



BELLINGEN SHIRE
BIODIVERSITY STRATEGY HIGHLIGHTS



**BELLINGEN
SHIRE COUNCIL**



CONTENTS

Summary	iii	Threats to Biodiversity	10	Stakeholder Consultation: Vision for the next 20 years	14
Foreword	iv	Global climate change		Action Plan	15
What is Biodiversity	1	Logging		Key Focus Area 1: Juungambala and Caring for Country: building a living agreement with Gumbaynggirr custodians	
Purpose of the Biodiversity Strategy	2	Weed invasion		Key Focus Area 2: Native Vegetation	
Vision		Edge effects		Key Focus Area 3: Waterways	
Existing Environmental Values	3	Increased runoff, nutrients, erosion and sediment		Key Focus Area 4: Corridors and Connectivity	
Physical features		Water pollution		Key Focus Area 5: Public Spaces	
Current biodiversity in Bellingen Shire		Extreme or altered bush fire regimes		Key Focus Area 6: Habitat	
Threatened Ecological Communities	5	Feral animals and domestic pets		Key Focus Area 7: Species Preservation	
Threatened Species	6	Bell Miner assisted dieback		Monitoring, Review and Reporting	18
Koala		Development and infrastructure		Community Vision: Our Living Environment Service Commitment	
Bellinger River Snapping Turtle		Disease			
Grey-headed Flying-fox		Opportunities	12		
Oxleyan Pygmy Perch		Council strategic planning and improving connectivity and habitat			
Habitat and Connectivity	8	Climate Change Adaptation Change Model for Biodiversity			
Core Habitat		Sustainable agriculture and forestry			
Significant Habitat		Fauna corridors and habitat enhancement			
Supporting Habitat		Support for Landcare and groups			
Connectivity and Corridors		Reducing runoff and nutrients			
Green Spaces		School and community education			
		Protection of high profile / 'umbrella' species			
		Saving our Species (NSW Government)			
		Key management sites in the Bellingen Shire			



Pink underwing moth
Photo: Dave Britton



Koala
Photo: Lachlan Copeland



Giant Barred Frog
Photo: Lachlan Copeland

SUMMARY

Biodiversity is the variety of all life, the different plants, animals and micro-organisms, their genes, and their terrestrial, marine and freshwater ecosystems. Biodiversity is intrinsically valuable in its own right and is essential for existence. The key is for our use of biodiversity to be sustainable, so that the social, economic, environmental and health services provided by healthy ecosystems benefit current and future generations.

This document highlights key features of Bellingen Shires Biodiversity Strategy, including current biodiversity attributes, threats, and actions to maintain and improve biodiversity.

It reflects Council's plans and intention to conserve and restore our biodiversity, to ensure it is resilient to climate change and is valued for its essential contribution to our existence. It recognises the role of traditional custodians in caring for Country and its biodiversity over millennia and as current conservation partners.

Bellingen's Biodiversity Strategy takes a comprehensive approach to addressing biodiversity conservation in the Bellingen Shire.

The main threats to our biodiversity are:

- global climate change
- logging
- weed invasion
- edge effects
- increased runoff, nutrients, erosion and sediment
- water pollution
- extreme or altered bush fire regimes
- feral animals and domestic pets
- Bell Miner assisted dieback
- development and infrastructure
- disease

The strategy identifies opportunities and programs to reverse threats and the resulting damage they cause to the environment.

It combines existing plans and programs into an overarching framework of actions to conserve and enhance Bellingen's biodiversity in coastal, river and forest plateau environments.

All actions sit within seven interconnected 'key focus areas':

- Juungambala and Caring for Country: building a living agreement with Gumbaynggirr custodians
- Native Vegetation
- Waterways
- Corridors and Connectivity
- Public Spaces
- Habitat
- Species preservation

The strategy prioritises the actions to be completed by Council and through strong engagement with indigenous people and local community partners.

The strategy is linked to Council's operational plan and will be monitored regularly to determine its effectiveness in conserving biodiversity. The strategy can then be refined in the future via reviews of the actions undertaken.

FOREWORD

Bellingen Shire Council acknowledges the traditional custodians of this land, the Gumbaynggirr people, who have cared for this country since the Dreaming (Yuludarla) many thousands of years ago.

We pay our respects to their elders; past, present and emerging, and wish to work together with Gumbaynggirr Custodians towards a shared future of reconciliation and celebration of their deep connection with country and their living culture.

We recognise the Aboriginal songlines that traverse the landscape, which tell of the law, history and culture of Gumbaynggirr Custodians and have been created, maintained and practiced for many thousands of years.

Gumbaynggirr lands extend over a large area of the NSW Mid North Coast, stretching from the Nambucca River in the south up to the Clarence River (Grafton) in the north, across to the Great Dividing Range in the west and east to the Pacific coast.

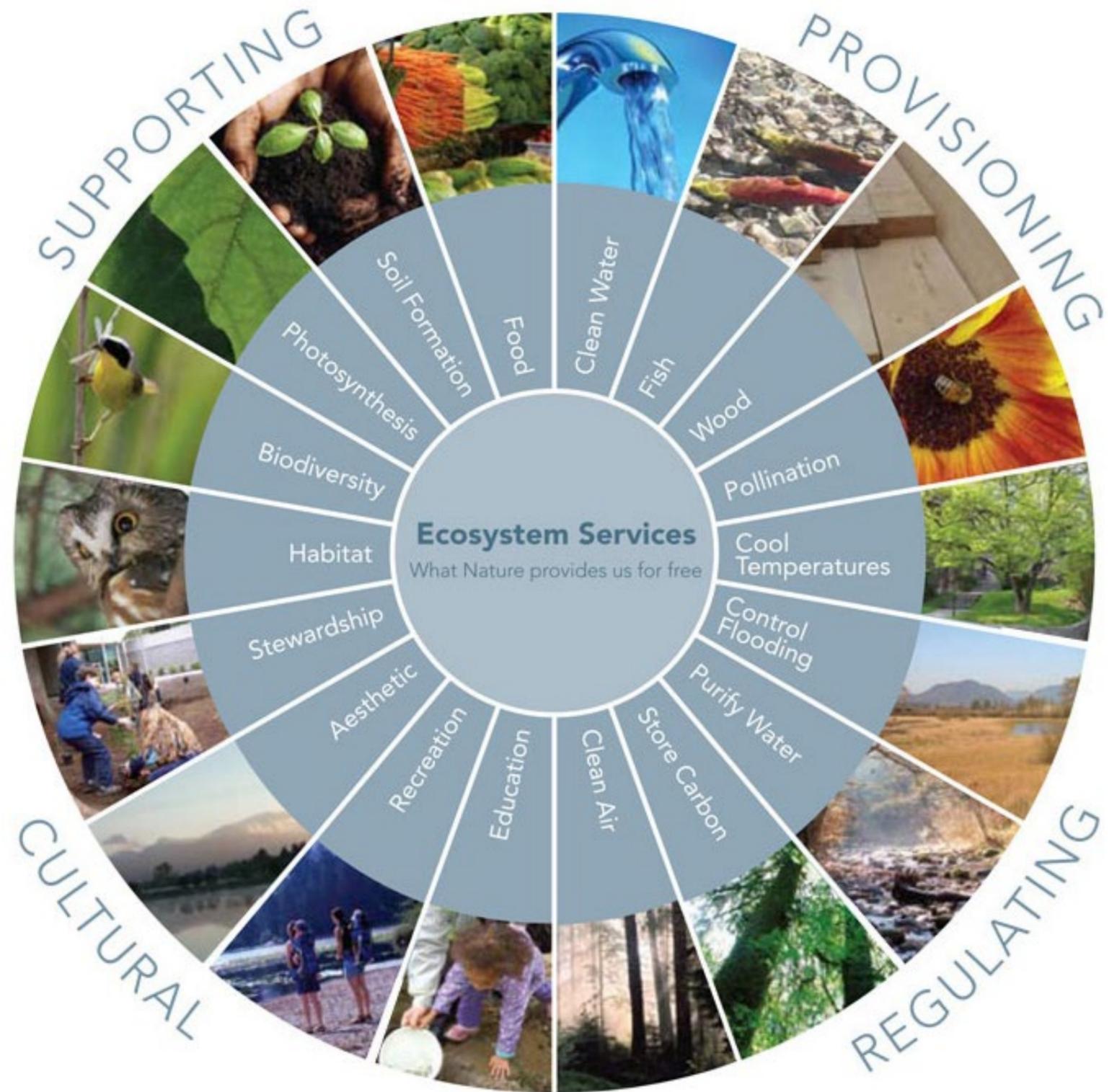
Many Aboriginal people from Bellingen (Baalijin), Grafton (Jadalmany), Coffs Harbour (Garlambirla), Nambucca (Nyambaga) and inland of these areas identify as Gumbaynggirr (Muurrbay 2019).

The name Bellingen came from the original Gumbaynggirr word Baalijin (meaning Quoll or 'cheeky fellow'). The Gumbaynggirr name for the Bellinger River is Bindaray Yurruun (Bellingen and Urunga Museums 2019).

It is with regard to Gumbaynggirr law, history and culture, that the first action of this strategy has been developed, for Council to engage in Juungambala led by Gumbaynggirr Custodians. Juungambala is about building a living agreement with Gumbaynggirr people and working towards peace together through building mutual understanding and respect. Caring for Country and understanding our connection to the landscape is fundamental in protecting biodiversity and our environment.

WHAT IS BIODIVERSITY

Biodiversity is the variety of life, from vegetation communities to individual species and the genes they contain. Our quality of life depends on maintaining biodiversity in its own right, and so that ecosystem services such as the availability of fresh water, food, and fuel sources remain. The key is to make our use of biodiversity sustainable, so that the social, economic, environmental and health services provided by healthy ecosystems can continue to provide their benefits for current and future generations.





PURPOSE OF THE BIODIVERSITY STRATEGY

The Bellingen Biodiversity Strategy provides the overarching framework to assist management, enhancement and protection of natural areas and biodiversity in the Bellingen Shire for the next 10 years.

Vision

The Strategy's vision is 'Bellingen is a community that values, protects, conserves and enhances natural areas and biodiversity in coastal, river and plateau environments'. This links to the Bellingen Shire's Community Vision to 'strive to live sustainably to ensure that we have enough for all, forever' (Shire of Bellingen 2027, Our Community Vision, Community Strategic Plan). One of the key themes is the 'Our Living Environment' and its aspirations are outlined as:

"We protect and enhance our biodiversity; we work together to protect and enhance our environment; we live sustainably and reduce our ecological footprint and contribution to climate change; we have clean water which is protected and used sustainably; our surroundings are quiet and clean and we reduce, reuse, recycle..."

EXISTING ENVIRONMENTAL VALUES

Bellingen's diverse landscape supports a rich array of ecological values, and a high level of biodiversity.

Physical features

- Landscape
- Geology, soils and topography
- Drainage and water quality

The landscape covers three broad topographies, namely coastal, Bellinger and Kalang river valleys and the Dorrigo plateau. Each landscape type has unique geophysical attributes which influence biodiversity and connectivity.

The coastal areas of the Shire support wide valleys, channels, floodplains, swamps, and terraces of the Bellinger and Kalang Rivers. The coastal valley areas are composed of quaternary alluvium, Bellinger and Kalang River valleys are composed of highly erodible sediments, and the Dorrigo Plateau and some escarpments are composed of volcanic and metamorphic rocks.

The two main river catchments are the Bellinger and Kalang. The Bellinger River originates in the Dorrigo plateau, characterised by steep slopes and high rainfall. The Kalang River originates in the southern area of the LGA and the confluence of the rivers is at Urunga. The geomorphology of the catchment combines steep slopes in the upper catchment with more gentle sloping coastal floodplain. Periods of high rainfall can subsequently impact on the water quality of the Bellingen Shire.



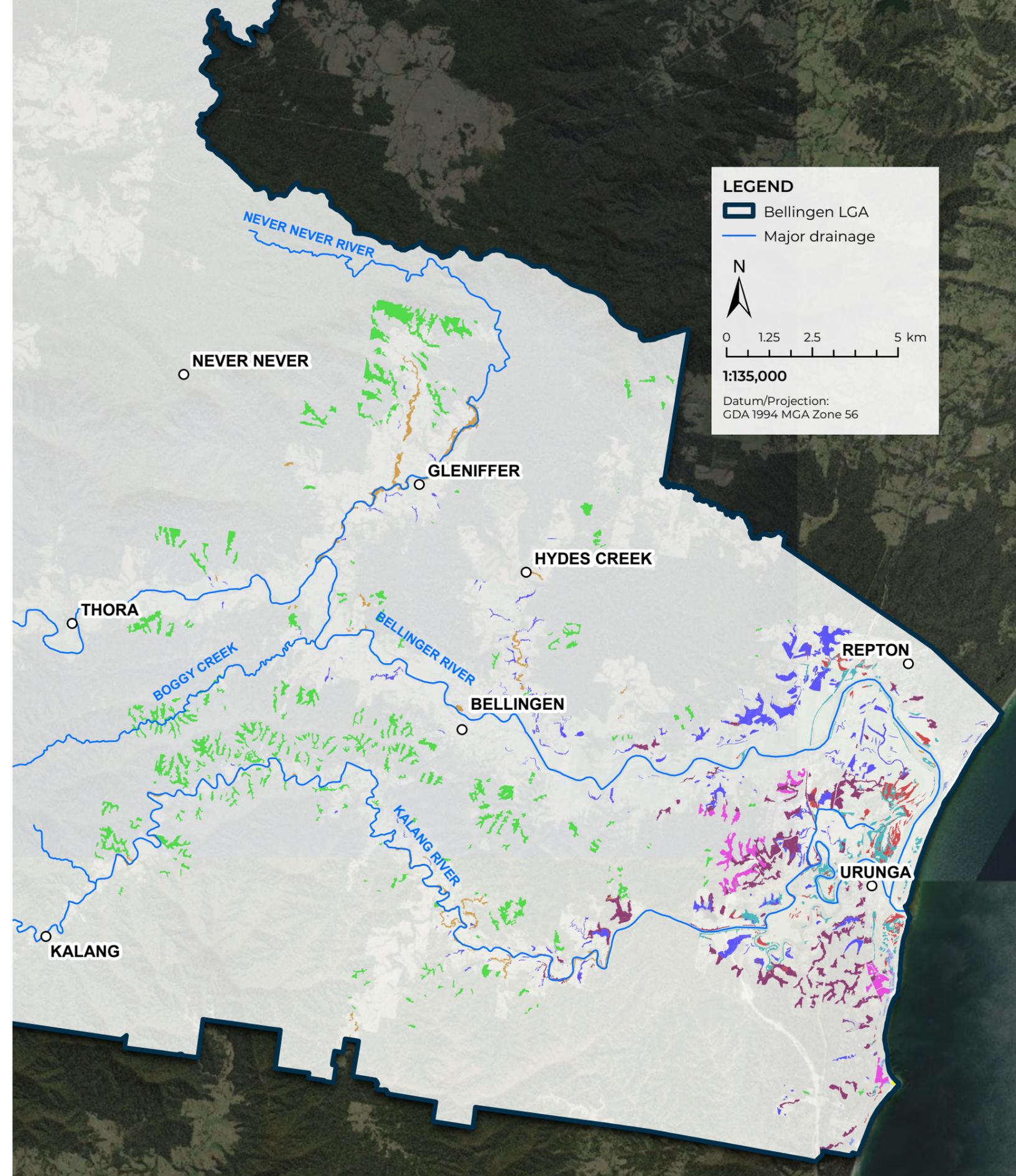
Southern Pink Underwing Moth
(*Phyllodes imperialis southern subspecies*)
3rd instar larvae on food plant
Carronia multisepelea
Photo: Peter Richards

THREATENED ECOLOGICAL COMMUNITIES

There are nine Threatened Ecological Communities (TECs) mapped in Bellingen Shire. They occur on coastal hills, within floodplains, near gullies rivers and creeklines, adjacent to freshwater and coastal lagoons, on sand dunes and islands, as well as headlands within Bellingen.

Area of Threatened Ecological Communities in Bellingen

LIKELY THREATENED ECOLOGICAL COMMUNITIES	NSW LISTING	COMMON-WEALTH LISTING	AREA (ha)	MAP COLOUR
Coastal Saltmarsh in the NSW North Coast, Sydney Basin and South East Corner bioregions	✓	✓	129	Red
Freshwater Wetlands on Coastal Floodplains of the NSW North Coast, Sydney Basin and South East Corner bioregions (floodplain only)	✓	✗	432	Blue
Littoral Rainforest in the NSW North Coast, Sydney Basin and South East Corner bioregions	✓	✓	29	Light Blue
Lowland Rainforest in the NSW North Coast and Sydney Basin bioregions	✓	✓	943	Green
Lowland Rainforest on Floodplain in the New South Wales North Coast Bioregion (floodplain only)	✓	✓	209	Brown
Subtropical Coastal Floodplain Forest of the NSW North Coast bioregion floodplain only)	✓	✗	131	Pink
Swamp Oak Floodplain Forest of the NSW North Coast, Sydney Basin and South East Corner bioregions	✓	✓	209	Teal
Swamp Sclerophyll Forest on Coastal Floodplains of the NSW North Coast, Sydney Basin and South East Corner bioregions (floodplain only)	✓	✗	434	Purple
Themeda Grassland on Seacliffs and Coastal Headlands in the NSW North Coast, Sydney Basin and South East Corner bioregions	✓	✗	1	Yellow
Total			2,685	



Threatened Ecological Communities

THREATENED SPECIES

Bellingen Shire is a recognised biodiversity hotspot, with 128 threatened and migratory species (87 fauna, 27 flora, and 14 migratory – 2019), within the LGA.

Umbrella species are species important for making conservation related decisions, as protecting these species may indirectly protect many other species that share its habitat.

Some umbrella species of threatened fauna are:

Koala

Significant Koala populations are present, and the Bellingen Shire Coastal Area Koala Management Strategy seeks to manage the long-term sustainability and recovery of Koalas and their habitat. Threats to Koalas include clearing and fragmentation of habitat, attacks from domestic animals such as dogs, vehicle strikes, extreme weather events and disease.

Oxleyan Pygmy Perch

The Oxleyan Pygmy Perch is a threatened fish found in the Bellingen Shire. Protection of remaining habitat is a priority to ensure survival of the species. Current threats include sedimentation, poor water quality, predation, competition from introduced and loss of riparian vegetation.

Bellingen River Snapping Turtle

The Critically Endangered Bellingen River Snapping Turtle is endemic to the Bellingen Catchment, being known only from this single river catchment. The Bellingen River Snapping Turtle is a site-managed species under the *Saving our Species* program.



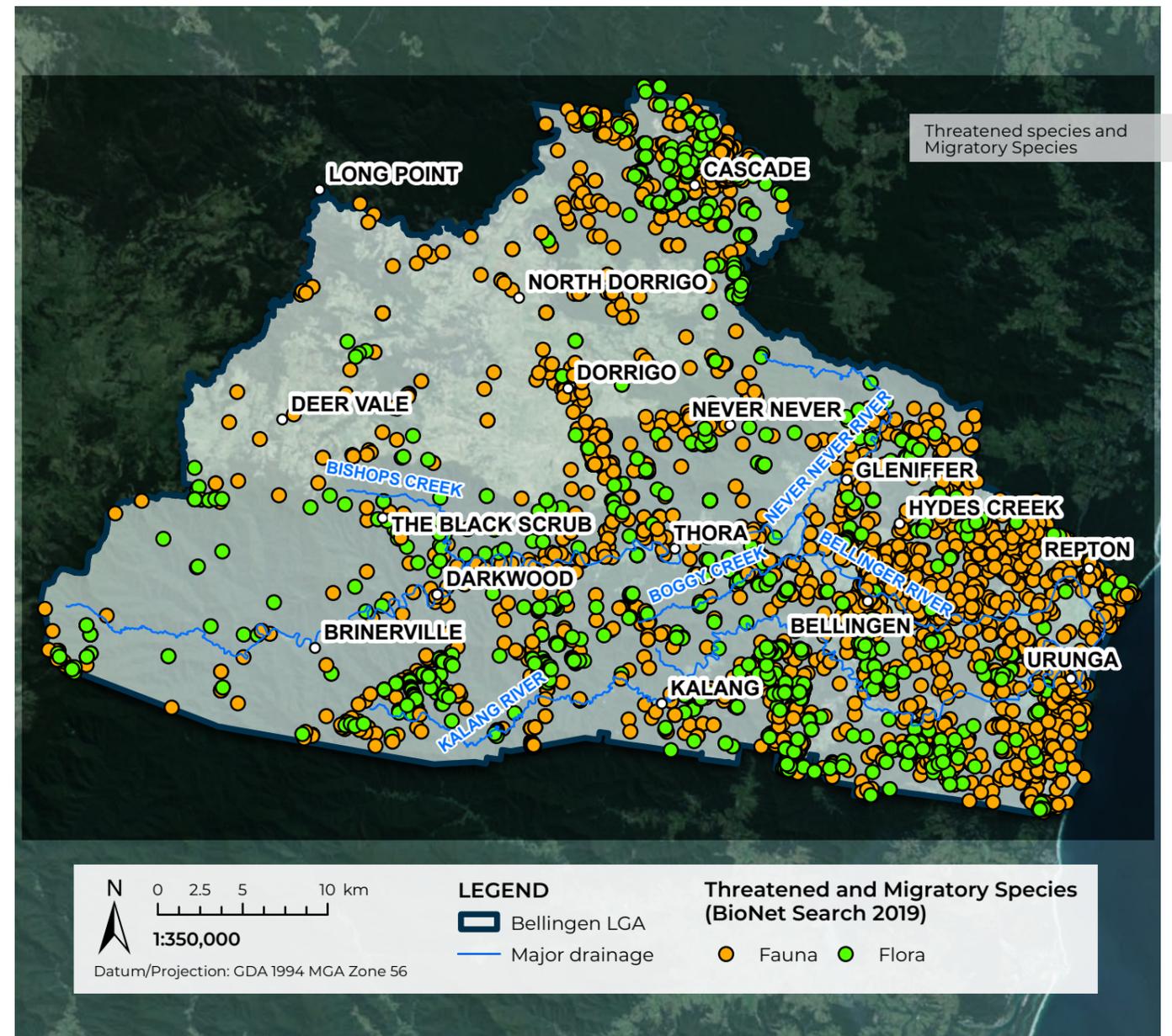
Bellingen River Snapping Turtle
Photo: Paul Fahy (courtesy of NSW DPIE)



Grey-headed Flying Fox
Photo: Lachlan Copeland

Grey-headed Flying-fox

The Bellingen Island Grey-headed Flying-fox camp is a nationally important roosting camp deemed critical to the species' survival. The Bellingen Island Grey-headed Flying-fox Camp Management Plan seeks to both ensure their conservation and to manage current and potential issues associated with this camp.



There are 56 NSW listed threatened fauna species in the Bellingen Shire:

Threatened Fauna Species (BioNet 2019)

THREATENED FAUNA	STATUS
Beach-stone Curlew	Critically Endangered
Black-necked Stork	Endangered
Little Tern	Endangered
Pied Oystercatcher	Endangered
Purple Spotted Gudgeon	Endangered (FM Act)
Australian Fur Seal	Vulnerable
Black Bittern	Vulnerable
Blue-billed Duck	Vulnerable
Brolga	Vulnerable
Brush-tailed Phascogale	Vulnerable
Comb-crested Jacana	Vulnerable
Common Planigale	Vulnerable
Diamond Firetail	Vulnerable
Dusky Woodswallow	Vulnerable
Eastern Bentwing-bat	Vulnerable
Eastern Cave Bat	Vulnerable
Eastern False Pipistrelle	Vulnerable
Eastern Freetail-bat	Vulnerable
Eastern Grass Owl	Vulnerable
Eastern Long-eared Bat	Vulnerable
Eastern Osprey	Vulnerable
Eastern Pygmy Possum	Vulnerable
Glandular Frog	Vulnerable
Glossy Black-Cockatoo	Vulnerable
Golden-tipped Bat	Vulnerable
Greater Broad-nosed Bat	Vulnerable
Green-thighed Frog	Vulnerable
Grey-crowned Babbler (eastern subspecies)	Vulnerable
Little Bentwing-bat	Vulnerable
Little Eagle	Vulnerable
Little Lorikeet	Vulnerable
Mangrove Honeyeater	Vulnerable
Masked Owl	Vulnerable
New Zealand Fur-seal	Vulnerable

THREATENED FAUNA	STATUS
Olive Whistler	Vulnerable
Parma Wallaby	Vulnerable
Pouched Frog	Vulnerable
Powerful Owl	Vulnerable
Red-legged Pademelon	Vulnerable
Rose-crowned Fruit Dove	Vulnerable
Rufous Scrub-bird	Vulnerable
Scarlet Robin	Vulnerable
Sooty Owl	Vulnerable
Sooty Oystercatcher	Vulnerable
Southern Myotis	Vulnerable
Spagnum Frog	Vulnerable
Square-tailed Kite	Vulnerable
Squirrel Glider	Vulnerable
Stephens' Banded Snake	Vulnerable
Superb Fruit Dove	Vulnerable
Varied Sitella	Vulnerable
Wallum Froglet	Vulnerable
White-bellied Sea-Eagle	Vulnerable, Aust Marine
Wompoo Fruit-Dove	Vulnerable
Yellow-bellied Glider	Vulnerable
Yellow-bellied Sheath-tail-bat	Vulnerable

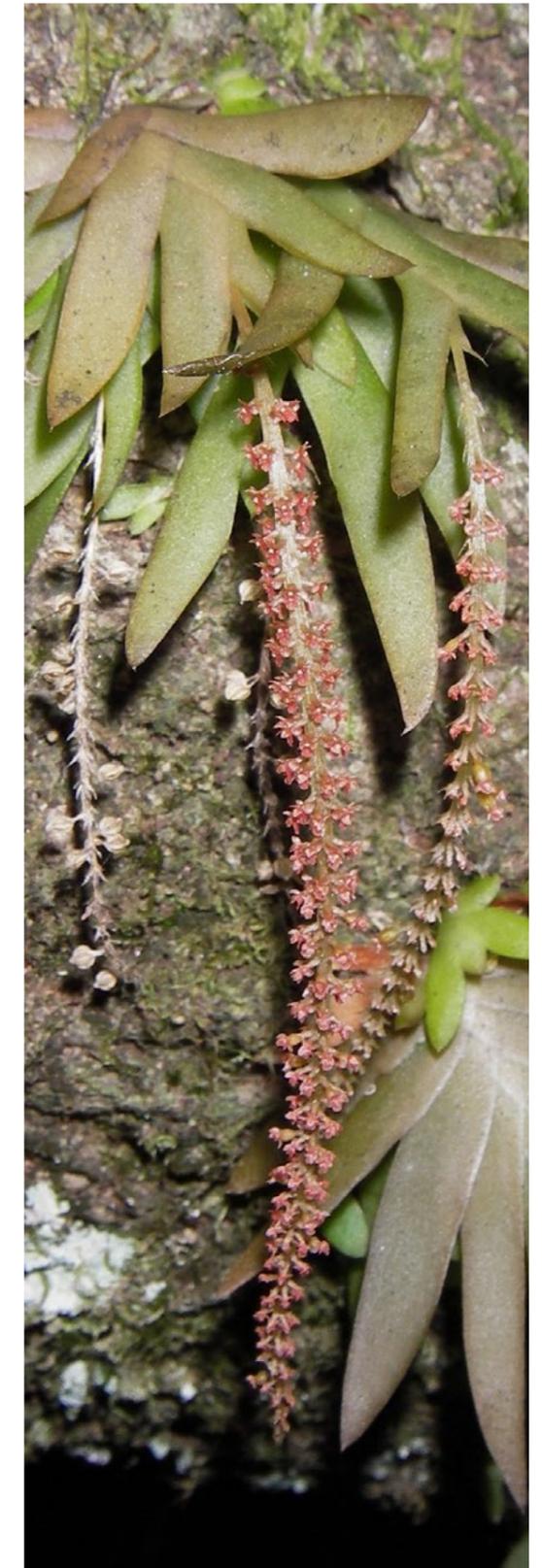


Beach stone curlew
Photo: Lachlan Copeland

There are 27 threatened flora species in the Bellingen Shire

Threatened Flora Species (OEH, 2014, BioNet 2019)

SCIENTIFIC NAME	COMMON NAME	STATUS
<i>Gingidia rupicola</i>		Endangered NSW, Australia
<i>Marsdenia longiloba</i>	Slender Marsdenia	Endangered NSW, Vulnerable Australia
<i>Parsonsia dorrigoensis</i>	Milky Silkpod	Vulnerable NSW, Endangered Australia
<i>Typhonium sp. aff. brownii</i>	Stinky Lily	Endangered NSW
<i>Neostelia spectabilis</i>	Silver Sword Lily	Vulnerable NSW, Australia
<i>Olearia flocktoniae</i>	Dorrigo Daisy Bush	Endangered NSW, Australia
<i>Gaultheria viridicarpa</i>	Green Waxberry	Endangered NSW
<i>Gaultheria viridicarpa subsp. viridicarpa</i>	Green Waxberry	Vulnerable NSW, Australia
<i>Senna acclinis</i>	Rainforest Cassia	Endangered NSW
<i>Sophora tomentosa</i>	Silverbush	Endangered NSW
<i>Acacia chrysotricha</i>	Newry Golden Wattle	Endangered NSW
<i>Kardomia silvestris</i>	Woodland Babingtonia	Endangered NSW
<i>Rhodamnia rubescens</i>	Scrub Turpentine	Critically Endangered NSW
<i>Rhodomyrtus psidioides</i>	Native Guava	Critically Endangered NSW
<i>Dendrobium melaleucaphilum</i>	Spider orchid	Endangered NSW
<i>Oberonia titania</i>	Red-flowered King of the Fairies	Vulnerable NSW
<i>Sarcochilus fitzgeraldii</i>	Ravine Orchid	Vulnerable NSW, Australia
<i>Arthraxon hispidus</i>	Hairy Jointgrass	Vulnerable NSW, Australia
<i>Hicksbeachia pinnatifolia</i>	Red Boppel Nut	Vulnerable NSW, Australia
<i>Acronychia littoralis</i>	Scented Acronychia	Endangered NSW, Australia
<i>Boronia umbellata</i>	Orara Boronia	Vulnerable NSW, Australia
<i>Niemeyera whitei</i>	Rusty Plum, Plum Boxwood	Vulnerable NSW
<i>Alexfloydia repens</i>	Floyd's Grass	Vulnerable NSW
<i>Maundia triglochoides</i>		Vulnerable NSW
<i>Tasmannia glaucifolia</i>	Fragrant Pepperbush	Vulnerable NSW, Australia
<i>Parsonsia dorrigoensis</i>	Milky Silkpod	
<i>Peristeranthus hillii</i>	Brown Fairy Chain Orchid	Vulnerable NSW



Oberonia titania
(Red-flowered King of the Fairies)
Photo: Lachlan Copeland

HABITAT AND CONNECTIVITY

Habitat is the natural home or environment where an organism lives and occur across all tenures. Examples of habitat available in the Bellingen Shire include:

- a wide diversity of extensive vegetation communities including rainforests, forests, woodland, heath and grasslands
- hollow bearing trees and stags
- waterways, including lagoons, wetlands and dams
- river banks, estuaries, and foreshores including rock platforms, reefs, rock pools, mud and sand
- dense shrubs, grasses and marshes
- mangroves and saltmarshes
- leaf litter and logs
- built structures such as stormwater culverts and bridges that may have secluded niches
- diverse and healthy soil biota

Existing key habitats for threatened ecological communities and umbrella fauna species in the Shire have been mapped and ranked into three categories:

Core Habitat

14,532 ha

- Threatened Ecological Communities mapped
- Koala Habitat Preferred Mapping
- Grey Headed Flying Fox (GHFF) camps
- Potential distribution of Eastern Freshwater Cod, Purple Spotted Gudgeon and Oxleyan Pygmy Perch

Significant Habitat

110,722 ha

- Native vegetation

Supporting Habitat

23,918 ha

- Non-native vegetation

These are small but important areas, with core habitat as the most important, however all habitats support 'natural' function within the landscape.

Connectivity and Corridors

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

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

Regional-scale corridors have been mapped by the Climate Change Corridors project for Coastal North East NSW, (DEC 2007, data updated 2019). Habitat connectivity within Bellingen ranges from very poor to excellent (SOE 2016).

Green Spaces

Excellent connectivity corresponds closely to areas of National Parks, Nature Reserves and Forestry which extend from the south-west region of the Bellingen LGA in the New England National Park, through the Bellinger River National Park and the Dorrigo National Park in the central and north.

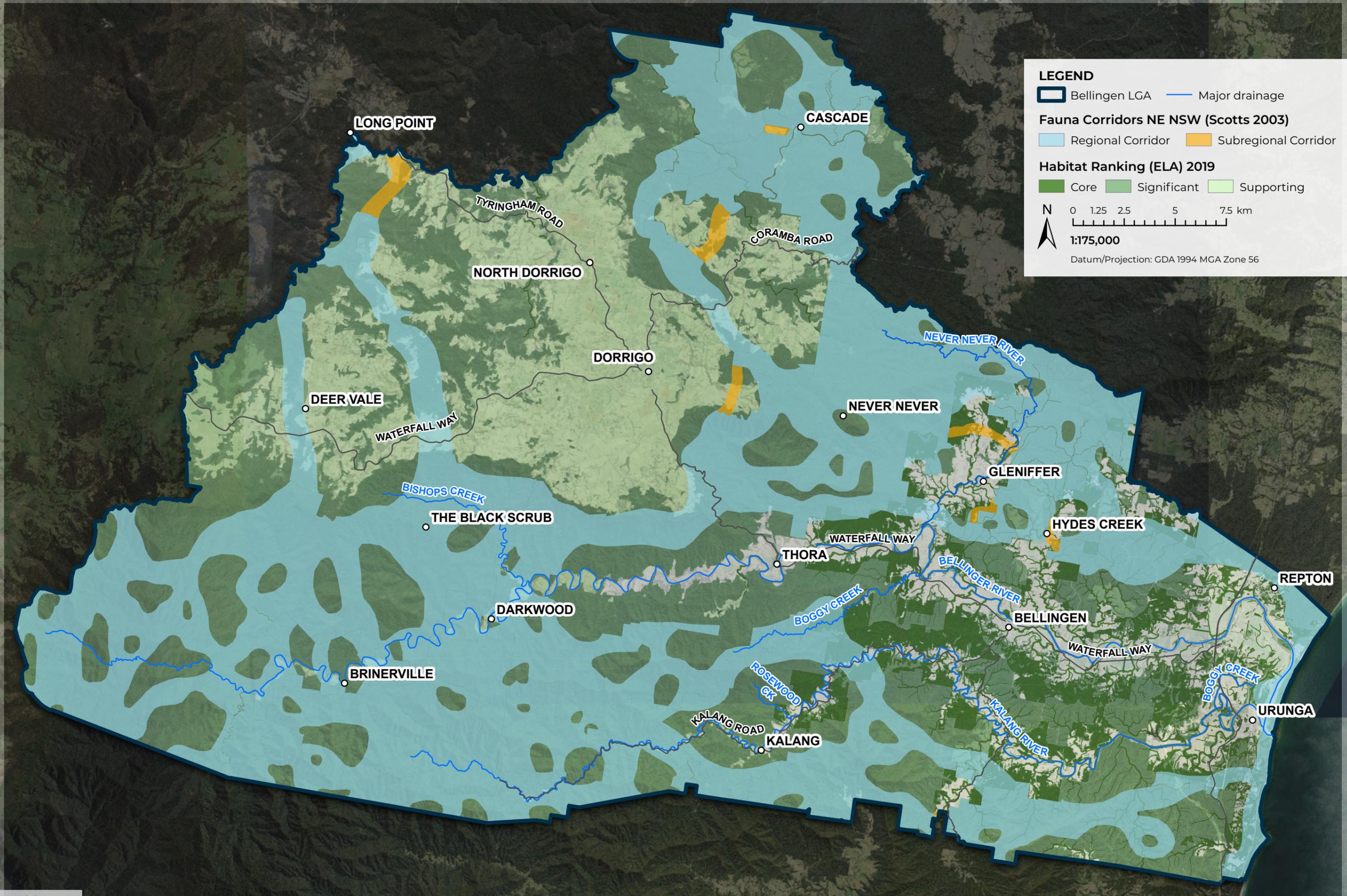
Bellingen Shire manages 206 hectares of parks, open spaces and reserves.



Caladenia dorrigenis (Spider Orchid)
Photo: Lachlan Copeland



Greater Glider
Photo: Lachlan Copeland



THREATS TO BIODIVERSITY

The Bellingen Shire landscape is diverse and supports a rich array of ecological values, supporting a high level of biodiversity. The biggest historic threat to fauna has been habitat loss and fragmentation within the coastal valley systems; with Koala populations in the Bellingen Shire identified as being at being at risk from habitat fragmentation and reduced habitat connectivity.

Threats to Bellingen's rich biodiversity can be complex, interconnective and widespread or localised to a specific environment that supports vulnerable species. Threats include:

Global climate change

Potential impacts of climate change on biodiversity in the Bellingen LGA include sea level rise inundating coastal vegetation habitats, destruction of habitats through extreme weather events, impacts of increased storm events on river bank vegetation, and the exacerbation of weed invasion from changed temperature and moisture regimes.

Logging

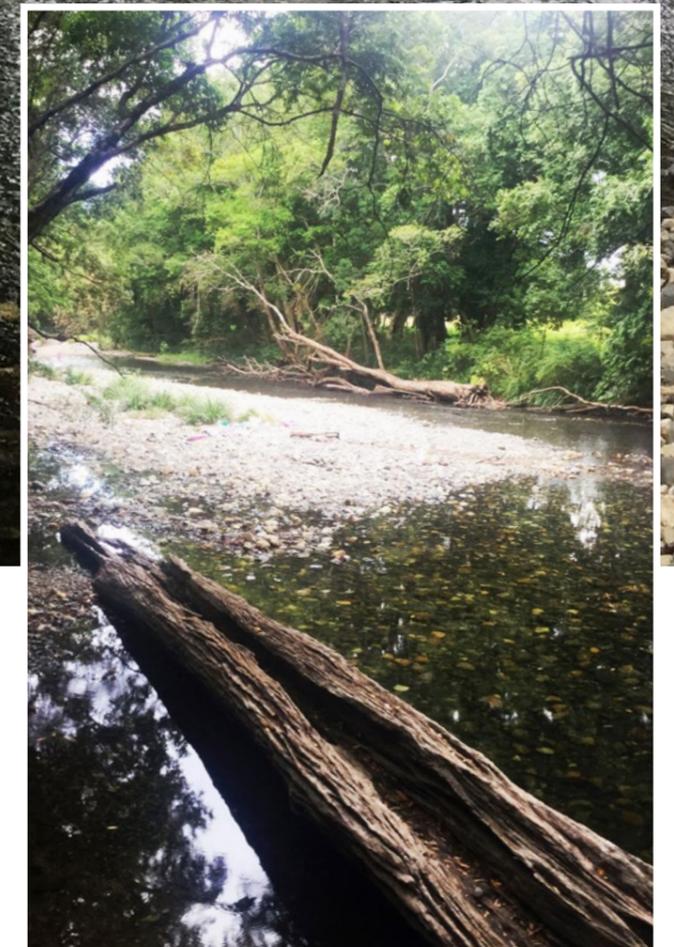
The threat to biodiversity created by logging includes loss of high conservation value forest ecosystems. Loss of carbon sequestered within forests due to logging contributes to release of carbon and impacts of climate change. 32% of green space in Bellingen Shire is zoned Forestry.

Weed invasion

Weed invasion is a major threat to biodiversity across many of the landscapes in Bellingen including along river corridors and in river valleys, wetlands, islands and coastal dune areas. Weed invasion is a significant and pervasive threat for Bellingen's native vegetation.

Edge effects

Edge effects due to weed invasion are a major threat to native vegetation along the riparian zones of Bellingen and Kalang Rivers and coastal wetland habitats.



Earl Preston Reserve, Gleniffer
Photos: Liz Brown



Bellingher River
Photo: Liz Brown

Increased runoff, nutrients, erosion and sediment

Aquatic systems are impacted by clearing of vegetation for agriculture and settlement. Impermeable surfaces in the towns of Bellingen, Urunga and Dorrigo (including roads, car parks, paving and the roofs of buildings) increases the velocity and amount of stormwater runoff entering river systems, creeks and drainage lines.

Water pollution

Stormwater polluted with litter, chemicals such as pesticides and oils, nutrients and sediment enter creekline and estuarine ecosystems with a corresponding reduction in aquatic biodiversity.

Extreme or altered bush fire regimes

Fire regimes have a crucial role in the life cycle in many of Bellingen Shire's vegetation communities by stimulating the release or germination of seeds, however, areas of bushland that are burnt too frequently will result in the loss of native species richness. Extreme fire events have catastrophic effects on wildlife.

Feral animals and domestic pets

Predation, disturbance and destruction of habitat by foxes, rabbits, pigs, cats and dogs has contributed to the significant decline and extinction of mammals,

amphibians and reptiles including the Hastings River Mouse, Long-nosed Potoroo, Giant-barred frog and Loggerhead Turtle. Predation by foxes of Bellingher River Snapping Turtle nesting females and nests have impacted on the recovery of the species.

Bell Miner assisted dieback

Many forests in Bellingen are currently in good condition, not greatly affected by Bell Miner associated dieback, however the disturbance caused by logging and associated heavy machinery may lead to Bell Miner invasion and subsequent dieback.

Development and infrastructure

Development and infrastructure works in parks or reserves can impact native vegetation communities through clearing and disturbance.

Disease

Disease and infection have been identified as a significant threat to vulnerable flora and fauna species in the Bellingen area. Populations of species such as Koala, Grey-headed Flying-fox, Bellingher River Snapping Turtle, fish and native plant communities have been greatly impacted in the past.

OPPORTUNITIES

Council has a unique opportunity to enhance biodiversity within Bellingen Shire through:

Council strategic planning and improving connectivity and habitat

Existing and future strategic planning is a key mechanism to provide the necessary framework and funding to protect and improve biodiversity.

One of the overarching goals for biodiversity in Bellingen is the enhancement and connectivity of remnant vegetation and fragmented habitat in the valley floors. Improving connectivity for key vulnerable species, such as the Koala, requires a multifaceted approach due to the fragmentation and clearing of remaining habitat.

The Biodiversity Strategy, Local Environmental Plan (LEP), Development Control Plan (DCP), Plans of Management, Coast and other Management Plans are key mechanisms to implement controls for protection and enhancement of native habitat to effectively improve connectivity in Bellingen Shire.

Climate Change Adaptation Change Model for Biodiversity

The North Coast Enabling Regional Adaptation Plan (Adapt NSW, 2019) promotes a new model for adaptation to promote biodiversity conservation:

'Ecosystem management embraces new approaches to technological and policy innovation, research and development, bio-technology use, and environmental engineering.'

Sustainable agriculture and forestry

Continued incentives by Council for landowners to move towards more sustainable farming and private forestry practices will reduce stress on ecosystems and help to restore water quality. This can be achieved through the collaboration between council, landowners and Landcare groups.

Fauna corridors and habitat enhancement

There are a number of opportunities to better connect habitats within Bellingen LGA. Corridors and habitat connectivity are recurring themes in the *BSC Koala Coastal Area Management Strategy* and the *Saving our Species* program for a numerous threatened species of fauna within the Shire.

Support for Landcare and groups

Bellingen is fortunate to have many active Landcare groups, consisting of highly motivated and experienced individuals offering the opportunity for landowners to learn from peers about management of biodiversity on their land. Landcare groups also actively manage weed control and native revegetation works on Council-managed lands.



Rainbow Bee-eater
Photo: Lachlan Copeland



Powerful Owl
Photo: Lachlan Copeland

Reducing runoff and nutrients

The run-off and nutrients entering creeks, rivers and estuaries can be reduced by mitigation measures such as:

- increasing the extent of healthy riparian vegetation
- improving river bank works and processes
- sustainable management of domestic sewage and wastewater
- improved stormwater management
- decreasing impacts from road runoff and scouring from rural roads and bridges
- improving logging and clearing practices and improved management of oil spills.

School and community education

Council has experienced significant success through their Sustainability Schools Network, which provide educational resources for educators, students and the community. Bellingen Shire Council has had significant community support for events, such as the National Tree Day, Schools Tree Day and Clean Up Australia Day. These programs should continue to be supported and new initiatives developed.

Protection of high profile / 'umbrella' species

The Great Koala National Park proposed by the National Parks Association is an opportunity to secure the habitat of a wild Koala populations in NSW, especially for Koalas on the Dorrigo Plateau. The critically endangered Bellingher River Snapping Turtle is endemic to the Bellingher River and prefers habitats with moderate to deep pools with a rock substrate; habitat protection and the *Saving our Species* program are critical in the preservation of the species.

Saving our Species (NSW Government)

Using a systematic scientific approach, the *Saving our Species* program, prioritises and targets projects based on the risk of extinction of species, populations and ecological communities.

Key management sites in the Bellingen Shire

Proposed and active priority management sites under the *Saving our Species* Program aim to secure threatened species, populations and ecological communities from the risk of extinction. This program is led by the NSW Government, with Council and the community as key partners.



Powerful Owl (fledgling)
Photo: Lachlan Copeland

Key Management Sites

SITE NAME	THREATENED SPECIES	SITE TYPE
Dorrigo area	Dorrigo Daisy Bush (<i>Olearia flocktoniae</i>)	Priority management site
Point Lookout	Fragrant Pepperbush (<i>Tasmannia glaucifolia</i>)	Priority management site
New England National Park Escarpment	Green Waxberry (<i>Gaultheria viridicarpa</i> subsp. <i>viridicarpa</i>)	Priority management site
Wild Cattle Creek	Woodland Babingtonia (<i>Kardomia silvestris</i>)	Priority management site
Dorrigo National Park	Woodland Babingtonia (<i>Kardomia silvestris</i>)	Priority management site
Jaaningga Nature Reserve	Newry Golden Wattle (<i>Acacia chrysotricha</i>)	Priority management site
Nymboida River	Creek Triplarina (<i>Triplarina imbricata</i>)	Priority management site
Little Murray Lookout	Silver Sword Lily (<i>Neoastelia spectabilis</i>)	Priority management site
Ambleside	Silver Sword Lily (<i>Neoastelia spectabilis</i>)	Priority management site
Bongil Bongil National Park	Square-stemmed Spike-rush (<i>Eleocharis tetraquetra</i>)	Priority management site
Brinerville	Rainforest Cassia (<i>Senna acclinis</i>)	Priority management site
Bellingher Drainage Area	Bellingher River Snapping Turtle (<i>Myuchelys georgesii</i>)	Priority management site
Tuckers Rocks to Bonville Creek	Littoral Rainforest in the New South Wales North Coast, Sydney Basin and South East Corner Bioregions (Littoral Rainforest in the New South Wales North Coast, Sydney Basin and South East Corner Bioregions)	Priority management site
Bellingen, Coffs Harbour, and Bongil Bongil National Park	Koala (<i>Phascolarctos cinereus</i>)	Priority management site
North Macleay - Nambucca	Koala (<i>Phascolarctos cinereus</i>)	Priority management site
Point Lookout	Gingidia rupicola (<i>Gingidia rupicola</i>)	Priority management site
NSW Eastern Slopes and Ranges	Stuttering Frog (<i>Mixophyes balbus</i>)	Contributing site (funding opportunity)
NSW coast North of Sydney	Green Turtle (<i>Chelonia mydas</i>)	Contributing site (funding opportunity)
NSW coast North of Sydney	Loggerhead Turtle (<i>Caretta caretta</i>)	Contributing site (funding opportunity)
NSW North Coast	Lowland Rainforest in the NSW North Coast and Sydney Basin Bioregions (Lowland Rainforest in the NSW North Coast and Sydney Basin Bioregions)	Priority management site
NSW Coast	Little Tern (<i>Sternula albifrons</i>)	Priority management site

STAKEHOLDER CONSULTATION: VISION FOR THE NEXT 20 YEARS

Community and Stakeholder views are central to promoting awareness of Bellinghen's biodiversity values, identifying biodiversity enhancement opportunities and potential priority projects, areas of high community recreational use and relevant iconic species.

Eco Logical Australia prepared a Community Engagement Strategy to obtain the views of Councillors, community and key stakeholders. Below are the main findings.

- 94% of respondents live in Bellinghen LGA, 2/3 were above the age of 46 and 3% identified as Aboriginal
- awareness of and most involvement with three projects/groups rating the highest were Bellinger Landcare Inc, Bellinger Environment Centre and Bellinger Riverwatch
- 60% use Bellinghen Shire's open space and bushland areas more than once a week, with a further 21% using the resources weekly
- the top five natural areas visited were Dorrigo Mountain and National Park, Bellinger River foreshore (Lavenders Bridge), Gleniffer and Never Never Reserves, Urunga beach foreshore and Hungry Head beach foreshore
- the most popular activity within Bellinghen Shire's natural areas (bushland, beaches, waterways) was walking/hiking/jogging, followed by swimming and family events
- all the set of actions to enhance and protect Bellinghen Shire's biodiversity were rated extremely important by most respondents
- protecting threatened vegetation communities and creating and enhancing river foreshore and bushland were actions which rated the highest as extremely important
- 41% rated providing natural areas for recreation opportunities as extremely important
- the biggest threat to Bellinghen Shire's natural environment was reported to be clearance of vegetation, followed by weed invasion of bushland, climate change and pest animals (such as foxes, Indian Myna birds, feral cats and dogs)

"Bellinghen Shire be the leading Biodiversity Conservation Shire in Australia."

"Encourage industries which will respect the environment as a number one priority. Follow the dictates of science in planning, not money."

"I wish that we could protect and enhance our natural environments to ensure the persistence of our threatened species such as the Koala."

"The rivers are clean, flowing and teeming with native life."

"I'd like to see the Great Koala National Park go ahead. I'd like to see logging in the Tarkeeth and forests surrounding Bellinghen stopped. I'd like to see the health of the Bellinger, Never Never and Kalang Rivers better understood by local people and active participation in looking after the health of these systems."

"A far better understanding by the community at large of the importance of biodiversity in an ecosystem, leading to an improved desire to conserve the treasures Bellinghen Shire has."

"My vision is to experience the natural environment in a way which is similar to what our first nation's people experienced before European settlement ... because I wonder what that would be like"

"I'd like to see more trees and better health in the rivers. More trees/bush creates diversity as it allows the natural ecosystems to take place. It's so important for not only animals but humans as well. We are all part of this world and need to take care of it."



ACTION PLAN

The Action Plan has been developed to conserve Bellingen Shire's species, populations and communities of native flora and fauna.

Seven key focus areas include:

- working respectfully with land custodians
- protecting, managing and restoring native vegetation
- restoring and conserving river systems, wetlands, riparian land, coastal and estuarine health
- enhancing landscape linkages of corridors and connectivity
- managing public spaces to promote biodiversity and community interaction
- protecting habitat and managing biodiversity in the across the landscape
- preserving species and maintaining habitats of high profile threatened species and provision of education about threats and opportunities for biodiversity programs in Bellingen.

Within the actions across the seven Key Focus Areas, Council will engage in ongoing Aboriginal consultation on biodiversity and cultural matters/projects with Gumbaynggirr custodians.

Actions from the Biodiversity Strategy have been integrated into Council's operational and delivery plans. The success of the strategy is dependent on budget and resources to implement the actions.

Priority actions

High to commence within first year of the plan for completion within 5 years

Medium to commence within first three years of the plan for completion within 7 years

Calanthe triplicata
(Christmas Orchid)
Photo: Lachlan Copeland

Key Focus Area 1: Juungambala and Caring for Country: building a living agreement with Gumbaynggirr custodians

Juungambala is about building a living agreement with Gumbaynggirr people and working towards peace together through building mutual understanding and respect.

OBJECTIVE: Engage in Juungambala and Caring for Country	PRIORITY
KFA 1.1 Council to engage in Juungambala led by Gumbaynggirr custodians – Juungambala is about building a living agreement with Gumbaynggirr people and working towards peace together through building mutual understanding and respect.	High
KFA 1.2 Investigate opportunities to better understand develop and foster connection to the landscape.	Medium
KFA 1.3 Discuss cultural mapping projects, or exploring songlines with Gumbaynggirr community.	Medium
KFA 1.4 Consult on a regular basis with all relevant Local Aboriginal Land Councils within the Bellingen LGA regarding environmental planning and biodiversity.	High



Rainforest Dorrig National Park
Photo: Mick Phil



Root erosion Earl Preston Reserve
Photo: Liz Brown

Key Focus Area 2: Native Vegetation

Native vegetation provides habitat for plants and animals and is the cornerstone of biodiversity and ecosystem processes across the Bellingen Shire. This includes forests, rainforests, wetlands, marshes, heathlands and grasslands that provide structurally complex habitat elements.

OBJECTIVE: Protecting, managing and restoring Bellingen's native vegetation	PRIORITY
KFA 2.1 Endeavour to protect and conserve 100% of native vegetation in Council reserves.	High
KFA 2.2 Improve vegetation within core habitat areas that are considered to have opportunities for connectivity.	Medium
KFA 2.3 Retain the maximum amount of native vegetation across future development growth, infrastructure and high impact landuse zones.	High
KFA 2.4 Roll-out biodiversity education for residents and Council staff.	Medium
KFA 2.5 Maintain and improve the condition of vegetation in Council reserves.	High

Key Focus Area 3: Waterways

Healthy rivers support environmental, social, cultural and economic practices in equilibrium. Human activities should maintain and preserve riverine and riparian ecological values. The Bellinger and Kalang river systems are focal points for communities within the Bellingen Shire, and the community seeks to enhance riparian and aquatic habitat values and water quality.

OBJECTIVE: Managing and conserving river systems, wetlands, riparian land, coastal and estuarine health	PRIORITY
KFA 3.1 Measurable improvement in water quality across Bellingen waterways.	High
KFA 3.2 Protect foreshores, coastal lagoons, significant wetlands and Coastal Saltmarsh.	High
KFA 3.3 Restore the ecological function of high priority waterways and wetlands.	High
KFA 3.4 Develop education workshops, programs and to engage schools, community groups and residents to establish a sense of ownership and participation and restoring the biodiversity along rivers and coastal foreshores.	High

Key Focus Area 4: Corridors and Connectivity

Corridors connect larger habitat patches allowing movement of species and/or genetic interchange among native flora and fauna, thereby maintaining biodiversity across the landscape. It is important that linkages are recreated to support the movement of flora and fauna in a biodiverse landscape.

OBJECTIVE: Enhancing landscape linkages	PRIORITY
KFA 4.1 Measurable increase in connectivity within reserves.	High
KFA 4.2 Increase in numbers and density of trees, shrubs and understorey across BSC.	Medium
KFA 4.3 Measurable increase in habitat coverage within and adjacent to corridors.	High

Key Focus Area 5: Public Spaces

Public reserves are a focal point for biodiversity management, places of rest and recreation for the community; and support areas of vegetation in the LGA. They provide opportunities for enhancing habitat for native flora and fauna. Community interaction and volunteer programs provide extensive support to local and state agencies through the provision of weed control and revegetation programs, educational activities and species monitoring.

OBJECTIVE: Managing our reserves to promote biodiversity and community interaction	PRIORITY
KFA 5.1 Actions identified in Plans of Management for reserves and the Biodiversity Strategy are implemented.	High
KFA 5.2 All recreational activities in reserves are compliant with biodiversity protection and increase people's interaction with nature.	High

Key Focus Area 6: Habitat

Healthy habitats are biologically diverse and provide economic, ecological, recreational, cultural and scientific benefits. Biodiversity connects people with nature and the Bellingen Shire community has a strong connection with the environment. Council and its current and future residents have a responsibility for stewardship of biodiversity, its management and protection. Council will engage with Aboriginal Gumbaynggirr Custodians on biodiversity and culture.

OBJECTIVE: Protecting and managing biodiversity across the landscape	PRIORITY
KFA 6.1 Maintain and improve native species richness of flora and fauna in Council reserves.	Medium
KFA 6.2 Decrease in populations of pest fauna species in reserves.	High
KFA 6.3 Ensure weed density is managed in core habitat areas to ensure protection of significant areas in Council reserves.	High
KFA 6.4 Establish and implement monitoring of condition and values within critical habitat areas.	Medium
KFA 6.5 Increase support of Landcare groups and community programs that educate about biodiversity.	High
KFA 6.6 Increase biodiversity habitat & protection on private land.	High

Key Focus Area 7: Species Preservation

Species preservation within Bellingen is fundamental to ensuring the preservation of unique biodiversity. Initiatives aimed at high profile threatened populations and habitats, strive to educate and manage the long-term sustainability of species and their habitat to create a healthy living environment.

OBJECTIVE: Protecting and maintaining habitats of high profile threatened species and provision of education about threats and opportunities for biodiversity programs in Bellingen	PRIORITY
KFA 7.1 Protect and maintain habitats and protect high profile species in the Bellingen Shire.	High
KFA 7.2 Increased community involvement in biodiversity education.	Medium
KFA 7.3 Improve Council performance in biodiversity conservation.	Medium
KFA 7.4 Increased Council knowledge and partnerships for biodiversity conservation.	High



Dandarrga Landcare Group revegetation project
Photo: Anne Stanton (Dandarrga Landcare)



Dorrigo Landcare Group, The Glade
Photo: Anne Stanton (Dandarrga Landcare)



Murrays Skink
Photo: Lachlan Copeland



Southern Pink Underwing Moth caterpillars at 5th instar (developmental stage)
Photo: Dave Britton

MONITORING, REVIEW AND REPORTING

The Biodiversity Strategy outlines the priority projects and services to be delivered to the Bellingin community. It is essential that the strategy's actions are monitored and reviewed to determine if they are meeting the strategic and specific objectives.

The Action Plan should be reviewed and updated by council every five years and the Biodiversity Strategy reviewed and updated every ten years.

The seven key focus areas (KFA's) in the Action Plan are linked to Council's Service Commitment under the Our Living Environment priority in the Shire of Bellingin's 2027 Community Vision.

As such, these KFA's will be planned for in Council's 4 year Delivery Program and annual Operational Plan, and reported on in Council's Annual reports.

Community Vision: OUR LIVING ENVIRONMENT SERVICE COMMITMENT

- We have clean water which is protected and used sustainably – **KFA3**
- Our surroundings are quiet and clean – **KFA5**
- We reduce, reuse and recycle – **KFA5**
- We live sustainably and reduce our ecological footprint and contribution to climate change – **KFA5, KFA6, KFA7**
- We protect and enhance our biodiversity – **KFA2, KFA6, KFA7**
- We work together to protect and enhance our environment – **KFA1, KFA2, KFA3, KFA4, KFA5, KFA6, KFA7**





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