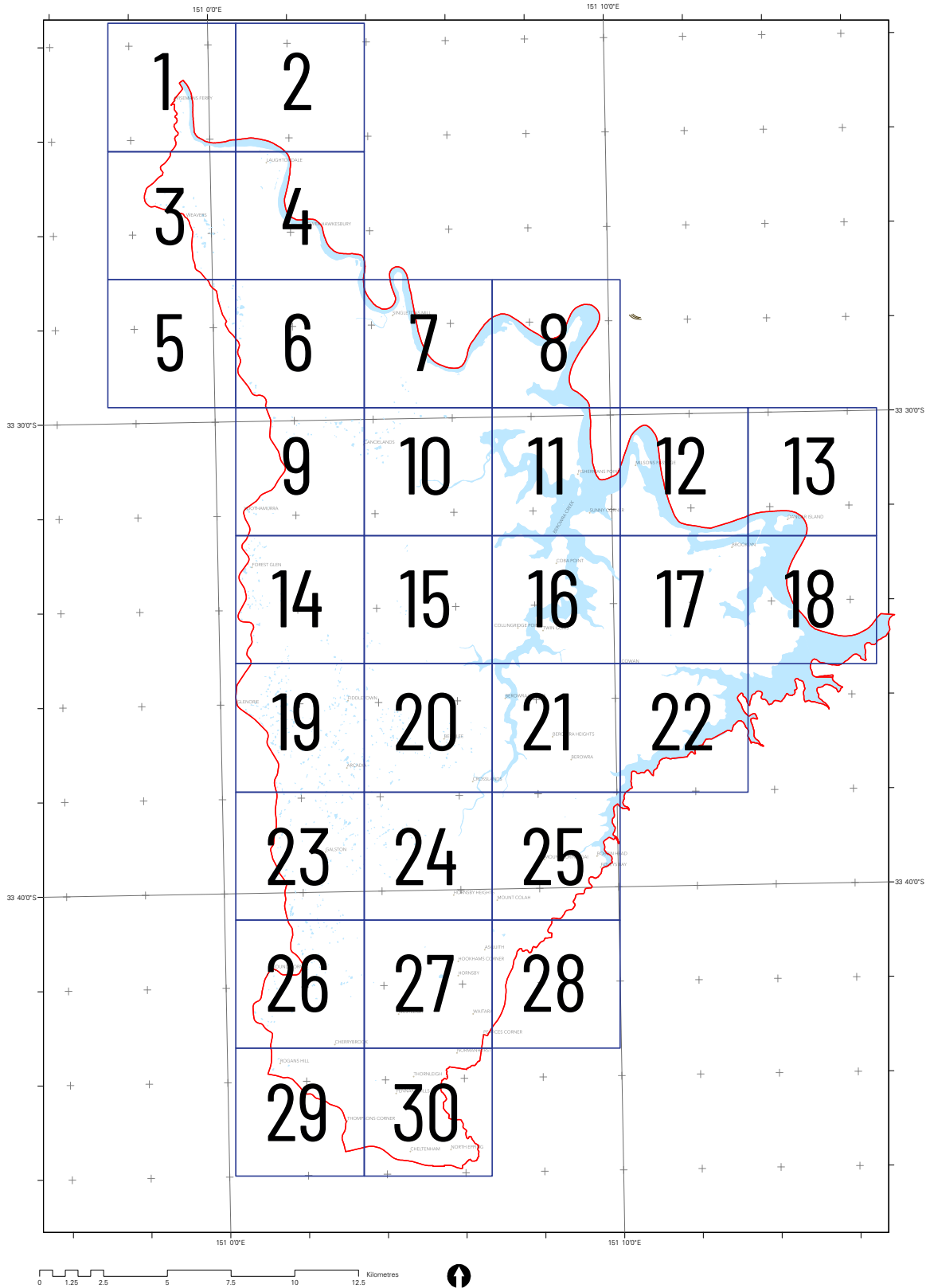
Future redevelopment to the rear of the lot creates alternative green space and deep soil zone adjacent to the G/F corridor

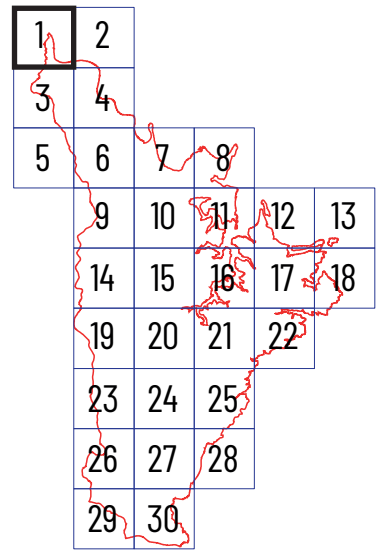
Fig 54. Green Infrastructure Framework visualisation: 75 metre 'aspirational' corridor

### Appendix 8: Green Infrastructure Framework map set

#### Green Infrastructure Framework

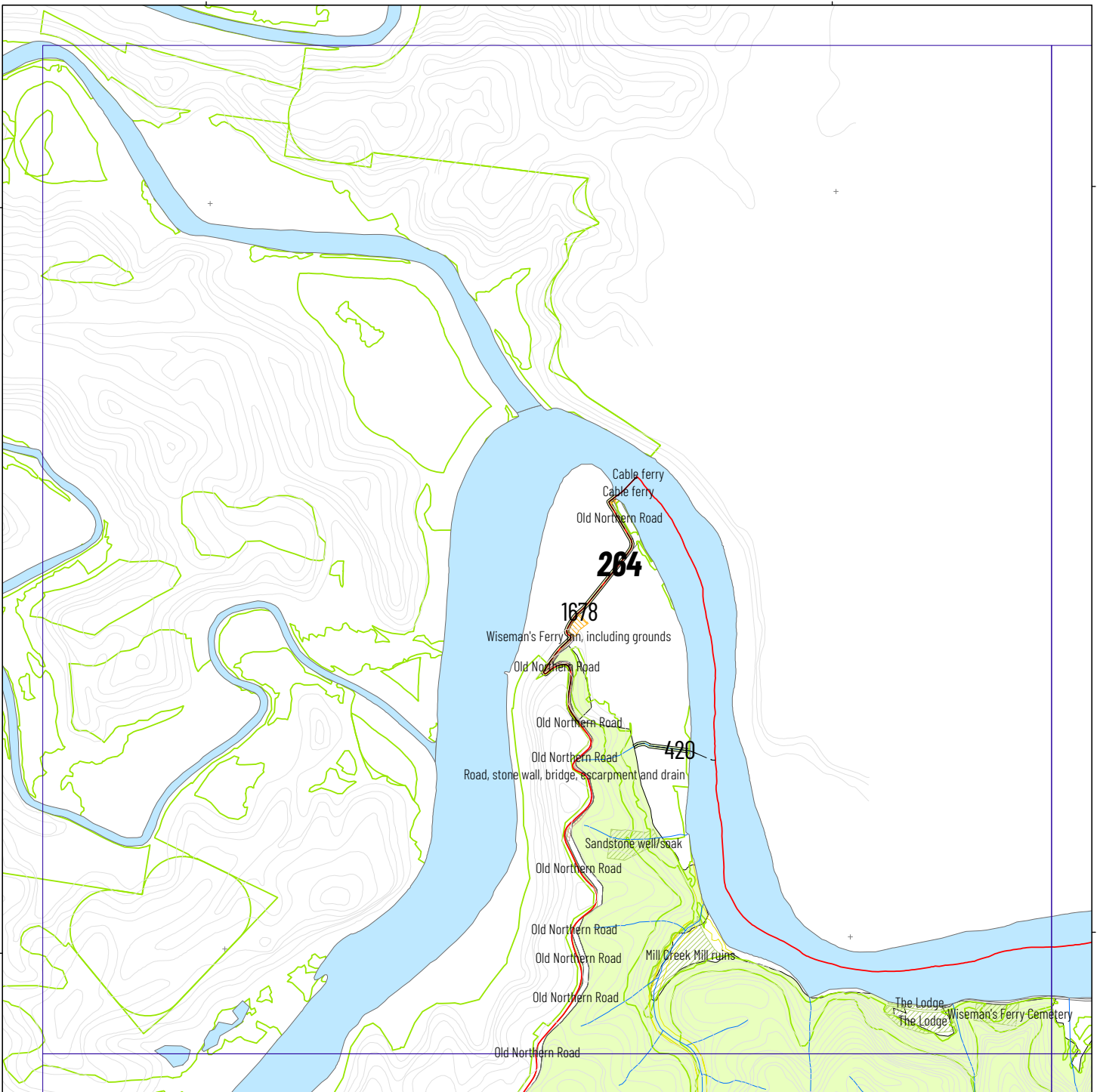
Please refer to the key map on this page when using the the *map set* that details the proposed GIF across the Hornsby LGA (the following 30 pages).


























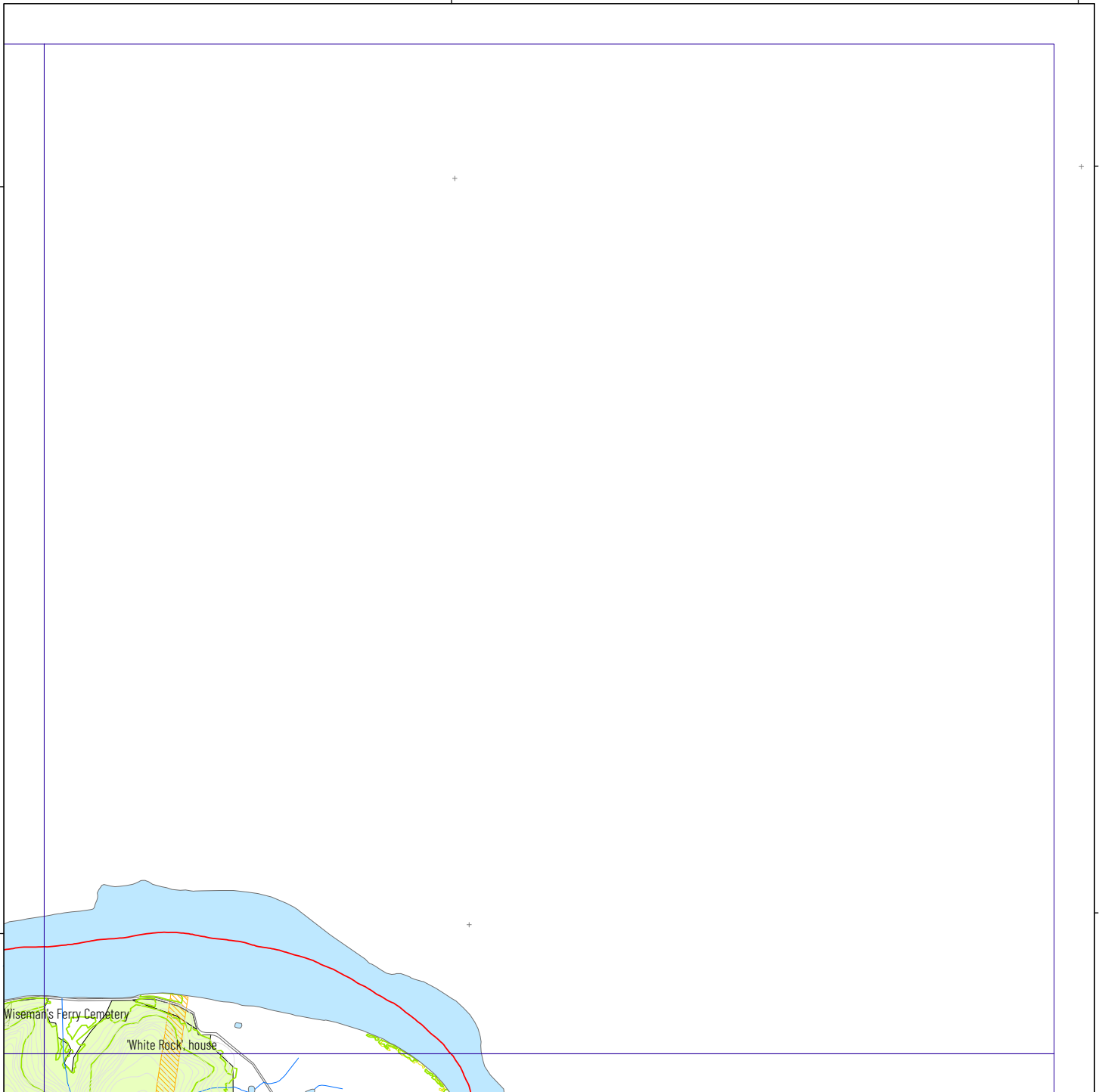
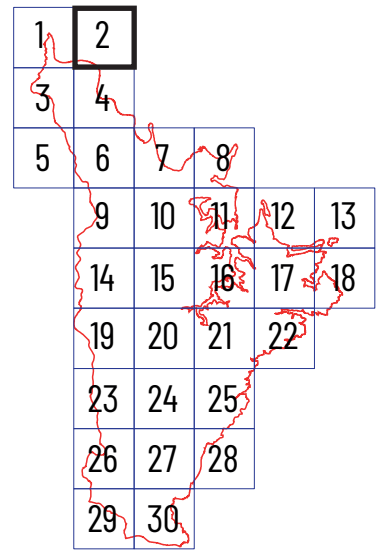
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- ▬ Waterbodies
- ▬ Hydrology
- ▬ Residual native vegetation
- - - Great North Walk alignment
- ▬ IUCN category Ia protected areas
- ▬ IUCN category II protected areas
- ▬ IUCN category V protected areas
- ▬ Contours (5 metre interval)
- ▬ LEP Terrestrial Biodiversity
- TEC
- Conservation Area - General
- Item - Archeological
- Item - General
- Item - Landscape
- Item - descriptions
- TEC 30 metre buffer
- ▬ GIF - 20 metre 'urban'
- ▬ GIF - 30 metre 'hydrological'
- ▬ GIF - 50 metre 'infrastructural'
- ▬ GIF - 20 metre 'aspirational'

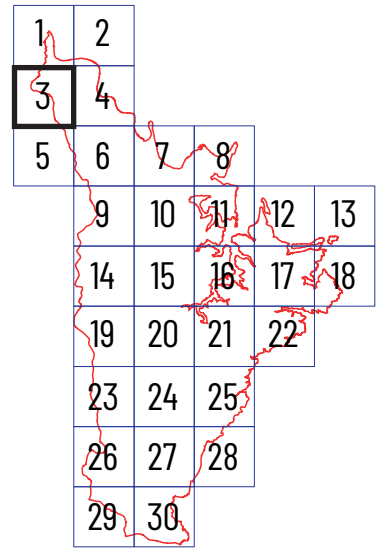
**41** GIF unique identity number  
**210** Corridor length (metres)



-  Hornsby LGA 2016
-  Waterbodies
-  Hydrology
-  Residual native vegetation
-  Great North Walk alignment
-  IUCN category Ia protected areas
-  IUCN category II protected areas
-  IUCN category V protected areas
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-  TEC
-  Conservation Area - General
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-  Item - General
-  Item - Landscape
-  Item - descriptions
-  TEC 30 metre buffer
-  GIF - 20 metre 'urban'
-  GIF - 30 metre 'hydrological'
-  GIF - 50 metre 'infrastructural'
-  GIF - 20 metre 'aspirational'

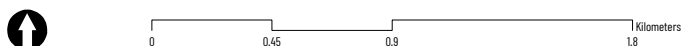
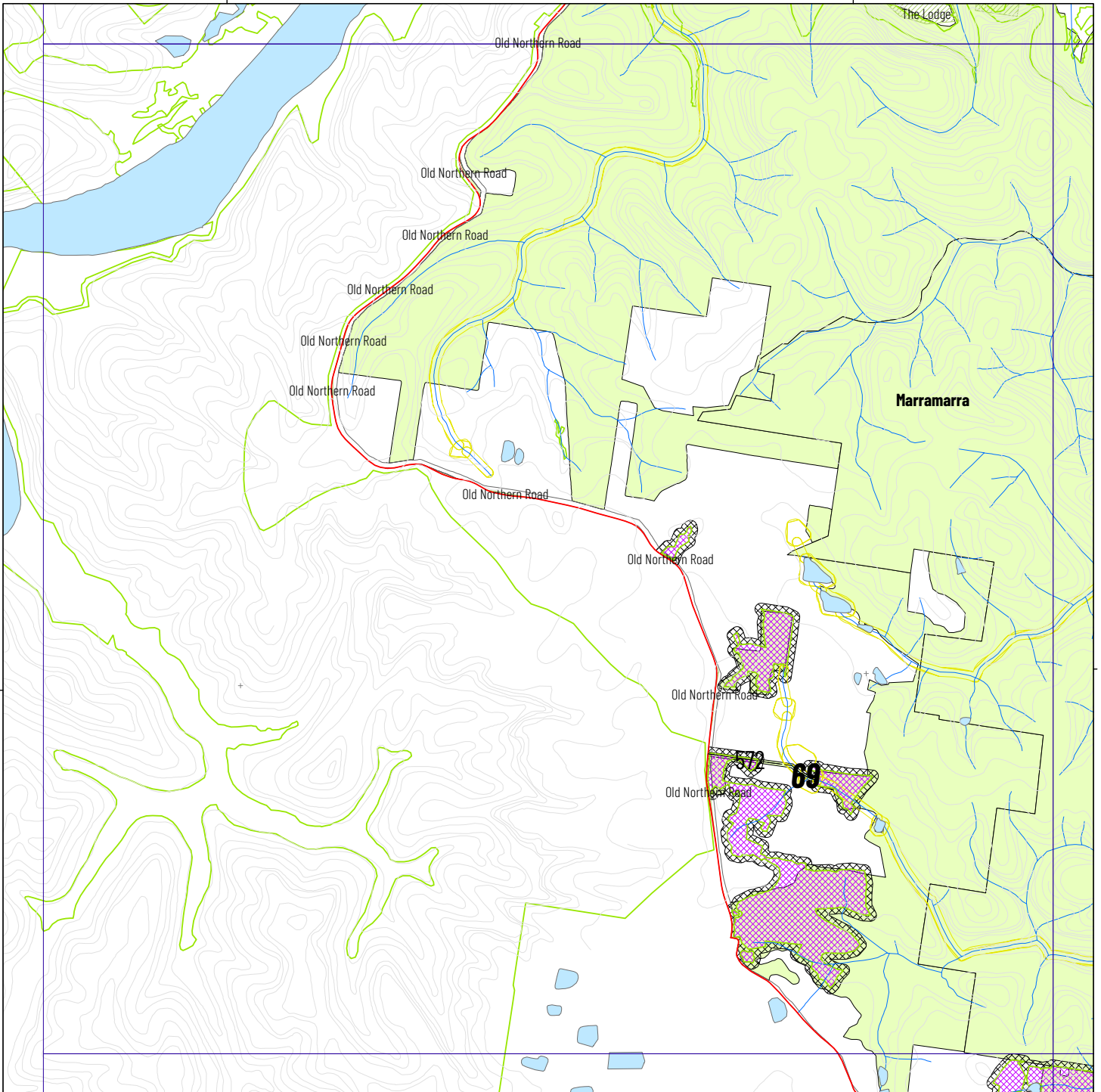
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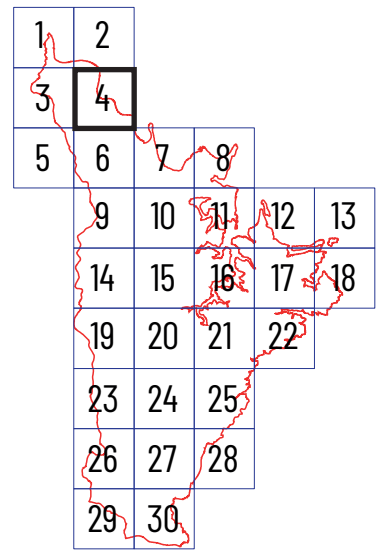


- ▬ Hornsby LGA 2016
- ▬ Waterbodies
- ▬ Hydrology
- ▬ Residual native vegetation
- - - Great North Walk alignment
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- ▬ GIF - 20 metre 'urban'
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- ▬ GIF - 50 metre 'infrastructural'
- ▬ GIF - 20 metre 'aspirational'

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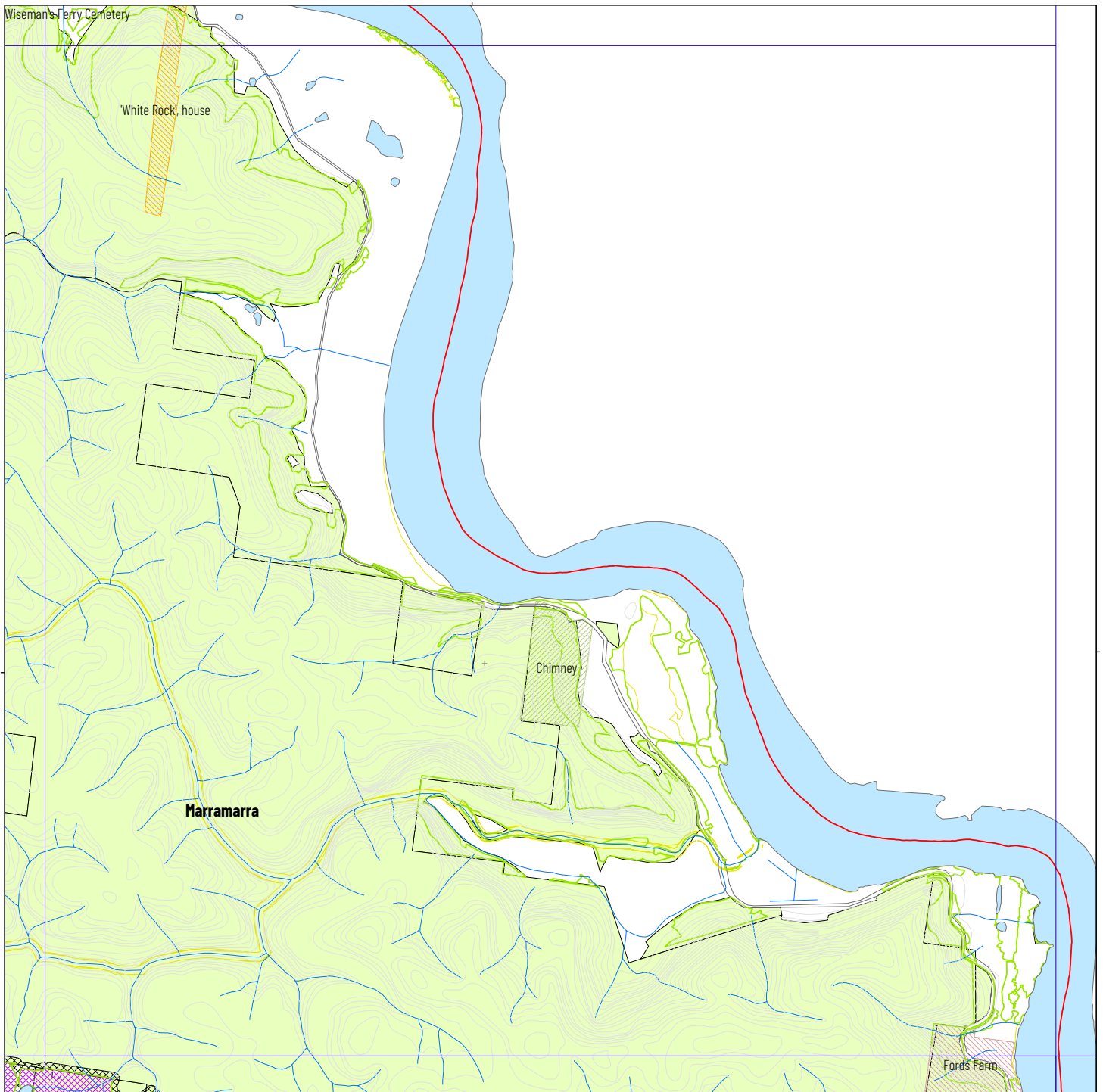


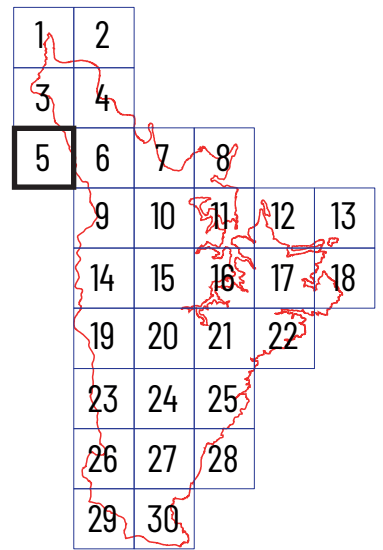




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- GIF - 20 metre 'aspirational'

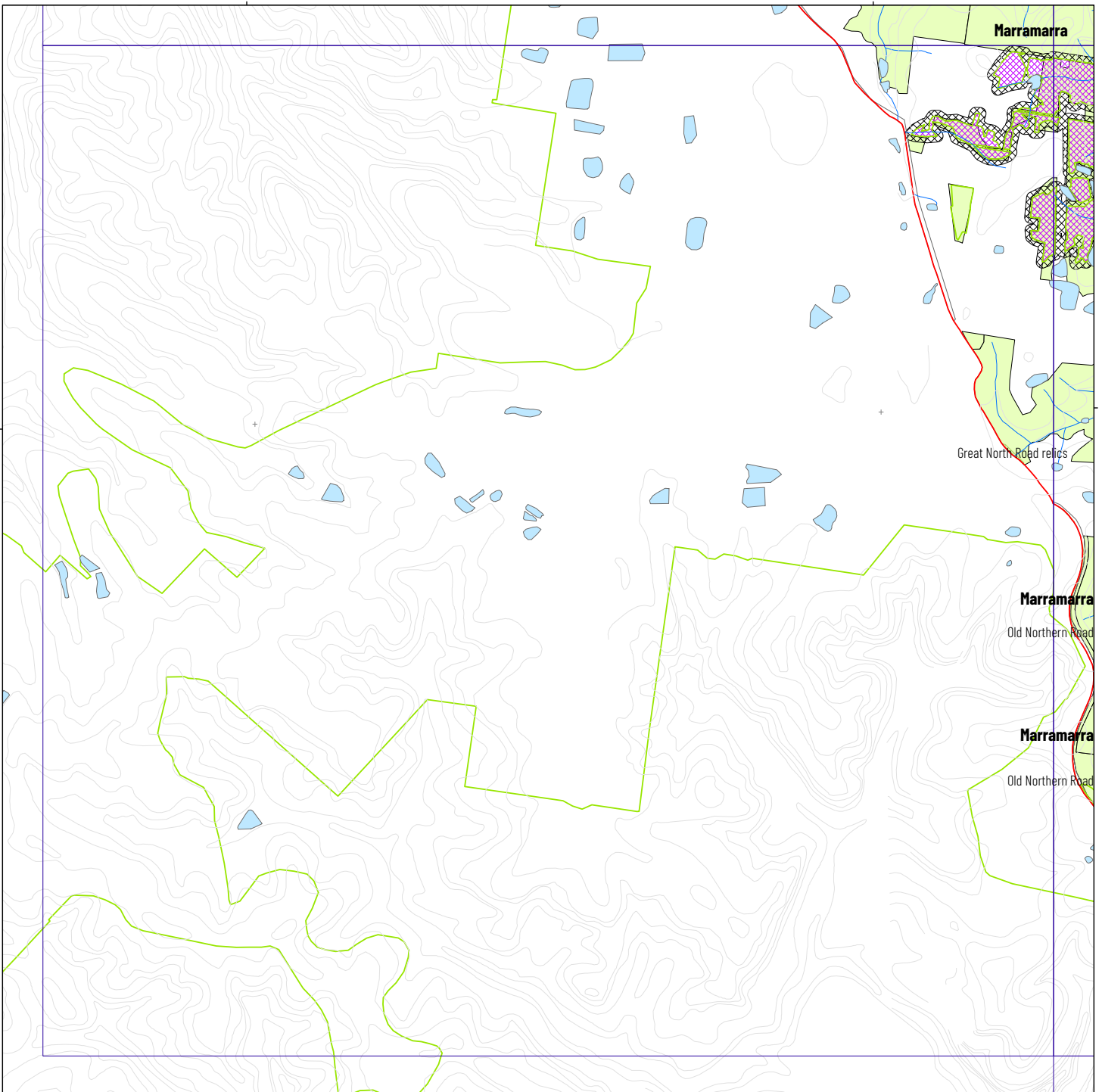
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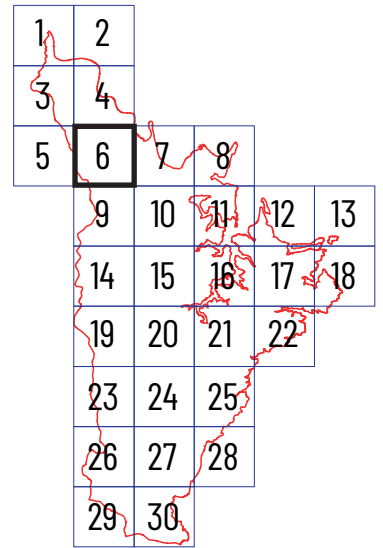




- ▬ Hornsby LGA 2016
- ▬ Waterbodies
- ▬ Hydrology
- ▬ Residual native vegetation
- - - Great North Walk alignment
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- ▬ IUCN category V protected areas
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- ▬ GIF - 20 metre 'aspirational'

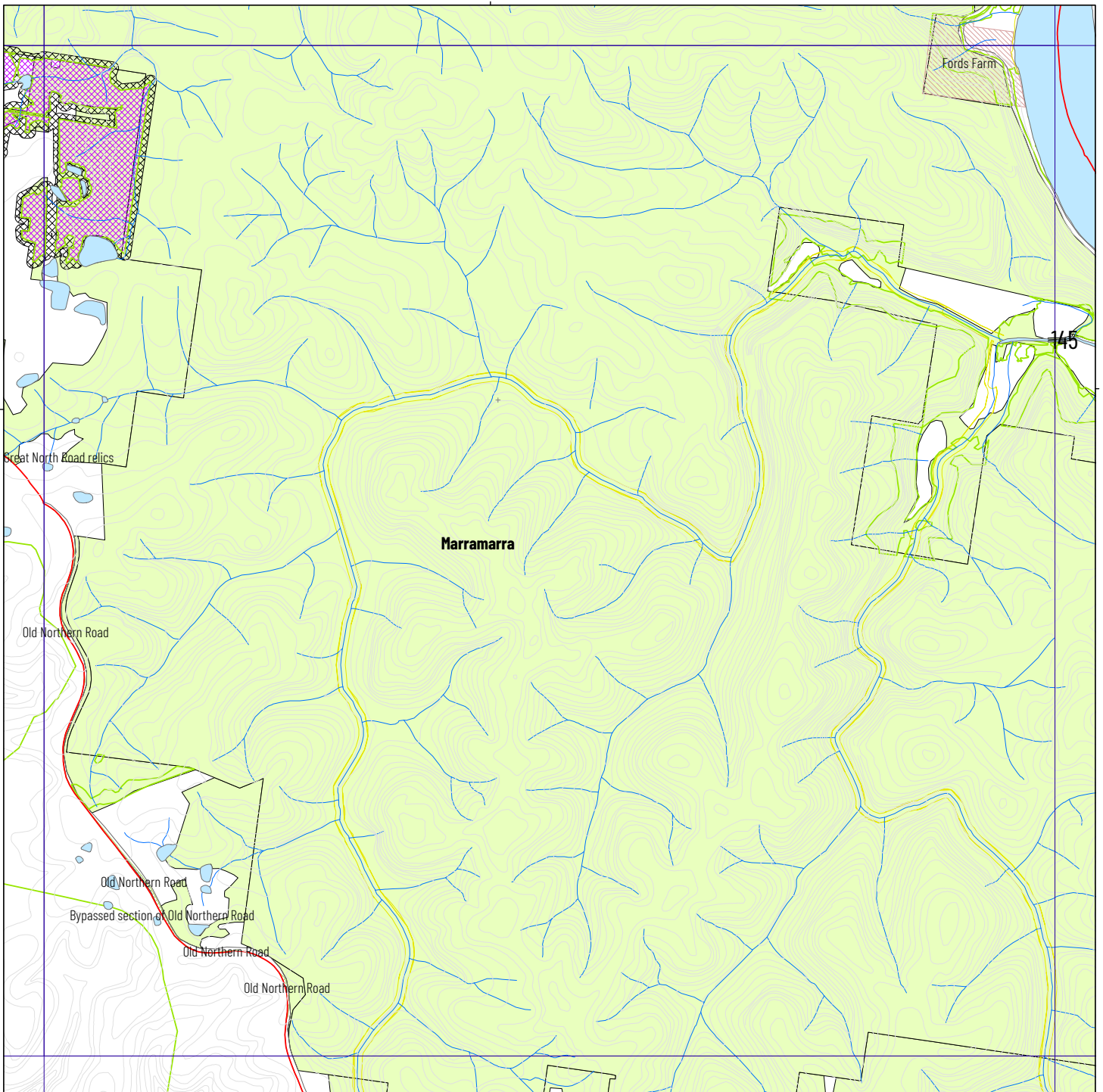
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**210** Corridor length (metres)





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- Hydrology
- Residual native vegetation
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- GIF - 50 metre 'infrastructural'
- GIF - 20 metre 'aspirational'

**41** GIF unique identity number  
**210** Corridor length (metres)



0 0.45 0.9 1.8 Kilometers

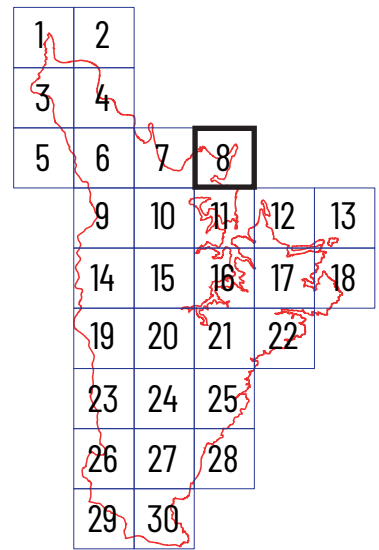
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	29	30			

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**210** Corridor length (metres)

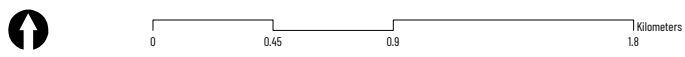
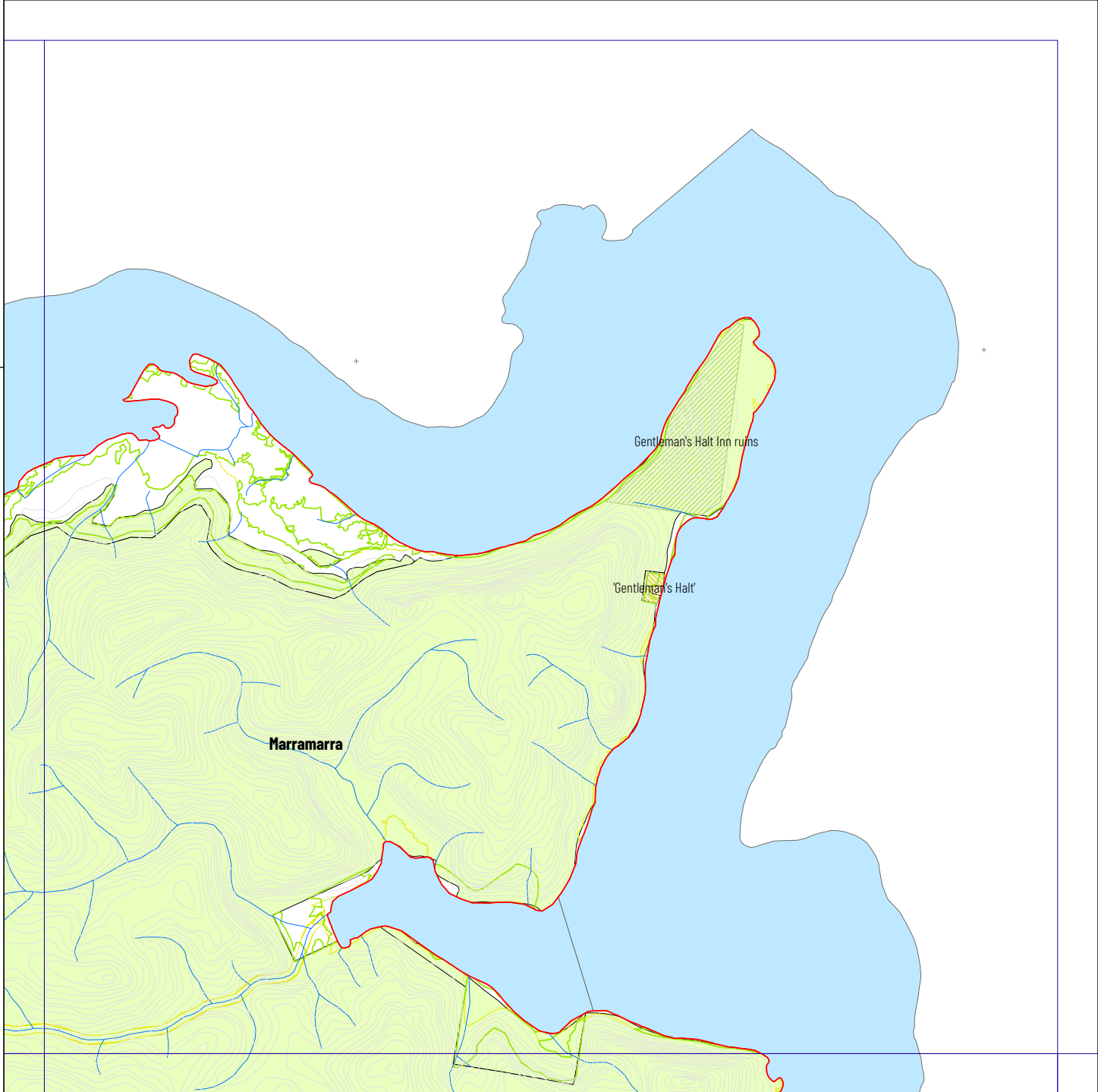


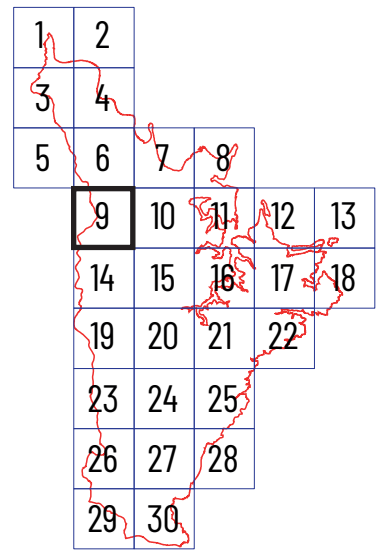
0 0.45 0.9 1.8 Kilometers



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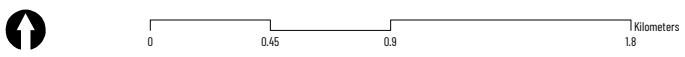
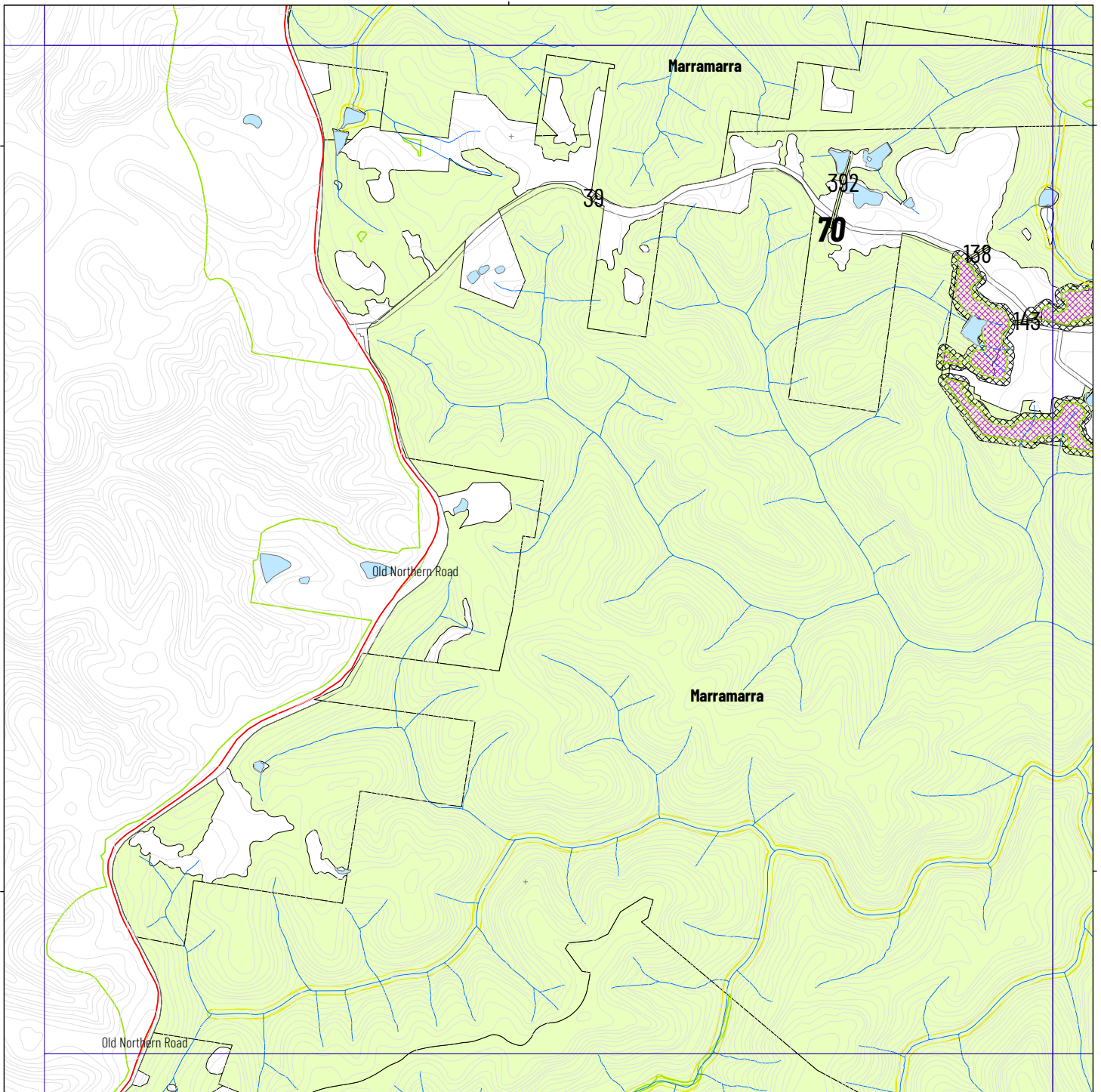
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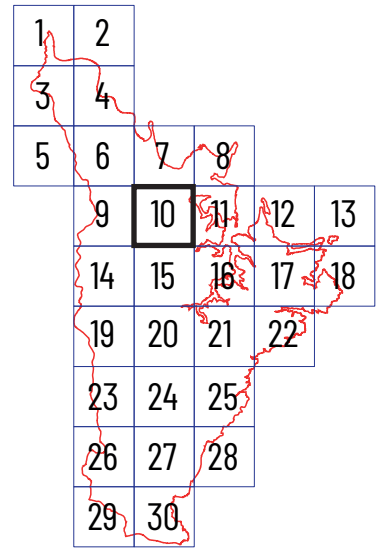




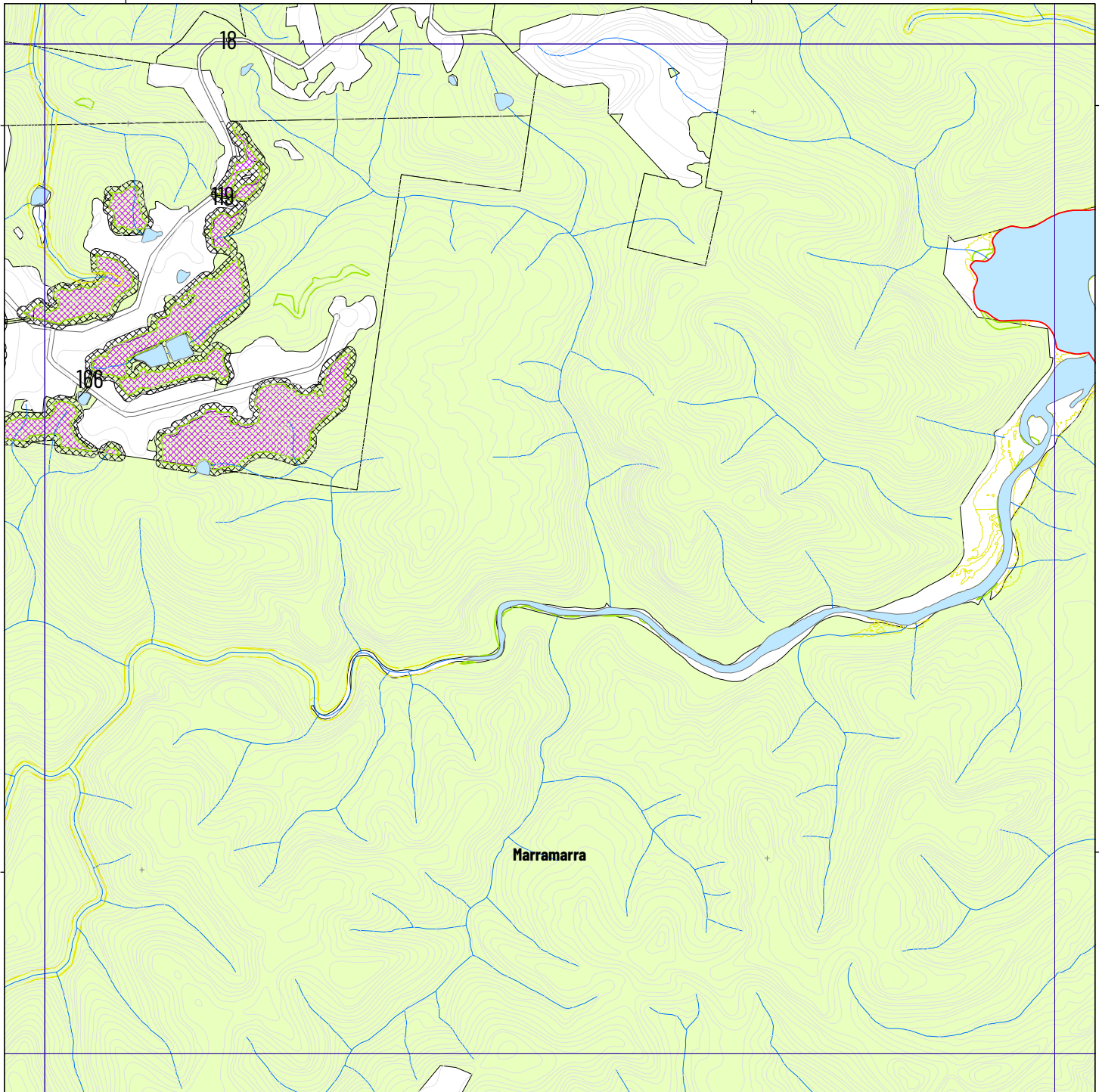
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**41** GIF unique identity number  
**210** Corridor length (metres)





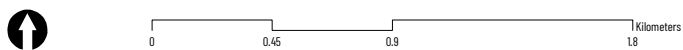
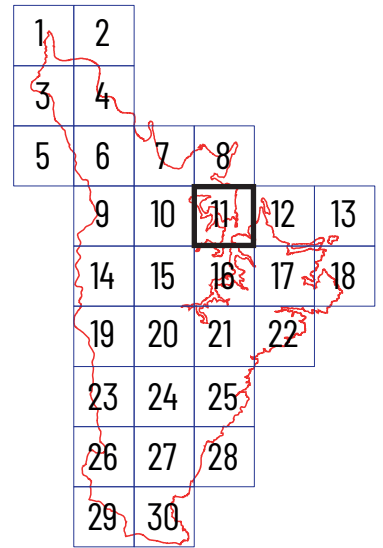
- Hornsby LGA 2016
- Waterbodies
- Hydrology
- Residual native vegetation
- Great North Walk alignment
- IUCN category Ia protected areas
- IUCN category II protected areas
- IUCN category V protected areas
- Contours (5 metre interval)
- LEP Terrestrial Biodiversity
- TEC
- Conservation Area - General
- Item - Archeological
- Item - General
- Item - Landscape
- Item - descriptions
- TEC 30 metre buffer
- GIF - 20 metre 'urban'
- GIF - 30 metre 'hydrological'
- GIF - 50 metre 'infrastructural'
- GIF - 20 metre 'aspirational'
- 41** GIF unique identity number
- 210** Corridor length (metres)
























0 0.45 0.9 1.8 Kilometers

- ▭ Hornsby LGA 2016
- ▭ Waterbodies
- ▭ Hydrology
- ▭ Residual native vegetation
- ▭ Great North Walk alignment
- ▭ IUCN category Ia protected areas
- ▭ IUCN category II protected areas
- ▭ IUCN category V protected areas
- ▭ Contours (5 metre interval)
- ▭ LEP Terrestrial Biodiversity
- ▭ TEC
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- ▭ Item - Archeological
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- ▭ GIF - 20 metre 'urban'
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- ▭ GIF - 50 metre 'infrastructural'
- ▭ GIF - 20 metre 'aspirational'

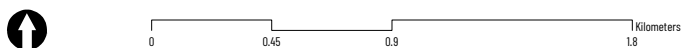
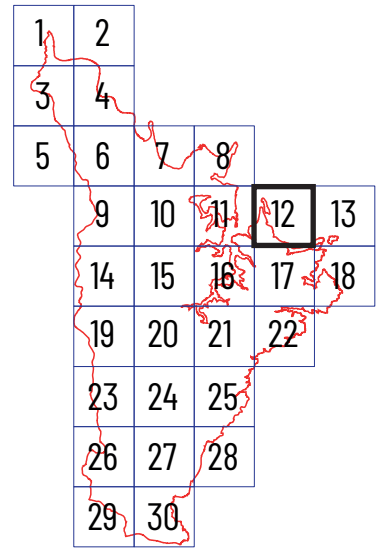
**41** GIF unique identity number  
**210** Corridor length (metres)


























-  Hornsby LGA 2016
-  Waterbodies
-  Hydrology
-  Residual native vegetation
-  Great North Walk alignment
-  IUCN category Ia protected areas
-  IUCN category II protected areas
-  IUCN category V protected areas
-  Contours (5 metre interval)
-  LEP Terrestrial Biodiversity
-  TEC
-  Conservation Area - General
-  Item - Archeological
-  Item - General
-  Item - Landscape
-  Item - descriptions
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-  GIF - 20 metre 'urban'
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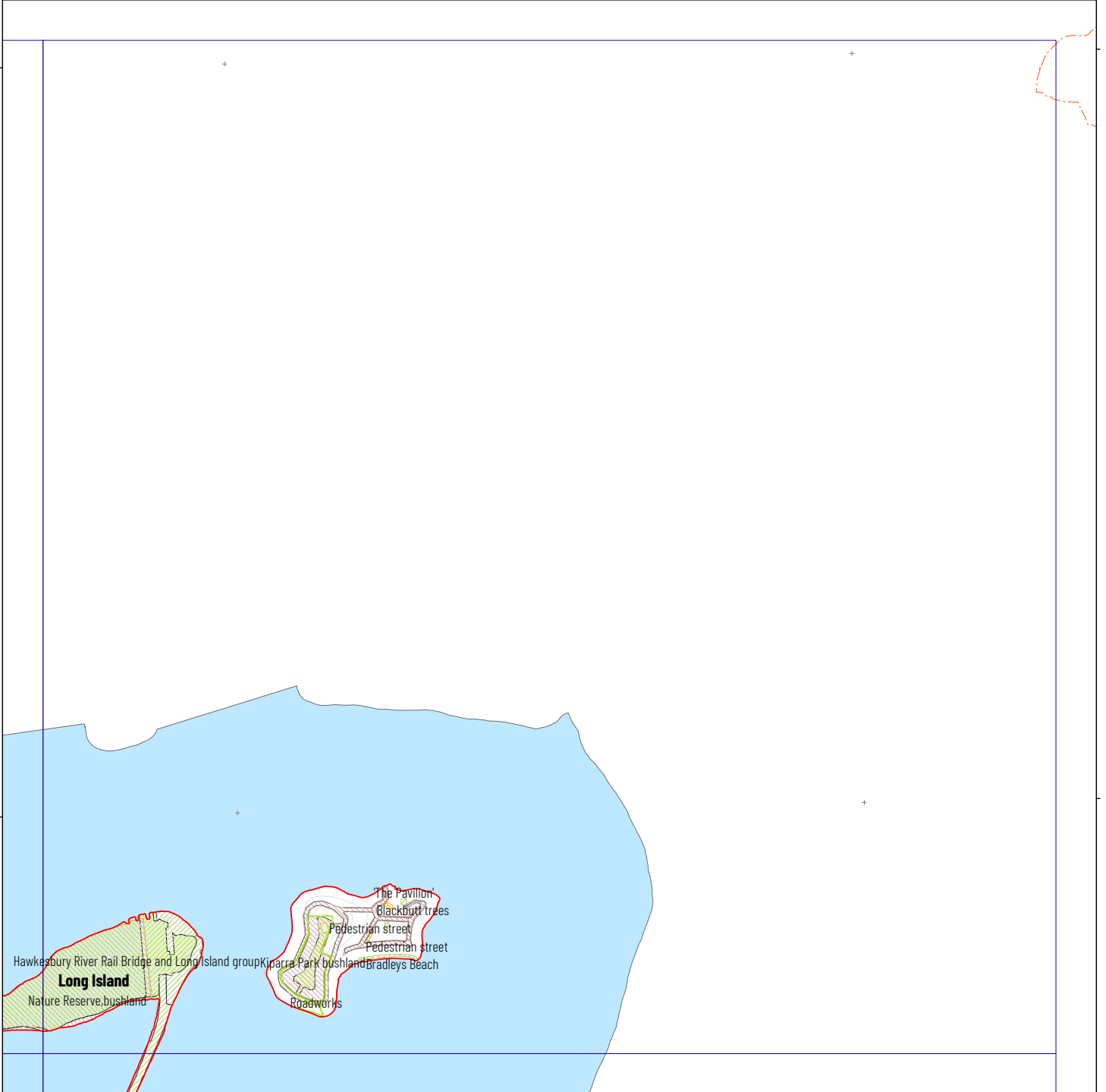
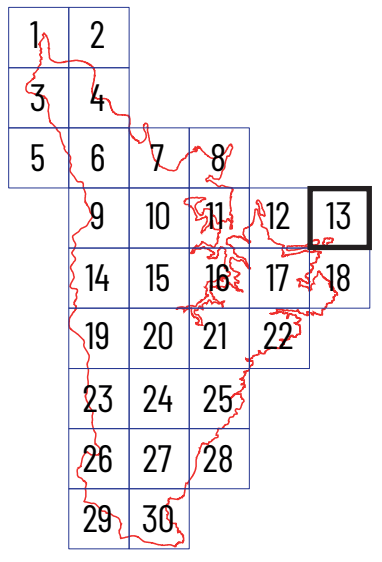
**41** GIF unique identity number  
**210** Corridor length (metres)



-  Hornsby LGA 2016
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-  Residual native vegetation
-  Great North Walk alignment
-  IUCN category Ia protected areas
-  IUCN category II protected areas
-  IUCN category V protected areas
-  Contours (5 metre interval)

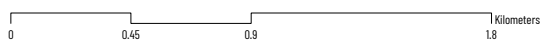
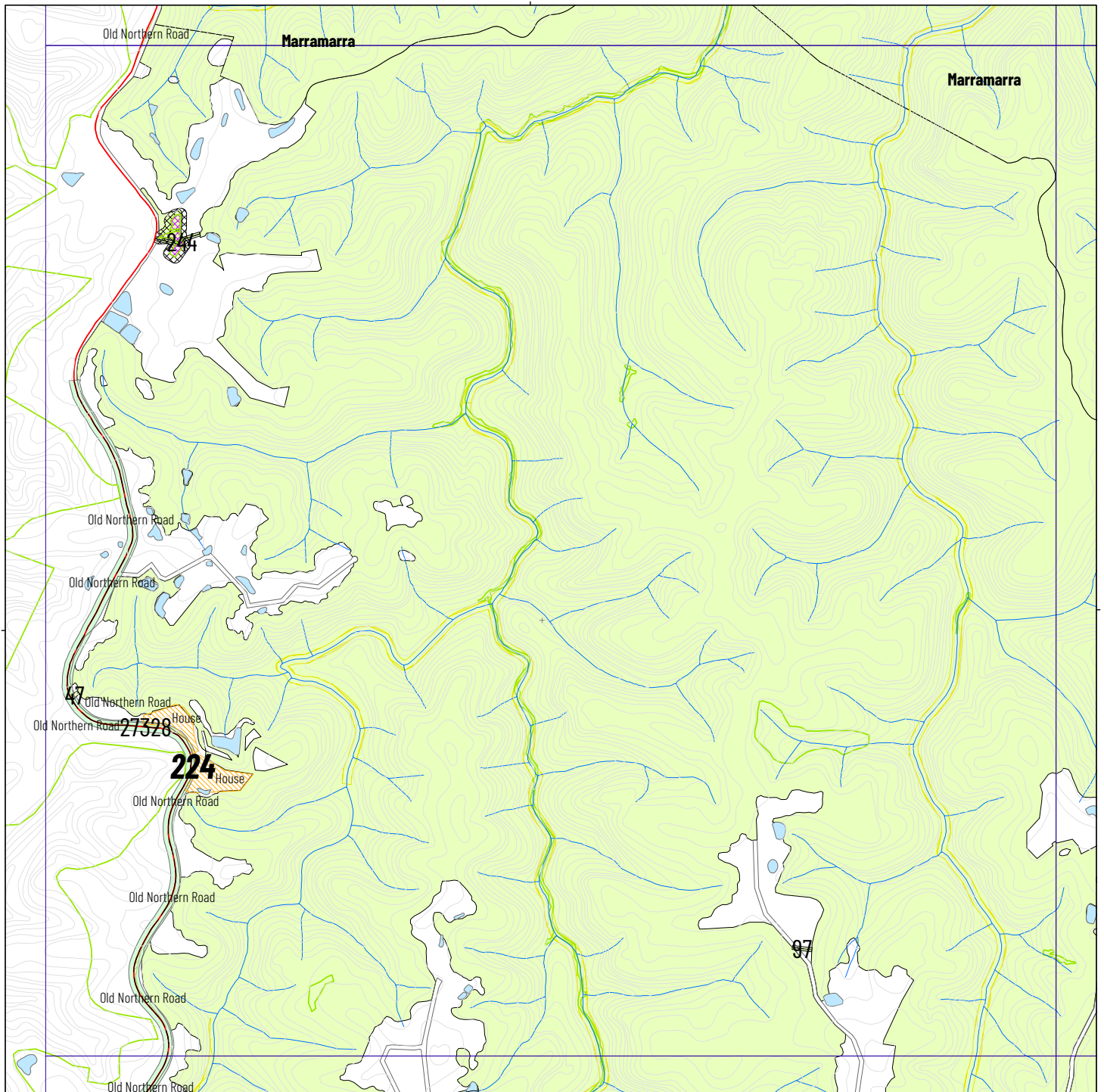
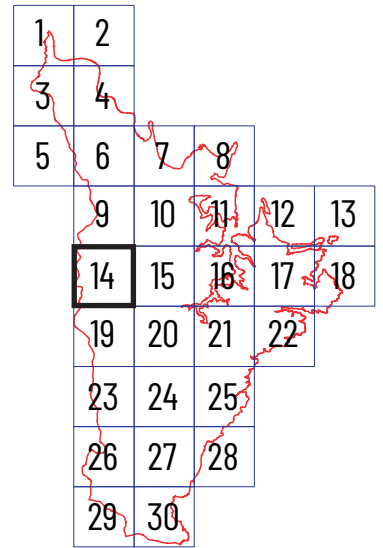
-  LEP Terrestrial Biodiversity
-  TEC
-  Conservation Area - General
-  Item - Archeological
-  Item - General
-  Item - Landscape
-  Item - descriptions
-  TEC 30 metre buffer

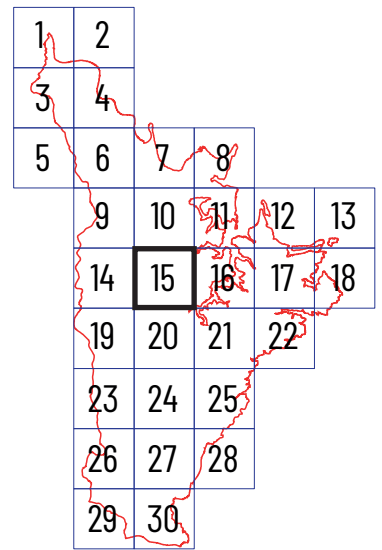
-  GIF - 20 metre 'urban'
-  GIF - 30 metre 'hydrological'
-  GIF - 50 metre 'infrastructural'
-  GIF - 20 metre 'aspirational'
- 41** GIF unique identity number
- 210** Corridor length (metres)



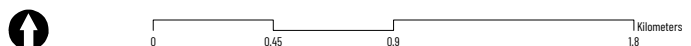
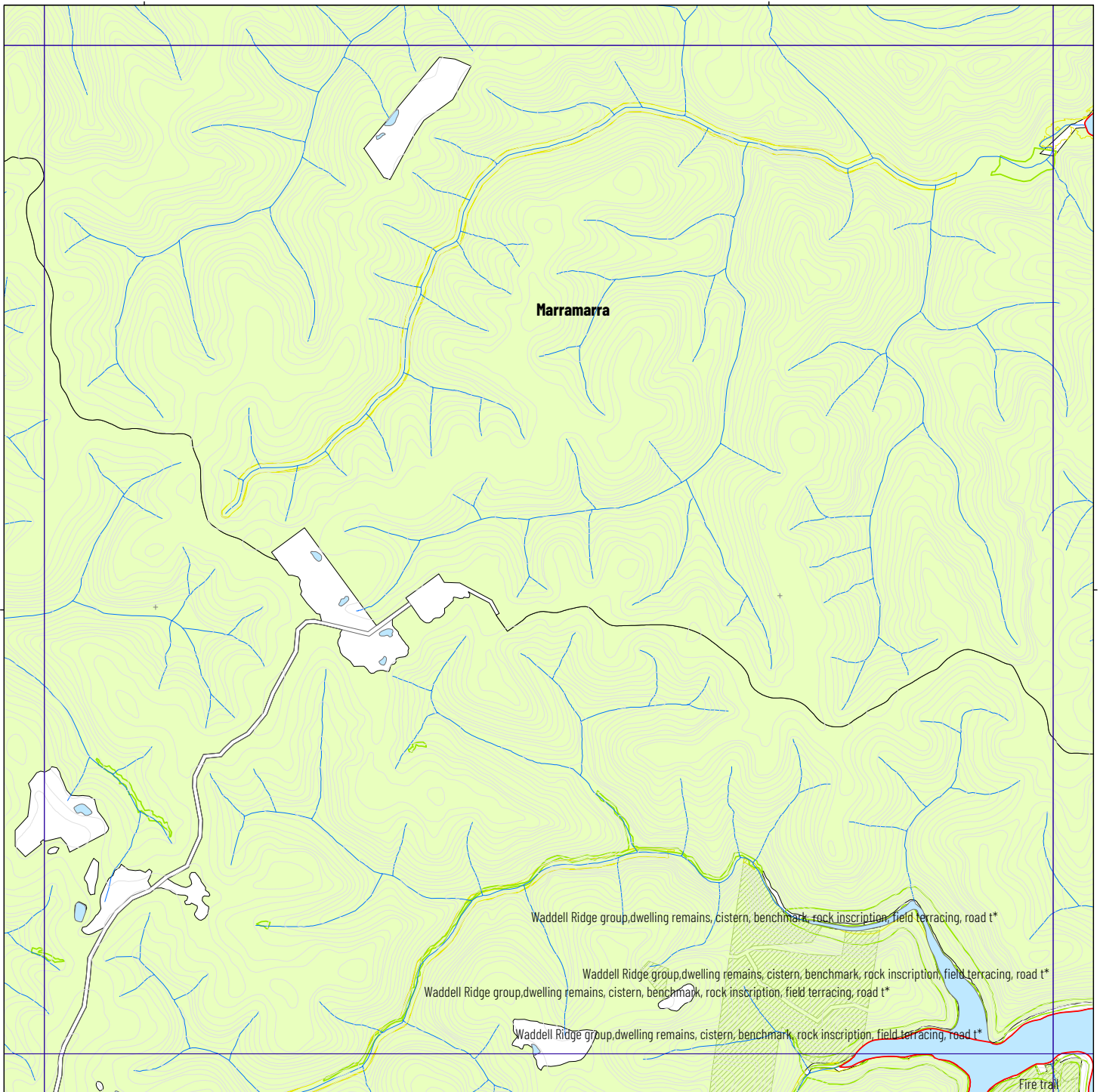
- ▬ Hornsby LGA 2016
- ▬ Waterbodies
- ▬ Hydrology
- ▬ Residual native vegetation
- - - Great North Walk alignment
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- ▬ IUCN category II protected areas
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**41** GIF unique identity number  
**210** Corridor length (metres)





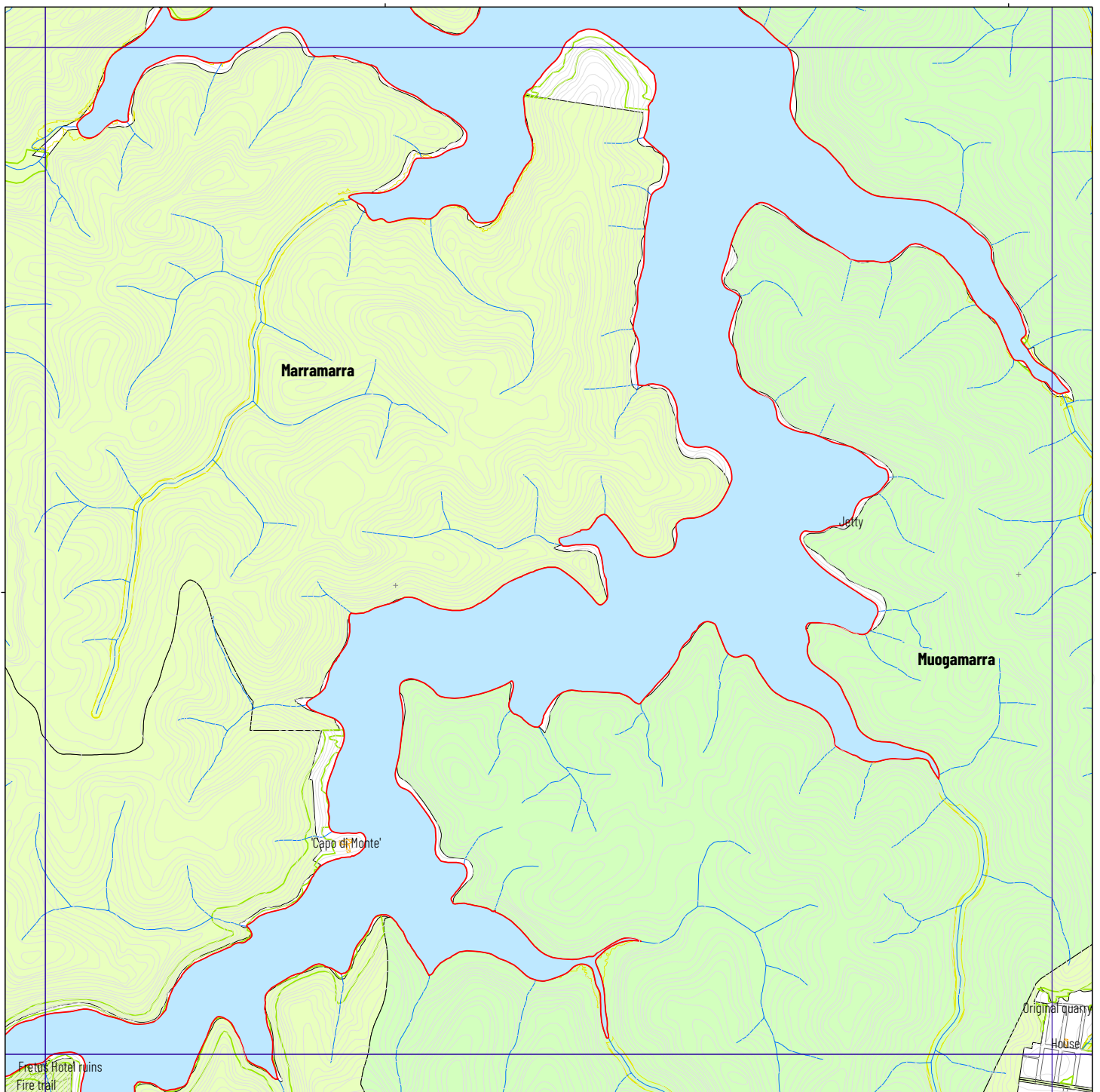
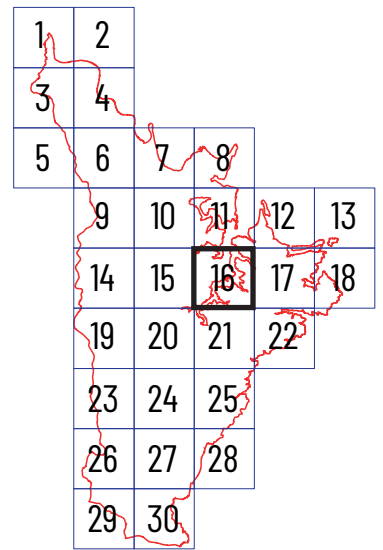
- ▬ Hornsby LGA 2016
- ▬ Waterbodies
- ▬ Hydrology
- ▬ Residual native vegetation
- - - Great North Walk alignment
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**210** Corridor length (metres)

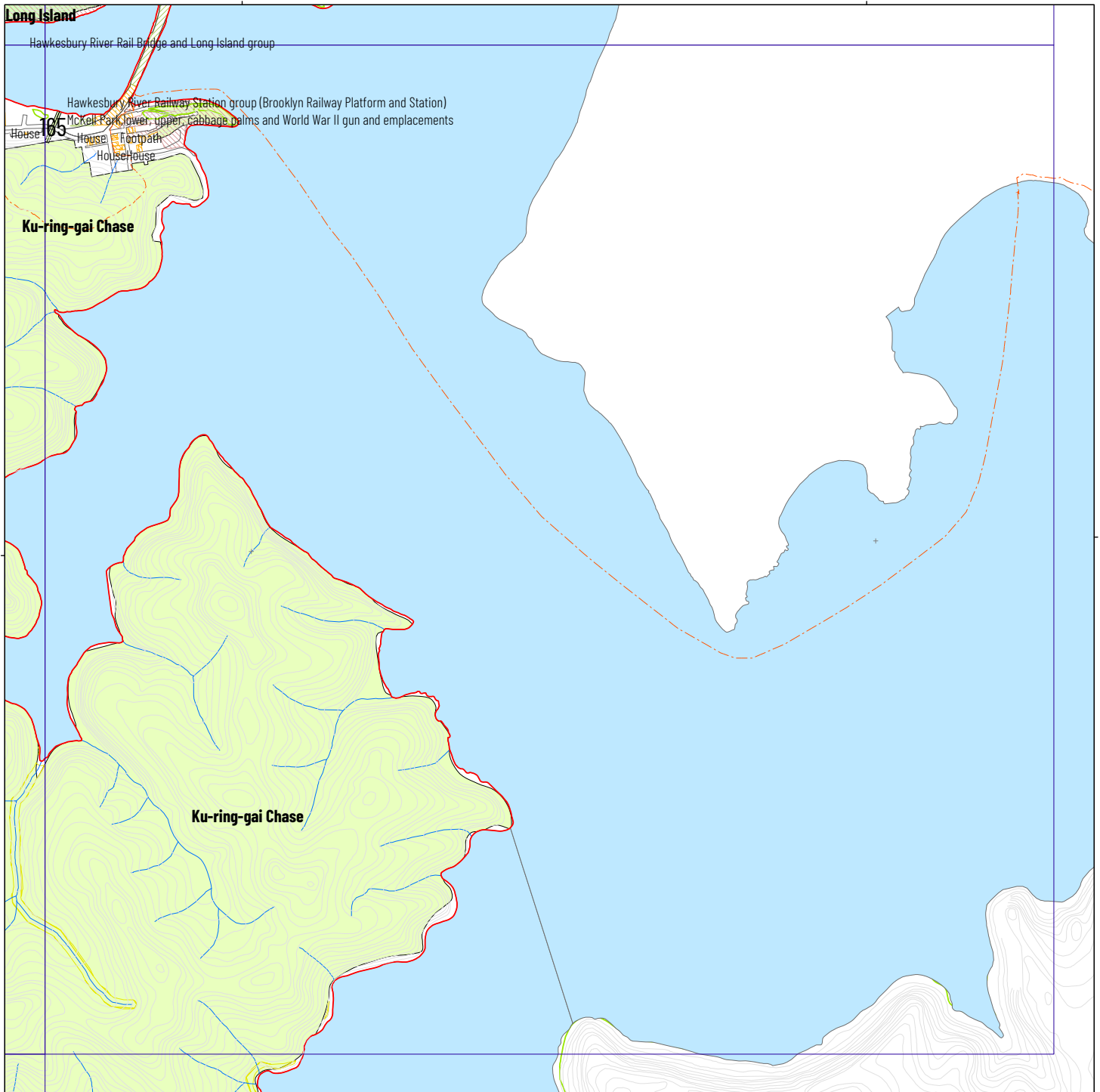
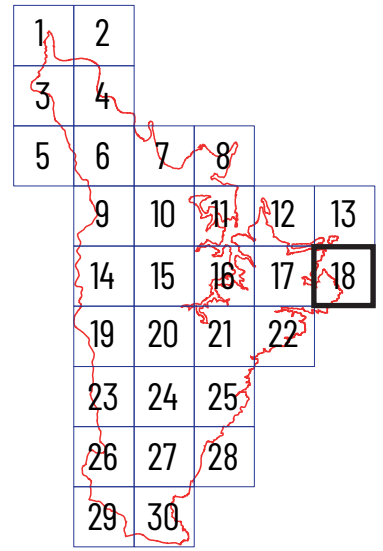
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0 0.45 0.9 1.8 Kilometers

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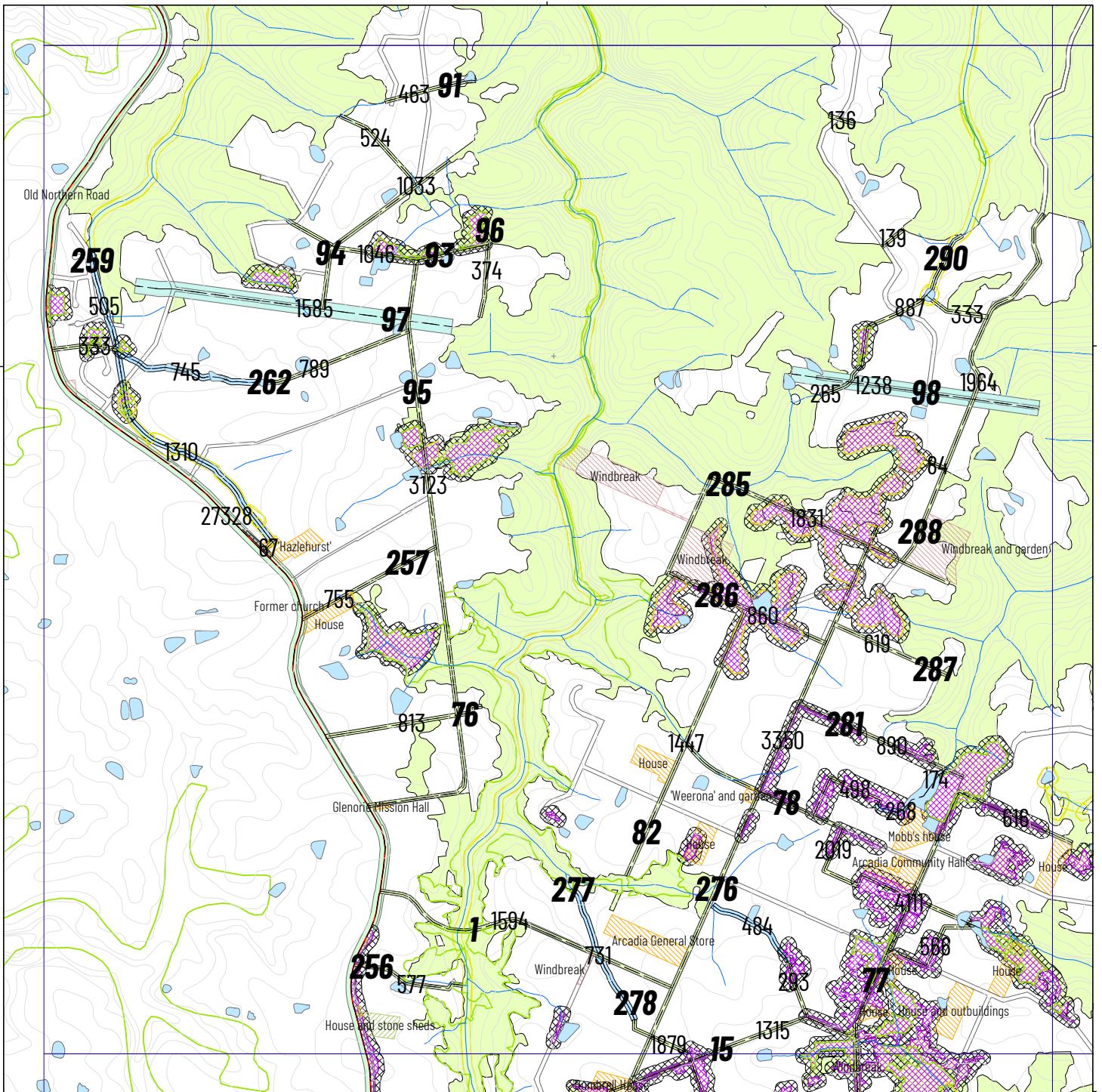


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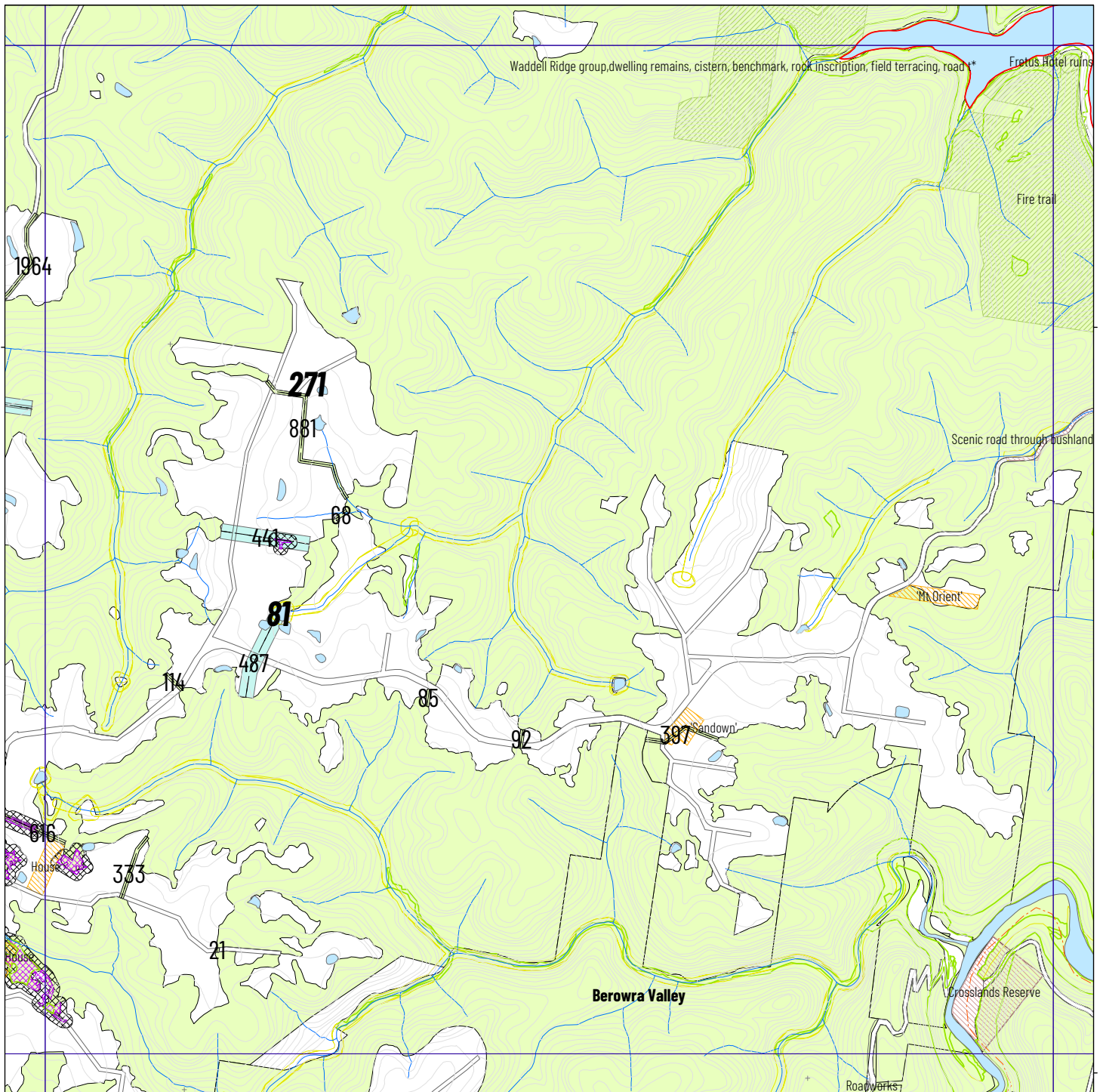
0 0.45 0.9 1.8 Kilometers



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	26	27	28		
	29	30			

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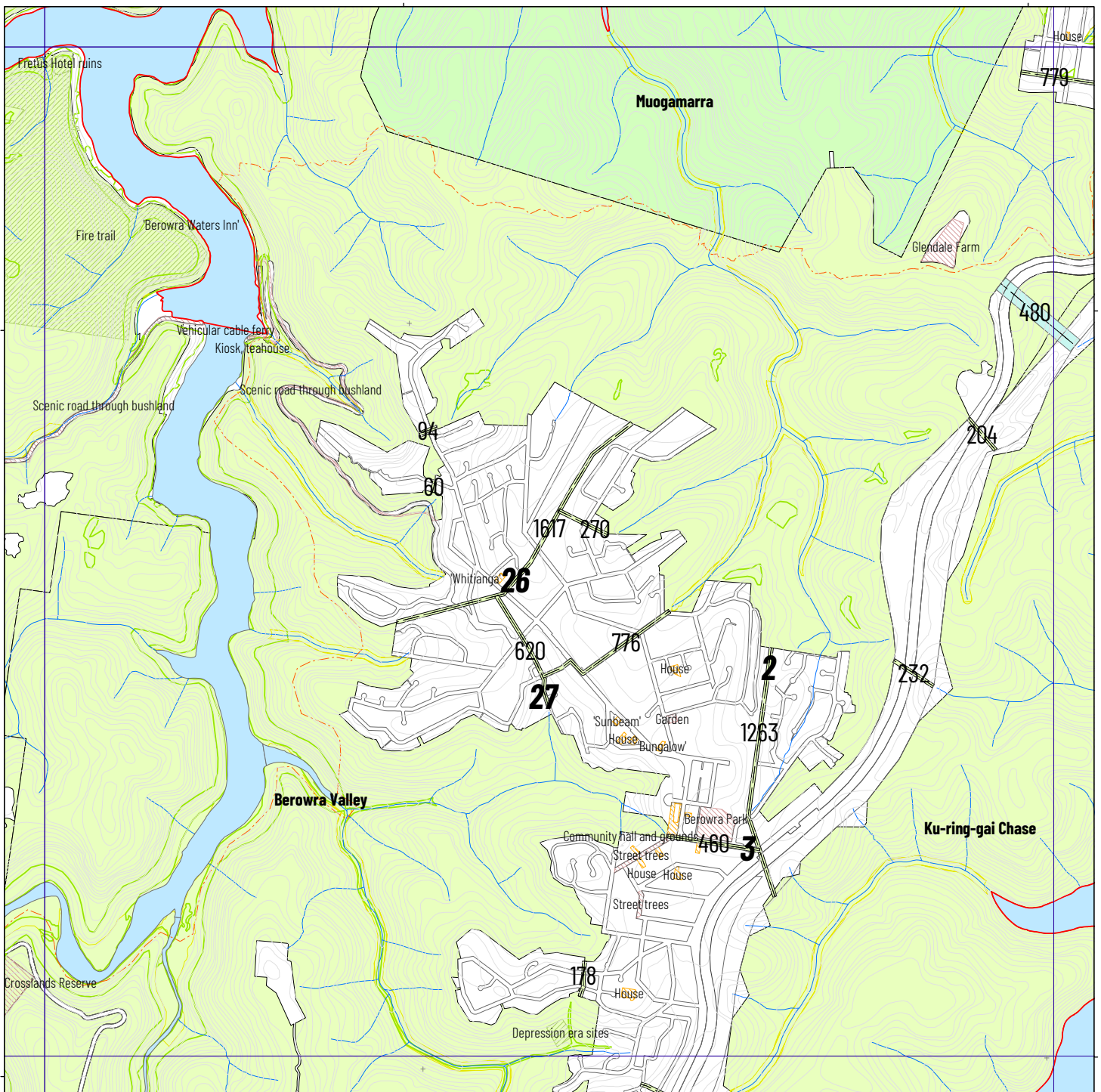
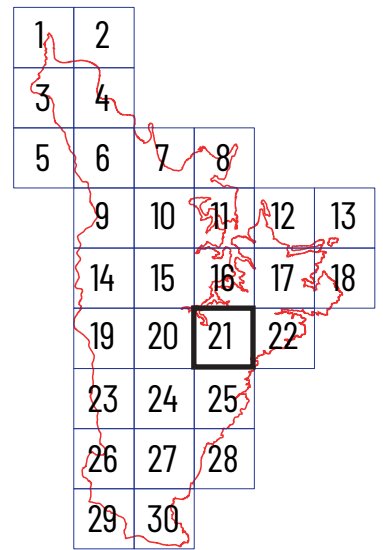
**41** GIF unique identity number  
**210** Corridor length (metres)



- Hornsby LGA 2016
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- Hydrology
- Residual native vegetation
- Great North Walk alignment
- IUCN category Ia protected areas
- IUCN category II protected areas
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- Contours (5 metre interval)

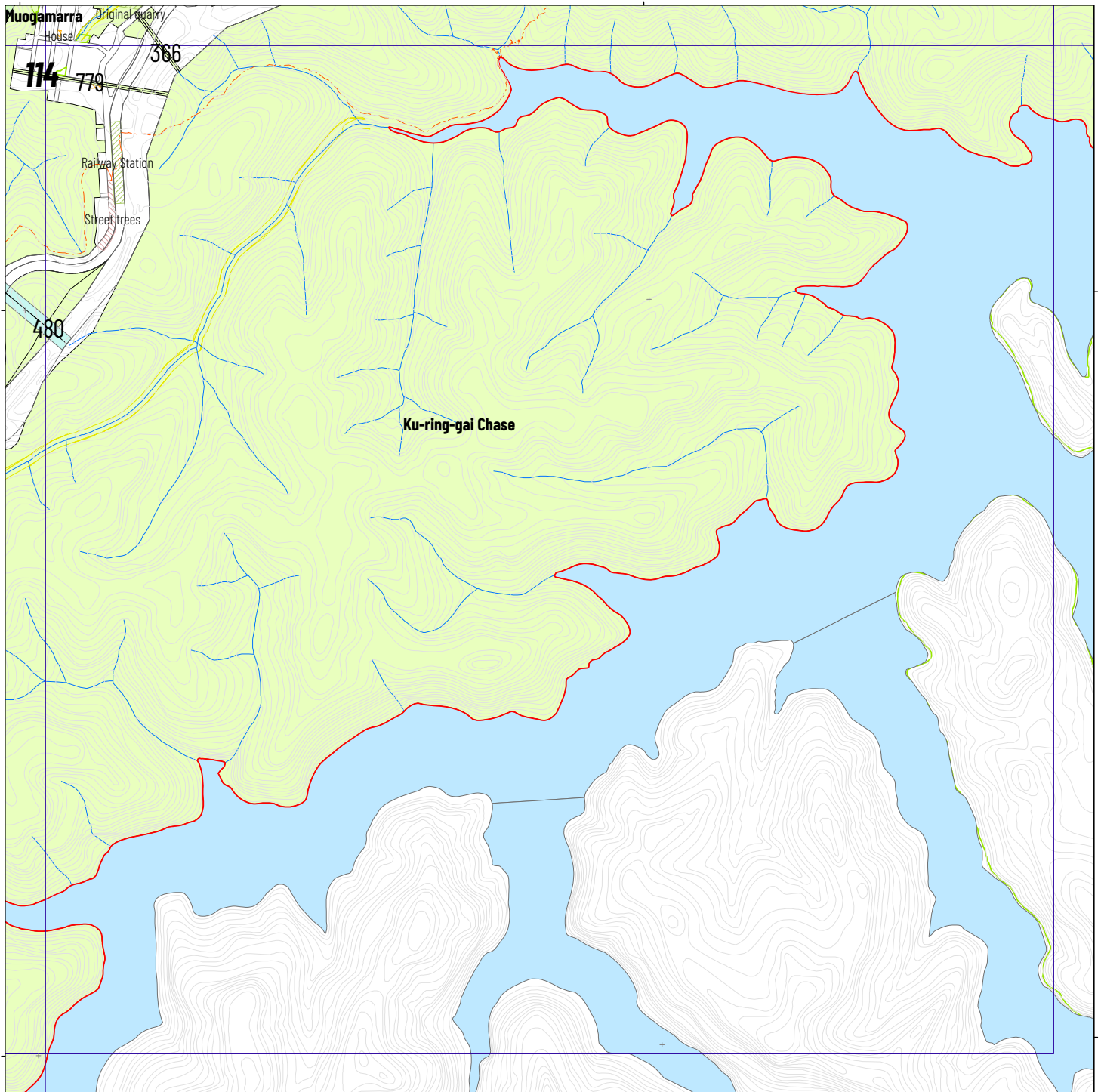
- LEP Terrestrial Biodiversity
- TEC
- Conservation Area - General
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- Item - General
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- TEC 30 metre buffer

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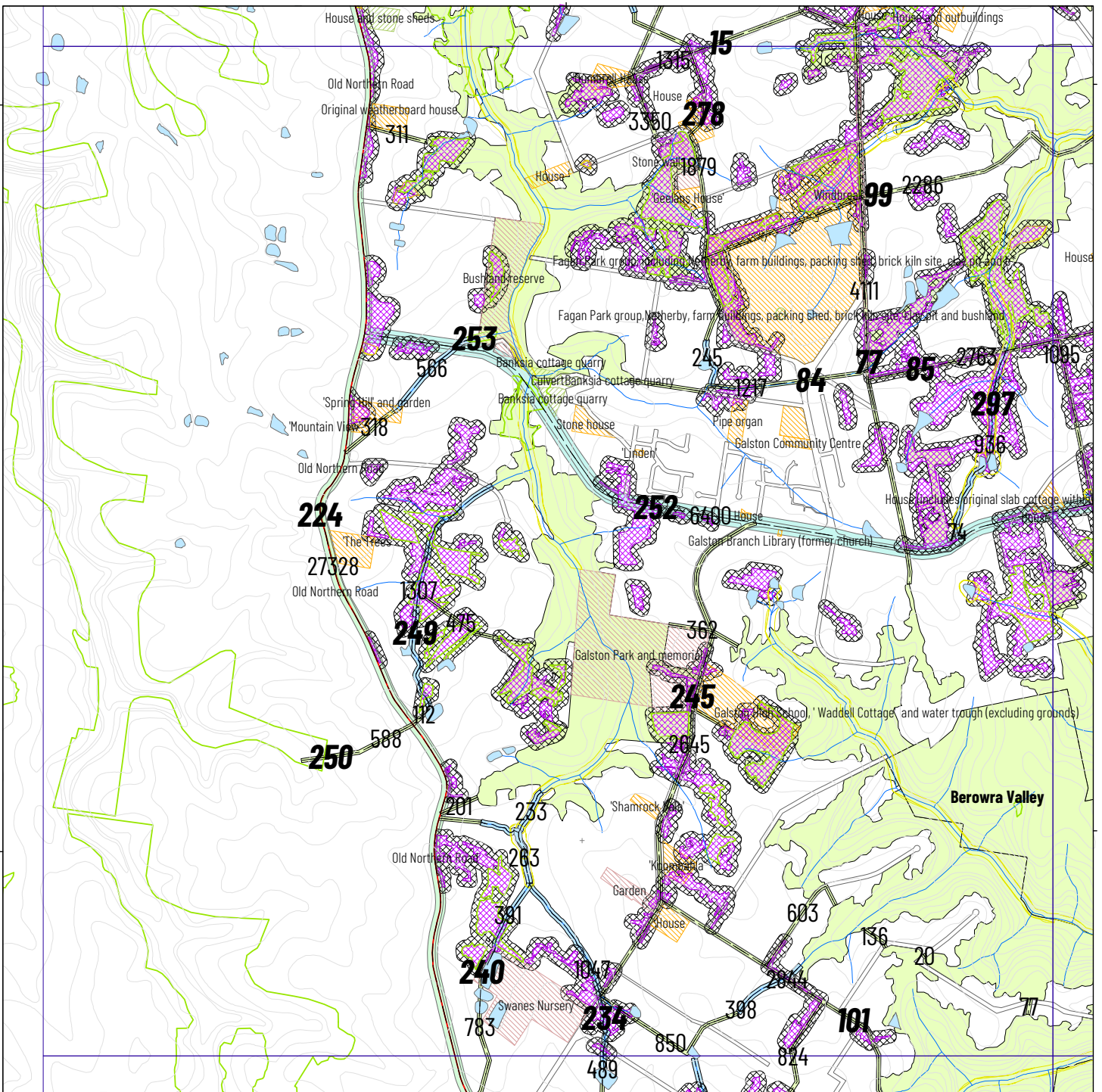
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	26	27	28		
	29	30			

- ▭ Hornsby LGA 2016
- ▭ Waterbodies
- ▭ Hydrology
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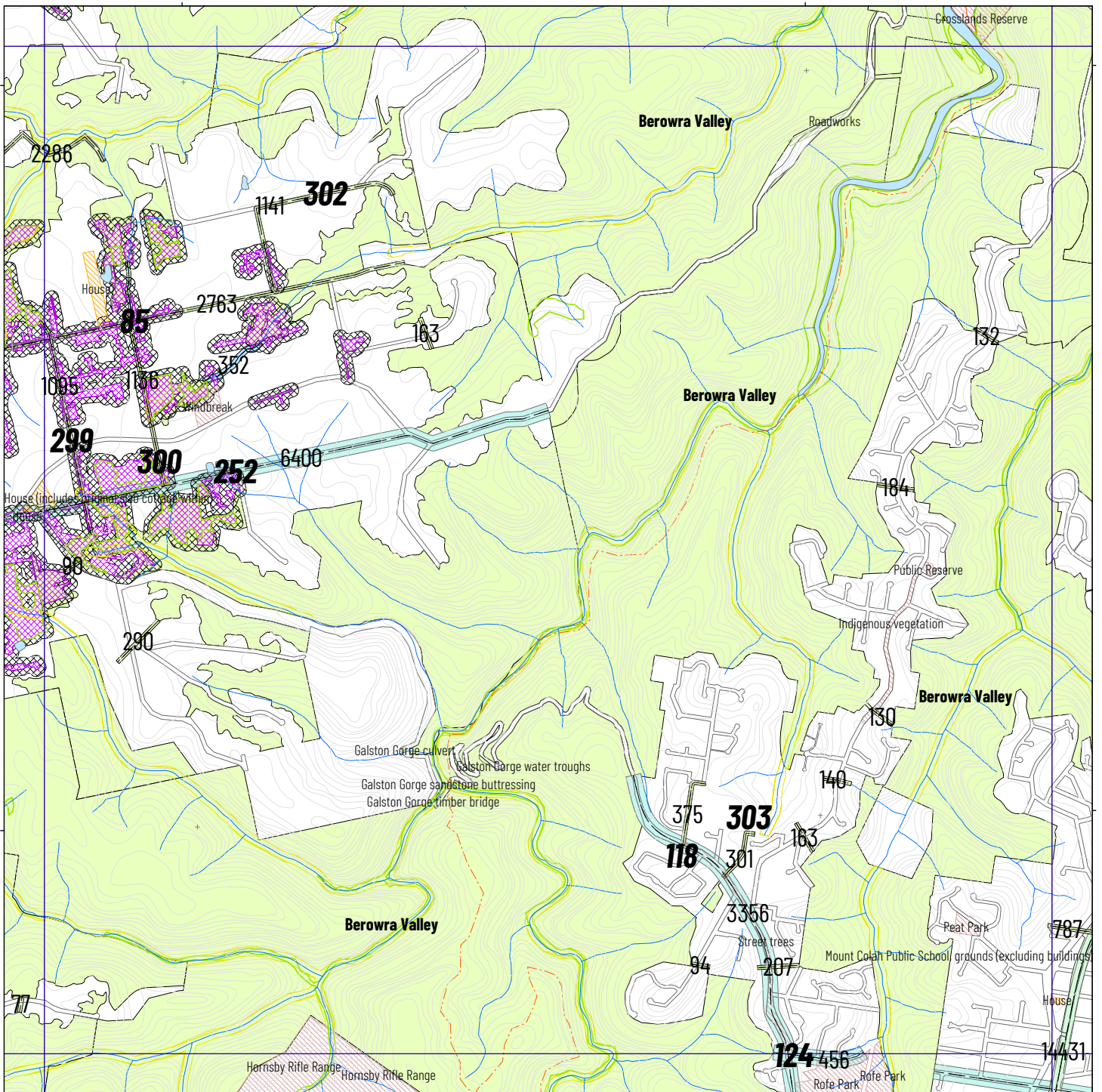
- ▭ Hornsby LGA 2016
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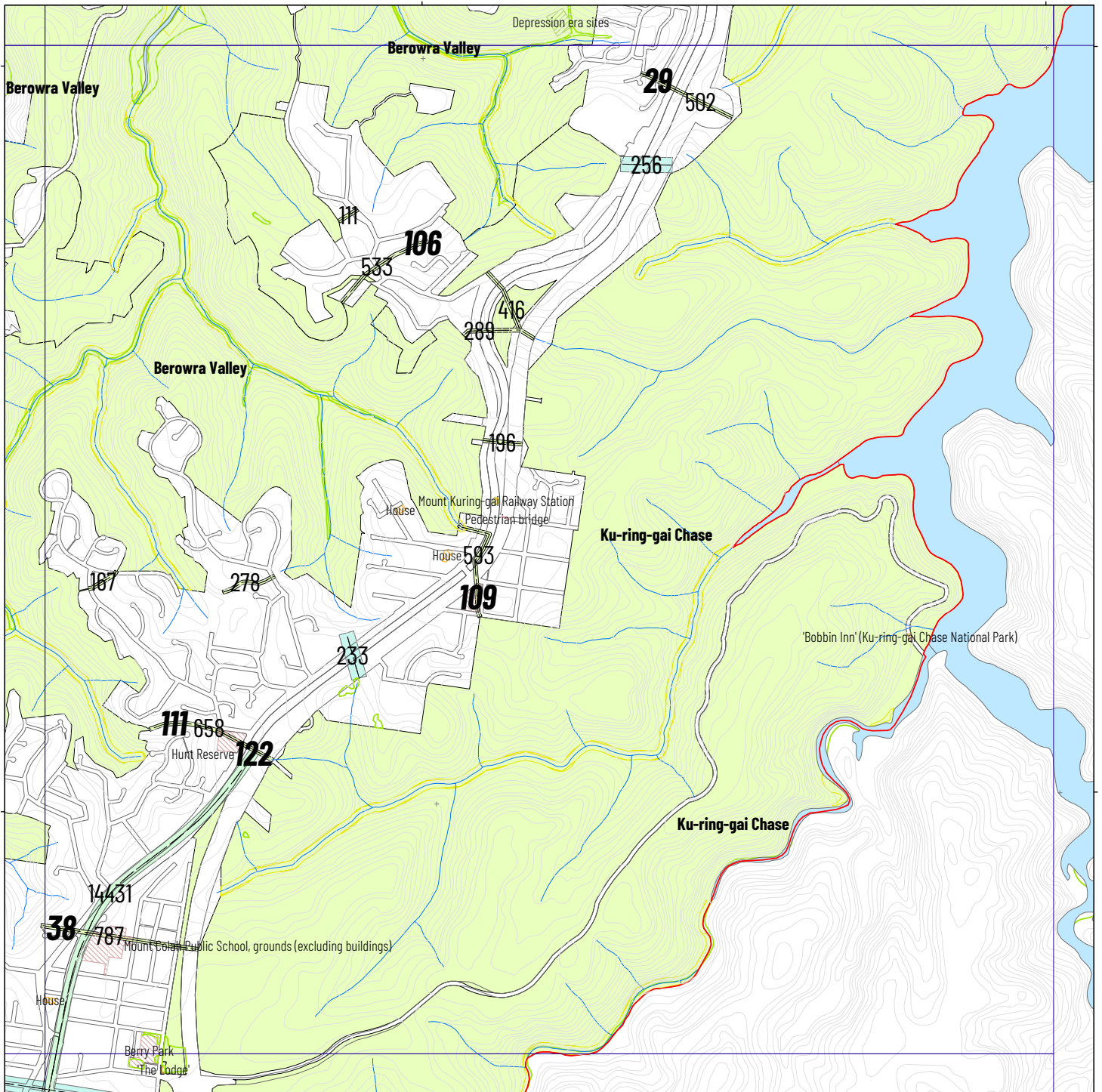
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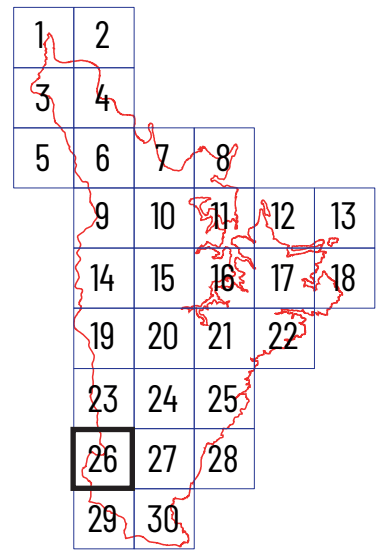


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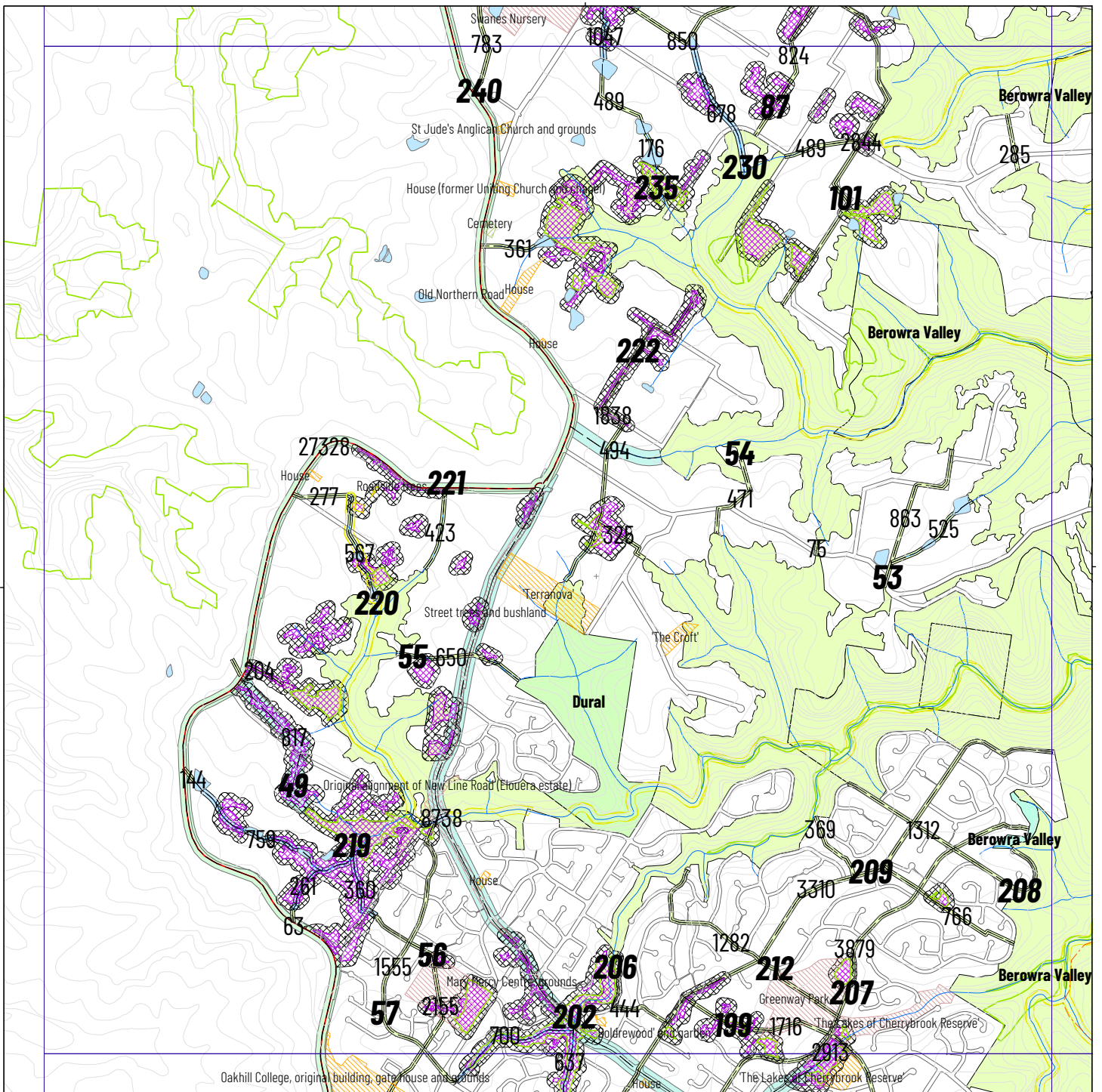
- ▬ Hornsby LGA 2016
- ▬ Waterbodies
- ▬ Hydrology
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- - - Great North Walk alignment
- ▬ IUCN category Ia protected areas
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- ▬ Contours (5 metre interval)
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- TEC
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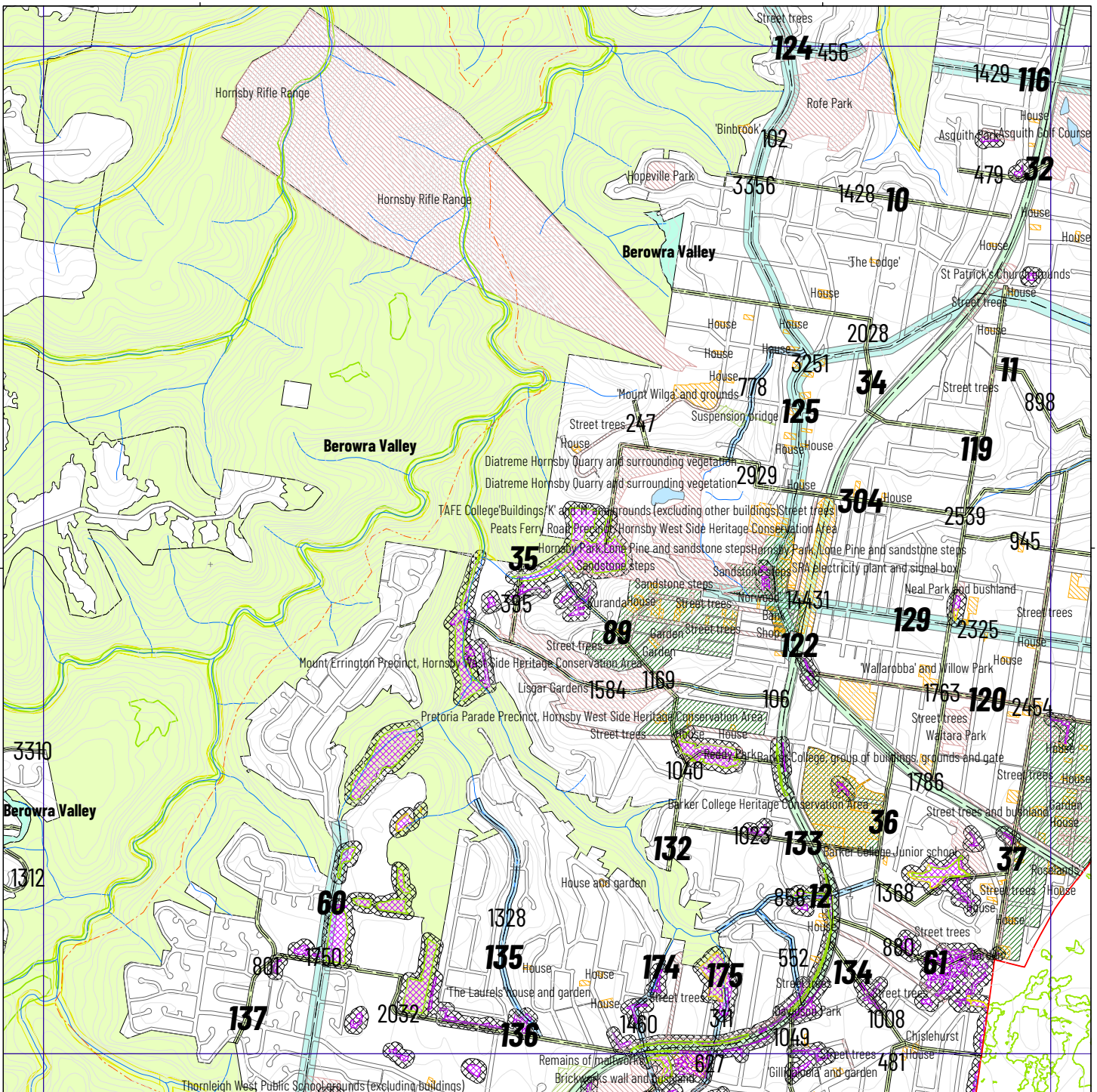
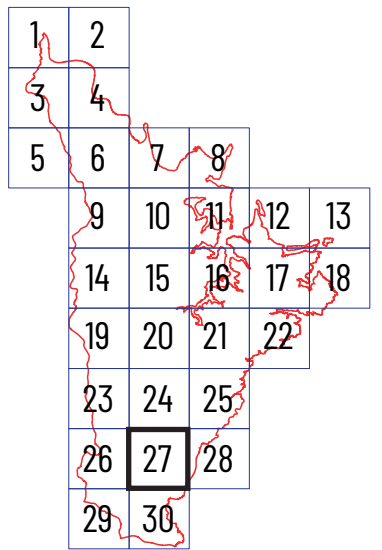


- ▬ Hornsby LGA 2016
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- ▬ Hydrology
- ▬ Residual native vegetation
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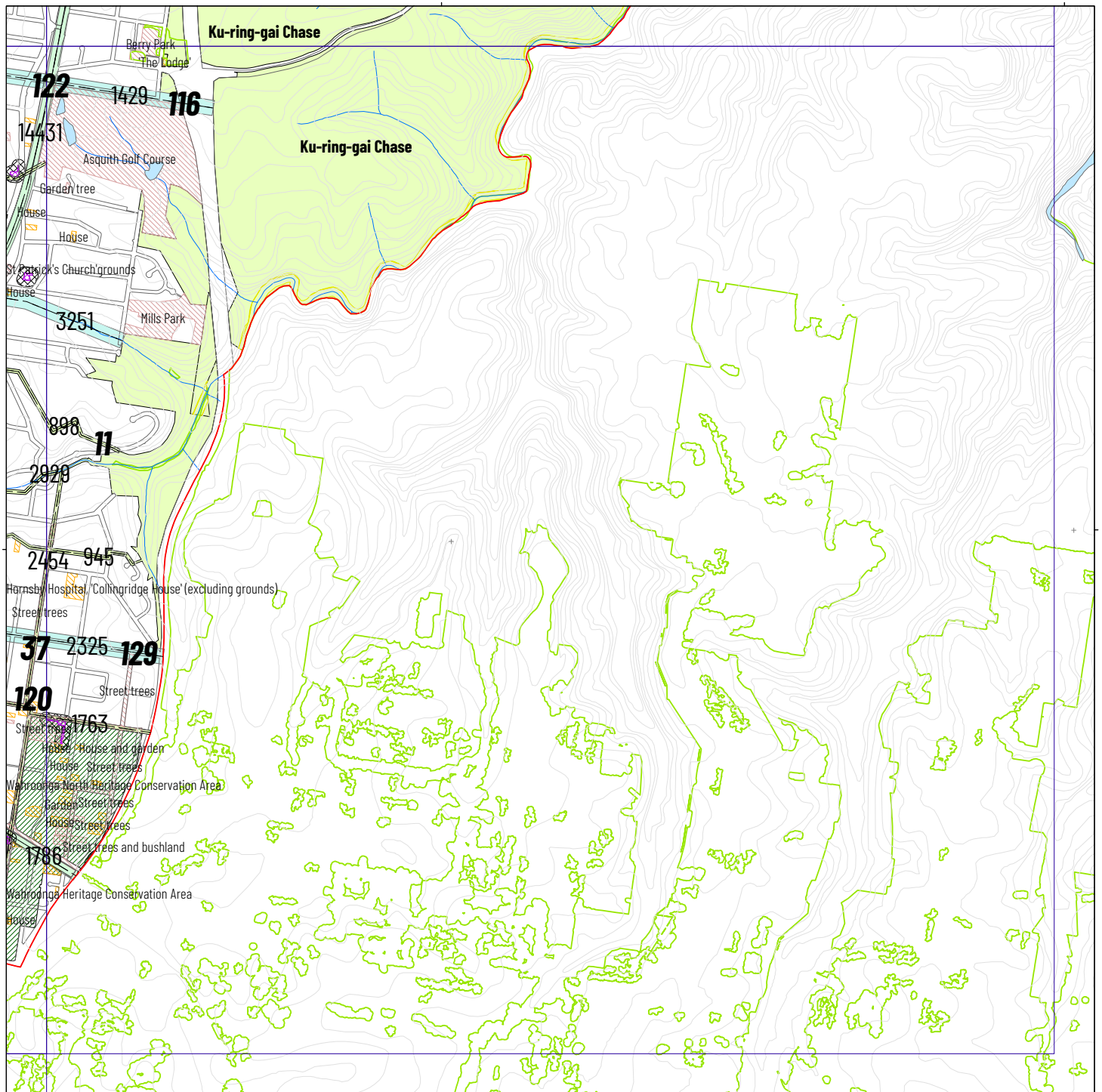
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1	2				
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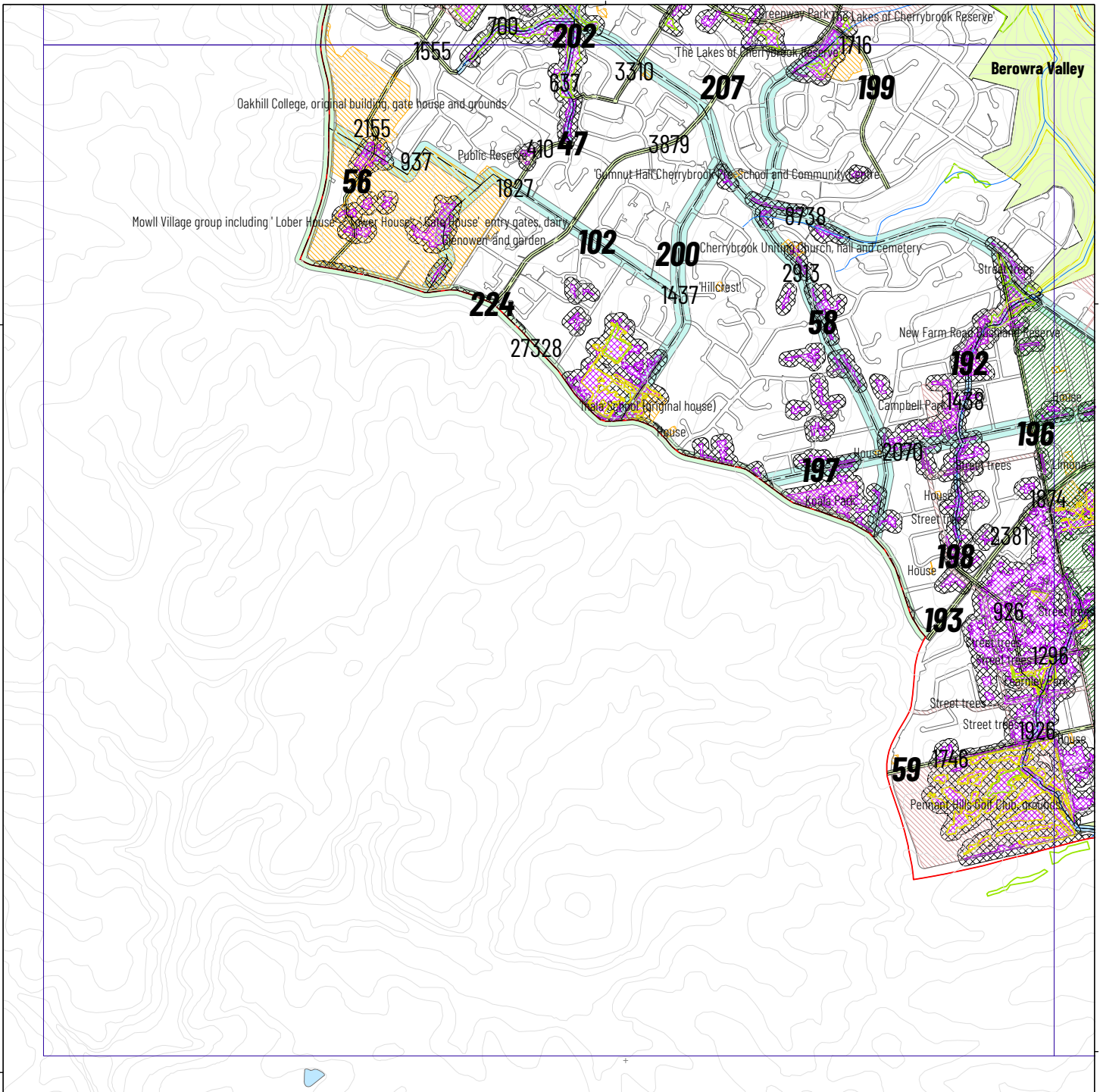
- ▬ Hornsby LGA 2016
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**41** GIF unique identity number  
**210** Corridor length (metres)

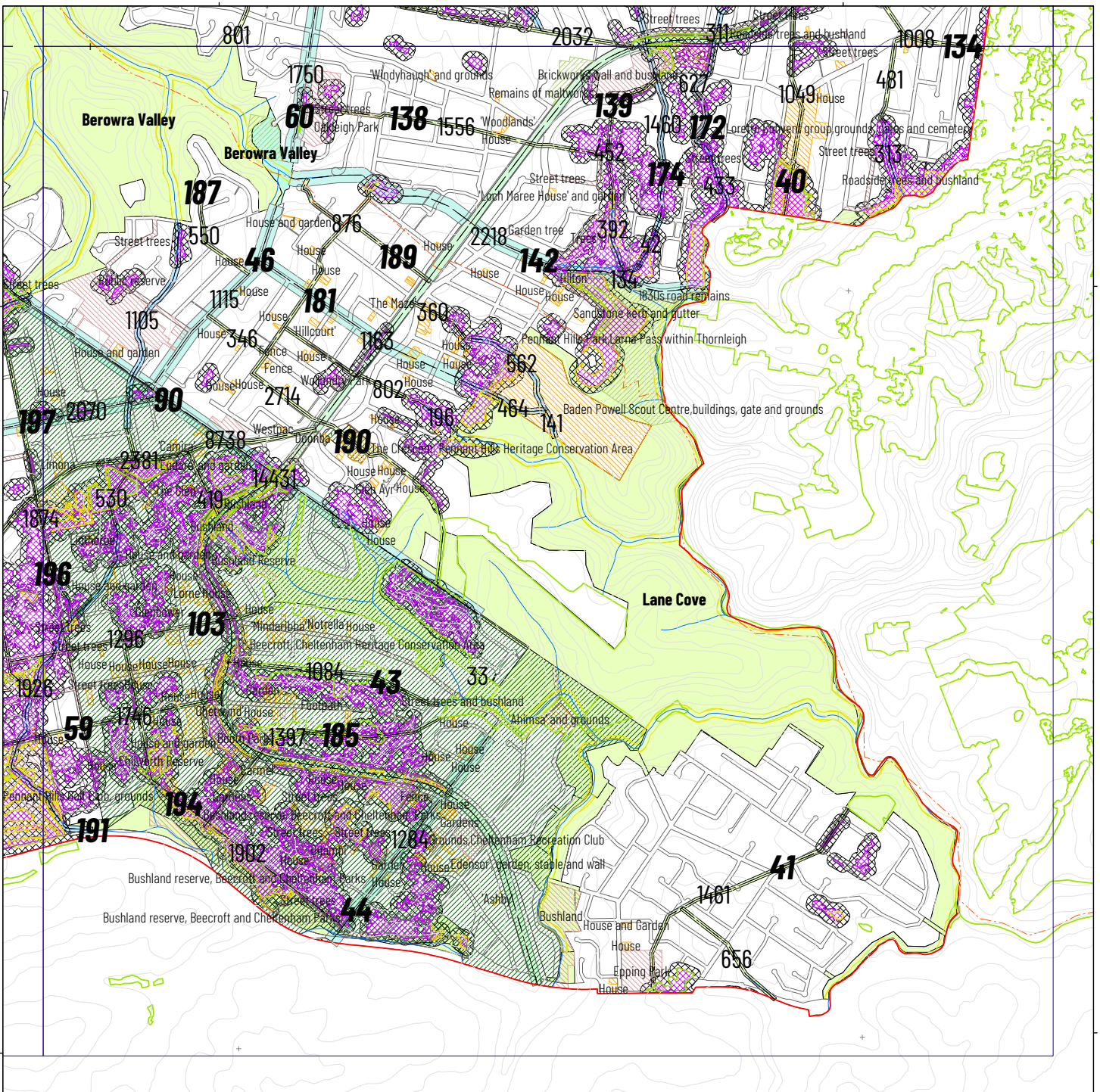
1	2				
3	4				
5	6	7	8		
	9	10	11	12	13
	14	15	16	17	18
	19	20	21	22	
	23	24	25		
	26	27	28		
	29	30			



1	2				
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	9	10	11	12	13
	14	15	16	17	18
	19	20	21	22	
	23	24	25		
	26	27	28		
	29	30			

- ▬ Hornsby LGA 2016
- ▬ Waterbodies
- ▬ Hydrology
- ▬ Residual native vegetation
- ▬ Great North Walk alignment
- ▬ IUCN category Ia protected areas
- ▬ IUCN category II protected areas
- ▬ IUCN category V protected areas
- ▬ Contours (5 metre interval)
- LEP Terrestrial Biodiversity
- TEC
- Conservation Area - General
- Item - Archeological
- Item - General
- Item - Landscape
- Item - descriptions
- TEC 30 metre buffer
- GIF - 20 metre 'urban'
- GIF - 30 metre 'hydrological'
- GIF - 50 metre 'infrastructural'
- GIF - 20 metre 'aspirational'

**41** GIF unique identity number  
**210** Corridor length (metres)



This table documents the GIF unique identity numbers, types and corridor lengths as found on the individual pages of the *map set*.

no.	Type	Length (m)	no.	Type	Length (m)	no.	Type	Length (m)	no.	Type	Length (m)	no.	Type	Length (m)	no.	Type	Length (m)
1	GIF_20m	1594	53	GIF_20m	863	105	GIF_20m	178	157	GIF_30m	6	209	GIF_20m	3310	261	GIF_20m	333
2	GIF_20m	1263	54	GIF_20m	471	106	GIF_20m	533	158	GIF_30m	13	210	GIF_20m	766	262	GIF_20m	789
3	GIF_20m	460	55	GIF_20m	650	107	GIF_20m	111	159	GIF_30m	6	211	GIF_20m	369	263	GIF_20m	67
4	GIF_20m	232	56	GIF_20m	2155	108	GIF_20m	289	160	GIF_30m	6	212	GIF_20m	1282	264	GIF_20m	1678
5	GIF_20m	204	57	GIF_20m	1555	109	GIF_20m	593	161	GIF_30m	8	213	GIF_30m	48	265	GIF_20m	420
6	GIF_20m	184	58	GIF_75m	2913	110	GIF_75m	233	162	GIF_30m	9	214	GIF_30m	261	266	GIF_20m	145
7	GIF_20m	130	59	GIF_20m	1746	111	GIF_20m	658	163	GIF_30m	9	215	GIF_30m	182	267	GIF_20m	138
8	GIF_20m	163	60	GIF_75m	1750	112	GIF_20m	278	164	GIF_30m	18	216	GIF_30m	759	268	GIF_20m	143
9	GIF_20m	207	61	GIF_20m	880	113	GIF_20m	167	165	GIF_30m	7	217	GIF_20m	144	269	GIF_20m	166
10	GIF_20m	1428	62	GIF_30m	552	114	GIF_20m	779	166	GIF_30m	1	218	GIF_20m	63	270	GIF_75m	441
11	GIF_20m	898	63	GIF_20m	102	115	GIF_20m	388	167	GIF_30m	6	219	GIF_30m	360	271	GIF_20m	881
12	GIF_30m	858	64	GIF_75m	256	116	GIF_75m	1429	168	GIF_30m	7	220	GIF_20m	567	272	GIF_20m	68
13	GIF_20m	92	65	GIF_20m	60	117	GIF_75m	3356	169	GIF_30m	7	221	GIF_20m	423	273	GIF_20m	397
14	GIF_20m	85	66	GIF_20m	94	118	GIF_20m	375	170	GIF_30m	7	222	GIF_20m	1838	274	GIF_20m	21
15	GIF_20m	1315	67	GIF_20m	270	119	GIF_20m	2539	171	GIF_30m	433	223	GIF_75m	494	275	GIF_20m	616
16	GIF_20m	163	68	GIF_20m	165	120	GIF_20m	1763	172	GIF_30m	627	224	GIF_50m	27328	276	GIF_20m	3350
17	GIF_20m	290	69	GIF_20m	572	121	GIF_50m	1786	173	GIF_20m	215	225	GIF_20m	325	277	GIF_30m	731
18	GIF_20m	90	70	GIF_20m	392	122	GIF_50m	14431	174	GIF_30m	1460	226	GIF_20m	525	278	GIF_20m	1879
19	GIF_75m	480	71	GIF_20m	119	123	GIF_20m	140	175	GIF_30m	311	227	GIF_20m	361	279	GIF_30m	484
20	GIF_20m	366	72	GIF_20m	18	124	GIF_75m	456	176	GIF_30m	313	228	GIF_20m	285	280	GIF_20m	293
21	GIF_20m	103	73	GIF_20m	39	125	GIF_75m	3251	177	GIF_20m	481	229	GIF_20m	489	281	GIF_20m	890
22	GIF_20m	148	74	GIF_20m	244	126	GIF_30m	0	178	GIF_30m	141	230	GIF_30m	678	282	GIF_30m	174
23	GIF_20m	180	75	GIF_20m	47	127	GIF_30m	778	179	GIF_30m	562	231	GIF_30m	398	283	GIF_30m	268
24	GIF_20m	154	76	GIF_20m	813	128	GIF_20m	247	180	GIF_30m	464	232	GIF_30m	263	284	GIF_20m	498
25	GIF_20m	190	77	GIF_20m	4111	129	GIF_75m	2325	181	GIF_75m	1163	233	GIF_30m	206	285	GIF_20m	1831
26	GIF_20m	1617	78	GIF_20m	2019	130	GIF_20m	1584	182	GIF_30m	196	234	GIF_30m	1047	286	GIF_20m	860
27	GIF_20m	620	79	GIF_20m	333	131	GIF_20m	106	183	GIF_20m	802	235	GIF_20m	176	287	GIF_20m	619
28	GIF_20m	776	80	GIF_20m	114	132	GIF_20m	1040	184	GIF_20m	33	236	GIF_30m	233	288	GIF_20m	1964
29	GIF_20m	502	81	GIF_75m	487	133	GIF_20m	1023	185	GIF_20m	1397	237	GIF_30m	391	289	GIF_20m	265
30	GIF_20m	416	82	GIF_20m	1447	134	GIF_20m	1008	186	GIF_20m	346	238	GIF_20m	489	290	GIF_20m	887
31	GIF_20m	196	83	GIF_20m	566	135	GIF_30m	1328	187	GIF_20m	550	239	GIF_20m	208	291	GIF_20m	139
32	GIF_20m	479	84	GIF_20m	1217	136	GIF_20m	2032	188	GIF_30m	1105	240	GIF_20m	783	292	GIF_20m	333
33	GIF_20m	94	85	GIF_20m	2763	137	GIF_20m	801	189	GIF_20m	876	241	GIF_20m	850	293	GIF_20m	136
34	GIF_20m	2028	86	GIF_20m	201	138	GIF_20m	1556	190	GIF_20m	2714	242	GIF_20m	20	294	GIF_20m	97
35	GIF_20m	395	87	GIF_20m	824	139	GIF_20m	452	191	GIF_30m	1926	243	GIF_20m	603	295	GIF_20m	84
36	GIF_20m	1368	88	GIF_20m	945	140	GIF_30m	392	192	GIF_30m	1438	244	GIF_20m	136	296	GIF_30m	245
37	GIF_20m	2454	89	GIF_20m	1169	141	GIF_30m	134	193	GIF_20m	2381	245	GIF_20m	2645	297	GIF_30m	936
38	GIF_20m	787	90	GIF_75m	8738	142	GIF_75m	2218	194	GIF_20m	1902	246	GIF_20m	362	298	GIF_30m	74
39	GIF_20m	132	91	GIF_20m	463	143	GIF_30m	9	195	GIF_20m	530	247	GIF_20m	186	299	GIF_20m	1095
40	GIF_20m	1049	92	GIF_20m	524	144	GIF_30m	9	196	GIF_20m	1874	248	GIF_20m	475	300	GIF_20m	1136
41	GIF_20m	1461	93	GIF_20m	1046	145	GIF_30m	9	197	GIF_75m	2070	249	GIF_30m	1307	301	GIF_30m	352
42	GIF_20m	656	94	GIF_20m	1033	146	GIF_30m	9	198	GIF_20m	926	250	GIF_20m	588	302	GIF_20m	1141
43	GIF_20m	1084	95	GIF_20m	3123	147	GIF_30m	9	199	GIF_20m	1716	251	GIF_20m	112	303	GIF_20m	301
44	GIF_75m	1284	96	GIF_20m	374	148	GIF_30m	10	200	GIF_75m	1437	252	GIF_75m	6400	304	GIF_20m	2929
45	GIF_20m	419	97	GIF_75m	1585	149	GIF_30m	42	201	GIF_75m	937	253	GIF_30m	566	<b>TOTAL</b>		<b>275832</b>
46	GIF_75m	1115	98	GIF_75m	1238	150	GIF_30m	7	202	GIF_30m	637	254	GIF_20m	318			
47	GIF_20m	410	99	GIF_20m	2286	151	GIF_30m	13	203	GIF_30m	700	255	GIF_20m	311			
48	GIF_20m	92	100	GIF_20m	77	152	GIF_30m	6	204	GIF_30m	143	256	GIF_20m	577			
49	GIF_75m	817	101	GIF_20m	2844	153	GIF_30m	6	205	GIF_20m	419	257	GIF_20m	755			
50	GIF_20m	277	102	GIF_75m	1827	154	GIF_30m	17	206	GIF_20m	444	258	GIF_30m	1310			
51	GIF_20m	204	103	GIF_20m	1296	155	GIF_30m	14	207	GIF_20m	3879	259	GIF_30m	505			
52	GIF_20m	75	104	GIF_20m	360	156	GIF_30m	9	208	GIF_20m	1312	260	GIF_30m	745			

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## Photography and figures used in this report

All photographic images of animals and plants are attributed to Alan Kwok (2019) unless noted; all figures in the report were developed by Rhizome unless noted:

- (1) Rhizome
- (2) [https://upload.wikimedia.org/wikipedia/commons/0/02/Waratah\\_%28339570006%29.jpg](https://upload.wikimedia.org/wikipedia/commons/0/02/Waratah_%28339570006%29.jpg) accessed 01 May 2019
- (3) [https://www.flickr.com/photos/arthur\\_chapman/7916648670/](https://www.flickr.com/photos/arthur_chapman/7916648670/) accessed 09 May 2019
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- (18) <https://architectureau.com/articles/natalie-jeremijenko/> accessed 30 April 2019
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- (20) <https://www.tranbc.ca/2015/08/19/why-we-use-wildlife-overpasses-on-bc-highways/> 5<sup>th</sup> May 2019
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- (23) <https://www.environment.nsw.gov.au/funding-and-support/awards-and-recognition/green-globe-awards> accessed 13 May

All mapping data was sourced from Hornsby Shire Council (2019), except for: Fig. 5 (GeoScience Australia) and Fig. 13 (Commonwealth of Australia's CAPAD database)

Back cover image: Blue Tongue Lizard  
*Tiliqua scincoides* Alan Kwok (2019)

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This document contains important information. If you do not understand it, please call the Translating and Interpreting Service on 131 450. Ask them to phone 9847 6666 on your behalf to contact Hornsby Shire Council. Council's business hours are Monday to Friday, 8.30am-5pm.

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## Hindi

क्या आपको सहायता की आवश्यकता है?

इस दस्तावेज़ में महत्वपूर्ण जानकारी दी गई है। यदि आप इसे समझ न पाएँ, तो कृपया 131 450 पर अनुवाद और दुभाषिया सेवा को कॉल करें। उनसे हॉर्न्सबी शायर काउंसिल से संपर्क करने के लिए आपकी ओर से 9847 6666 पर फोन करने का निवेदन करें। काउंसिल के कार्यकाल का समय सोमवार से शुक्रवार, सुबह 8.30 बजे-शाम 5 बजे तक है।

## Korean

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본 문서에는 중요한 정보가 포함되어 있습니다. 이해가 되지 않는 내용이 있으시면, 통역번역서비스(Translating and Interpreting Service)로 전화하셔서(131 450번) 귀하를 대신하여 훈즈비 셔 카운슬에 전화(9847 6666번)를 걸어 달라고 요청하십시오. 카운슬의 업무시간은 월요일~금요일 오전 8시 30분~오후 5시입니다.

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## **Hornsby Shire Council**

ABN 20 706 996 972

### **Contact us**

PO Box 37  
Hornsby NSW 1630  
Phone: **(02) 9847 6666**  
Fax: **(02) 9847 6999**  
Email: **[hsc@hornsby.nsw.gov.au](mailto:hsc@hornsby.nsw.gov.au)**  
**[hornsby.nsw.gov.au](http://hornsby.nsw.gov.au)**

### **Visit us**

Hornsby Shire Council Administration Centre  
296 Peats Ferry Road, Hornsby NSW 2077

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