MIDCOAST council

BIODIVERSITY FRAMEWORK 2020-2030

A ROADMAP FOR CONSERVING NATURAL HERITAGE OF THE MIDCOAST

EXECUTIVE SUMMARY

The MidCoast Council area contains important biodiversity and natural assets, which have intrinsic value and play a vital role in supporting our community's socioeconomic and cultural wellbeing. Maintaining healthy and biodiverse environments underpins the economy of the region and the way of life of its' residents and visitors. The MidCoast community has recognised the value and importance of our natural environment; protection of the natural environment was nominated as one of five core values in the inaugural MidCoast Community Strategic Plan in 2016.

To achieve our communities' vision, we have a shared responsibility to appropriately and effectively manage, conserve and restore the biodiversity, environment and natural assets of the MidCoast Region. Local government has an important role in biodiversity conservation and management as a service provider, a land use planning authority, a regulatory authority acting in the public interest and an owner of natural area reserves. It operates within a legal and regulatory framework that recognises the principles of ecologically sustainable development and delivers biodiversity conservation outcomes.

MidCoast Council has developed this Biodiversity Framework with, and for, the community and other stakeholders to establish a roadmap for biodiversity to 2030 and beyond. It outlines a range of activities, plans, principles, policies, actions, datasets and management tools in a format that promotes adaptive management. This format allows Council to respond to contemporary pressures and opportunities, statutory change, new research, emerging conservation and management practice, funding opportunities and community priorities. Applying clear and consistent objectives for biodiversity will assist in meeting statutory requirements and achieving biodiversity outcomes.

The Framework is cognisant and reflective of the need to provide for appropriate development and growth and seeks to maximise social, economic and environmental returns from biodiversity investment.

USING THIS FRAMEWORK

The Framework is structured in four sections:

SECTION 1: OUTLINE AND CONTEXT

This section provides the background to all sections within the Framework, by:

- defining biodiversity
- describing the MidCoast Council area and special features
- describing the key threats to regional biodiversity and their implications
- providing the legislative and strategic frameworks
- outlining Council's role in managing and conserving biodiversity
- outlining the community's biodiversity vision
- describing what the framework is, its purpose, how to use it and how it will be implemented, monitored and reported on, identifying the key threats to regional biodiversity and discussing the implications of this loss

SECTION 2 – BIODIVERSITY PROGRAM

This section establishes the tools and activities under each of the six adopted Framework themes of:

- engagement and partnerships
- reserves and conservation agreements
- land management
- science and knowledge
- strategic planning and policies,
- land use planning and development

SECTION 3 – IMPLEMENTATION TABLE

This section schedules the implementation of the Framework.

SECTION 4 – REFERENCES AND APPENDICES

This section documents the references and other sources used in the Framework and provides lists of key biodiversity assets and values, including key threatening processes.

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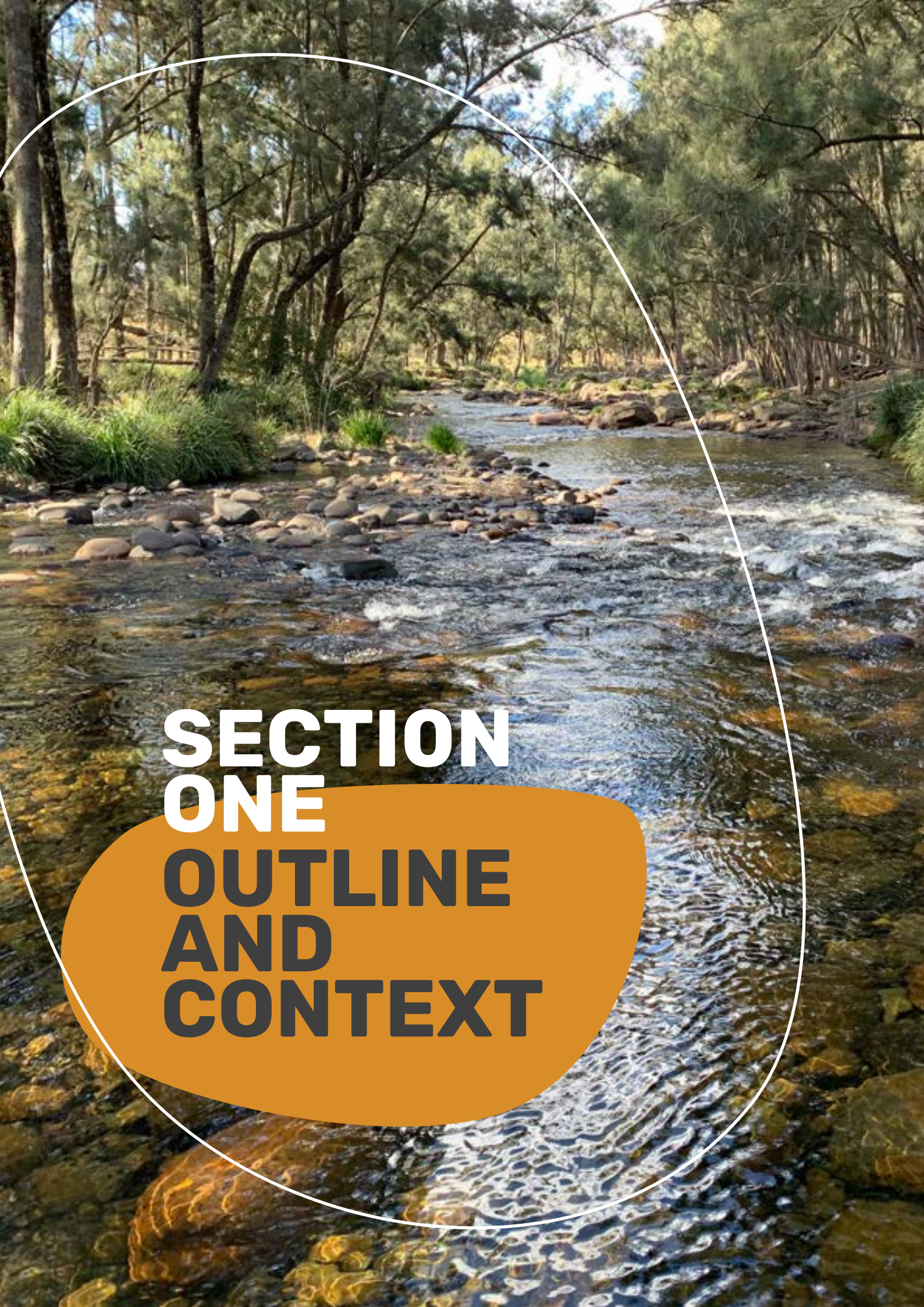
Photos are courtesy of:

Ashley Carlson, Peter Goonan,
Erin Masters and Karen Bettink

ACKNOWLEDGEMENT OF COUNTRY

We acknowledge the traditional custodians of the land on which we work and live, the Gathang-speaking people and pay our respects to all Aboriginal and Torres Strait Islander people who now reside in the MidCoast Council area. We extend our respect to elders past and present, and to all future cultural-knowledge holders.



SECTION ONE OUTLINE AND CONTEXT

1: INTRODUCTION

1.1 ABOUT THIS FRAMEWORK

The MidCoast Council Local Government Area (the MidCoast Region) is rich in natural assets and biodiversity features. The health of these underpin the well being of the community, the strength of the economy and the way of life of residents and visitors to the region.

The MidCoast community recognises the importance of the natural environment, identifying its protection as one of five core values in the first *MidCoast Community Strategic Plan* in 2016. In recent Customer Satisfaction Surveys (2020) the environment was recognised as a priority for our local community. In addition, a "biodiversity-rich natural environment" is one of the regional goals of the NSW Government in the adopted *Hunter Regional Plan (2016)*[1].

This Biodiversity Framework recognises that environmental protection and enhancement, including strategic and applied conservation of biodiversity and natural assets and the restoration of degraded areas, can deliver multiple net positive social and economic benefits to our region.

Biodiversity conservation theory and practice can be complex and dynamic. In keeping with the ecosystem approach, Council aims to practice integrated management of land, water and living resources to achieve biodiversity management and conservation outcomes. This includes management of catchments, estuaries, the open coastline and Council reserves. Management will aim to be holistic and adaptive to address the range of habitats and pressures within the Region.

This Framework recognises the important connection and role of Aboriginal people to biodiversity and protecting Country. Following the NSW Government recognition of the connection to Country, this Framework acknowledges that "Aboriginal people across NSW recognise the cultural values of biodiversity and the environment. Plants, animals and ecosystems are at the core of their attachment to the land and the sea. Plants and animals are valued as part of 'Country' and may also act as totems. The continued use of wild foods and medicines allows people to pass on cultural knowledge, to use and maintain places of cultural value, and to benefit their wellbeing. The health of waterways and the land is central to Aboriginal heritage".

1. NSW Government (2016) Hunter Regional Plan 2036, Newcastle, NSW.

1.2 CONTEXT

In many areas of Australia and NSW, biodiversity and the condition of the natural environment is in decline. The Australian State of the Environment Report prepared by the Australian Government (2016)[2] reported:

"Australia's biodiversity is under increased threat and has, overall, continued to decline", and

"The outlook for Australian biodiversity is generally poor, given the current overall poor status, deteriorating trends and increasing pressures. Our current investments in biodiversity management are not keeping pace with the scale and magnitude of current pressures. Resources for managing biodiversity and for limiting the impact of key pressures mostly appear inadequate to arrest the declining status of many species. Biodiversity and broader conservation management will require major reinvestments across long timeframes to reverse deteriorating trends."

Habitat loss and fragmentation, invasive species, changes to fire and hydrological regimes and climate change, amongst other pressures are driving this decline and having wide-ranging impacts, including impairing provision of ecosystem services.

The local events of 2019, involving a combination of severe drought and extensive bushfire and the major floods of March 2021, are a stark reminder of the complex and critical biodiversity challenges that Council, other stakeholders and the community face.

Councils in NSW play a key role to help ensure nature and biodiversity are sustained in accordance with our communities' values. Councils operate within, and are guided by National, State and regional legislative and strategic frameworks that apply to the protection, management and assessment of impacts on biodiversity.

Councils in NSW act in four main ways in the context of biodiversity management:

- Council is a service provider, and
- Council is a land use planning authority, and
- Council is a regulatory authority that acts in the public interest, and
- Council is a landowner and manager

2. Cresswell ID, Murphy H (2016). Biodiversity: Biodiversity. In: Australia state of the environment 2016, Australian Government Department of the Environment and Energy, Canberra, https://soe.environment.gov.au/theme/biodiversity, DOI 10.4226/94/58b65ac828812

1.3 PURPOSE

MidCoast Council has developed this Biodiversity Framework with, and for, the community and other stakeholders to establish the strategic context for a range of activities that work in concert to appreciate, conserve and manage our region's natural assets. It provides a blueprint for a suite of plans, principles, policies, actions, datasets and management tools in a format that promotes adaptive management.

This format allows Council to respond to contemporary pressures and opportunities, statutory change, new research, emerging conservation and management practice, funding opportunities and community priorities. Applying clear and consistent objectives for biodiversity will assist in meeting statutory requirements and achieving biodiversity outcomes.

The Framework is cognisant and reflective of the need to provide for appropriate development and growth and seeks to maximise social, economic and environmental returns from biodiversity investment.

Scientific, government and community values are being incorporated into this Framework and key principles have been adopted that guide implementation actions.

By grounding our work on the findings of applied scientific research and collaborating with partners, Council seeks to implement biodiversity conservation and management activities in a strategic, collegiate and outcome-focused way. The role of the community is particularly important given the extent of biodiversity assets in privately owned and managed lands.

A key element of the framework is recognition that capital input into environmental protection and repair is often an investment, with a net positive return. This is recognised through undertaking cost benefit analysis for significant environmental projects.

The framework approach will allow Council to update sections and respond to contemporary pressures and opportunities, statutory change, new research, emerging management practices, funding opportunities and community priorities.

The Biodiversity Framework enables Council to:

1. Establish a strategic platform for the identification, protection and enhancement of key biodiversity
2. Identify tools, policies and strategies to protect and restore biodiversity
3. Build on existing policies and programs
4. Guide conservation where it is needed the most based on the best available scientific knowledge and community priorities
5. Guide meaningful partnerships with stakeholders and collaborators to achieve the best possible outcomes
6. Improve Council's capacity to make informed decisions in a variety of disciplines.

1.4 CONSULTATION

The community and stakeholders play a key role in both developing the framework, and in carrying through the program. Engaging with key stakeholders and the broader community helps Council understand their goals, concerns, priorities and partnership opportunities.

How are people being involved?

Individuals, agencies, landholders, special interest groups, partners and the community are being invited to be involved in different ways throughout key phases of framework development.

In 2020, stakeholders and key community members were invited to contribute to the vision, goals, priorities, themes, partnership, collaboration and project ideas for a draft framework. In early 2021, key partners and stakeholders were engaged over relevant programs and actions within themes with focus on strengthening or adding actions, defining partnerships and opportunities. This has been followed with public exhibition and then revision of the framework to reflect the feedback received. Adoption by Council is planned for mid 2021. The framework will then move into implementation phases.

Why is this important?

It is important that the vision, goals and themes for the future of biodiversity in the region be derived from the community and internal feedback. This is because we have a collective responsibility to protect and manage biodiversity across the region. The Framework seeks to increase understanding of what biodiversity is and its place as a major contributor to our economic sustainability, and to build on and create meaningful partnerships with relevant stakeholder groups and government bodies to achieve the best outcomes for the region. It will create a platform for ongoing engagement within Council and in the wider community to implement biodiversity conservation and management guided by the framework.

2: NATURE OF THE MIDCOAST

2.1 WHAT IS BIODIVERSITY AND WHY IS IT IMPORTANT?

Biodiversity is a term used to describe the variety of living things in the environment. Australia's Biodiversity Conservation Strategy 2019 – 2030 defines biodiversity, or biological diversity, as "the variety of all life forms on earth — the different plants, animals and micro-organisms and the ecosystems of which they are a part[3]."

Biodiversity includes:

- Genetic diversity (the variety of genetic information in individual plants, animals and micro-organisms)
- Species diversity (the variety of species)
- Ecosystem diversity (the variety of habitats, ecological communities and processes).

It forms the cornerstone of ecological resilience (or the ability for a given ecosystem, or species, to adequately recover from a natural or human induced loss) and provides for ecosystem services. Ecosystem services are the direct and indirect contributions of ecosystems to human wellbeing. Ecosystem services include the provision of clean water, the production of oxygen, the sequestration of carbon dioxide, the cycling of essential nutrients in the environment and the creation of healthy soils.

3. Commonwealth of Australia (2019) Australia's Strategy for Nature 2019–2030, p3.

The biodiversity of the MidCoast Region has intrinsic, economic and social value. The health, lifestyle and economy of the community is connected to the health of the natural environment and the plants and animals within it. Understanding, protecting and, where required, repairing biodiversity has an important role in building and sustaining the strong community connection, growing the economy and enhancing and improving the quality of life that we value.

Biodiversity and the natural environment provide many of the resources that sustain us including but not limited to food, timber and fuel. Biodiversity provides the oxygen we breathe and purifies the water we drink. It builds and protects soils and stores and cycles nutrients essential for food production. It controls pests and breaks down pollutants in the environment. It aids recovery from unpredictable natural or catastrophic events and helps to maintain a stable climate.

Some of the benefits of biodiversity to the MidCoast Region include:

Spiritual connection: To the Indigenous people, the Biripi and Worimi, healthy Country is integral with cultural well-being. Aboriginal people lived sustainably within the natural environment for many thousands of years and maintain their spiritual connection to the natural environment.

Wellbeing: Experiencing nature contributes to physical and mental wellbeing. This is through boosting concentration, problem-solving and creativity, strengthening immune systems, reducing the incidence of some diseases, boosting physical fitness and improving self-esteem[4]. The MidCoast Region offers relatively good levels of access to natural areas and clean waterways.

4. Davern et al (2016) Quality Green Public Open Space Supporting Health, Wellbeing and Biodiversity: A Literature Review

Amenity: Access to nature is an indicator of the liveability of communities. Protecting and maintaining the amenity of communities whilst providing for sustainable growth and development is a core community value within Council's Community Strategic Plan[5].

Water supply: Healthy catchments deliver clean water in both riverine and aquifer sources. We rely on riverine and groundwater sources for domestic water in the Manning River, Barrington River, Crawford River, Karuah River, Minimbah Sandbeds and Viney Creek Sandbeds. Natural areas, including wetlands, provide ecosystem services that produce, maintain and purify water supplies.

Tourism economy: The Region is a key holiday destination. One of the key regional drivers of the local economy is nature-based tourism, which is reliant on access to high quality terrestrial and aquatic environments, including coastlines and beaches, lakes / lagoons and local forests and waterfalls. In 2018, the MidCoast Region had over 930 tourist businesses, and thousands of international visitors, contributing over $38 million directly to the local economy[6].

Production economy: Key regional economic drivers include agriculture, fisheries and forestry. These are reliant on healthy, diverse and functional terrestrial and aquatic environments. Agricultural productivity benefits from ecosystem services such as nutrient-cycling, soil formation, erosion control, water purification and pollination. Fisheries depend on clean water filtered by riparian and aquatic vegetation as well as healthy mangroves, seagrass meadows and saltmarsh for nursery areas. Local forests supply important markets for products like building materials.

Resilience & Adaptation: Biodiverse habitats protect shorelines, store floodwaters and sequester carbon to assist our community to avoid or mitigate climate change risks and natural disasters. Conserving biodiversity assets will safeguard the community and help global efforts to mitigate climate change.

Intrinsic Value: Biodiversity has an intrinsic value.

5. MidCoast Council (2018) Community Strategic Plan 2020, p13.

6. Tourism Research Australia (2019) Local Government Area Profiles, MidCoast Council.

2.2 OUR REGION

The MidCoast Region is in New South Wales between the lower north coast and the northern extent of the Hunter region.

The MidCoast Region covers a vast area of over one million hectares (10,060 square kilometres). This area is shown in Figure 1. It extends from Diamond Head in the north, Hawks Nest and Tea Gardens in the south, the localities of Cells River, Mernot and Barrington Tops in the north-west through to Limeburners Creek in the south-west. The LGA extends from the coast to the top of the Great Dividing Range.

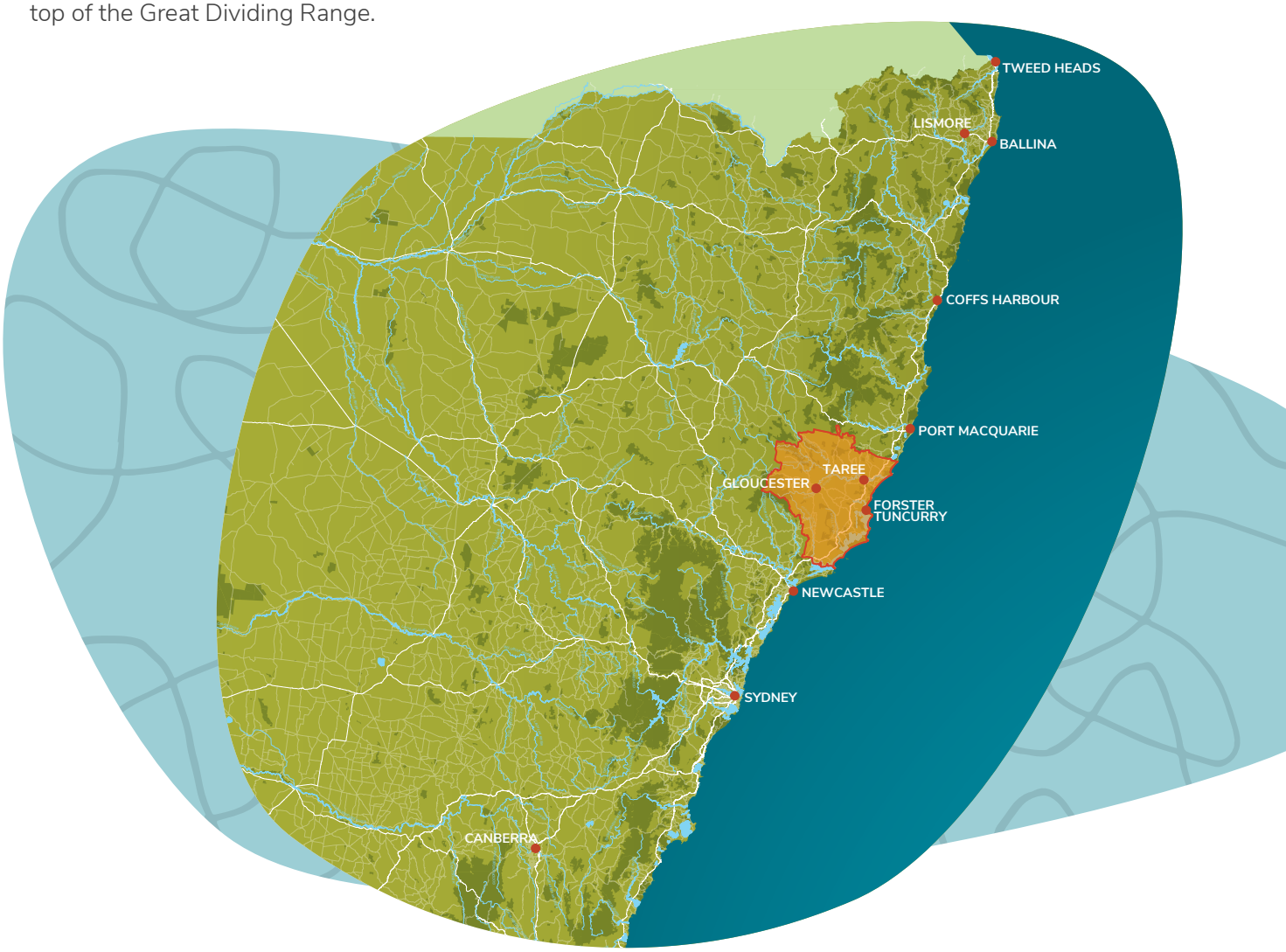


Figure 1: *The MidCoast Council Local Government Area*

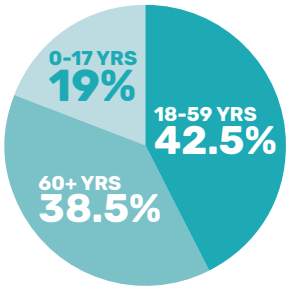
The MidCoast Region is home to over 93,000 people. Many of these residents are attracted by the natural beauty, the lifestyle, the relative affordability and the business and recreational opportunities[7]. These features have made the region popular for retirement and for "tree or sea-changers". Thirty-eight percent of our population is aged over 60, compared to an average of 27% across regional New South Wales. Over the last ten years, the annual population growth has ranged between 0.6% and 1.2% and this growth is expected to continue[8].

People identifying as Aboriginal or Torres Strait Islander comprise 6.2% of the MidCoast Region population[9].

7. Centre for Economic and Regional Development (2018) MidCoast Regional Economic Development Strategy 2018–2022, State of New South Wales (Department of Premier and Cabinet). | 8 . Profile.id (2019) | 9 Profile.id (2019)

The largest population centres in the MidCoast Region are at Taree and Forster Tuncurry. Smaller towns include Wingham, Old Bar, Hawks Nest, Tea Gardens, Harrington, Hallidays Point, Pacific Palms, Smiths Lake, Gloucester and Bulahdelah, with numerous smaller villages and localities.

The biggest employment sectors of the MidCoast Region are health care and social assistance, retail, hospitality, food services, education / training, manufacturing, construction, agriculture, forestry and fishing. Tourism is a key driver of the regional economy with a significant focus on nature-focused activities. Visitors to the MidCoast spent an estimated $505 million in 2016 making 'tourism' the largest export industry in the MidCoast region[10].



6.2%
ABORIGINAL & TORRES STRAIT ISLANDER

90.3%
AUSTRALIAN CITIZENS

10,052 km²

POPULATION
93,836
(ABSERP 2018)

192km
of coastline

3,000HA
OF PARKS & OPEN SPACE MANAGED

The region supports a diverse range of landscapes and habitats.

These landscapes support unique and rich biological diversity. The region sits near the boundary of the sub-tropical and the temperate climate classification zones and supports a diverse range of habitats across a large altitudinal range, extending from sea-level on the coast to 1,586-metres in the Barrington Tops. These factors underpin the large diversity of the plants and animals of the region.

192 kilometres of coastline fringes large areas of waterways and wetlands.

10. Centre for Economic and Regional Development (2018), p8.

2.3 SPECIAL BIODIVERSITY FEATURES

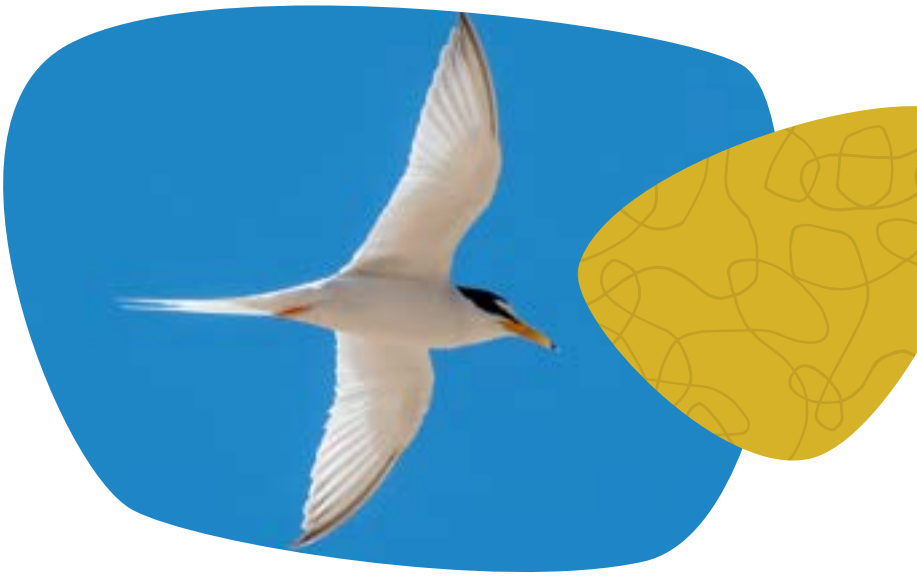
It is well known that the Australian continent has unique and globally significant biodiversity and natural features. Developing in isolation over many millions of years, Australia has more endemic species (ie species that are found nowhere else in the world) than any other country and between 7 and 10% of all species on Earth occur here. This national context is important when considering biodiversity and its management in the MidCoast Region.

The MidCoast Region sits wholly within the NSW North Coast Terrestrial Bioregion and the Manning Shelf Marine Bioregion. It contains eleven separate Interim Biogeographic Regionalisation for Australia (IBRA) Sub-Regions, shown on Figure 2. The topography is variable and includes flat, hilly and rugged landforms, and landscapes ranging from beaches and coastal sea-cliffs, dune-fields, escarpments of the Great Dividing Range and valley floors, floodplains and deep river gorges such as the Ellenborough River below the Ellenborough Falls.

The plants and animals in the region are biologically diverse due in part to both subtropical and temperate climatic influences and the range of available habitats across the region's vast altitudinal range, from sea-level on the coast to 1,586-metres at Brumlow Tops, the highest point within the Barrington Tops.

The Region boasts unique species and areas of International, National, State and other significance including:

- The World Heritage listed Gondwanan Rainforests of Australia in Barrington Tops National Park
- The internationally recognised Myall Lakes Ramsar Site in Myall Lakes National Park
- Extensive areas of mapped Wilderness
- 5 wetlands of National Significance: Crowdy Bay National Park, Wallis Lake and adjacent estuarine islands, Myall Lakes, Port Stephens and Barrington Tops Swamps
- One Marine Park: Port Stephens - Great Lakes Marine Park
- 16 National Parks, 37 Nature Reserves and 5 State Conservation Areas
- At least 72 native mammal species, 46 frog species, 79 reptile species, 4 marine turtles and 337 birds, excluding seabirds
- At least 1,330 native plant species, including species that are found nowhere else in the world ("endemic" species)
- New South Wales' most important nesting site for the endangered little tern: Manning Entrance sand shoals at Farquhar Park and Harrington
- A site of international importance for migratory shorebirds – the Port Stephens estuary (and its population of the eastern curlew)
- Significant residual populations of the koala, whose population in New South Wales fell by 26% over the last 20-years



- Important areas of habitat for a range of state-listed threatened ecological communities, including littoral rainforest, coastal saltmarsh, swamp sclerophyll forest on coastal floodplains and lowland rainforest
- The entire known range of the threatened Manning River helmeted turtle, which is confined to the rivers of the Manning catchment
- Endemic populations of critically threatened terrestrial ground orchids including species such as Tuncurry midge orchid and pale yellow doubletail
- Wallis Lake has the largest area of seagrass in any estuary in NSW, comprising 35% of the State's total area of seagrass, as well as unique sponge communities
- At 200 metres, Ellenborough Falls is one of the longest single drop waterfalls in the Southern Hemisphere
- The Myall Lakes National Park is the 7th most visited National Park in New South Wales, attracting over 1.2 million visitors in 2018. Annual visits to Myall Lakes National Park increased 162% between 2014 and 2018. Booti Booti National Park attracted 449,000 visitors and Crowdy Bay National Park attracted 400,000 visitors in 2018[11]
- One of the few coastal breeding sites of the Australian Pelican (in Wallis Lake)
- The Manning River is the only double delta river in the Southern Hemisphere.

11. MidCoast Council, 2020

Approximately **1330 NATIVE PLANT SPECIES** in the area

58 NATIONAL PARKS

13 MAJOR WATER CATCHMENTS

261km MANNING RIVER

THE ONLY DOUBLE DELTA RIVER IN THE SOUTHERN HEMISPHERE

200M DROP ELLENBOROUGH FALLS

1 INTERNATIONALLY RECOGNISED WETLAND – MYALL LAKES

2 AWARD WINNING REMEDIATED WETLANDS DARAWANK (900HA) & CATTAI (1500HA)

WALLIS LAKE 35% OF NSW SEAGRASS

1 WORLD HERITAGE LISTED AREA, GONDWANAN RAINFORESTS (BARRINGTON TOPS)

ONE MARINE PARK
PORT STEPHENS GREAT LAKES

5 COASTAL LAKES & LAGOONS

MYALL, WALLIS, KHAPPINGHAT, SMITHS & BLACKHEAD

5 WETLANDS OF NATIONAL SIGNIFICANCE

CROWDY BAY NATIONAL PARK, WALLIS LAKE AND ADJACENT ESTUARINE ISLANDS, MYALL LAKES, PORT STEPHENS AND BARRINGTON TOPS SWAMPS

192km of coastline
(10% OF THE NSW COASTLINE)

17 LISTED THREATENED ECOLOGICAL COMMUNITIES

Maps showing some of the most significant features of the MidCoast Region are provided in Figures 2 to 5 following.

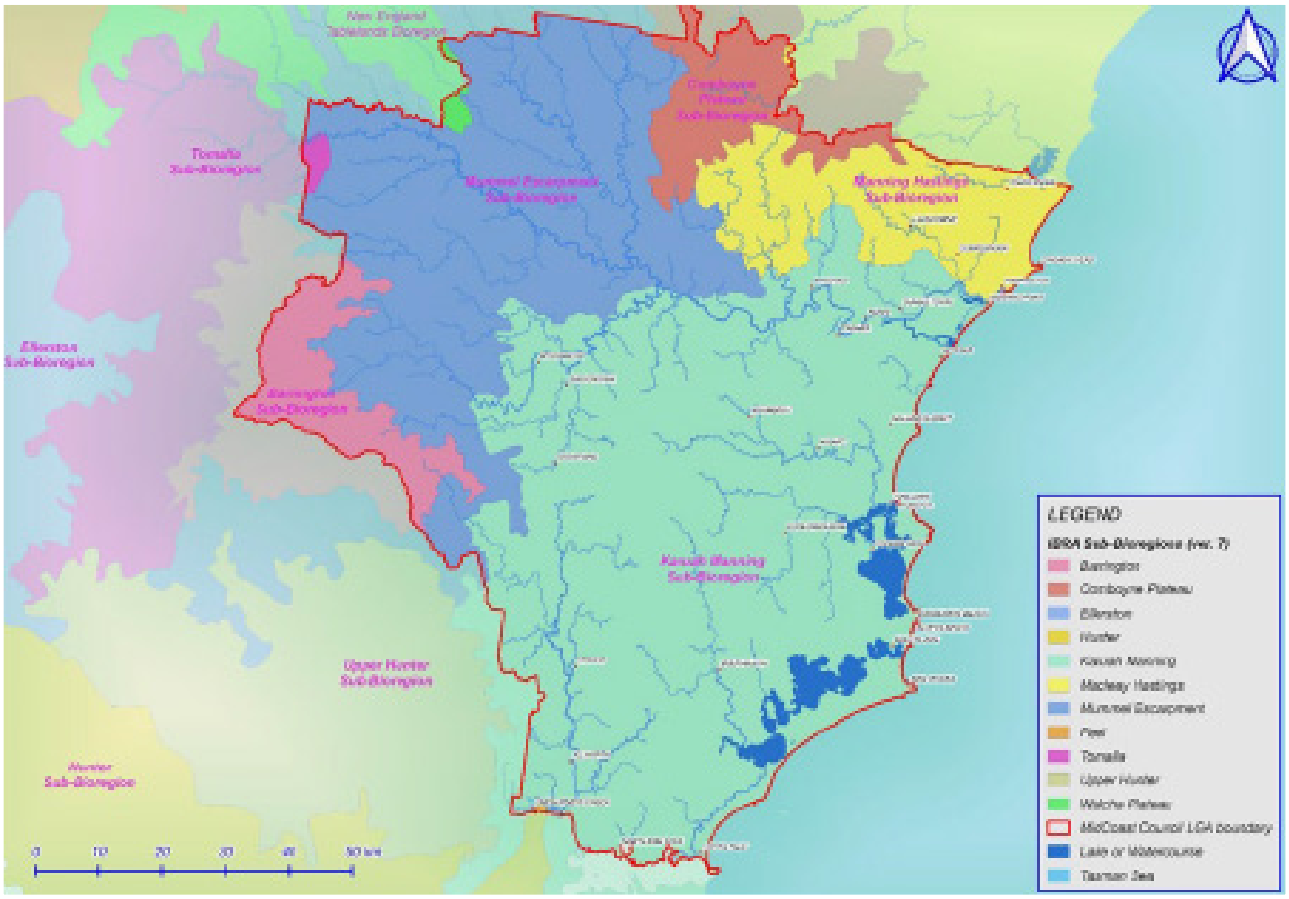


Figure 2: *IBRA Sub-Bioregions of the MidCoast Region*

Figure 3: *Major waterways and estuaries within the MidCoast Region*

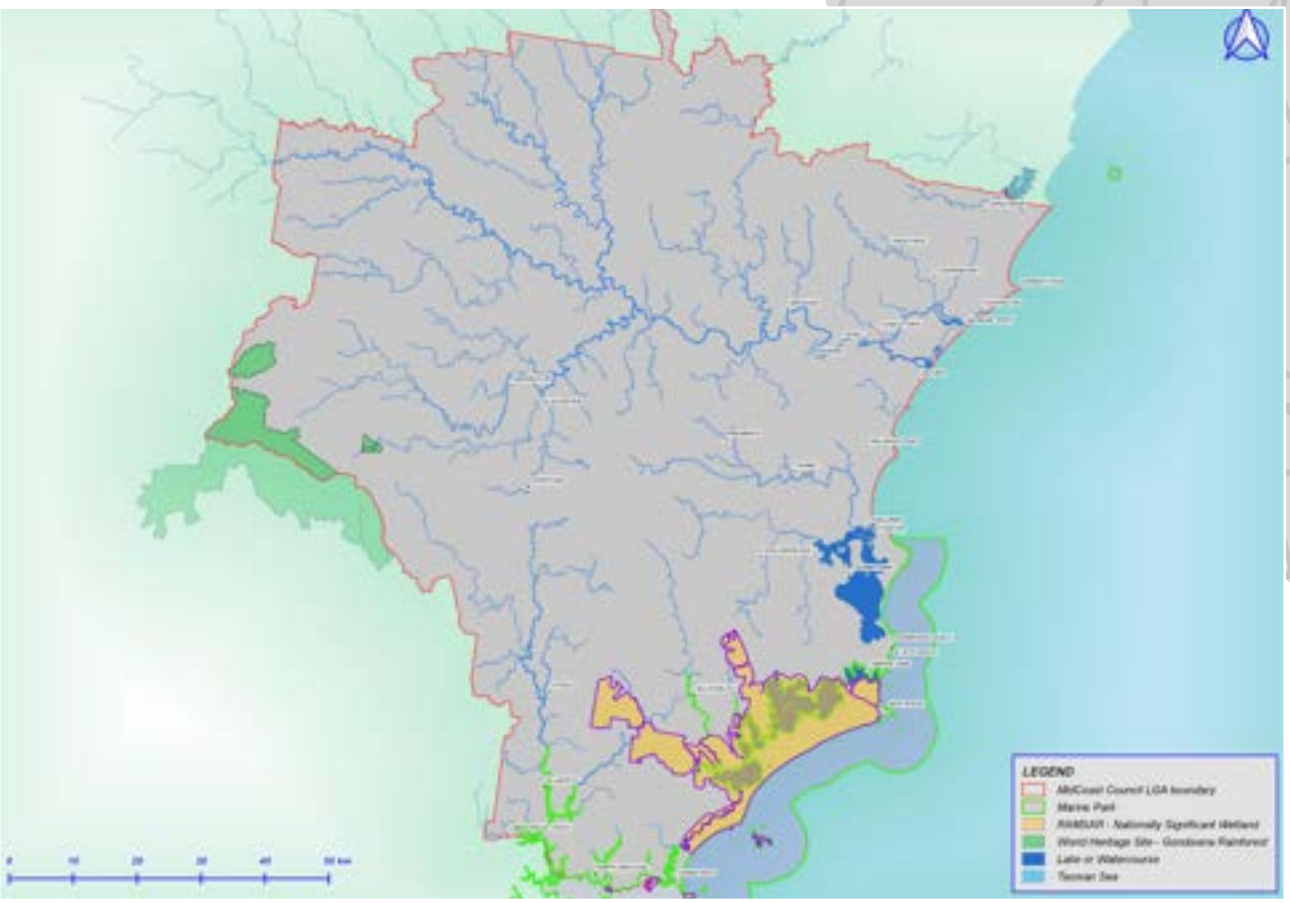


Figure 4: *Map of areas of international biodiversity significance in the MidCoast Region*

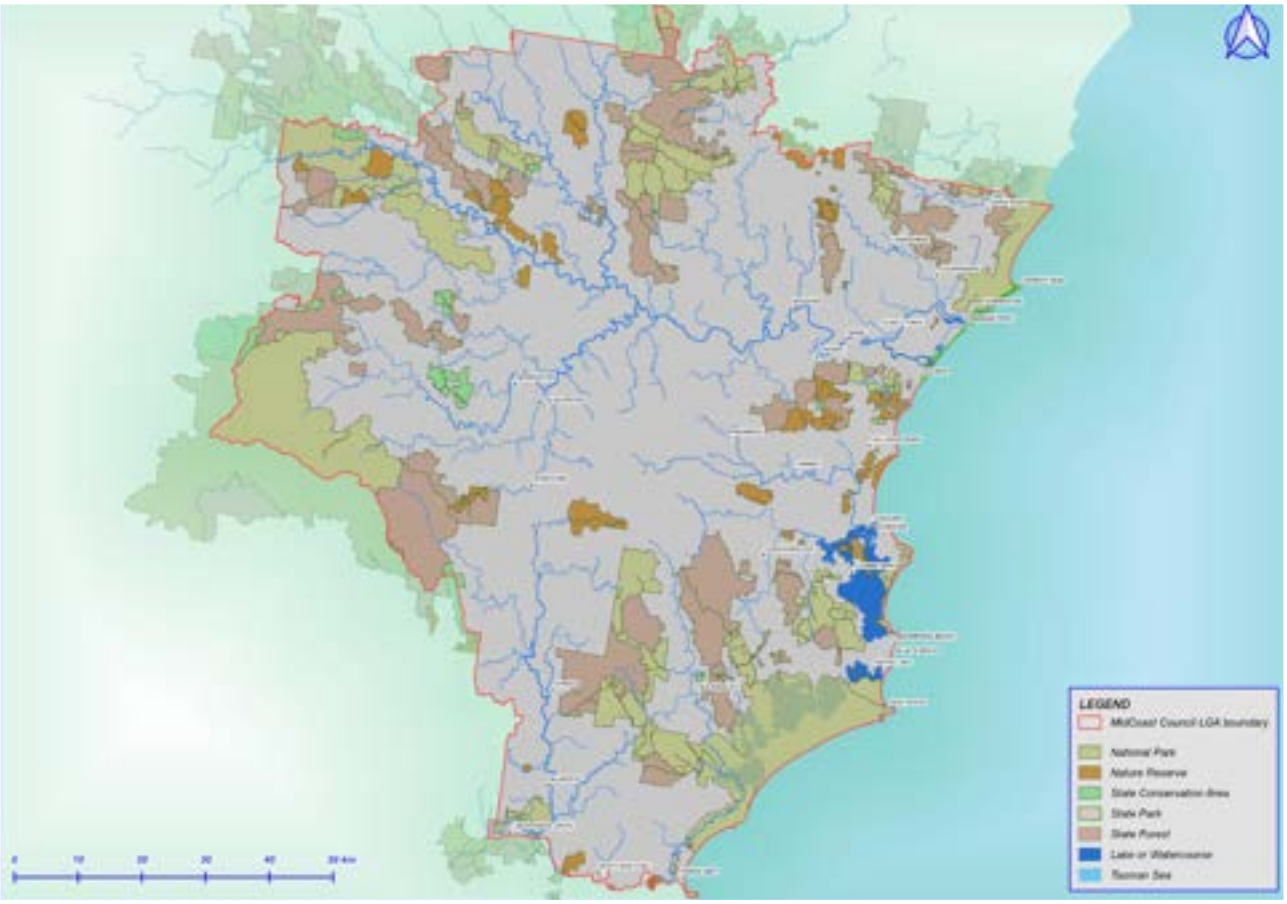


Figure 5: *Map of areas of National Parks, Nature Reserves and State Forests*

Threatened species are identified and given special protection under Commonwealth and State legislation. Many of the State's threatened plants and animals occur in the MidCoast Region, including species such as the Manning River helmeted turtle and the Tuncurry midge orchid, which are not found anywhere else in the world.

The Region has likely lost 3 mammal species to extinction since European settlement: the Tasmanian bettong *(Bettongia gaimardi)*, white-footed tree-rat *(Conilurus albipes)* and the eastern quoll (*Dasyurus viverrinus)*. No frogs or reptiles are thought to have become extinct in the MidCoast Region. The status of birds is unknown; however, it appears that there are no longer populations of the coastal emu[12].

The MidCoast Region currently supports 97 threatened fauna species excluding cetaceans and predominantly sea birds (comprising 30 mammals, 7 frogs, 5 reptiles, 54 birds and 1 invertebrate), and 41 threatened flora species. These species are listed in Appendix 4 and Appendix 5.

The recorded locations of threatened species listed under State and Commonwealth legislation in the MidCoast Region are shown in Figure 6.

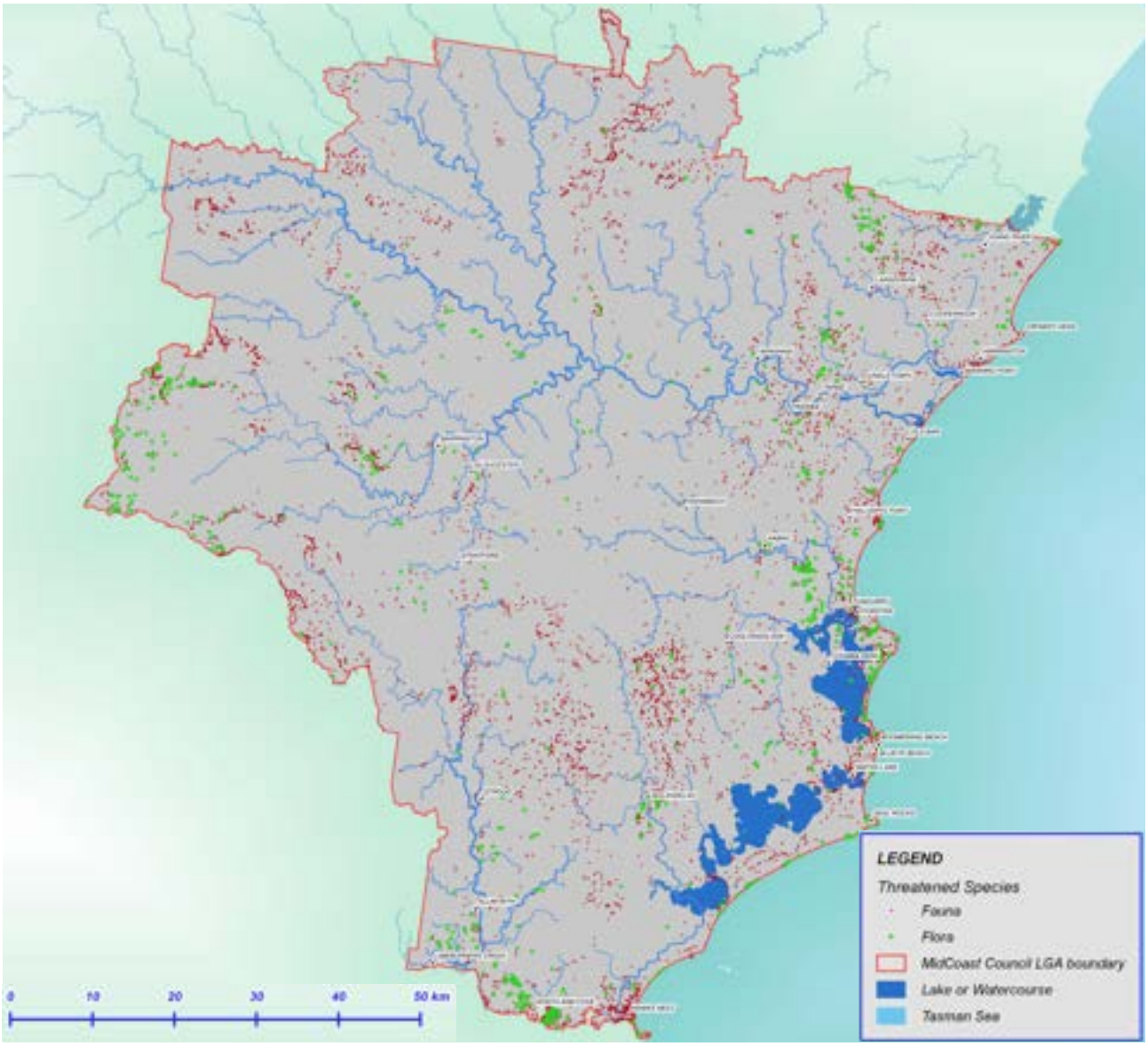


Figure 6: *Map of the records of threatened flora and fauna species in the MidCoast Region (source: Bionet 2019)*

12. NSW Government (2019) Bionet Atlas search.

Certain threatened species have been identified by MidCoast Council for conservation action at specific locations. These species have been prioritised based on community concern, the presence of habitat on Council land, the damaging effects of the 2019 bushfires and / or the species being a flagship species whose conservation benefits other species or landscapes.

The priority threatened species for Council includes:

- Koala (focussing on Kiwarrak, Hawks Nest, Brimbin, Hallidays Point)
- Long-nosed potoroo
- Squirrel glider (Forster)
- Manning River helmeted turtle
- Yellow-bellied glider (Smiths Lake)
- Grey-crowned babbler (Gloucester)
- Guthrie's grevillea
- Narrow-leaved red gum and slaty red gum
- Ground orchids including Tuncurry midge orchid and yellow doubletail orchid.

Non-listed threatened species are also important to consider, as these may become endangered in relatively short timeframes and have important ecological roles. For example, many insects and fungi are essential to maintain ecosystem functioning. Effective biodiversity management and conservation aims to suspend the decline and assist recovery of threatened species as well to protect the status of and secure common species.

Threatened Ecological Communities (TECs) are vegetation types that are either inherently rare or which have been heavily cleared and for which the remaining areas are under significant pressure. MidCoast Council contains 17 listed threatened ecological communities, comprising 4 communities listed under the *Commonwealth EPBC Act 1999* and 13 under the *NSW Biodiversity Conservation Act 2016*. A full list of Threatened Ecological Communities that are known from the MidCoast Region, and their status is provided in Appendix 6. Threatened populations are listed in Appendix 7.

Derived from these listings, priority threatened ecological communities have been identified for the MidCoast Region because they occur in Council reserves or are a community or other priority for local conservation management and recovery. These include:

- Littoral rainforests,
- Lowland rainforests,
- Coastal saltmarshes,
- Themeda grasslands on coastal headlands.

At present, there is no accurate mapping available of the occurrence of threatened ecological communities across the MidCoast Region.

A range of other species and vegetation communities that do not currently meet State or Commonwealth criteria for listing but are of regional significance occur in the MidCoast Region. These include species and communities that are inherently rare or uncommon, endemic, on the edge of their range or that have suffered significant depletion in spatial extent or condition.

2.4 OUR BIODIVERSITY IS UNDER PRESSURE

Habitat loss, degradation and fragmentation from clearing and certain land uses, invasive plants and animals and climate change and altered bushfire and hydrological regimes have pushed biodiversity and natural systems into decline and undermined the services they provide. The MidCoast Region has also experienced, and is still experiencing, this decline.

Australia has been a major contributor to biodiversity loss and has experienced the largest documented decline in biodiversity of any continent over the past 200 years[13]. According to the International Union for the Conservation of Nature (IUCN), Australia is one of seven countries responsible for more than half of global biodiversity loss and is ranked second in the world for ongoing species extinction behind Indonesia (based on the number of native species that had their status changed to threatened, vulnerable or endangered since 1996)[14]. Since European settlement, more than 50 species of Australian animals have become extinct, including 27 mammal species, 23 bird species and 4 frog species. 48 Australian plants are officially recognised as being extinct[15]. Australia's rate of species decline continues to be among the world's highest, and is the highest in the OECD, the group of 30 western democratic nations[16]. The federal government recently concluded that Australia's biodiversity had declined further since 2011 and new approaches were needed to address this downward trajectory for many species[17].

13. Department of Environment and Energy (2017) Biodiversity conservation (weblink) Canberra: Australian Government. http://www.environment.gov.au/biodiversity/conservation, Accessed 16 March 2020.
14. Waldron, A., Miller, D., Redding, D. et al. (2017) Reductions in global biodiversity loss predicted from conservation spending. Nature 551, 364–367
15. Department of the Environment, Water, Heritage and the Arts (2000) Environment Protection and Biodiversity Conservation Act 1999
16. Platt, J. R. (2013) Can You Guess Which Country Has the Most Endangered Species? Scientific American.
17. State of the Environment 2011 Committee. Australia state of the environment 2011. Independent report to the Australian Government Minister for Sustainability, Environment, Water, Population and Communities. Canberra: DSEWPaC, 2011

The Australian Government recognises that "land clearing represents a fundamental pressure" and that "extensive historical clearing resulting in fragmentation continues to exert pressures on the land environment". It notes that "approximately 44 per cent of Australian forests and woodlands have been cleared since European settlement".[18] Rates of clearing since European settlement vary across different ecosystem types. Some ecosystems have been heavily impacted. For instance, across Australia, since European settlement, >99% of all temperate lowland grasslands, >60% of all coastal wetlands in southern Australia, 45% of open forests and 25% of rainforests have been cleared.[19] The latest data from the NSW Government indicates that more land is being cleared than is being re-created, restored or regenerated (the net state-wide clearing rate in 2014-15 was 14,700-hectares, which increased to 27,100-hectares in 2017-18). It further reported that "only 9% of NSW … is in close to natural condition. The condition of the remaining 52% of NSW still with native vegetation cover, is variable, but has deteriorated, largely due to different land uses and land management practices.

Land clearing is the main threat to the extent and condition of native vegetation in NSW. While some vegetation classes, particularly woodlands and grasslands, have been substantially depleted since European settlement, others remain largely intact"[20].

Riparian zones, the land alongside creeks, streams, gullies, rivers and wetlands, are experiencing decline across Australia. These zones are unique and diverse, are often the most fertile parts of the landscape and are important in maintaining both terrestrial and aquatic biodiversity because of the role they play in regulating environmental conditions, such as bank stability, temperature and water quality and flow.[21] Yet the condition of freshwater waterways and riparian zones is often poor to moderate throughout NSW.[22] Drought, stream flow change and the effects of a changing climate are exacerbating impacts on these ecosystems[23].

According to OECD (2019), the pace and scale of actions within Australia to address the biodiversity crisis "have not been enough to improve the status and trends of ecosystems and species. Small initiatives and limited investment are insufficient to fully address a legacy of land clearing combined with growing pressure from population growth, expanding development, invasive species and climate change"[24].

Whilst it is important to understand the global context for biodiversity loss, the focus of this Biodiversity Framework is on the MidCoast Region. While the region contains large and diverse natural areas and residually high levels of biodiversity, there remains significant legacy and contemporary threats to biodiversity.

18. Jackson WJ, Argent RM, Bax NJ, Clark GF, Coleman S, Cresswell ID, Emmerson KM, Evans K, Hibberd MF, Johnston EL, Keywood MD, Klekociuk A, Mackay R, Metcalfe D, Murphy H, Rankin A, Smith DC & Wienecke B (2017). Australia state of the environment 2016: overview, independent report to the Australian Government Minister for the Environment and Energy, Australian Government Department of the Environment and Energy, Canberra.
19. Burns E, Lindenmayer, D Lowe & Thurgate N (eds) (2014) Biodiversity and environmental change: monitoring, challenges and direction. CSIRO Publishing.
20. NSW Environment Protection Authority. 2018, NSW State of the Environment 2018. NSW Government, Sydney.
21. WaterNSW (2020) Riparian Zones, https://www.waternsw.com.au/water-quality/catchment/living/managing-land/riparian
22. Jackson et al. (2016) Biodiversity: Freshwater species and ecosystems, Jurisdictional reporting on freshwater species and ecosystems
23. State of NSW & Department of Environment, Climate Change & Water NSW (2010) Priorities for Biodiversity Adaption to Climate Change, report, Sydney, NSW.
24. OECD (2019) OECD Environmental Performance Reviews: Australia 2019, OECD Publishing, Paris, p 170.

In the MidCoast Region there are 303,000 hectares of land in national parks, nature reserves and state conservation areas. However, the reserve system is not comprehensive, adequate or representative. It is biased to landscapes not typically useful for other land use purposes, sometimes in rugged or isolated locations. That is, the reserve system in the MidCoast Region is focused on parts of the landscape that are not useful for other activity or use such as residential or rural housing. This is referred to as "residual reservation".

Threats exist as consequence of both legacy impacts (for example, historic broad scale land clearing for agriculture and development) and contemporary pressures (the effects of weeds and feral pest animals, habitat fragmentation, habitat modification, climate change and disease).

A range of specific threatening processes are listed under both the *NSW Biodiversity Conservation Act 2016*, and the *Environment Protection and Biodiversity Conservation Act 1999*. Threatening processes applicable to biodiversity on the MidCoast Region are listed in Appendix 1.

In a recent targeted survey as part of the Framework engagement program[25], rural landholders and community saw major threats to biodiversity in the region having substantial impacts now or in the near future as:

- Altered fire patterns
- Altered hydrological patterns (drains, dams, etc)
- Clearing of native vegetation and habitat
- Climate change, exacerbating and increasing the problems caused by bad planning and excessive urban development and land clearing
- Degradation of native vegetation and habitat
- Environmental pollution
- Feral pest or free-ranging domestic animals
- Human impacts like roads, land uses, etc
- Apathy
- Chemicals - pesticides/herbicides, plastic fibres, etc.
- Expansion of housing development inappropriate agricultural uses.

25. MidCoast Council (2020) Targeted Engagement October to November 2020 report

Land clearing: Clearing of native vegetation / habitat is one of the major causes of species loss and ecosystem service disruption and remains a key ongoing threat to biodiversity. Major periods of land clearing in the MidCoast Region included the exploitation of rainforest timbers in the mid to late 1800's, forestry expansion in the early 1900's, dairy development in the early 1900's, expansion of industrialised agriculture and mechanised clearing combined with post-war resettlement schemes from the 1950s and coastal residential development from the 1980s.

Habitat degradation: Ecological communities and biodiversity can be simplified and impacted by the degradation and / or simplification of habitat. This typically occurs because of grazing, under-scrubbing, logging and other disturbances.

Fragmentation: Fragmentation and loss of connectivity creates small isolated populations with limited gene flow, reduced potential to adapt to environmental change and impaired dispersal and recolonisation after disturbances. The MidCoast Region has areas of fragmented landscapes with habitat isolation. The most profound of these are associated with clearing of river floodplains and valleys for agriculture.

Invasive exotic plants: Invasive exotic plants can displace native vegetation, compete for light and nutrient resources, alter vegetation structure and biological function and degrade fauna habitat. A list of the priority invasive exotic plant species in the LGA is provided in Appendix 2.

Introduced pest animals: Introduced pest animals hunt native wildlife, compete for resources and degrade groundcover, soil, riparian vegetation and water quality. They can also harbour or spread animal and human diseases, damage farm infrastructure and other built assets and endanger human life. A list of the introduced pest animal species in the LGA is provided in Appendix 3.

Altered fire regimes: Most native plants, animals and ecosystems are adapted to specific fire regimes. However, altered fire regimes, including either under or over-frequent fire, can negatively impact on biodiversity. Over-frequent fire and high intensity wildfire are most likely to cause significant negative impacts and predicted to be exacerbated under a changing climate. Anecdotal evidence suggests that some fire-prone landscapes in the MidCoast Region are over-burnt, including Crowdy Bay National Park and the Minimbah sandbeds.

Altered hydrological regimes: A significant proportion of coastal and riverine wetlands in the MidCoast Region (and across New South Wales) have been lost because of altered hydrological regimes.[26] Altered hydrological regimes may result from one or more activities including water harvesting, draining, channelisation and infilling and mainly affects rivers and streams, wetlands, floodplains, riparian zones and other groundwater dependent ecosystems. It includes the effects of over-extraction, some sandmining practices as well as weir and floodgate construction and operation, which impede natural flows and fish movement. Draining of coastal wetlands can lead to severe acid generation, such as at Darawakh Creek- Frogalla Swamp, Moto Wetlands, Coopernook Wetlands and Cattai Creek - Big Swamp. Severe drought in 2019 severely impacted aquatic systems in many local waterways and contributed to fish-kills and the death of many platypus, turtles and other aquatic species.

Pollution: Pollution can interrupt ecological processes, affect organisms and smother habitats. It can also drive other degradation processes, such as algal blooms and pollution from acid sulphate soil landscapes. Key pollutants in the MidCoast Region include sediments and nutrients from agricultural run-off, stormwater pollutants from urban run-off, acid in waterways from exposed acid sulfate soils as well as plastics and other litter.

Human impacts: Human impacts on biodiversity include hunting / culling, over-fishing and vehicle strikes. Vehicle strike impacts can be a severe threat to species such as the koala.

Changing climate: Climate change poses a significant threat to biodiversity in many parts of Australia including the MidCoast Region. Projections of future changes in climate locally include increasing temperatures and temperature extremes, increasingly severe droughts, increasing the scale and intensity of wildfires, rising sea levels, reduced and migrating rainfall patterns, changed regional flooding and reduced water availability.[26] Locally, the most vulnerable ecosystems include coastal ecosystems, sub-alpine areas, rainforests, fragmented terrestrial ecosystems and areas vulnerable to fire or low freshwater availability. Species that could become endangered or extinct include those living near the upper limit of their temperature range (for example, in alpine regions), those with restricted climatic niches and those that cannot migrate to new habitats due to habitat fragmentation. While some climate change impacts are already being experienced, a biodiverse landscape holds opportunities for mitigating and embedding in resistance to climate change. Forests and wetlands sequester significant amounts of carbon dioxide from the atmosphere. There are many other biological processes that can contribute to reducing the effects of climate change. For instance, the maintenance of coastal vegetation and wetlands can also provide transitional/migration impact protection from the effects of sea-level rise and increased storm events.[41]

Disease: Plant and animal diseases can significantly affect biodiversity, as well as economically important local industries such as the oyster industry and animal agriculture. These diseases may be naturalised, widespread or sporadic within the region or be not yet introduced. Regional examples include Myrtle rust, a known significant pathogen of plants of the Myrtaceae family caused by Puccinia psidii that has spread across the eastern Australian landscape. Fauna diseases include the infectious bacteria, Chlamydia, that while not usually fatal to koalas, can severely impact koala health and reduce breeding rates, and disease caused by a Chytrid fungus that is linked to the decline and disappearance of many frog species.

26. Bureau of Meteorology (2020) State of the Climate 2020 Report, Canberra

2.5 HOW DOES BIODIVERSITY LOSS IMPACT US?

Loss of biodiversity impacts the delivery of ecosystem services which in turn impacts the social and economic drivers in the MidCoast Region.

The connections between a biodiversity impact and negative social and economic outcomes is examined in Diagram 1.

One example of the impact of the loss or decline of ecosystem services provisions of the natural environment was the 1997 Hepatitis A outbreak in oysters within Wallis Lake. Hepatitis A virus poses a special risk to consumers who eat raw oysters because it can survive for long periods in estuaries and cause severe disease. One person died from the virus, with many people suffering illness. The Hepatitis A outbreak caused multi-million-dollar regional economic losses because of significantly reduced tourism and visitation, reduced seafood consumption and a temporary closure of the oyster industry. The Hepatitis A event in Wallis Lake was a catalyst for improvements in local catchment and environmental management and monitoring systems.

Diagram 1 illustrates some of the linkages that may be made between biodiversity impacts and negative community and economic outcomes associated with:

- Reduced farm productivity and depleted fish stocks
- Increased treatment costs for domestic water supplies
- Damage to our tourism brand, reduced visitor rates and spending
- Loss of our lifestyle, amenity, and cultural identity.

In order to prevent the impact of biodiversity loss and protect the natural environment for future generations, the most cost-effective approach is to use the precautionary principle and conserve existing natural assets rather than attempt expensive remediation once damage has occurred.

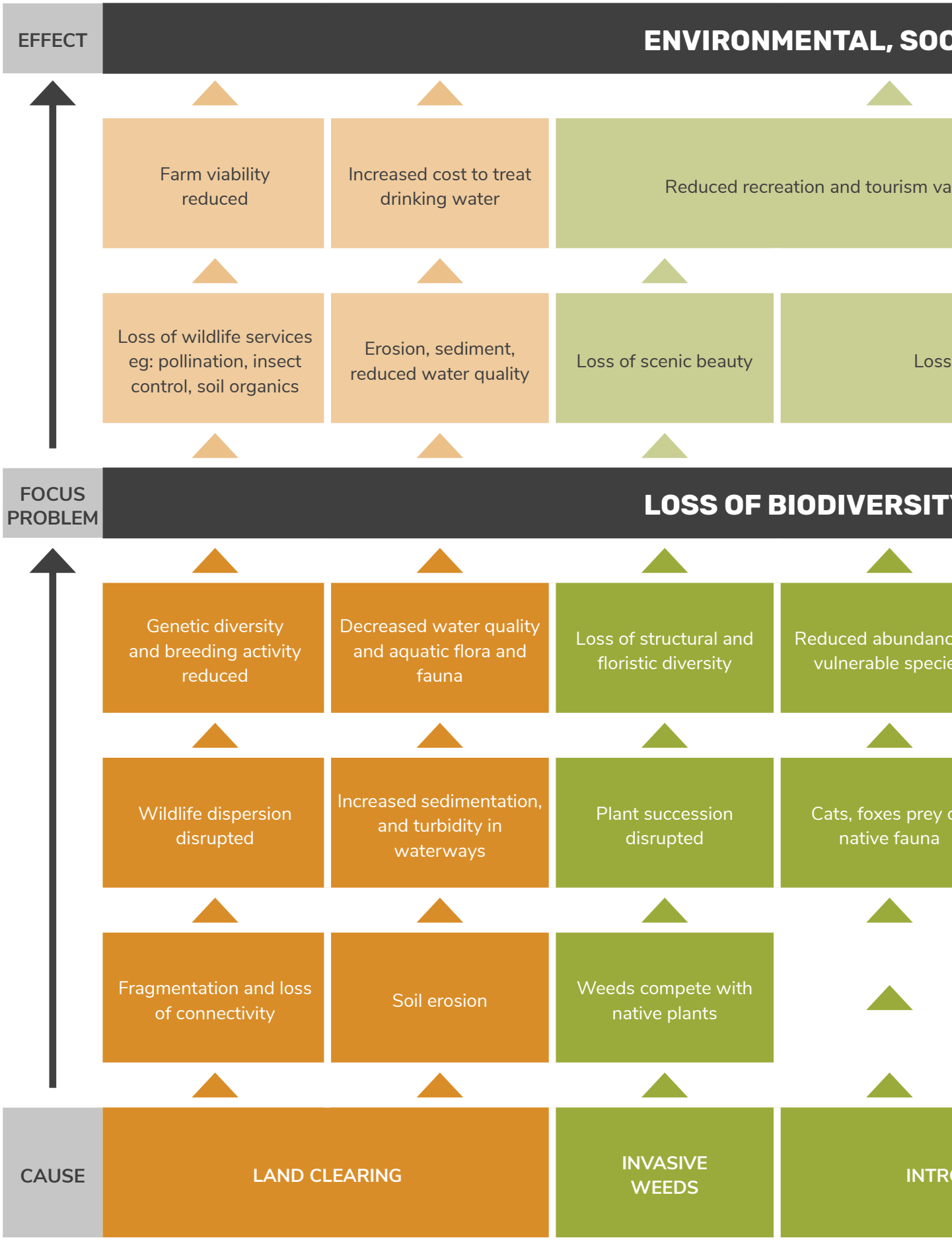


Diagram 1: *Problem tree analysis as a pictorial representation of the decline in biodiversity and ecosystems, the causes and*

CIAL AND ECONOMIC IMPACTS

lues, brand damage

Reduced economic and recreational value of fisheries

Loss of intrinsic value

Ethical failure

Loss of cultural identity

of scenic beauty

Loss of productivity for fisheries Reduced catch

Local species extinctions

Y AND ECOSYSTEM SERVICES

ce of es

Loss of structural and floristic diversity

Reduced abundance and diversity of fish

Loss of threatened species eg Koala

on

Plant succession disrupted

Fish breeding cycles disrupted

Reduced abundance of vulnerable species

Loss of species eg Chytrid kills frogs, Myrtle Rust causes Dieback

Deer, cattle graze on juvenile nativeplants

Barriers to fish passage

Vehicles kill native fauna

Pathogens spread through habitats

ODUCED FAUNA

ALTERED HYDROLOGY

HUMAN IMPACT

DISEASE

l environmental, social or economic consequences

2.6 MIDCOAST COUNCIL'S BIODIVERSITY ROLE

Local Government plays an important role in planning and managing biodiversity and the natural environment on both public and private lands.

The charter in the *Local Government Act 1993* requires Council to:

"properly manage, develop, protect, restore, enhance and conserve the environment for which it is responsible, in a manner that is consistent with and promotes the principles of ecologically sustainable development" and "to have regard to the long-term and cumulative effects of its decisions"[27].

In accordance with the charter, MidCoast Council represents our community's aspirations and undertakes key roles in relation to biodiversity management in our capacity as:

- a service provider
- a land use planning authority
- a regulatory authority acting in the public interest
- a landowner and manager.

Council also has roles and responsibilities under the *NSW Government's Hunter Regional Plan 2036* relating to biodiversity and land use planning. This plan provides a direction for regional planning decisions and requires that Council implement actions that are consistent with the vision, guiding principles and priorities and that contribute to regional goals. The Plan sets a "biodiversity-rich natural environment" as the second focused goal, with three biodiversity related directions: Direction 14 Protect and connect natural areas, Direction 15: Sustain water quality and security, and Direction 16: Increase resilience to hazards and climate change.

27. Local Government Act 1993

This is in recognition that our natural environment sustains important cultural, social and economic activities. It recognises that good planning and design will be fundamental to protecting the environment and building greater resilience to natural hazards and climate change. Residents and visitors to the region, including the MidCoast Region are fortunate to have ready access to many of the region's natural areas - these areas contribute to the region's identity and the health of its communities. They are also important for recreational and tourism activities, as a focus for investment and a factor in where people choose to live. These points also form part of Goal 3 of the plan relating to supporting thriving communities through enhancing access to recreational facilities and connect open spaces.[28]

Effective and successful regional biodiversity conservation depends on local government because:

- Conservation planning and management requires a mix of education, incentives and regulatory controls, all of which require local content
- Conservation involves the community and enlists local support, and local government is connected to our community
- Conservation planning targets regions and communities, and local government works at these scales.

Effective delivery of these relies on coordinated actions across many areas of council's core and discretionary business through a range of tools and actions. These are identified in this Framework grouped into themes within Section 2.

28 NSW Government (2016) Hunter Regional Plan, Goal 3, Newcastle.

3: VISION

3.1 NATIONAL AND STATE CONTEXT

In the higher tiers of government, biodiversity is recognised in State and Australian Government statutes and strategic plans. The long-term vision of *Australia's Biodiversity Conservation Strategy (2010 – 2030)* is that *Australia's biodiversity is healthy and resilient to threats and valued both in its own right and for its essential contribution to our existence.*

Within the Hunter Regional Plan, the NSW Government has adopted a ***biodiversity-rich natural environment*** as one of the goals.

3.2 OUR COMMUNITY'S VISIONS AND VALUES

Within the community strategic plan MidCoast 2030: Shared Vision, Shared Responsibility, protecting and enhancing the natural environment emerged as a community priority.

The Community's Vision is ***We strive to be recognised as a place of unique environmental and cultural significance. Our strong community connection, coupled with our innovative development and growing economy, builds the quality of life we value.*** The values are that ***Our natural environment is protected and enhanced, while we maintain our growing urban centres and manage our resources wisely.***

The alignment of valuing our environment to the *Local Strategic Planning Statement, CSP and Hunter Regional Plan 2036 Directions* are shown in Figure 7 (below).

The Vision for the environment in Delivery Program and Operational Plan (Objective 7) is:

to understand, value, protect and enhance the biodiversity and natural heritage of the MidCoast region for the environmental, cultural and economic well-being of our community.

Within the LSPS Planning Priority 6 relates to protecting and improving our environment.

WE VALUE	LSPS planning priorities	Alignment with CSP	Alignment with Hunter Regional Plan 2036 Directions
OUR ENVIRONMENT	P6: Protect and improve our environment P7: Improve our resilience to natural disasters and climate change P8: Managing our land and water assets	E1: We protect, maintain and restore our natural environment E2: We manage resources wisely E3: We balance the needs of our natural and built environments	D10: Agricultural productivity D11: Manage natural resources D14: Protect and connect natural areas D15: Sustain water D16: Hazards and climate change

Figure 7: *Alignment of values relating to the environment of other related plans*

Objectives and Targets

Rather than establishing objectives for the framework, each biodiversity action will identify specific, measurable objectives that are linked to the targeted outcomes. The Biodiversity Framework instead will set the following main goals to deliver the vision:

1. Maintain or improve the current diversity of species and ecosystems
2. Maintain or improve the provision of ecosystem services
3. Maintain or reinstate (where required) a biodiversity-rich, resilient and connected natural environment

3.3 BIODIVERSITY ENGAGEMENT PROGRAM

Purpose

The community and stakeholders play a key role in both developing the framework, and in carrying through the program. Engaging with key stakeholder groups and the broader community in an open and participatory way helps Council understand their goals, concerns, priorities and partnership opportunities. Engagement for the framework has been designed following the International Association for Public Participation (IAP2) framework as outlined in *MidCoast Council's Community Engagement Policy*.

The specific aims of engagement for the framework are to:

- To gain insight, acceptance and ownership from Council stakeholders and the community on biodiversity values, priorities and actions in the LGA
- To inform the community how their feedback will influence the design to ensure the framework meets the needs of the community
- To secure Council adoption of the framework and integration into IP&R Framework and DPOP
- To build a platform for ongoing support and implementation of the framework by internal and external stakeholders
- To educate and raise awareness within the community and key stakeholders on the LGAs biodiversity values, current and future conservation and management, what a framework is and may cover, what they may expect from Council, what their role is
- Provide key stakeholders with the opportunity to express their opinion, providing insight to values, actions, partnerships, challenges, needs
- To continue to build trust with our community and ensure that all relevant individuals and groups are given the opportunity to be appropriately and adequately engaged. This is particularly important for special interest groups such as Aboriginal Traditional Owners and large property owners in rural areas.

Program

Individuals, agencies, landholders, special interest groups, partners and the community were being invited to be involved in different ways throughout key phases of framework development through a carefully designed and comprehensive program. This comprises:

- first two major phases in 2020, where stakeholders and key community members were invited to contribute to the vision, goals, priorities, themes, partnerships, collaborations and projects for a draft framework
- phase three in early 2021, key partners and stakeholders engaged over relevant programs and actions within themes, with a focus on strengthening or adding actions, defining partnerships and opportunities
- public exhibition consultation and revision of the framework to reflect input. This phase provides everyone with the opportunity for comment and suggestions to be considered
- adoption by Council and phase six implementing the Framework.

Phase one and two engagement

In 2020 internal Council engagement and key external stakeholder engagement was undertaken as part of the first two phases of the engagement program. As outlined in MidCoast Council's Community Engagement Policy the International Association for Public Participation (IAP2) five-point framework for measuring the level of community engagement was used.

Targeted external engagement was undertaken between Tuesday 12 October to Friday 20 November 2020 to generate participation and gain feedback, showcasing why our region is valuable and enabling key stakeholders to provide informed feedback into the initial development of the Framework. Engagement opportunities were adapted to meet health restrictions at the time, and involved distributing engagement packages comprising factsheets, introductory video and instructions, workshop tips for facilitators and a checklist of activities. A diverse range of groups was targeted, including government agencies, special interest groups, Aboriginal Land Councils, rural land holders, and farming groups. The series of engagement activities undertaken provided a variety of ways for the community to share their opinion and ideas, and generate community conversations. A Have Your Say page on our website provided an online hub to share information, encourage participation, and link to the online survey. This survey was the primary tool for gathering feedback and was promoted through a range of communication channels, and provided in targeted email correspondence. Responses to a series of questions were provided in hard copy or via an online link.

The types of survey questions included:

What do you see is Council's role in relation to regional biodiversity management?

Identify the projects you would like to see Council doing to assist deliver common biodiversity goals / visions in the region?

How can Council better support the work of your agency in biodiversity conservation and management?

What is your Groups' vision and goals for biodiversity in the MidCoast Region?

Favourite natural places and iconic, representative or special animal or plant species in the MidCoast Region

Ranking of threats to biodiversity in the region

Projects you would like to see council undertake

3.4 WHAT HAVE WE HEARD SO FAR?

Over the period of the engagement, there were 482 visits to the Have Your Say web page. One on one telephone discussions were held with key stakeholders. 98 people completed the survey online, made up of the following groups:

Government agency 3%

Environmental and interest groups 14%

Rural landholder 35%

Community 48%

The overall response from environment and interest groups, rural landholders and community was agreeance that:

- We have a responsibility to look after nature and biodiversity for future generations
- Nature and biodiversity are essential to the production of food, other products and clean air and water
- Nature and biodiversity are important for tackling climate change
- Nature and biodiversity are important for my personal recreation, relaxation and spiritual renewal
- Whether I visit natural places or not, it is important for me to know nature and biodiversity is looked after.

Environment and Interest groups expressed overall satisfaction with access to green space such as parks, forests and natural areas and air quality.

These groups would like to see Council delivering the following projects:

Include biodiversity considerations in development catchment and land use
Prepare wildlife corridor mapping and strategies
Repair and protect damaged and degraded wetland systems
Rezone high conservation value lands for environmental protection
Encourage and facilitate private land conservation outcomes
Assist the Aboriginal community with the preservation of culturally-significant areas
Encourage ecological or cultural burning of lands
Manage Council natural areas for their biodiversity values
Respond in the event of biodiversity emergencies such as large wildfires
Acquire land for new Council Natural Area Reserves
Adopt biodiversity measures in climate change policies and plans
Adopt tree protections in urban lands
Deliver biodiversity education and engagement programs
Prepare Local Area Conservation Action Plans
Collate compile and publish biodiversity knowledge of the MidCoast Region
Continue to act as a regional provider for the Land for Wildlife program
Deliver nature-based recreation assets and opportunities such as walks
Deliver strategic feral pest animal programs for biodiversity conservation
Deliver strategic programs to control or manage domestic pets
Deliver strategic weed programs for biodiversity conservation
Prepare threatened communities and species conservation and management

For Rural landholders and community survey responses to the question “What activities do you like to do in our natural areas?” were by most popular Bushwalking (76), Fishing / canoeing / swimming / surfing (62), Picnics (56), Camping (46), Photography (50), Other cultural activities (28) and Horse or mountain bike riding (16).

When asked to name three (3) plant or animal species that are iconic or represent/special to the MidCoast region, Koalas ranked the highest followed by the Manning Helmeted Turtle and Flying Fox.

Rural landholders and community saw major threats to biodiversity in the region having substantial impacts now or in the near future as:

Altered fire patterns
Altered hydrological patterns (drains dams etc)
Clearing of native vegetation and habitat
Climate change
Degradation of native vegetation and habitat
Environmental pollution
Feral pest or free ranging domestic animals
Human impacts like roads land uses etc
Other: Apathy
Other: Chemicals pesticides/herbicides plastic fibres etc
Other: Expansion of housing development inappropriate agricultural uses
Other: Global Warming this is exacerbating and increasing the problems caused by bad

Government Agency responses advised that they would like Council to focus on:

- Strategic conservation planning with local-scale mapping and data, management and legal protection of public bushland, education and support for private land conservation, internal Council policies to prevent further vegetation loss and to offset above BOS requirements
- Education, protection, partnerships, collaboration, Land purchases, cooperative funding bids, working hand in hand with NPWS
- Effective land management - eg control of pest and weeds, erosion, maintain native vegetation and proper industry use.

Restoring and protecting connectivity was a key recurring theme for community groups, individuals, landholders and Aboriginal groups from the consultation during late 2020. This is stated explicitly, and in the projects and programs respondents consistently listed as priorities for Council:

- Preparing local area conservation action plans
- Preparing wildlife corridor mapping and strategies
- Include biodiversity considerations in development, catchment and land use planning
- Encourage and facilitate private land conservation outcomes
- Rezoning high conservation value lands for environmental protection

Rural landholders and community would like to see Council deliver on the following projects:

Acquire land for new Council Natural Area Reserves
Adopt biodiversity measures in climate change policies and plans
Adopt tree protections in urban lands
Assist the Aboriginal community with the preservation of culturally significant landscapes
Collate compile and publish biodiversity knowledge of the MidCoast Region
Continue to act as a regional provider for the Land for Wildlife program
Deliver biodiversity education and engagement programs
Deliver nature based recreation assets and opportunities such as walks
Deliver or fund research projects for biodiversity
Deliver strategic feral pest animal programs for biodiversity conservation including education
Deliver strategic weed programs for biodiversity conservation including education
Encourage and facilitate private land conservation outcomes
Encourage ecological or cultural burning of lands
Include biodiversity considerations in development catchment and land use planning
Manage Council natural areas for their biodiversity values
Manage roadside environments that have significant biodiversity values

3.5 A VISION FOR NATURE FOR THE MIDCOAST

In the first phases of targeted stakeholder and community engagement program for the framework, participants' input on their values, priorities, concerns and ideas is being used prepare the vision, goals and themes specific to the framework, which will be carried through for input for exhibition, and ultimately the final Framework version.

While local Aboriginal groups' vision and goals for biodiversity overlap with these broader community aspirations, the vision identified during consultation for the Worimi community is to:

Protect and nurture Country.[29] This vision is supported by a set of goals, outlined in Theme 4.

At present, the Biodiversity Vision for this framework is based on the *Delivery Program* and *Operational Plan* Objective 7:

We understand, value, protect and enhance the biodiversity and natural heritage of the MidCoast region for the environmental, cultural and economic well-being of our community.

29. Worimi Aboriginal Land Council (Green Team Unit) submission to Biodiversity Framework Survey, 16 November 2020.

4. LEGISLATIVE AND PLANNING CONTEXT

A legislative and regulatory framework applies to the protection, conservation, management, and assessment of impacts on biodiversity. Applying clear and consistent objectives for biodiversity across the range of mandatory and discretionary Council activities will assist in meeting regulatory requirements and conserving biodiversity in line with the communities' goals and aspirations.

Relevant legislation is identified below, with the summary and relevance to MidCoast Council outlined in Appendix 8.

4.1 INTERNATIONAL CONVENTIONS

Convention
Convention on Biological Diversity
Convention on Wetlands of International Importance (Ramsar convention)
Convention concerning the Protection of the World Cultural and Natural Heritage (World Heritage Convention)

4.2 AUSTRALIAN GOVERNMENT LEGISLATION

Statute
Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)

4.3 NEW SOUTH WALES GOVERNMENT LEGISLATION

Statute
Local Government Act 1993
Environmental Planning and Assessment Act 1979
Biodiversity Conservation Act 2016
Fisheries Management Act 1994
Crown Land Management Act 2016
Local Land Services Act 2013
Water Management Act 2000
National Parks and Wildlife Act 1974
Aboriginal Land Rights Act 1983
Protection of the Environment Operations Act 1997
Biosecurity Act 2015
Rural Fires Act 1997
State Environment Planning Policy (Koala Habitat Protection) 2019
State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017
State Environmental Planning Policy – Coastal Management
State Coastal Management Act 2016

4.4 GOVERNMENT STRATEGIES AND REPORTS

State and national governments tend to focus on biodiversity management at larger spatial and administrative scales. Local government can support local and regional biodiversity and implement the communities' environmental goals and aspirations. In doing so, Councils can assist State and Commonwealth Governments to meet their biodiversity targets and deliver on their natural resource management plans.

The role of local Councils in State and Commonwealth biodiversity strategic Framework and the range of key strategies and reports have been considered in developing this Biodiversity Framework. These include:

Biodiversity Conservation

Australia's Biodiversity Conservation Strategy 2010 - 2030

New South Wales Draft Biodiversity Strategy 2010 - 2015

New South Wales Biodiversity Conservation Investment Strategy 2017 - 2037

Biodiversity Planning Guide for NSW Local Government 2001

National Parks and Nature Reserves

Australia's Strategy for the National Reserve System 2009 - 2030

Draft NSW National Parks System Directions Statement 2017

Regional and Local Planning

Hunter Regional Plan 2036

Mid North Coast Regional Strategy 2009

Mid North Coast Regional Conservation Plan 2011

Climate Change Adaptation

NSW Biodiversity and Climate Change Adaptation Framework 2007 - 2008

Agency Strategic Planning

Local Land Services Strategic Plan 2016 - 2021

Invasive Species Management

New South Wales Biosecurity Strategy 2013 - 2021

NSW Invasive Species Plan 2018 - 2021

NSW Weeds Action Program 2015 - 2020

Hunter Regional Strategic Pest Animal Management Plan 2018 – 2023 MidCoast Council Policy and Planning

MidCoast 2030 Shared Vision, Shared Responsibility

Rural Strategy

Climate Change Policy

4.5 BIODIVERSITY COMPLIANCE RESPONSIBILITIES

Councils in New South Wales have a range of statutory responsibilities relating to biodiversity protection. The NSW Ombudsman has prepared "Enforcement guidelines for councils". This guideline provides direction for councils, particularly in relation to the importance of enforcement, the principles of regulatory action and best-practice enforcement and compliance processes. The NSW Ombudsman has also prepared a "model compliance and enforcement policy" for councils.

In relation to biodiversity matters, councils have statutory enforcement or action responsibilities in relation to matters that includes:

- Domestic dog attacks on native wildlife
- Domestic cat attacks on native wildlife
- Introduction to dogs in sensitive, regulated natural areas (including beaches)
- Feral animal management and control in public places
- Development without consent – impacting on biodiversity features or values (including construction, clearing, landform modification or filling)
- Non-compliance with development consent that impacts on biodiversity features or values
- Environmental pollution (air or water)
- On-site sewage management - pollution
- Littering
- Unlawful dumping of waste materials
- Algal bloom matters
- Clearing of trees and native vegetation from Council regulated lands or in conflict with Council statutory instruments
- Clearing of vegetation and habitat in roadsides, parks and open space reserves
- Weed biosecurity regulation
- Vehicle use on beaches (particularly relating to impacts on shorebirds, etc)
- Undertaking activities that are prohibited or in conflict with permitted activities in certain zones (eg. introduction of stock to E2 zoned land in the Great Lakes LEP 2014)
- Clearing and harm to coastal wetlands, littoral rainforests (and land in their proximity) in mapped sites under the Coastal Management SEPP

The development of a compliance policy for MidCoast Council will:

- Clearly identify relevant statutes and legislation pertaining to biodiversity matters
- Provide guidance on prioritisation and triaging of biodiversity compliance matters
- Identify compliance teams, including subject matter experts and specify effective investigative processes
- Describe optimal enforcement options and pathways for certain offences
- Document internal processes, communication and relationships

5.FRAMEWORK PRINCIPLES AND THEMES

5.1 PRINCIPLES

The following set of principles guide biodiversity decisions in the Framework and its implementation:

Access to nature:: Providing appropriate access to nature is a means to engage the community and encourage stewardship for biodiversity.

Appropriate scale: Biodiversity conservation action is undertaken at the appropriate spatial and temporal scales required to conserve species and ecosystems.

Collaboration: Biodiversity conservation involves collaboration with stakeholders from all sectors to create more effective and sustainable solutions.

Conservation hierarchy: Biodiversity planning functions are delivered within a tiered hierarchy to protect, then restore, then reconstruct. When considering development controls, the approach must be to avoid then mitigate before considering offsets.

Continuous improvement: Outcomes are to be meaningful and measurable, with monitoring, evaluation and reporting programs to track progress and guide improvement.

Effectiveness: Biodiversity planning and management is to be coordinated, consistent and economically responsible.

Ecosystem approach: Protecting natural habitats and ecosystem services through integrated management of land, water and living resources is to be the foundation of biodiversity conservation. The conservation and, where appropriate, restoration of these interactions and processes is of greater significance for the long-term maintenance of biological diversity than simple protection of species.

Intrinsic value: Native species, communities and landscapes have intrinsic value and warrant protection.

Local offsets: Offsets that are provided for local developments are to be as near as possible to the disturbance site (and not beyond the boundaries of the Council area) and the benefits should be readily accessible to the community which accommodates the disturbance.

Maintaining biodiversity: The current assemblage of flora and fauna species in the MidCoast Region is preserved, including threatened species.

Multiple sources of knowledge: Biodiversity conservation is based on scientific, Indigenous and community knowledge.

Nil-tenure: The optimal approach to biodiversity conservation adopts a nil-tenure approach. That is, management actions are adopted across all relevant lands regardless of the land ownership. This principle is particularly important for pest animals and weeds.

People matter: People are an integral component of ecosystems.

Precautionary principle: The absence of scientific certainty should not be used to postpone conservation measures when biodiversity is threatened with potentially irreversible degradation.

Research and innovation: Research and data is to underpin adaptive decision-making. Innovation is important to the achievement of biodiversity conservation outcomes.

Resilience: Maintaining and improving the condition, extent and connectivity of native vegetation will support resilience against impacts such as climate change and pest animals.

Reserves and covenants: Long term biodiversity values are most effectively conserved in public ownership, and then, through the establishment of permanently-protected private conservation instruments (such as biodiversity stewardship sites established under the Biodiversity Conservation Act 2015).

Stewardship: We protect what we value – maximising community appreciation of and engagement with nature is central to changing hearts and minds.

Sustainable development: Biodiversity conservation is considered early and throughout the planning and development process, striving to meet current needs while protecting economic, social and environmental values for future generations.

Traditional custodianship: Council recognises that as land managers for thousands of years, Aboriginal people hold valuable cultural and biological knowledge to inform contemporary practice.

5.2 THEMES

This Biodiversity Framework has adopted the following key themes. All of the biodiversity actions to be implemented as part of this Framework are grouped under the relevant theme:

THEME	Description
1. Engagement and Partnerships	Building relationships, understanding and appreciation and working towards community stewardship of biodiversity and natural areas
2. Reserves and Conservation Agreements	Making progress to a comprehensive, adequate and representative reserve scheme with well-managed public and private protected areas.
3. Land Management:	Protecting and improving biodiversity values through on-ground work.
4. Science and Knowledge	Obtaining data to fill knowledge gaps and ensure research is continuously improved to underpin sound decision making
5. Strategic Planning and Policies	Adopting strategic plans and policies to guide best-practice outcomes and to communicate with stakeholders.
6. Land Use Planning and Development	Protecting biodiversity through land use and development controls.

Each theme comprises a suite of tools and actions as shown in Diagram 2 and described in Section 2. Actions are listed with a timeframe for delivery, summarised below:

TIMEFRAME	Term
Short term	2020-2024
Medium term	2020-2027
Long term	2020-2030
Ongoing	Ongoing

1. ENGAGEMENT AND PARTNERSHIPS

Community education and participation

Landholder engagement and incentives

Partnerships for biodiversity

Bushcare and Landcare support

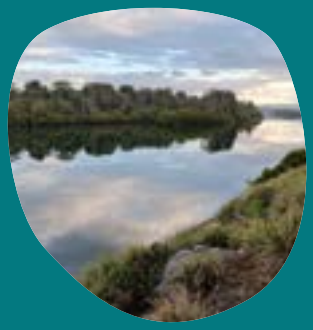
2. RESERVES AND CONSERVATION AGREEMENTS

Mapping and zoning protected areas

Securing land for reserves

Private land conservation

Indigenous Protected Areas



3. LAND MANAGEMENT

Strategic weed program

Pest animal management program

Council bushland reserves management

Significant roadside areas program

Fish and wetland habitat programs

Biodiversity disaster response and resilience

Nature-based facilities

Fire management

4. SCIENCE AND KNOWLEDGE

Understanding flora and fauna species diversity

Biodiversity research

Vegetation mapping and monitoring

Climate change adaptation

Mapping important biodiversity and ecosystem service value lands

Sub-catchment terrestrial landscape health reports

Climate change

Aboriginal cultural and community knowledge

5. STRATEGIC PLANNING & POLICIES

Local Conservation Action Plans

Tops to Coast plan and mapping

Threatened biodiversity management guidelines

Coast and catchment management planning

6. LAND USE PLANNING & DEVELOPMENT

Land use planning

Biodiversity impact assessment (Development)

Biodiversity impact assessment (Council activities)

Development incentives for conservation

Greening Strategy

Diagram 2: *The Themes for Biodiversity Program within the Framework.*

6. IMPLEMENTATION, SUCCESS, MONITORING AND REPORTING

6.1 IMPLEMENTATION

To ensure the Biodiversity Framework meets its objectives it will be delivered within the council Integrated Planning and Reporting Framework, which includes:

- The Delivery Program and Operational Plan, and
- Departmental, Branch and individual Business Plans and work programs

The Integrated Planning and Reporting Framework (IP&R Framework) was introduced to New South Wales Councils in 2012 to help achieve better outcomes for communities through best practice management. The IP&R Framework recognises that Council plans and community aspirations should not sit in isolation and are connected. It allows Council to draw its' various plans together to ensure maximum leverage by planning holistically for the future of the MidCoast Region. The IP&R Framework and its relationship to the Biodiversity Framework is shown in Diagram 3.

Based on the Community Strategic Plan, Councils Delivery Program and Operational Plan (DPOP) sets out the broad goals for each Council term of office and identifies annual commitments to the community. Integrating sustainable development goals in future CSPs and any strategic planning documents as part of implementing this framework, will be important for future biodiversity protection.

The current Delivery Program is a three-year plan that captures the focus areas for Council.

Annual Operational Plans outline in more detail the individual activities, services, key projects and capital works that Council will seek to deliver in the year.

Within the 2019 DPOP, Strategy 7.1 to "Value, protect, monitor and manage the health and diversity of our natural assets, wildlife and ecosystems". This Strategy directly relates to and influences this Framework. The Biodiversity Framework responds to and informs the IP&R framework of MidCoast Council.

Priority actions identified in Section 2 of the Framework will be integrated into future Delivery Program and Operational Plans.

Diagram 3: *The Integrated Planning and Reporting Framework*

Within Council, annual business plans are a way of documenting team responsibilities and actions. These business plans subsequently inform individual work plans. Successful biodiversity conservation and management will take a multi-disciplinary approach involving teams across Council.

Budgets will be costed and allocated for implementation of the biodiversity program set out in this Framework, as part of the annual budget cycle. The environmental rate funds the employment of environmental staff and the range of environmental actions and projects across the MidCoast Region.

In addition, State and Commonwealth Governments and other organisations provide grant-funds for biodiversity-related projects across NSW. Such programs include Coast and Estuary grants, NSW Environmental Trust grants, Recreational Fishing grants, Flagship Fish Habitat Rehabilitation grants and the Save Our Species program. The Council environmental rate funds have been successfully leveraged with external grant funds to deliver significant environmental outcomes for the community. Applying for, receiving and administering external grants for biodiversity management will be a priority action to allow successful implementation of the activities identified in this Framework.

6.2 SUCCESS FACTORS

The following factors are considered valuable in order for this Biodiversity Framework to be successful:

- An understanding of the communities' aspirations and values
- Adequate resources including information and qualified and experienced personnel
- A clear and enabling policy framework
- Effective relationships with agencies and stakeholders
- A values-based integrated approach
- A focus on causes of biodiversity loss rather than symptoms

It is also important that each biodiversity action identified in this Framework considers and adopts their own success factors and which are reflected upon as part of activity evaluation and review.

6.3 MONITORING, EVALUATION AND REPORTING

It is important that Council monitors the progress and achievement of actions set out in the Biodiversity Framework. Where applicable, this needs to be undertaken in an adaptive management and / or participatory action learning model.

Identification and focus on key indicators to monitor, evaluate and report on biodiversity outcomes will be important for management response and improvement.

Monitoring shall involve collecting information on the status of biodiversity indicators and any discernible positive or negative trends. Indicators are to be selected to represent important values and be effective and efficient to monitor. Associated with this, is the identification of threshold values, which can be used to provide an early warning sign for emerging biodiversity threats.

A set of indicators will be developed as part of Action 6.6: terrestrial landscape health reports. The criteria for indicator selection will be based on the following:

- relevance to Biodiversity Framework objectives
- representation of biodiversity priorities and the more vulnerable aspects of biodiversity in the region
- ecological relevance at multiple scales
- relevance to biodiversity interactions and ecosystem functions in the region
- relevance of an ability to demonstrate causative factors and to provide early warning signs
- feasibility in measurement and monitoring (and cost-effectiveness)

Reporting will be integrated into Council's existing processes by way of:

Annual reporting: focussing on Council's implementation of the Delivery Program and Operational Plan,

- State of the Environment reporting
- End of term reporting: The outgoing Council's report to the community on Council's progress in implementing the Framework during its term.

The term of the Biodiversity Framework of 2020 - 2030 aligns with those of other core Council strategies and documents. In depth review and evaluation of the Biodiversity Framework will be undertaken at 2030 with interim reviews in line with Council's four-year Delivery Program and Operational Plan cycle.

MIDCOAST council

SECTION TWO BIODIVERSITY PROGRAM

BIODIVERSITY FRAMEWORK
2020 - 2030

THEME 1: ENGAGEMENT AND PARTNERSHIPS

1.1 Community education and participation

The importance of community involvement in conservation is widely recognised. Individuals or groups can participate in conservation in a variety of ways, including the provision of land, assisting with on-ground works, involvement in survey and monitoring, provision of funding and influencing policy and strategies through debate. Community involvement is particularly important for conservation actions that involve private land. This is because individuals, not governments, own or manage the land and, if changes to land management and effective conservation are to be achieved, those individuals must be supportive and directly involved in the actions.

Council is a service provider in delivering biodiversity conservation education and engagement programs and has a role to proactively support and foster this recognition and interest within the community.

Community appreciation for environmental values can be enhanced when people have appropriate access to nature and nature-based activities.

Council has a Community Engagement Strategy, an Education Strategy currently in development and already delivers a range of community education and engagement programs including citizen science programs like Waterwatch, community based social marketing programs like Backyard Bushcare, annual water quality monitoring education programs like the Waterway and Catchment Report Card as well as a variety of community environmental education events, threatened species workshops, wetland tours, walks, etc, hands on environmental museum events and more. Council also stays in contact with the community through programs like the Creek to Coast that allow residents to actively engage in activities happening in the region.

Council has also collaborated with other agencies to spread biodiversity conservation messages to the community, including shorebird programs and whale awareness messages.

Actions	Timeframe
1.1.1 Engage with the community on biodiversity, stewardship, volunteering, citizen science and behaviour programs	Ongoing
1.1.2 Develop a biodiversity community engagement plan, in line with the principles outlined in the *MidCoast Council Engagement Strategy*	Medium term

1.2 Landholder engagement and incentives

Council has a role to engage, support and provide incentives to help landholders protect and restore biodiversity.

This can be in the form of assisting property planning and management for biodiversity outcomes, landowner engagement programs and incentives for activities such as revegetation for shelter belts, off stream water and riparian weed management

In addition to these, innovative farming practices are an approach rural landholders can use to help restore landscape function, have sustainable production, healthy nutrient cycling, increase biodiversity and resilience to change. These practices place importance on such issues as the retention of stands of native vegetation, stream-bank stability and microbiological resources in the soil, whilst ensuring the ongoing viability and stability of the production system.

Actions	Timeframe
1.2.1 Develop a package of biodiversity related resources for landowners	Medium

1.3 Partnerships for biodiversity

Photo courtesy of FAWNA

Effective, long-term biodiversity achievement will require coordinated, targeted and strategic efforts from a range of stakeholders, including Council. Effective partnerships are therefore vital to successful planning and implementation of biodiversity outcomes.

One of the key benefits from partnerships is in bringing together complementary and often unique sets of skills and resources. Effective partnerships rely on transparency and honesty, clear and open communication, honouring of agreements, involvement of key personnel and shared and common goals. Examples of partnerships include representation on working groups and joint project development. Examples of activities that Council can work with partners include:

- Road signage
- Nest box program
- Wildlife management particularly during emergencies

Council currently engages with a large range of stakeholders in relation to biodiversity conservation, including landholders and the community, businesses, research institutions, government agencies and community organisations and non-government agencies. These include FAWNA, the Local Aboriginal Land Councils, Local Land Services, DPIE, Myall Koala and Environment Group, Tops to MidCoast Landcare, Manning Coastcare, Landcare Australia Ltd, Manning River Turtle Conservation Group and Koalas In Care. Council has delivered community citizen science projects and has invested in university partnerships (including at five ARC Linkage grants) and is represented on several threatened species joint working groups.

Actions	Timeframe
1.3.1 Form, foster and maintain effective partnerships with key partners across a broad range of biodiversity objectives and programs	Ongoing

1.4 Bushcare and Landcare Support

Natural areas are being looked after for present and future generations to enjoy as well as contributing into decision making processes by volunteers which help develop consensus solutions to local environmental problems.

Environmental volunteer programs aim to involve the community and raise awareness to help value the environment. It brings groups of people together and promotes stewardship for the environment.

Volunteers make a significant contribution to management of council owned reserves. Volunteer groups are located throughout the LGA, including Dune Care (multiple villages), River Care Gloucester, Friends of Browns Creek. Volunteers are inducted in operational works such as weed control, mowing and bush regeneration activities within specified sites, generally, environmental activities are in collaboration with Council staff. Sites need prioritising for development of plans of management for select sites, incorporating volunteer activities/outcomes.

Actions	Timeframe
1.4.1 Prioritise sites to develop plans of management, incorporating volunteer activities	Short term
1.4.2 Explore and implement innovative ways to increase volunteer participation on Council owned and managed natural area reserves	Medium term

THEME 2: RESERVES AND CONSERVATION AGREEMENTS

2.1 Mapping and zoning of protected areas

Good planning and design is fundamental to protecting the environment and building greater resilience to natural hazards and climate change, which may be achieved through protecting and connecting natural areas[30]. This may be through public and privately protected reserves, depending on zoning. Across the MidCoast Region, there are several permanently and non-permanently protected areas that include public spaces such as National Parks, Nature Reserves, State Conservation Areas, Flora Reserves, Crown Reserves, Council Reserves, etc. They also include private spaces, such as lands permanently protected under Voluntary Conservation Agreements, Property Vegetation Plans, and offset sites. Other sites managed for conservation under other models and instruments across the Region (for example restrictions as to use under S88B of the *Conveyancing Act* 1919 or within conditions of a development consent.

It assists biodiversity conservation and management to know the location of these permanent protected areas and recognise them under Council's local planning scheme. In addition, for mapping purposes, National Park should be zoned E1 Council and with consultation, Crown Reserves and private lands that are permanently protected should be zoned E2 – Environmental Conservation. Many other Crown reserves are suitable for multiple uses (in keeping with the Principles of Crown Land Management under the *Crown Land Management Act* 2016) and dependant on the reserve purposes and uses, may not be suited to E2 zoning changes.

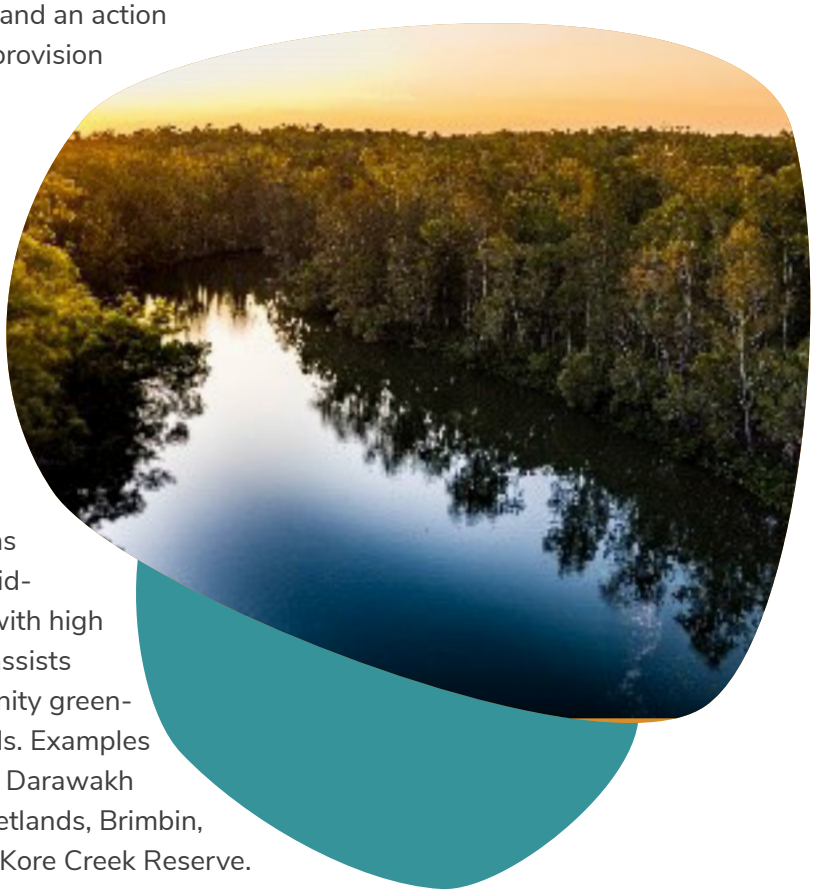
Within Council Strategic Planning and GIS Branch have the lead role in mapping locations of all permanent public and private protected areas and recognise these areas within the zoning scheme (E2). Council has been compiling data and information on the locations and types of permanently protected lands. Whilst many of these areas are identified on a Protected Areas Map and are appropriately recognised in the local planning scheme, there are currently gaps in knowledge and data. Some permanently protected public and private lands are not recognised in the local planning scheme thus a consolidated conserved lands map is required.

Actions	Timeframe
2.1.1 Compile and regularly update a Protected Areas Mapping	Short term
2.1.2 Zone all permanently protected areas as E2-zones with regular updates of the planning scheme	Ongoing

30. Hunter Regional Plan (2036)

2.2 Securing land for reserves

The MidCoast community has expressed its support for ongoing strategic purchase of land for Reserves, particularly those that address ecosystem services and community needs[31]. The securing of land is a function of local government in NSW and an action which benefits the local community through the provision of natural spaces and the protection of important landscapes. Many Australian Councils have a reserve acquisition program in recognition of the community benefits[32].



There are several avenues or partnerships available to share the purchase cost of lands for environmental purposes. Land dedications are accepted where adequate resources are provided for long-term conservation management.

Council's land purchase or dedication program has focussed on priority sites: these have included acid-impaired coastal wetlands for remediation, land with high ecosystem services functions where acquisition assists preserve the lands' values and important community green-spaces such as peri urban local conservation lands. Examples are award winning Cattai / Big Swamp wetlands, Darawakh Creek / Frogalla Swamp wetlands, Wallis Lake wetlands, Brimbin, Bulahdelah Plain Reserve, Smiths Lake and Kore Kore Creek Reserve.

In the MidCoast Region, the acquisition programs at Darawakh Creek / Frogalla Swamp and at Cattai/ Big Swamp have received environmental and community awards. Other priorities may include corridors, threatened species protection and water quality.

A policy and guidelines to define principles and investigate options to secure lands, including developing concepts for off setting vegetation in and near fringing urban areas and analysis of the representativeness and adequacy of current reserves, would assist in clarifying priorities for investment.

Actions	Timeframe
2.2.1 Develop a policy and guidelines for securing environmental land	Short term
2.2.2 Investigate a revolving fund or acquisition trust to finance a program of strategic land purchase	Short term

31. MidCoast Council, Biodiversity Framework Targeted engagement October to November 2020 report (2020)
32. Sunshine Coast Environmental Levy (2019)

2.3 Private land conservation

While public conservation reserves are the cornerstone of a Comprehensive, Adequate and Representative (CAR) reserve system, natural areas on private land is important for biodiversity as well as socioeconomically.

In NSW and the MidCoast, the Biodiversity Conservation Trust (BCT) offers and administers a range of voluntary in perpetuity conservation agreements for private landholders, including Biodiversity Stewardship Agreement (BSA), Conservation Agreements and entry-level Wildlife Refuges. Conservation Partners Grants are available to assist landholders to maintain the ecological values of their properties. In the Mid-Coast LGA the BCT currently manages and supports 132 agreements covering over 22,000ha[33].

Council has a role in encouraging private land conservation through functioning as a Land for Wildlife Regional Provider in partnership with Karuah – Great Lakes Landcare and Manning Landcare. This operates within the Community Environment Network, which administers the program across NSW. The scheme is non-binding entry-level option for landholders who want to manage areas of wildlife habitat on their property. It can contribute to biodiversity stewardship outcomes as participants often move to higher, more binding forms of land conservation. In 2020 there were 70 existing Land for Wildlife properties across the MidCoast Region[34].

Actions	Timeframe
2.3.1 Review and enhance local procedures and administration of the Land for Wildlife scheme	Short term
2.3.2 Build on and enhance the existing partnership between Council and Midcoast to Lakes Landcare to continually improve the delivery and growth of the Land for Wildlife program	Medium term
2.3.3 Deliver workshops targeted to Land for Wildlife participants	High
2.3.4 Facilitate uptake of higher tier conservation covenants in partnership with BCT	Medium
2.3.5 Facilitate private land conservation in priority areas throughout the LGA	Medium

33. Biodiversity Conservation Trust (2021)
34. MidCoast Council, Land for Wildlife Program status (2020)

2.4 Indigenous protected area

Indigenous Protected Areas are areas of land and/or sea country owned or managed by Aboriginal groups, which are managed as a protected area for biodiversity conservation through an agreement with the Australian Government. Indigenous Protected Areas are an essential component of Australia's National Reserve System, which is the network of formally recognised parks, reserves and protected areas across Australia.

As well as protecting biodiversity, Indigenous Protected Areas deliver cost-effective environmental, cultural, social, health and wellbeing and economic benefits to Indigenous communities. Indigenous Protected Areas protect cultural heritage into the future, and provide employment, education and training opportunities for Indigenous people.

Council can assist Local Aboriginal Land Councils and other organisations deliver economic and social opportunities through land use / strategic planning and can assist deliver and broker Indigenous Protected Areas for environmental and cultural purposes. There are significant outcomes and opportunities associated with the establishment of an Indigenous Protected Area in the MidCoast Region; possibly centred on the Minimbah or Cattai localities.

There is scope to develop a process for assisting Indigenous groups to protect culturally significant landscapes. The concept of developing an Indigenous Protected Area has been raised by several Local Aboriginal Land Councils and other organisations.

Several stakeholder meetings have been undertaken previously. A preferred model for the Indigenous Protected Area may be by way of a partnership between the Local Aboriginal Land Councils and a non-government conservation agency.

Actions	Timeframe
2.4.1 Consider establishment of an Indigenous Protected Area in consultation with Aboriginal people and Government	Medium

THEME 3: LAND MANAGEMENT

3.1 Strategic weed program

Weeds are one of the single biggest threats to our biodiversity.

The environmental values of the MidCoast Region, including Ramsar and World Heritage sites are at risk of the impact of weed threats. Weeds also affect the liveability, tourism, economy and aesthetics of our area and the value and productivity of our agricultural lands. Despite considerable investment by all levels of government, it is not possible or practical to plan to eradicate all weeds from the MidCoast Region. Council weed management programs need to focus on long term, strategic approaches which protect key assets and involve cooperation with all landowners to achieve high level, sustainable weed control outcomes.

Council provides a management response to the multiple threats of weeds within the local government area, in the context of Commonwealth, State and regional weed policy, applicable legislation and community priorities. Councils are local control authorities for weeds under the Biosecurity Act 2015 and are responsible for delivering aspects of regional Weed Action Plans.

Adopting a strategic weeds program will contribute to a range of biodiversity outcomes. Council has compiled a list of priority weeds and undertakes routine weed inspections throughout the LGA. Current focus areas include aerial spraying for bitou bush, an aquatic weeds program especially alligator weed, Amazonian frogbit and Senegal tea plant, control programs for camphor laurel and African olive and weed management in bushland reserves.

Actions	Timeframe
3.1.1 Deliver weed control programs that meet community expectations and legal obligations	Ongoing
3.1.2 Prepare a five-year Weed Management Strategic Plan for the MidCoast Region	Ongoing

3.2 Pest animal management program

Local Government has significant responsibilities in managing the impacts of pest animals. As a landowner and manager, Council shares in responsibility to prevent, eliminate and minimise biosecurity risks under the *Biosecurity Act* 2015. Under the *Local Government Act* 1992, Councils also have obligations to manage community land in a manner that protects the features of that land, which may include pest animal controls. There are other legal obligations for Councils in their decision making that can influence feral pest animal management, such as the *Companion Animals Act* 1998 and the *Biodiversity Conservation Act* 2015, covering threatened species.

Priority pest animals should be selected based on regional strategies, local impacts, community consultation and impacts to threatened species.

Councils have significant discretionary ability to act with other stakeholders and the wider community to effect feral pest animal control and management. Council Pest Animal Strategic Plans are an important framework for the management of pest animals on Council-managed land and a means to identify opportunities to assist with pest animal management on private land, when funds and resources allow. These plans can identify outcomes, objectives and actions to address and manage the impacts of pest animals, based on the principles of pest animal management (prevention, eradication, containment and asset protection).

Council delivers feral pest animal controls focussed on Council-owned / controlled land. At present, Council does not have a Pest Animal Strategic Plan to guide feral pest animal control efforts. Pest animal management is conducted on a priority basis, as resources permit. Focus areas include development of plans / policies, annual / strategic operations (fox control at Bulahdelah Plain Reserve, threatened shorebird nesting sites, Cattai / Big Swamp and Lower Wallamba - Darawakh – Hallidays Point area and Sambar deer control at Cattai / Big Swamp), reactive operations (rabbit control, cage loans program) and capacity-building.

Actions	Timeframe
3.2.1 Prepare and implement a five-year Pest Animal Strategy for the MidCoast Region	Short term
3.2.2 Develop protocols for managing the impacts of domestic dogs and cats on native wildlife	Medium term

3.3 Council bushland reserves management

Council natural area reserves provide an important contribution to the region's biodiversity. Council land, which includes both community and operational land, as well as Council-managed Crown lands. where the primary purpose is biodiversity or nature conservation are classed as bushland reserves. This can include These reserves play an important role in the well-being of the community and the environment by helping:

- prevent urban heat build-up and reduce energy costs
- increase property values
- promote healthy lifestyles and enhance mental health
- improve air and water quality and prevent stormwater run-off
- sequester carbon and reduce net carbon emissions
- provide for nature-based recreation and important wildlife habitat, including threatened species such as koalas.

Preparing Plans of Management for community lands is a requirement of the Local Government Act 1993. Plans help Council to prioritise actions and manage bushland reserves so that they are healthy, functional and resilient.

Council has 700 parcels of land currently classified as a natural area. There is a program to manage its bushland reserves and invests in a range of management actions, including weed control, pest animal control, ecological / cultural burns, rubbish removal, revegetation, access control, maintenance of management trails. Specific plans of management have been compiled for a set of reserves, including Kore Kore Creek/North Shearwater Reserves, Central Forster Reserves and Cattai / Big Swamp Reserve. In the absence of site-specific plans, reserves are generally managed with generic plans of management, which are progressively updated as resources allow. Mapping and auditing of all Council bushland reserves and reserve plans of management/action plans for these is needed.

Actions	Timeframe
3.3.1 Undertake a management audit for all bushland reserves	Short term
3.3.2 Prepare a plan of management for each Council bushland reserve or group of reserves	Medium term
3.3.3 Adopt a strategic program for the management of Council bushland reserves	Ongoing
3.3.4 Consolidate parcels of Council lands into reserves where appropriate	Medium term

3.4 Significant roadside areas program

Lands within road reserves can be of high environmental value, supporting threatened species, native vegetation and wildlife corridors. Benefits include landscape amenity, ecosystem services, cultural heritage protection, sites for research and education and natural recreation opportunities.

Other than state-significant roads, Council is responsible for the management of roads and road reserves. A set of resources have been developed to assist Council's to better manage roadsides, including the Roadside Environment Program of Hunter Council's Environment Division (2010) and publications of the Roads and Maritime Services and NSW Roadside Environment Committee. These resources include actions to better manage high conservation value roadsides, particularly highest priority sites.

Following work by the Hunter Council's roadside areas program, several significant roadside areas have been identified in the MidCoast Region.

Several other roadsides and road reserves in the MidCoast Region contain assets and values of very high conservation significance, including habitat for endangered ground orchids (eg. Pindimar), corridors for koala movements (eg. Tinonee area) and habitats of regional conservation significance. Whilst attempts are made to manage roadsides in accordance with good practice, there is no suite of tools that coordinate and deliver best practice roadsides management. A strategic and coordinated significant roadside areas program, in consultation with Crown Lands Divisions, for the LGA would help to effectively deliver these and other biodiversity benefits.

Actions	Timeframe
3.4.1 Develop a Roadside Conservation Program, including Significant Roadside Areas scheme	Short term
3.4.2 Identify and declare Significant Roadside Areas	Ongoing
3.4.3 Deliver and monitor a bat boxes under bridges project	Medium term

3.5 Fish and wetland habitat programs

Enhancing fish habitat by repairing degraded wetland systems and restoring fish passage is vital for biodiversity and ecosystems, including food webs. In the period from the early 1900's until the 1980's, modifications of near coastal floodplains, coastal back-swamps and estuarine soil landscapes through clearing, draining, and tidal and flood modification across the Region had profound environmental and economic consequences via the formation and release of naturally occurring acid sulphate from within the soil. These impacts are especially evident at places such as Darawakh Creek, Cattai and Big Swamp, Coopernook Wetlands and Moto.

Such alterations have transformed or simplified biodiversity and created serious acid sulfate soil problems. Acidified water run-off from these landscapes pollute river and lake environments and harm aquatic production industries such as prawning and oyster growing. The drivers and consequences of these processes have been well-described in various technical and catchment reports, eg, Lower Manning River Drainage Remediation Action Plan (2016) and the Darawakh Creek and Frogalla Swamp Wetland Restoration Management Plan (2010). Restoring these impaired landscapes results in productivity and biodiversity gains and is therefore an investment in natural capital. Successful remediation and restoration action in local drained wetlands and acid sulfate soil hotspots has been undertaken by scientific research, strategic planning and policy as well as on-ground action, representing contemporary best practice. Examples include award winning Cattai and Big Swamp restoration project as well as the Darawakh Creek and Frogalla Swamp wetland restoration project. At other locations, focus is on stabilising and consolidating acid sulfate hotspots through land acquisition and conservation management. Significant further work needs completing.

Actions	Timeframe
3.5.1 Continue the implementation of the *Lower Manning River Drainage Remediation Action Plan*	Long term
3.5.2 Focus wetland restoration and management on priorities identified in CMPs	Ongoing
3.5.3 Continue the fish barrier removal program in conjunction with DPI Fisheries	Ongoing
3.5.4 Continue the protection of priority wetland systems in line with the *Wallis Lake Wetland Strategy* and other plans	Ongoing
3.5.5 Identify, prioritise and monitor priority aquatic refugia and reaches	Medium term

3.6 Biodiversity disaster response and resilience

Having a response in the event of major disasters affecting biodiversity is important as events like catastrophic bushfires, floods, storms and disease outbreaks can have severe environmental, social and economic consequences. The 2019 drought and bushfire emergency, followed by the flood disaster in March 2021, are recent examples of this. These events caused significant local loss of native animals, damage to ecological communities, dispersal of invasive species, the pollution of the waterways and estuaries and impacts on rare or sensitive threatened species and communities.

Council plays a key role in providing for natural disaster response as we are a service provider, land-use planning authority and we represent the local community. A natural disaster response plan for Council, aligning with Federal, State and regional frameworks, would help to prevent and reduce the impacts of events in the future. This could include responding to manmade ecological disasters that affect the environment, including climate change and major pollution events. Any disaster management requires coordinated and targeted programs, science and knowledge, and adequate resourcing and delivery mechanisms to be successful. In response to the 2019 bushfire emergency, Council implemented an action plan, with immediate, medium and long-term actions to assist biodiversity and the natural environment to recover. Review of Councils response to this, and other agencies' response to disasters will assist us to prepare for future scenarios.

One of the most important actions in preparing the natural environment for any disaster is to maintain natural landscapes in a way that fosters resilience. In this way, biodiversity is better able to cope with any disasters and recovery would be faster and more effective. Effective local and regional programs are required to boost the inherent resilience of the natural environment and biodiversity in preparation for future disasters and impacts.

Actions	Timeframe
3.6.1 Maintain partnerships, structures and frameworks, including contingencies, to assist biodiversity cope with disaster events	Ongoing
3.6.2 Monitor the state and condition of local biodiversity and be aware of emerging threats and issues	Ongoing
3.6.3 Review the Council response to the 2019 bushfires to determine a procedure for future incidents	Medium term

3.7 Nature-based recreation

Nature-based recreation contributes significantly to our regional economy and encourages stewardships for natural areas, which in turns promotes and encourages a nature conservation. Popular regional activities include bushwalking, swimming, nature photography, kayaking, camping, fishing, orienteering, mountain and dirt-biking, 4WDing and abseiling/ rock-climbing.

The Hunter Regional Plan 2036 recognises that the region's natural areas contribute to the health of its communities and are important for recreational and tourism activities. One of the key goals of this plan is to support Thriving Communities with Direction 17 providing for Enhances access to recreational facilities and connect open spaces. Within this framework, Council has a developed a Destination Management Plan (DMP) (2017). This plan guides sustainable tourism development over the next 15 to 20 years in the context of a growing market for nature and adventure-based tourism. Tourism is one of the region's most important economic drivers, that is built on the foundation of our natural environment. In 2019, the LGA had over 2.1 million visitors (highest on the North Coast), delivering $582 million in annual revenue and contributing over 19% of the value of region's gross regional product.

The Plan identifies the regions competitive advantage and looks to a future which more effectively leverages the region's natural assets, local character and environmental credentials to promote the MidCoast as a leading provider of nature and adventure-based tourism. It also recognises that not all recreational uses are compatible with biodiversity values and as such, allows for multiple differing recreational uses. Examples of projects within the Plan include an iconic project of the DMP includes a Great Walk.

Actions	Timeframe
3.7.1 Review and update recreation management in relation to biodiversity	Short term
3.7.2 Develop and deliver nature-based recreation projects, including those identified in the Destination Management Plan	Ongoing

3.8 Fire management

Fire management is a key issue both for the community and for protecting and enhancing biodiversity. MidCoast Council lies in within the MidCoast Bushfire Management Area, under which every 5 years a Bushfire Management Plan (BFMP) is endorsed through a committee. This assesses key villages, towns, structures at risk and provides a risk rating for each and provides the basis for funding each organisation from the Rural Fire Service (RFS).

There are significant conservation assets within Council reserves, such as the fragmented urban Forster squirrel glider populations, that are highly vulnerable to the of impacts of uncontrolled fire. Management plans enable council to plan and implement fire preventative and mitigation actions that reduce the threat of single wildfire events having catastrophic impacts on species and their habitat. Fire management plans complement broader reserve plans of management and consider ecological and community values to ensure the needs of all stakeholders are addressed and to maintain ecological function and values.

Ecological burning in suitable locations is a valuable tool incorporated into fire planning to reduce fuel loads and assist regeneration of plant species.

Community engagement can promote best practices and bush management for homeowners adjoining council owned reserves and living in fire prone areas.

Council has historical BFMPs for some individual villages, but do not yet cover the current LGA. At present, fire management is predominantly based around APZ management. Ecological burns have been undertaken in select council reserves to reduce the threat of single wildfire events having catastrophic impacts on species and their habitat. There is no dedicated officer responsible for planning and implementation of APZ and ecological burns. A suitably qualified Bushfire Officer would enable council to help effectively manage fire risk across Council natural reserves.

Actions	Timeframe
3.8.1 Prepare bush fire management plans for priority natural reserves which consider Aboriginal cultural burning, ecological burning and hazard reduction	Short term
3.8.2 Prepare and implement Council-wide fire management strategy	Short term
3.8.3 Promote ecological and cultural burning programs across all land tenures with relevant Aboriginal communities and organisations, including capacity-building	Medium term

THEME 4: SCIENCE AND KNOWLEDGE

Artwork by Amanda Davis

4.1 Understanding our flora & fauna species diversity

Effective management of biodiversity requires an understanding of biodiversity values and assets, including species diversity. The compilation of accurate data on the types of native plant and animal species that occur in the MidCoast Region and an understanding of the status and trends for these species is important. BioNet contains data on species records in the region. This data can be used to identify priority or focus species and can assist adaptive conservation planning, the identification of priority areas and the delivery of targeted on-ground conservation actions. Species will be of special conservation significance (and thus prioritised for conservation action) if they are:

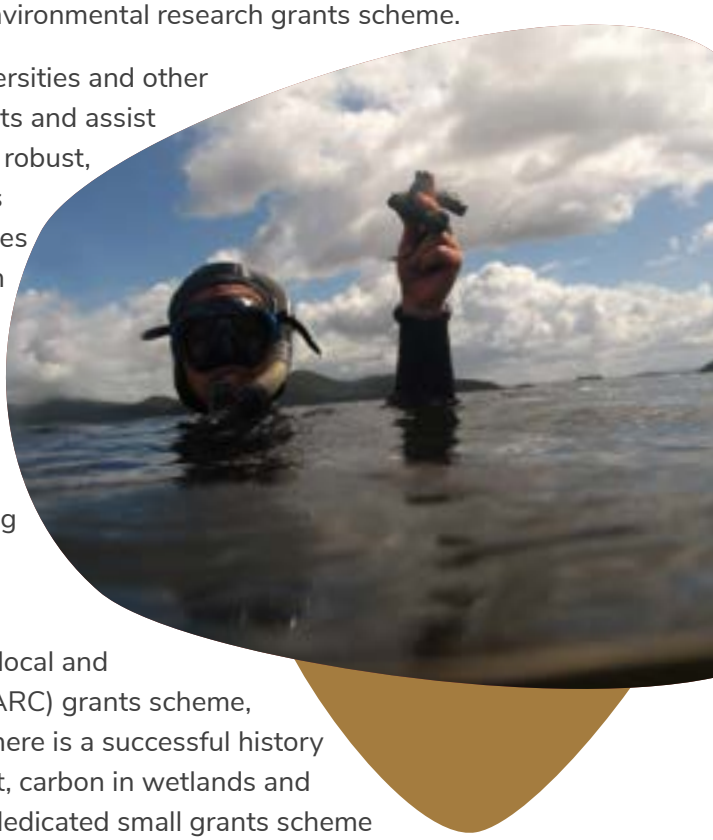
- Listed threatened species, or
- Naturally rare or naturally highly restricted in distribution, or
- Now rare or highly restricted in distribution due to loss of habitat or other causal factors, or
- Seriously decreasing in population, or
- Seriously inadequately reserved in conservation reserves, or
- At the limit of its natural distribution, or
- Endemic to the Region and found nowhere else in NSW

Flora and fauna species lists for the MidCoast Council have not been fully compiled or published. Council has commenced the compilation of lists of native plant and animal species that are known to occur or which once occurred in the Region and assessment of the legal status, the abundance and distribution status and the population trends of each of these species.

Actions	Timeframe
4.1.1 Compile a list of native animal and plant species from the Region including their status and trends	Short term
4.1.2 Publish an information brochure on the native species of the Region and their status	Short term

4.2 Biodiversity research

While biodiversity in the Region is rich and important to our economy and way of life, biodiversity data is relatively limited. One means of obtaining biodiversity information is university and research agency partnerships and via the administration of a community environmental research grants scheme.



Partnerships and collaboration between Council and Universities and other researchers and organisations can provide great co-benefits and assist effective biodiversity planning and management based on robust, independent and best available knowledge. Collaborations promote knowledge exchange and often use of technologies and methods at the forefront on science. Fields of research range from remote sensing, connectivity modelling, wetland habitat restoration and fishery linkages. MidCoast Council frequently collaborates, partners with, and engages University and research organisations for applied scientific purposes. This ranges from student placements and ARC grant linkage applications, co-funding Honours, Masters, or PhD research, and commissioning independent scientific studies.

Council currently supports university research into topical local and regional issues through the Australian Research Council (ARC) grants scheme, where Council funds post-graduate university research. There is a successful history of this through fields such as acid sulfate soil management, carbon in wetlands and nutrients and their effects in the catchment landscape. A dedicated small grants scheme to address biodiversity data gaps would be a valuable opportunity to complement current research investment across our Region. These allow the council to direct information gathering and data to issues that are a priority. The Lake Macquarie City Council is one example of a Council which has successfully operated an environmental research grants scheme. Schemes of this nature require effective resourcing, but also proper governance, administration and application, but can be very successful in generating local data on local information gaps and issues. A priority should be given to research that is applied and can assist in managing local biodiversity issues in a best-practice way.

Actions	Timeframe
4.2.1 Investigate the feasibility of a biodiversity research grants scheme	Medium term
4.2.2 Seek opportunities to collaborate with University and research organisations to address knowledge and data gaps in an applied science approach	Ongoing

4.3 Vegetation mapping & monitoring vegetation change

Classifying and mapping vegetation communities is an important for strategic biodiversity conservation planning and natural resource management. Vegetation mapping allows quantifying vegetation cover and its change over time important for informing vegetation protection and restoration. As more information is generated on the description and extent of local vegetation communities, knowledge of the status of specific vegetation communities can be improved. Vegetation mapping can be used for a whole range of additional purposes (e.g. species habitat models, predictive population viability assessment, connectivity assessment and bushfire hazard mapping).

Vegetation communities are of special conservation significance (and thus prioritised for conservation action) if they are:

- Listed endangered ecological communities, or
- Naturally rare or restricted in natural distribution, or
- Now rare or restricted due to the loss of habitat or other factors, or
- Seriously decreasing in extent, inadequately reserved, or
- At the limit of its natural distribution, or
- Endemic to the Region (found nowhere else in NSW)

While vegetation community mapping and description exists for certain areas and the coverage of adequate mapping is progressively increasing, at present there is incomplete and adequate vegetation community mapping data on the status of communities across the entire LGA.

Actions	Timeframe
4.3.1 Compile fine-scale vegetation community description and mapping for priority areas	Short term
4.3.2 Compile fine-scale vegetation community description and mapping for the entire MidCoast Region	Medium term
4.3.3 Assess the current status of vegetation community types across the LGA, including for rarity and representativeness in conserved lands	Medium term
4.3.4 Adopt a process to review and update mapping to maintain currency	Medium term

4.4 Mapping of important biodiversity and ecosystem service value lands

Identifying priority biodiversity assets and areas is the foundation of effective conservation planning and action. It allows agencies to deliver better strategic planning outcomes, develop a terrestrial biodiversity spatial layer in the Local Environmental Plan, assist the NSW Biodiversity Conservation Trust deliver offsets, identify critical linkages and biodiversity hotspots and assist reserve identification and establishment processes. Mapping ecosystem service value lands will help Council understand how they contribute to wellbeing and knowledge to underpin policies. Identifying and managing habitats that support the continued health and integrity of receiving waterbodies (lakes, rivers, estuaries) for biodiversity, as well as critical community needs, such as supply of drinking water is a priority. Indicators for lands of high ecosystem services values include:

- steep land (vegetated and unvegetated)
- lands of high acid sulfate soil risks
- littoral rainforest
- riparian zones and foreshores, and wetlands.

Contemporary mapping of high biodiversity conservation lands and high ecosystem services value across the Region is needed for conservation and management. In 2015, the Hunter and Central Coast Regional Environmental Management Strategy included a Biodiversity Investment Prospectus, that included connectivity and conservation priority mapping. There are knowledge gaps of what proportion of the biodiversity is protected or represented in these reserves or what biodiversity values remain at risk. In 2016, Council undertook a catchment mapping in The Branch sub-catchment of the Karuah River in order to assist natural resource management intervention prioritisation. The catchment evaluation, education and engagement and scientific spatial analysis undertaken may be used as template for future mapping.

Actions	Timeframe
4.4.1 Map and communicate important biodiversity conservation and high ecosystem services values lands	Medium term

4.5 Sub-catchment terrestrial landscape health reports

Devising and implementing a system to track terrestrial landscape health will complement the waterways reporting and inform catchment management for biodiversity, as well as providing a monitoring tool in critical water supply catchments. There are scientific models that are based around an understanding of increasing loss and modification of native habitats. For instance, below 60% habitat cover can result in a loss of ecological connectivity. As such, a terrestrial landscape health assessment process based on factors such as native vegetation cover, connectedness of habitat and extent of conservation is a very useful and informative process.

The four levels of indicators with associated outcomes are:

1. Composite indicators which allow reporting on overall state of biodiversity (e.g. extent of native vegetation cover),
2. Key indicators of regional biodiversity (e.g. invasive plants, threatened species, sensitive bird species) with associated thresholds (triggers or targets),
3. Indicators for monitoring long-term trends (e.g. water quality guidelines), and
4. Supporting baseline indicators

Currently, there is no terrestrial landscape health assessment process for the Region.

Actions	Timeframe
4.5.1 Develop, adopt and publish an annual program of sub-catchment terrestrial landscape health assessments	Medium term
4.5.2 Regularly revise landscape health assessments to inform on-ground actions	Ongoing

4.6 Climate change

Good planning and design and implementing key strategies will be fundamental to protecting biodiversity and building greater resilience to the impacts of climate change in the MidCoast Region. Climate change is likely to result in conditions that may cause more frequent and intense hazards and are likely to be a serious long-term threat to biodiversity. Climate change projections in the region according to *Adapt NSW*[35] and the Bureau of Meteorology[36] include:

- Increased temperatures and increased number of days >35 degrees
- Decreased average annual rainfall across most of Region (5 - 10%)
- Decreased stream flow
- Increased fire danger
- Increased heavy rainfall events
- Increased frequency of coastal storm surges, sea level rise and coastal erosion.

In 2019, the Biodiversity Node led by Macquarie University, under the NSW Adaptation Research Hub, delivered tools and products to increase knowledge of the capacity of species, ecosystems and landscapes to adapt to climate variability. This includes ecological data and information, weed, pest and disease risk, managing changing landscapes and climate impacts on freshwater, estuarine and coastal ecosystems[37].

The most vulnerable ecosystems in the MidCoast Region include coastal areas, alpine areas, rainforests, fragmented terrestrial ecosystems and areas vulnerable to fire or low freshwater availability. Species that could become extinct include those living near the upper limit of their temperature range, those with restricted climatic niches and those unable to migrate to new habitats.

The NSW Government has prepared the guide *Priorities for Biodiversity Adaptation to Climate Change*[38], to help species and ecosystems cope with the impacts of climate change. The priorities of this plan are:

- Enhancing understanding of the responses of biodiversity to climate change and re-adjusting management programs
- Building a comprehensive, adequate and representative reserve system
- Increasing opportunities for species to move across the landscape
- Assessing adaptation options for ecosystems most at risk.

Council has a developed a Climate Change Policy and Strategy with considerations for impacts on biodiversity, however it is important that climate change impacts on natural environment be included in all relevant Council plans and actions and risks assessed regularly with Councils assessment process, with adaption plans prepared for high to extreme risks.

Actions	Timeframe
4.6.1 Ensure climate change impacts on biodiversity is included in all relevant plans and actions, the risks to biodiversity are assessed regularly in conjunction with Council's risk assessment process.	Ongoing

35. NSW Department of Planning, Industry and Environment (2020) Adapt NSW: Climate projects for the Hunter Region website
36. Australian Government Bureau of Meteorology (2020) Climate change – trends and extremes
37. NSW Department of Planning, Industry and Environment (2019) Adaption Research Hub https://climatechange.environment.nsw.gov.au/Adapting-to-climate-change/Adaptation-Research-Hub
38. Department of Environment, Climate Change and Water NSW (2010) Priorities for Biodiversity Adaptation to Climate Change, Sydney.

4.7 Aboriginal cultural and community knowledge

Integrating Aboriginal cultural knowledge in environmental and land use decision-making and engaging with other community knowledge holders can hold great environmental as well as social benefit. The Gathang-speaking people are the traditional custodians of the lands and waters of the MidCoast Council area. Many Aboriginal and Torres Strait Islander people continue to reside in the area. Natural features are at the core of the cultural heritage for Aboriginal communities; conserving these assets and respecting the Aboriginal communities' right to determine how they are identified and managed will preserve some of the world's longest standing spiritual, historical, social and educational values.

Goals identified by one of the region's local Aboriginal Land Council are to:

- Provide indigenous solutions for restoring our country
- To provide environmentally sound educational opportunities for the community
- Gain recognition of Ranger and Green Teams and
- To build enduring and respectful partnerships[39].

As well as National and State-based technical experts, biodiversity knowledge-holders within the MidCoast community have potential to contribute to discussions relating to priorities, needs and audits of Council's biodiversity management, as well as peer review, from a range of relevant experts to inform and/or review Council's biodiversity conservation agenda. There currently limited outlets for community knowledge-holders or independent biodiversity experts to provide contributions to the biodiversity management and planning within Council. Council seeks independent expert advice across a range of knowledge areas and administers community knowledge holders and reference panels for processes such as catchment planning, coastal planning and estuary management planning.

Actions	Timeframe
4.7.1 Establish a framework to engage with and collect information from community and expert knowledge-holders	Ongoing

39. MidCoast Council (2020) Biodiversity Framework Targeted engagement October to November 2020 – Worimi Green Team

THEME 5:
STRATEGIC PLANNING AND POLICIES

5.1 Local conservation action plans

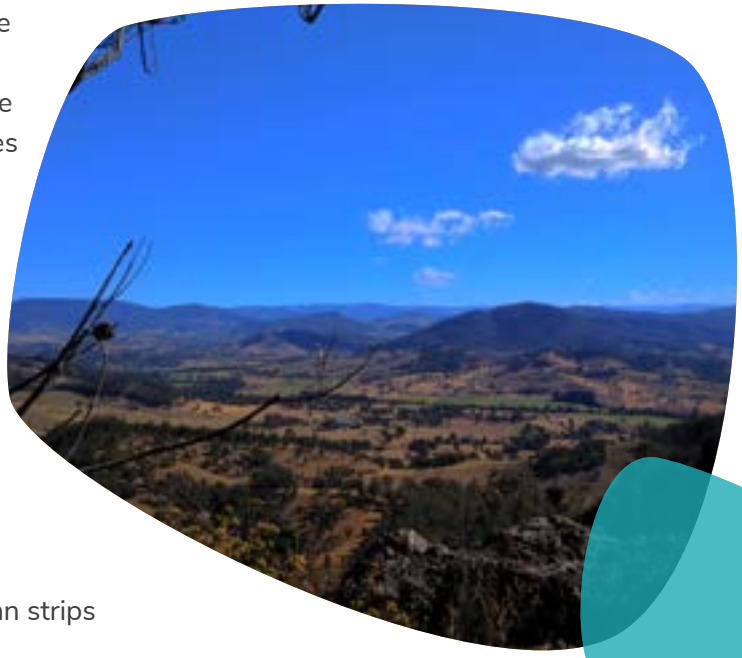
Good planning and design are fundamental to protecting the environment, connecting natural areas and building greater resilience. Conservation Action Planning (CAPs) provides a format for balancing environmental and biodiversity protection with and land uses in a local or sub-regional context. These Plans are principally land use plans, but also inform specific biodiversity actions.

They involve collecting information on biodiversity values and assets, understanding biodiversity condition, viability and threats, identifying priorities and setting measurable biodiversity goals and targets, developing strategies, taking actions, and adaptively monitoring / measuring outcomes. The plans determine where to focus attention, actions and how they should be implemented, and an evaluation process. Each plan will identify specific targets and performance indicators. They can be useful in identifying actions to balance the effects of development, helping to achieve liveable communities. Understanding the communities' values and priorities, is a core part of CAPs.

With no CAPs at present, preparing and implementing plans in a standard format for a set of priority areas will be important step for local and regional biodiversity protection. Brimbin is a priority area as it contains a significant growth area (Brimbin New Town), Tinonee is a priority to support and enhance a significant koala population.

Actions	Timeframe
5.1.1 Develop a standard format for Council Local Conservation Action Plans	Short term
5.1.2 Develop Conservation Action Plasn for Brimbin and TInonee	Short term
5.1.3 Develop a Conservation Action Plan for Darawakh to Khappinghat	Medium term
5.1.4 Identify additional priority areas for preparation of Conservation Action Plans	Long term

5.2 Tops to Coast strategy and mapping



The Hunter Regional Plan 2036 (HRP) recognises the importance of biodiversity corridors and linkage, for supporting ecological processes for plants and wildlife movement, habitat and improving adaption to changes in habitat and climate. Corridors also have significant scenic and recreation values. Preparing a regional Corridor Strategy is key to helping protect and enhance connectivity across the Region and is identified by the community and stakeholders as a key Council biodiversity activity .

Corridors can comprise:

- stepping stones of discontinuous patches of vegetation
- continuous lineal strips of vegetation along riparian strips
- part of a larger habitat area eg a national park or State forest.

The following major biodiversity corridors and linkages where large areas of remnant vegetation could be connected to form a network are :

Barrington Tops to Myall Lake Link - between Barrington Tops National Park and large patches of existing vegetation in the Myall Lakes and Port Stephens areas and

Manning River Link - fauna corridors and large vegetation patches between Barrington Tops and Woko national parks across the Manning River floodplain to coastal reserves.

Any coast to range linkages could provide “ribs” to the “spine” of the Great Eastern Ranges corridor, a 2,800-km conservation corridor that crosses the western parts of the Region.

A variety of sub-regional corridor mapping projects have been undertaken for the LGA, either at the State scale or only cover part of the LGA. These includeTops to Lakes Strategy (2014) and priority corridors mapping for the Karuah and Myall Lakes catchments (2018).

Protecting and enhancing mapped corridors can be achieved through a holistic approach across both public and private lands, for example using private land incentive programs.

Actions	Timeframe
5.2.1 Identify and map wildlife corridors in priority areas	Short term
5.2.2 Prepare and implement a Tops to Coast Biodiversity Corridors Plan	Medium term

5.3 Threatened biodiversity management guidelines

The MidCoast Region contains regionally and state-significant areas of habitat for species and threatened ecological communities. Threatened Biodiversity Management Guidelines help protect these assets by informing strategic land use planning and considerations in the assessment of development applications. Research, information gathering and review are particularly important to allow these assets to be adaptively managed for best conservation outcomes.

Recognised priorities include littoral rainforest, coastal saltmarsh, Themeda grassy headlands on coastal sea-cliffs, lowland rainforest and coastal and floodplain forests and wetlands. Priority threatened species in our region include threatened shorebirds (nesting sites), squirrel gliders (Forster), yellow-bellied gliders (Smiths Lake), Manning River helmeted turtle, Grevillea guthrieana, terrestrial orchids, Giant Dragonfly, Manning threatened eucalypts (Eucalyptus glaucina, E. largeana & E. seeana), grey-crowned babbler (Gloucester) and the koala.

Threatened Biodiversity Management guidelines have generally not been developed or implemented in the MidCoast Region, for at least Council's component of species and communities management. Of the existing plans, there is a Grey-crowned Babbler Retention Plan for Gloucester and a Squirrel Glider study for Forster. Council is actively working as part of a multi-stakeholder effort to protect and restore nesting outcomes for threatened shorebirds at the Manning River entrances and Winda Woppa and to protect the Manning River helmeted turtle across its geographic range. Council has several koala studies underway to assist scientific knowledge of the status, distribution and trends of koala populations, particularly in the Kiwarrak area. Detailed mapping of coastal wetlands and littoral rainforest has been undertaken for most of the LGA.

Actions	Timeframe
5.3.1 Prepare management prescriptions for priority local threatened species and communities for implementation by Council	Medium term

5.4 Coast and catchment management planning

The MidCoast Region has 12 major sub-catchments, several of which cover vast areas, including the Manning Catchment which provides drinking water to much of the LGA. The importance of catchment management for biodiversity, as well as sustained water quality and security is recognised in the Hunter Regional Plan 2036.

As part of coastal reforms, in 2016 the Coastal Management Act was introduced, with the Coastal Management SEPP and Coastal Management Programs (CMPs) forming part of the Coastal Management Framework in NSW. Local Governments are responsible for developing CMPs with the Department of Planning and Environment (DPIE).

Certified CMPs must be integrated with Council DPOP and IP&R Framework. CMPs set the long-term strategic direction for co-ordinated management for the coastal zone, which includes many biodiversity and ecological assets, including coastal wetlands and littoral rainforest as management areas.

Catchment and coastal plans are in different stages of development, completion and/or certification in the MidCoast Region. Plans currently in development under the new Act include the Manning River Estuary CMP, and the Manning Old Bar-Manning Point CMP. A scoping study has been prepared for the Open Coast. Manning Valley CZMP, Great Lakes CZMP and Jimmy's Beach CZMP were certified under the previous Coastal Protection Act 1979. Wallis Lake catchment, the Smiths Lake CZMP and Karuah CZMP are not certified. The Manning River has an outdated estuary management plan. There are no plans in place for Myall River, Khappinghat and Kore Kore Catchments. The DPIE currently provides in-kind funding for plan development. Actions in CMPs may be funded through the NSW Government Coastal and Estuary Grants Program.

Actions	Timeframe
5.4.1 Consider biodiversity in development and implementation of all CMPs	Medium term

THEME 6:
LAND USE PLANNING AND DEVELOPMENT

6.1 Land use planning

Local Government plays an important role in land use planning. It has significant responsibilities associated with planning for and managing the sustainable development of local communities. These are delivered through:

- Administering and amending planning instruments such as Local Environmental Plans (LEPs) and Development Control Plans (DCPs),
- Compiling, communicating and delivering planning strategies, studies, policies and practices,
- Providing advice to the New South Wales Government in relation to land use planning and the environment, and
- Engaging with the community with respect to land use planning.

Land use planning provides a platform for delivering biodiversity and environmental outcomes for the community.

Council's Delivery Program & Operational Plan identifies biodiversity-related objectives within the strategic planning framework.

Actions	Timeframe
6.1.1 Ensure there is a mechanism for the identification and protection of high conservation lands in the Land Use Planning controls and strategies	Short term

6.2 Biodiversity Impact Assessment (Development)

The MidCoast Region will continue to be subject to development demand in the future. Well-planned development and balanced growth are important to the communities' social and economic wellbeing.

All relevant planning proposals, strategies and instruments are referred to and receive biodiversity assessment advice. Council has a suite of tools through local environmental plans and development control plans within the considerations and constraints of State-wide legislative framework. Development proposals are generally controlled and regulated by NSW legislation, including the *Environmental Planning and Assessment Act* 1979 and *Biodiversity Conservation Act* 2016, through the LEP, DCP and other plans and legislation.

Council has responsibilities in relation to development assessment which can have a significant influence on the condition, function and health of biodiversity. Biodiversity input is provided to development assessment and is subject to ongoing improvement processes. This includes standardising processes, interpretive material and procedures and practices and documentation of standard conditions. Establishing a consistent approach to development assessment will enable analysis of the cumulative impact of development. A program to audit the effectiveness of development decisions on biodiversity will assist in this ongoing improvement.

Actions	Timeframe
6.2.1 Develop and implement a standardised process for biodiversity assessment	Medium term
6.2.2 Review and adopt a local biodiversity offsets policy for significant developments	Medium term
6.2.3 Undertake a program of compliance of significant development consent	Medium term

6.3 Biodiversity Impact Assessment (Council activities)

Delivering standardised, best-practice biodiversity impact assessment for Councils activities is important as Council itself is responsible for delivering a range of projects, activities and services which may have environmental impacts. Some activities undertaken by government departments or agencies (including Council), which are part of their everyday responsibilities do not require development consent and / or can be carried out without consent or as exempt or complying development under the State Environmental Planning Policy (Infrastructure) 2007. For these activities, environmental assessment is often undertaken under Part 5 of the Environmental Planning and Assessment Act 1979. The Review of Environmental Factors is the document in which Part 5 Assessment is delivered.

The Part 5 assessment system ensures public authorities consider environmental issues before they undertake or approve activities that do not require development consent. If an activity is judged by the relevant public authority to 'significantly affect the environment' an environmental impact statement will need to be prepared and considered by the public authority. Part 5 Assessments also need to consider the impact of an activity on threatened biodiversity with an option to prepare a Species Impact Statement or opt into the Biodiversity Offset Scheme. There is a standard process for Part 5 Assessments for Council. Reviews of Environmental Factors (REFs) are prepared by Council or its contractors for its' activities.

Actions	Timeframe
6.3.1 Review and implement an improved and consistent Part 5 Assessment Process	Short term
6.3.2 Review and implement the Offsets Procedure for impacts for biodiversity impacts associated with Council activities	Ongoing

6.4 Development Incentives for Conservation

There are several mechanisms where incentives for conservation can be included in development.

A biodiversity incentive clause is an option for permitting development within the MidCoast LEP that may otherwise not be possible in exchange for a significant biodiversity benefit. Subdivisions are a type of development that can allow for a range of outcomes including conservation outcomes through dedication and/or environmental restoration. Rezoning of land also provides an opportunity to achieve biodiversity gain.

These outcomes are important, recognising that land development is a cause of habitat and vegetation loss and biodiversity decline. Development is usually facilitated by identifying the ecologically sensitive and valuable areas of a site, and concurrently identifying the footprint of an area of development where biodiversity and community impacts are either avoided or within acceptable limits.

Development assessment clauses are available in our current LEPs and will be reviewed in the development of the MidCoast LEP.

Actions	Timeframe
6.4.1 Investigate a biodiversity incentive clause in a MidCoast Local Environment Plan	Medium term

6.5 Greening strategy

Increasingly councils throughout Australia are developing Greening Strategies that recognise the value of trees and other vegetation in the urban and non-urban landscape for social, economic and environmental benefits. The State Government's recognition of the value of urban trees, vegetation and biodiversity is captured within Greener Places – establishing an urban green infrastructure policy for New South Wales 2017[40].

Benefits range from improved air and water quality, urban cooling effects and landscape amenity to increased property values.

With significant growth across the MidCoast, especially in our coastal centres. we need to ensure that the high levels of liveability and environmental amenity that our region is renowned for is maintained.

A Greening Strategy for the MidCoast is currently being developed, which will outline how Council can manage, maintain and enhance the tree canopy coverage and green spaces.

Actions	Timeframe
6.5.1 Support implementation of the MidCoast Greening Strategy	Ongoing

40. New South Wales Government (2017) Greener Places – establishing an urban green infrastructure policy for New South Wales 2017.

MIDCOAST council

SECTION THREE IMPLEMENTATION PLAN

BIODIVERSITY FRAMEWORK 2020 - 2030

Theme 1: Engagement and Partnerships

Ref	Actions	Short (2020-24)	Med (2020-27)	Long (2020-30)	Ongoing
1.1.1	Engage with the community on biodiversity, stewardship, volunteering, citizen science and behaviour programs				
1.1.2	Develop a biodiversity community engagement plan, in line with the principles outlined in the MidCoast Council Engagement Strategy				
1.2.1	Develop a package of biodiversity related resources for landowners				
1.3.1	Form, foster and maintain effective partnerships with key partners across a broad range of biodiversity objectives and programs				
1.4.1	Prioritise sites to develop plans of management, incorporating volunteer activities				
1.4.2	Explore and implement innovative ways to increase volunteer participation on Council owned and managed natural area reserves				

Theme 2: Reserves and Conservation Agreements

Ref	Actions	Short (2020-24)	Med (2020-27)	Long (2020-30)	Ongoing
2.1.1	Compile and regularly update Protected Areas Mapping				
2.1.2	Zone all permanently protected areas as E2-zones with regular updating of the Planning Scheme				
2.2.1	Develop a policy and guidelines for strategically securing land for reserves				
2.2.2	Investigate a revolving fund or trust to finance a program of strategic land purchase				
2.3.1	Review and enhance local procedures and administration of the Land for Wildlife scheme				
2.3.2	Build on and enhance the existing partnership between Council and Midcoast to Lakes Landcare to continually improve the delivery and growth of the Land for Wildlife program				
2.3.3	Deliver workshops targeted to Land for Wildlife participants				
2.3.4	Facilitate uptake of higher tier conservation covenants in partnership with BCT				
2.3.5	Facilitate private land conservation in priority areas throughout the LGA				
2.4.1	Consider establishment of an Indigenous Protected Area in consultation with Aboriginal people and Government				

Theme 3: Land Management

Ref	Actions	Short (2020-24)	Med (2020-27)	Long (2020-30)	Ongoing
3.1.1	Implement weed control programs that meet community expectations and legal obligations				
3.1.2	Prepare a five-year Weed Management Strategic Plan for the MidCoast Region				
3.2.1	Prepare and implement a pest animal management program				
3.2.2	Prepare a five-year Pest Animal Strategic Plan for the MidCoast Region				
3.2.3	Develop protocols for managing the impacts of domestic dogs and cats on native wildlife				
3.3.1	Undertake a management audit for all bushland reserves is undertaken, including vegetation and condition				
3.3.2	Prepare a plan of management / action plan is for each Council bushland reserve (or group of reserves)				
3.3.3	Adopt a strategic program for the management of Council bushland reserves				
3.3.4	Consolidate of parcels of Council lands into reserves where appropriate				
3.4.1	Develop a Roadside Conservation Program, including Significant Roadside Areas scheme				
3.4.2	Identify and declare Significant Roadside Areas				
3.4.3	Deliver and monitor a bat boxes under bridges project				
3.5.1	Continue the implementation of the Lower Manning River. Drainage Remediation Action Plan				

Ref	Actions	Short (2020-24)	Med (2020-27)	Long (2020-30)	Ongoing
3.5.2	Focus wetland restoration and management based on Coastal Management Program recommendations				
3.5.3	Continue the fish barrier removal program in conjunction with DPI Fisheries				
3.5.4	Continue the protection of priority wetland systems in line with the Wallis Lake Wetland Strategy and other plans				
3.5.5	Identify and prioritise the conservation of important aquatic refugia on high priority streams				
3.6.1	Maintain partnerships, structures and frameworks, including contingencies, to assist biodiversity cope with disaster events				
3.6.2	Monitor the state and condition of local biodiversity and be aware of emerging threats and issues				
3.6.3	Review the Council response to the 2019 bushfires to determine a procedure for future incidents				
3.7.1	Review and update recreation management in relation to biodiversity				
3.7.2	Develop and deliver nature-based recreation projects, including those identified in the Destination Management Plan				
3.8.1	Prepare bush fire management plans for priority natural reserves which consider Aboriginal cultural burning, ecological burning and hazard reduction				
3.8.2	Prepare and implement Council-wide fire management strategy				
3.8.3	Promote ecological and cultural burning programs across all land tenures with relevant Aboriginal communities and organisations, including capacity-building				

Theme 4: Science and Knowledge

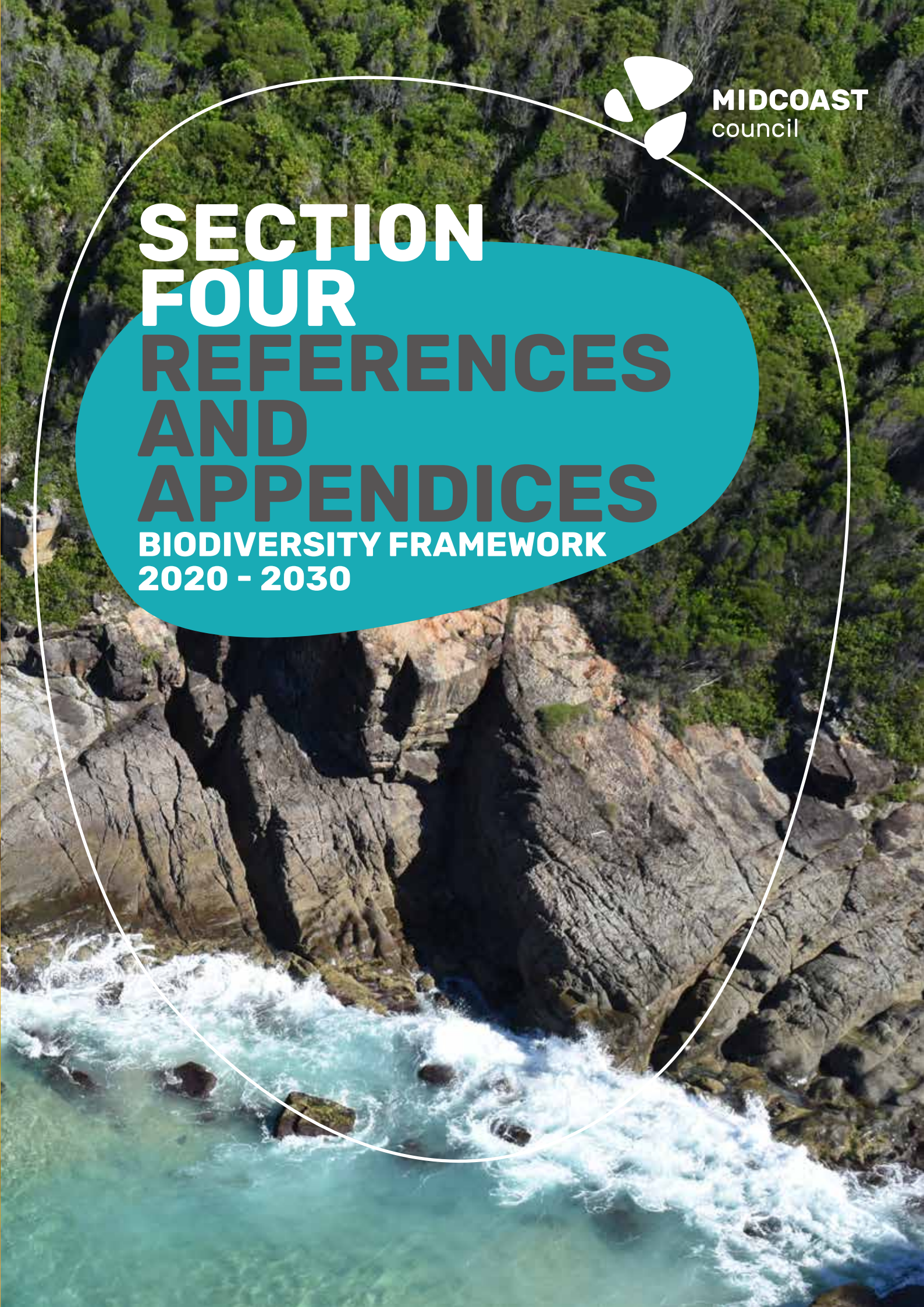
Ref	Actions	Short (2020-24)	Med (2020-27)	Long (2020-30)	Ongoing
4.1.1	Compile a list of native animal and plant species from the Region including their status and trends				
4.1.2	Publish an information brochure on the native species of the Region and their status				
4.2.1	Investigate the feasibility of a biodiversity research grants scheme				
4.2.2	Seek opportunities to collaborate with University and research organisations to address knowledge and data gaps in an applied science approach				
4.3.1	Compile fine-scale vegetation community description and mapping for priority areas				
4.3.2	Compile fine-scale vegetation community description and mapping for the entire MidCoast Region				
4.3.3	Assess the current status of vegetation community types across the LGA, including for rarity and representativeness in conserved lands				
4.3.4	Adopt a process to review and update mapping to maintain currency				
4.4.1	Map and communicate important biodiversity conservation and high ecosystem services values lands				
4.5.1	4.5.1 Develop, adopt and publish an annual program of sub-catchment terrestrial landscape health assessments				
4.5.2	Regularly revise landscape health assessments to inform on-ground actions				
4.6.1	Ensure climate change impacts on biodiversity is included in all relevant plans and actions				
4.7.1	Establish a framework to engage with and collect information from community and expert knowledge-holders				

Theme 5: Strategic Planning and Policies

Ref	Actions	Short (2020-24)	Med (2020-27)	Long (2020-30)	Ongoing
5.1.1	Develop a standard format for Council Local Conservation Action Plans				
5.1.2	Develop Conservation Action Plans for Brimbin and Tinonee				
5.1.3	Develop a Conservation Action Plan for Darawakh to Khappinghat				
5.1.4	Identify additional priority areas for preparation of Conservation Action Plans				
5.2.1	Identify and map wildlife corridors in priority areas				
5.2.2	Prepare and implement a Tops to Coast Biodiversity Corridors Plan				
5.3.1	Prepare management prescriptions for priority local threatened species and communities for implementation by Council				
5.4.1	Consider biodiversity in development and implementation of all CMPs				

Theme 6: Land Use Planning and Development

Ref	Actions	Short (2020-24)	Med (2020-27)	Long (2020-30)	Ongoing
6.1.1	Ensure there is a mechanism for the identification and protection of high conservation lands in the Land Use Planning controls and strategies				
6.2.1	Development and implement a standardised process for biodiversity assessment				
6.2.2	Review and adopt a local biodiversity offsets policy for significant developments				
6.2.3	Undertake a program of compliance of significant development consent				
6.3.1	Review and implement an improved and consistent Part 5 Assessment Process				
6.3.2	Review and implement the Offsets Procedure for impacts for biodiversity impacts associated with Council activities				
6.4.1	6.4.1 Investigate a biodiversity incentive clause in a MidCoast Local Environment Plan				
6.4.2	Investigate inclusion of environmental controls in the MidCoast Development Control Plan that provide for the protection and ongoing management of biodiversity				
6.5.1	Support implementation of the MidCoast Greening Strategy				



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Appendix 1: Key Threatening Processes

Environment Protection and Biodiversity Conservation Act 1999

Key Threatening Process		Adopted Threat Abatement Plan
1	Aggressive exclusion of birds from potential woodland and forest habitat by over-abundant noisy miners (Manorina melanocephala)	-
2	Competition and land degradation by rabbits	Final
3	Competition and land degradation by unmanaged goats	Final
4	Dieback caused by the root-rot fungus (Phytophthora cinnamomi)	
5	Infection of amphibians with chytrid fungus resulting in chytridiomycosis	Final
6	Injury and fatality to vertebrate marine life caused by ingestion of, or entanglement in, harmful marine debris	Final
7	Land clearance	-
8	Loss and degradation of native plants and animal habitats by invasion of escaped garden plants, including aquatic plants	-
9	Loss of climatic habitat caused by anthropogenic emissions of greenhouse gases	-
10	Novel biota and their impact on biodiversity	-
11	Predation by European red fox (Vulpes vulpes)	Final
12	Predation by feral cats	Final
13	Predation, Habitat Degradation, Competition and Disease Transmission by Feral Pigs	Final

Key Threatening Process		Adopted Threat Abatement Plan
14	Psittacine Circoviral (beak and feather) Disease affecting endangered psittacine species	Final
15	The biological effects, including lethal toxic ingestion, caused by Cane Toads (Bufo marinus)	Final
16	The reduction in the biodiversity of Australian native fauna and flora due to the red imported fire ant, Solenopsis invicta	-

NSW Biodiversity Conservation Act 2016

Key Threatening Process		Adopted Threat Abatement Plan
1	Aggressive exclusion of birds from woodland and forest habitat by abundant Noisy Miners Manorina melanocephala	-
2	Alteration to the natural flow regimes of rivers and streams and their floodplains and wetlands	-
3	Anthropogenic Climate Change	-
4	Bushrock removal	-
5	Clearing of native vegetation	-
6	Competition and grazing by the feral European Rabbit, Oryctolagus cuniculus	-
7	Competition and habitat degradation by Feral Goats, Capra hircus	-
8	Competition from feral honeybees, Apis mellifera	-
9	Entanglement in or ingestion of anthropogenic debris in marine and estuarine environments	-

Key Threatening Process		Adopted Threat Abatement Plan
10	Forest eucalypt dieback associated with over-abundant psyllids and Bell Miners	-
11	Habitat degradation and loss by Feral Horses (brumbies, wild horses), Equus caballus	-
12	High frequency fire resulting in the disruption of life cycle processes in plants and animals and loss of vegetation structure and composition	-
13	Herbivory and environmental degradation caused by feral deer	-
14	Importation of Red Imported Fire Ants, Solenopsis invicta	-
15	Infection by Psittacine Circoviral (beak and feather) Disease affecting endangered psittacine species and populations	-
16	Infection of frogs by amphibian chytrid causing the disease chytridiomycosis	-
17	Infection of native plants by Phytophthora cinnamomi	-
18	Introduction and establishment of the Exotic Rust Fungi of the order Pucciniales pathogenic on plants of the family Myrtaceae	-
19	Introduction of the Large Earth Bumblebee, Bombus terrestris	-
20	Invasion and establishment of exotic vines and scramblers	-
21	Invasion and establishment of Scotch Broom Cytisus scoparius	-
22	Invasion and establishment of the Cane Toad Bufo marinus	-
23	Invasion of native plant communities by African Olive Olea europaea subsp. cuspidata	-

Key Threatening Process		Adopted Threat Abatement Plan
24	Invasion, establishment and spread of Lantana (Lantana camara)	-
25	Invasion of native plant communities by Chrysanthemoides monilifera	Final
26	Invasion of native plant communities by exotic perennial grasses	-
27	Invasion of the Yellow Crazy Ant, Anoplolepis gracilipes into NSW	-
28	Loss of hollow-bearing trees	-
29	Loss and degradation of native plant and animal habitat by invasion of escaped garden plants, including aquatic plants	-
30	Loss and/ or degradation of sites used for hill-topping by butterflies	-
31	Predation and hybridisation by Feral Dogs (Canis lupus familiaris)	-
32	Predation by the European Red Fox, Vulpes vulpes	Final
33	Predation by the Feral Cat, Felis catus	-
34	Predation by Gambusia holbrooki (Plague Minnow or Mosquito Fish)	Final
35	Predation, habitat degradation, competition and disease transmission by Feral Pigs, Sus scrofa	-
36	Removal of dead wood and dead trees	-

Reference: Schedule 4 of the Biodiversity Conservation Act 2016

Fisheries Management Act 1994

Key Threatening Process		Adopted Threat Abatement Plan
1	Hook and line fishing in areas important for the survival of threatened fish species	-
2	Human-caused climate change	-
3	Instream structures and other mechanisms that alter natural flow	-
4	Introduction of non-indigenous fish and marine vegetation to the coastal waters of New South Wales	-
5	The degradation of native riparian vegetation along New South Wales water courses	-
6	The introduction of fish to fresh waters within a river catchment outside their natural range	-
7	The removal of large woody debris from NSW rivers and streams	Final

Appendix 2: Priority Weeds for Eradication or Exclusion

Common name	Scientific name	WONS#	Alert List*	NSW Class	Regional Priority	MCC Priority
Amazon Frogbit						+
Senegal Tea						+
Kidney Leaf Mud Plantain	*Heteranthera reniformis*					+
Tropical Soda Apple						
Alligator Weed						
Water Lettuce						
Honey Locust						
African Olive						
Green Cestrum						
Bitou Bush	*Chrysanthemoides monilifera*	+				+
Boneseed		+				
Cabomba						
Broom Asparagus						
Montpellier Broom						
Sea spurge						
White Blackberry						
Glory Lily						
Mysore Thorn						
Any New Incursions						
Madeira vine (new infestations)						
Balloon Vine						

References: WONS#: Alert List Regional Priority: MCC LGA Priority: Priority weeds of the MidCoast Region based on the Hunter Regional Strategic Weed Management Plan 2017-2022 and additional Council priority species, indicated by asterix.

Priority weeds for Asset-based protection

Group	Species
Aquatic Weeds	Parrots feather, Salvinia, Water Hyacinth, Long Leaf Willow Primrose, Sagittaria, Sharp Rush
Tree Weeds	Broad Leaf Pepper Tree, Chinese Celtis, Camphor Laurel, Chinese Tallow (*Triadica sebifera*), Cockspur Coral Tree (*Erythrina crista-galli*), Yellow Bells, Chinese Rain Tree, Privet (*Ligustrum lucidium*, *L. sinense*), Pines (*Pinus radiata*, *P. elliotti*)
Grass Weeds	Weedy Sporobolus spp, Coolatai Grass, Spiny Burr Grasses, Pampas Grass
Shrub Weeds	Lantana (*Lantana camara#*), Ochna (*Ochna serrulata*), Scotch Broom, Xanthium Burrs, Blackberry (*Rubus spp.*), Kahili Ginger, Wild Tobacco (*Solanum mauritianum*)
Forb/Ground Cover Weeds	Asparagus species, Mother of Millions, Blue Heliotrope, Singapore daisy, Blue Periwinkle, Ox Eye Daisy, Caltrop
Vine Weeds	Madeira Vine, Cats Claw Creeper, Passiflora species, Morning Glories (*Ipomoea cairica*, *I. spp*), Cape Ivies, Moth Vine (*Araujia hortorum*)

Appendix 3: Pest Animals in the MidCoast Region

Common name	Scientific name	Regional Priority	MCC Priority
Feral cat	*Felis catus*	+	
European red fox	*Vulpes vulpes*	+	+
Wild dog	*Canis familiaris*	+	+
Wild rabbit	*Oryctolagus cuniculus*	+	
Brown hare	*Lepus capensis*		
Feral pig	*Sus scrofa*	+	+
Sambar	*Rusa unicolor*	+	
Rusa	*Rusa timoriensis*	+	
Red deer	*Cervus elaphus*	+	
Fallow deer	*Dama dama*	+	
Wild horse	*Equus caballus*	+	+
Feral goat	*Capra hircus*		
Black rat	*Rattus rattus*		
Brown rat	*Rattus norvegicus*		
House mouse	*Mus musculus*		
Common starling	*Sturnus vulgaris*		
Common mynah	*Acridotheres tristis*		
House sparrow	*Passer domesticus*		
Feral pigeon	*Columba livia*		
Various ducks and geese	-		
Indian peafowl			

Common name	Scientific name	Regional Priority	MCC Priority
Mosquitofish		+	
Common carp, koi			
Goldfish			
Trout			
Cane toad			

References: ^Hunter Local Land Services (2018) Hunter Regional Strategic Pest Animal Management Plan 2018 – 2023

Appendix 4: Threatened Flora Species

Common name	Scientific name	BC Act Status	EPBC Act Status	Adopted Recovery Plan
Dwarf Heath Casuarina	*Allocasuarina defungens*	Endangered	Endangered	-
Nabiac Casuarina	*Allocasuarina simulans*	Vulnerable	Vulnerable	-
-	*Allocasuarina thalassoscopica*	-	Endangered	-
Scented Acronychia	*Acronychia littoralis*	Endangered	Endangered	-
Charmhaven Apple	*Angophora inopina*	Vulnerable	Vulnerable	-
Trailing Woodruff	*Asperula asthenes*	Vulnerable	Vulnerable	-
Glasshouse Banksia	*Banksia conferta subsp. conferta*	Critically Endangered	???	-
Netted Bottlebrush	*Callistemon linearifolius*	Vulnerable	-	-
Sand Spurge	*Chamaesyce psammogeton*	Endangered	-	-
-	*Corybas dowlingii*	Endangered	-	-
Tuncurry Midge Orchid	*Genoplesium littorale (syn. Corunastylis littoralis)*	Critically Endangered	Critically Endangered	-
Leafless Tongue Orchid	*Cryptostylis hunteriana*	Vulnerable	Vulnerable	-
White-flowered Wax Plant	*Cynanchum elegans*	Endangered	Endangered	-
-	*Dillwynia tenuifolia*	Vulnerable	Vulnerable	-
Pale Yellow Doubletail	*Diuris flavescens*	Critically Endangered	Critically Endangered	-
-	*Dracophyllum macranthum*	Vulnerable	-	-
Slaty Red Gum	*Eucalyptus glaucina*	Vulnerable	Vulnerable	-
Craven Grey Box	*Eucalyptus largeana*	Endangered	-	-
-	*Eucalyptus parramattensis subsp. decadens*	Vulnerable	Vulnerable	-

Common name	Scientific name	BC Act Status	EPBC Act Status	Adopted Recovery Plan
Guthrie's Grevillea	*Grevillea guthrieana*	Endangered	Endangered	-
Small-flower Grevillea	*Grevillea parviflora subsp. parviflora*	Vulnerable	-	-
Big Nellie Hakea	*Hakea archaeoides*	Vulnerable	???	-
Noah's False Chickweed	*Lindernia alsinoides*	Endangered	-	-
-	*Maundia triglochinoides*	Vulnerable	-	-
Biconvex Paperbark	*Melaleuca biconvexa*	Vulnerable	Vulnerable	-
Grove's Paperbark	*Melaleuca groveana*	Vulnerable	-	-
Southern Swamp Orchid	*Phaius australis*	Endangered	Endangered	-
Villous Mint-bush	*Prostanthera densa*	Vulnerable		-
-	*Pterostylis chaetophora*	Vulnerable	-	-
East Aust. Underground Orchid	*Rhizanthella slateri*	Vulnerable	-	-
Scrub Turpentine	*Rhodamnia rubescens*	Critically Endangered	-	-
Native Guava	*Rhodomyrtus psidioides*	Critically Endangered	-	-
Coast Groundsel	*Senecio spathulatus*	Endangered	-	-
Rainforest Cassia	*Senna acclinis*	Endangered	-	-
-	*Solanum sulphureum*	Endangered	Endangered	-
Magenta Lilly Pilly	*Syzygium paniculatum*	Endangered	Vulnerable	-
-	*Tasmannia purpurascens*	Vulnerable	-	-
-	*Tasmannia glaucifolia*	Vulnerable	Vulnerable	-
Black-eyed Susan	*Tetratheca juncea*	Vulnerable	Vulnerable	-
-	*Thesium australe*	Vulnerable	Vulnerable	-
-	*Tylophora woollsii*	Endangered	Endangered	-

Appendix 5: Threatened Fauna Species

Threatened Fauna: Mammals (excludes marine mammals)

Common name	Scientific name	BC Act Status	EPBC Act Status	Adopted Recovery Plan
Common Planigale	*Planigale maculata*	Vulnerable	-	Draft SoS Strategy
Spotted-tailed Quoll	*Dasyurus maculatus*	Vulnerable	Endangered	-
Eastern Quoll	*Dasyurus viverrinus*	Endangered	Endangered	-
Brush-tailed Phascogale	*Phascogale tapoatafa*	Vulnerable	-	-
Koala	*Phascolarctos cinereus*	Vulnerable	Vulnerable	State Plan
Eastern Pygmy Possum	*Cercartetus nanus*	Vulnerable	-	-
Greater Glider	*Petauroides volans*	-	Vulnerable	-
Yellow-bellied Glider	*Petaurus australis*	Vulnerable	-	State Plan
Squirrel Glider	*Petaurus norfolcensis*	Vulnerable	-	-
Rufous Bettong	*Aepyprymnus rufescens*	Vulnerable	-	-
Eastern Bettong (mainland subspecies)	*Bettongia gaimardi subsp. gaimardi*	???	Extinct	-
Long-nosed Potoroo	*Potorous tridactylus*	Vulnerable	Vulnerable	-
Parma Wallaby	*Macropus parma*	Vulnerable	-	-
Brush-tailed Rock Wallaby	*Petrogale penicillata*	Endangered	Vulnerable	State Plan + National Plan
Red-legged Pademelon	*Thylogale stigmatica*	Vulnerable	-	-
New Holland Mouse	*Pseudomys novaehollandiae*	-	Vulnerable	-
Eastern Blossom Bat	*Syconycteris australis*	Vulnerable	-	Draft SoS Strategy
Grey-headed Flying Fox	*Pteropus poliocephalus*	Vulnerable	Vulnerable	Best Practice Guidelines
Yellow-bellied Sheathtail Bat	*Saccolaimus flaviventris*	Vulnerable	-	-

Common name	Scientific name	BC Act Status	EPBC Act Status	Adopted Recovery Plan
Eastern Coastal Freetail Bat	*Mormopterus norfolkensis*	Vulnerable	-	-
Golden-tipped Bat	*Phoniscus papuensis*	Vulnerable	-	-
Little Bent-wing Bat	*Miniopterus australis*	Vulnerable	-	-
Eastern Bent-wing Bat	*Miniopterus schreibersii oceanensis*	Vulnerable	-	-
Large-eared Pied Bat	*Chalinolobus dwyeri*	Vulnerable	Vulnerable	-
Hoary Wattled Bat	*Chalinolobus nigrogriseus*	Vulnerable	-	-
Eastern False Pipistrelle	*Falsistrellus tasmaniensis*	Vulnerable	-	-
Southern Myotis	*Myotis macropus*	Vulnerable	-	-
Greater Broad-nosed Bat	*Scoteanax rueppellii*	Vulnerable	-	-
Eastern Cave Bat	*Vespadelus troughtoni*	Vulnerable	-	-
Eastern Chestnut Mouse	*Pseudomys gracilicaudatus*	Vulnerable	-	-

Threatened Fauna: Frogs

Common name	Scientific name	BC Act Status	EPBC Act Status	Adopted Recovery Plan
Wallum Froglet	*Crinia tinnula*	Vulnerable	-	National Plan: wallum group
Stuttering Frog	*Mixophyes balbus*	Endangered	Vulnerable	-
Giant Barred Frog	*Mixophyes iteratus*	Endangered	Endangered	-
Mahony's Toadlet	*Uperoleia mahonyi*	Endangered	-	-
Green and Golden Bell Frog	*Litoria aurea*	Endangered	Vulnerable	Best Practice Guidelines
Green-thighed Frog	*Litoria brevipalmata*	Vulnerable	-	-
-	*Litoria daviesae*	Vulnerable	-	-

Threatened Fauna: Reptiles

Common name	Scientific name	BC Act Status	EPBC Act Status	Adopted Recovery Plan
Stephen's Banded Snake	*Hoplocephalus stephensii*	Vulnerable	-	-
Manning River Helmeted Turtle	*Myuchelys purvisi*	Endangered	-	-
Loggerhead Turtle	*Caretta caretta*	Endangered	Endangered	National Plan Draft SoS Strategy
Green Turtle	*Chelonia mynas*	Vulnerable	Vulnerable	National Plan
Leatherback Turtle	*Dermochelys coriacea*	Endangered	-	-

Threatened Fauna: Birds
(Excludes oceanic birds such as the Black-browed Albatross and Gould's Petrel)

Common name	Scientific name	BC Act Status	EPBC Act Status	Adopted Recovery Plan
Magpie Goose	*Anseranas semipalmata*	Vulnerable	-	Draft SoS Strategy
Blue-billed Duck	*Oxyura australis*	Vulnerable	-	-
Black Bittern	*Ixobrychus flavicollis*	Vulnerable	-	-
Australasian Bittern	*Botaurus poiciloptilus*	Endangered	Endangered	-
Black-necked Stork	*Ephippiorhynchus asiaticus*	Endangered	-	Draft SoS Strategy
Square-tailed Kite	*Lophoictinia isura*	Vulnerable	-	-
Red Goshawk	*Erythrotriorchis radiatus*	Critically Endangered	Vulnerable	State Plan + National Plan
Eastern Osprey	*Pandion cristatus*	Vulnerable	-	-
White-bellied Sea Eagle	*Haliaeetus leucogaster*	Vulnerable	-	Draft SoS Strategy
Little Eagle	*Hieraaetus morphnoides*	Vulnerable	-	-
Spotted Harrier	*Circus assimilis*	Vulnerable	-	-

Common name	Scientific name	BC Act Status	EPBC Act Status	Adopted Recovery Plan
Broad-billed Sandpiper	*Limicola falcinellus*	Vulnerable		-
Bar-tailed Godwit (baeuri)	*Limosa lapponica baueri*	-	Vulnerable	-
Bar-tailed Godwit (menzbieri)	*Limosa lapponica menzbieri*	-	Cr. Endangered	-
Black-tailed Godwit	*Limosa limosa*	Vulnerable	-	-
Eastern Curlew	*Numenius madagascariensis*	-	Cr. Endangered	-
Terek Sandpiper	*Xenus cinereus*	Vulnerable	-	Draft SoS Strategy
Sanderling	*Calidris alba*	Vulnerable	-	-
Red Knot	*Calidris canutus*	-	Endangered	-
Curlew Sandpiper	*Calidris ferruginea*	Endangered	Cr. Endangered	Draft SoS Strategy
Great Knot	*Calidris tenuirostris*	Vulnerable	Cr. Endangered	Draft SoS Strategy
Comb-crested Jacana	*Irediparra gallinacea*	Vulnerable	-	-
Bush Stone-curlew	*Burhinus grallarius*	Endangered	-	State Plan
Beach Stone-curlew	*Esacus neglectus*	Critically Endangered	-	-
Pied Oystercatcher	*Haematopus longirostris*	Endangered	-	-
Sooty Oystercatcher	*Haematopus fuliginosus*	Vulnerable	-	-
Greater Sand Plover	*Charadrius leschenaultii*	Vulnerable	Vulnerable	Draft SoS Strategy
Lesser Sand Plover	*Charadrius mongolus*	Vulnerable	Endangered	Draft SoS Strategy
Little Tern	*Sternula albifrons*	Endangered	-	State Plan
Wompoo Fruit-dove	*Ptilinopus magnificus*	Vulnerable	-	-
Rose-crowned Fruit-dove	*Ptilinopus regina*	Vulnerable	-	-
Superb Fruit-dove	*Ptilinopus superbus*	Vulnerable	-	Draft SoS Strategy
Glossy Black-cockatoo	*Calyptorhynchus lathami*	Vulnerable	-	-

Common name	Scientific name	BC Act Status	EPBC Act Status	Adopted Recovery Plan
Gang-gang Cockatoo	*Callocephalon fimbriatum*	Vulnerable	-	-
Little Lorikeet	*Glossopsitta pusilla*	Vulnerable	-	-
Swift Parrot	*Lathamus discolor*	Endangered	Cr. Endangered	National Plan
Turquoise Parrot	*Neophema pulchella*	Vulnerable	-	-
Eastern Ground Parrot	*Pezoporus wallicus wallicus*	Vulnerable	-	-
Powerful Owl	*Ninox strenua*	Vulnerable	-	State Plan
Barking Owl	*Ninox connivens*	Vulnerable	-	
Sooty Owl	*Tyto tenebricosa*	Vulnerable	-	State Plan
Masked Owl	*Tyto novaehollandiae*	Vulnerable	-	State Plan
Eastern Grass Owl	*Tyto longimembris*	Vulnerable	-	-
Rufous Scrub-bird	*Atrichornis rufescens*	Vulnerable	-	-
Brown Treecreeper (E. subspecies)	*Climacteris picumnus victoriae*	Vulnerable	-	-
Speckled Warbler	*Pyrrholaemus sagittatus*	Vulnerable	-	-
Black-chinned Honeyeater (E. subspecies)	*Melithreptus gularis gularis*	Vulnerable	-	-
Regent Honeyeater	*Xanthomyza phrygia*	Critically Endangered	Cr. Endangered	National Plan
Scarlet Robin	*Petroica multicolor*	Vulnerable	-	-
Grey-crowned Babbler (E. subspecies)	*Pomatostomus temporalis*	Vulnerable	-	-
Varied Sitella	*Daphoenositta chrysoptera*	Vulnerable	-	-
Olive Whistler	*Pachycephala olivacea*	Vulnerable	-	-
Barred Cuckoo-shrike	*Coracina lineata*	Vulnerable	-	-
Dusky Woodswallow	*Artamus cyanopterus cyanopterus*	Vulnerable	-	Draft SoS Strategy

Threatened Fauna: Insects

Common name	Scientific name	BC Act Status	EPBC Act Status	Adopted Recovery Plan
Giant Dragonfly	*Petalura gigantean*	Endangered	-	-

Threatened Fauna: Fish

Common name	Scientific name	BC Act Status	EPBC Act Status	Adopted Recovery Plan
Black Rockcod	*Epinephelus daemelii*	Vulnerable	-	-
Grey Nurse Shark	*Carcharus taurus*	Cr. Endangered	Cr. Endangered	National Plan
Great White Shark	*Carcharadon carcharias*	Vulnerable	Vulnerable	National Plan

Appendix 6: Threatened Populations

Biodiversity Conservation Act 2016

Endangered Populations		Adopted Recovery Plan
1	Broad-toothed Rat (*Mastacomys fuscus*) at Barrington Tops in the local government areas of Gloucester, Scone and Dungog	-
2	Emu (*Dromaius novaehollandiae*) population in the NSW North Coast Bioregion and Port Stephens Local Government Area	-
3	Koala (*Phascolarctos cinereus*), Hawks Nest and Tea Gardens population	State Plan
4	Rhizanthella slateri in the Great Lakes local government area	-
5	Eucalyptus seeana population in the Greater Taree local government area	-

Reference: Schedule 1 of the Biodiversity Conservation Act 2016

Appendix 7: Threatened Ecological Communities

Environment Protection and Biodiversity Conservation Act 1999

Endangered Ecological Community		Adopted Recovery Plan
1	Littoral Rainforest and Coastal Vine Thickets of Eastern Australia (Endangered)	Policy Statement
2	Lowland Rainforest of Subtropical Australia (Endangered)	-
3	Posidonia australis Seagrass Meadows of the Manning-Hawkesbury ecoregion (Endangered)	-
4	Subtropical and Temperate Coastal Saltmarsh (Vulnerable)	Policy Statement

Biodiversity Conservation Act 2016

Endangered Ecological Community		Adopted Recovery Plan
1	Carex Sedgeland of the New England Tableland, Nandewar, Brigalow Belt South and NSW North Coast Bioregions	Draft SoS Strategy
2	Coastal Saltmarsh in the NSW North Coast, Sydney Basin and SE Corner Bioregions	Best Practice Guidelines Draft SoS Strategy
3	Freshwater Wetlands on Coastal Floodplains of the NSW North Coast, Sydney Basin and SE Corner Bioregions	Draft SoS Strategy
4	Littoral Rainforest in the NSW North Coast, Sydney Basin and SE Corner Bioregions	
5	Lowland Rainforest on Floodplain in the New South Wales North Coast Bioregion	Draft SoS Strategy
6	Lowland Rainforest in NSW North Coast and Sydney Basin Bioregions	Draft SoS Strategy
7	River-Flat Eucalypt Forest on Coastal Floodplains of the NSW North Coast, Sydney Basin and SE Corner Bioregions	Draft SoS Strategy
8	Lower Hunter Spotted Gum Ironbark Forest in the Sydney Basin and NSW North Coast Bioregions	-

Endangered Ecological Community		Adopted Recovery Plan
9	Subtropical Coastal Floodplain Forest of the NSW North Coast Bioregion	Draft SoS Strategy
10	Swamp Oak Floodplain Forest of the NSW North Coast, Sydney Basin and SE Corner Bioregions	Draft SoS Strategy
11	Swamp Sclerophyll Forest on Coastal Floodplains of the NSW North Coast, Sydney Basin and SE Corner Bioregions	Draft SoS Strategy
12	Themeda grassland on seacliffs and coastal headlands in the NSW North Coast, Sydney Basin and SE Corner Bioregions	-

Reference: Schedule 2 of the Biodiversity Conservation Act 2016

Appendix 8: Legislative Framework

International Conventions

Convention	Summary	Relevance to MidCoast Council
Convention on Biological Diversity	The Convention promotes natural and human wellbeing through the conservation of biological diversity and the sustainable use of the components of biological diversity.	Council activities and decisions contribute to Australia's progress towards the targets identified in the Strategic Plan for Biodiversity 2011 – 2020 (including Aichi Biodiversity Targets) established under this Convention.
Convention on Wetlands of International Importance (Ramsar convention)	The Convention's broad aims are to halt the worldwide loss of wetlands and to conserve, through wise use and management, wetlands that remain. Sites listed under the Convention must be managed to maintain or improve their ecological character.	The Myall Lakes Ramsar Site (comprising Myall Lakes National Park, Corrie Island Nature Reserve and part of Gir-um-bit National Park) is gazetted under this Convention. They are a large coastal brackish lake system that is in a near-natural condition. They are one of the two largest brackish-freshwater barrier estuaries in the South East Coast drainage division and an excellent representative example of this wetland type in NSW. They contain a unique co-existence of deep and shallow-water macrophytes and the organic lake-floor mud known as gyttja. It supports threatened species and ecological communities and a rich biodiversity (including over 900 species of plants and 400 species of animals), including waterbirds.
Convention concerning the Protection of the World Cultural and Natural Heritage (World Heritage Convention)	Australia is a signatory. The Convention aims to promote cooperation among nations to protect heritage from around the world that is of such outstanding universal value that its conservation is important for current and future generations.	The Gondwana Rainforests of Australia - Barrington Tops area, in the north-west of the MidCoast Region, are gazetted under this Convention. The Gondwana Rainforests of Australia include the "most extensive areas of subtropical rainforest in the world, large areas of warm temperate rainforest and nearly all of the Antarctic beech cool temperate rainforest. Few places on earth contain so many plants and animals which remain relatively unchanged from their ancestors in the fossil record."

Australian Government Legislation

Statute	Objective	Relevance to MidCoast Council
Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)	This Act provides for the protection of matters of national environmental significance and biodiversity conservation	The EPBC Act makes it an offence for any person to take an action that is likely to have a significant impact on matters protected by the Act, unless they have the approval of the Australian environment minister. Protected matters are matters of national environmental significance as well as the environment of Commonwealth land. The matters protected by the EPBC Act of relevance to the MidCoast Region are: • world heritage properties, • national heritage places, • Ramsar wetlands, • migratory species protected under international agreements, and • listed threatened species and ecological communities. Council activities may require Commonwealth approval, if there is likely to be a significant impact on a matter protected by the EPBC Act. Development may need the approval of the Australian environment minister in addition to local and state approvals. Developments that comply with local and state requirements may still need to be separately approved by the Australian environment minister. Failure to gain the minister's approval can leave developers open to delays, and even prosecution, if matters protected by the EPBC Act are significantly affected. Council staff can advise applicants of the need to address the requirements of the EPBC Act in situations where a development proposal may have an impact on a nationally protected matter or the environment of Commonwealth land. Councils are not responsible for making a referral to the environment minister on behalf of applicants, and the council's own approval of a project does not need to be referred under the Act.

New South Wales Government Legislation

Statute	Aim / Purpose	Relevance to MidCoast Council
Local Government Act 1993	This Act provides the legal Framework for the system of local government in NSW. It facilitates community engagement by councils. It sets the guiding principles including establishing the requirement for ecologically sustainable development (ESD)	This Act provides for a Framework of classifying and managing natural area / bushland reserves and provides Council's with land acquisition and ownership powers. It establishes the requirement for ESD to be factored into Council decision-making. It also provides regulatory powers in relation to reserves and notices
Environmental Planning and Assessment Act 1979	This Act aims to protect the environment, and facilitate ESD by integrating economic, environmental and social considerations in environmental planning and assessment decisions	This Act regulates development and provides for the strategic planning Framework for Councils (environmental planning instruments, land zoning). Council assesses local development and self-assesses the environmental impacts of its own activities using the provisions of this Act
Biodiversity Conservation Act 2016	This Act aims to maintain a healthy, productive and resilient environment for the greatest well-being of the community, now and into the future, consistent with the principles of ESD	The Act outlines the Framework for assessment and approval of biodiversity impacts associated with developments that require consent under the EP&A Act. The Act includes a Biodiversity Offsets Scheme. Council regulates development in accordance with the provisions of this Act. It outlines the list of threatened species, populations and ecological communities in NSW
Fisheries Management Act 1994	This Act aims to conserve fish stocks, fish habitat and biodiversity and promote sustainable commercial and recreational fisheries	Council considers the Act in determining local development applications as well as the impact of Council's activities, where the activity is associated with fish or fish habitat. The Act lists threatened fish species and provides for recovery and conservation of threatened fish. The Act regulates fisheries management, aquaculture management and the protection of fish habitats

Statute	Aim / Purpose	Relevance to MidCoast Council
Crown Land Management Act 2016	This Act requires environmental considerations to be considered in the management of Crown Land	This Act regulates the management of Crown Land, including Crown Land which is in the care and control of Councils. Many important natural areas are located on Crown Land, including headlands, wetlands, estuaries and watercourses
Local Land Services Act 2013	This Act guides the management of natural resources in relation to social, economic and environmental interests	Councils do not have enforcement responsibilities under this Act, but the Act controls and regulates clearing of native vegetation on rural lands. It also establishes allowable activities for public authorities associated with native vegetation maintenance activities
Water Management Act 2000	This Act provides for sustainable and integrated management of the water of the State for the benefit of both present and future generations	Councils do not have enforcement responsibilities under this Act, but the Act regulates and controls water harvesting, water use, aquifer interference and activities on waterfront lands. Councils harvesting of domestic water from aquifers is regulated by this Act. It establishes a range of offences relating to water management
National Parks and Wildlife Act 1974	This Act conserves nature, ecosystems, ecosystem processes and Aboriginal heritage and promotes public appreciation of nature via a public reserve system and protections for native plants and animals	The Act establishes the conservation reserve system in NSW (National Parks, etc) and establishes the management frameworks for such areas (including plans of management). It seeks to protect and manage Aboriginal cultural heritage (Aboriginal objects and places).
Aboriginal Land Rights Act 1983	This Act provides land rights for Aboriginal persons in NSW and provides for the acquisition and management of land by Aboriginal Land Councils	This Act provides for a land claims process for vacant Crown Land, including lands with high environmental values

Statute	Aim / Purpose	Relevance to MidCoast Council
Protection of the Environment Operations Act 1997	This Act aims to protect, restore and enhance the environment with a focus on pollution control and waste management	The Act provides a regulatory Framework for environmental pollution offences and includes matters in which Councils are the regulatory authority. It licenses scheduled activities and premises, establishes performance and auditing requirements and responses for pollution incidents
Biosecurity Act 2015	This Act provides the Framework for the prevention, elimination and minimisation of biosecurity risks posed by a biosecurity matter, including pests, diseases and weeds	Councils are local control authorities and have significant responsibilities for weed control and management under this Act. They participate in Regional Weeds Committees and Weed Action Plans. The Act establishes a general biosecurity duty to ensure responsibility for biosecurity risk is shared among the government, industry and the community
Rural Fires Act 1997	This Act requires ecological impacts to be considered in fire prevention and management activities	Local development in bushfire prone areas needs to apply measures for adequate bushfire protection, which Council needs to apply in any development consents. This Act regulates bushfire hazard reduction and management, directs bushfire control and the preparation of bushfire management plans. It facilitates the bushfire environmental assessment code
State Environmental Planning Policy No. 44 - Koala Habitat Protection	This Policy aims to encourage the proper conservation and management of areas of natural vegetation that provide habitat for koalas to ensure a permanent free-living population over their present range and reverse the trend of population decline	Councils need to consider this Policy within local development. Development applications for which this Policy apply need to undertake an assessment of potential koala habitat (the presence of koala food trees). If potential koala habitat is present, then an assessment as to whether core koala habitat is required. The Policy stablishes a Framework for Koala Plans of Management

Statute	Aim / Purpose	Relevance to MidCoast Council
State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017	The 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	The Vegetation SEPP regulates the clearing of vegetation in urban local government areas, as well as urban and environmental zones across the State, where clearing does not otherwise require development consent under the EP&A Act
State Environmental Planning Policy – Coastal Management	The Policy aims to promote an integrated and co-ordinated approach to land use planning in the coastal zone. It establishes development controls over coastal management areas including coastal wetlands and littoral rainforests	This Policy regulates coastal development, protects environmental assets and manages coastal hazards. It promotes local planning that is consistent with the aims of the SEPP, such as zoning and other local planning measures that are supported by Coastal Zone Management Plans. Funding is available through the NSW Government Coast and Estuary Grants scheme

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