Grevillea calyei
Image credit: Ben Fallowfield

Protected and enhanced bushland and biodiversity

LSPS Priority 2

3.0 Protected and enhanced bushland and biodiversity

Natural areas cover almost half of the Northern Beaches including 350 bushland reserves and three national parks. Native vegetation or bushland areas include important core habitat areas, linked by biodiversity corridors (also known as wildlife corridors).

The principles for Towards 2040 Priority 2 will guide future planning decisions to protect and enhance bushland and biodiversity of the Northern Beaches include:

- Protect core areas and areas of high environmental value from urban development.
- Conserve and restore threatened species habitat.
- Retain native vegetation and maintain or enhance ecological functions in core areas and wildlife corridors (connection zones).
- Ensure future developments avoid, then minimise impacts on bushland before offsetting is considered.
- Increase the availability of local biodiversity offsets.
- Shape decisions for future bushland and biodiversity management around the consequences of climate change, including the need for increased bush fire risk mitigation and pest species management.
- Plant locally native species.
- Protect and enhance sustainable recreation in bushland reserves and natural areas without compromising the integrity of environmentally sensitive areas.

Core Habitat Areas, Biodiversity Corridors

According to GANSW (2020), core habitat areas of bushland and waterways are the least disturbed and the most biodiverse, representative of the structure, function, and composition of natural areas. Protection and management of these aras is imporatnta to protect biodiversity and ensure long-term stability of ecosystem functions.

Protection and management of these areas is important to conserve biodiversity and ensure long-term stability of ecosystem functions.

Biodiversity Corridors (also known as wildlife corridors or Connection Zones) – are areas that support urban habitat and the movement of wildlife between core habitat areas of bushland or waterways. Connection zones support genetic dispersal, ecological function and resilience and can include vegetated riparian corridors, street trees, ponds, rocky outcrops, parks and gardens. They are areas where most city dwellers interact with nature (GA, 2020).

Various published studies have long demonstrated the importance of larger patches of native vegetation (or core habitats) for the conservation of biodiversity (see Rosenzweig 1995, Watson et al, 2018).

Important core habitats are typically the larger patches of native vegetation and include Council managed reserves such as Manly Dam, Allenby Park, Ingleside Chase Reserve and three state-managed national parks. Core habitats are also located on private land including one of Sydney's largest unreserved areas of bushland stretching from Middle Creek at Narrabeen Lagoon west to Belrose and south west to Frenchs Forest.

Smaller bushland remnants outside of larger core habitat areas remain critical for the conservation of biodiversity on the Northern Beaches and underpin the 'bush and beach' identity. Smaller bushland remnants often form part of biodiversity corridors and can act as 'stepping-stones' that allow flora and fauna movement across the landscape and support genetic dispersal.

Bushland provides vital habitat for iconic threatened species including Glossy Black cockatoo and Eastern Pygmy Possums as well as the more common fauna like Sugar Glider and Swamp Wallaby. Many other threatened fauna species also occur locally, including the Barking Owl, Little Penguin, Red-crowned Toadlet, Grey-headed Flying-fox and Eastern Osprey. A complete list of threatened fauna recorded on the Northern Beaches is provided in Appendix 2. There are many other species that persist on the Northern Beaches that are considered locally significant because, although once common, their populations have significantly declined in the area.

The Northern Beaches is also home to a number of threatened plants such as the critically endangered Caley's Grevillea – *Grevillea caleyi* and Seaforth Mintbush – *Prostanthera mariifolia*. The distribution of these two plant species is almost entirely limited to the Northern Beaches. A complete list of threatened plants recorded on the Northern Beaches is provided in Appendix 2.

Both the natural and urban areas have their place in enhancing biodiversity and supporting the habitat of threatened species on the Northern Beaches. Urban habitats including parks, tree lined streets and even backyards remain important features of the landscape which contribute to connectivity that is crucial for the persistence of biodiversity.

Healthy bushland and biodiversity and connected and accessible natural environments across the Northern Beaches also contribute to community health and wellbeing, provides visual amenity and recreation and supports economic diversity, including increased revenue for tourism and other related industries.

Studies and analysis are currently underway to review and map core habitat and corridor areas of the LGA. From existing information, core habitat areas are mostly within council reserves and in larger landholdings. Areas of remnant bushland were generally identified as core habitats if larger than 3.5ha.

15,562ha
Bushland

10,900ha
National Parks

2,960ha
Private Ownership

1,700ha
Council Management

3
National Parks
Kuring-gai Chase
Garigal
Sydney Harbour

540
Animal Species

1460
Native Plant Species

48
Plant Community Types

13
Threatened Ecological Communities

78
Threatened Species

50
Wildlife Protection Areas

3.1 Native vegetation and plant community types of the Northern Beaches

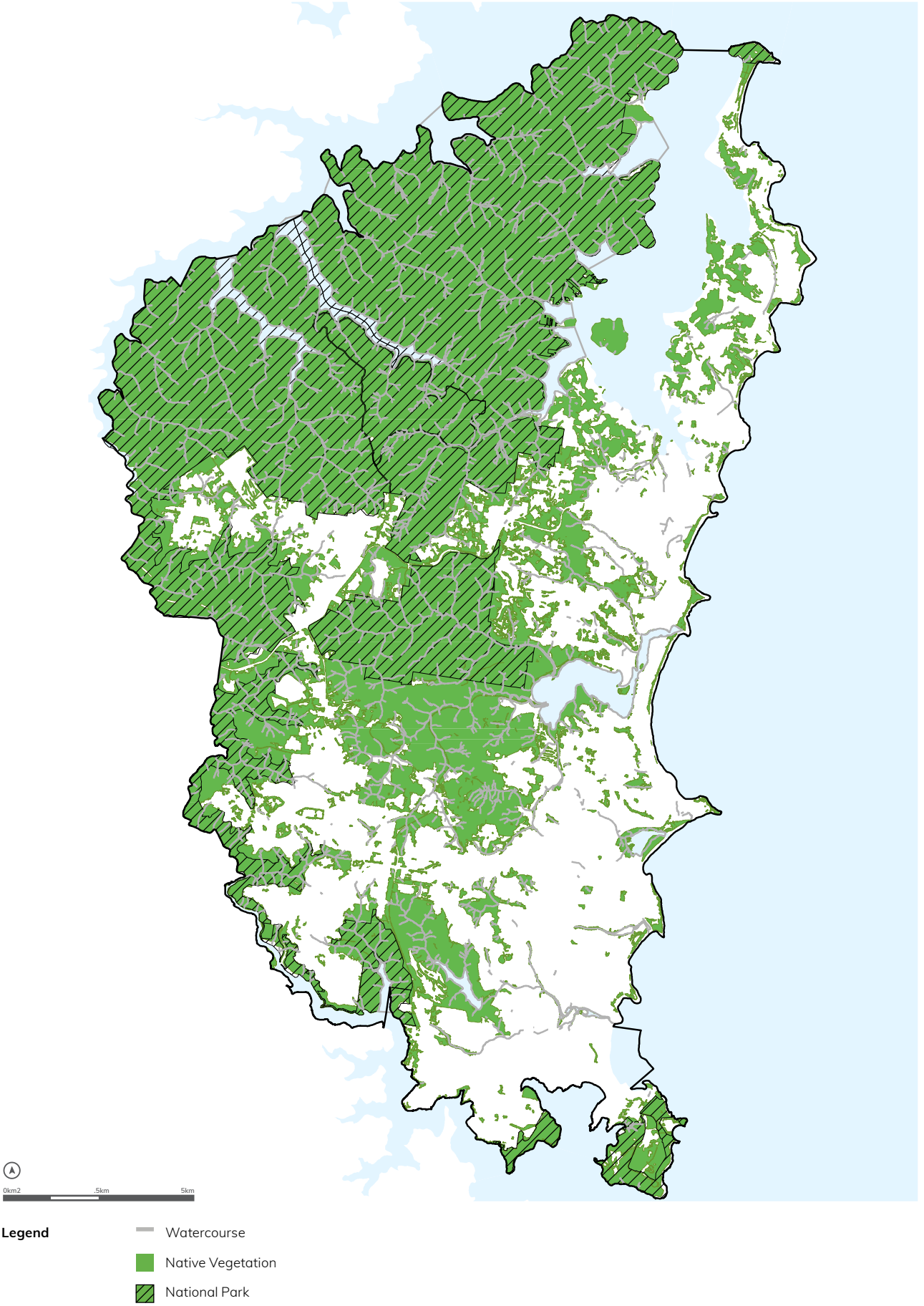
Core habitat and corridors have been based on extisting native vegetation cover across the Northern Beaches. In 2016 the former NSW Office of Environment and Heritage released mapping of native vegetation and plant community types for the entire Sydney Metropolitan Area. The mapping identifies 79 plant communities occurring across the Sydney Metropolitan Area (OEH 2016), of which 48 are mapped on the Northern Beaches.

The OEH 2016 vegetation mapping also identifies 13 threatened ecological communities occurring on the Northern Beaches (Table 3, Appendix 2). Threatened ecological communities are now substantially cleared with remaining areas afforded additional protections under the NSW *Biodiversity Conservation Act 2016* and *Commonwealth Environment Protection* and *Biodiversity Conservation Act 1999*. Well known threatened ecological communities on the Northern Beaches include Pittwater Spotted Gum Forest, Duffys Forest, Coastal Saltmarsh and Sydney Freshwater Wetlands. Draft mapping by SMEC (2021) has refined and updated the mapping of threatened ecological communities across the LGA.

An updated draft map of native vegetation cover (Figure 2) for the Northern Beaches has also recently been prepared by Council staff based on the OEH 2016 mapping. The large areas of clearing required for the various road upgrades and infrastructure projects have been excluded from the mapping.

Flannel Flower
Actinotus helianthi

Figure 2: Draft map of native vegetation of the Northern Beaches



3.2 Threatened Species

Where plants and animals are assessed as being at risk of extinction, state and federal legislation may identify them as 'threatened species'. Relevant state (NSW *Biodiversity Conservation Act, 2016*) and federal legislation (*Environment Protection and Biodiversity Conservation, Act, 1999*) has been implemented with the intent of protecting threatened species. A species may be identified as threatened if there is a reduction in its population size, it has a restricted geographical distribution, or there are few mature individuals.

Sixty nine threatened species have been identified as likely to have occurred in the LGA. Of these 18 are threatened plant species that have been mapped as valid records across the LGA along with 51 threatened fauna species (based on quality review of records provided in Table 3, Appendix 2).

Review of threatened species sightings records (accessed via NSW Bionet, April 2021) for the Northern Beaches, suggests that local populations of some threatened fauna such as Eastern Pygmy-possum, Giant Burrowing Frog and Heath Monitor are now largely confined to large patches of native vegetation or core habitats and may now be extinct from smaller more fragmented areas. Fragmentation and loss of habitat are likely to be the main contributors to the local extinction of Koala and Squirrel Glider populations once known from parts of the Northern Beaches (see for example the published study on the decline of local Koala's by Smith and Smith 1990). This highlights the importance of minimising the loss of native vegetation and associated core habitat areas.


Eastern Pygmy-possum


Osprey
Image credit: John Taylor

Biodiversity corridors include smaller patches of native vegetation which remain important to the conservation of some highly mobile threatened fauna such as the iconic Powerful Owl. Powerful Owls have been identified nesting in old growth hollow bearing trees within some smaller patches of native vegetation, but forage across the more leafy Northern Beaches suburbs at night. Some of the largest known populations of the critically endangered plant Caley's Grevillea occur in small patches of native vegetation and ongoing protection and management of biodiversity corridors will be required in order to maintain local populations of these species.

3.3.1 Council managed bushland

In addition to its intrinsic values, there is the opportunity to consider bushland as a form of green infrastructure or natural 'green' assets that provide for the conservation of biodiversity. Managing bushland as a natural asset provides opportunities for these areas to be better integrated into Councils Asset Management System.

3.3.2 Land use planning

The largest tracts of bushland outside national parks occur across larger Council managed reserves. However, bushland within private land holdings also form a considerable proportion of the remaining bushland on the Northern Beaches. It is therefore recognised that the conservation of bushland on private land plays an important role in maintaining the overall bushland identity of the Northern Beaches.

Land use planning allocates land for development, determines setbacks, decides densities and proximities and sets conditions for environmental management for new projects. It must also ensure that people are safe and have adequate access to services and open space.

Land use planning can help ensure new developments are designed to avoid and minimise impacts upon bushland and biodiversity in the first instance. When impacts cannot be avoided, the NSW biodiversity offsets scheme can provide for permanent protection and ongoing management of retained bushland. Unfortunately, offset sites are typically located away from the Northern Beaches where land is cheaper. There are opportunities to increase the availability of local offsets in order to support the long-term retention of bushland and biodiversity on the Northern Beaches.

As discussed further in the following sections, land use planning has the potential to increase land clearing and loss of biodiversity. Increasing population densities close to bushland areas also has indirect impacts such as the increased presence of domestic predators (e.g. cats), increased recreational pressures (e.g. mountain biking) and increased light pollution. Mitigating these indirect impacts represents an ongoing challenge to land managers.

Narrabeen Lagoon Trail

3.3.3 Land clearing

Local bushland is under continual pressure from existing and expanding development, with land clearing and associated habitat loss one of the greatest known threats to biodiversity. Development pressures are reducing the amount and quality of bushland, increasing edge effect degradation, weed invasion, fauna predation and habitat fragmentation.

In assessing areas for new development, a focus should be placed on areas that do not require or increase clearing (such as prioritising infill development) to protect areas with important environmental values. This should be coupled with improved development design criteria that protect and enhance bushland and biodiversity through the use of buffers, setbacks, and environmental management activities where appropriate.

3.3.4 Connectivity

Protecting corridors and connectivity between core habitat areas is important in order to maintain safe wildlife passage, provide buffers between natural bushland and urban areas, and help protect against the encroachment of invasive species. A key opportunity exists to consolidate and support connections between core habitats across the Northern Beaches LGA.

Corridors can include natural corridors (i.e. riparian vegetation along watercourses), corridors of remnant vegetation (i.e. vegetation remaining after clearing of the surrounding area), planted corridors (i.e. deliberately created either as wildlife corridors or riparian buffer zones) and remnant and planted tree canopy (such as in parks or golf courses). A network of corridors provides the opportunity to link otherwise isolated patches of remnant bushland, which will assist in the conservation of biodiversity. Wildlife corridors can help decrease the likelihood of local extinction and prevent inbreeding, provide increased foraging area for species with large ranges, provide refuge from predators such as domestic pets, widen the variety of habitat available, provide refuge from disturbed habitat (e.g. fire affected bushland), and provide visual amenity within urban areas.

The metropolitan rural areas support areas of diverse habitat and biodiversity, contributing to the wider green grid and environmental attributes of the Northern Beaches. In some cases, they provide important buffer areas between bushland and urban areas. In other areas, such as the Oxford Falls Valley, they can contribute to local core habitat areas and provide links to surrounding bushland and national parks forming part of regionally important wildlife corridors.

Smaller areas of bushland are in public and private land holdings spread across the Northern Beaches, forming a valuable network of local wildlife corridors. The role of 'backyard bushland' plays an important role in conservation of a wide range of species.

3.3.5 Recreational use

Quality, quantity and access to passive and active open space is a growing need as communities continue to urbanise and there is an increase in population. Natural bushland areas provide visual amenity and recreational opportunities contributes to community wellbeing. However, uncontrolled recreation in high value conservation areas across the Northern Beaches leads to a range of impacts on the quality of bushland and its biodiversity. Uncontrolled recreational access can result in pollution, site disturbance and damage, weed invasion and fauna predation. Council also incurs costs of restoration of areas impacted by uncontrolled recreation.

Recreational use of urban and peri-urban bushland on the Northern Beaches is popular for a range of recreational pursuits including walking, running, horse riding and mountain bike riding. Each of these activities is often exclusionary, where the trails may not be safely utilised by the different user groups at the same time.

The growing popularity of mountain bike riding on the Northern Beaches has resulted in a substantial network of both formal and informal (unauthorised) trails through natural areas. The impacts of mountain biking can differ from those of other recreational activities as trail construction often includes the use of trail technical features such as jumps, bridges and mounds. On formalised trails, it has proven difficult to prevent the ongoing construction of informally created side trails. The associated environmental impacts of the trails and technical features includes vegetation clearing, bush rock removal, soil erosion, pollution, weed spread and wildlife disturbance (see review by Pickering et al, 2010). Substantial funding is needed for ecologically sustainable trail construction and for the ongoing maintenance of such trails.

The challenge is to protect the natural environment while providing sustainable access for recreation and enjoyment. Opportunities to overcome this are likely to be in the form of more formalised sustainable recreational activities in locations with the objective to reduce the impost placed on bushland areas. This may involve clearly identifying environmentally sensitive areas as well as identifying areas that may be suitable for sustainable recreation and allocating sufficient resources for management.

Environmental Planning Actions
LSPS Priority 2

Protected and enhanced bushland and biodiversity

The following environmental planning actions have been developed to deliver the LSPS planning priorities. These will also help to achieve the outcomes of the ECC Strategy.

LSPS Action	ECC Strategy	Environmental Planning Actions	Timeframe
Prepare a biodiversity planning analysis to identify core, threatened and connection zones (wildlife corridors) and to support a strategic urban biodiversity framework. Prepare LEP and DCP controls that protect bushland and biodiversity, including the findings of technical studies; use of environmental protection zones and designating environmentally sensitive areas; and work with the Department of Planning, Infrastructure and Environment on the application of State policies.	Protect our bushland anwd its associated biodiversity through strategic land-use planning and development controls. Prepare and implement a strategic approach to biodiversity land management and use this to inform our strategic land use planning and development controls.	2.1 Undertake technical studies to update and refine existing biodiversity mapping. This will include new mapping which identifies important biodiversity assets including core habitats (large areas of mostly intact habitat), biodiversity corridors (also known as wildlife corridors), threatened ecological communities and threatened species habitats. Use best available information, strategies and guidance to inform these studies such the Bushland and Waterways section of the NSW Government Architects Office draft 2020 Greener Places Design Guide, existing NSW Government mapping of native vegetation (OEH 2016), threatened ecological communities and threatened biodiversity. Refinement of the mapping including improvements in accuracy will also be based on expert review, local knowledge, review of existing updated information and on ground surveys as required.	Short Term
		2.2 Incorporate updated biodiversity mapping developed in technical studies into the new local planning framework. This is to include a biodiversity map layer and provisions in the new LEP. More detailed controls will identify the extent and distribution of each biodiversity asset type (core habitat, biodiversity corridors, native vegetation or bushland and threatened biodiversity) in the new DCP.	Short Term
		2.3 Identify areas of high biodiversity significance as 'environmentally sensitive areas' in the new LEP and seek exemptions to the application of State planning controls that override local controls tailored for sensitive environments.	Short Term
		2.4 Develop and implement new biodiversity planning controls that will require future developments to demonstrate a hierarchy of first avoiding then minimising direct impacts on bushland before offsetting is considered. Where feasible, new developments are to be located within areas which are already cleared and / or disturbed in order to demonstrate avoidance of impacts. The design of new developments should demonstrate that impacts have been minimised by avoiding tree and native vegetation loss, including for the consideration of any required bush fire Asset Protection Zones.	Short Term
		2.5 Develop and implement new biodiversity planning controls which will focus on minimising potential indirect impacts resulting from development such as considerations of future use, predation by domestic animals, light spillage, changes in hydrology and encroachment into natural areas.	Short Term
Embed green infrastructure into the NSW planning system and make funding available through development contributions, rate reductions or levies.	Identify, design and deliver priority local green grid corridors, connections and shared uses. We will integrate this into our planning instruments.	2.6 Ensure natural assets including core habitats, threatened species habitats and native vegetation are considered early in the strategic planning process, such as during planning proposals, place plans or precinct plans.	Ongoing
		2.7 Ensure Council's natural assets identified in planning proposals, place plans or precinct plans are appropriately funded (eg: through the development contributions process) in a similar manner to built assets and infrastructure. Council will develop systems to support and facilitate this.	Ongoing

Prepare an open space and recreation strategy and map a local green grid that supports environmentally sustainable access to the bushland where appropriate.	Improve and manage sustainable recreational access whilst protecting environmentally sensitive lands.	2.8 Identify and protect areas of high biodiversity value within the local green grid.	Ongoing
		2.9 Ensure that Councils recreation planning considers protection of high biodiversity value assets and ensures recreational activities and infrastructure within these areas are low impact.	Ongoing
Investigate options for funding, acquisition and reservation of urban tree canopy and bushland with biodiversity, habitat, recreational and scenic value, including incentives or assistance to private property owners.		2.10 Investigate, develop and implement planning controls which support property owners to enhance bushland. For planning proposals, this may include proactive engagement in negotiations with developers and landowners to seek innovative solutions for conservation and management of retained bushland, and/or pathways to accept dedication of the land to Council, such as adjustments to planning requirements in exchange for preservation of bushland on site.	Short Term
		2.11 Identify options for funding the acquisition of land parcels with significant biodiversity values by way of the NSW Biodiversity Offsets Scheme. For example, this may include offsetting Council land and allocating any additional funds that are generated toward the acquisition of high biodiversity value land for conservation purposes.	Ongoing
		2.12 Increase the availability of local offsets by providing incentives and/or assistance to property owners to conserve bushland. Incentives for local offsets may include provision of technical expertise free of charge for provision of offset site feasibility assessments over larger local land holdings with high biodiversity values. Where development impacts cannot be further avoided and minimised, biodiversity offsets may be considered. Where biodiversity offsets are proposed outside of the Northern Beaches Local Government Area, Council may require an increased offsetting obligation in accordance with Part 7.13 (4) of the NSW Biodiversity Conservation Act 2016.	Ongoing
		2.13 Council will continue to advocate to the state government agencies to ensure biodiversity offsets are established and sourced locally. For example, when state led construction activities or rezoning is proposed, Council will seek offset obligations to be established and sourced on the Northern Beaches.	Ongoing
Provide a consistent approach in the assessment, compliance and management of threats to bushland and biodiversity resulting from invasive species including weeds and pest animals.		2.14 Develop and implement planning controls in the new planning framework that restrict the planting of priority weeds and other undesirable species in development as referenced in the Local Weed Management Plan https://files.northernbeaches.nsw.gov.au/sites/default/files/documents/general-information/weed-management/northernbeachescouncillocalpriorityweedmanagementplan.PDF.	Short Term