

City of Ipswich

Nature Conservation Strategy

2015



IPSWICH CITY COUNCIL'S FLORA AND FAUNA EMBLEMS

Plunkett Mallee *Eucalyptus curtisii*

The Plunkett Mallee *Eucalyptus curtisii* is the Ipswich City Council floral emblem. This small growing eucalypt occurs in scattered populations throughout South-East Queensland.

In Ipswich, natural populations occur in Dinmore, Collingwood Park and the White Rock area.

It was selected as the council floral emblem due to its rarity and the vulnerability of its existence as a natural flora species. Being a small eucalypt, growing to approximately six meters in height, it is suited to most gardens and as a street tree for under wires. Its clusters of cream flowers during spring make it an ideal species for attracting wildlife.



Brush-tailed Rock Wallaby *Petrogale penicillata*

A skilled and agile climber, this medium sized wallaby is at home on the most rugged of peaks and escarpments. Once more widespread, this threatened species is now found locally at only a handful of sites within the Flinders – Goolman Conservation Estate. There, on the weathered remains of volcanic peaks, it browses on grasses and shrubs, and shelters on ledges and in small caves.

As the largest threatened species within the city and a skilled inhabitant of the most rugged of natural environments, the Brush-tailed Rock Wallaby makes a fitting faunal emblem and mascot for the City of Ipswich.



Cover Image:
Baby Dragon by R Lawrence
Ipswich Enviroplan Photo Competition

CONTENTS

Ipswich City Council's Flora and Fauna Emblems.....	2	Conserving Ipswich's Natural Environment.....	21
Executive Summary.....	4	State Conservation Areas.....	24
Introduction.....	7	Ipswich Planning Scheme.....	24
Strategy Purpose.....	7	Ipswich Enviroplan.....	25
Scope of the Strategy.....	7	Snapshot – Ipswich City Council's Natural Area Estates.....	26
Stakeholders and Consultation.....	8	The Strategy.....	27
Ipswich's Environmental Values.....	9	Key Strategy Actions.....	32
Native Vegetation.....	9	Priority Areas for Conservation Efforts...33	
Flora and Fauna Species.....	12	Priority Conservation Areas.....	36
Climate Change Refugia.....	13	Priority Rehabilitation Areas.....	37
Ecosystem Functions.....	13	Measuring Success.....	38
The Ipswich Habitat Network.....	14	References.....	38
Regional Cross-border Terrestrial Corridors.....	15		
Drivers for Nature Conservation.....	18		
Loss of Native Vegetation.....	18		
Climate Change.....	18		
Inappropriate Fire Regimes.....	19		
Introduced Pest Plants and Animals.....	19		
Dryland Salinity.....	20		
Lack of Community Awareness and Engagement.....	20		

EXECUTIVE SUMMARY

Ipswich supports a highly diverse natural environment with rainforests, dry vine forests, eucalypt forests and woodlands, swamps, and wetlands making up the city's habitat network. These natural areas provide habitat for a range of native flora and fauna, including the nationally significant brush-tailed rock wallaby and koala.

Ipswich City Council has a solid background of delivering nature conservation outcomes through mechanisms such as the Ipswich Enviroplan and the Ipswich Planning Scheme. The 2015 Nature Conservation Strategy (the Strategy) is a seminal document that will be used to inform and guide the continual successful delivery of Ipswich Enviroplan to achieve nature conservation outcomes across the city.

The intent of the Strategy is to provide direction for Ipswich City Council to create a resilient natural environment and lessen the impact

of detrimental processes. It is designed to provide guidance to inform multiple mechanisms, including regulatory and non-regulatory approaches to nature conservation.

The actions arising from the Strategy will inform current and future activities, including programs and planning to be done in partnership with key stakeholders.

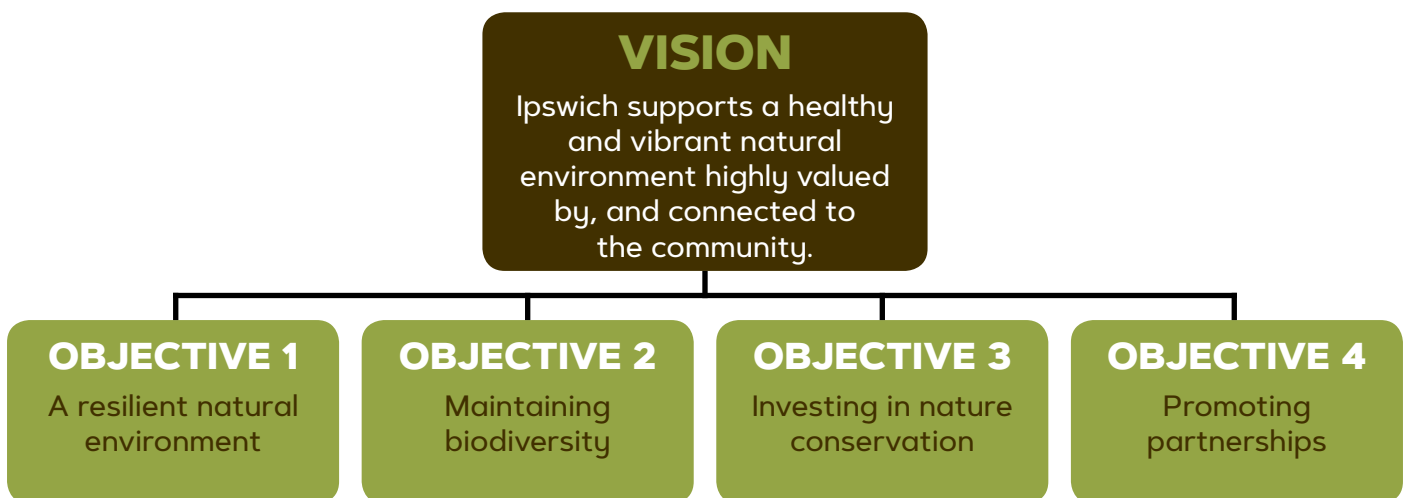
The Strategy aims to:

- Provide a strategic vision for achieving nature conservation outcomes in Ipswich
- Set directions with practical and flexible solutions for getting there
- Provide a central reference point for an integrated approach

Six key threatening processes were identified as driving the need for a coordinated strategic approach to mitigate further degradation of nature conservation values in Ipswich. These are:

- Loss of native vegetation
- Climate change
- Inappropriate fire regimes
- Introduced pest plants and animals
- Dryland salinity
- Lack of community awareness and engagement

Building upon the foundations achieved through preceding Strategies, council will address these threats by implementing the priority actions set within this Strategy to achieve the overall vision, objectives and key targets.



KEY TARGETS TO 2020

- Vegetation cover within the habitat network has increased from the current levels of 62.85% to 65%.
- 200,000 new native trees planted.
- Land within the habitat network protected through high or medium level protection mechanisms is increased from 20.7% to 30%.
- A net increase in vegetation condition score and faunal abundance score against benchmarks within the city's core habitat areas.

The Strategy actions have been identified to respond to the four objectives and to reach the Strategy's targets. Implementation of these actions will:

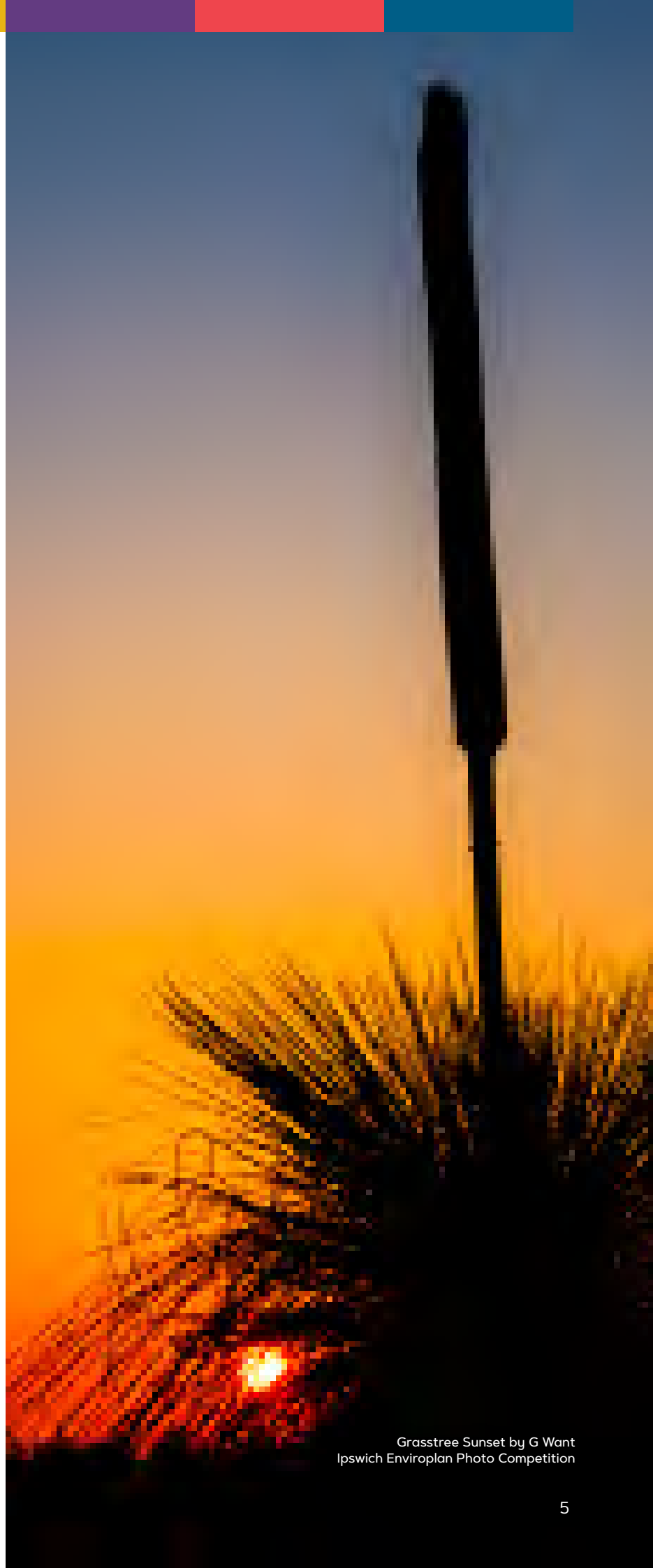
- Continue to improve and expand Ipswich City Council's Natural Area Estate through effective planning and management
- See the review and alignment of council's conservation partnerships and community capacity building programs to achieve the nature conservation vision
- Inform the review of the Ipswich Planning Scheme to support nature conservation outcomes
- Guide the development of a Matters of Local Environmental Significance framework
- Be achieved through the identification and implementation of a number of economic mechanisms as tools to deliver on the vision

To provide a platform for where the vision and targets can be met the Strategy identifies strategic priority areas; defined as Priority Conservation Areas (PCAs) and Priority Rehabilitation Areas (PRAs).

Priority Conservation Areas (PCAs) are areas of high ecological significance that provide ecosystem services and contain biodiversity which face elevated threats. Priority Rehabilitation Areas (PRAs) are areas that currently lack high levels of environmental values, but provide important linkages and corridor connections within and across the habitat network.

These Priority Conservation and Priority Rehabilitation Areas include the:

- Little Liverpool Range
- Flinders Karawatha Corridor
- Pine Mountain / Muirlea precinct
- Ebenezer area
- Purga and Warrill Creek Basin
- Grandchester and The Bluff areas



Grasstree Sunset by G Want
Ipswich Enviroplan Photo Competition



INTRODUCTION

The Ipswich Local Government Area (LGA) is centrally located in the booming South-East Queensland (SEQ) region and totals an area of approximately 1,090 square kilometres. Surrounding the Ipswich LGA are the cities of Brisbane and Logan and the rural and agricultural areas of the Scenic Rim, Lockyer Valley and Somerset. The city boasts a highly diverse range of habitats and ecosystems, including rainforests, dry vine forests, eucalypt forests and woodlands, swamps and wetlands. These habitats provide a home for a high diversity of flora and fauna.

SEQ is the third most highly populated urban region of Australia and the most urbanised area of Queensland¹. In the 2010/11 financial year SEQ attracted 71.1% of Queensland's population growth². Predictions are that the region will continue to cater for this high population growth, with Ipswich experiencing the fastest growth rate in Queensland and predicted to establish itself as the third largest growing local government area in Queensland by 2021³.

With this growth comes the challenge of achieving a balance between the need for development and the future of the environment.

Strategy Purpose

This Nature Conservation Strategy (the Strategy) supports the delivery of the corporate and community objectives for the natural environment as outlined in the Ipswich Community Plan, i2031, and the Ipswich City Council Corporate Plan. The Strategy also complements the strategic direction of related corporate strategies and plans including Ipswich Enviroplan, Open Space and Recreation Strategy, Integrated Water Strategy, and Ipswich Planning Scheme.

The purpose of this Strategy is to provide strategic direction to nature conservation and natural area programs, bushland management plans, sustainable nature-based recreation, voluntary conservation partnerships, environmental offsets delivery, and environmental education and capacity building programs.

The Strategy aims to:

- Provide a strategic vision for achieving nature conservation outcomes in Ipswich
- Set directions with practical and flexible solutions for getting there
- Provide a central reference point for an integrated approach

Nature conservation focuses on identifying, protecting and maintaining the health of vital ecosystems and environmental values. Ipswich has a long history in promoting nature conservation with the first Nature Conservation Strategy being adopted in 2000. This has been achieved by activities delivered through the Ipswich Enviroplan and the Ipswich Planning Scheme. Through these initiatives, 23.5% of the city is currently being managed with conservation outcomes in mind.

Scope of the Strategy

The Strategy is a component of the Ipswich Nature Conservation Framework; informed by the Background Report and realised through the development and delivery of the Implementation Plan and the Monitoring Plan (Figure 1). Each of these components is vital for the realisation of the city's nature conservation vision.

Figure 1 – Ipswich Nature Conservation Framework



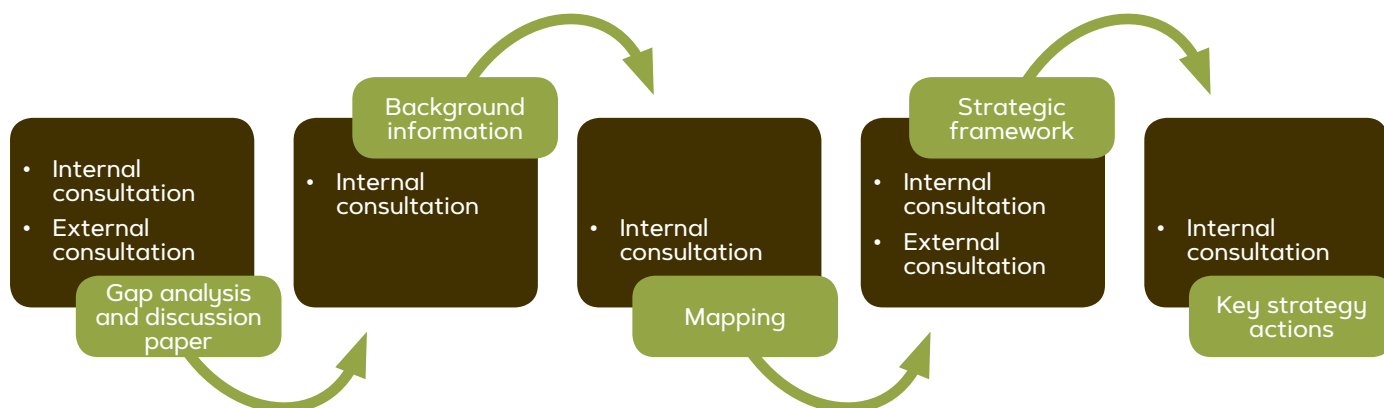
The intent is to provide direction for Ipswich City Council to create a resilient natural environment and lessen the impact of detrimental processes such as climate change and increased population pressures. The Strategy deals largely with the terrestrial environment, with conservation activities within riparian and aquatic environments being directed through council's Waterway Health Strategy.

It is designed to provide guidance to inform multiple mechanisms, including regulatory and non-regulatory approaches to nature conservation, until the year 2020. The Strategy will define future activities, including programs and planning to be done in partnerships with key stakeholders.

Stakeholders and Consultation

The Strategy has been developed under the guidance of and in consultation with key stakeholders and taking into consideration external influences including State and Commonwealth Government requirements. The structure of the Strategy was established through an internal and external consultation process (Figure 2).

Figure 2 – Consultation and Review Process



It is envisaged that the Strategy will also provide a key reference tool for partners and stakeholders, and provide guidance for working with council and understanding council's commitment to nature conservation within the city.



IPSWICH'S ENVIRONMENTAL VALUES

Ipswich's natural environment consists of a network of natural areas providing habitat to an array of native fauna and flora. The main environmental values which have been identified in Ipswich are:

- Native vegetation cover (including remnant vegetation, high-value regrowth and regulated vegetation)
- Significant habitat for native flora and fauna
- Ecosystem services and functions
- Climate change refugia

Native Vegetation

Native vegetation within Ipswich generally refers to vegetation communities which are divided up into regional ecosystem based on the composition of the ecosystem in combination with the areas geology, landform and soil.

Prior to European settlement, 38 regional ecosystems existed in Ipswich. Two of these ecosystems have since been fully cleared to such an extent that they are no longer mapped within the LGA. Of the remaining regional ecosystems, four make up almost 80% of the city's remnant vegetation cover, consisting primarily of spotted gum and ironbark complexes.

Table 1 – Four dominant regional ecosystems found in Ipswich

Description	% of existing remnant vegetation cover in Ipswich
<i>Corymbia citriodora</i> (Lemon-scented Gum), <i>Eucalyptus crebra</i> (Narrow-leaved Ironbark) open forest on sedimentary rocks	42.51%
<i>E. crebra</i> (Narrow-leaved Ironbark) woodland on sedimentary rocks	16.99%
<i>E. fibrosa</i> subsp. <i>fibrosa</i> (Broad-leaved Red Ironbark) open forest on sedimentary rocks	11.26%
<i>Eucalyptus crebra</i> , <i>E. melanophloia</i> (Silver-leaved Ironbark) woodland on Cainozoic igneous rocks	6.49%
<p>The endangered <i>Melaleuca irbyana</i> forest has just over 70% of its SEQ distribution within Ipswich.</p> <p>In Ipswich, 12 regional ecosystems are listed as endangered under the <i>Vegetation Management Act 1999</i> (QLD). An additional three ecological communities are listed as either endangered or critically endangered under the Commonwealth <i>Environmental Protection and Biodiversity Conservation Act 1999</i>.</p>	



Spotted Gum in Fog by L. Hepburn
Ipswich Enviroplan Photo Competition

Table 2 – Endangered regional ecosystems under the *Vegetation Management Act 1999*

Endangered Regional Ecosystems present within the Ipswich LGA	Hectares in Ipswich (2011)
Gallery rainforest (notophyll vine forest) on alluvial plains	6
<i>Eucalyptus tereticornis</i> woodland to open forest on alluvial plains	751
<i>Eucalyptus populnea</i> woodland on alluvial plains	21
<i>Eucalyptus tereticornis</i> , <i>Corymbia intermedia</i> on remnant Tertiary surfaces, usually near coast. Usually deep red soil.	4
<i>Eucalyptus tindaliae</i> and/or <i>E. racemosa</i> open forest on remnant Tertiary surfaces	113
Semi-evergreen vine thicket with <i>Brachychiton rupestris</i> on Cainozoic igneous rocks.	81
<i>Acacia harpophylla</i> open forest on Cainzoic igneous rocks	25
<i>Corymbia citriodora</i> open forest on Cainzoic igneous rocks especially trachyte	455
<i>Acacia harpophylla</i> open forest on sedimentary rocks	47
<i>Melaleuca irbyana</i> low open forest on sedimentary rocks	414
<i>Eucalyptus seeana</i> , <i>Corymbia intermedia</i> , <i>Angophora leiocarpa</i> woodland on sedimentary rocks	246
Semi-evergreen vine thicket with <i>Brachychiton rupestris</i> on sedimentary rocks	3



Table 3 – Threatened ecological communities listed under the *Environmental Protection and Biodiversity Conservation Act 1999*

Ecosystem Description	Status
Brigalow (<i>Acacia harpophylla</i> dominant and co-dominant)	Endangered
Swamp Tea-tree (<i>Melaleuca irbyana</i>) Forest of SEQ	Critically Endangered
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Critically Endangered

Two local ecosystems are of priority focus for future conservation planning and activities due to current extent and condition, habitat potential for priority species, imminent threats and recovery potential. These are:

Species	Status	Reason for focus
Swamp Tea-tree <i>Melaleuca irbyana</i>	VMA^^ – Endangered EPBC^ – Critically endangered	Swamp Tea-tree is a federally listed ecosystem with its national distribution limited to the Moreton Basin. There are approximately 644ha of this ecosystem remaining and it is only recorded to exist naturally within six local government areas in SEQ. The majority of this distribution occurs within the Ipswich LGA, with the only known conservation site being the Purga Nature Reserve ⁴ .
Eucalyptus tereticornis woodland Blue Gum	VMA^^ – Endangered	<i>Eucalyptus tereticornis</i> complexes are a critical vegetation community primarily located along waterways and on floodplains. Blue gums are an important feed and habitat tree for koala, and are renowned for the significant hollows found in old growth trees. Only a few intact stands of <i>E. tereticornis</i> remain ⁵ . In 2011 less than 10% of the pre-clearing levels remained in Queensland. Within Ipswich, remnant cover of this ecosystem has reduced from approximately 22% to only 3.14%.

* NCA – Nature Conservation Act 1992 (Qld)

^ EPBC – Environmental Protection and Biodiversity Conservation Act 1999 (Cth)

^^ VMA – Vegetation Management Act 1999 (Qld)



Swamp Tea Trees by L. Oliver
Ipswich Enviroplan Photo Competition

Flora and Fauna Species

Over 1,650 native floral and faunal species have been recorded in Ipswich. Of these, 31 are currently listed under Queensland's *Nature Conservation Act 1992* as threatened. An additional seven species are considered to be near threatened whilst another 28 species, considered as common or near threatened wildlife under legislation, have been identified to be of particular local significance due to elevated levels of threat leading to local decline or are of a particular iconic value within Ipswich. The Australian Government's main environmental legislation, the *Environment Protection and Biodiversity Conservation Act 1999*, lists 65 threatened species potentially present within the Ipswich LGA.

Three local fauna species and two flora species are of priority focus for conservation planning and activities due to their local status as iconic species, level of threat and potential for recovery.

These are:

Species	Status	Reason for focus
Brush-tailed Rock Wallaby	NCA* – Vulnerable	The Brush-tailed Rock Wallaby can be found in fragmented populations along the Great Dividing Range from South East Queensland to Western Victoria's Grampians, mainly residing on rocky escarpments, granite outcrops and cliffs. In Ipswich it is most commonly found in the Flinders-Goolman Conservation Estate, the closest known population to an urban centre.
Petrogale penicillata	EPBC^ – Vulnerable	The main threat to the species' survival is the loss of habitat due to clearing of native vegetation, introduced pest plants and animals, and changes in fire regimes. The species is also forced to cope with the predation and pressure of competition for food with introduced pest animals and livestock ⁶ .
Koala	NCA* – Vulnerable	The Brush-tailed Rock Wallaby is the faunal emblem of Ipswich.
Phascolarctos cinereus	EPBC^ – Vulnerable	The Koala is found in a number of habitats, from coastal islands and tall eucalyptus trees to low woodlands inland. The species has a very restrictive diet and can only occur if suitable habitat is available. The Koala's existence is threatened due to a variety of issues, including habitat loss and fragmentation, unmitigated bush fire, dog attacks, vehicle strike and disease ⁷ .
Platypus	NCA* – Least Concern	Koala populations in South East Queensland are of priority focus due to increasing threats from changing land use and growing population. This is an iconic Australian species which provides many benefits for the city, including the opportunity for growth in tourism.
Ornithorhynchus anatinus		The Platypus lives in burrows in river banks near slow-moving water bodies and is currently under pressure from declining water quality, pollution and loss of aquatic habitat ⁸ . Evidence shows that platypus numbers are steadily declining and there is recognition that a better understanding of the distribution and viability of the species is needed.
Plunkett mallee	NCA* – Near Threatened	Recent surveys show that platypus still exists in Ipswich waterways. Continued implementation of catchment management actions will contribute towards the future viability of this species.
Eucalyptus curtisii		Plunkett mallee is a multi-stemmed eucalypt which occurs in only a few small scattered populations throughout South East Queensland. Within Ipswich, natural populations occur in Dinmore, Collingwood Park and the White Rock area. The species suffers increased pressure as a result of clearing, grazing and inappropriate fire regimes ⁹ .
Coneana Olive	VMA^^ – Endangered	Plunkett mallee is Ipswich's floral emblem.
Notelaea ipsviciensis	EPBC^ – Critically endangered	To date, the Cooneana Olive has only been recorded as occurring in Ipswich, found within three closely clustered sub-populations (17 individual specimens in total) ¹⁰ . Protection of the species will require a coordinated effort including mitigation of imminent threats and implementation of a recovery program.

* NCA – *Nature Conservation Act 1992* (Qld)

^ EPBC – *Environmental Protection and Biodiversity Conservation Act 1999* (Cth)

^^ VMA – *Vegetation Management Act 1999* (Qld)

Climate Change Refugia

Even seemingly small increases in temperature and rainfall variability can have profound impacts on individual species. Climate change refugia is defined as an area which is stable, accessible and large enough to sustain viable populations of the species residing within it in a changing climate. Areas of high climate change refugia value are considered to be of important local environmental significance. To assist Ipswich's natural environment and biodiversity gaining a level of resilience to the impacts generated by a changing climate, council is working towards catering for areas providing local refuge to biodiversity from extremes.

Areas identified to support high climate change refugia value are:

- White Rock – Spring Mountain Conservation Estate
- Flinders Goolman Conservation Estate
- Little Liverpool Range
- Sapling Pocket

Ecosystem Functions

An ecosystem function is the interaction between organisms and the physical environment, such as nutrient cycling and soil development¹¹. Ecosystem services are the benefits people obtain from ecosystems¹². These services are produced as a result of the functions within the ecosystem. Ecosystem services sustain and fulfil human life, supporting human well-being¹².

Areas which display a high number of ecosystem functions have been identified in this Strategy to be of important local environmental significance and will assist in maintaining diversity and ensuring numerous pathways for functions to remain in the light of threatening processes such as climate change and vegetation loss.



White Rock by L. Oliver
Ipswich Enviroplan Photo Competition

The Ipswich Habitat Network

Ipswich's ecosystems are an integral part of the city's habitat network, which comprise of a system of core habitat areas connected through the landscape by corridors. Connectivity throughout the landscape is vital to the survival of the city and the SEQ region's biodiversity. Fragmented pockets of isolated vegetation reduces the environments ability to function naturally and will suffer more greatly from threatening processes, such as projected rising temperatures and declining rainfall¹³. The natural environment and biodiversity are highly vulnerable to climate change due to the current rate of change, limiting species' ability to adapt. To assist Ipswich's natural environment and biodiversity to gain resilience to the impacts generated by a changing climate, council is working towards catering for areas providing local refuge to biodiversity from the extremes of climate change and integrating these refugia into the city's habitat network.

Network components are further described in the table below.

Component	Description
Core habitat areas	Core habitat areas are larger vegetated areas which provide habitat for a variety of the city's biodiversity. Due to their size and general good condition these areas assist in ensuring conservation of a diverse range of native species and ecosystems, as well as providing a variety of functions resulting in the services fundamental for human well-being. These therefore provide the most critical areas for nature conservation measures across the LGA.
Strategic remnants	Strategic remnants are patches of remnant vegetation or high-value regrowth strategically located within the habitat network to facilitate the movement of biodiversity across the landscape by providing stepping stones within identified corridors. These stepping stones are located close enough to each other for some species to be able to move from one patch to the next. They are mostly suitable for highly mobile animals.
Urban Nodes	Urban nodes are patches of remnant vegetation providing important wildlife habitat within the urban footprint.
Corridors	Corridors are areas increasing local connectivity and provide focal points for rehabilitation, aimed at battling fragmentation by encouraging an increase of the current vegetation cover. Some of these corridors also provide important external linkages out of the LGA and are a component of recognised terrestrial regional corridors.



Regional Cross-border Terrestrial Corridors

Ipswich's habitat network is intersected by three terrestrial regional corridors that support mobile species to travel larger distances (Figure 3). These corridors are larger landscape connections, linking core habitats within a regional context.

Little Liverpool Range Corridor

The Little Liverpool Range connects to the Main Range National Park to the south, running towards the west of Aratula and north towards Hatton Vale. The Main Range is part of the World Heritage Gondwana Rainforest of Australia and extends from the New South Wales border to the north of Cunningham's Gap.

Flinders Karawatha Corridor

The Flinders Karawatha Corridor is approximately 56,350 ha and 60 km long. It extends from the Karawatha Forest in Brisbane, through the Greenbank Military Area, to Flinders Peak in Ipswich and down to Wyaralong Dam just north of Boonah. It is the largest remaining continuous stretch of open eucalypt forest in SEQ and includes a range of other habitats including rocky hills and wetlands.

D'Aguilar Range Terrestrial Corridor

This corridor follows the ridgeline of the D'Aguilar Range just north of the Ipswich suburb of Pine Mountain, and has the potential to provide a vital connection between Ipswich and the State significant corridor.

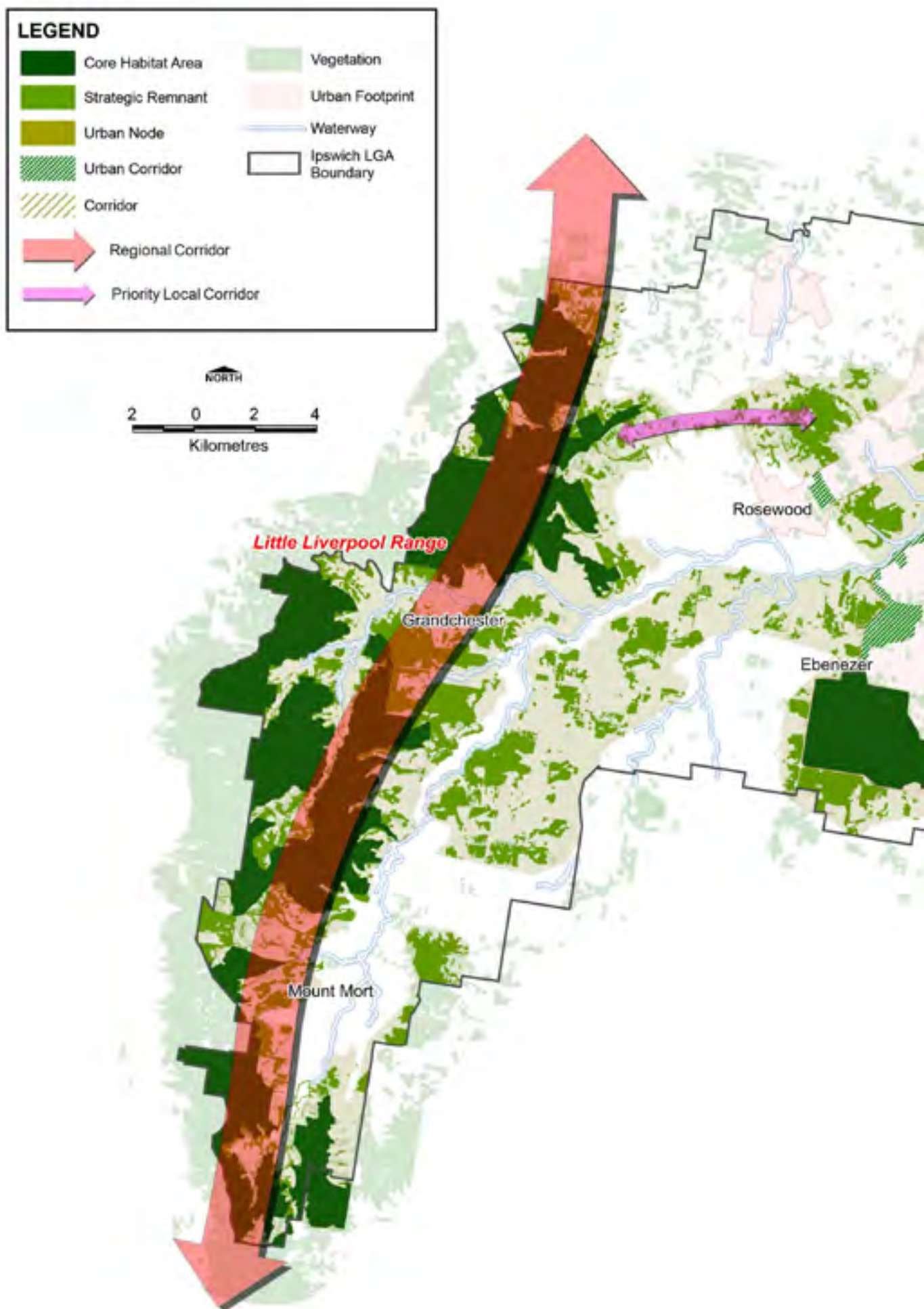


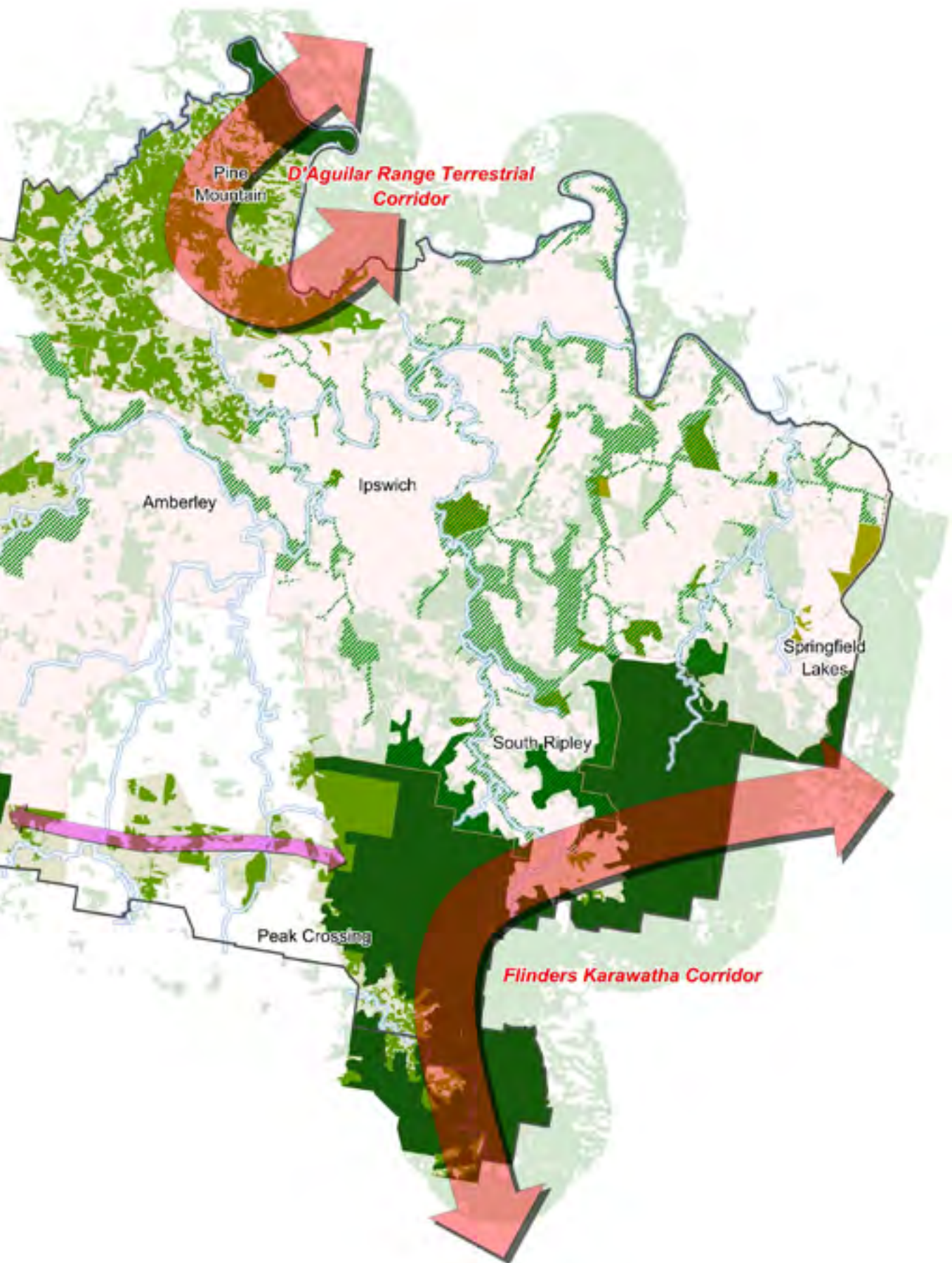
Kindy by G Passier
Ipswich Enviroplan Photo Competition



Ripples by G Homann
Ipswich Enviroplan Photo Competition

Figure 3 – Ipswich's Habitat Network







An Eye on You by D Pinto
Ipswich Enviroplan Photo Competition

DRIVERS FOR NATURE CONSERVATION

Currently there are a number of threatening processes driving the need for nature conservation in Ipswich. Six key drivers for change were identified through the consultation process, being:

- Loss of native vegetation
- Climate change
- Inappropriate fire regimes
- Introduced pest plants and animals
- Dryland salinity
- Lack of community awareness and engagement

In particular, loss of native vegetation as a result of clearing is considered a key threat as it leads to the loss of ecosystem services, loss of habitat for the city's native flora and fauna, and potential to cause fragmentation within the landscape. Clearing may also facilitate the spread of introduced plants and animals as well as being a contributor towards climate change¹⁴.

There are many challenges involved with managing the natural environment to reduce the impacts caused by these threats, particularly in relation to catering for the need for development. However, there are also some opportunities to combat some of these risks, potentially resulting in a gain in the natural environment and for the local community.

Loss of Native Vegetation

Loss of vegetation and the subsequent deterioration of ecosystems results in a reduction of the services, products and goods available to human kind (ecosystem services). Some of these are vital to our survival, including:

- Water filtration, cycling and flow rates
- Flood control
- Fuel, fibre and other material products
- Climate regulation
- Soil erosion control
- Habitat for a number of native species

Challenges

- Managing fragmentation and habitat loss
- Balancing the need for development as a result of population growth and environmental outcomes
- Lack of state and federal legislative backing.

Climate Change

Climate change refers to the changes in climate over time, whether they are a natural occurrence or a result of human activity¹⁵, which alters the abiotic environment in which a species live. The trend in climate change over the last few decades has been a steady rise in temperatures, with an increase of 0.9°C in Australia's temperature since 1950¹⁶. Other impact that is likely to occur as a result of climate change include¹⁵:

- Rainfall patterns
- Ocean currents
- Rising sea level
- Ocean acidification
- Intensity and frequency of extreme events such as storms, droughts and floods.

Challenges

- Facilitating adaptation within the Ipswich community
- Reduction of current carbon emissions and implementation of mitigation measures
- Reduction of suitable habitats for the city's biodiversity
- More frequent and intense climate events



Itchy by A Jogiono
Ipswich Enviroplan Photo Competition

Inappropriate Fire Regimes

Poorly managed fire regimes are a serious threat to our biodiversity, as it may lead to¹⁷:

- Destruction of native plant communities and animal populations
- Increased soil erosion
- Expansion of weed and feral animal populations
- Reduced water quality, and
- Increased soil salinity

Challenges

- More frequent and intense bushfire seasons placing species and ecosystems at their ecological limits
- Achieving appropriate levels of resourcing and co-ordination required to mitigate climate change effects
- The engagement and education of private landowners in regards to the adoption of appropriate fire management regimes on private land.

Introduced Pest Plants and Animals

There are 27 pest animal species which have been recorded to occur within Ipswich and 347 pest plants (including fungi and protists). Pest plant and animal control by council is mainly focused on protection of natural assets, such as parks and reserves, as well as community education and empowerment.

Challenges

- Loss of native species; spread of pathogens and disease
- Value for money of control measures
- Integration across multiple land tenures including privately owned land



Grassy Head by G Want
Ipswich Environplan Photo Competition

Dryland Salinity

Salinity is a natural process in Australia which has been further increased as a result of land use changes since European settlement, resulting in native deep-rooted vegetation being cleared to make room for crops and pastures with shallow roots and different growth patterns¹⁸. As a result, ground water tables rise and bring dissolved salts to the surface. As water evaporates, crystallised salt is left behind on the surface. Impacts caused by the issue include effects on a range of flora and fauna species such as the loss of sensitive plants and destruction of habitats, both terrestrial and aquatic.

Challenges

- Land use changes resulting in loss of deep-rooted native species
- Rise in groundwater levels

Lack of Community Awareness and Engagement

Disconnection with nature often results in a lack of empathy with the natural environment, leading to biodiversity not being recognised as underpinning environmentally sustainable development. This often results in short-term socio-economic benefits outweighing long term environmental considerations.

Investment into building community awareness and understanding of anthropogenic impacts and the resulting environmental impacts play a key role in protecting the natural environment in Ipswich.

Challenges

- Encourage involvement from the community in conservation activities and promote behavioural change

CONSERVING IPSWICH'S NATURAL ENVIRONMENT

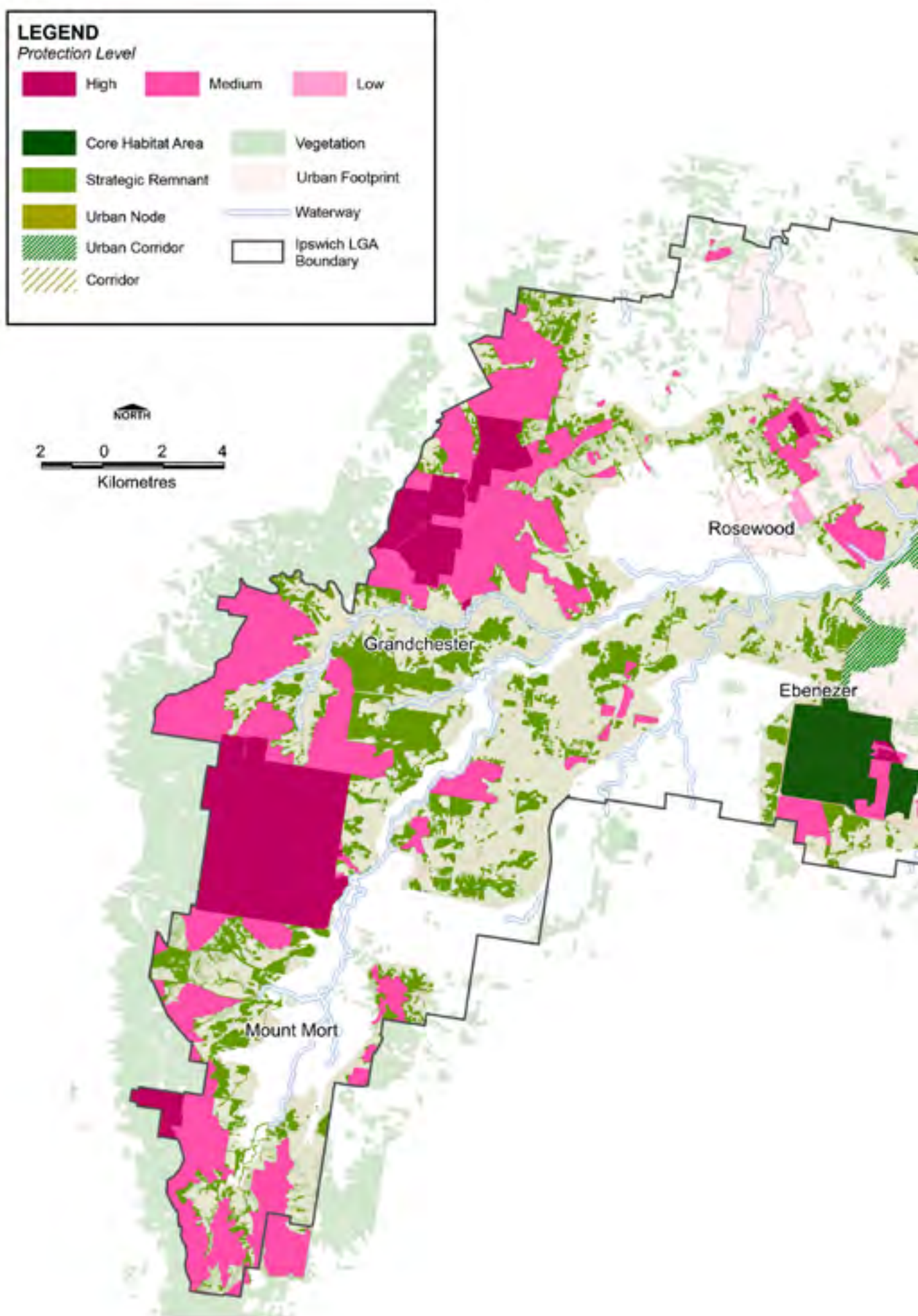
There are a number of conservation mechanisms in use within Ipswich. These initiatives provide different levels of protection for the long-term conservation of the natural environment. The main protection mechanisms utilised for this purpose can be divided into three levels based on the protection provided:

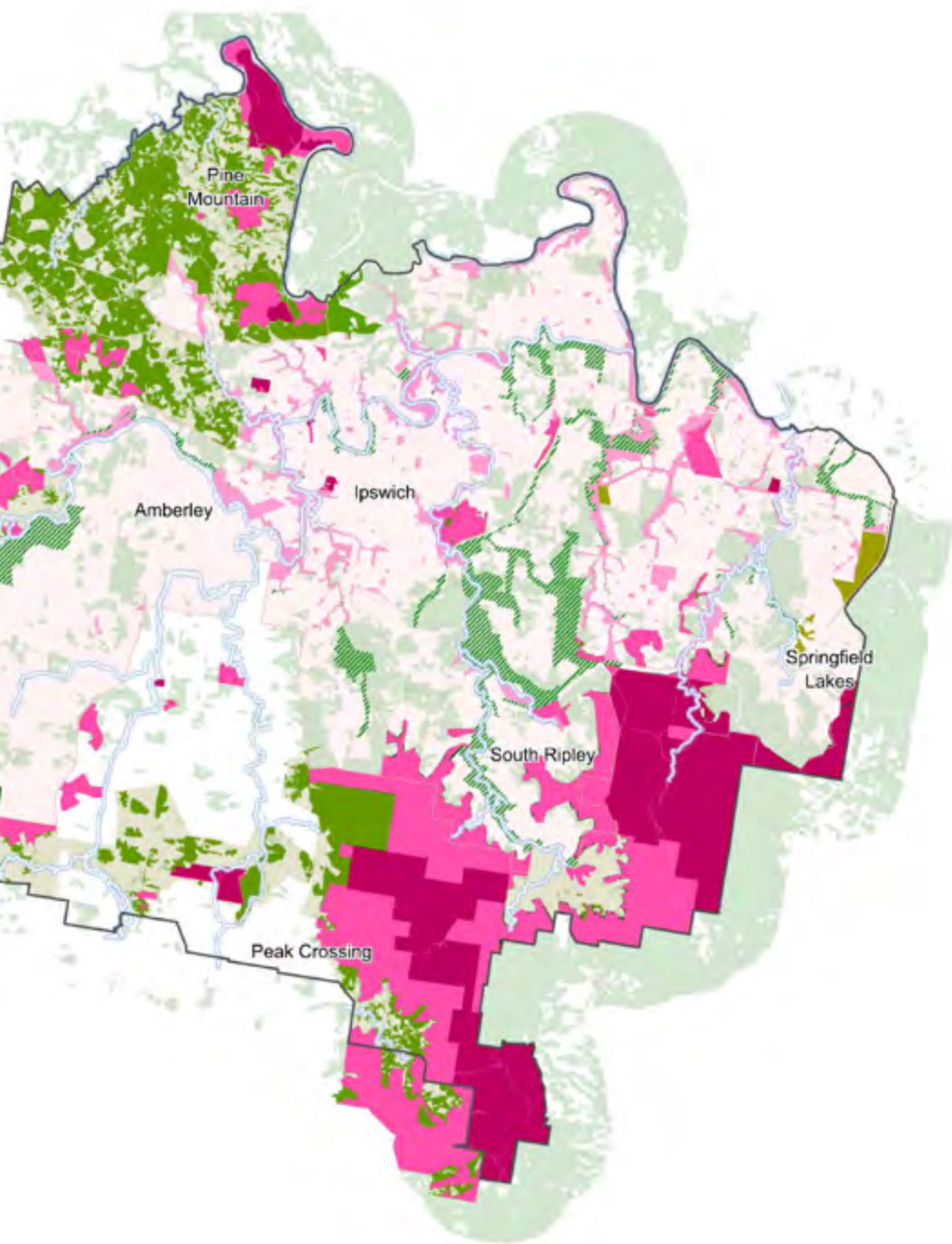
- High level of protection –
 - Land considered to be a Matter of State Environmental Significance (Protected Areas) under State legislation, including:
 - National Park
 - Regional Park
 - Forest Reserve
 - Nature Refuge Area
 - Areas of critical habitat; and/or
 - Land acquired through Ipswich Enviroplan.
- Medium level of protection – land currently:
 - Regulated under the local Planning Scheme through conservation and special land management zones and/or
 - Land participating in a high level Voluntary Conservation Agreement.
- Low level of protection – land inside the urban footprint located within the city's Recreation zone and Regional Business and Industry Buffer zone regulated under the Ipswich Planning Scheme.



Pretty Face in Purga by A Knight
Ipswich Enviroplan Photo Competition

Figure 4 – Land within Ipswich currently under a level of protection overlaying the habitat network





State Conservation Areas

These are protected areas under the *Nature Conservation Act 1992*, with the exception of coordinated conservation areas, and include:

Bowman Park Koala Nature Refuge

Old Hiddenvale Nature Refuge

Nature Refuges

Tir Na Crann Nature Refuge

Edward Corbould (Reserve and Retreat) Nature Refuge at Sapling Pocket

Gum Tips Nature Refuge

Mount Beau Brummell Regional Park

Flinders Peak Regional Park

Regional Parks

White Rock Regional Park

Denmark Hill Regional Park

Ipswich Pteropus Regional Park

Ipswich Planning Scheme

The Ipswich Planning Scheme encourages best practice outcomes through the use of compact urban design, master planned communities and green zones to contribute towards an outcome of balanced land utilisation across the city.

In Ipswich, significant areas identified to contain sensitive environmental values are zoned Rural D (Conservation) or Rural E (Special Land Management). These zones place conditions on development and land use that can be undertaken within the areas. These zones are designed to conserve:

- Areas or features of particular habitat significance
- The diversity of habitats for flora and fauna
- Land which acts as wildlife corridors
- Important areas of remnant, endangered, vulnerable, rare and other significant species
- Significant wetlands, and
- Natural areas of particular importance in terms of scenic amenity.

The scheme has to date contributed 8.16% of the city for conservation and 12.9% zoned for special land management purposes.



Lunch Time by E Pelc
Ipswich Enviroplan Photo Competition

Ipswich Enviroplan

The Ipswich Enviroplan was established in 1997 and aims to secure significant conservation areas for the purpose of retaining and managing Ipswich's environmental values.

The Enviroplan program is funded through an environment levy, paid by the ratepayers of Ipswich City, and is aimed at the securement of core areas, management of the Natural Area Estate, conservation partnerships, and education and awareness activities.

The main programs funded through the Ipswich Enviroplan leading to the securement of vital areas and ongoing management include:

Program	Description	Achievements
Council's Natural Area Estate	<p>Since the late 1990s, Ipswich City Council has acquired a number of land parcels containing large tracts of native vegetation to provide long-lasting protection and management of Ipswich's core habitats.</p> <p>Once acquired, land is zoned as either Conservation or Special Land Management under the Planning Scheme.</p>	<p>Approximately 6,600ha of high value conservation land has been acquired through Ipswich Enviroplan.</p>
Voluntary Conservation Agreements	<p>A Voluntary Conservation Agreement (VCA) is a cooperative agreement between a landowner and council aimed at enabling landholders, through financial, technical, educational and material support mechanisms, to integrate nature conservation as part of everyday land management, normal business practice and whole farm planning.</p> <p>These agreements do not go on title and are not legally binding in perpetuity. Land under a VCA may be zoned as either Conservation or Special Land Management under the Planning Scheme.</p>	<p>Approximately 6,460ha of privately owned land is registered under a Voluntary Conservation Agreement</p>



The Path to the Top by G Passier
Ipswich Enviroplan Photo Competition

Snapshot – Ipswich City Council’s Natural Area Estates *



Purga Nature Reserve

This 138.5 hectare reserve contains one of the largest remaining stands of the endangered Swamp Tea-tree, *Melaleuca irbyana*, and also supports a healthy koala population within the endangered *Eucalyptus tereticornis*, community along Purga Creek.



Flinders – Goolman Conservation Estate

This estate of 2,207 hectares forms part of the largest remaining tract of lowland eucalyptus forest in SEQ and sits within the Flinders-Karawatha Corridor. The estate supports over 650 native species, including significant Brush-tailed Rock Wallabies.



White Rock – Spring Mountain Conservation Estate

As Ipswich’s biggest estate at 2,653 hectares, it forms an important core habitat area within the Flinders Karawatha Corridor. Over 660 native species have been identified within the estate.



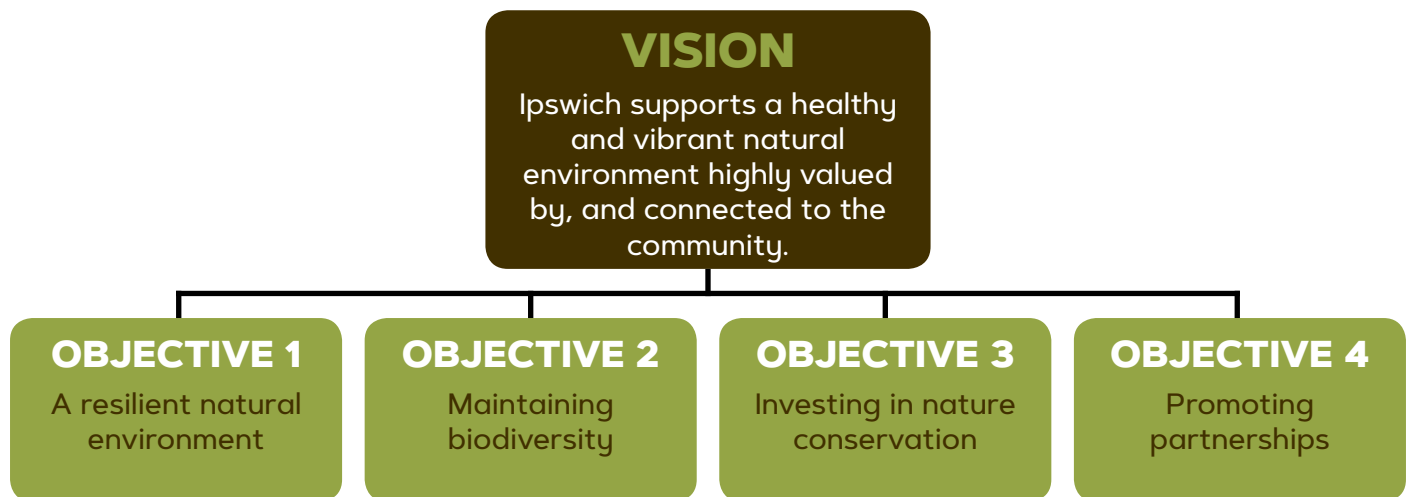
Mount Grandchester Conservation Estate

This 977 hectare core habitat area is a major contributor to Ipswich’s western corridor, the little Liverpool Range. Council is placing focus on this estate to create a hub for koala habitat conservation within the city.

* Note that this snapshot only represents a few of Ipswich’s conservation estates and reserves.

THE STRATEGY

Ipswich has seen the achievements of a number of success stories, such as the acquisition and management of council's Natural Areas. These achievements are recognised and this strategy strives to build upon these and work towards achieving Ipswich's nature conservation vision. The objectives give focus for how to achieve this vision and council's nature conservation targets. A number of priority actions will be implemented as a result of this strategy primarily targeting areas identified as priority conservation and priority rehabilitation areas.



KEY TARGETS TO 2020

- Vegetation cover within the habitat network has increased from the current levels of 62.85% to 65%.
- 200,000 new native trees planted.
- Land within the habitat network protected through high or medium level protection mechanisms is increased from 20.7% to 30%.
- A net increase in vegetation condition score and faunal abundance score against benchmarks within the city's core habitat areas.





Objective 1: A Resilient Natural Environment

The natural environment is resilient to threatening processes and major impacts such as population growth and a changing climate through the provision of a connected habitat network.

Native habitats in Ipswich are currently in a fairly fragmented state, mainly as a result of human impact such as clearing of vegetation to allow for alternative land uses. Connecting core habitat areas and strengthening the city's habitat network will assist in nature conservation and the promotion of biodiversity in Ipswich as wildlife are able to travel between core habitats and strategic remnants, promoting genetic diversity and resilience of species.

A connected habitat network will assist in increasing the resilience of the city's natural environment, as well as:

- Increasing protection of the city's core habitat areas
- Allowing for wildlife movement across the landscape
- Providing a green backdrop to the city, increasing liveability and promoting a sense of belonging
- Provide focus areas for nature-based recreation, and more.

.....
The habitat network provides a focal point for the delivery of conservation activities such as:

- Council's conservation partnerships
- Enviroplan acquisitions
- Environmental offsets
- Other conservation programs

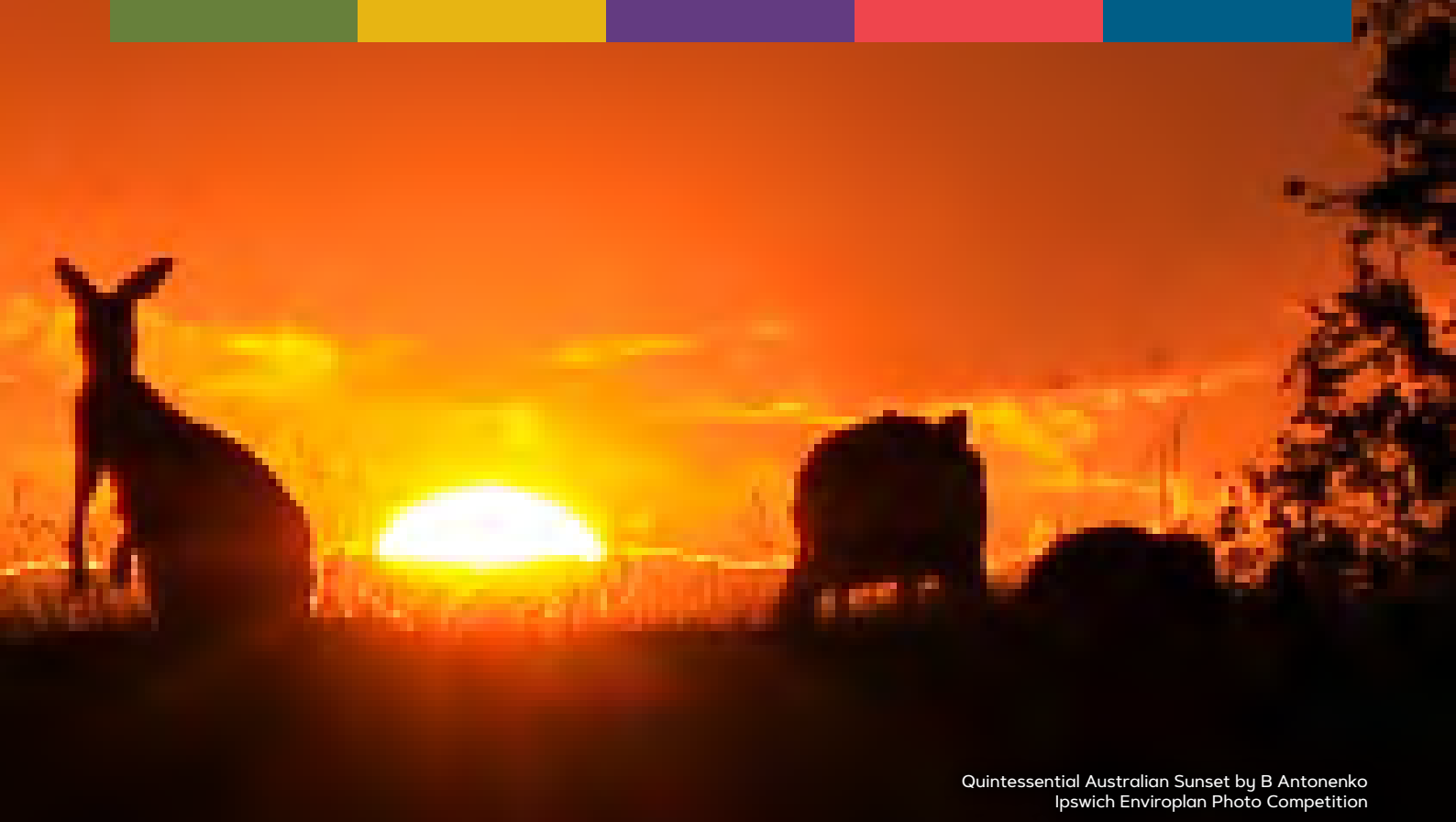
Guiding Principles

.....
Provide consideration to the location of the habitat network within the Ipswich Planning Scheme

.....
Promote the role played by climate change refugia

.....
Encourage best practices conserving natural resources on private land

.....
Encourage reduced rates of clearing within the habitat network
.....



Quintessential Australian Sunset by B Antonenko
Ipswich Enviroplan Photo Competition

Objective 2: Maintaining Biodiversity

Key ecosystems and species are recognised, protected and managed.

Ipswich supports 1,651 native flora and fauna species. Of these, 2% have experienced enough stress and decline to become listed as either endangered or vulnerable under state and/or federal legislation. The majority of listed species belong to the birds, mammals and the higher dicots (i.e. flowering plants). However, little is still known about actual numbers for many plants and insects to provide a true representation of species vulnerability throughout the city. In addition, there are two fauna species that previously inhabited Ipswich which have already become extinct in the wild, being the Paradise Parrot and Eastern Betong.

Biodiversity underpins a healthy natural environment and is vital for resilience. As the diversity of species within an ecosystem declines so does the functioning of the ecosystem itself. By maintaining the biodiversity level and securing key species, Ipswich's natural environment will become more capable to respond to and recover from negative impacts caused by threatening processes.

.....

Promote improved condition and availability of essential habitat for native species – with a focus on the priority species and ecosystems

.....

Improve or maintain the condition and status of national, state and local matters of environmental significance

.....

Increase community awareness of significant wildlife

.....

Guiding Principles

Promote priority species as the flagship species for council's Natural Area Estate

.....

Matters of environmental significance are given consideration within the Ipswich Planning Scheme

.....

Matters of local environmental significance are used as a basis for local offset requirements and conservation actions

.....

Objective 3: Investing in Nature Conservation

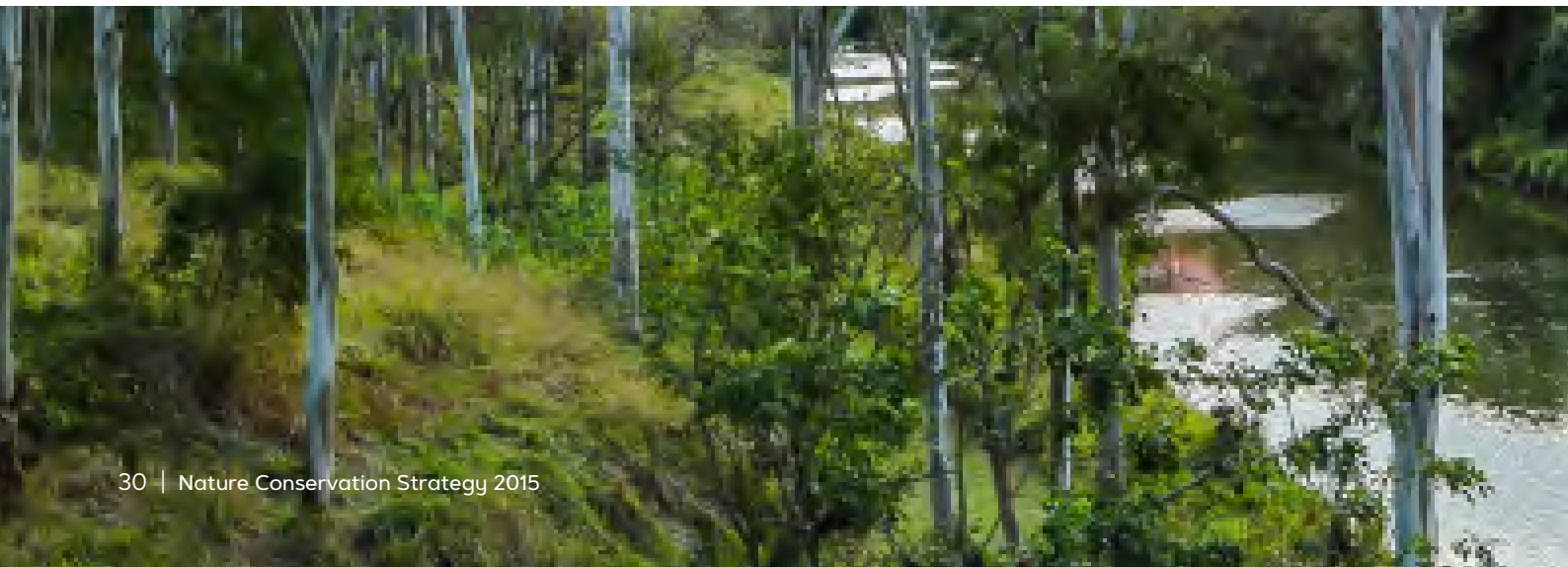
The natural environment remains an integral component of council’s corporate vision and core business. Environmental values fit within, and support, a growing and productive city.

Nature conservation is a worthy investment when ensuring the productivity of the community. The environment is one of three pillars underpinning a sustainable community, together with economics and society. There are many challenges faced by local government in relation to providing for a growing productive community, whilst still upholding the balance of sustainability. These include:

- Finding ways to increase financial prosperity without increasing resource use and environmental impacts
- Maintaining environmental resilience
- Promoting human well-being

The Strategy requires integration and coordination across council to successfully ‘embed’ it in decisions, plans and priorities. Also, with funds becoming tighter for the implementation of projects, investigating innovative economic instruments to support continuous growth and productivity is becoming even more important. The Strategy sets the basis for investment in nature conservation within the city.

	Nature conservation is recognised as a major feature of good governance for the city
	Urban areas are planned to mitigate the negative impacts on the natural environment
	Ipswich is a progressive and innovative sustainable community where the environment is given equal consideration to economic and social factors
	Nature conservation is to be approached as an integral factor during planning and decision-making processes within council
	Council policies and strategies promote the placement and management of revenue creating and cost-effective economic measures
Guiding Principles	Promoting a green economy approach in Ipswich includes the encouragement of establishing new markets within Ipswich aimed at the reduction of carbon emissions and creation of renewable resources
	Natural resource management is incorporated into on-site development, looking for opportunities to improve operational efficiency through good environmental design
	Ecologically sustainable development is encouraged through council policies and procedures, and development standards
	Increase opportunities for good council practices, such as through the development of policies and procedures for sustainable practices
	Nature based recreation opportunities are considered in open space planning



Objective 4: Promoting Partnerships

The Ipswich community is well engaged and connected to the natural environment. Natural resources are managed and utilised in a sustainable manner to minimise detrimental impacts on the natural environment.

Ineffective community awareness and engagement is recognised as a key threat to Ipswich's natural environment and a driver for nature conservation. For the continued delivery of nature conservation outcomes within the city, gaining the community's support is vital to ensuring the continuous viability of the programs.

The Ipswich Enviroplan currently delivers a number of initiatives aimed at increasing community engagement, capacity and connectivity with the natural environment, including:

- Voluntary Conservation Partnerships, incentives and land management grants
- Day use areas and sustainable nature-based recreation facilities within council's natural area network
- Community forums, events and workshops
- School education programs

The majority of Ipswich's environmental values are located on private land. Continued support and engagement with landowners is a critical aspect of nature conservation within the city, as well as the collaboration with neighbouring local government areas, government departments and agencies and other stakeholders.

Guiding Principles

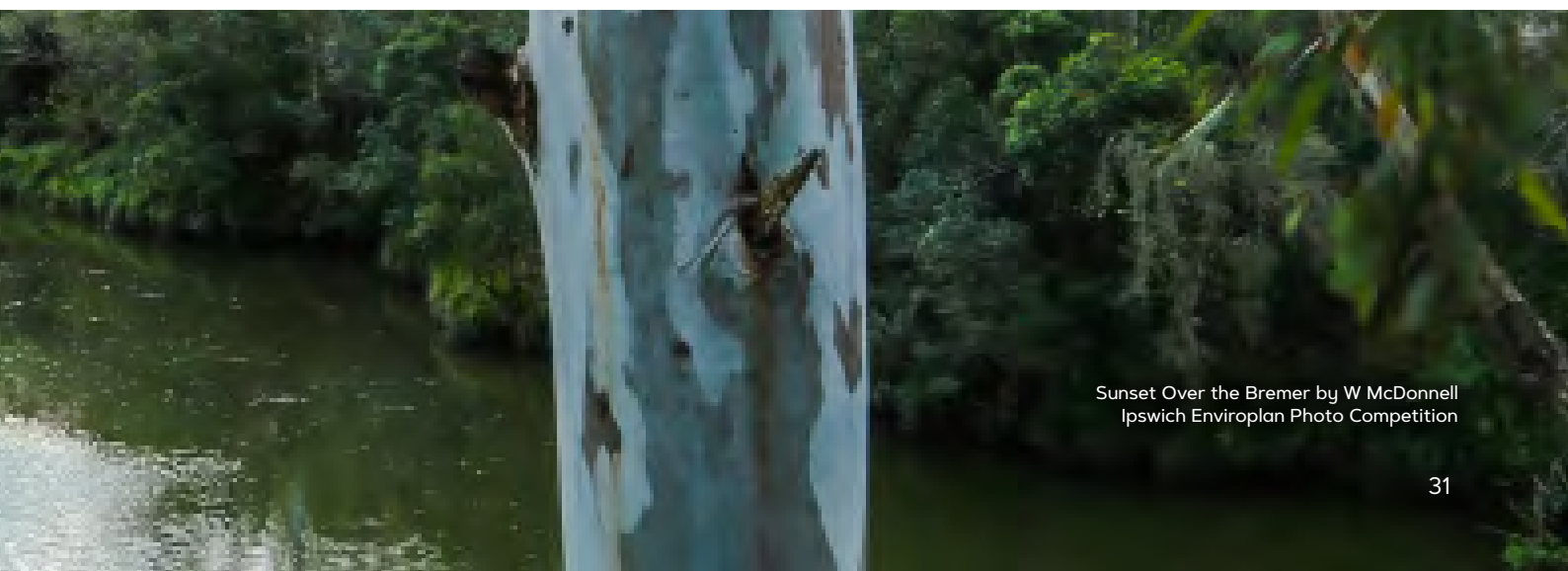
.....
Environmentally sustainable living is an adopted way of life within the Ipswich community

.....
Encourage the Ipswich community to be actively engaged in, and support, nature-based recreation activities

.....
Provide continuous communication and engagement with the Ipswich community in regards to nature conservation and environmental values in Ipswich

.....
Provision of environmental education and capacity building activities

.....
Working in partnership with universities, research organisations, regional bodies and other local government on collaborative projects
.....



Sunset Over the Bremer by W McDonnell
Ipswich Enviroplan Photo Competition

KEY STRATEGY ACTIONS

Key recommendations and actions for the implementation were identified through stakeholder consultation and the development of the Strategy. Further planning of these actions will be done through the development of the Nature Conservation Implementation Plan.

- 1 Ipswich City Council's Natural Area Estate Planning and Management**

The continuation and improvement of natural area estate planning and management is vital to the conservation of Ipswich's environmental values. Delivery involves:

 - Development and implementation of Natural Area Management Plans for all Conservation Estates and Reserves, and
 - Delivery of threat-reduction management programs, such as fire and pests
- 2 Enviroplan Acquisition Program**

The Enviroplan Acquisition Plan is reviewed to identify areas within the habitat network for potential future acquisition.
- 3 Voluntary Conservation Partnerships Program**

The Voluntary Conservation Partnerships Program is reviewed to ensure alignment with the Strategy vision and objectives.
- 4 Ipswich Planning Scheme**

The habitat network and matters of environmental significance are given consideration in future reviews of the Ipswich Planning Scheme.
- 5 Delivery of State and Federal Environmental Offsets**

Council, in partnership with Cherish the Environment Foundation Ltd, provides strategic delivery of environmental offsets across the city in line with the Strategy.
- 6 Matters of Local Environmental Significance framework**

The Matters of Local Environmental Significance Framework is developed and adopted to support the delivery of regulatory and non-regulatory mechanisms for achieving nature conservation outcomes, including species recovery initiatives and local environmental offsets.
- 7 Economic Framework for Natural Resources**

Development of a framework which highlights opportunities for cost effective and revenue creating nature conservation mechanisms.
- 8 Identifying new and strengthen existing partnerships**

Work in partnership with key stakeholders, government and non-government organisations and local businesses to achieve nature conservation outcomes.
- 9 Environmental Education**

Review and promote Ipswich City Council's environmental education and capacity building programs to align with the Strategy vision and objectives.



Grevillea by G Passier
Ipswich Enviroplan Photo Competition



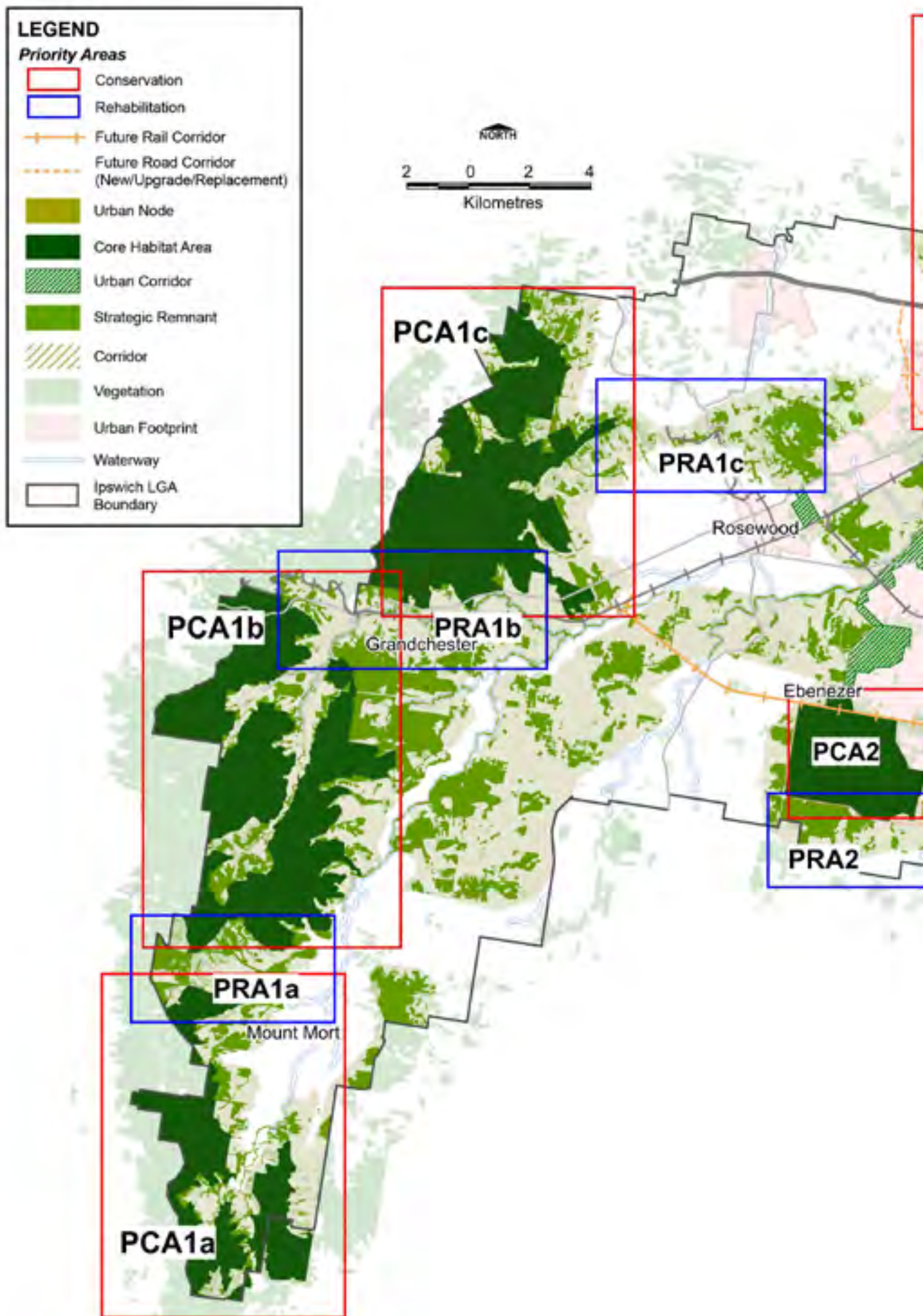
Resting Native Bee by L Oliver
Ipswich Enviroplan Photo Competition

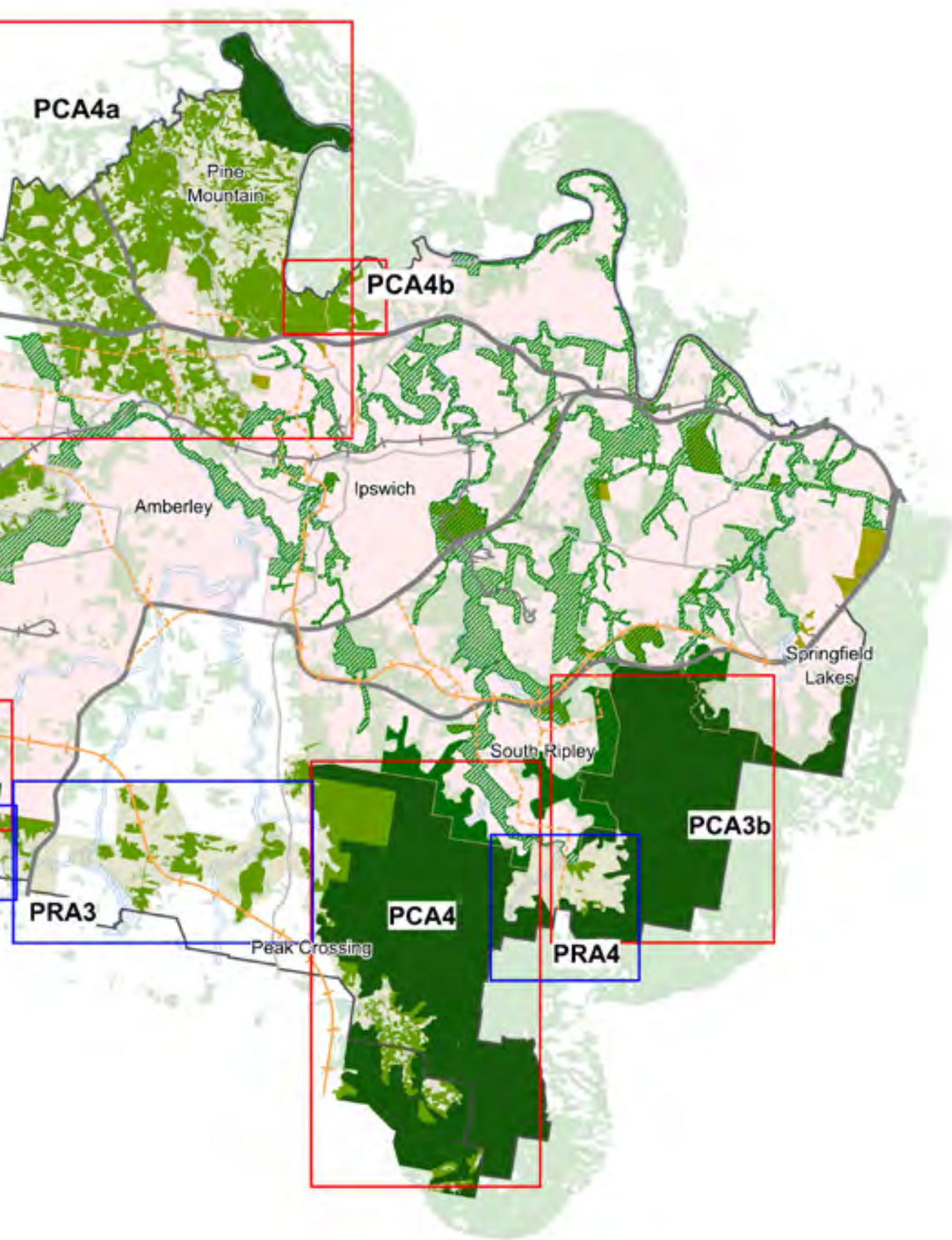
PRIORITY AREAS FOR CONSERVATION EFFORTS

Priority Conservation Areas (PCAs) are areas of significance that provide high ecosystem services and contain biodiversity which face elevated threats whilst Priority Rehabilitation Areas (PRAs) are areas that currently lack high levels of environmental values, but provide important linkages within the habitat network. Conservation and rehabilitation efforts within these areas will be promoted through local designation by:

- Coordinating conservation efforts within the PCAs and PRAs
- Building upon existing natural area estate and conservation partnerships
- Providing opportunities for new partnerships
- Leveraging offset investments

Figure 7 – Priority areas for conservation and rehabilitation







Priority Conservation Areas

PCA 1a, 1b and 1c Little Liverpool Range

The Little Liverpool Range contains areas of significant climate change refugia, and connects to the Main Range National Park and the Great Eastern Ranges extending from Victoria. Current and future activities within the Little Liverpool Range focus on retention of multiple conservation values, including enhancing and maintaining connectivity between climate change refugia, koala habitat conservation and rehabilitation.

PCA2 Ebenezer / Mount Forbes

The Ebenezer and Mount Forbes area provides significant core habitat and stepping stone communities between the regional corridors of the Little Liverpool Range and the Flinders – Karawatha. Conservation and future management of the area contributes towards the protection of two of the city's key species; koala and swamp tea-tree.

PCA 3a and 3b Flinders – Goolman and White Rock – Spring Mountain

Located within the regionally recognised Flinders Karawatha Corridor, the Flinders – Goolman and White Rock – Spring Mountain Conservation Estates contain significant areas of climate change refugia. The Flinders – Goolman Conservation Estate provides critical habitat for the vulnerable Brush-tailed Rock Wallaby, Ipswich's faunal emblem, as well as a mosaic of vegetation communities ranging from dry eucalypt forest to dry vine scrub. Conservation and future management of these areas will lead to increased habitat protection and improved condition of vegetation communities within a regional nature conservation corridor.

PCA 4a and 4b Ironbark / Pine Mountain / Muirlea / Chuwar

The Ironbark, Pine Mountain, Muirlea and Chuwar complex is located on the fringe of the regionally recognised D'Aguilar Range Terrestrial Corridor. Bordering the Brisbane River, the area provides opportunities to improve riparian vegetation, building a continuous link with the state conservation areas within the Brisbane City LGA.



Landcare Lanterns by J Wells
Ipswich Enviroplan Photo Competition

Priority Rehabilitation Areas

1a and 1b Mount Mort and Grandchester / Calvert

Rehabilitation efforts of this PRA would increase the areas climate change refugia status as well as the current levels of locally significant vegetation. It would also lead to increased resilience of the landscape through connectivity within one of the city's main regional corridors. This is a vital PRA for the functioning of an effective habitat network.

Council would seek to establish a partnership with the adjoining local government, Lockyer Valley Regional Council, aimed at the preservation and rehabilitation of a corridor connection just west of the Ipswich border as vegetation within the corridor on the Ipswich side has been heavily fragmented.

1c Tallegalla / The Bluff / Ashwell / Rosewood

Rehabilitation of this PRA would contribute towards increased resilience of the landscape by providing a major stepping stone which can make available a connection to all of the city's core habitats and main climate change refugia.

This linkage will provide a connection from PCA1 to important matters of environmental significance.

2 Mount Forbes

Situated south of the Ebenezer core habitat area this PRA provides important fragmented koala bushland/wildlife habitat as well as patches of critically endangered *Melaleuca irbyana* communities.

3 Mutdapilly / Purga

This local corridor provides the basis for an important east-west linkage between Ebenezer/ Mount Forbes and Flinders – Goolman Conservation Estate. It provides an important koala corridor but is currently in a very fragmented state.

4 South Ripley

South Ripley provides an important linkage between Flinders – Goolman Conservation Estate and White Rock – Spring Mountain Conservation Estate.

MEASURING SUCCESS

To ensure the progress towards the Strategy's vision and outcomes, it is important to capture and analyse data to establish baselines against which success can be measured. There are several reasons to monitor and evaluate progress to:

- establish whether the Strategy has provided the desired outcomes
- improve strategic planning and project management
- align with the objectives of relevant state and national biodiversity strategies and programs
- promote learning

Monitoring under the Nature Conservation Framework will be incorporated in council's Integrated Natural Resources Monitoring Plan.

Reporting and Reviewing

Reporting against the Strategy outcomes and achievements will occur on an annual basis as part of council's Natural Resources Annual Report. The next major review of the Strategy will be conducted in 2020. Annual reviews will be undertaken to ensure reflection of current and emerging national, state and local legislation and policies.

REFERENCES

¹Bureau of Infrastructure, Transport and Regional Economics (BITRE), 2013, *Population growth, jobs growth and commuting flows in South East Queensland, Report 134*, Canberra ACT.

²*Population Growth Highlights and Trends, Queensland 2012*, Office of Economic and Statistical Research, Queensland Treasury and Trade.

³*Queensland Government population projections to 2031: local government areas, 2011 edition*, Office of Economic and Statistical Research, Queensland Treasury.

⁴Department of Environment (2005) *Swamp Tea-tree (Melaleuca irbyana) Forest of South-East Queensland*. Advice to the Minister for the Environment and Heritage from the Threatened Species Scientific Committee (TSSC) on amendments to the List of Ecological Communities under the *Environmental Protection and Biodiversity Conservation Act 1999 (EPBC Act)*

⁵The State of Queensland (Department of Environment and Heritage Protection) 1995 – 2015 Queensland Government <https://environment.ehp.qld.gov.au/regional-ecosystems/details/?re=12.3.3>

⁶ www.environment.gov.au/biodiversity/threatened/publications/tsday08-rock-wallaby.html

⁷ www.thekoala.com/koala/

⁸ The State of Queensland (Department of Environment and Heritage Protection) 2015 Queensland Government www.ehp.qld.gov.au/wildlife/animals-az/platypus.html

⁹ *Plunkett mallee – Eucalyptus curtisii*, *WetlandInfo*, Department of Environment and Heritage Protection, Queensland, viewed 19 November 2014, <<http://wetlandinfo.ehp.qld.gov.au/wetlands/ecology/components/species/?eucalyptus-curtisii>>.

¹⁰ Department of Environment (2008) *Approved Conservation Advice for Notelaea ipsviciensis (Cooneana Olive)*. A statement for the purposes of approved conservation advice (s266B of the *Environment Protection and Biodiversity Conservation Act 1999*). www.environment.gov.au/biodiversity/threatened/species/pubs/81858-conservation-advice.pdf

¹¹ www.biology-online.org/dictionary/Ecosystem

¹² Millenium Ecosystem Assessment (MA) (2003) *Ecosystems and Human Well-being*. A report of the Conceptual Framework Working group of the Millenium Ecosystem Assessment. World Resource Institute. Washington DC. USA

¹³ Low T. (2009) *Climate Change Impacts on Natural Areas*, Report prepared for Ipswich City Council

¹⁴ McAlpine, C. A. Syktus, J. Deo, R. C. Lawrence, P. J. McGowan, H. A. Watterson, I. G. & Phinn S. R. (2007) *Modeling the impact of historical land cover change on Australia's regional climate*. Geophysical Research Letters, Vol. 34, L22711, doi: 10.1029/2007GL031524, 2007

¹⁵ Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, 2007, Solomon, S., D. Qin, M. Manning, Z. Chen, M. Marquis, K.B. Averyt, M. Tignor and H.L. Miller (eds.) Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.

¹⁶ www.csiro.au

¹⁷ Natural Resource Management Ministerial Council 2010, *Australia's Biodiversity Conservation Strategy 2010–2030*, Australian Government, Department of Sustainability, Environment, Water, Population and Communities, Canberra.

¹⁸ National Land and Water Resources Audit (2001) *Australian Dryland Salinity Assessment 2000* Commonwealth of Australia



Family of Wrens by G Want
Ipswich Enviroplan Photo Competition



Ipswich City Council
PO Box 191, Ipswich QLD 4305, Australia

Phone (07) 3810 6666
council@ipswich.qld.gov.au
ipswich.qld.gov.au

Join us online:



[/IpswichCityCouncil](https://www.facebook.com/IpswichCityCouncil)



[/IpswichCouncil](https://twitter.com/IpswichCouncil)



[/ipswich-city-council](https://www.linkedin.com/company/ipswich-city-council)



[/IpswichCityCouncilTV](https://www.youtube.com/IpswichCityCouncilTV)