
YOUR VISION.
YOUR FUTURE.
Biodiversity
Conservation
Strategy
HORNSBY
SHIRE COUNCIL

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*.

Council recognises the Traditional Owners of the lands of Hornsby Shire, the Darug and Guringai peoples, and pays respect to their Ancestors and Elders past and present and to their Heritage. We acknowledge and uphold their intrinsic connections and continuing relationships to Country.

St Georges Cross Spider *Argiope keyserlingi* Alan Kwok (2019)

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Angophora *Angophora costata* Alan Kwok (2019)

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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]

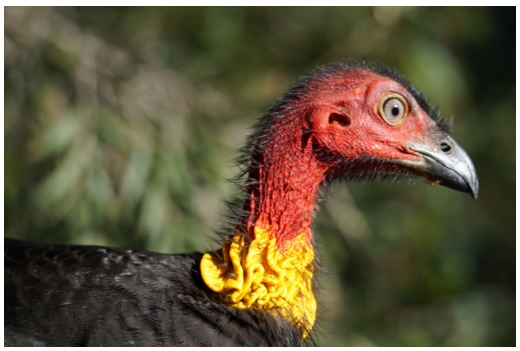
Corridors – 'Corridors are narrow, linear remnants of habitat that connect otherwise isolated habitat patches' [4] or 'a narrow strip, stepping stone, or series of stepping stones of hospitable territory traversing inhospitable territory providing access from one area to another'. [5, 6]

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 landsacpe (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
OEH – 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



(1)

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

Tawny Frogmouth *Podargus strigoides* Alan Kwok (2019)

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]

(1)

Fig 2. Rainbow Lorikeet, *Trichoglossus haematodus*

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 implmentation 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.

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.

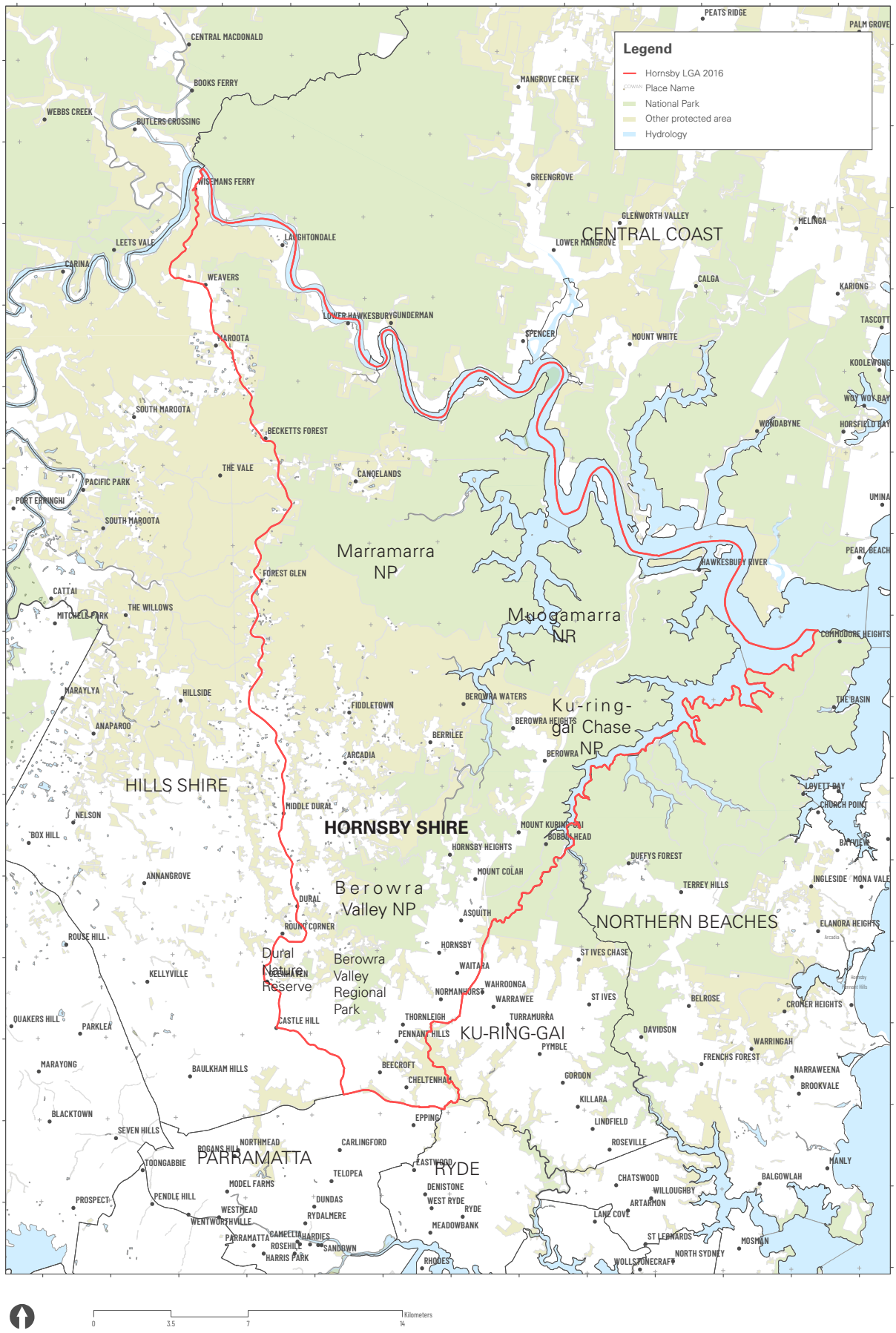


Fig 4. Hornsby Shire Council seen within the Sydney context

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

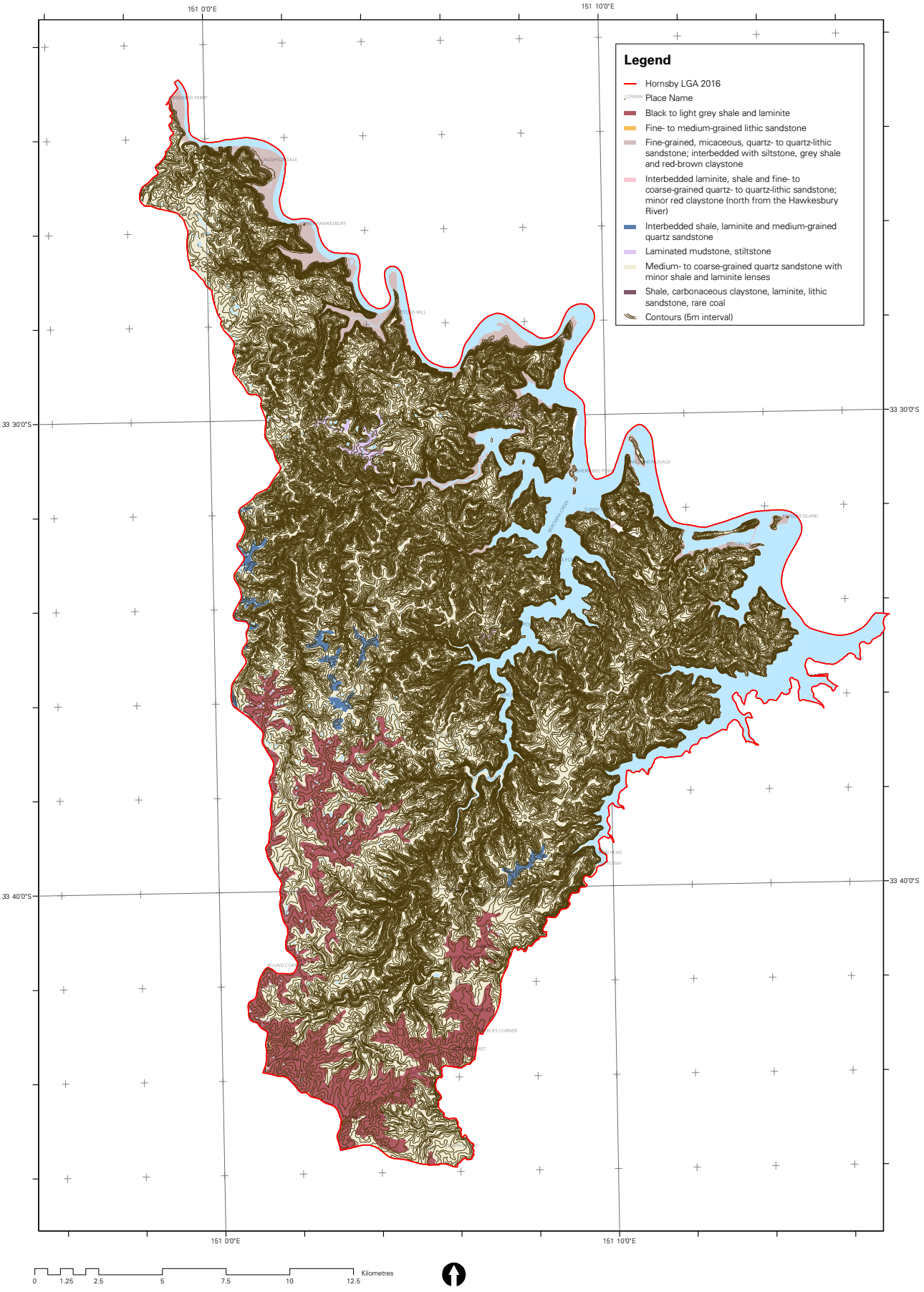


Fig 5. Hornsby Shire Geology and Landform

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, Marramarra 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, Turpentines, 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 of 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 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.

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

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 conservd 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

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*

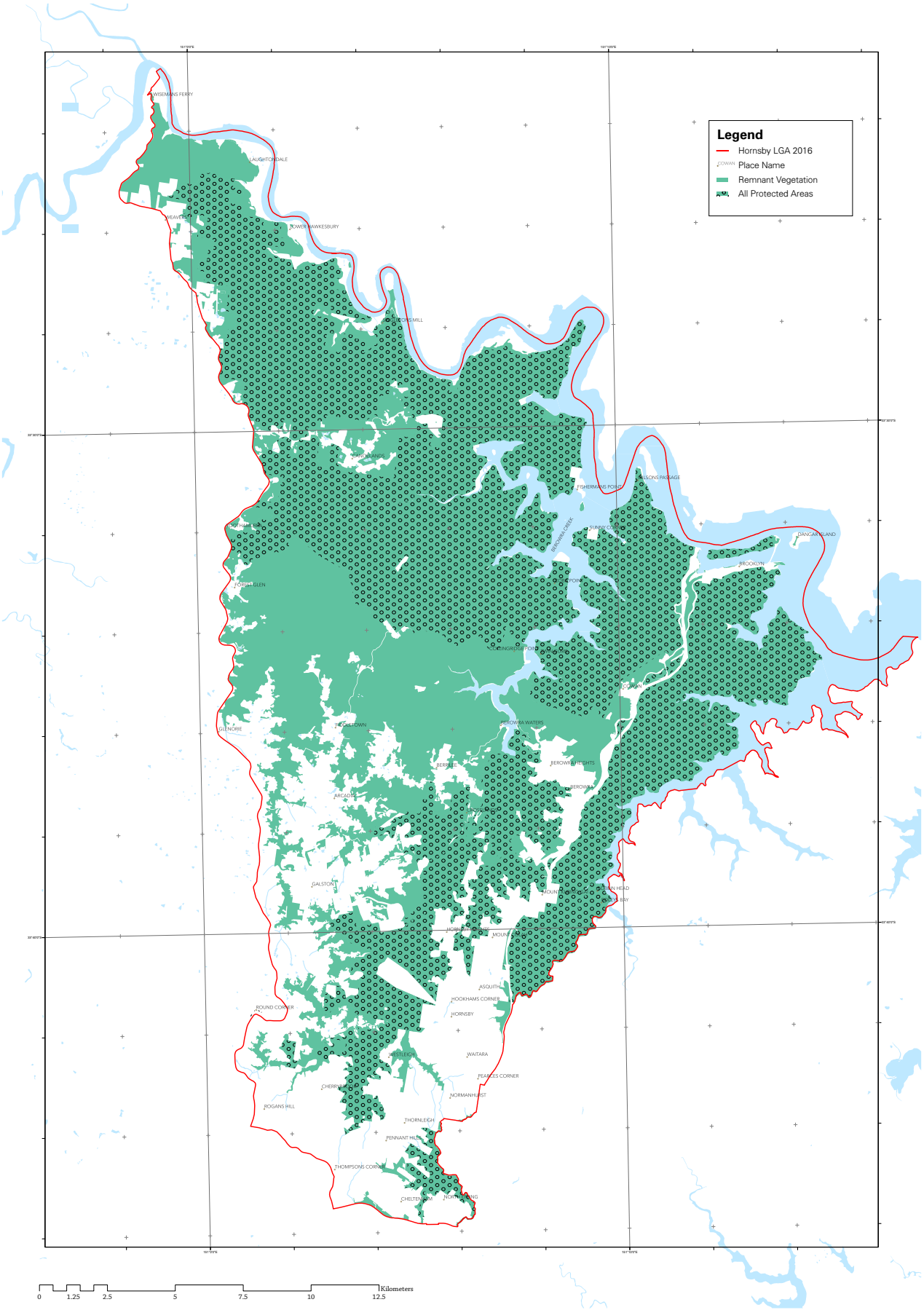


Fig 7. Remnant vegetation of Hornsby Shire

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.

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.

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

(3)

(4)

Fig 8. Sydney Turpentine *Synocarpia glomulifera*

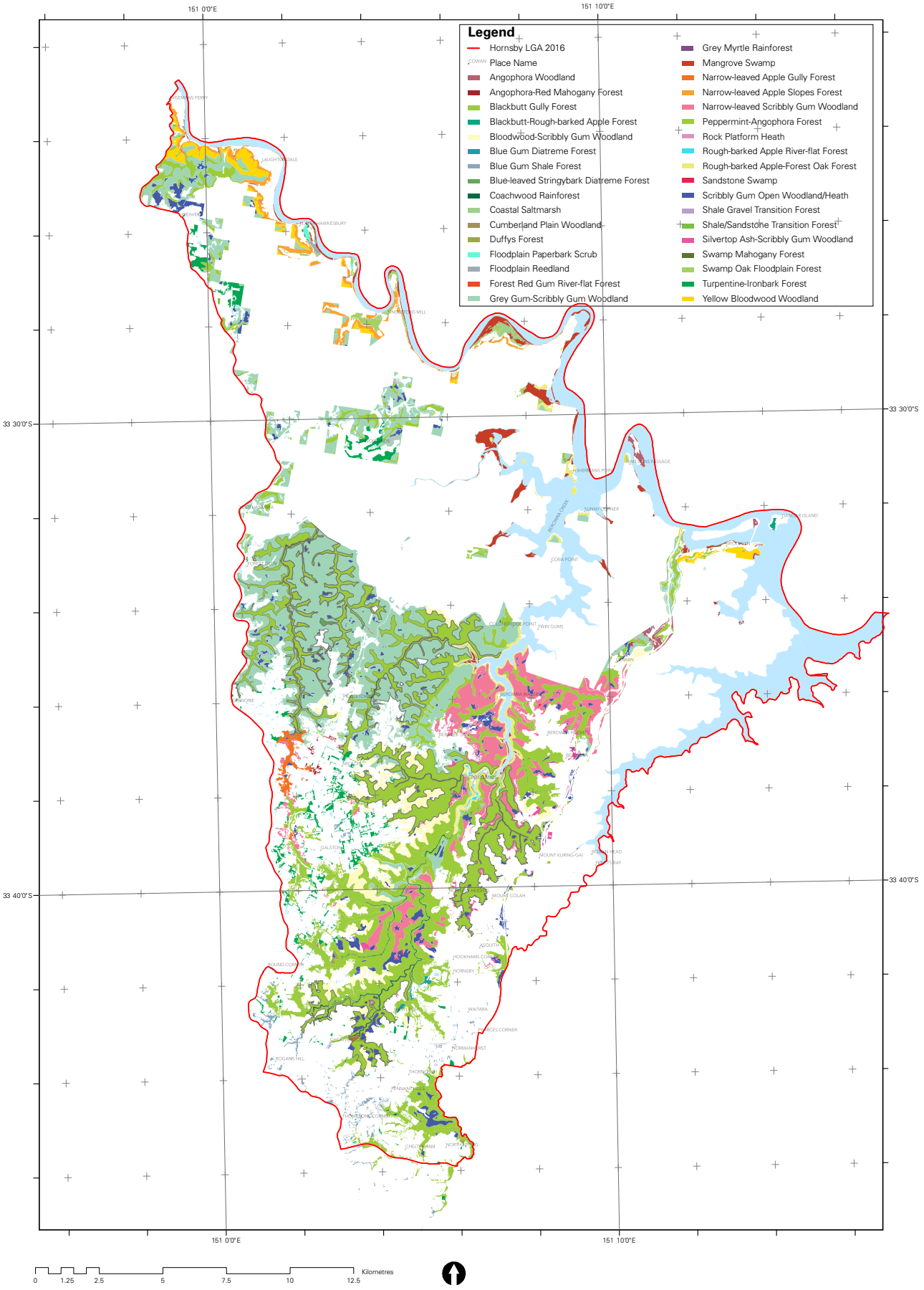


Fig 9. Hornsby's Ecological Communities as described by Smith & Smith

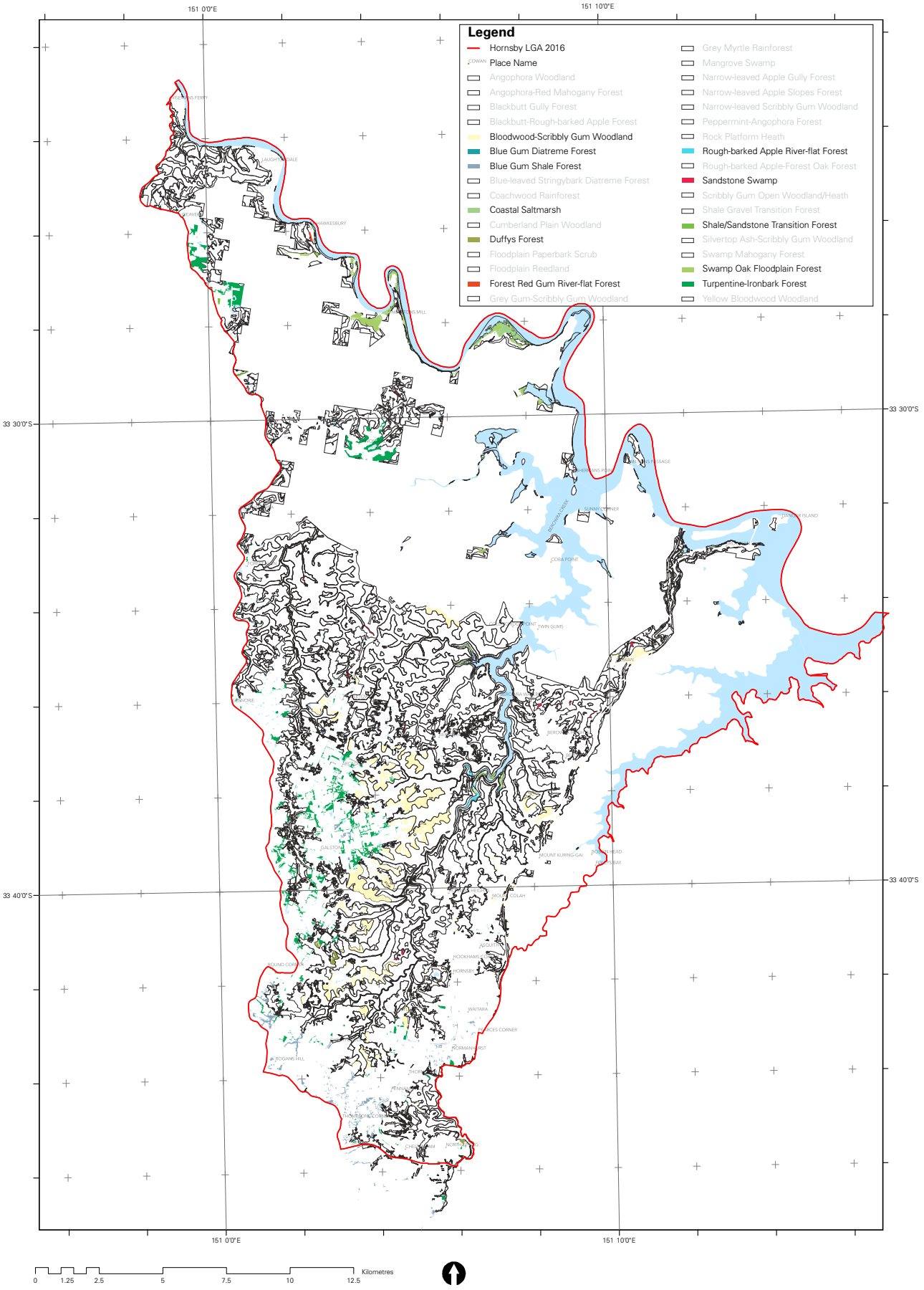


Fig 10. Hornsby's Threatened Ecological Communities

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

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

(1)

Fig 11. Jacky Lizard, *Amphibolurous muricatus*

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 further143 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 (*Isoodon obesulus obesulus*), Dural Land Snail (*Pommerhelix duralensis*) and the migratory Swift Parrot (*Lathamus discolour*), 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*

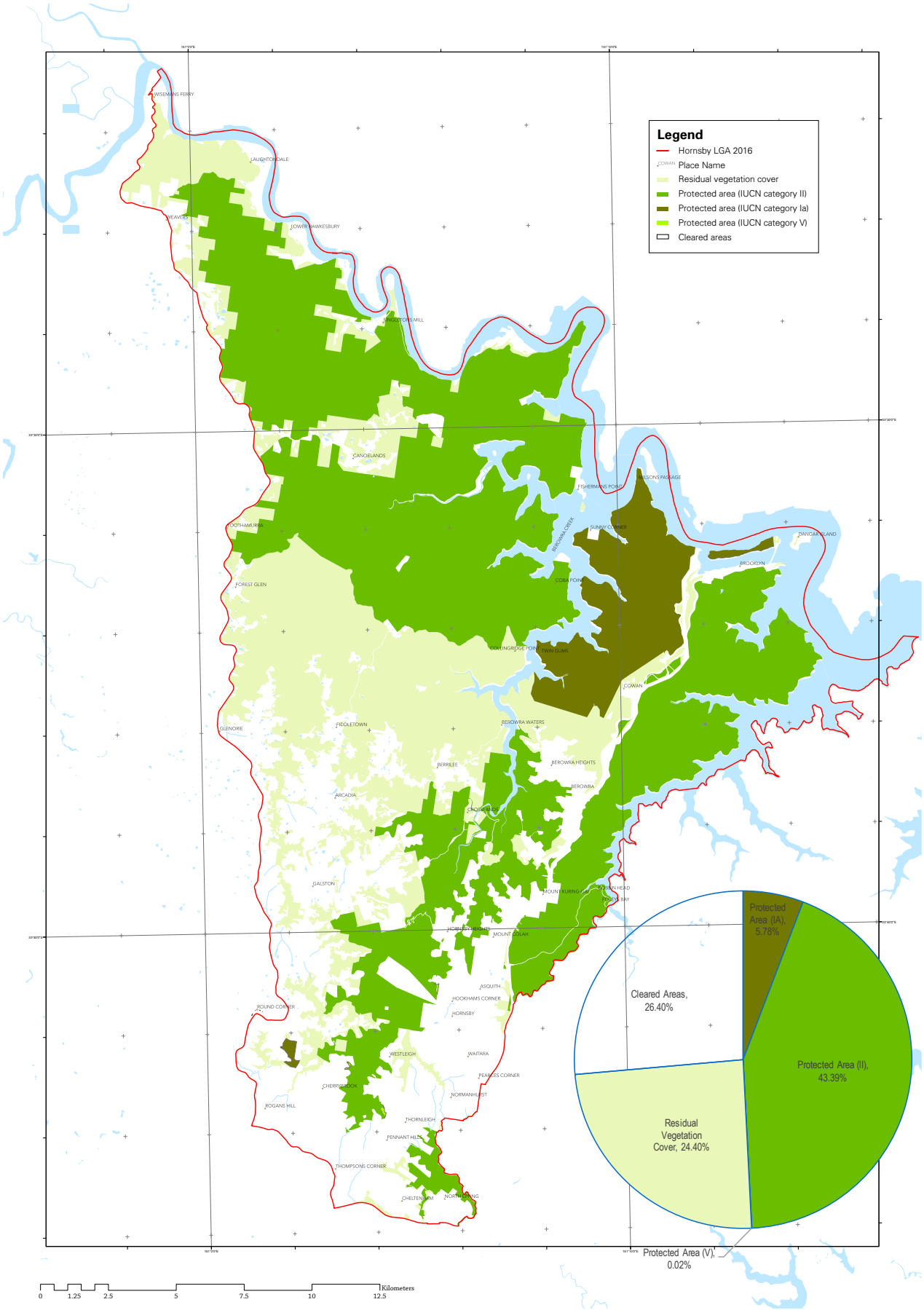


Fig 13. Protected areas in the Hornsby LGA

Scientific Name	Common name	Conservation Status NSW (Biodiversity Conservation Act 2016)	Commonwealth Status (under EPBC ACT)
Anthochaera Phrygia	Regent Honeyeater	Critically Endangered	Critically Endangered
Chalinolobus dwyeri	Large-eared Pied Bat	Vulnerable	Vulnerable
Dasyurus maculatus	Spotted-Tailed Quoll	Vulnerable	Endangered
Dermochelys coriacea	Leatherback Turtle	Endangered	Endangered
Eubalaena australis	Southern Right Whale	Endangered	Endangered
Heleioporus australiacus	Giant Burrowing Frog	Vulnerable	Vulnerable
Isoodon obesulus	Southern Brown Bandicoot	Endangered	Endangered
Lathamus discolour	Swift Parrot	Endangered	Critically Endangered
Litoria aurea	Green and Golden Bell Frog	Endangered	Vulnerable
Macronectes giganteus	Southern Giant Petrel	Endangered	Endangered
Phascolarctos cinereus	Koala	Vulnerable	Vulnerable
Pommerhelix duralensis	Dural Woodland Snail; Dural Land Snail	Endangered	Endangered
Petauroides Volans	Greater Glider	Not listed	Vulnerable
Pteropus poliocephalus	Grey-Headed Flying-Fox	Vulnerable	Vulnerable
Pseudomys novaehol-landiae	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 discolour*) 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 455km2, 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)

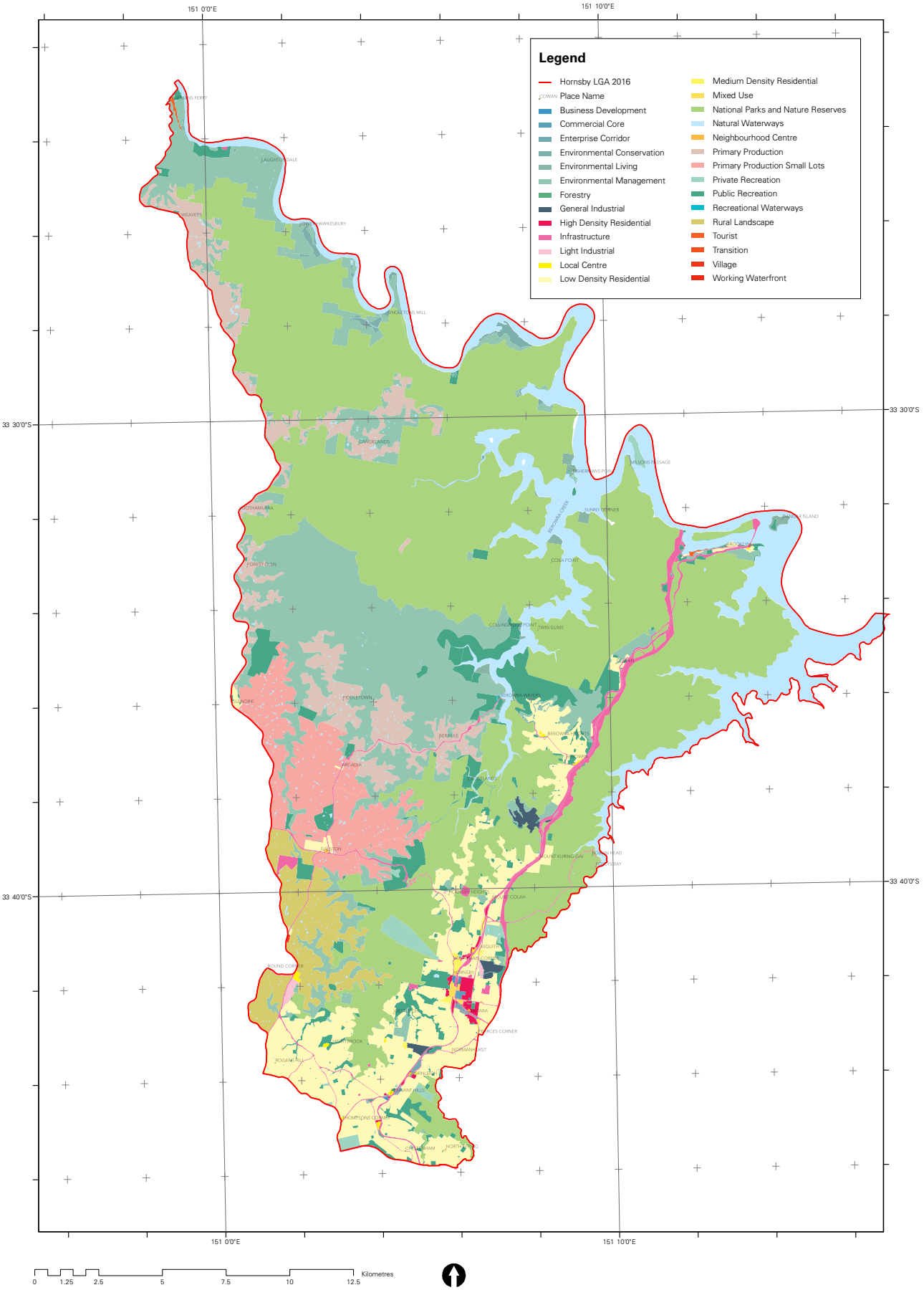


Fig 15. Land use zoning in Hornsby Local Environmental Plan 2013: a matrix of protected areas, vegetated, agricultural, urban and suburban lands

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]

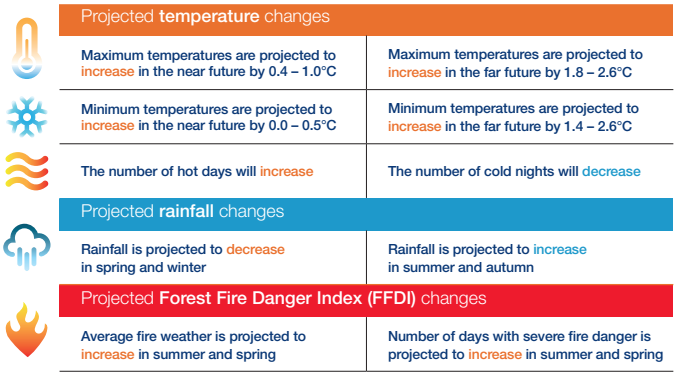


Fig 16. Climate change indicators for NSW [128]

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 propellors 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
Habitat Loss/ Change	Alteration of habitat following subsidence due to longwall mining
	Alteration to the natural flow regimes of rivers and streams and their floodplains and wetlands
	Anthropogenic Climate Change
	Bushrock removal
	Clearing of native vegetation
	High frequency fire resulting in the disruption of life cycle processes in plants and animals and loss of vegetation structure and composition
	Loss of Hollow-bearing Trees
	Loss or degradation (or both) of sites used for hill-topping by butterflies
	Removal of dead wood and dead trees
Disease	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
Pest Animal	Aggressive exclusion of birds from woodland and forest habitat by abundant Noisy Miners, *Manorina melanocephala* (Latham, 1802)
	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.
	Herbivory and environmental degradation caused by feral deer
	Importation of Red Imported Fire Ants *Solenopsis invicta* Buren 1972
	Introduction of the Large Earth Bumblebee *Bombus terrestris* (L.)
	Invasion and establishment of the Cane Toad (*Bufo marinus*)
	Invasion of the Yellow Crazy Ant, *Anoplolepis gracilipes* (Fr. Smith) into NSW
	Predation and hybridisation by Feral Dogs, *Canis lupus familiaris*
	Predation by *Gambusia holbrooki* Girard, 1859 (Plague Minnow or Mosquito Fish)
	Predation by the European Red Fox Vulpes vulpes (Linnaeus, 1758)
	Predation by the Feral Cat *Felis catus* (Linnaeus, 1758)
	Predation, habitat degradation, competition and disease transmission by Feral Pigs, Sus scrofa Linnaeus 1758
Weeds	Invasion and establishment of exotic vines and scramblers
	Invasion and establishment of Scotch Broom (*Cytisus scoparius*)
	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, establishment and spread of Lantana (*Lantana camara* L. sens. Lat)
	Loss and degradation of native plant and animal habitat by invasion of escaped garden plants, including aquatic plants
Other Threats	Forest eucalypt dieback associated with over-abundant psyllids and Bell Miners

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 communty 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

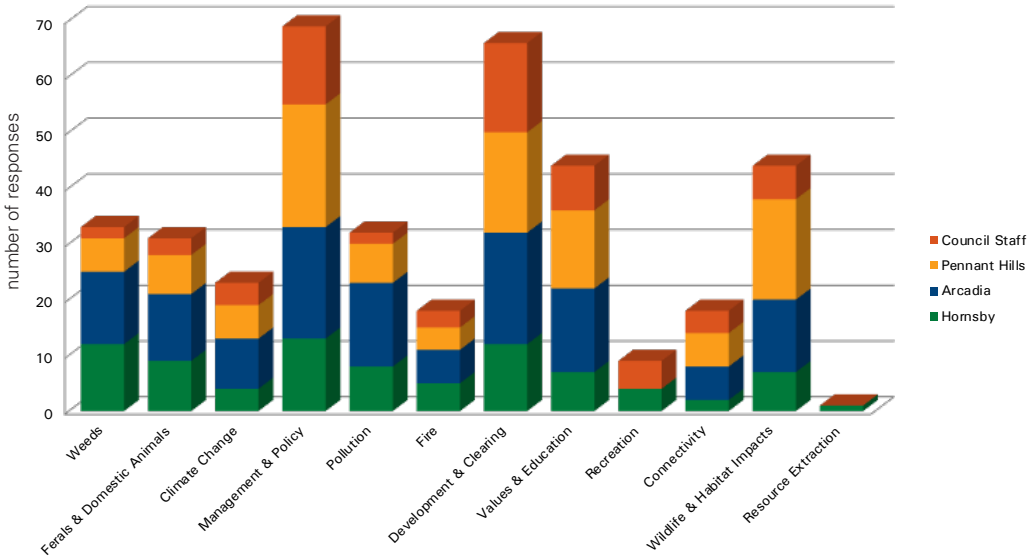


Fig 18. Community and Council staff feedback about the most significant threats and challenges to Hornsby's biodiversity

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'**

Sundew *Drosera* spp. Alan Kwok (2019)

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.

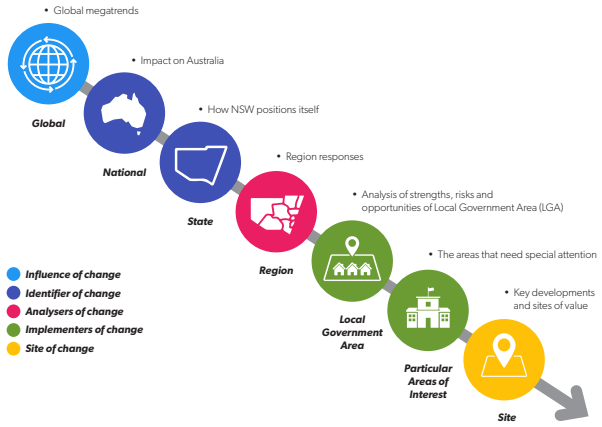


Fig 20. Diagram of the relationship of criticality of thinking across scales, from global to site

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.

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

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.

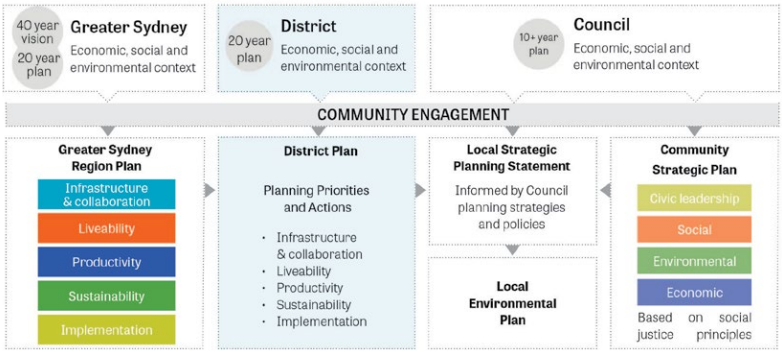


Fig 22. Relationship between regional, district and local plans

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 and 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

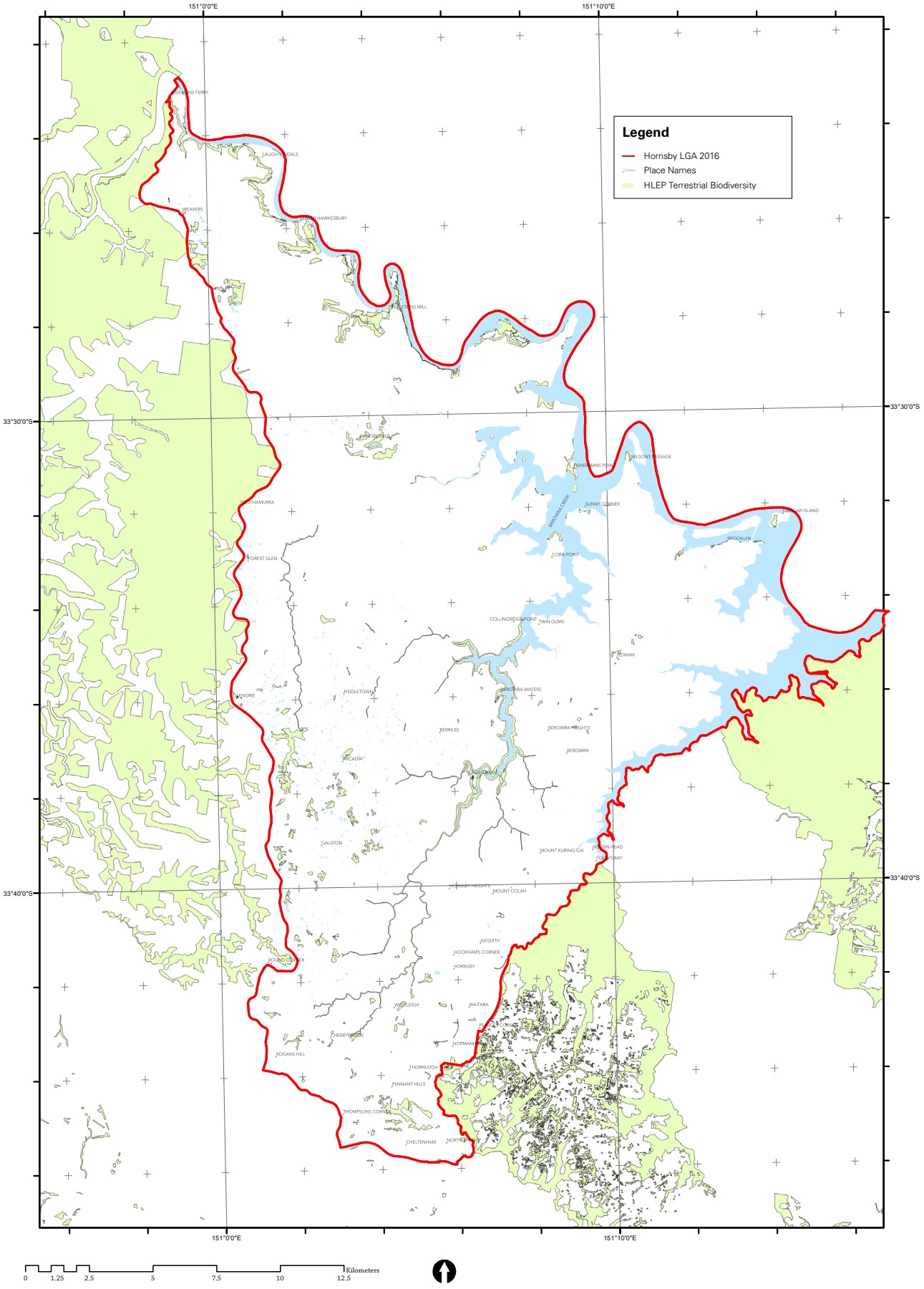


Fig 25. HLEP 'Terrestrial Biodiversity' Map

(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.

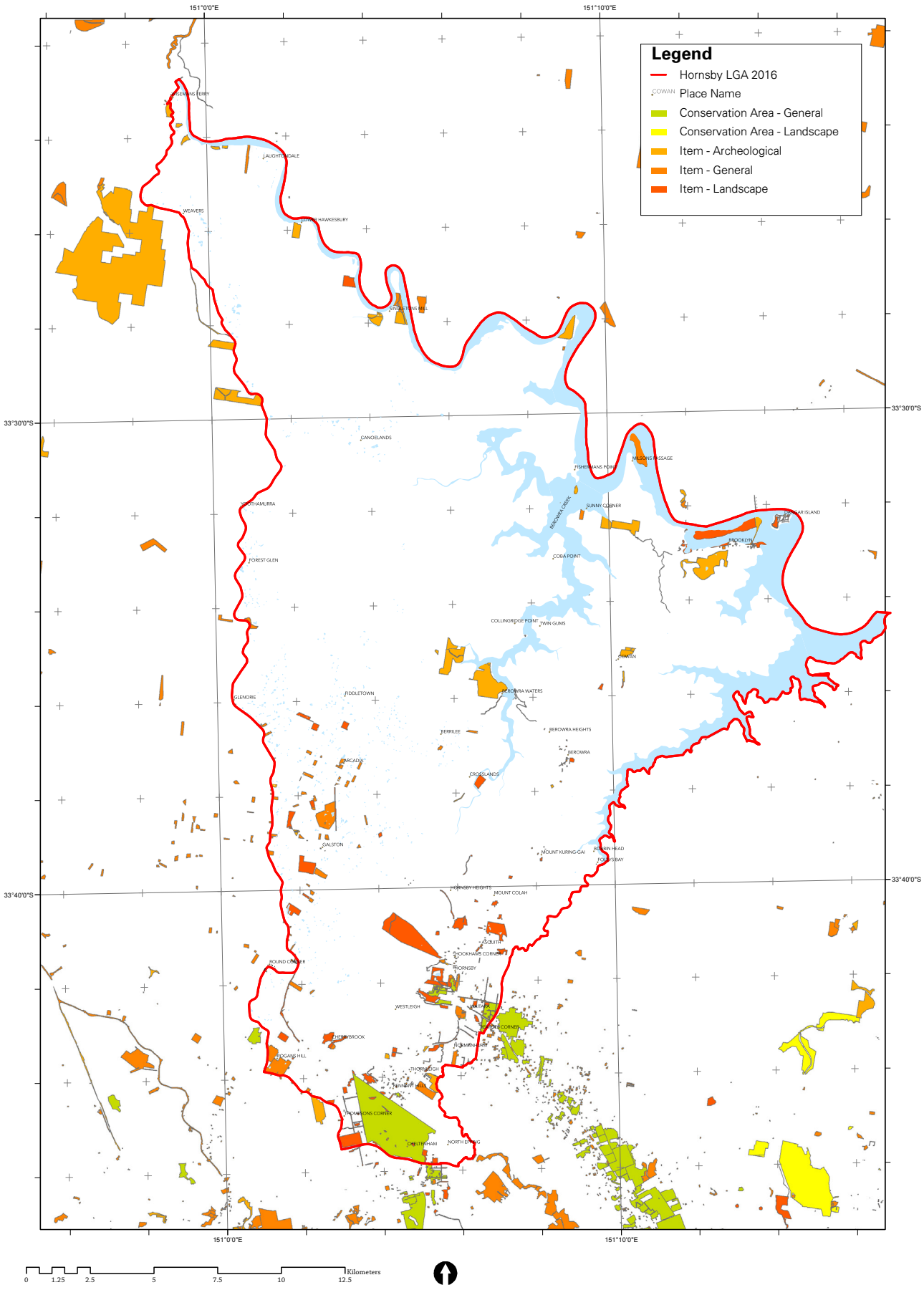


Fig 27. Additional relevant planning controls for the Hornsby Shire

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

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:
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. [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:
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. [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]

Box 7. Support for Green Infrastructure from the North District Plan

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*.

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

'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.

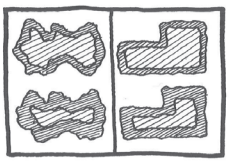
Single Large or Several Small

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]

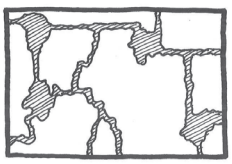
However a synopsis such as this can be overly simplistic, as many species prefer edge conditions and may benefit from greater access to light (in the instance of primary succession plant colonisation); or, for faunal species, the advantageous foraging patterns associated with such an edge.

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 co-ordinated across a small number of areas with low perimeter to area ratio.

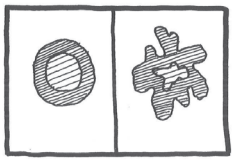
Several figures outlining particular landscape patterns of benefit are consolidated in Fig. 29.



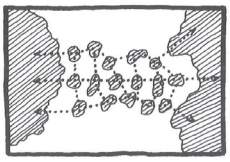
Edge cuvilinearity and width:
Curvilinearity and width of an edge combine to determine the total of edge habitat within a landscape.



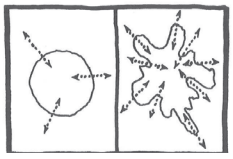
Dispersal and small connected patch:
Small patches or nodes along an existing network are effective in providing habitat in which individuals pause and/or breed, resulting in a higher survival rate for dispersing individuals and, hence, more dispersing individuals in the network.



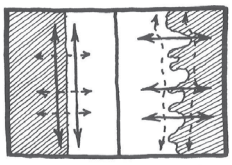
Edge and interior species:
A more convoluted patch will have a higher proportion of edge habitat, thereby slightly increasing the number of edge species, but sharply decreasing the number of interior species including those of conservation importance.



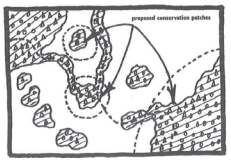
Cluster of stepping stones:
The optimal spatial arrangement of a cluster of stepping stones between large patches provides alternative or redundant routes, while maintaining an overall linearly-oriented array between the large patches.



Interraction 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 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.

(7)

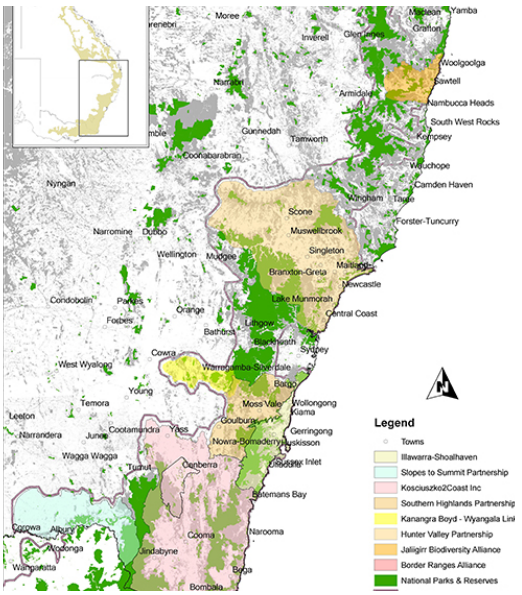


Fig 30. Great Eastern Ranges Initiative

(8)

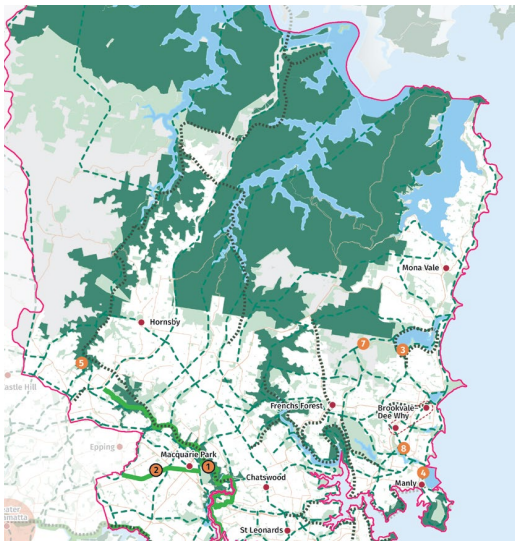


Fig 31. Sydney Green Grid

(9)

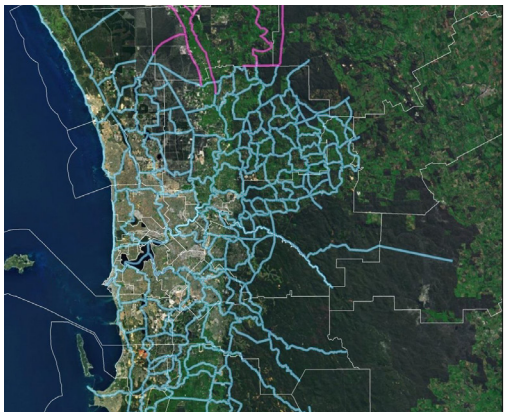


Fig 32. Perth Biodiversity Network

(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

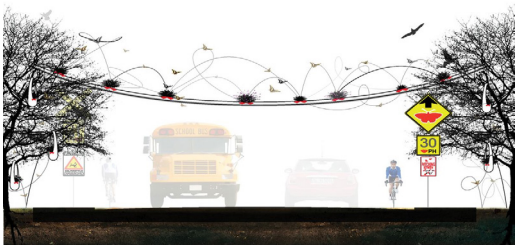
(15)

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

(17)

(16)

Fig 38. Christmas Island crab crossing structure



(18)

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

Rainbow Lorikeet *Trichoglossus moluccanus* Alan Kwok (2019)

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.

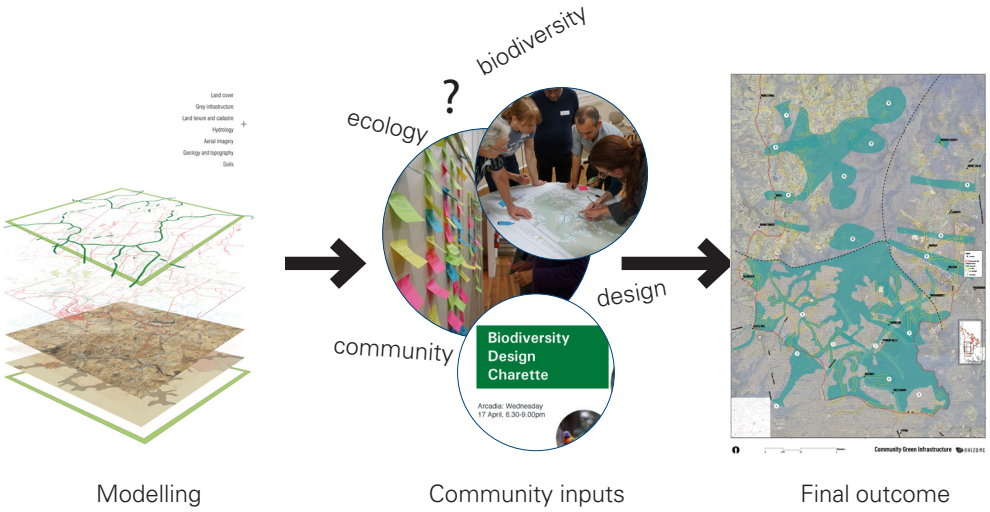


Fig 40. Graphic of the method that led to the *Green Infrastructure Framework*

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*.

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.

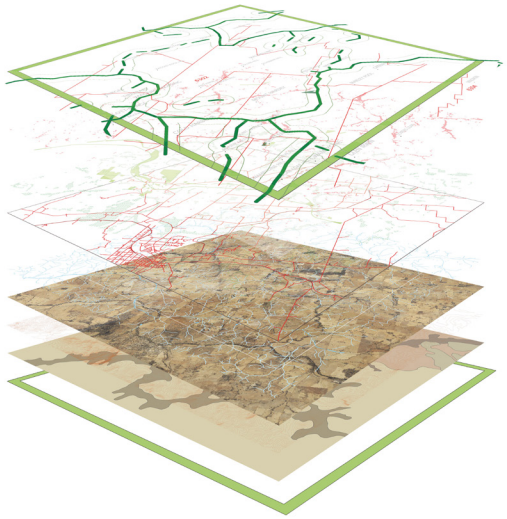


Fig 41. Graphic of the ecological modelling process

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.

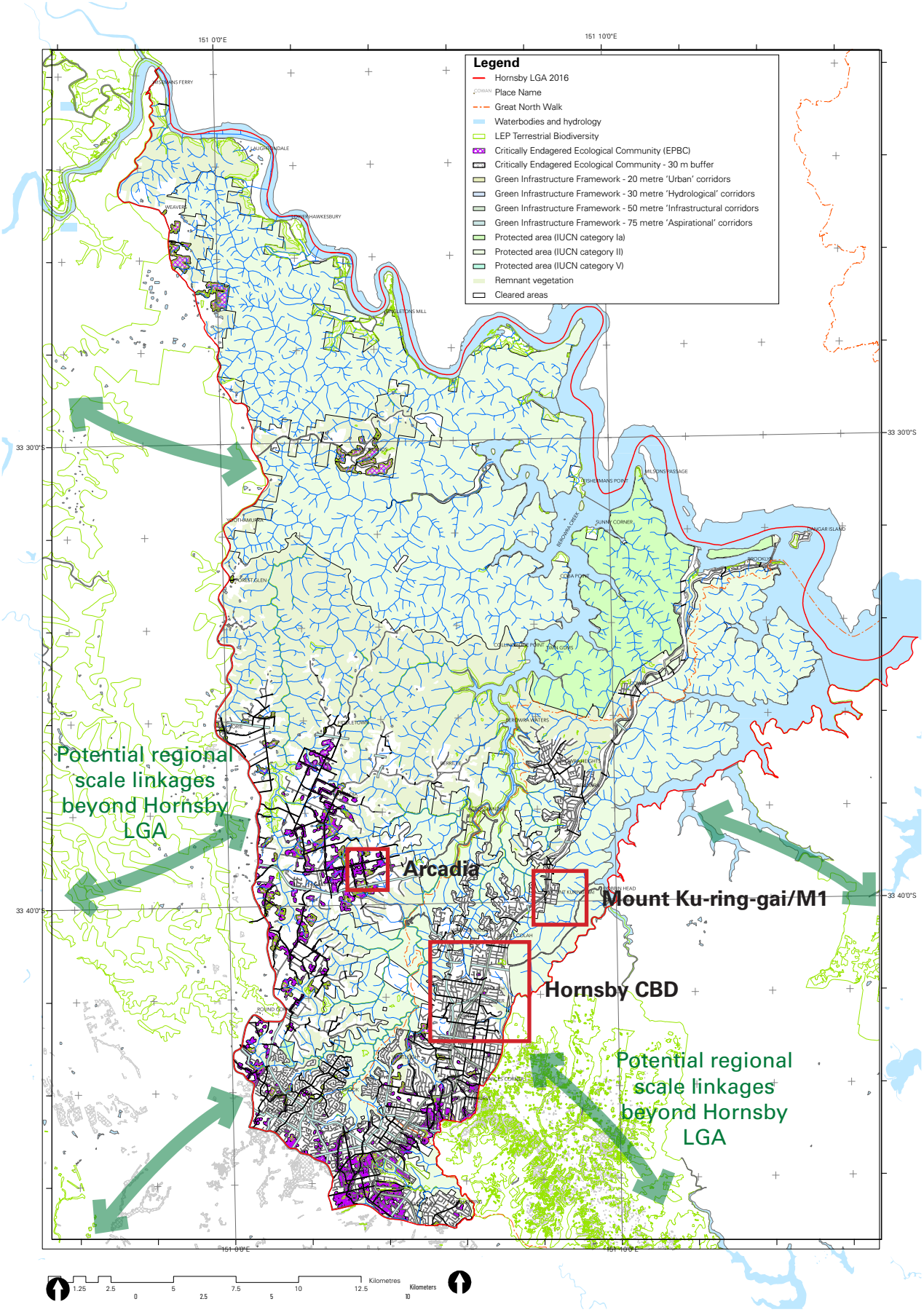


Fig 42. Final Green Infrastructure Framework

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

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.

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 receation 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

Strategy 1: Protect and conserve ecological values

ID	Task - Description	Indicator(s)	Strategic/ Legislative Driver	Priority
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	O
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	O
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	O
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	O

ID	Task - Description	Indicator(s)	Strategic/ Legislative Driver	Priority
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	> Conservation incentives identified, promoted and implemented > Opportunities for incentive schemes focussed on Rural Lands biodiversity protection assessed and promoted > Investigate incentives that promote regional connectivity	Northern District Plan, Biodiversity Conservation Act, Open Space Acquisition Strategy	O
1.3.2	Prepare guidelines and identify special incentives to prioritise biodiversity on private lands	> Assess opportunities for rates incentives for Land for Wildlife or Biodiversity Conservation Trust-eligible private lands > Guidelines and incentives prepared to support biodiversity conservation on private lands including habitat for wildlife, pools to ponds and backyard bees program	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	Core, transition and key corridor areas assessed to: > Establish ecological targets to inform corridor establishment > Support biodiversity enhancement	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	> Review of existing DCP controls undertaken > Limit private encroachment on public bushland, open space and waterway foreshore areas investigated > Fauna-friendly guidelines for fencing (for creek lines and lands adjacent to recognised biodiversity lands) developed	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	> Dark sky policy and controls assessed (including council street and facilities lighting and private property) > Case study locations identified and investigated	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	> Vulnerability assessment prepared	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	> Biodiversity adaptation strategy prepared > Prepare future 'novel ecosystems' through adaptive planning strategies	Northern District Plan, Biodiversity Conservation Act	M
1.5.3	Maintain seed banking program	> Maintain seed bank that is viable, comprehensive and representative of the LGA's species/communities	Save Our Species Program	O
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)	> Biodiversity monitoring program prepared to include: - Understanding and application of best practice approaches to monitoring (what, when, where, how, why and how is the information to be used?) - Identify new tools for biodiversity monitoring, planning and management (e.g. Photogrammetry, LIDAR and Artificial Intelligence) - Targeted baseline surveys on threatened flora and fauna species and TECs - weed invasion assessments for Council reserves - Trends in presence, absence and abundance of threatened, migratory and feral species - Condition of remnant vegetation, TECs and threatened species - Ecohealth program (Physical/Chemical Parameters, macroinvertebrates. geomorphology, riparian vegetation assessments) - Water quality monitoring program and contaminated sites - Citizen-based science - Vegetation Management Plans and biodiversity related consent conditions	Save Our Species Program, Biodiversity Conservation Act	H
1.6.2	Implement monitoring program for council managed lands	> Annual monitoring program for Council managed lands implemented	Save Our Species Program, Biodiversity Conservation Act	O
1.6.3	Implement surveys to measure community awareness of local biodiversity values and issues	> Resident biodiversity awareness surveys undertaken	Save Our Species Program, Biodiversity Conservation Act	O

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	O
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	O
1.6.6	Establish a monitoring program for fire related activities	> Monitoring plan for fire management activities prepared to include: - identification of resources ($/staff) - pre/post hazard mitigation works ecological data collection and analysis protocols - Integration with appropriate restoration goals - effectiveness of communication processes > 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)

Box 10. Roadkill & infrastructure mitigation measures

Strategy 2: Connect urban habitats

ID	Task - Description	Indicator(s)	Strategic/ Legislative Driver	Priority
2.0.0	Strategy 2: Connect Urban Habitats			
2.1.0	Green Infrastructure Famework (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	O
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	O
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	O
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	O
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	O
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	> Opportunities to reduce reliance on chemical application (resolve use of Glyphosate) investigated > Best practice for fertiliser/pesticide/herbicide implemented > Non-pesticide use overlay for lands with 50m of recognised waterway implemented	Sydney Green Grid, North District Plan, POEO Act	O
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	> Ecological restoration of bushland reserves is strategically prioritised > Bush regeneration projects are implemented	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	O
3.1.5	Identify barriers to fauna movement and implement appropriate design solutions	> Barriers to fauna movement are identified and mapped, including: - Artificial barriers to fish and aquatic species passage - Wildlife canopy and underpass crossings > Design solutions implemented where feasible	Sydney Green Grid, North District Plan	M
3.1.6	Assess and prioritise ecological restoration activities associated with bushfire incidents and mitigation activities	> Maintain council obligations under Bushfire Environmental Assessment Code > Prepare general ecological assessment/ evaluation guidelines (identify resources, set priorities and targets according to ecological restoration principles) to inform site-based action plans	Rural Fires Act, Bush Fire Environmental Assessment Code	O
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	O
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	> Council operations at risk of breaching biosecurity legislation identified and addressed > Relevant biosecurity information is communicated to Councillors, managers, other staff, and the public, and they are made aware of their biosecurity duties > Biosecurity content on the Councils website is up-to-date and regularly reviewed > Point of contact maintained for Council's compliance with biosecurity orders issued > 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 > 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	Biosecurity Act	O
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	O
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	> The biosecurity officer maintains relevant biosecurity training and certification > 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 > 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 > Where new weed incursions are identified, the procedures outlined in Greater Sydney Weed Committee New Weed Incursion Plan 2017 – 2022 have been implemented > Opportunities for grant funding to assist in the delivery of Council's functions have been identified and applied for > Records and maps for actions and activities relating to Councils functions under the Biosecurity Act 2015 have been prepared and maintained > Regular reports using required standards and formats have been prepared > A program of capacity building and mentoring within HSC and the community (e.g. community events, displays, demonstrations, workshops, training, conference) has been implemented	Biosecurity Act	O

3.2.5	Maintain and improve management of high priority weed species on Council managed lands	> Programs of priority weed inspections and surveillance of all land tenures within the LGA are prepared and implemented. > Identify priority weed species on HSC land and implement appropriate control measure > 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 > identify the presence of new weed incursions and implement the procedures outlined in Greater Sydney Weed Committee New Weed Incursion Plan 2017 – 2022	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	> Assess targeted placement of electrical infrastructure underground on GIF-nominated streets > Methods to future-proof and consolidate infrastructure and underground services identified		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	> Guidelines for plant selection created and implemented > Street Tree Master Plan proposed within the Urban Forest Strategy encourages use of species and locations that improve local biodiversity > 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	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

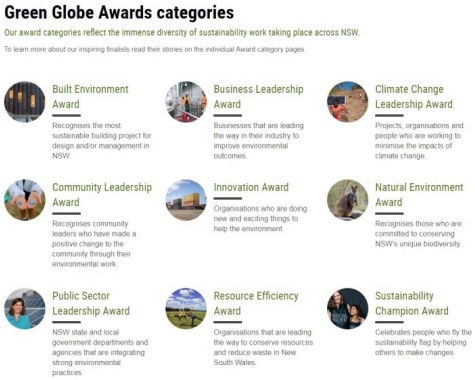
This program incentivises individuals, businesses and groups to take positive actions to achieve positive change in the environment. A similar small-scale Hornsby Council run program, could provide positive reinforcement to individuals, community organisations and businesses.

'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]

Box.11 Habitat for Wildlife and incentive programs

(22)



(23)

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	O
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	O
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	O
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	O
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	O

Installation of canopy crossings

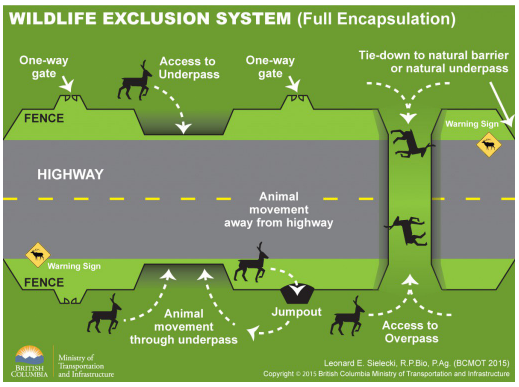
Canopy crossings have been designed (i.e. single rope, ladder-like bridges and tunnel-shaped bridges) and installed in various locations throughout Australia to enable species to cross roads safely. 'Installation of the canopy crossings was relatively quick and cheap, and it is recommended that they 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

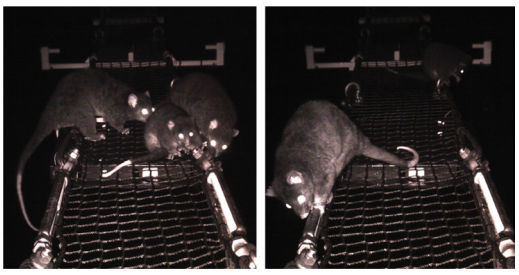
In Banff National Park (Alberta, Canada) six overpasses and 38 underpasses were built to enable the safe passage of bears, moose, deer, wolves, elk, and many other species over the Trans-Canada Highway. An important aspect of this project was the fencing that abuts the road and acts to direct wildlife 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	Priority
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	O
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	O
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	O
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		O
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	O
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	O
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	O
5.2.5	Identify opportunities to attract high profile media personalities to workshops	> High profile personalities identified		O
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	O
5.3.2	Maintain Council's Bushcare programs and related initiatives	> Council's Bushcare program maintained and related initiatives managed	EP&A Act	O
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	O
5.3.5	Identify opportunities for collaboration with local Indigenous communities and consultative bodies	> Collaborative opportunities identified	Council driven	O
5.3.6	Identify opportunities for collaboration with tertiary institutions	> Collaborative opportunities identified		O

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]

Box 13. Policy development

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

Appendices

A range of appendices with supporting information accompany this report.

Appendix 1: Full list of species in Hornsby LGA

Legend

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Fauna

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

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

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

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

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

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

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

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

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

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

Oriolus sagittatus	Olive-Backed Oriole	P		ALA (2010 -);BioNet (2010-)
Orthetrum caledonicum				ALA (2010 -)
Orthetrum villosovittatum				ALA (2010 -)
Orthodera ministralis	Green Mantid			ALA (2010 -)
Orthogonis ornatipennis				ALA (2010 -)
Oxyopes gracilipes				ALA (2010 -)
Pachycephala rufiventris	Rufous Whistler	P		ALA (2010 -);BioNet (2010-)
Pachycephala melanura	Mangrove Golden Whistler			ALA (2010 -)
Pachycephala pectoralis	Golden Whistler	P		ALA (2010 -)
Pandion cristatus	Eastern Osprey	V,P,3		BioNet (2010-); HSC (2013)
Papilio aegeus	Orchard Swallowtail Butterfly			ALA (2010 -)
Paraembolides boycei				ALA (2010 -)
Paramatachia ashtonensis				ALA (2010 -)
Paraphilaeus daemelii				ALA (2010 -)
Parasesarma erythodactyla				ALA (2010 -)
Parasteatoda tepidariorum				ALA (2010 -)
Pardalotus striatus	Striated Pardalote	P		ALA (2010 -);BioNet (2010-)
Pardalotus punctatus	Spotted Pardalote	P		ALA (2010 -);BioNet (2010-)
Parvipsitta pusilla	Little Lorikeet	V,P		ALA (2010 -);BioNet (2010-); HSC (2013)
Pauropsalta mneme	Ticker			ALA (2010 -)
Pediana regina				ALA (2010 -)
Pelecanus conspicillatus	Australian Pelican	P		ALA (2010 -); BioNet (2010-)
Perameles nasuta	Long-nosed Bandicoot	P		ALA (2010 -); BioNet (2010-)
Perga affinis				ALA (2010 -)
Petauroides volans	Greater Glider	P	V	OEH (2004)
Petaurus breviceps	Sugar Glider	P		ALA (2010 -); BioNet (2010-)
Petrochelidon nigricans	Tree Martin			ALA (2010 -)
Petrochelidon ariel	Fairy Martin			ALA (2010 -)
Petroica rosea	Rose Robin			ALA (2010 -)
Petroica goodenovii	Red-Capped Robin			ALA (2010 -)
Petroica boodang	Scarlet Robin	V,P		OEH (1993)
Petroica phoenicea	Flame Robin	V,P		OEH (1989)
Phalacrocorax carbo	Great Cormorant			ALA (2010 -)
Phalacrocorax sulcirostris	Little Black Cormorant			ALA (2010 -)
Phalaenoides glycinae	Grapevine Moth			ALA (2010 -)
Phaps chalcoptera	Common Bronzewing	P		ALA (2010 -);BioNet (2010-)
Phaps elegans	Brush Bronzewing			ALA (2010 -)
Phascogale tapoatafa	Brush-tailed Phascogale	V,P		OEH (2009)
Phascolarctos cinereus	Koala	V,P	V	ALA (2010 -); BioNET (2010-); HSC (2013)
Philemon citreogularis	Little Friarbird			ALA (2010 -)
Philemon corniculatus	Noisy Friarbird	P		ALA (2010 -);BioNet (2010-)
Philoponella congregabilis				ALA (2010 -)
Pholcus phalangioides	Daddy Longlegs Spider			ALA (2010 -)
Pholodes sinistraria				ALA (2010 -)

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

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

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

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

Fungi

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

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

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

Scientific Name	Common name	Habitat and Ecology
Callocephalon fimbriatum	Gang-Gang Cockatoo	*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.*
Calyptorhynchus lathami	Glossy Black-Cockatoo	*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, Allocasuaraina 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.*
Cercartetus nanus	Eastern Pygmy-Possum	*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.*
Daphoenositta chrysoptera	Varied Sittella	*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.*
Dasyurus maculatus	Spotted-Tailed Quoll	*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.*
Falsistrellus tasmaniensis	Eastern False Pipistrelle	*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.*
Haliaeetus leucogaster	White-Bellied Sea-Eagle	*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.*

Heleioporus australiacus	Giant Burrowing Frog	*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.* *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.* *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.* *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.* *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.* *This frog is a slow growing and long-lived species, living up to 10 years of age, possibly longer.*
Hieraaetus morphnoides	Little Eagle	*Occupies open eucalypt forest, woodland or open woodland. Sheoak or Acacia woodlands and riparian woodlands of interior NSW are also used.* *Nests in tall living trees within a remnant patch, where pairs build a large stick nest in winter.* *Lays two or three eggs during spring, and young fledge in early summer.* *Preys on birds, reptiles and mammals, occasionally adding large insects and carrion.*
Isoodon obesulus	Southern Brown Bandicoot	*Occupies open eucalypt forest, woodland or open woodland. Sheoak or Acacia woodlands and riparian woodlands of interior NSW are also used.* *Nests in tall living trees within a remnant patch, where pairs build a large stick nest in winter.* *Lays two or three eggs during spring, and young fledge in early summer.* *Preys on birds, reptiles and mammals, occasionally adding large insects and carrion.*
Lathamus discolor	Swift Parrot	*Migrates to the Australian south-east mainland between February and October.* *On the mainland they occur in areas where eucalypts are flowering profusely or where there are abundant lerp (from sap-sucking bugs) infestations.* *Favoured feed trees include winter flowering species such as Swamp Mahogany (Eucalyptus robusta), Spotted Gum (Corymbia maculate), Red Bloodwood (C. gummifera), Forest Red Gum (E. tereticornis), Mugga Ironbark (E. sideroxylon), and White Box (E. albens).* *Commonly used lerp infested trees include Inland Grey Box E. microcarpa, Grey Box E. moluccana, Blackbutt E. pilularis, and Yellow Box E. melliodora.* *Return to some foraging sites on a cyclic basis depending on food availability.* *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 Eucalyptus globulus.*
Lophoictinia isura	Square-tailed Kite	*Occupies open eucalypt forest, woodland or open woodland. Sheoak or Acacia woodlands and riparian woodlands of interior NSW are also used.* *Nests in tall living trees within a remnant patch, where pairs build a large stick nest in winter.* *Lays two or three eggs during spring, and young fledge in early summer.* *Preys on birds, reptiles and mammals, occasionally adding large insects and carrion.*
Miniopterus australis	Little Bentwing-Bat	*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.* *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.* *They often share roosting sites with the Common Bentwing-bat and, in winter, the two species may form mixed clusters.* *In NSW the largest maternity colony is in close association with a large maternity colony of Eastern Bentwing-bats (Miniopterus schreibersii) and appears to depend on the large colony to provide the high temperatures needed to rear its young.* *Maternity colonies form in spring and birthing occurs in early summer. Males and juveniles disperse in summer.* *Only five nursery sites /maternity colonies are known in Australia.*
Miniopterus schreibersii oceanensis	Eastern Bentwing-bat	*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.* *Maternity caves have very specific temperature and humidity regimes.* *At other times of the year, populations disperse within about 300 km range of maternity caves.* *Cold caves are used for hibernation in southern Australia.* *Breeding or roosting colonies can number from 100 to 150,000 individuals.* *Hunt in forested areas, catching moths and other flying insects above the tree tops.*
Myotis macropus	Southern Myotis	*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.* *Forage over streams and pools catching insects and small fish by raking their feet across the water surface.* *In NSW females have one young each year usually in November or December.*
Ninox connivens	Barking Owl	*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.* *Roost in shaded portions of tree canopies, including tall midstorey trees with dense foliage such as Acacia and Casuarina species. During nesting season, the male perches in a nearby tree overlooking the hollow entrance.* *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.* *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.* *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).* *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.* *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.*

Ninox (Rhabdoglaux) strenua	Powerful Owl	*The Powerful Owl inhabits a range of vegetation types, from woodland and open sclerophyll forest to tall open wet forest and rainforest.* *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 Syncarpia glomulifera, Black She-oak Allocasuarina littoralis, Black-wood Acacia melanoxylon, Rough-barked Apple Angophora floribunda, Cherry Ballart Exocarpus cupressiformis and a number of eucalypt species.* *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.* *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.* *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.* *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.*
Pandion cristatus	Eastern Osprey	*Favour coastal areas, especially the mouths of large rivers, lagoons and lakes.* *Feed on fish over clear, open water.* *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.* *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.*
Glossopsitta pusilla	Little Lorikeet	*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.* *Isolated flowering trees in open country, e.g. paddocks, roadside remnants and urban trees also help sustain viable populations of the species.* *Feeds mostly on nectar and pollen, occasionally on native fruits such as mistletoe, and only rarely in orchards* *Gregarious, travelling and feeding in small flocks (<10), though often with other lorikeets. Flocks numbering hundreds are still occasionally observed and may have been the norm in past centuries.* *Roosts in treetops, often distant from feeding areas.* *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 Allocasuarina.* *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.*
Phascolarctos cinereus	Koala	*Inhabit eucalypt woodlands and forests.* *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.* *Inactive for most of the day, feeding and moving mostly at night.* *Spend most of their time in trees, but will descend and traverse open ground to move between trees.* *Home range size varies with quality of habitat, ranging from less than two ha to several hundred hectares in size.* *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.* *Females breed at two years of age and produce one young per year.*
Pommerhelix duralensis	Dural Woodland Snail; Dural Land Snail	*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.* *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.* *Migration and dispersal is limited, with overnight straight-line distances of under 1 metre identified in the literature and studies.* *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.* *The species is known to aestivate, and secretes an epiphragm to protect against dessication.* *The main food sources are hyphae and fruiting bodies of native fungi. It is possible other detritus may be consumed.* *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.*
Pseudophryne australis	Red-Crowned Toadlet	*Occurs in open forests, mostly on Hawkesbury and Narrabeen Sandstones.* *Inhabits periodically wet drainage lines below sandstone ridges that often have shale lenses or cappings.* *Shelters under rocks and amongst masses of dense vegetation or thick piles of leaf litter.* *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.* *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.* *Disperses outside the breeding period, when they are found under rocks and logs on sandstone ridges and forage amongst leaf-litter.* *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.*
Pteropus poliocephalus	Grey-Headed Flying-Fox	*Occur in subtropical and temperate rainforests, tall sclerophyll forests and woodlands, heaths and swamps as well as urban gardens and cultivated fruit crops.* *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.* *Individual camps may have tens of thousands of animals and are used for mating, and for giving birth and rearing young.* *Annual mating commences in January and conception occurs in April or May; a single young is born in October or November.* *Site fidelity to camps is high; some camps have been used for over a century.* *Can travel up to 50 km from the camp to forage; commuting distances are more often <20 km.* *Feed on the nectar and pollen of native trees, in particular Eucalyptus, Melaleuca and Banksia, and fruits of rainforest trees and vines.* *Also forage in cultivated gardens and fruit crops.*

Saccolaimus flaviventris	Yellow-Bellied Sheath-tail-Bat	*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.* *Forages in most habitats across its very wide range, with and without trees; appears to defend an aerial territory.* *Breeding has been recorded from December to mid-March, when a single young is born.* *Seasonal movements are unknown; there is speculation about a migration to southern Australia in late summer and autumn.*
Scoteanax rueppellii	Greater Broad-Nosed Bat	*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.* *Although this species usually roosts in tree hollows, it has also been found in buildings.* *Forages after sunset, flying slowly and directly along creek and river corridors at an altitude of 3 - 6 m.* *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.* *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.*
Tyto novaehollandiae	Masked Owl	*Lives in dry eucalypt forests and woodlands from sea level to 1100 m.* *A forest owl, but often hunts along the edges of forests, including roadsides.* *The typical diet consists of tree-dwelling and ground mammals, especially rats.* *Pairs have a large home-range of 500 to 1000 hectares.* *Roosts and breeds in moist eucalypt forested gullies, using large tree hollows or sometimes caves for nesting.*
Tyto tenebricosa	Sooty Owl	*Occurs in rainforest, including dry rainforest, subtropical and warm temperate rainforest, as well as moist eucalypt forests.* *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 (Pseudocheirus peregrinus) or Sugar Glider (Petaurus breviceps).* *Nests in very large tree-hollows.*
Varanus rosenbergi	Heath Monitor; Rosenberg's monitor	*Found in heath, open forest and woodland.* *Associated with termites, the mounds of which this species nests in; termite mounds are a critical habitat component.* *Individuals require large areas of habitat.* *Feeds on carrion, birds, eggs, reptiles and small mammals.* *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.* *Runs along the ground when pursued (as opposed to the Lace Monitor, which climbs trees).* *Lays up to 14 eggs in a termite mound; the hatchlings dig themselves out of the mounds.* *Generally slow moving; on the tablelands likely only to be seen on the hottest days.*
Anthochaera phrygia	Regent Honeyeater	*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.* *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.* *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.* *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 Eucalyptus eugenioidesand other Stringybark species, and Broad-leaved Ironbark E. fibrosa can also contribute important nectar flows at times. Nectar and fruit from the mistletoes Amyema miquelii, A. pendula and A. cambagei 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.* *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.* *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.* *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.*

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.

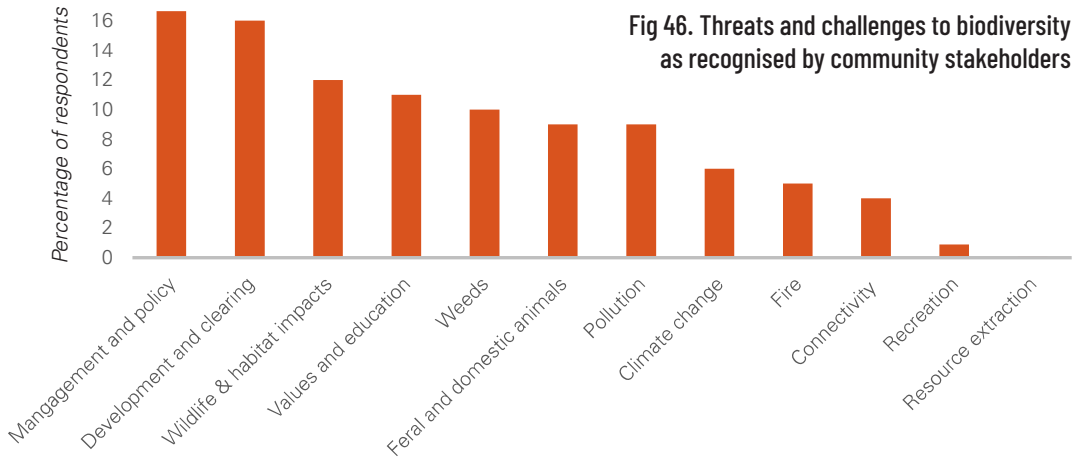


Fig 46. Threats and challenges to biodiversity as recognised by community stakeholders

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 setout 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 imapcts.

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.

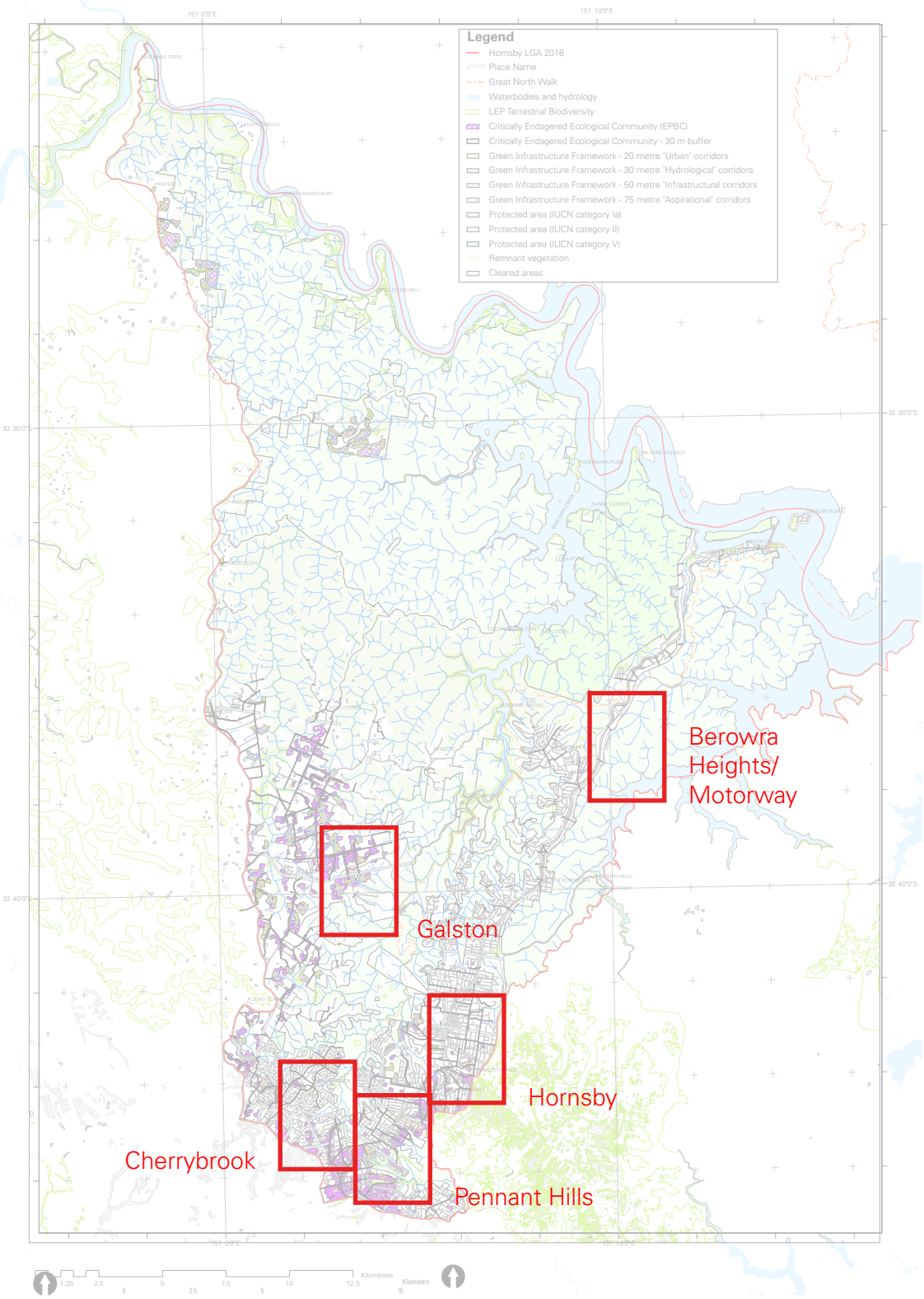
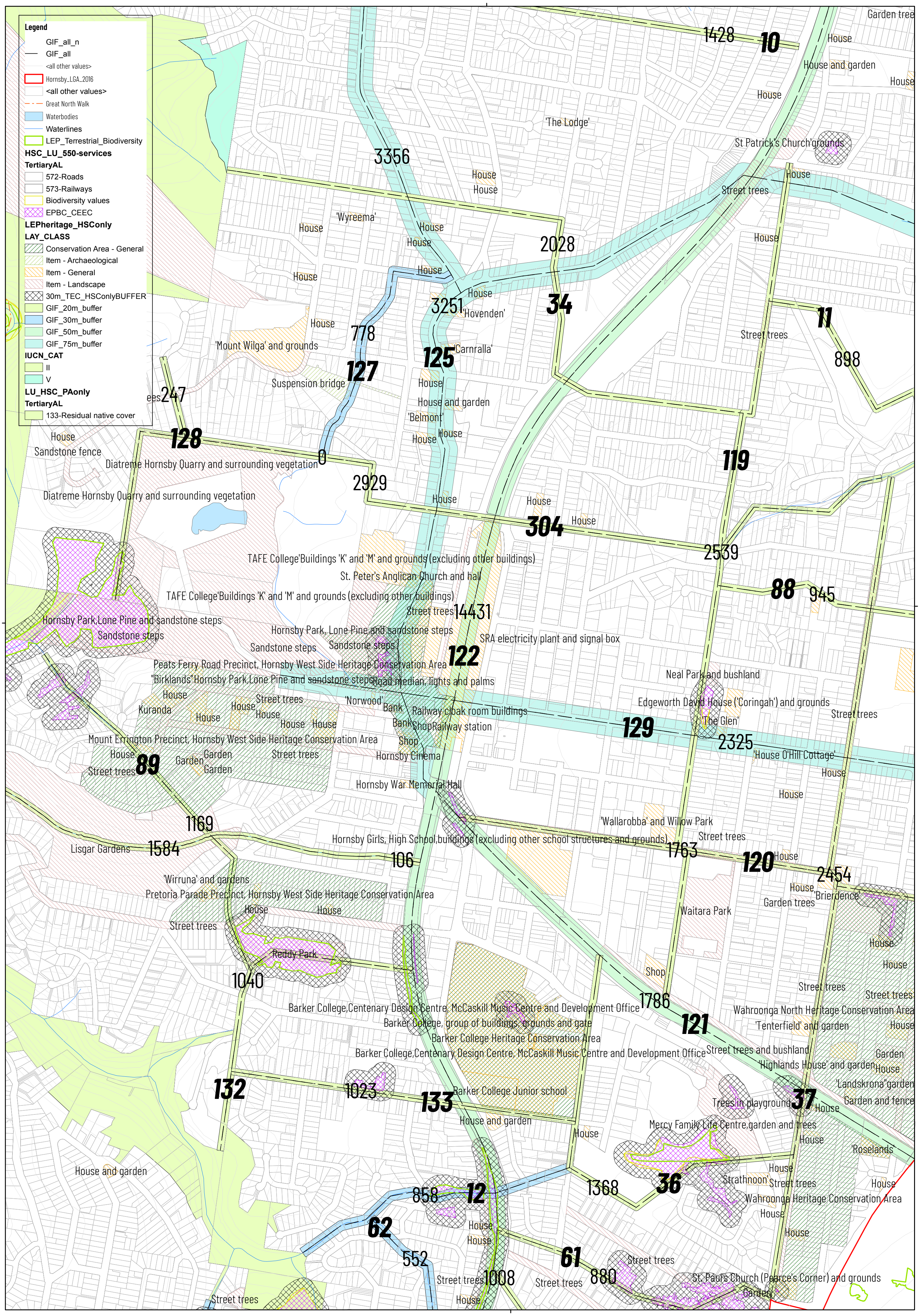


Fig 45. Green Infrastructure Framework overview


Legend
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Great North Walk
Waterbodies
Waterlines
LEP_Terrestrial_Biodiversity
HSC_LU_550-services
TertiaryAL
572-Roads
573-Railways
Biodiversity values
EPBC_CEEC
LEPHeritage_HSConly
LAY_CLASS
Conservation Area - General
Item - Archaeological
Item - General
Item - Landscape
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GIF_20m_buffer
GIF_30m_buffer
GIF_50m_buffer
GIF_75m_buffer
IUCN_CAT
II
V
LU_HSC_PAonly
TertiaryAL
133-Residual native cover
1428
10
Garden tree
House
House and garden
House
House
'The Lodge'
St Patrick's Church'grounds
3356
House
House
House
Street trees
'Wyreema'
House
House
House
2028
House
House
Street trees
3251
'Hovenden'
34
House
11
House
778
'Mount Wilga' and grounds
125
'Carnralla'
898
127
Suspension bridge
House
House and garden
'Belmont'
House
House
247
128
House
Sandstone fence
0
Diatreme Hornsby Quarry and surrounding vegetation
119
2929
Diatreme Hornsby Quarry and surrounding vegetation
House
House
304
House
2539
TAFE College'Buildings 'K' and 'M' and grounds (excluding other buildings)
St. Peter's Anglican Church and hall
88
945
TAFE College'Buildings 'K' and 'M' and grounds (excluding other buildings)
Street trees
14431
Hornsby Park,Lone Pine and sandstone steps
Sandstone steps
Hornsby Park, Lone Pine and sandstone steps
SRA electricity plant and signal box
Sandstone steps
Sandstone steps
122
Peats Ferry Road Precinct, Hornsby West Side Heritage Conservation Area
Neal Park and bushland
"Birklands"Hornsby Park,Lone Pine and sandstone steps
Road median, lights and palms
House
Street trees
Edgeworth David House ('Coringah') and grounds
Kuranda
House
'Norwood'
Bank
Railway cloak room buildings
Street trees
House
House
House
Bank
Shop
Railway station
129
'The Glen'
Mount Errington Precinct, Hornsby West Side Heritage Conservation Area
Shop
2325
House
Garden
Street trees
'House O'Hill Cottage'
Street trees
89
Garden
Hornsby Cinema
House
Garden
Hornsby War Memorial Hall
House
1169
'Wallarobba' and Willow Park
Hornsby Girls, High School,buildings (excluding other school structures and grounds)
Street trees
Lisgar Gardens
1584
1763
106
120
House
2454
'Wirruna' and gardens
House
'Brierdence'
Pretoria Parade Precinct, Hornsby West Side Heritage Conservation Area
Garden trees
House
House
Waitara Park
Street trees
House
Reddy Park
House
Shop
1040
Street trees
Street trees
1786
Barker College,Centenary Design Centre, McCaskill Music Centre and Development Office
Wahroonga North Heritage Conservation Area
Barker College, group of buildings, grounds and gate
121
'Tenterfield' and garden
House
Barker College Heritage Conservation Area
Street trees and bushland
Garden
Barker College,Centenary Design Centre, McCaskill Music Centre and Development Office
'Highlands House' and garden
House
'Landskrona'garden
132
1023
Barker College Junior school
Trees in playground
37
Garden and fence
133
House
House and garden
Mercy Family Life Centre,garden and trees
House
House
'Roselands'
House and garden
House
36
'Strathnoon'
Street trees
House
858
12
1368
Wahroonga Heritage Conservation Area
House
62
House
House
House
552
61
Street trees
Street trees
1008
Street trees
880
St. Paul's Church (Pearce's Corner) and grounds
Street trees
House
Garden

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.

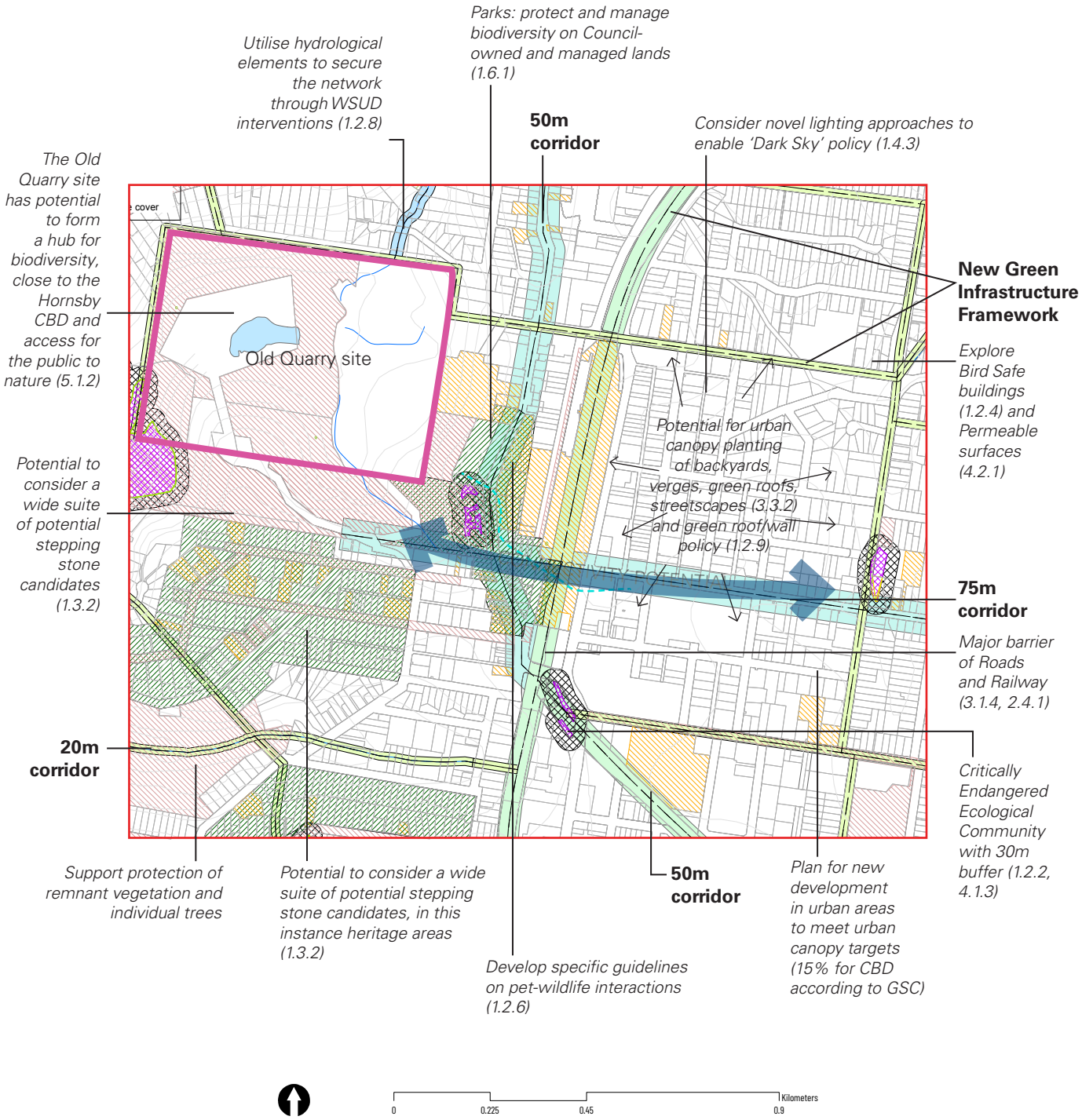
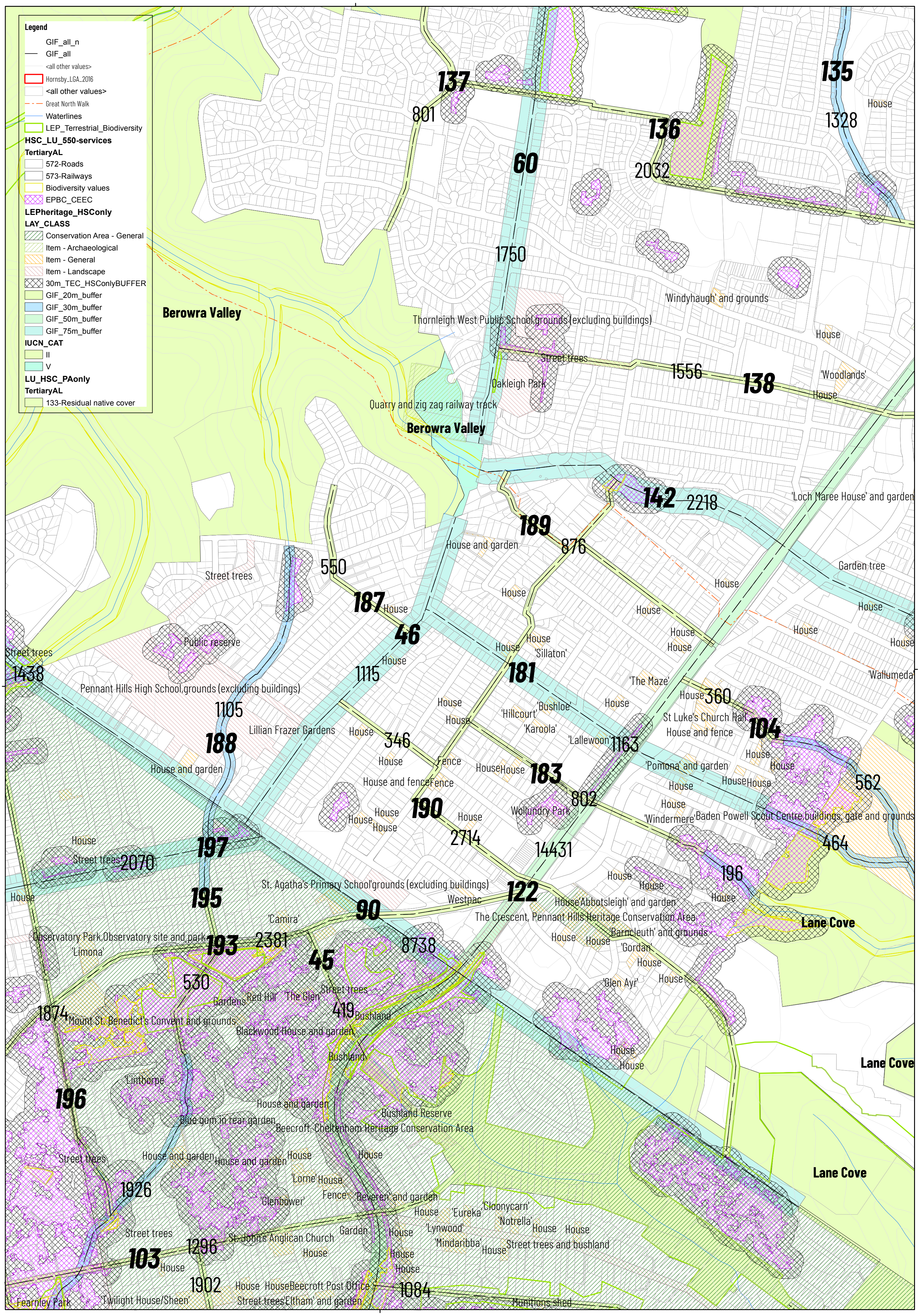


Fig 47. Hornsby case study


Legend
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GIF_all
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Hornsby_LGA_2016
<all other values>
Great North Walk
Waterlines
LEP_Terrestrial_Biodiversity
HSC_LU_550-services
TertiaryAL
572-Roads
573-Railways
Biodiversity values
EPBC_CEEC
LEPHeritage_HSConly
LAY_CLASS
Conservation Area - General
Item - Archaeological
Item - General
Item - Landscape
30m_TEC_HSConlyBUFFER
GIF_20m_buffer
GIF_30m_buffer
GIF_50m_buffer
GIF_75m_buffer
IUCN_CAT
II
V
LU_HSC_PAonly
TertiaryAL
133-Residual native cover
Berowra Valley
Berowra Valley
Lane Cove
Lane Cove
Lane Cove
137
801
60
136
2032
135
1328
1750
138
1556
142
2218
189
876
187
550
46
1115
181
1105
188
346
183
802
190
2714
14431
197
2070
195
90
122
193
2381
45
8738
530
419
1874
196
1926
103
1296
1902
1084
104
360
1163
562
464
196
'Windyhaugh' and grounds
Thornleigh West Public School grounds (excluding buildings)
Street trees
Oakleigh Park
Quarry and zig zag railway track
'Woodlands'
'Loch Maree House' and garden
House and garden
Garden tree
Street trees
Public reserve
Pennant Hills High School,grounds (excluding buildings)
Lillian Frazer Gardens
House and garden
'Sillaton'
'The Maze'
'Hillcourt'
'Bushloe'
'Karoola'
'Lallewoon'
St Luke's Church Hall
House and fence
'Pomona' and garden
'Windermere'
Baden Powell Scout Centre buildings, gate and grounds
Wollundry Park
House and fence
Fence
'Wallumeda'
St. Agatha's Primary School grounds (excluding buildings)
Westpac
'Abbotsleigh' and garden
The Crescent, Pennant Hills Heritage Conservation Area
'Barncleuth' and grounds
'Gordan'
'Glen Ayr'
'Camira'
Observatory Park,Observatory site and park
'Limona'
Gardens
'Red Hill'
'The Glen'
Street trees
Bushland
Mount St. Benedict's Convent and grounds
Blackwood House and garden
Bushland
'Linthorpe'
House and garden
Blue gum in rear garden
Bushland Reserve
Beecroft, Cheltenham Heritage Conservation Area
Street trees
House and garden
House and garden
'Lorne'
'Glenbower'
Fence
'Beveren' and garden
'Cloonycarn'
'Eureka'
'Notrella'
'Lynwood'
'Mindaribba'
Street trees and bushland
St. John's Anglican Church
Garden
Street trees
House
Beecroft Post Office
'Twilight House/Sheen'
Street trees
'Eltham' and garden
Munitions shed
Fearnley Park
1438
Street trees
House

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.

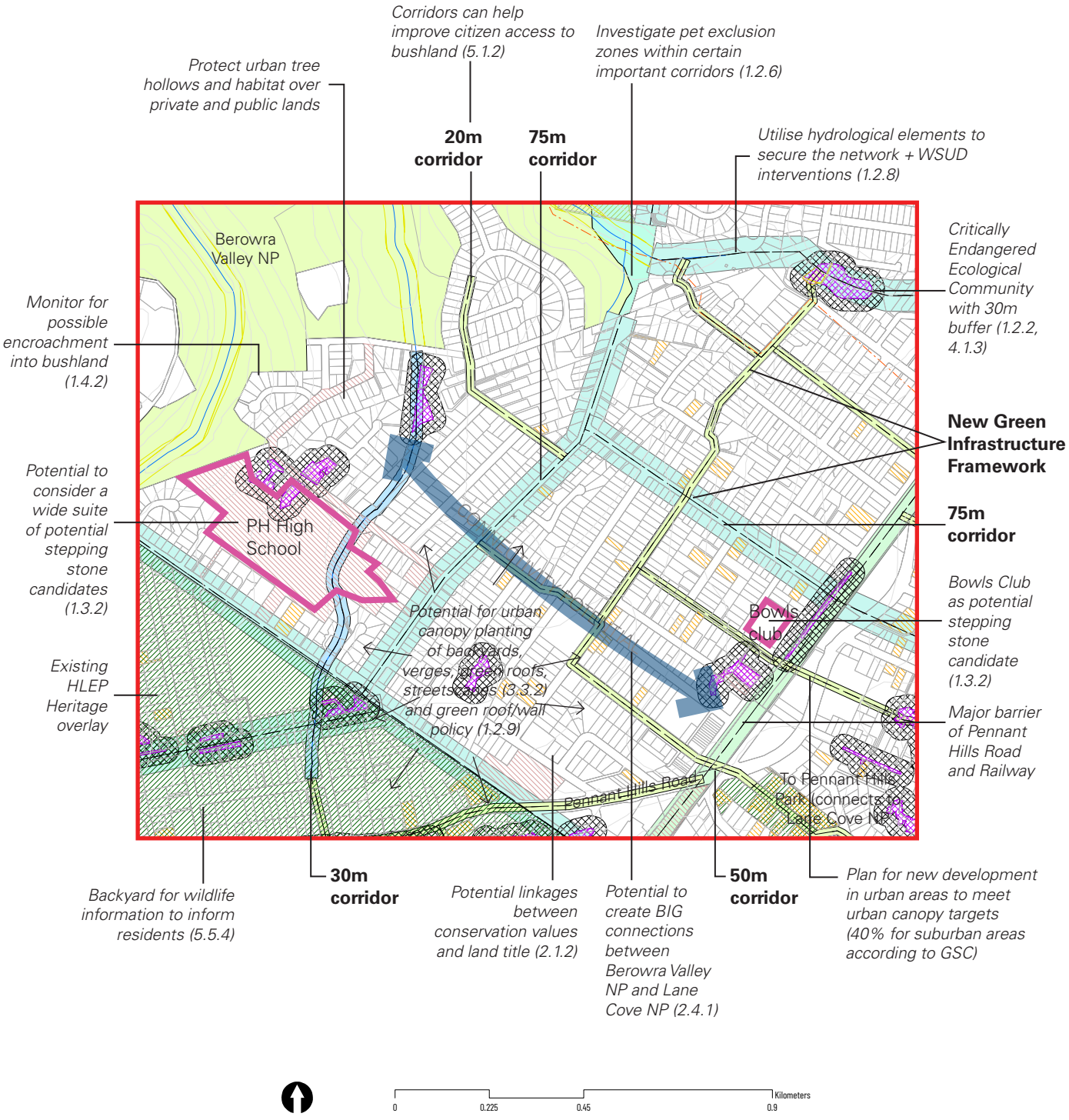
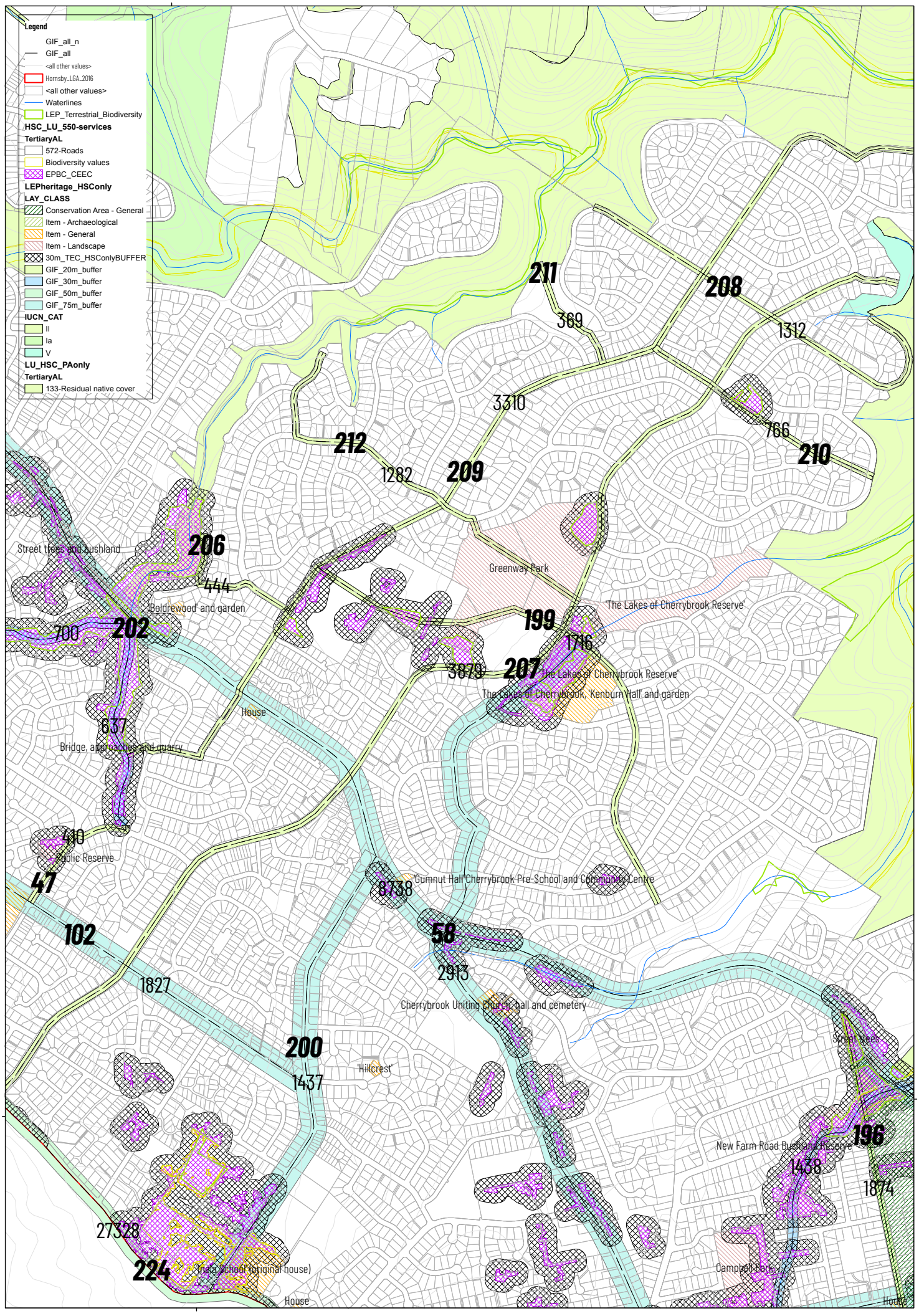


Fig 48. Pennant Hills case study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GIF_all
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Hornsby_LGA_2016
<all other values>
Waterlines
LEP_Terrestrial_Biodiversity
HSC_LU_550-services
TertiaryAL
572-Roads
Biodiversity values
EPBC_CEEC
LEPheritage_HSConly
LAY_CLASS
Conservation Area - General
Item - Archaeological
Item - General
Item - Landscape
30m_TEC_HSConlyBUFFER
GIF_20m_buffer
GIF_30m_buffer
GIF_50m_buffer
GIF_75m_buffer
IUCN_CAT
II
Ia
V
LU_HSC_PAonly
TertiaryAL
133-Residual native cover
211
208
369
1312
3310
766
210
212
1282
209
206
444
Street trees and bushland
'Boldrewood' and garden
700
202
Greenway Park
'The Lakes of Cherrybrook Reserve'
199
1716
3879
207
'The Lakes of Cherrybrook Reserve'
The Lakes of Cherrybrook, 'Kenburn Hall' and garden
House
637
Bridge, approaches and quarry
410
Public Reserve
47
102
1827
8738
'Gumnut Hall' Cherrybrook Pre-School and Community Centre
58
2913
Cherrybrook Uniting Church hall and cemetery
200
1437
'Hillcrest'
Street trees
196
New Farm Road Bushland Reserve
1438
1874
27328
224
Thala School (original house)
House
Campbell Park
House

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.

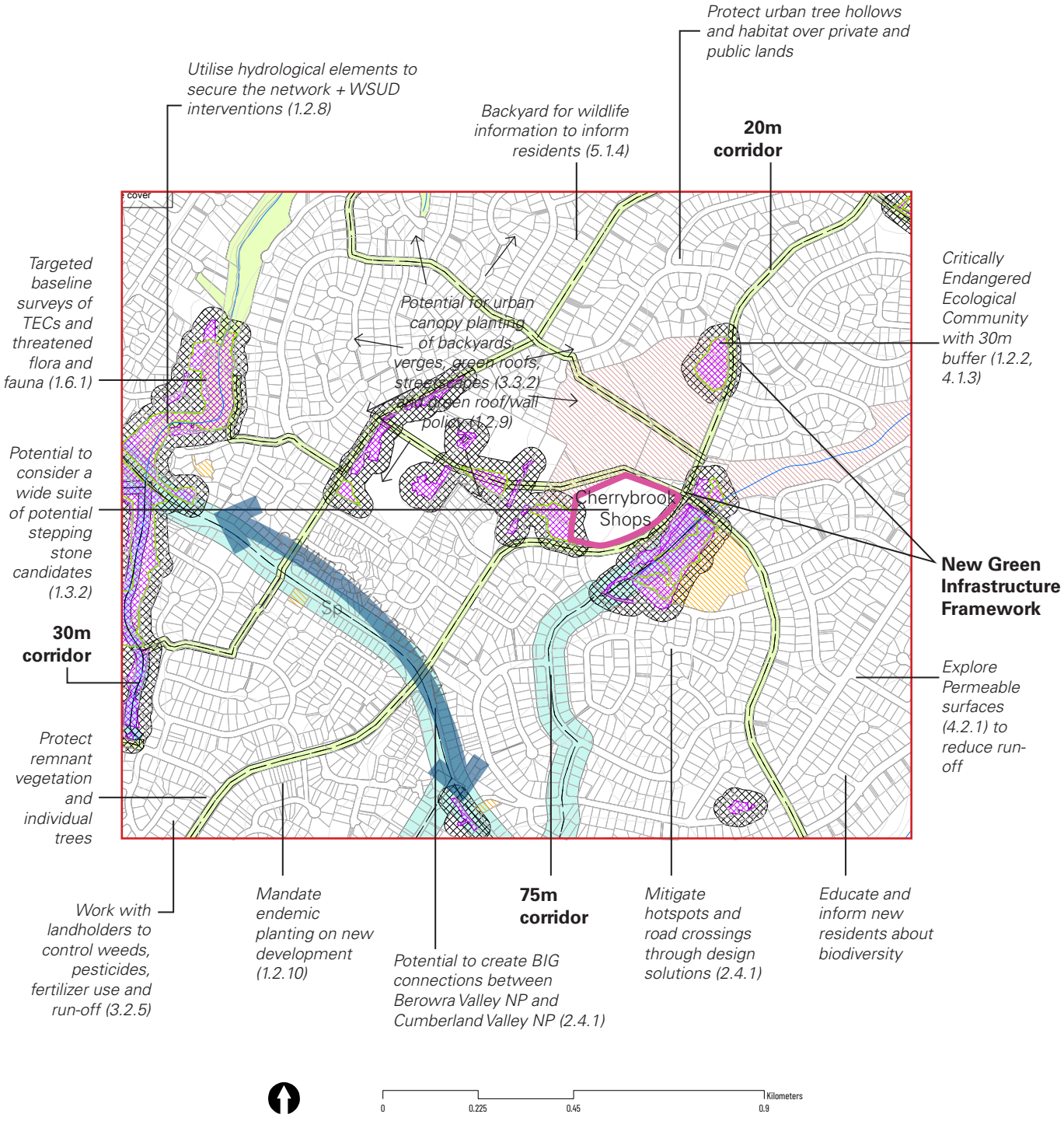
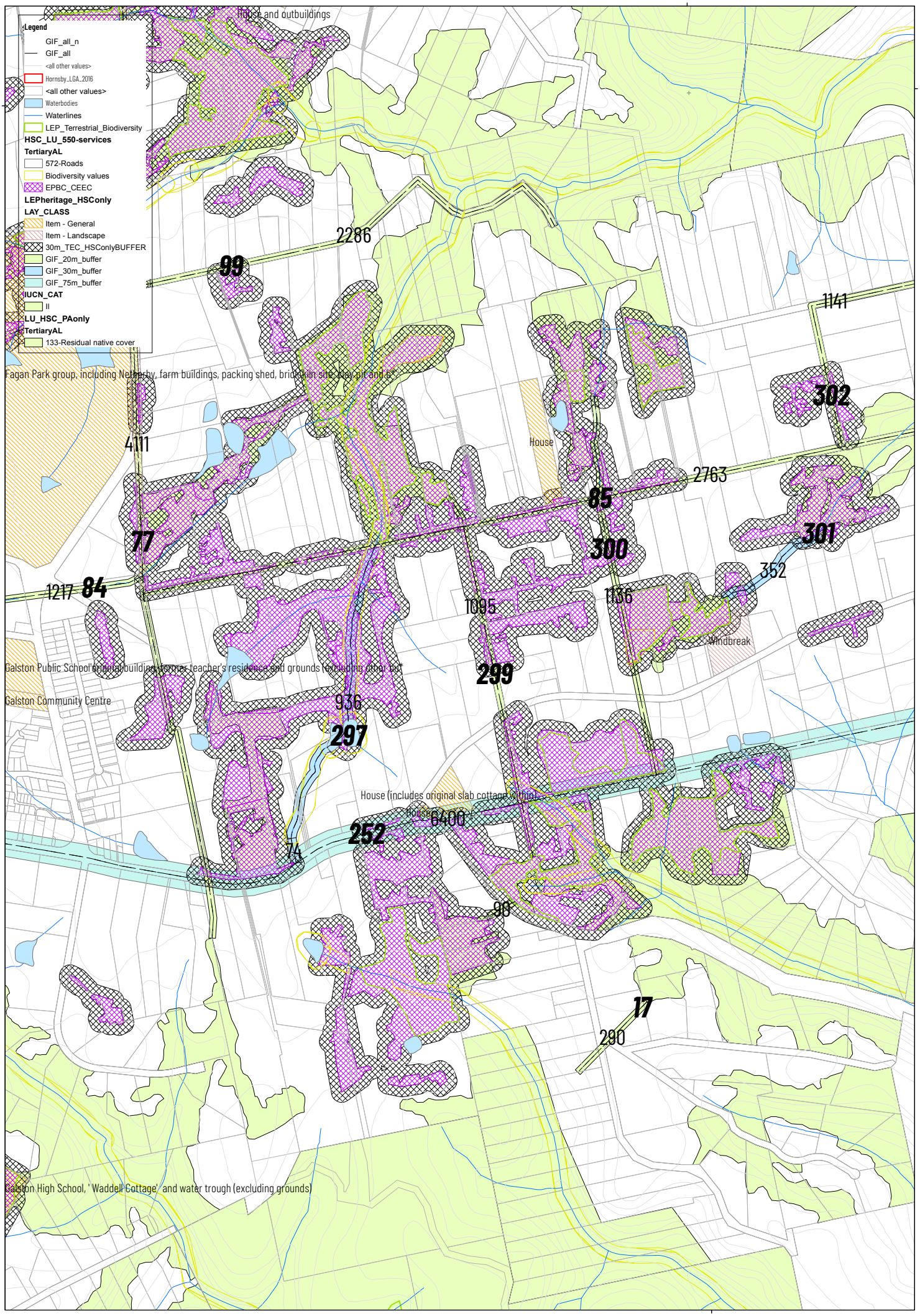


Fig 49. Cherrybrook case study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Hornsby_LGA_2016
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Waterbodies
Waterlines
LEP_Terrestrial_Biodiversity
HSC_LU_550-services
TertiaryAL
572-Roads
Biodiversity values
EPBC_CEEC
LEPheritage_HSConly
LAY_CLASS
Item - General
Item - Landscape
30m_TEC_HSConlyBUFFER
GIF_20m_buffer
GIF_30m_buffer
GIF_75m_buffer
IUCN_CAT
II
LU_HSC_PAonly
TertiaryAL
133-Residual native cover
House and outbuildings
2286
99
1141
Fagan Park group, including Netherby, farm buildings, packing shed, brick kiln site, clay pit and dr
302
4111
House
2763
85
77
300
301
352
1217
84
1095
1136
Windbreak
Galston Public School (original building, former teacher's residence and grounds (excluding other bui
299
Galston Community Centre
936
297
House (includes original slab cottage within)
House
6400
252
74
90
17
290
Galston High School, 'Waddell Cottage' and water trough (excluding grounds)

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.

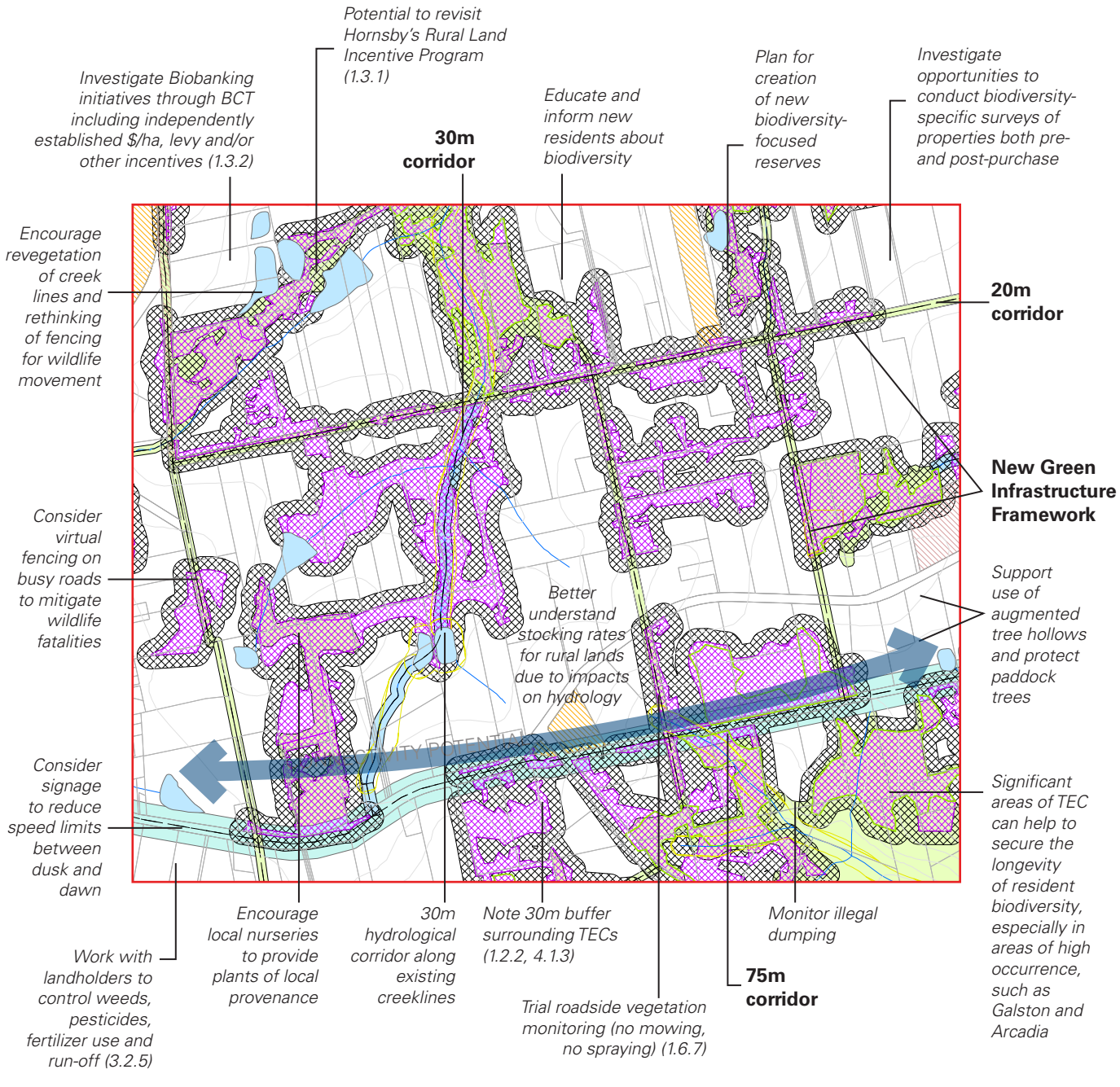
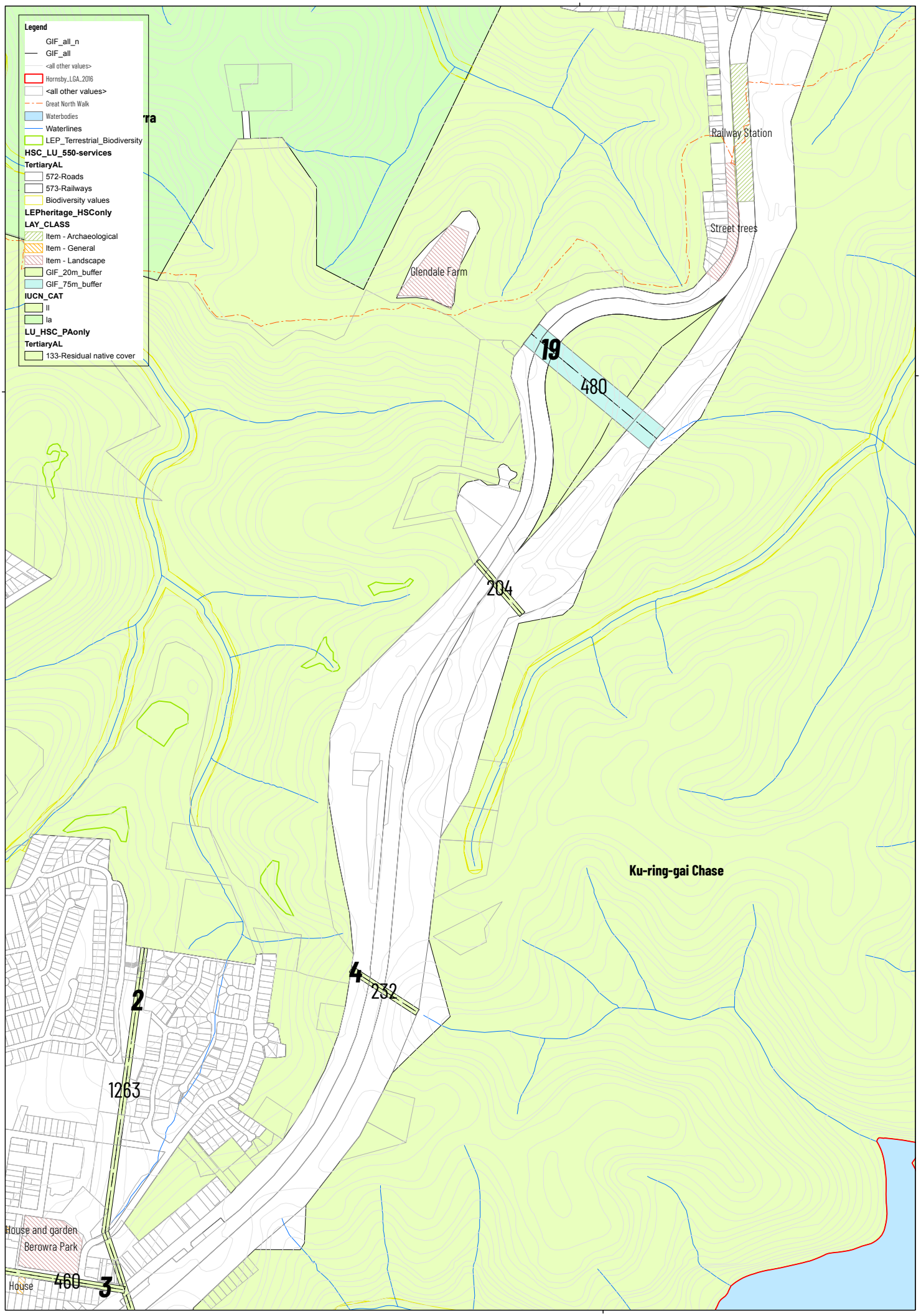


Fig 50. Galston case study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GIF_all
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Hornsby_LGA_2016
<all other values>
Great North Walk
Waterbodies
Waterlines
LEP_Terrestrial_Biodiversity
HSC_LU_550-services
TertiaryAL
572-Roads
573-Railways
Biodiversity values
LEPheritage_HSConly
LAY_CLASS
Item - Archaeological
Item - General
Item - Landscape
GIF_20m_buffer
GIF_75m_buffer
IUCN_CAT
II
Ia
LU_HSC_PAonly
TertiaryAL
133-Residual native cover
Railway Station
Street trees
Glendale Farm
19
480
204
Ku-ring-gai Chase
4
232
2
1263
House and garden
Berowra Park
House
460
3

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.

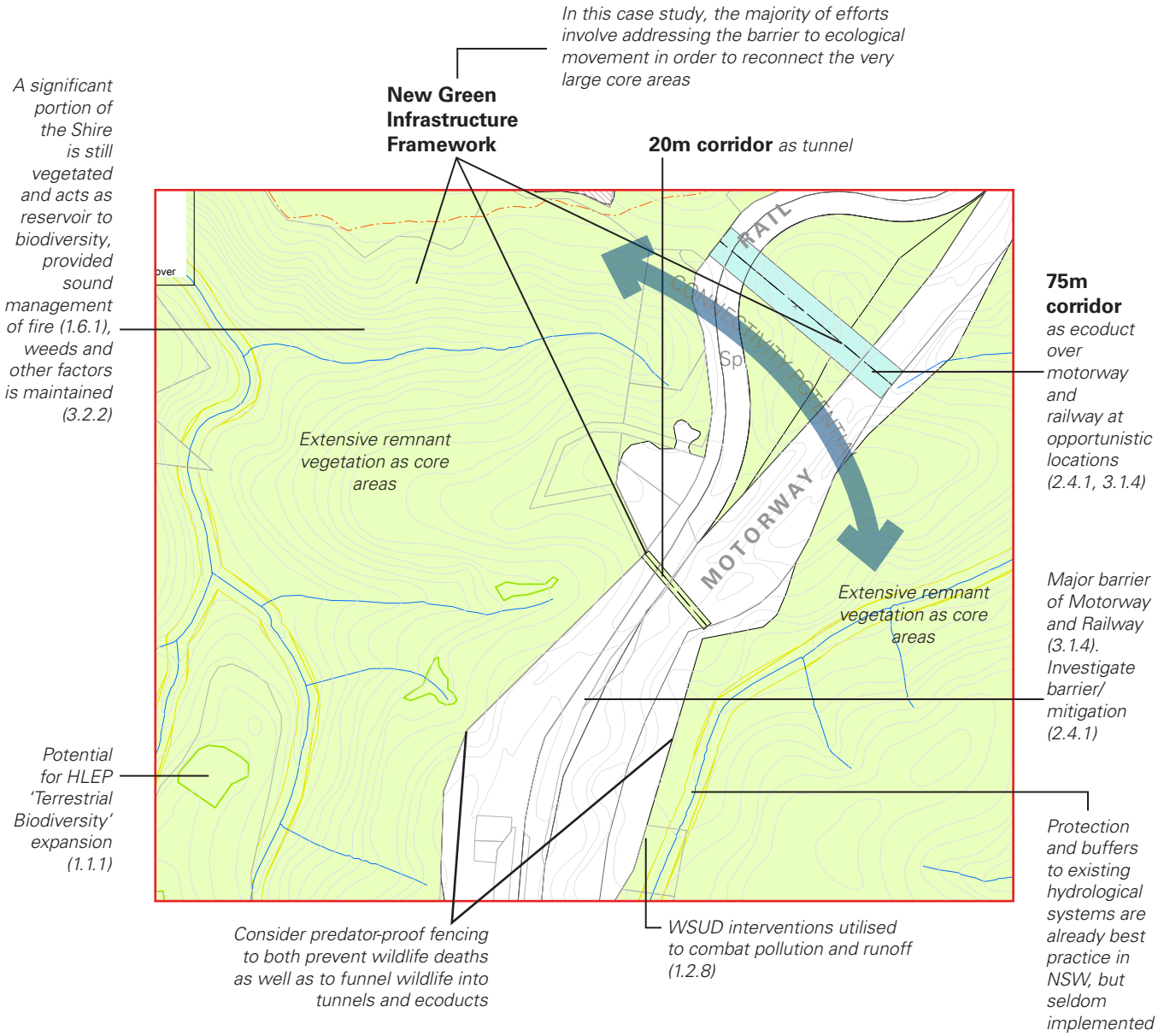
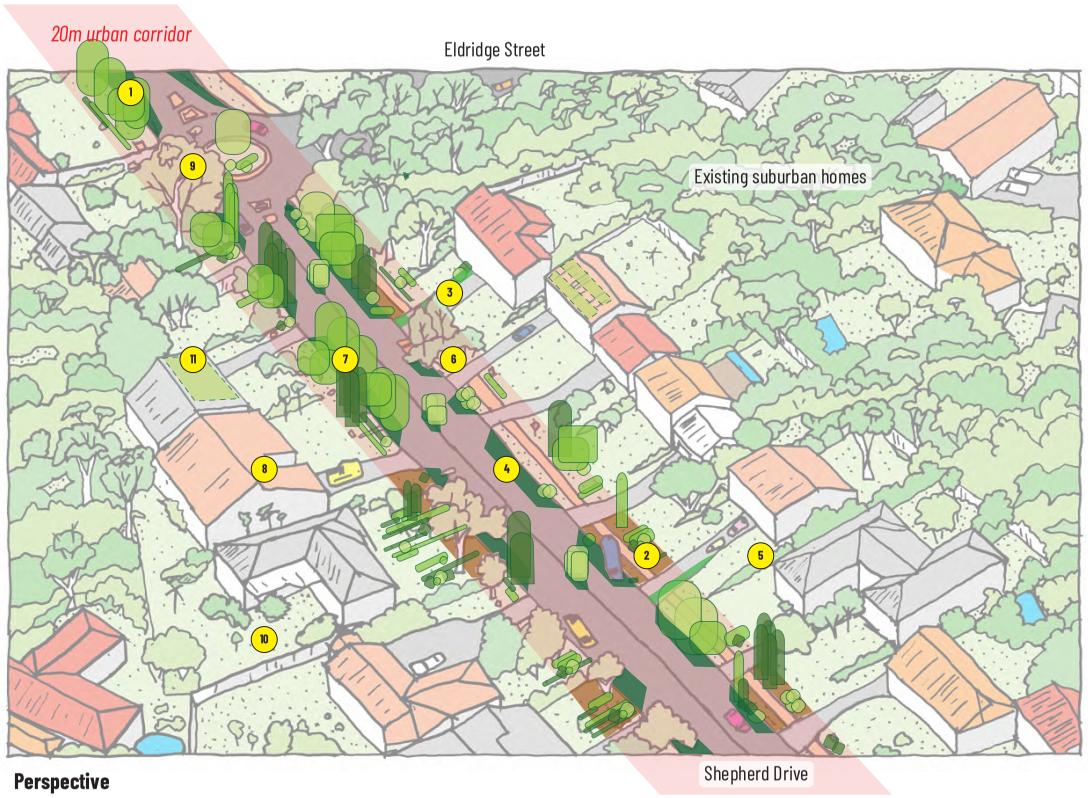
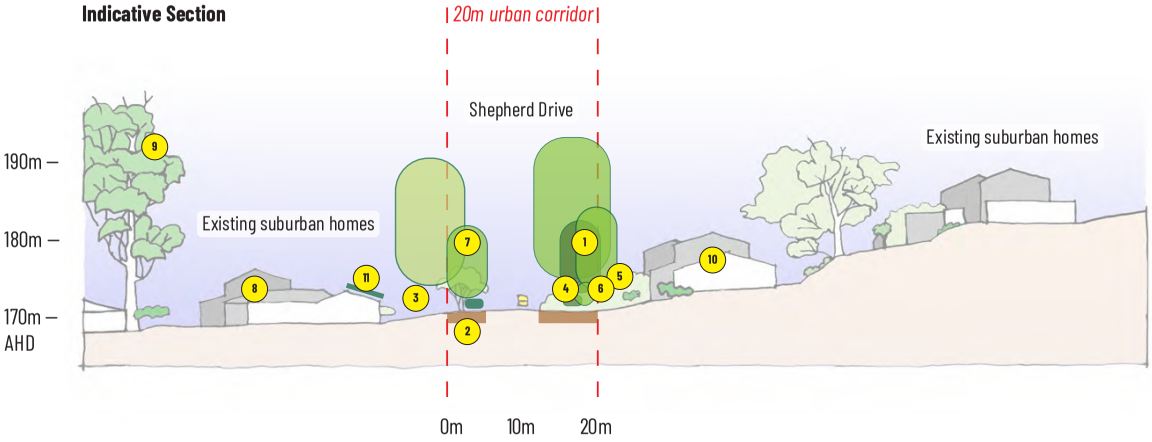


Fig 51. Berowra Heights/Motorway case study

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



Perspective



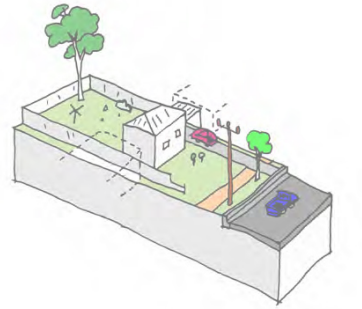
20 metre 'urban' corridors

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.

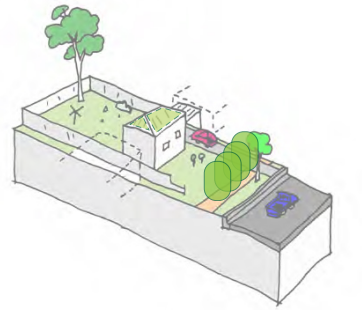
Example location: Shepherd Drive, Cherrybrook

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:

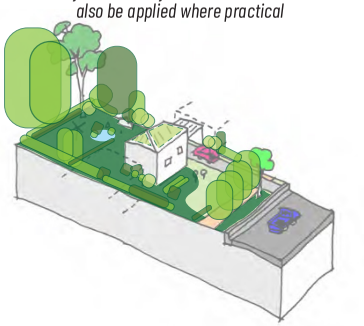
1. Interconnect street canopy by filling vacant street tree sites with appropriate endemic species and retaining and actively managing habitat trees via street tree planting plan
2. Protect and enhance front setbacks through DCP and apply deep soil requirements
3. Select replacement of carparks, driveways 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 effctively 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



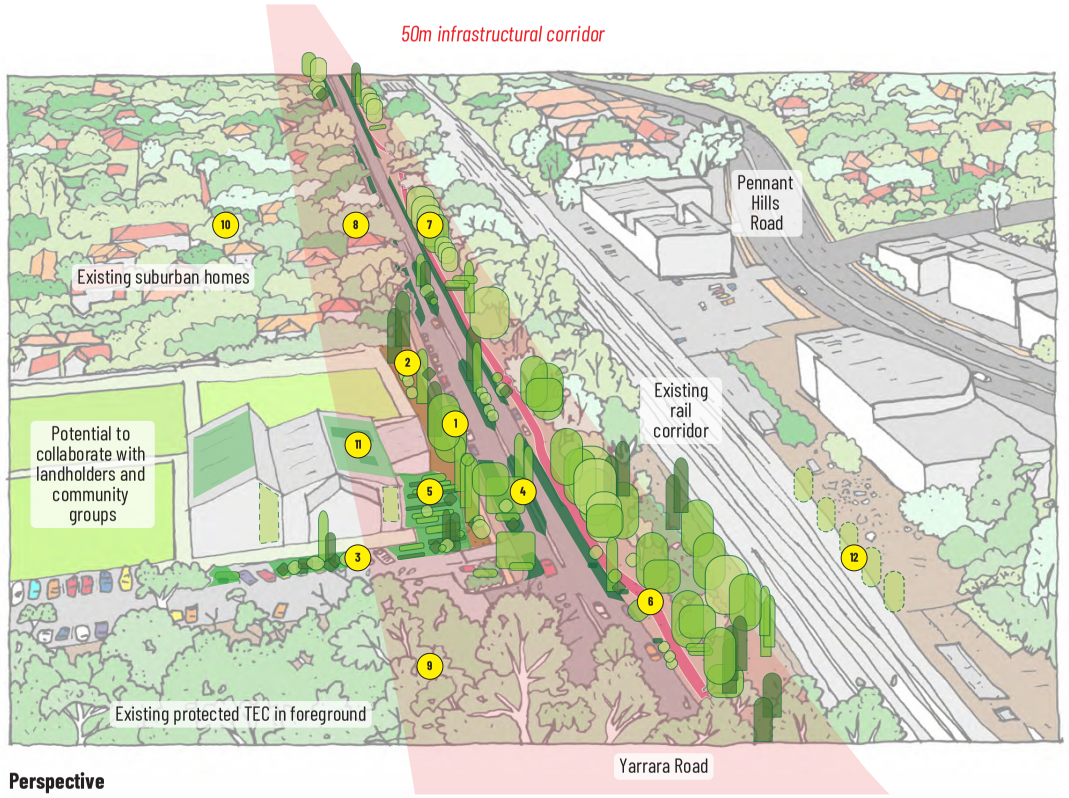
Many suburban housing lots do not perform particularly well when considering biodiversity. Poor habitat includes large expanses of lawn reliant on fertiliser and pesticides that make their way into streams and creeks. A lack of shade trees contribute to the urban heat island, while understorey is often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



Perspective

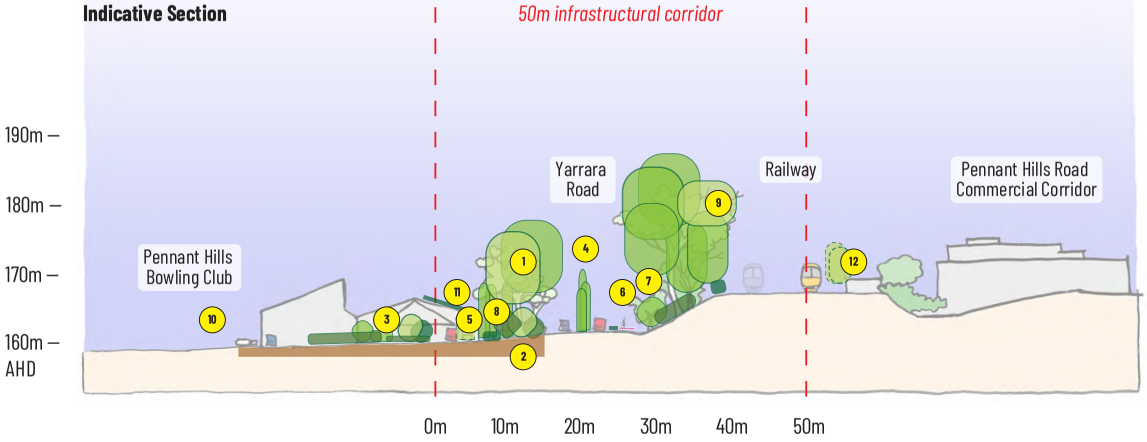


Fig 53. Green Infrastructure Framework visualisation: 50 metre 'infrastructural' corridor

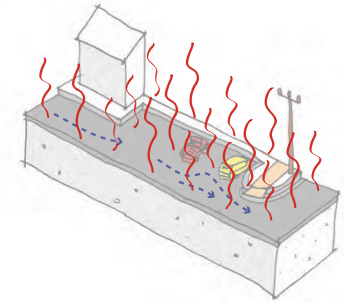
50 metre 'infrastructural' corridors

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 imapcts.

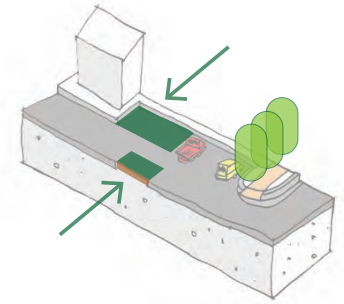
Location: Yarrara Road, Pennant Hills

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:

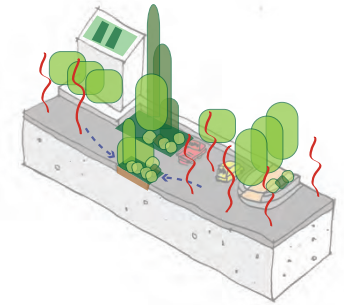
1. Interconnect street canopy by filling vacant street tree sites with appropriate endemic species and retaining and actively managing habitat trees via street tree planting plan
2. Protect and enhance front setbacks through DCP and apply deep soil requirements
3. Select replacement of carparks, driveways 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 fencelines (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
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 effctively 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. The greening of roofs and the installation of green walls is encouraged pursuant to the development of relevant Council policy and position
12. 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

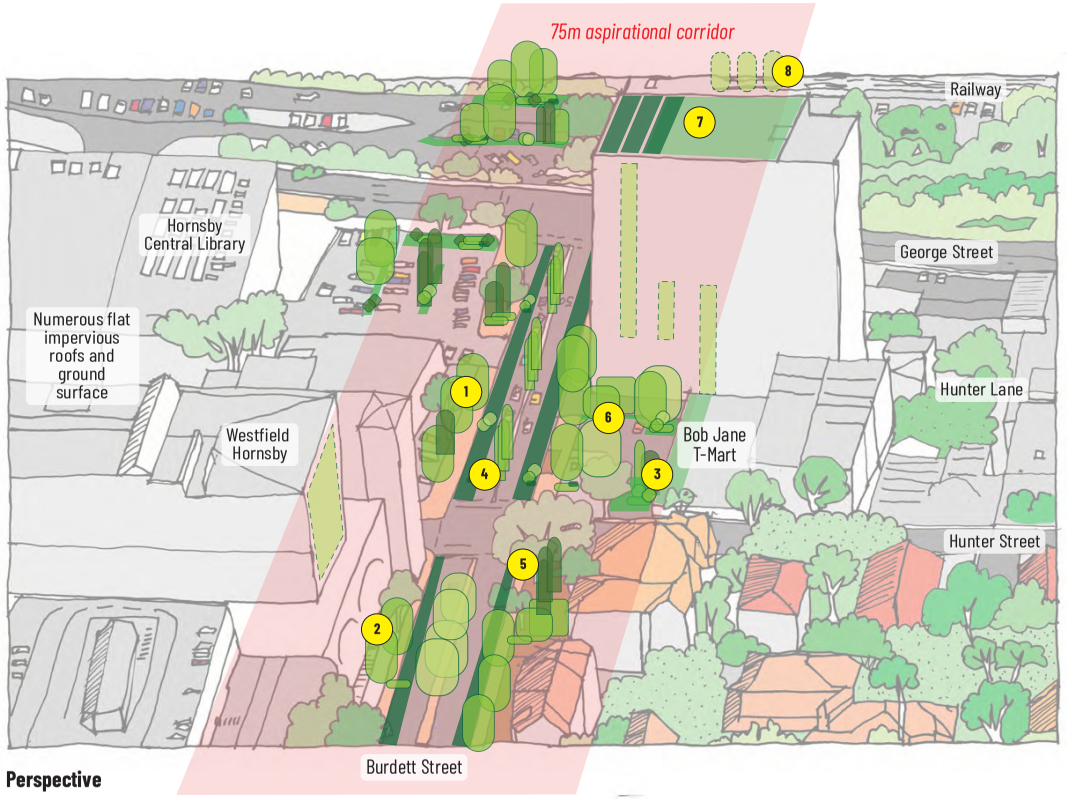


Removing powerlines leaves more space for street trees and swales and microhabitat are created in place of impervious surfaces

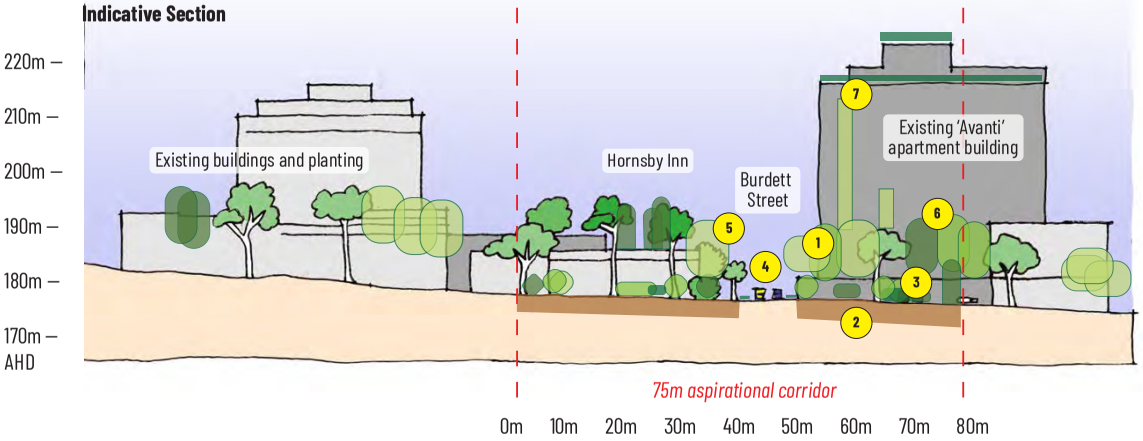


Vegetating impervious surfaces such as these and the provision of green roofs and walls helps to create space for trees and biodiversity to thrive and lead to less heat and less runoff

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



Perspective



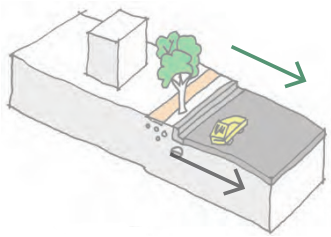
75 metre 'aspirational' corridors

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.

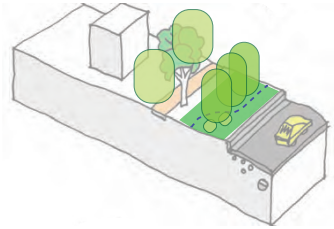
Location: Burdett Street, Hornsby CBD

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:

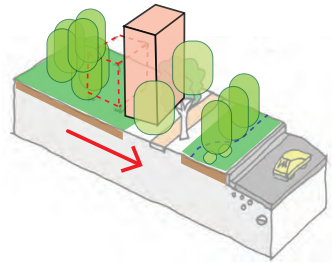
1. Interconnect street canopy and support biodiversity by filling vacant street tree sites with mix of species appropriate for highly constrained urban environment and retaining and actively managing habitat trees via street tree planting plan
2. Protect and enhance front setbacks through DCP and apply 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 firendly 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



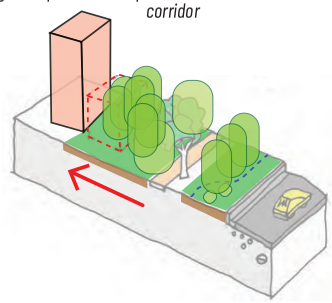
Narrowing of road and movement of services and infrastructure above and below ground to create additional space for street trees, understorey biodiversity planting and WSUD



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 vegetaion, deep soil zones, green walls and roofs.



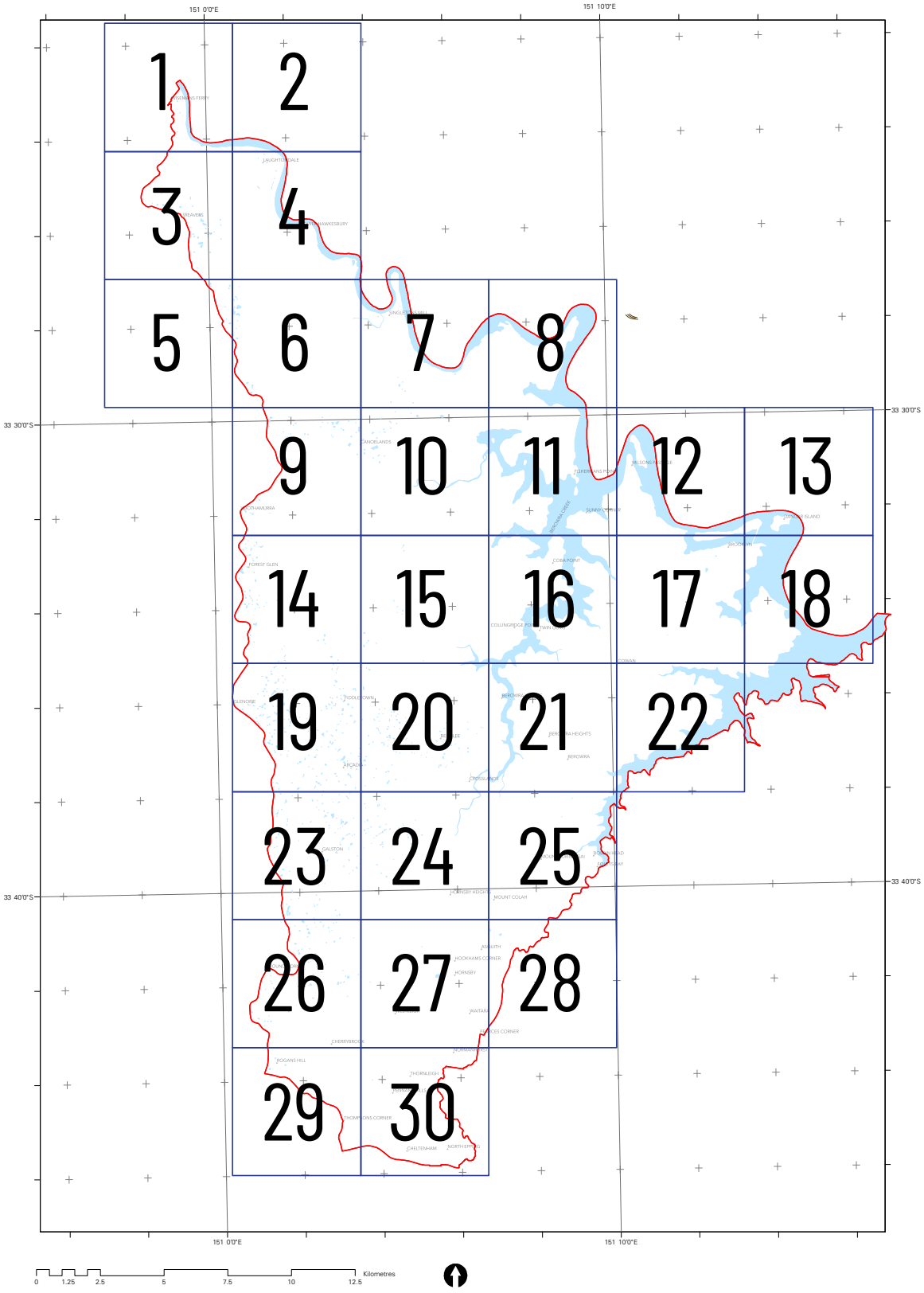
Future redevelopment to the front of the lot creates green space and deep soil zone further from the GIF corridor

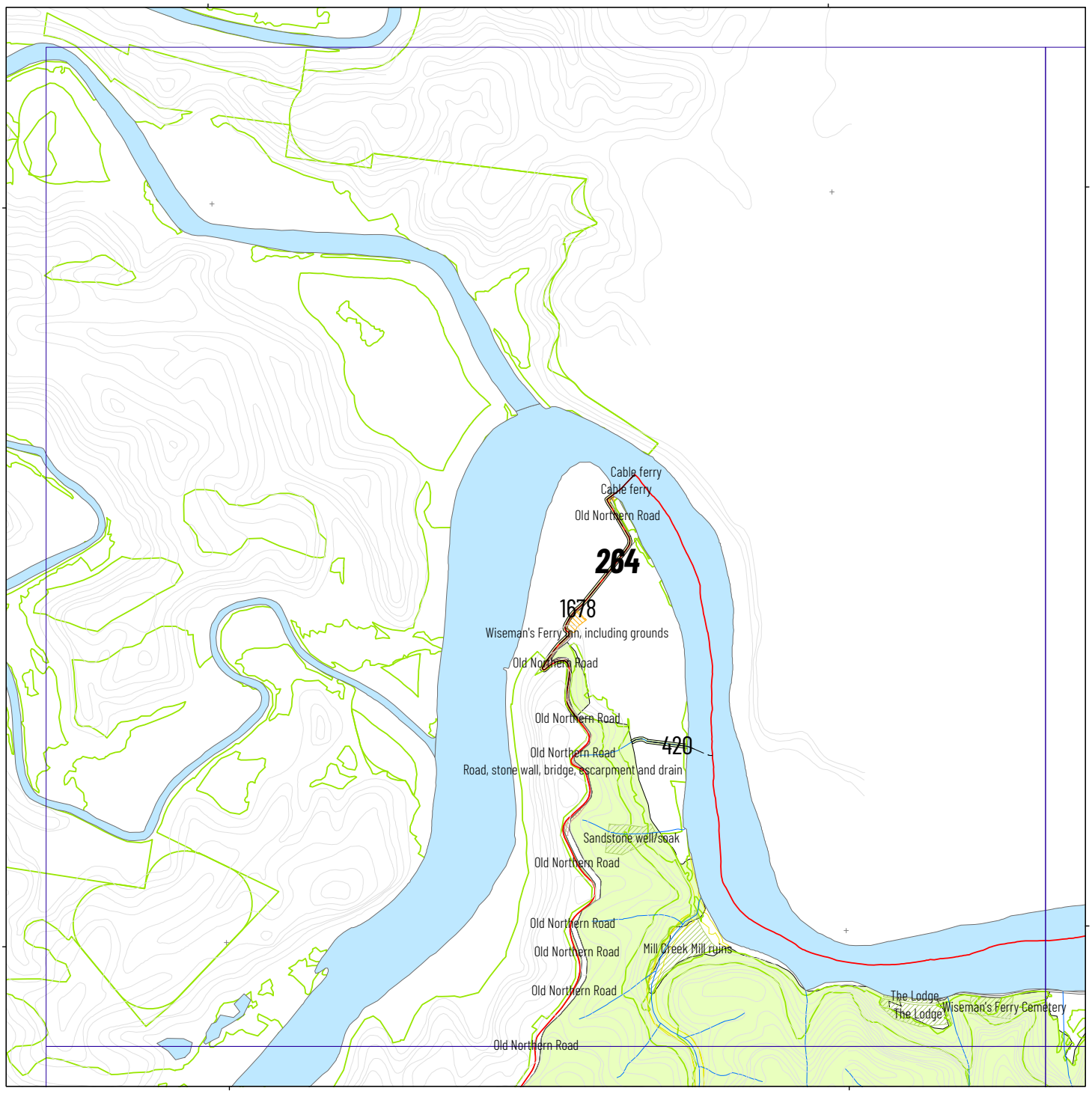


Future redevelopment to the rear of the lot creates alternative green space and deep soil zone adjacent to the GIF corridor

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).

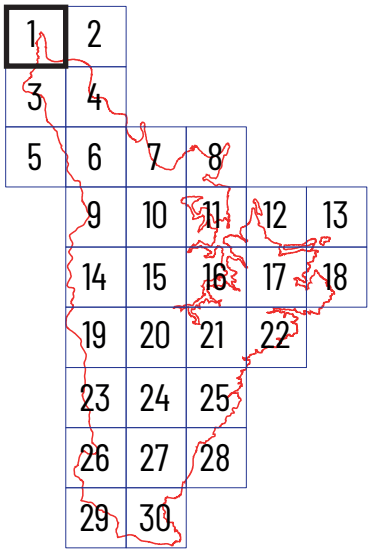




Hornsby LGA 2016
Waterbodies
Hydrology
Residual native vegetation
Great North Walk alignment
IUCN category Ia protected areas
IUCN category II protected areas
IUCN category V protected areas
Contours (5 metre interval)

LEP Terrestrial Biodiversity
TEC
Conservation Area - General
Item - Archeological
Item - General
Item - Landscape
tery, ch ruins an 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)



Kilometers
0
0.45
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1.8

- Hornsby LGA 2016
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- Hydrology
- Residual native vegetation
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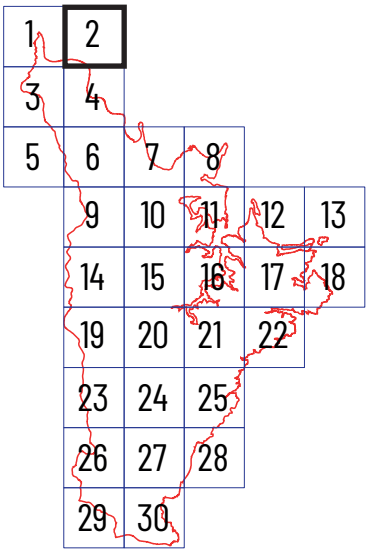

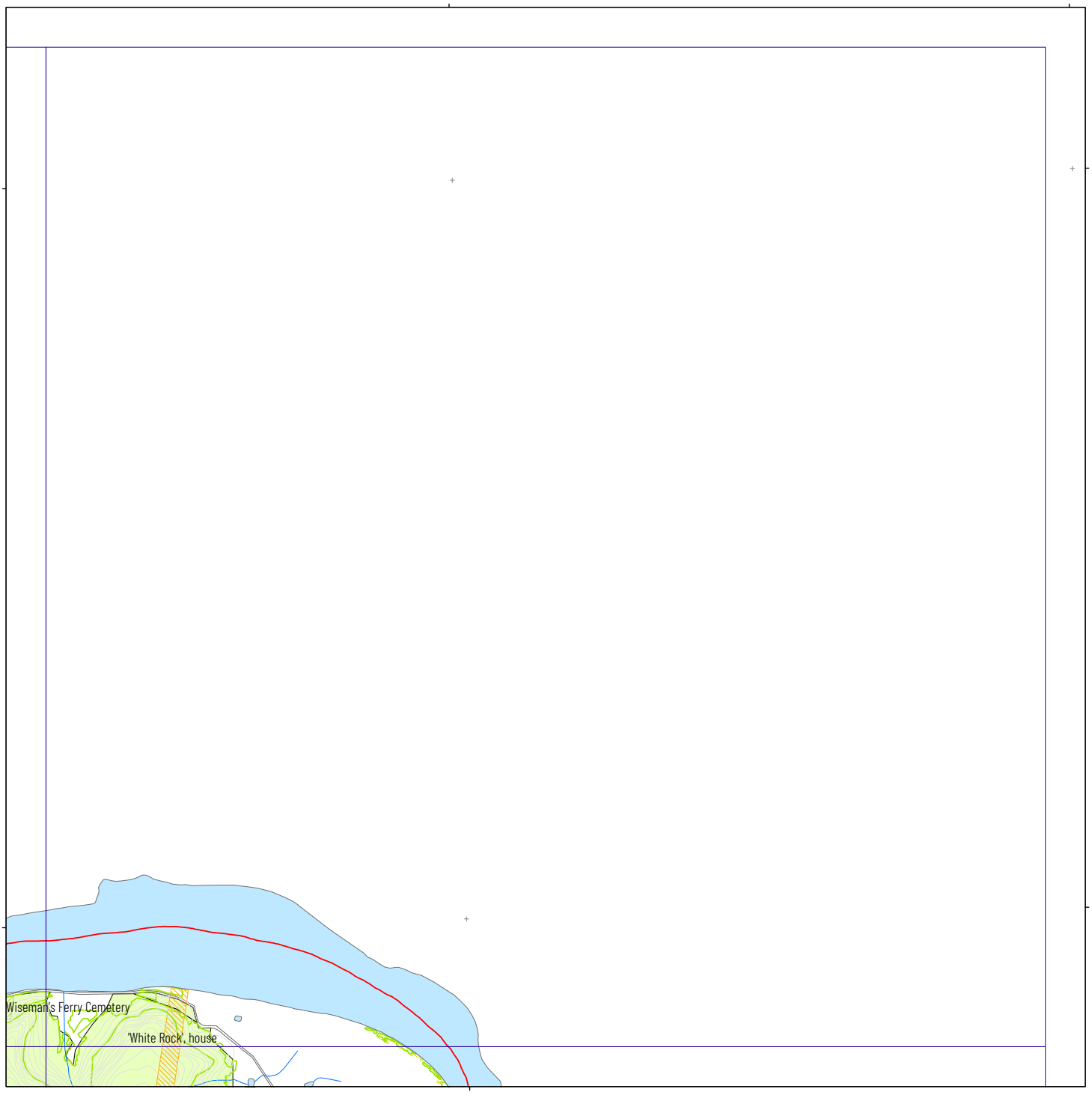

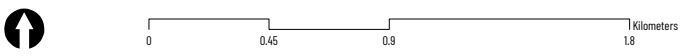

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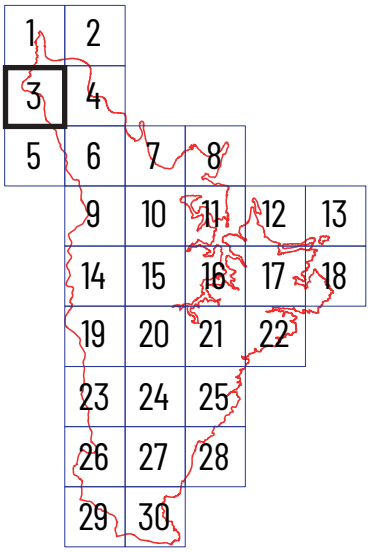

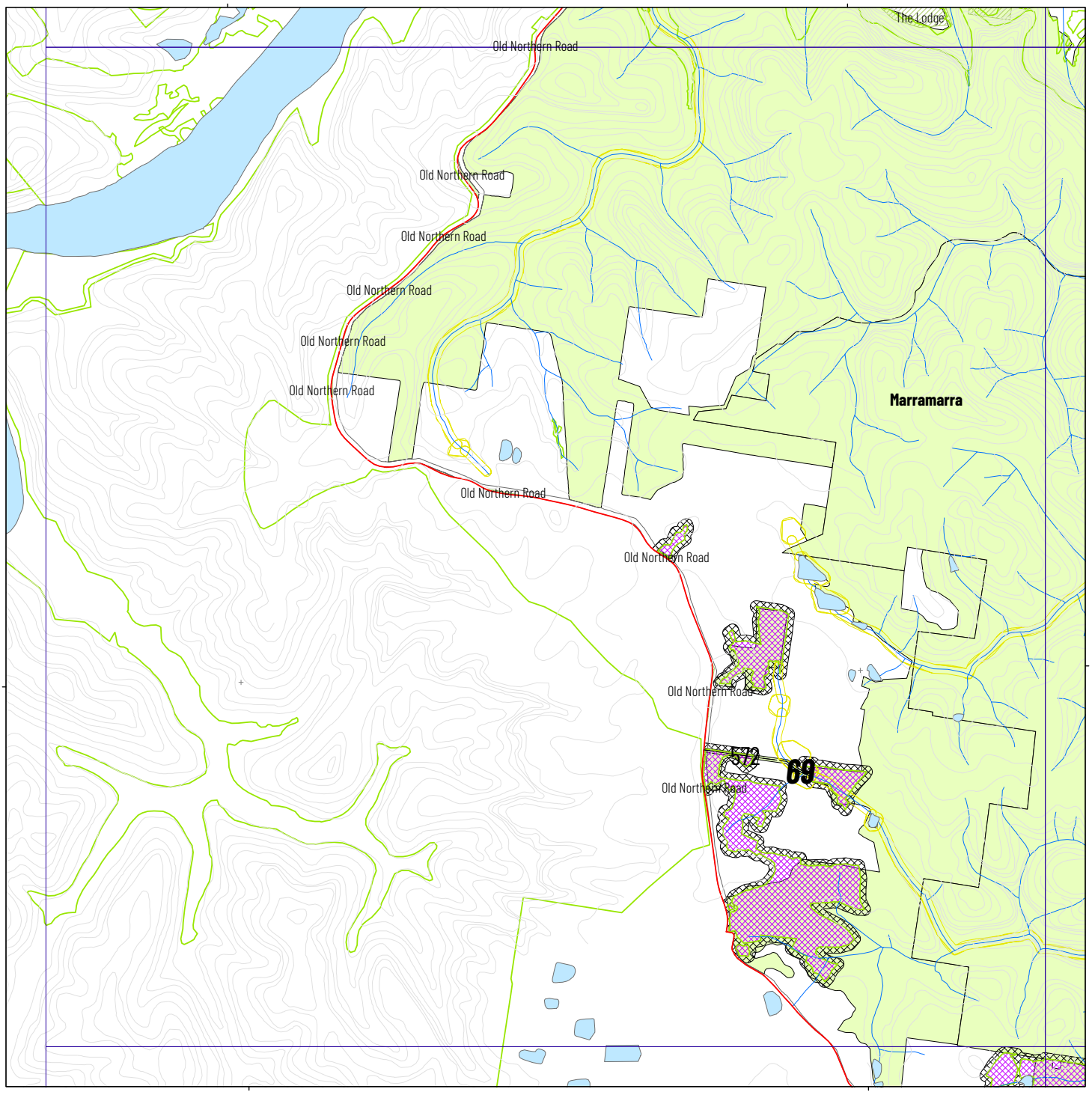

0 0.45 0.9 1.8 Kilometers

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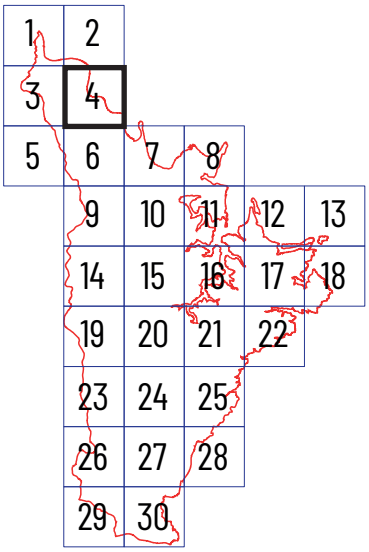

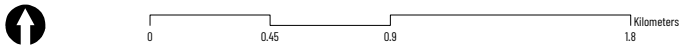

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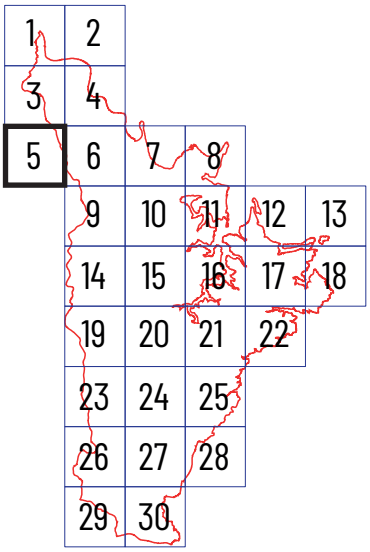

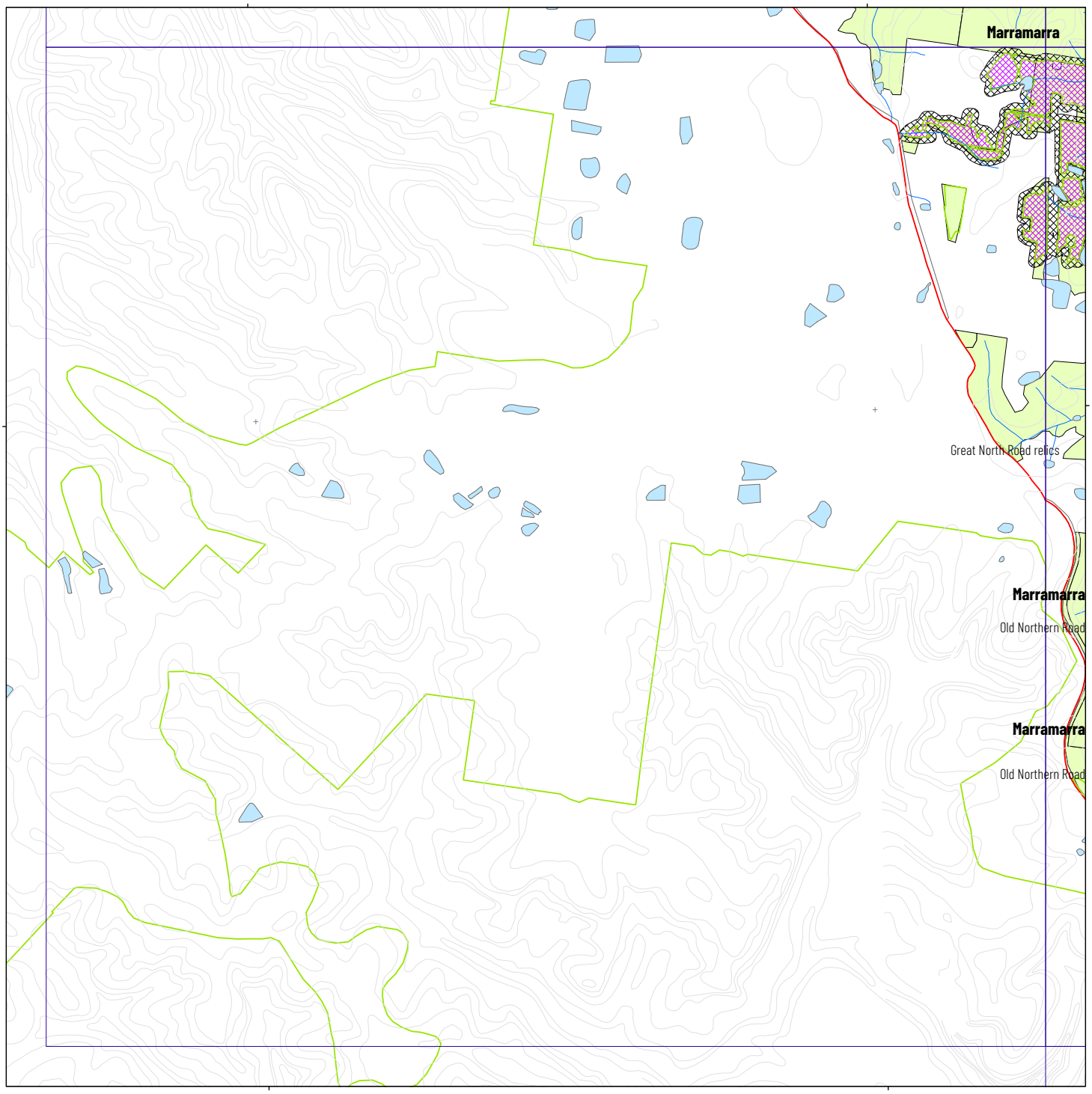

0 0.45 0.9 1.8 Kilometers

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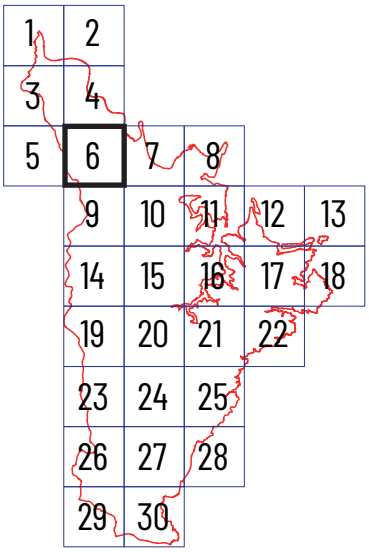

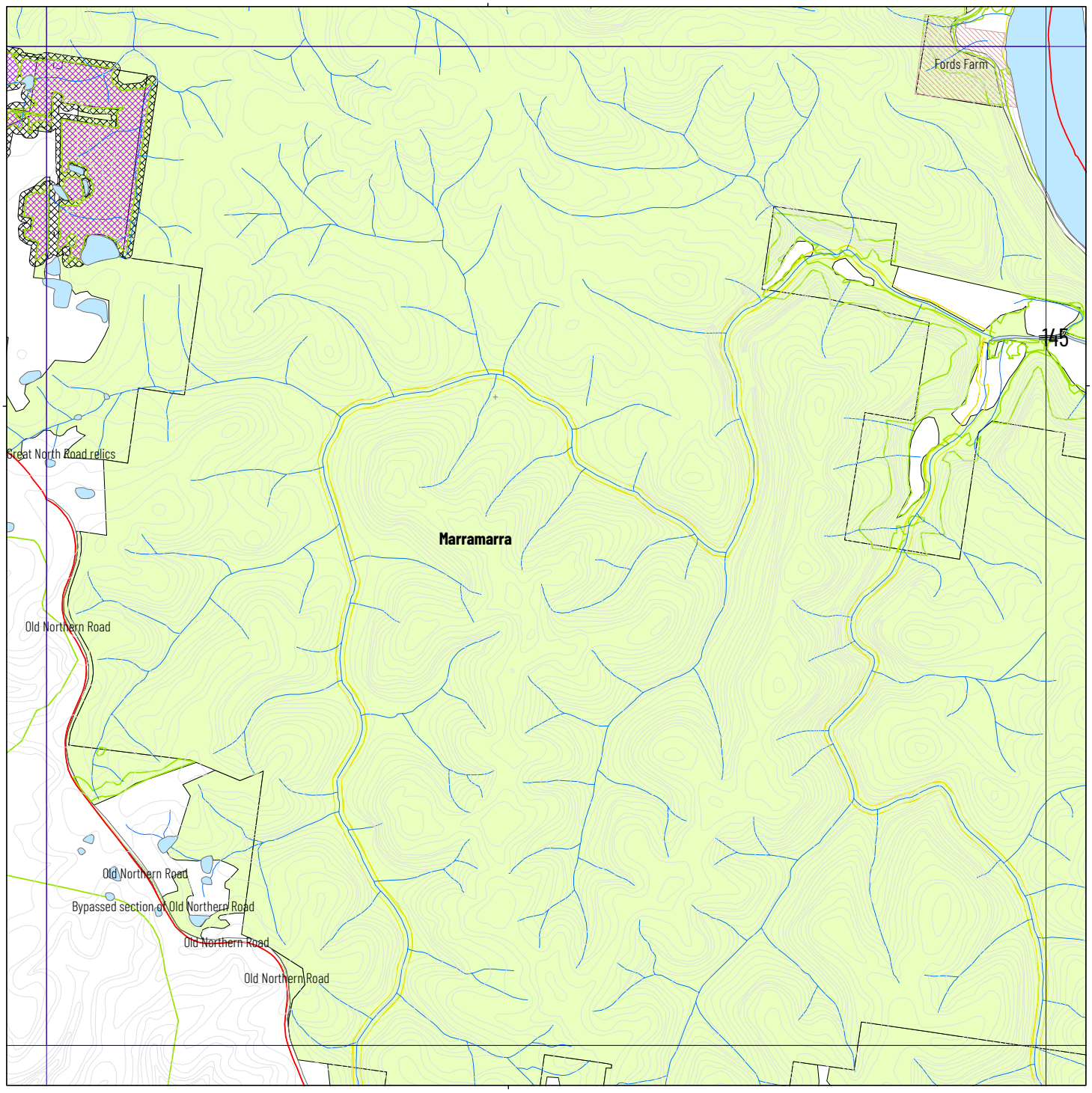

0 0.45 0.9 1.8 Kilometers

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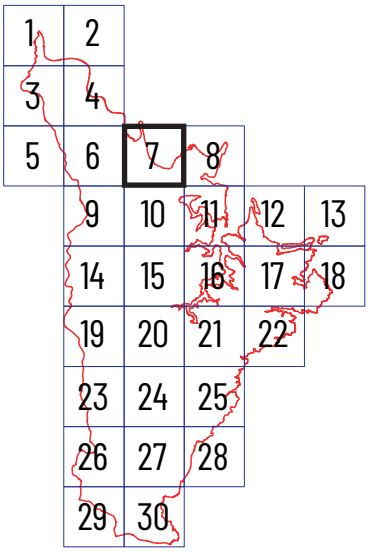

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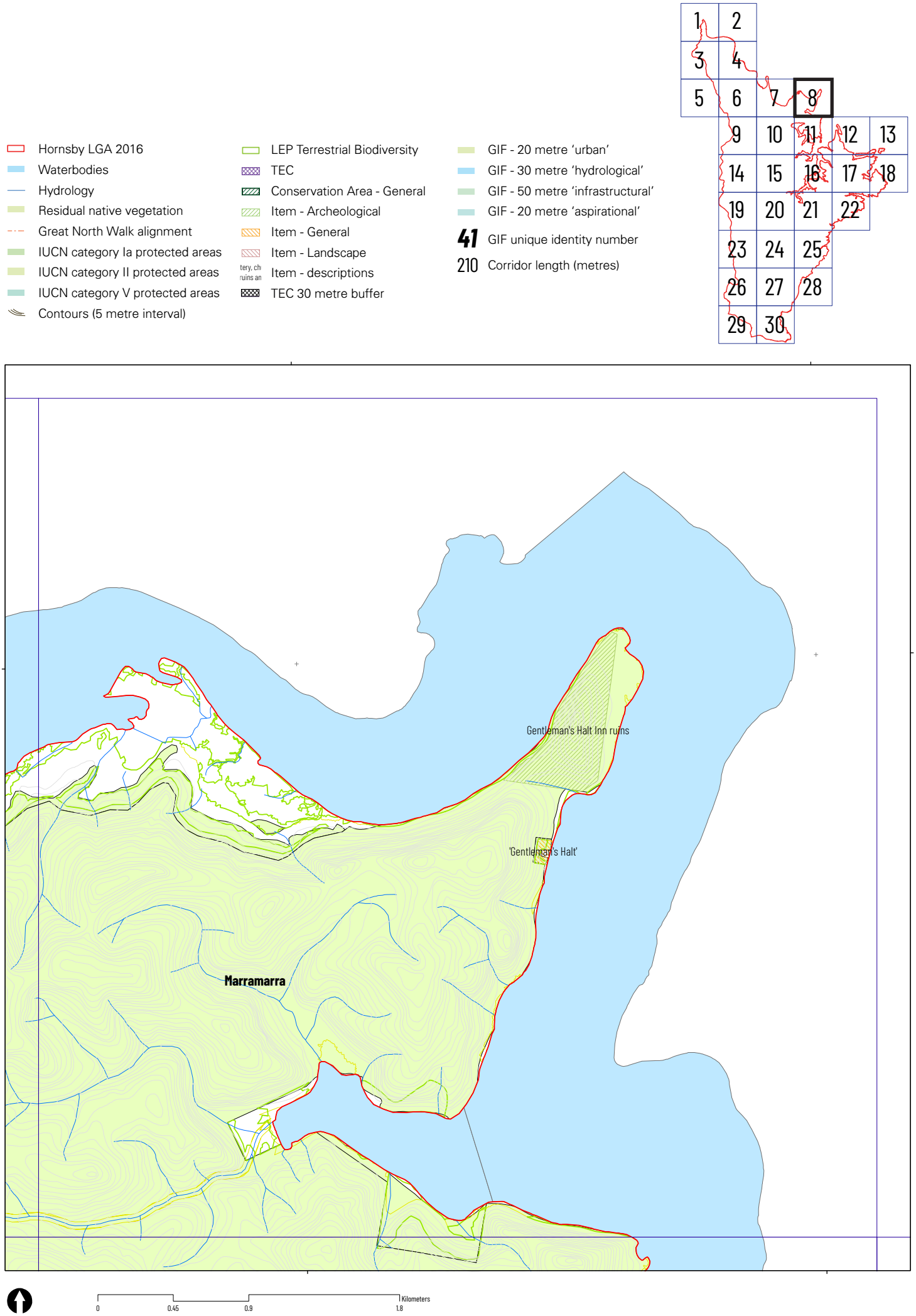
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210 Corridor length (metres)
1 2
3 4
5 6 7 8
9 10 11 12 13
14 15 16 17 18
19 20 21 22
23 24 25
26 27 28
29 30
Gentleman's Halt Inn ruins
'Gentleman's Halt'
Marramarra
0
0.45
0.9
1.8
Kilometers

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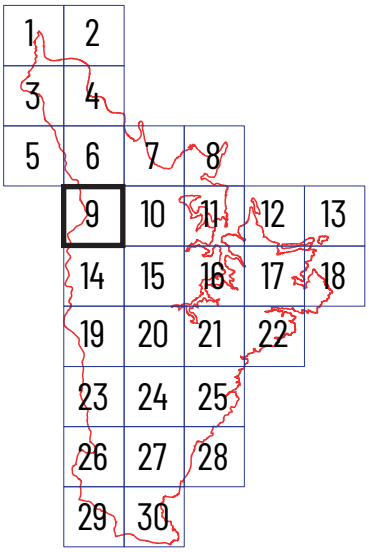
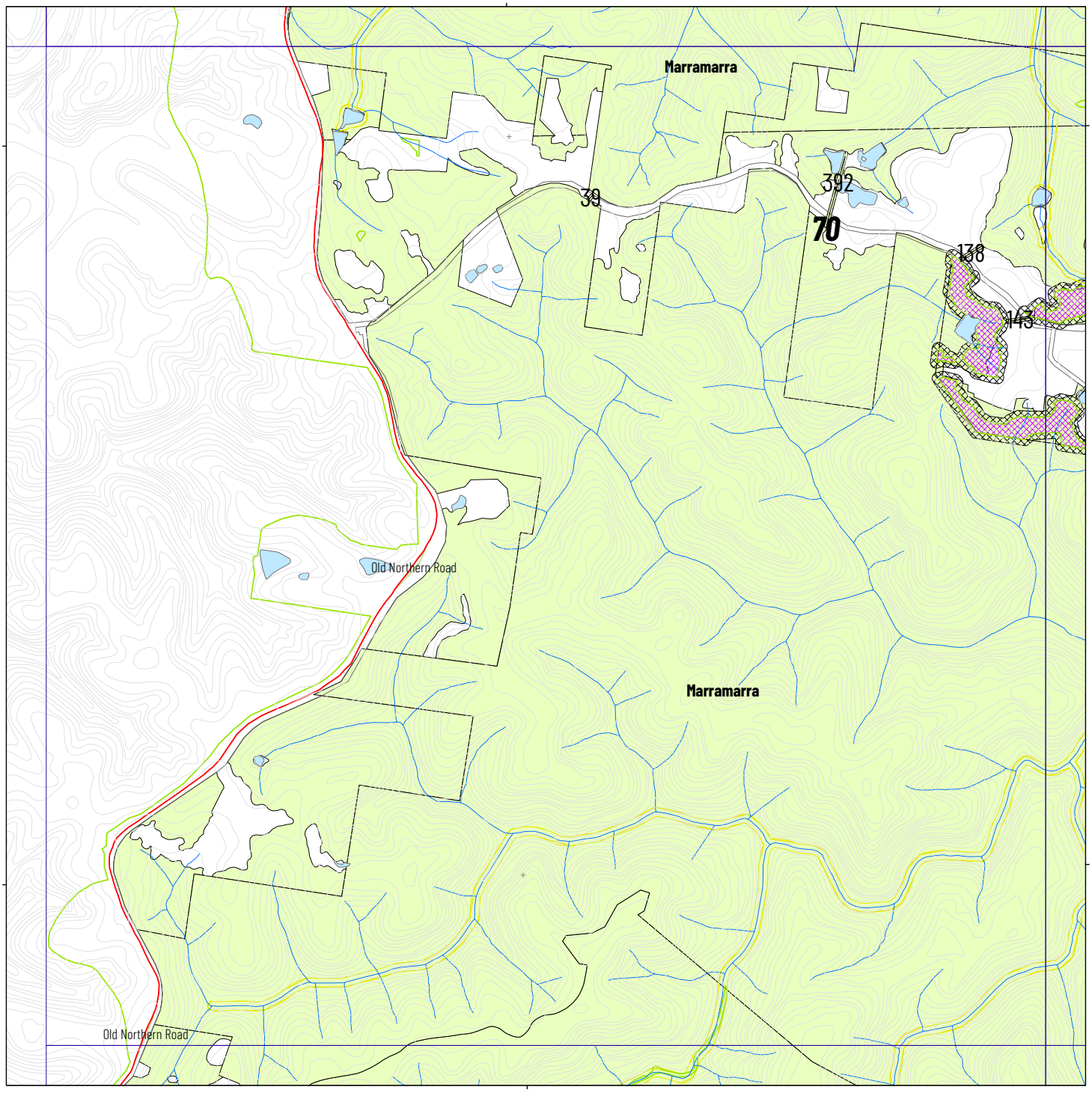
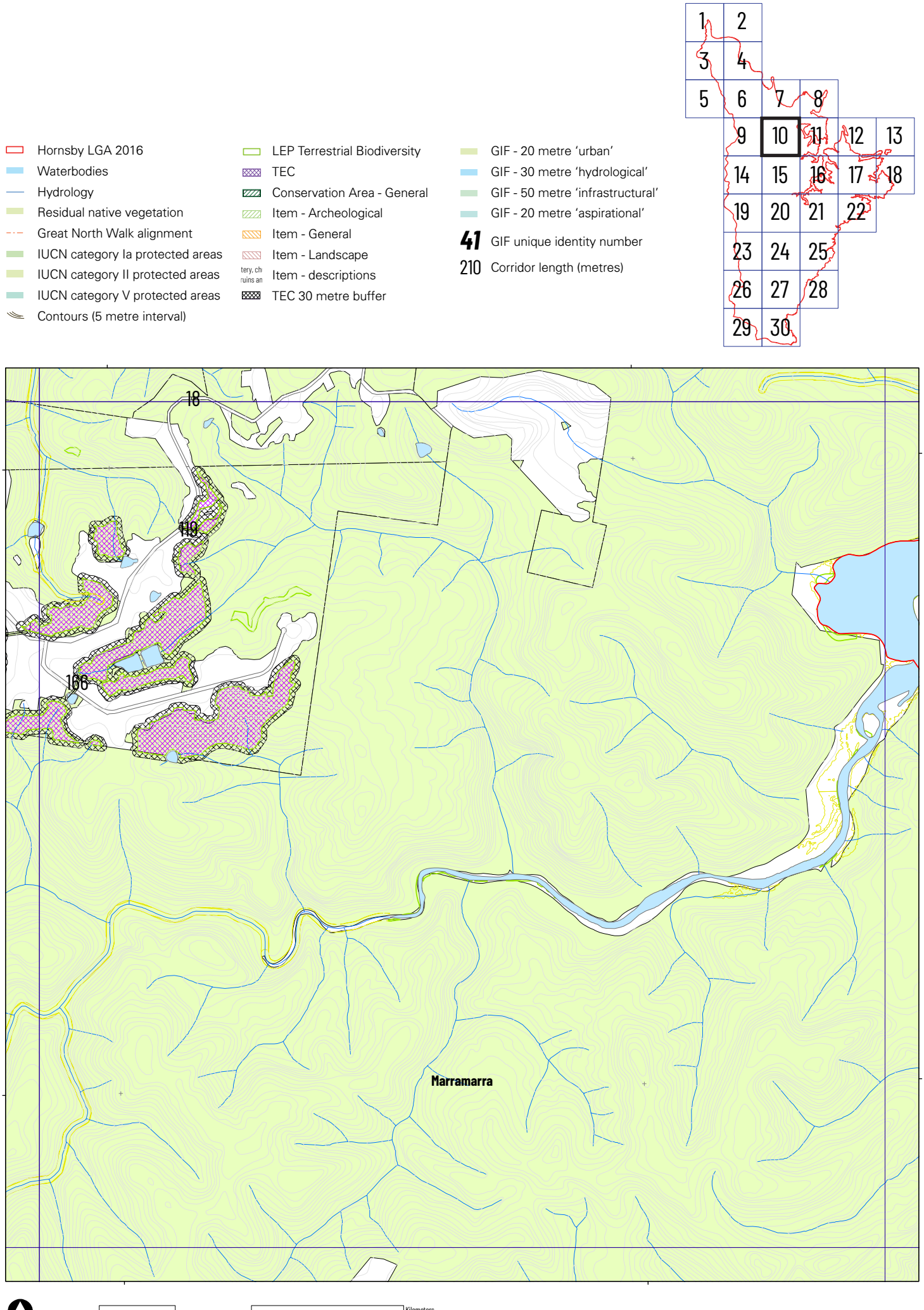




0 0.45 0.9 1.8 Kilometers


Hornsby LGA 2016
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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
18
119
198
Marramarra
0
0.45
0.9
1.8
Kilometers

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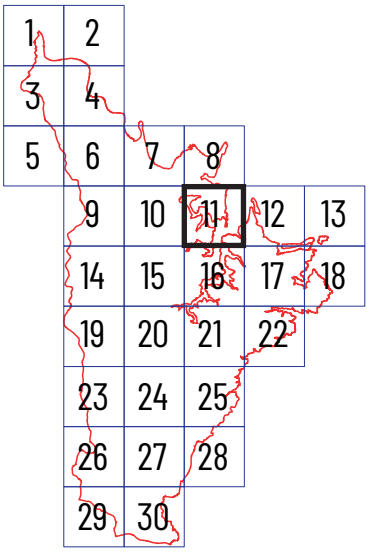

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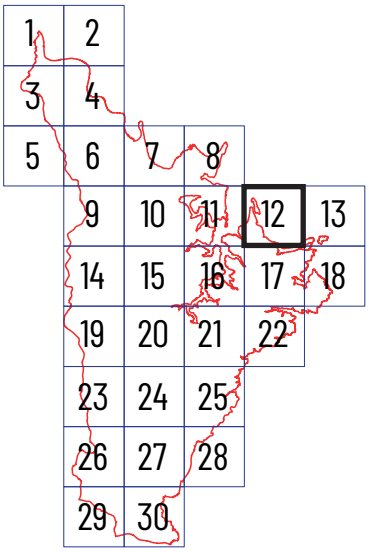

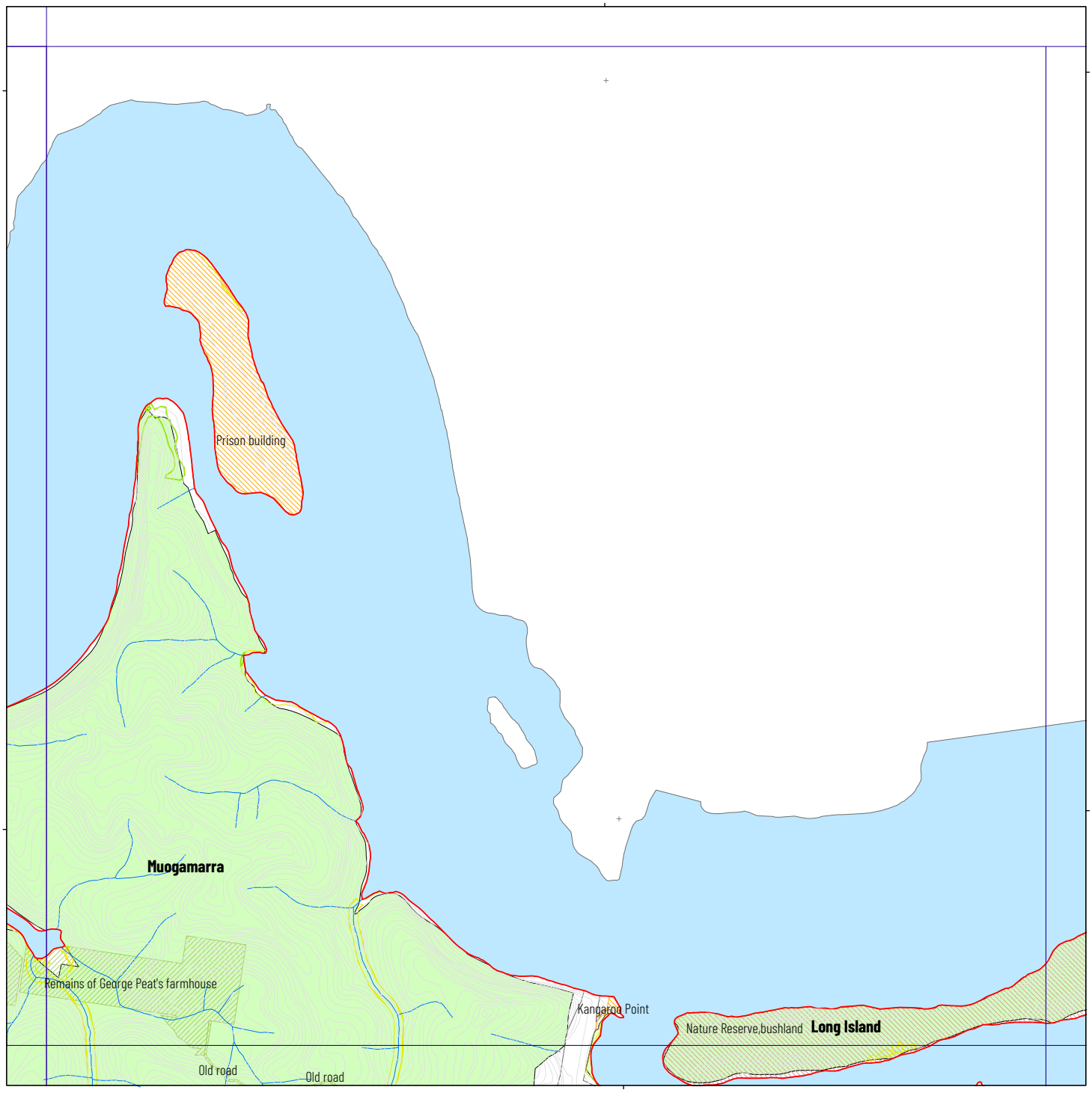

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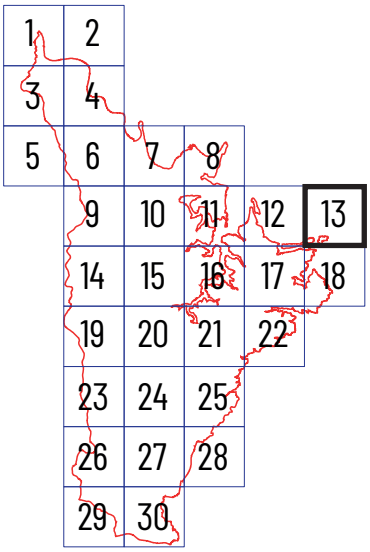

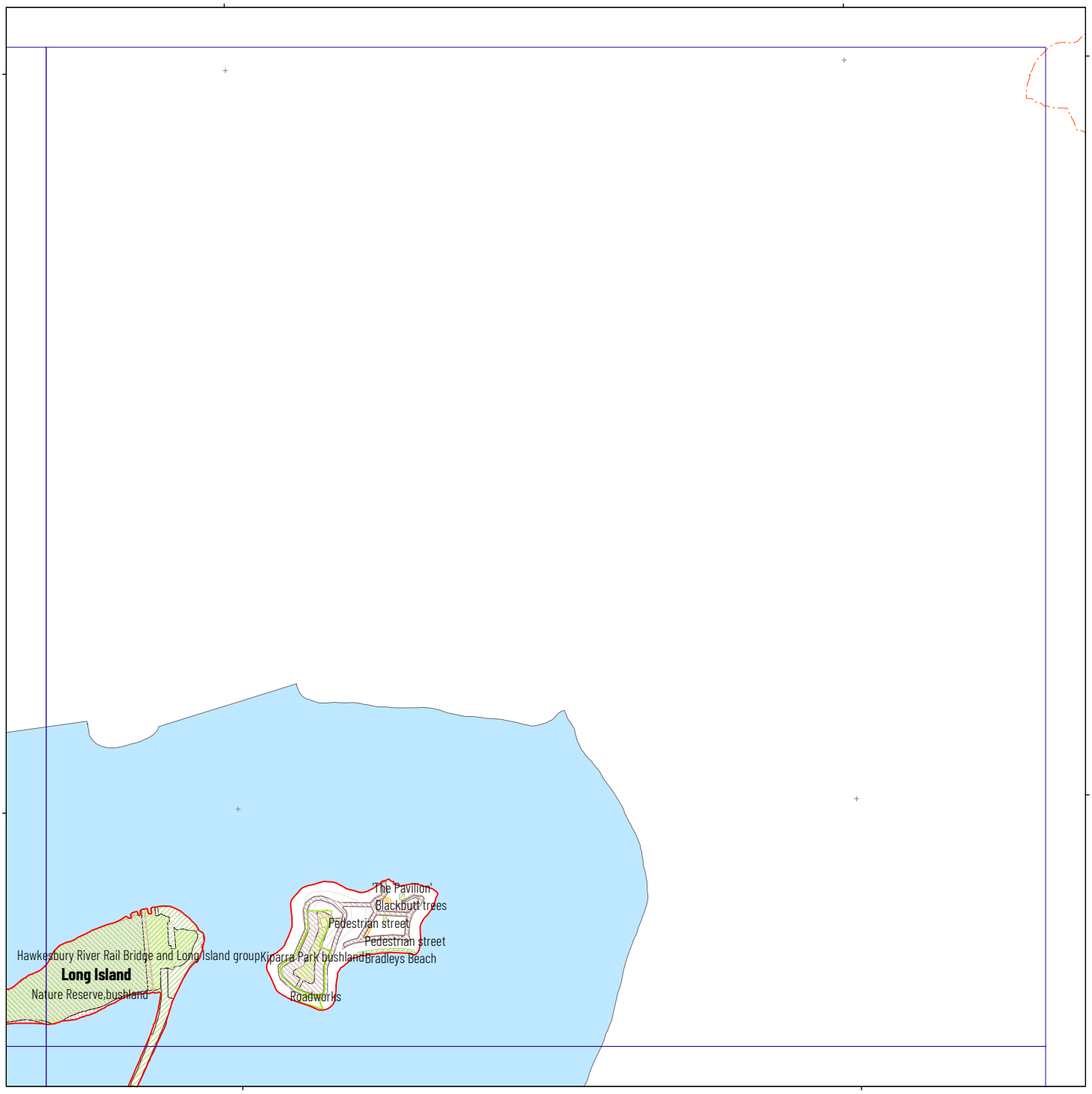

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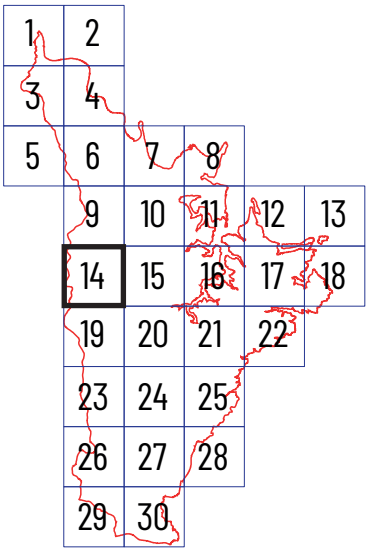

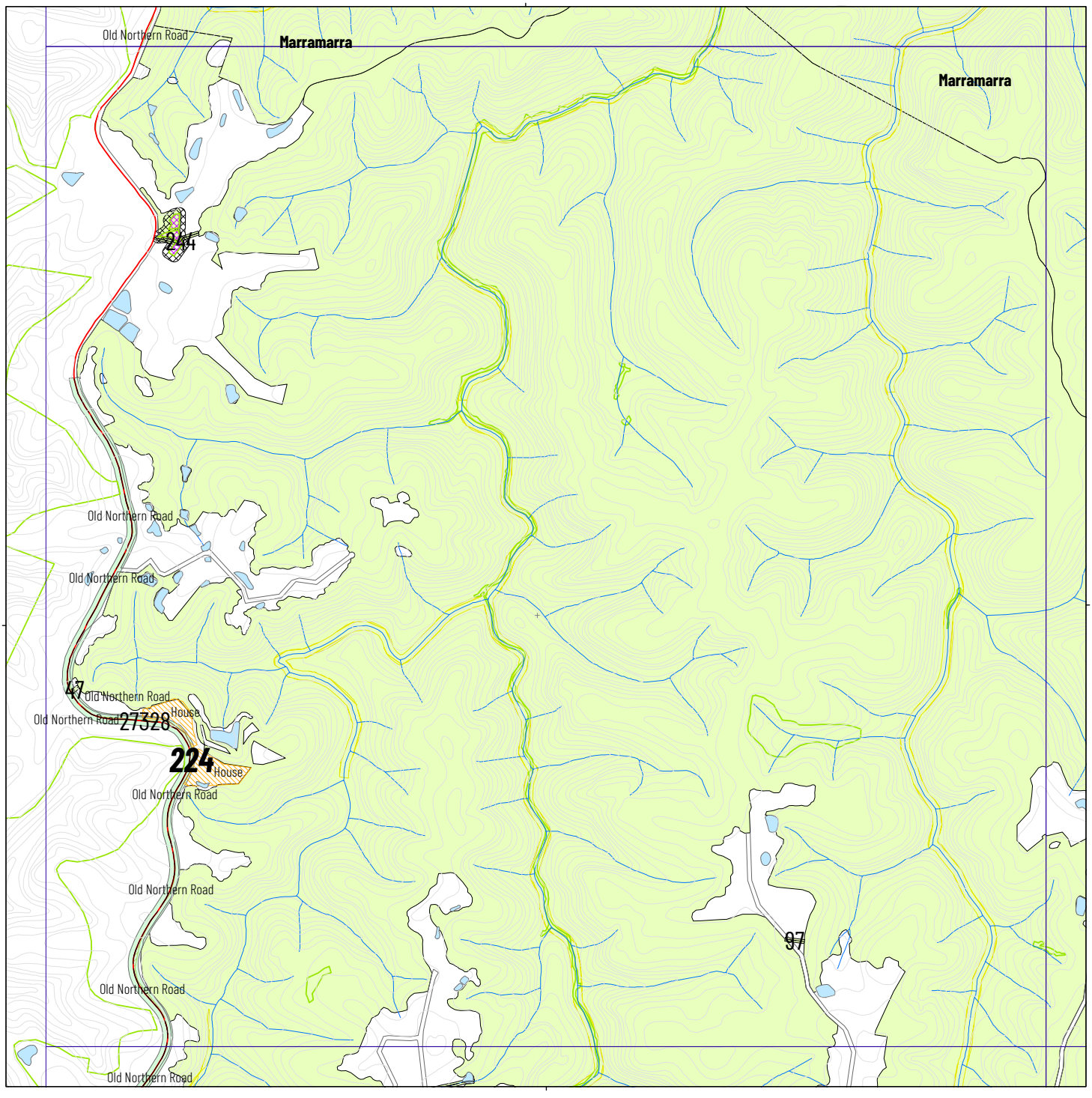

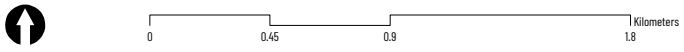

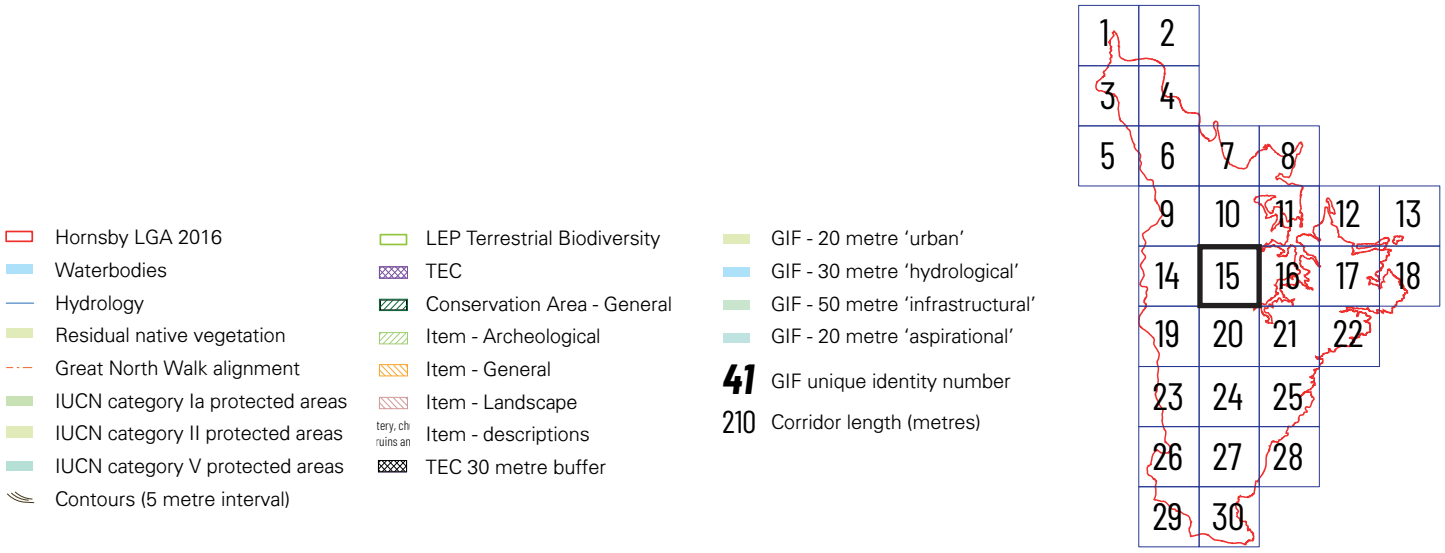
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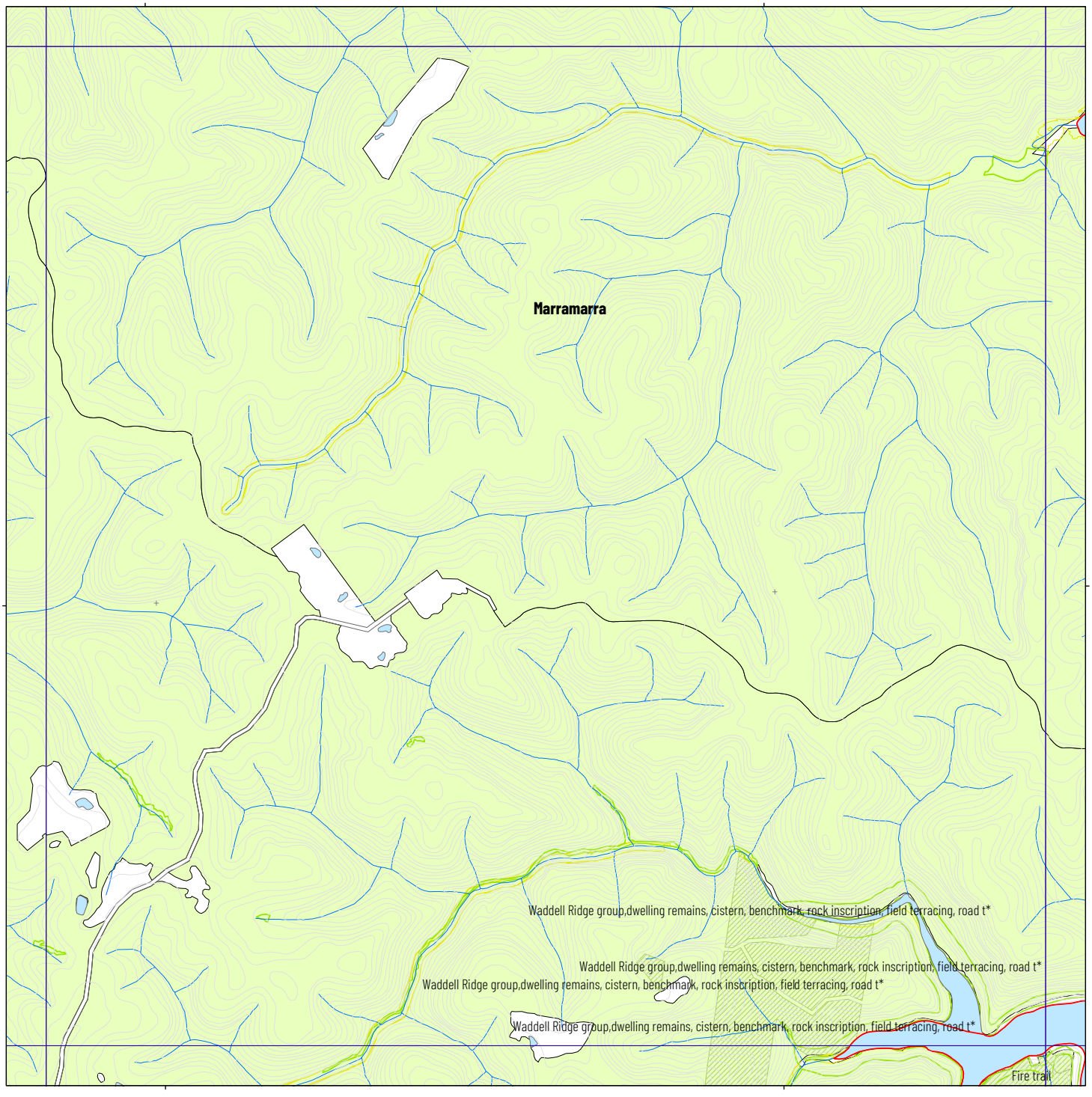
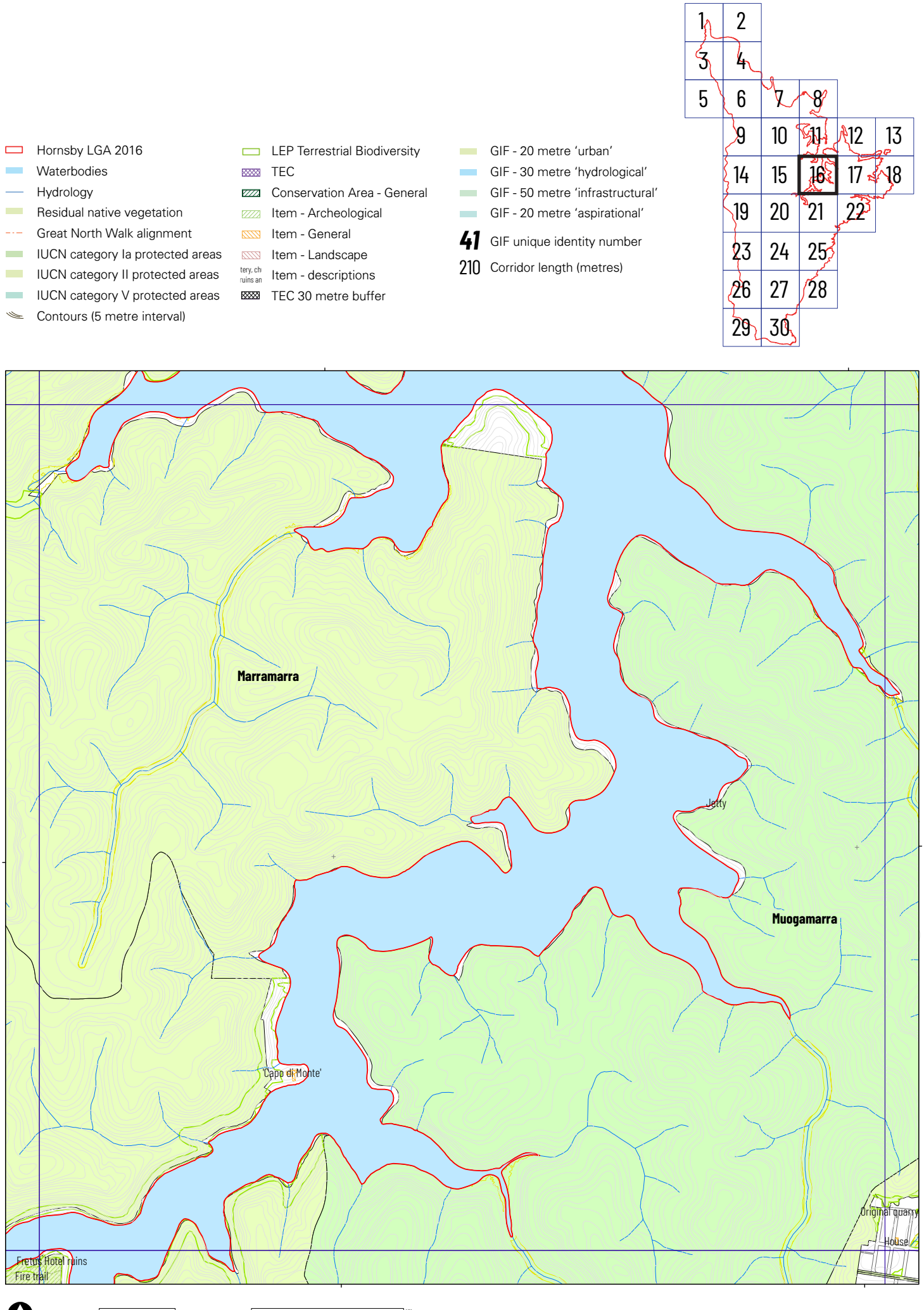

Marramarra
Waddell Ridge group,dwelling remains, cistern, benchmark, rock inscription, field terracing, road t*
Waddell Ridge group,dwelling remains, cistern, benchmark, rock inscription, field terracing, road t*
Waddell Ridge group,dwelling remains, cistern, benchmark, rock inscription, field terracing, road t*
Waddell Ridge group,dwelling remains, cistern, benchmark, rock inscription, field terracing, road t*
Fire trail
0
0.45
0.9
1.8
Kilometers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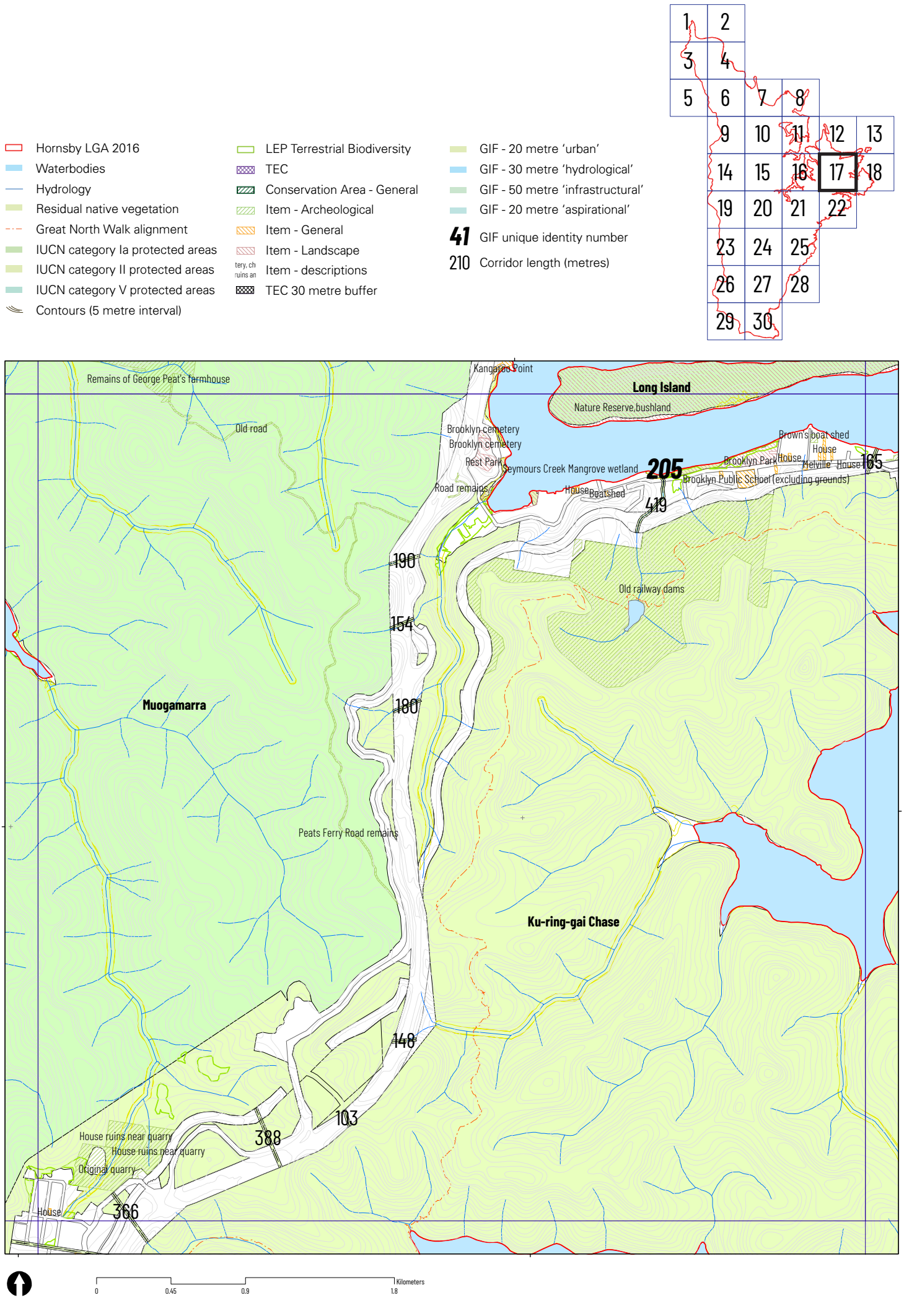
IUCN category Ia protected areas
IUCN category II protected areas
IUCN category V protected areas
Contours (5 metre interval)
LEP Terrestrial Biodiversity
TEC
Conservation Area - General
Item - Archeological
Item - General
Item - Landscape
tery, ch
ruins an
Item - descriptions
TEC 30 metre buffer
GIF - 20 metre 'urban'
GIF - 30 metre 'hydrological'
GIF - 50 metre 'infrastructural'
GIF - 20 metre 'aspirational'
41 GIF unique identity number
210 Corridor length (metres)
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
Marramarra
Jetty
Muogamarra
Capo di Monte'
Original quarry
House
Fretus Hotel ruins
Fire trail
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)
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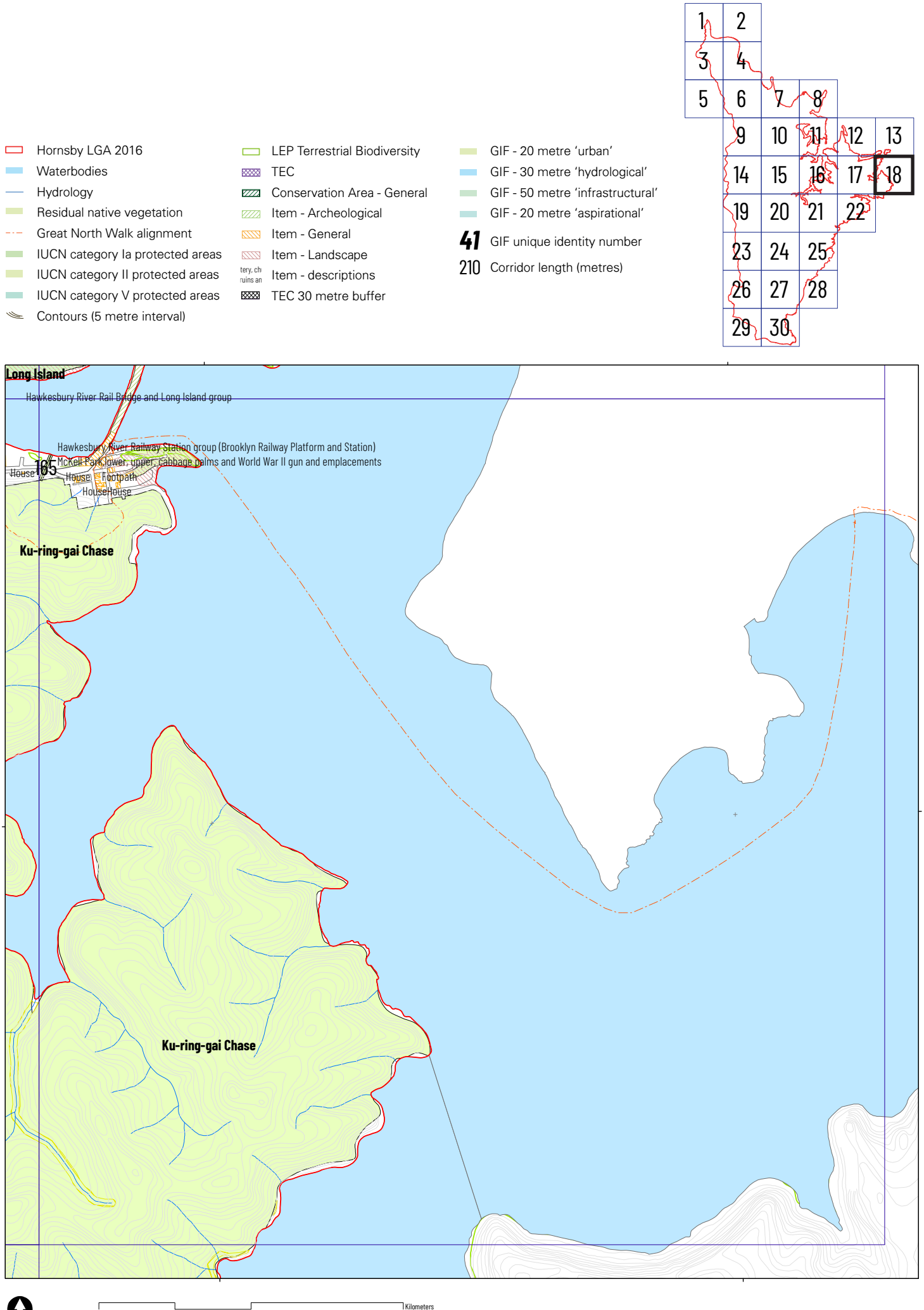
41 GIF unique identity number
210 Corridor length (metres)
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
Remains of George Peat's farmhouse
Old road
Kangaroo Point
Long Island
Nature Reserve,bushland
Brooklyn cemetery
Brooklyn cemetery
Rest Park
Seymours Creek Mangrove wetland
205
Road remains
House
Boatshed
419
Brown's boat shed
House
Brooklyn Park
House
Melville House
105
Brooklyn Public School (excluding grounds)
190
154
180
Old railway dams
Muogamarra
Peats Ferry Road remains
Ku-ring-gai Chase
148
103
388
House ruins near quarry
House ruins near quarry
Original quarry
House
366
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)
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GIF - 30 metre 'hydrological'
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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
Long Island
Hawkesbury River Rail Bridge and Long Island group
Hawkesbury River Railway Station group (Brooklyn Railway Platform and Station)
McKell Park lower, upper, cabbage palms and World War II gun and emplacements
House
185
House
Footpath
House
House
Ku-ring-gai Chase
Ku-ring-gai Chase
0
0.45
0.9
1.8
Kilometers

- Hornsby LGA 2016
- Waterbodies
- Hydrology
- Residual native vegetation
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- IUCN category Ia protected areas
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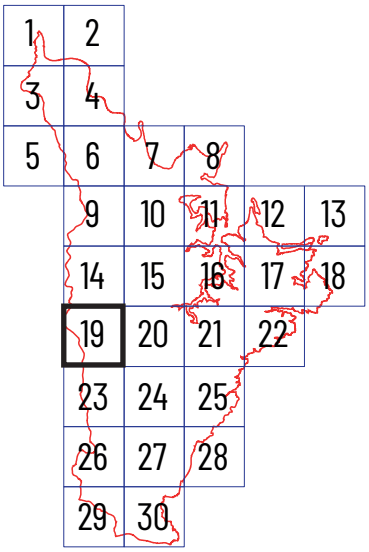
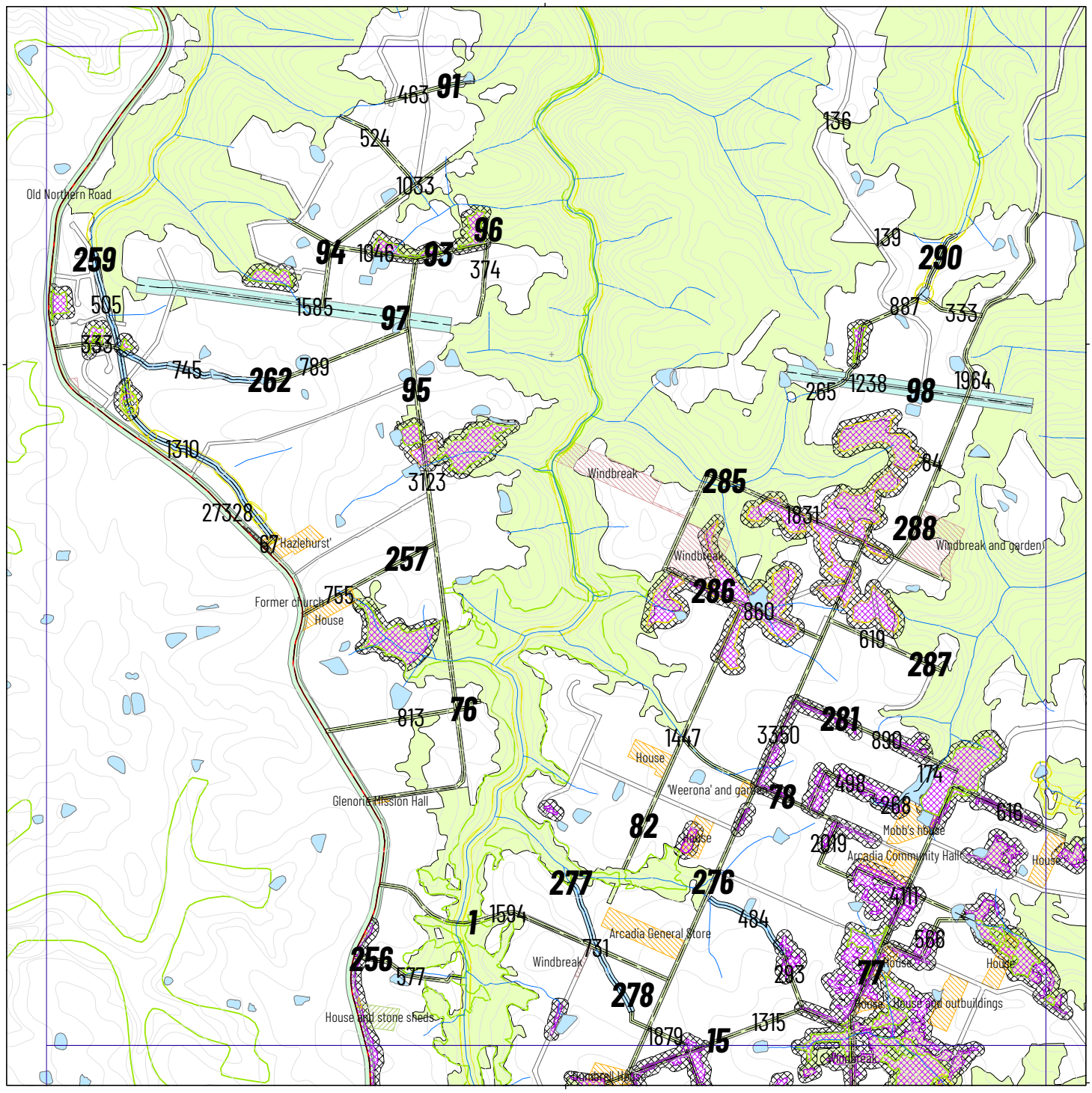
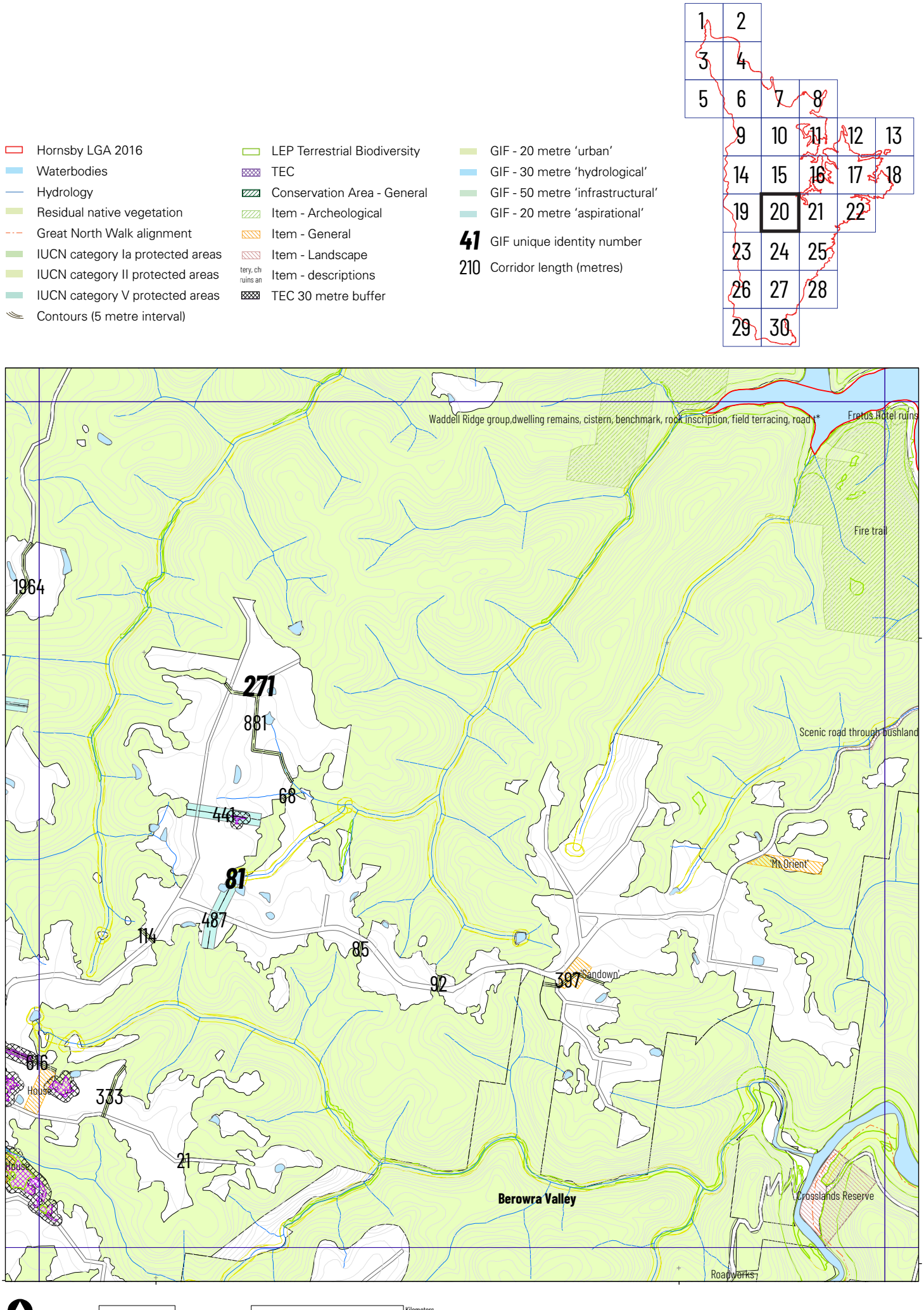
- 210 Corridor length (metres)





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
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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
Waddell Ridge group,dwelling remains, cistern, benchmark, rock inscription, field terracing, road *
Fretus Hotel ruins
Fire trail
Scenic road through bushland
'Mt Orient'
'Sandown'
Crosslands Reserve
Roadworks
Berowra Valley
1964
271
881
68
441
81
487
114
85
92
397
616
House
333
21
House
0
0.45
0.9
1.8
Kilometers

- Hornsby LGA 2016
- Waterbodies
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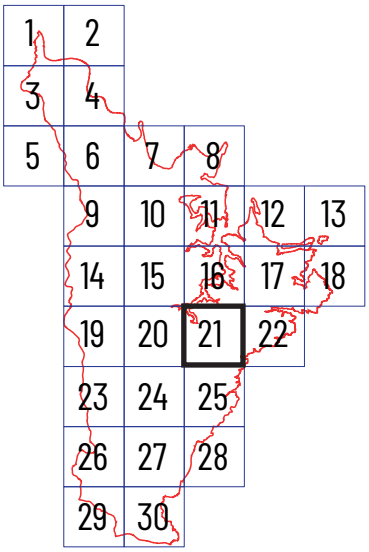

- Hornsby LGA 2016
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- Great North Walk alignment
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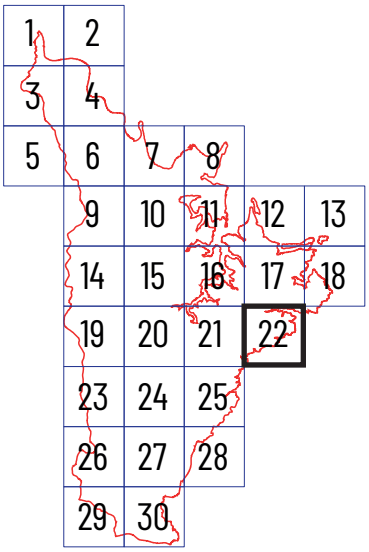

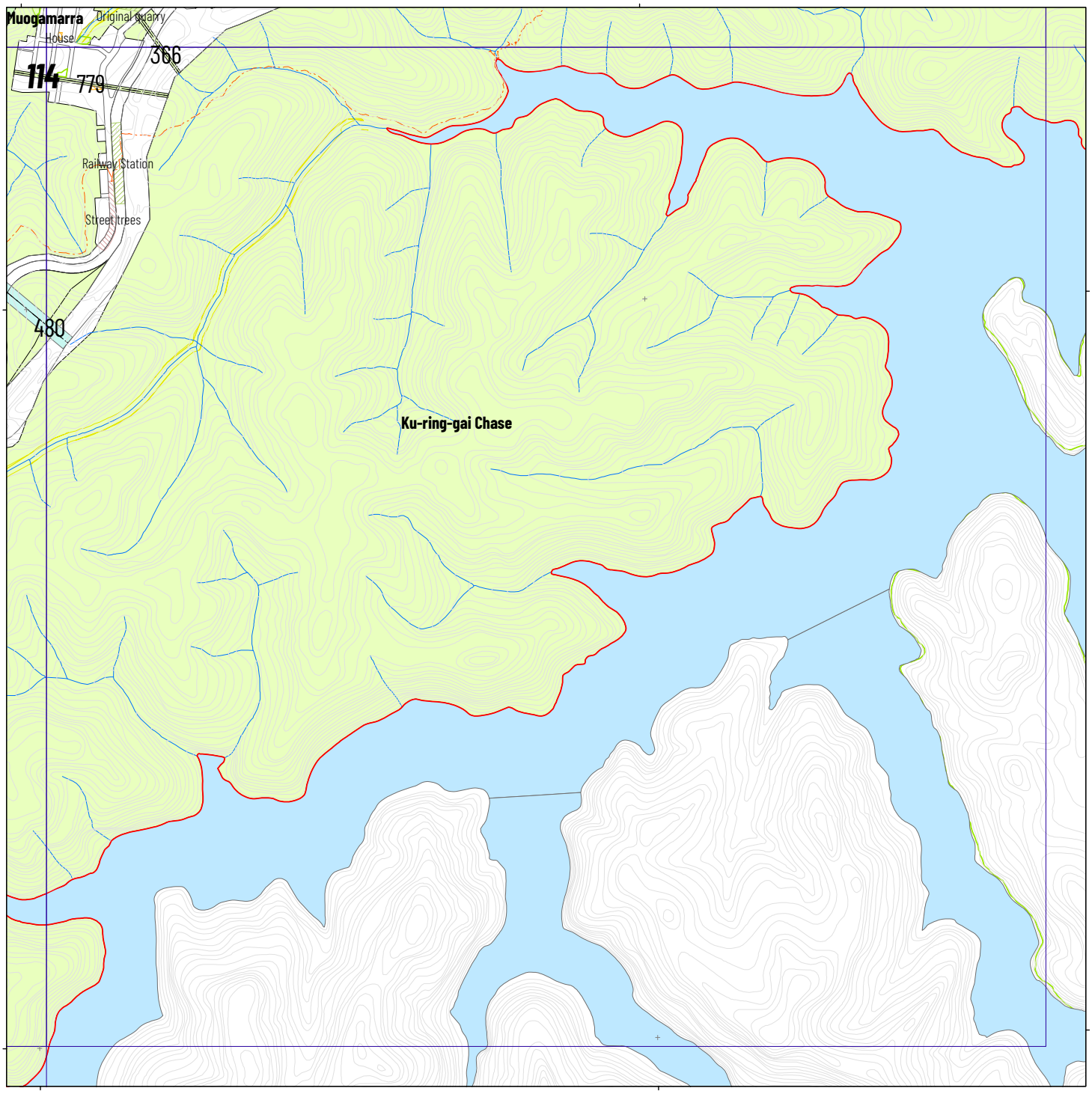

- Hornsby LGA 2016
- Waterbodies
- Hydrology
- Residual native vegetation
- Great North Walk alignment
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- IUCN category II protected areas
- IUCN category V protected areas
- Contours (5 metre interval)

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- Item - General
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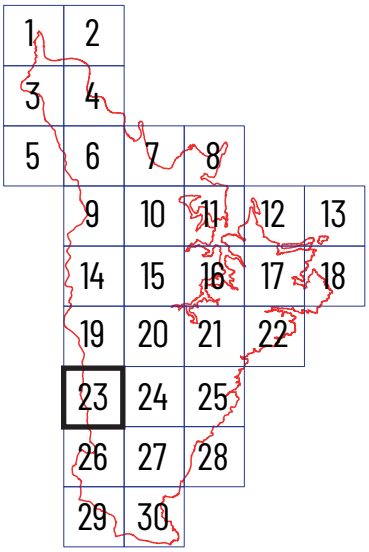

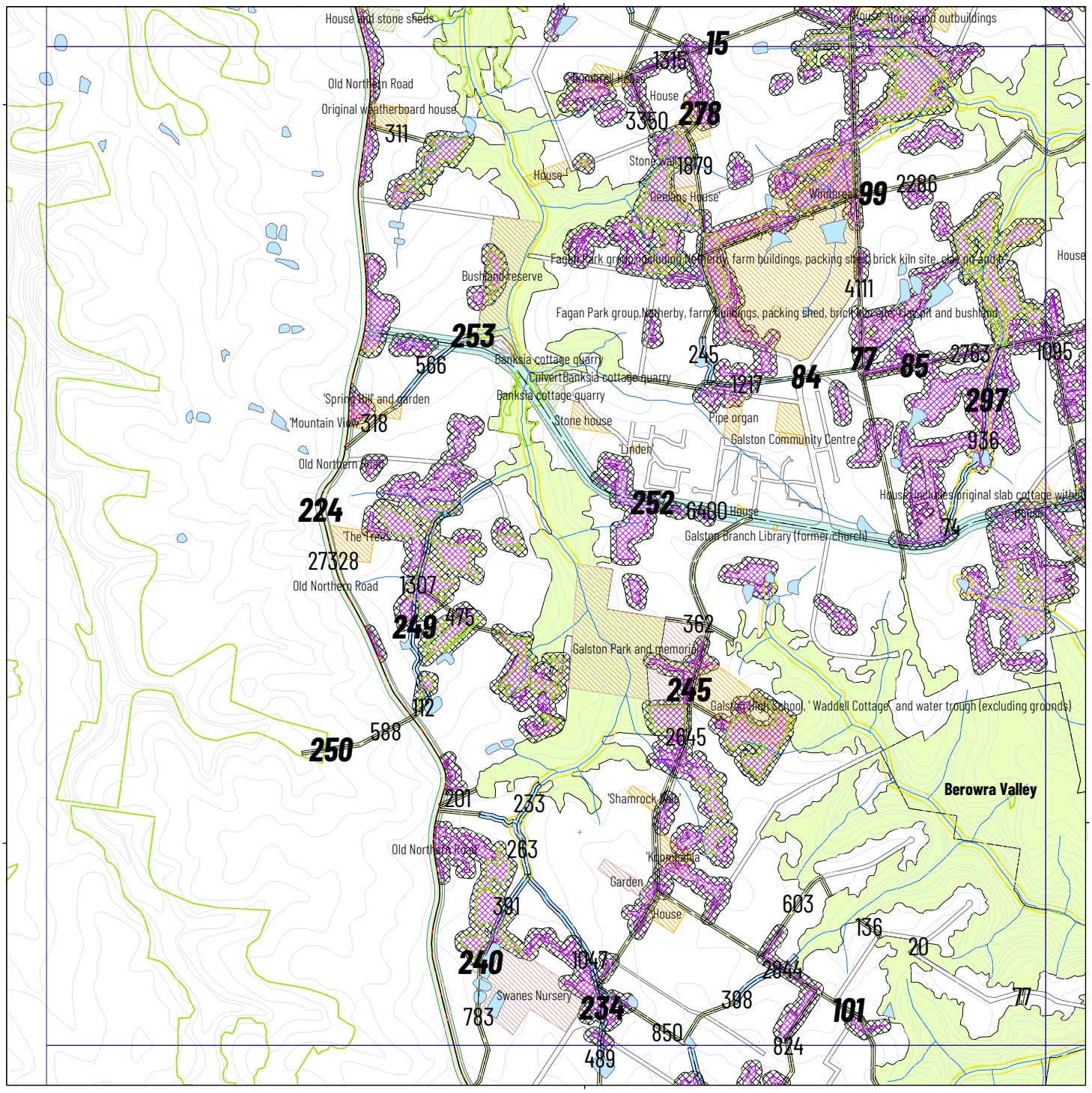

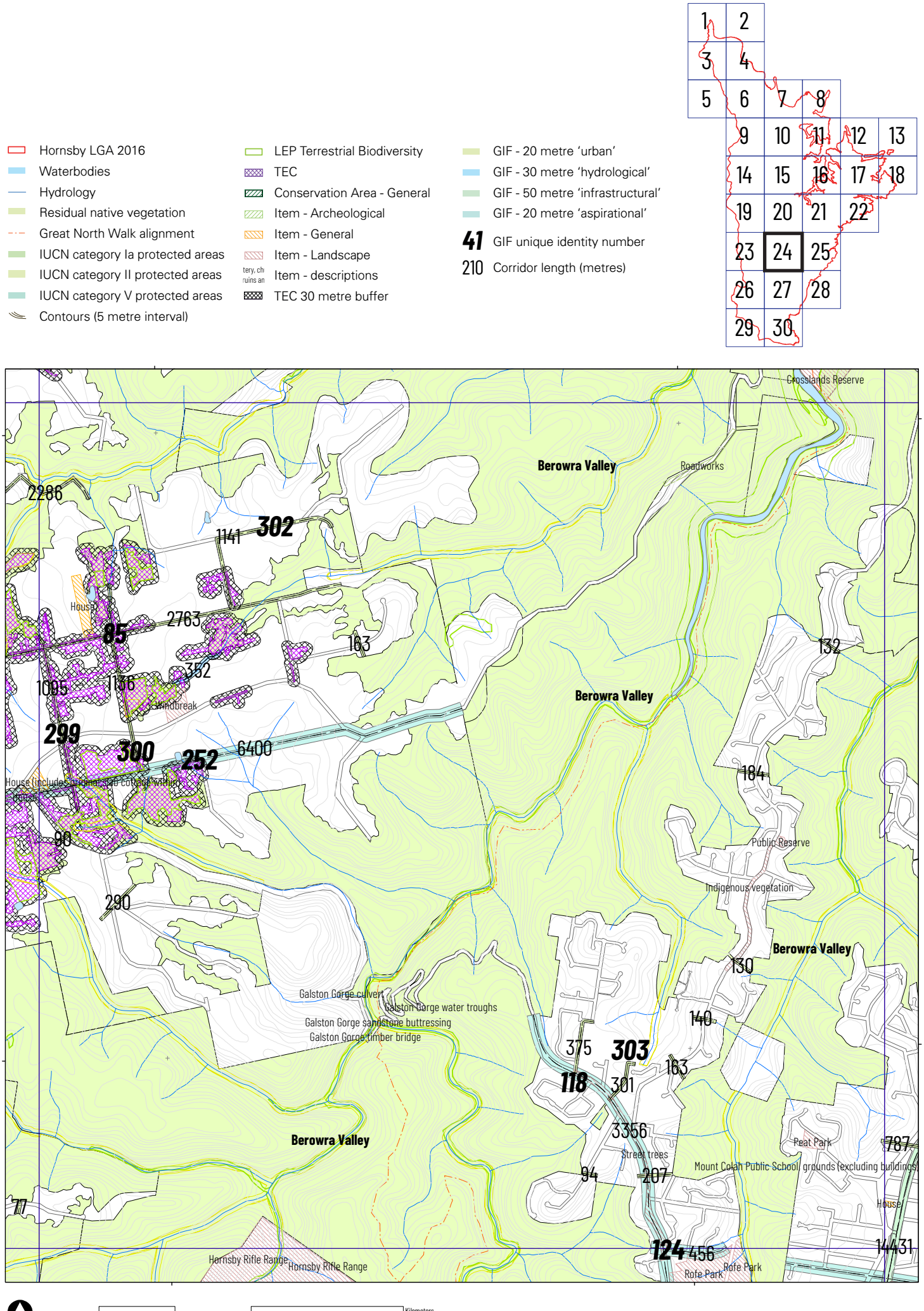
Hornsby LGA 2016
Waterbodies
Hydrology
Residual native vegetation
Great North Walk alignment
IUCN category Ia protected areas
IUCN category II protected areas
IUCN category V protected areas
Contours (5 metre interval)
LEP Terrestrial Biodiversity
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41 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
Crosslands Reserve
Berowra Valley
Roadworks
2286
1141
302
House
2763
85
163
352
1095
136
Windbreak
299
300
252
6400
House (includes original slab cottage wing)
House
90
290
132
184
Public Reserve
Indigenous vegetation
Berowra Valley
130
140
Galston Gorge culvert
Galston Gorge water troughs
Galston Gorge sandstone buttressing
Galston Gorge timber bridge
375
303
118
301
163
3356
Street trees
207
94
Berowra Valley
Peat Park
787
Mount Colah Public School grounds (excluding buildings)
House
77
Hornsby Rifle Range
Hornsby Rifle Range
124
456
Rofe Park
Rofe Park
14431
0
0.45
0.9
1.8
Kilometers

- Hornsby LGA 2016
- Waterbodies
- Hydrology
- Residual native vegetation
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- IUCN category Ia protected areas
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- IUCN category V protected areas
- Contours (5 metre interval)
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- Item - General
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- GIF - 20 metre 'urban'
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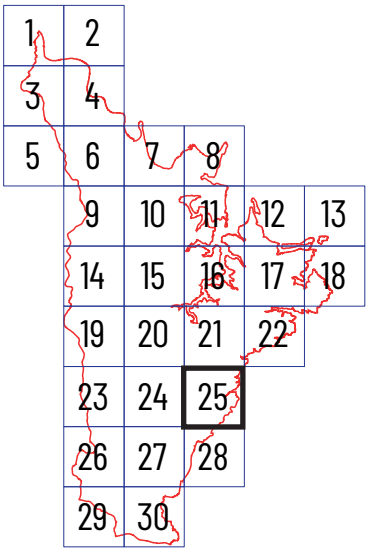

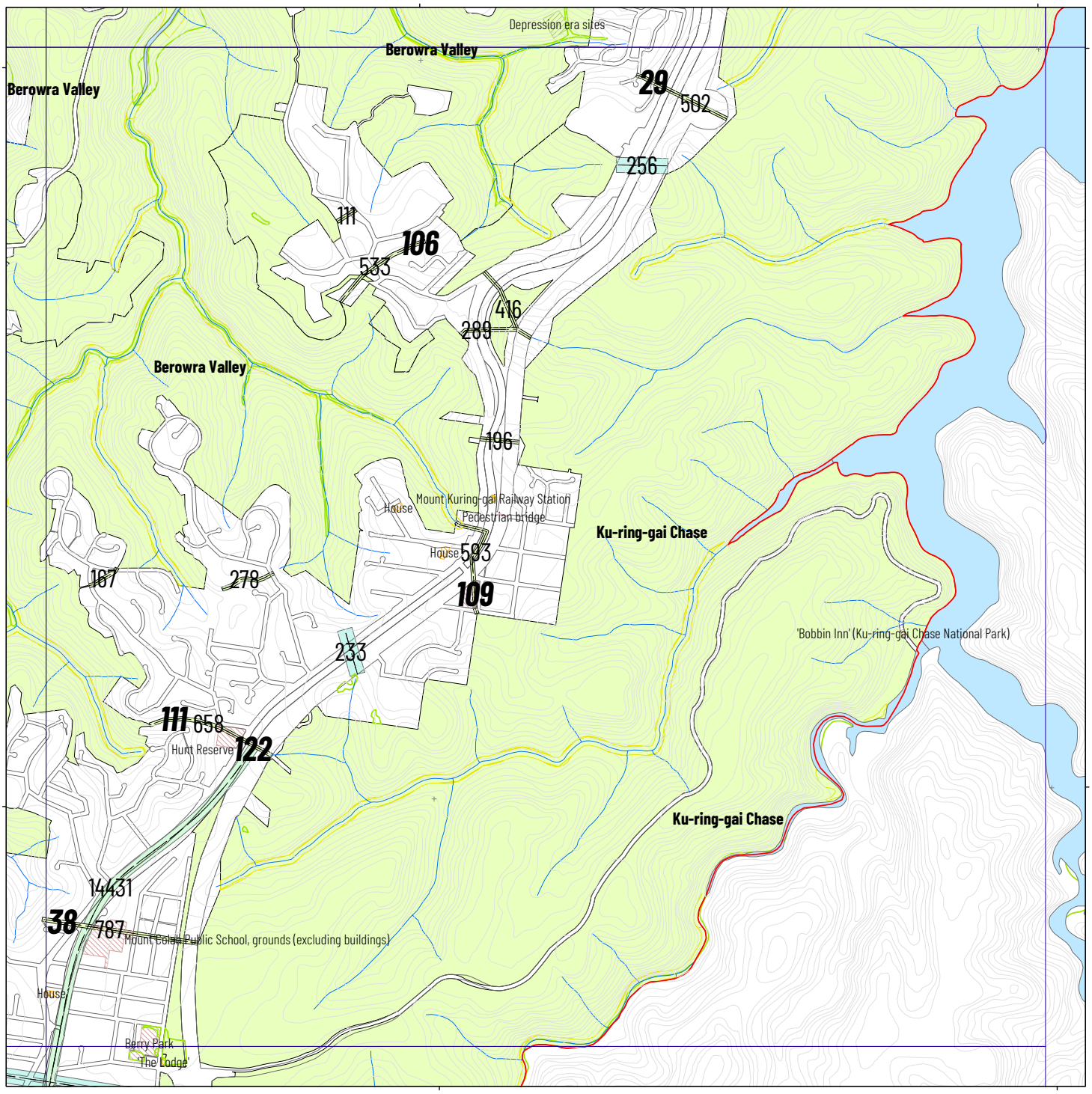

- Hornsby LGA 2016
- Waterbodies
- Hydrology
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- IUCN category Ia protected areas
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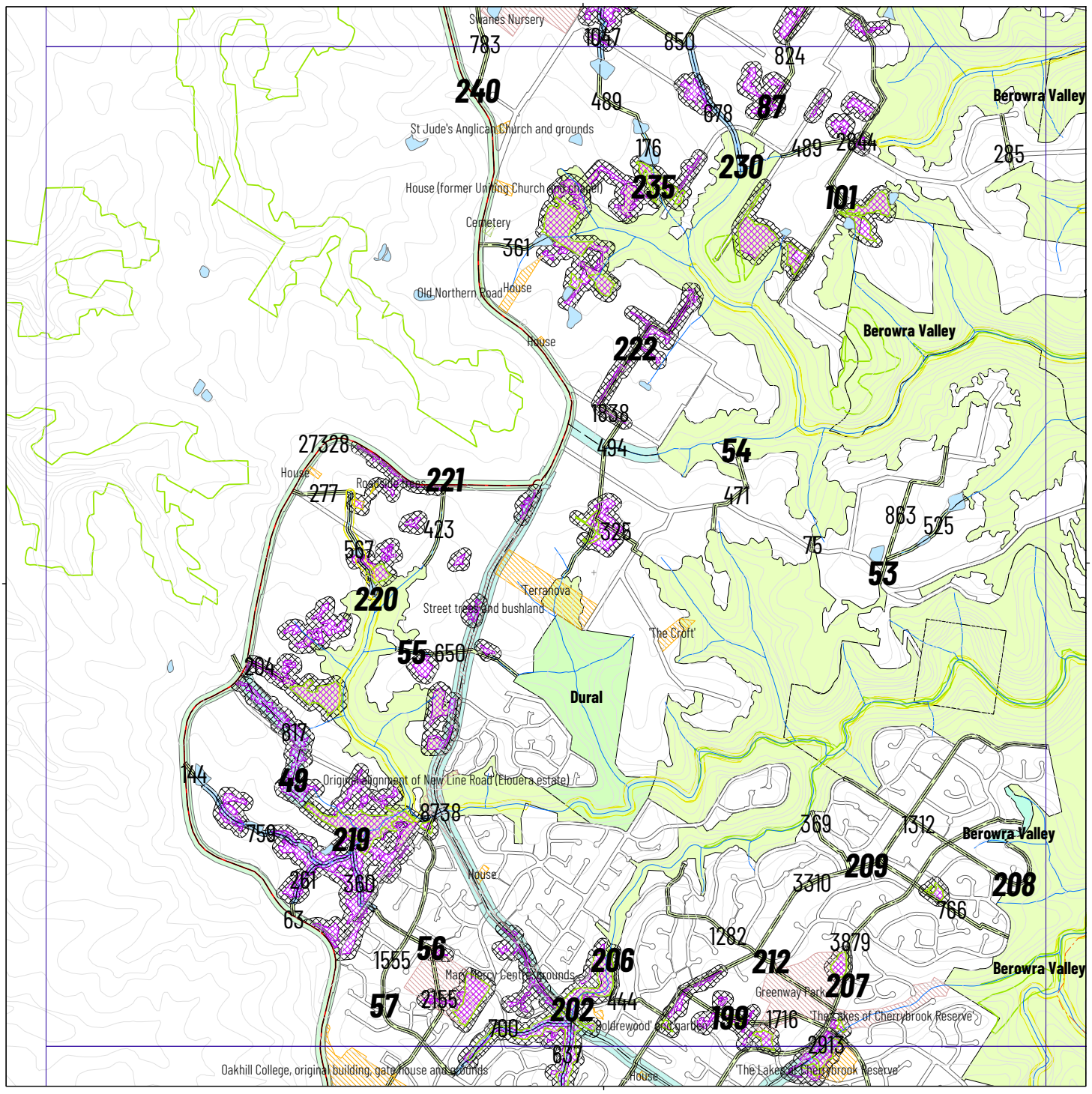
1	2			
3	4			
5	6	7	8	
	9	10	11	12	13
	14	15	16	17	18
	19	20	21	22	
	23	24	25		
	26	27	28		
	29	30			



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
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- IUCN category V protected areas
- Contours (5 metre interval)

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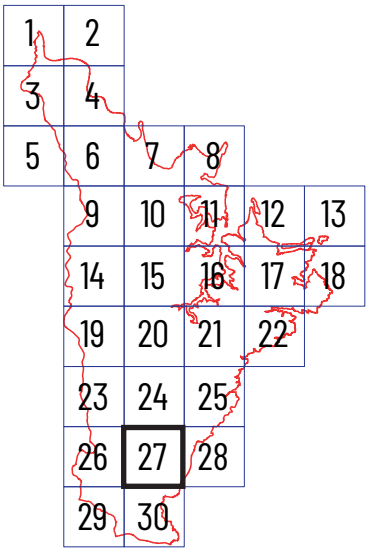

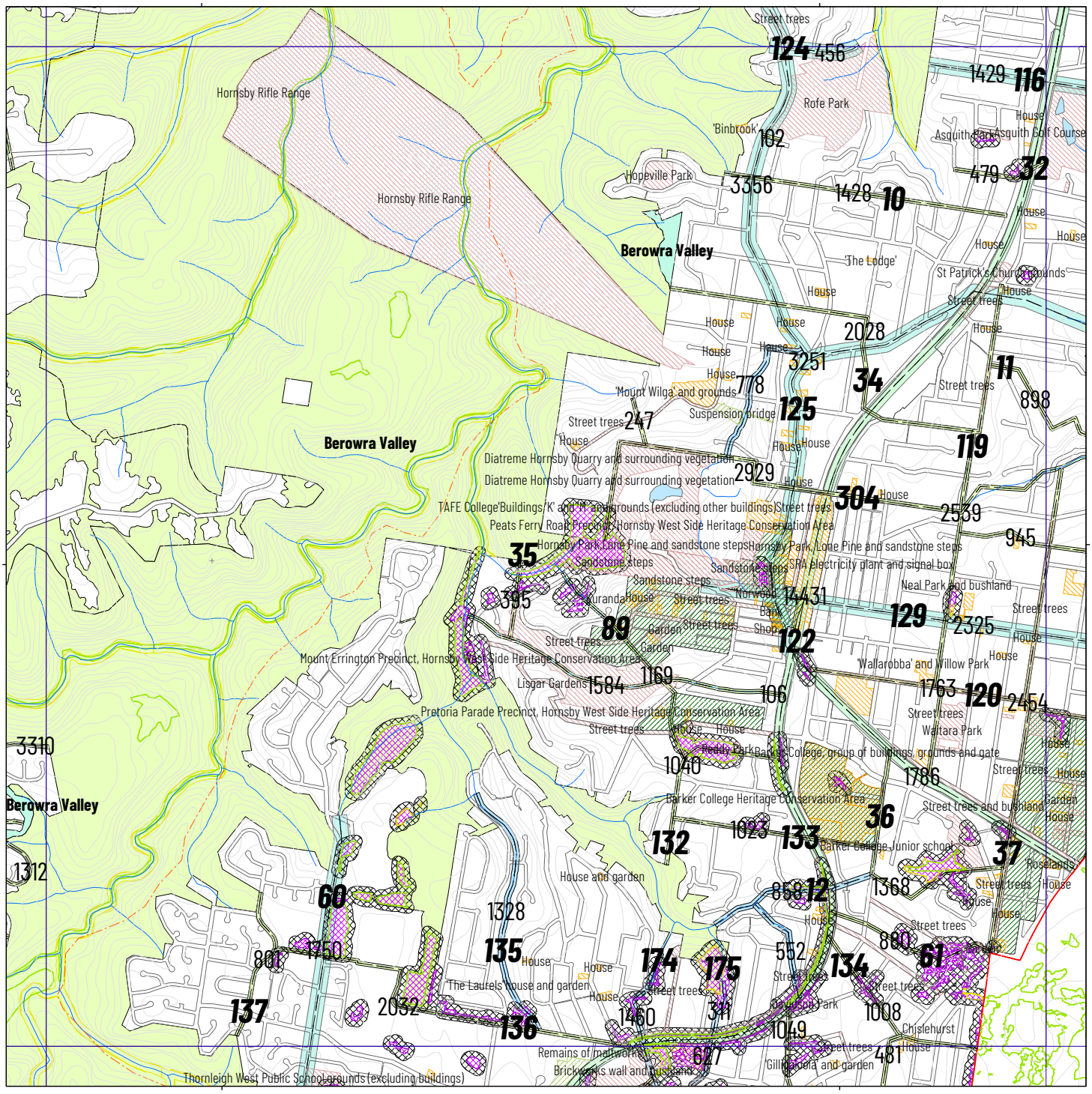

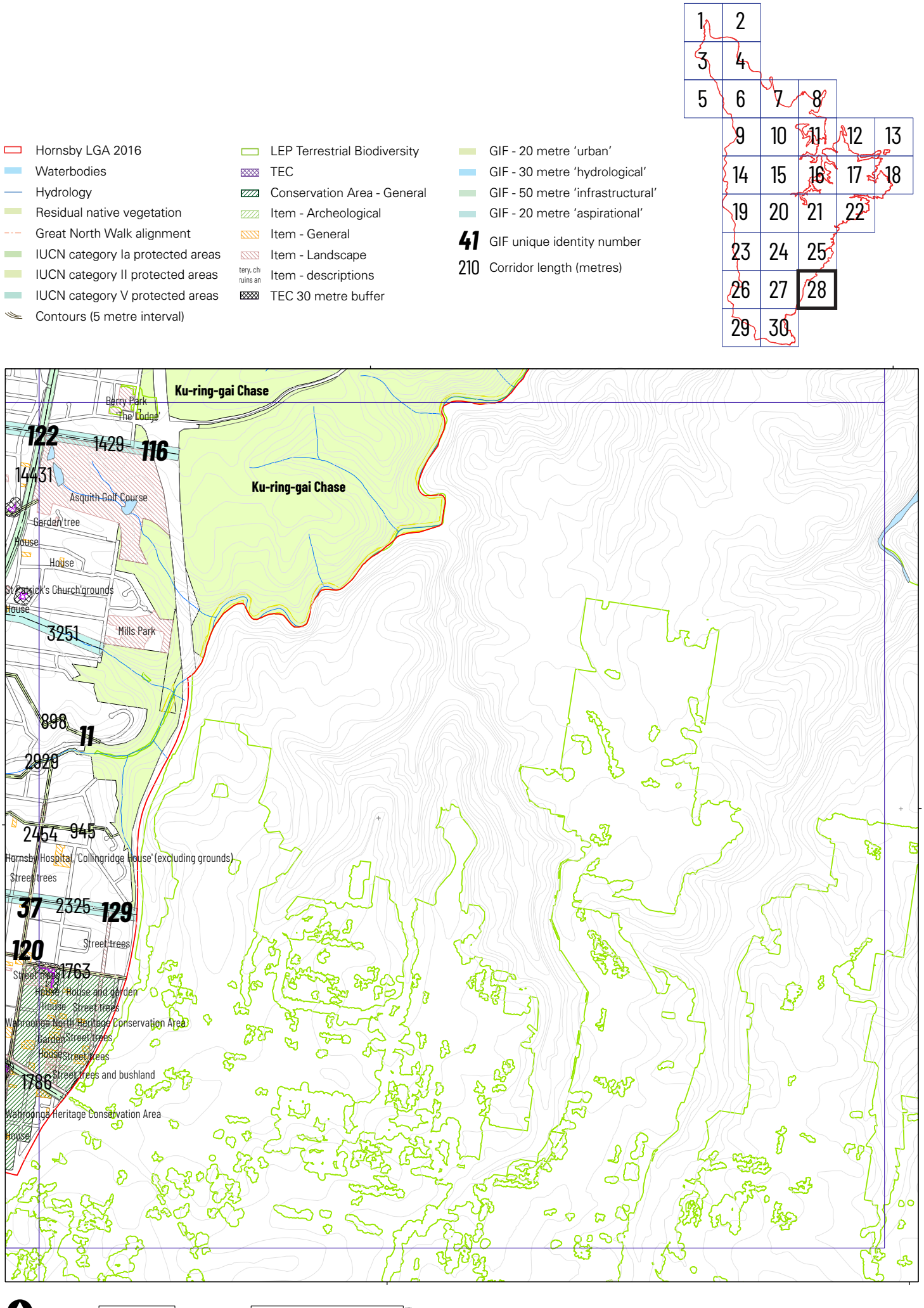
Hornsby LGA 2016
Waterbodies
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210 Corridor length (metres)
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
Ku-ring-gai Chase
Berry Park
'The Lodge'
122
1429
116
14431
Asquith Golf Course
Garden tree
House
House
St Patrick's Church grounds
House
3251
Mills Park
898
11
2929
2454
945
Hornsby Hospital, 'Collingridge House' (excluding grounds)
Street trees
37
2325
129
Street trees
120
Street trees
1763
House, House and garden
House, Street trees
Wahroonga North Heritage Conservation Area
Garden Street trees
House Street trees
Street trees and bushland
1786
Wahroonga Heritage Conservation Area
House
0
0.45
0.9
1.8
Kilometers

- Hornsby LGA 2016
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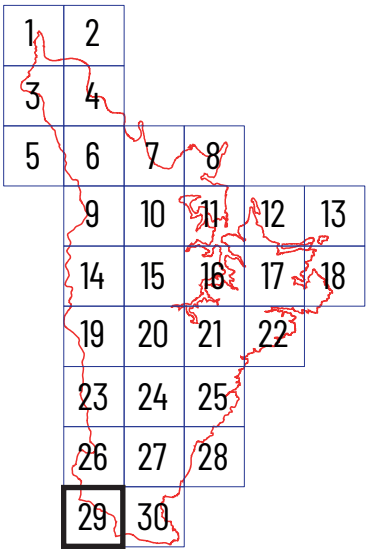

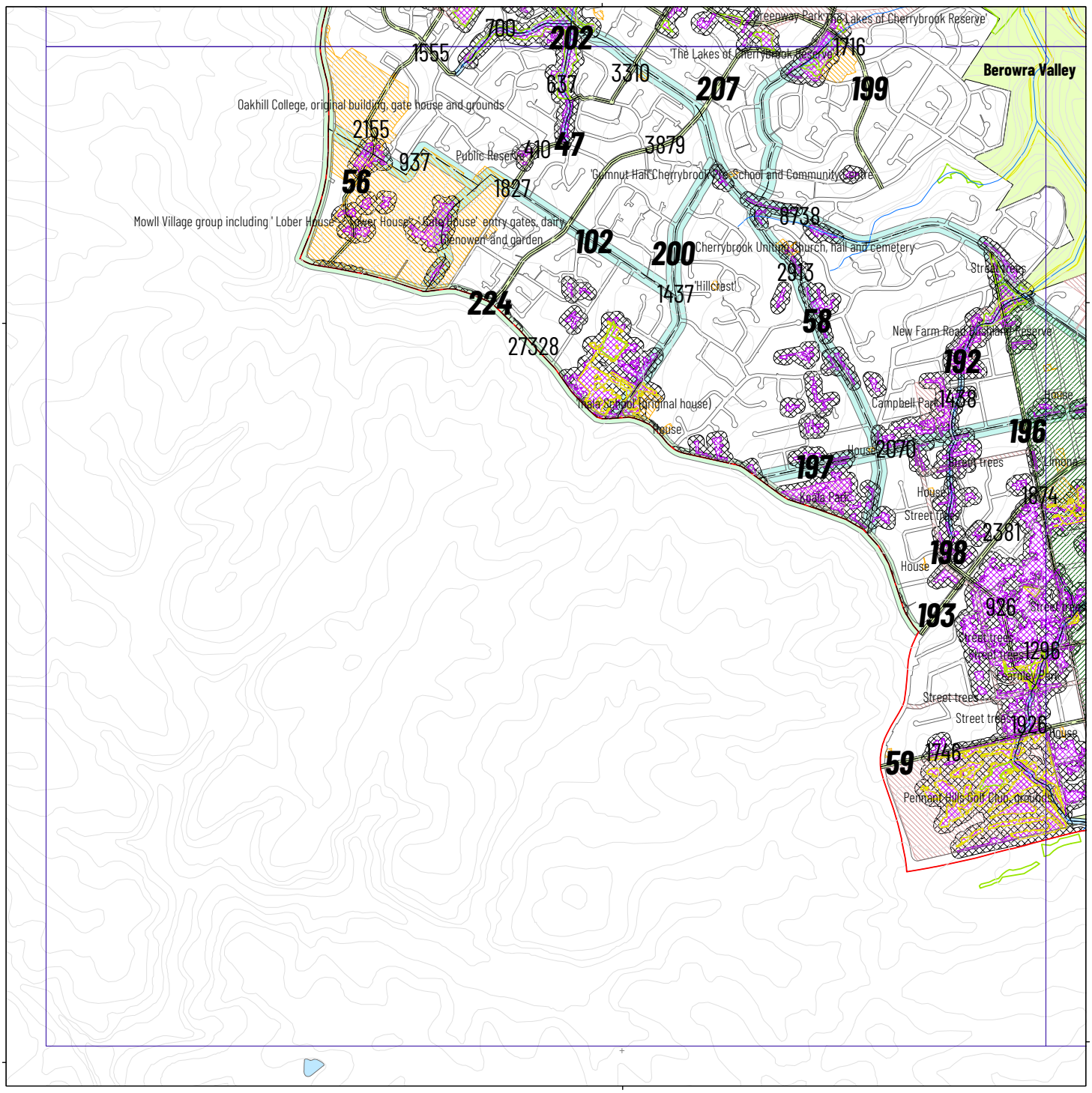

0 0.45 0.9 1.8 Kilometers

- Hornsby LGA 2016
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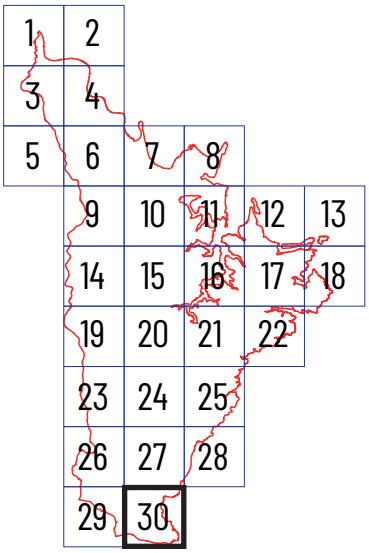

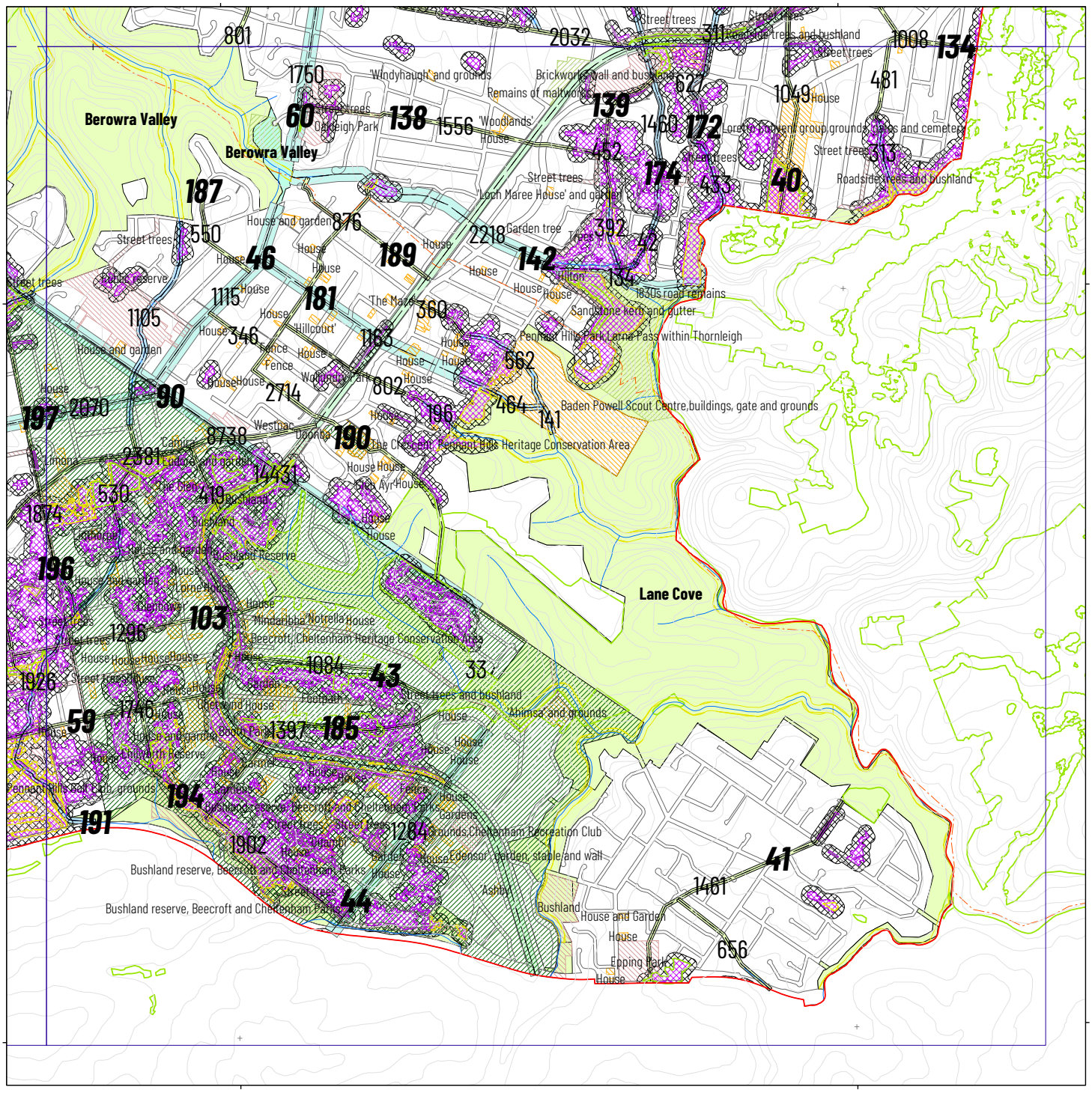

This table documents the GIF unique identity numbers, types and corridor lengths as found on the individual pages of the *map set*.

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	**TOTAL**		**275832**
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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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)

NEED HELP?

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.

Chinese Simplified

需要帮助吗?

本文件包含了重要的信息。如果您有不理解之处，请致电131 450联系翻译与传译服务中心。请他们代您致电9847 6666联系Hornsby郡议会。郡议会工作时间为周一至周五，早上8:30 - 下午5点。

Chinese Traditional

需要幫助嗎？

本文件包含了重要的信息。如果您有不理解之處，請致電131 450聯繫翻譯與傳譯服務中心。請他們代您致電9847 6666聯繫Hornsby郡議會。郡議會工作時間爲周一至周五，早上8:30 - 下午5點。

German

Brauchen Sie Hilfe?

Dieses Dokument enthält wichtige Informationen. Wenn Sie es nicht verstehen, rufen Sie bitte den Übersetzer- und Dolmetscherdienst unter 131 450 an. Bitten Sie ihn darum, für Sie den Hornsby Shire Council unter der Nummer 9847 6666 zu kontaktieren. Die Geschäftszeiten der Stadtverwaltung sind Montag bis Freitag, 8.30-17 Uhr.

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

도움이 필요하십니까?

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

Tagalog

Kailangan ng tulong?

Itong dokumento ay naglalaman ng mahalagang impormasyon. Kung hindi ninyo naiintindihan, pakitawagan ang Serbisyo sa Pagsasalinwika at Pag-iinterprete (Translating and Interpreting Service) sa 131 450. Hilingin sa kanilang tawagan ang 9847 6666 para sa inyo upang kontakin ang Hornsby Shire Council. Ang oras ng opisina ng Council ay Lunes hanggang Biyernes, 8.30n.u.-5n.h.

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