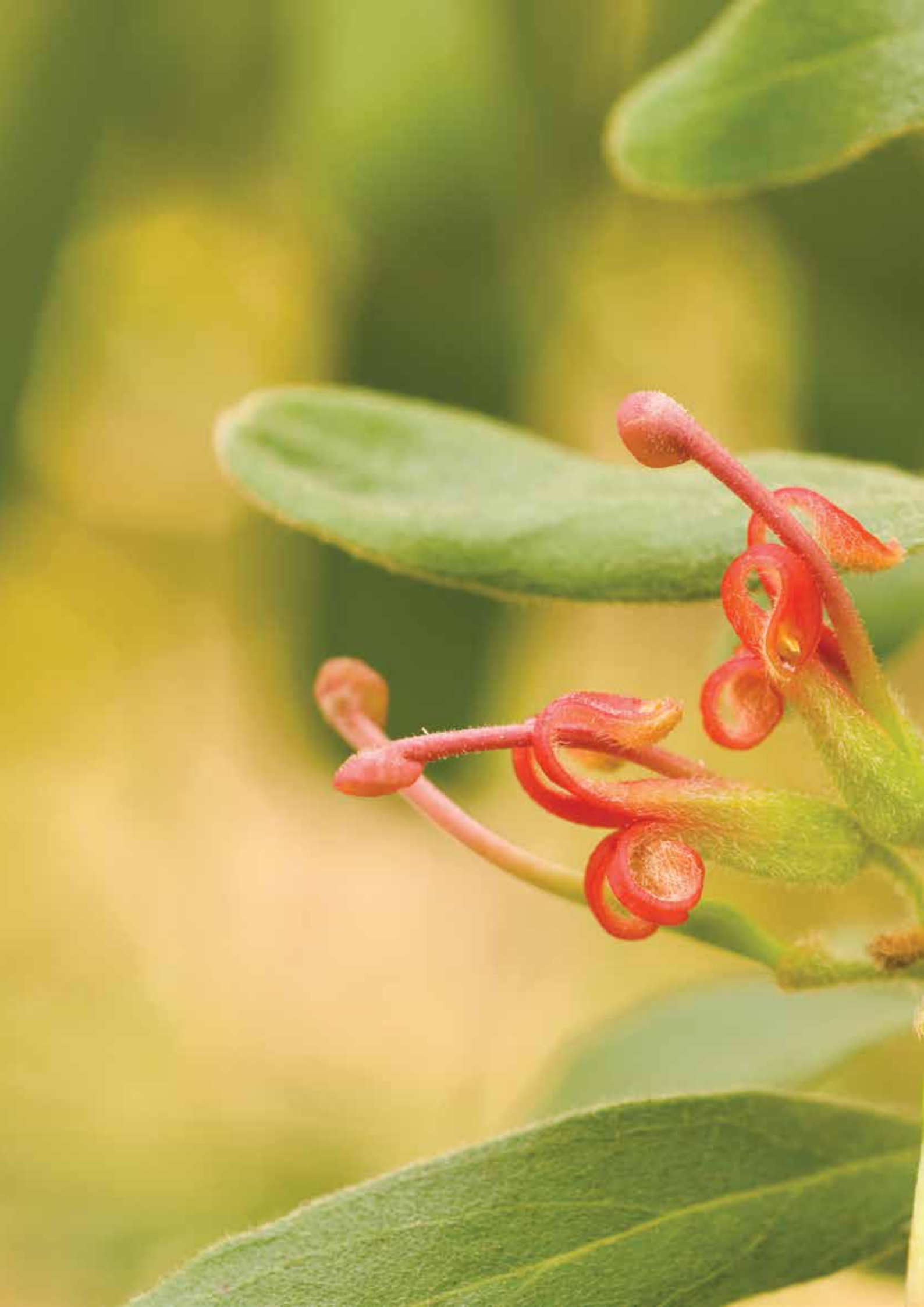
BIODIVERSITY STRATEGY

A TEN YEAR STRATEGY FOR THE CONSERVATION OF BIODIVERSITY IN THE SCENIC RIM

2015 - 2025

Scenic Rim Regional Council



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A MESSAGE FROM THE MAYOR

It gives me great pleasure to introduce Scenic Rim Regional Council's Biodiversity Strategy.

This document represents a 10-year framework to achieve enhanced environmental outcomes within the Scenic Rim.

This undertaking is integral to delivering on the desired outcomes of the Scenic Rim Community Plan 2011-2026, a shared vision with the community for the future of our region.

Central to this vision are improved environmental outcomes ensuring a positive legacy for future generations in the green belt of South East Queensland.

Council recognises that Scenic Rim boasts a unique natural environment and is committed to proactively working to preserve and enhance it in partnership with the community.

Biodiversity is crucial to the region as it contributes to the ecological balance that our important agricultural and tourism industries require to operate.

In addition to being an important food bowl for the nation, the Scenic Rim's native bushland, national parks and waterways represent the vital organs of the wider region.

Council acknowledges the role of landholders, particularly primary producers, and the community as stewards of the local environment and we invite you to participate with Council on this journey.

Cr John Brent
Mayor

EXECUTIVE SUMMARY

The Scenic Rim is a rural region set in the foothills of the Great Dividing Range surrounded by World Heritage listed National Parks. The region has a wealth of biodiversity, with a vast array of plants and animals, ecosystems and geology creating an iconic landscape. Within the region there are many recognisable ecosystems such as Brigalow scrub, cloud forests, wet eucalypt forests and blue gum flats providing home for over 2,300 recorded native plants and animals including over 150 rare and threatened species.

These values need to be managed in balance with regional pressures including population growth, urban sprawl, land degradation, habitat removal, invasive species and changing climatic conditions.

Scenic Rim Regional Council recognises the need to manage these issues to maintain core social, economic and environmental functions important for everyday life. Through protecting biodiversity; key values including lifestyle, amenity, industry, cultural heritage, intrinsic qualities and life-support functions can be maintained creating a thriving and liveable region.

The Scenic Rim Regional Council Biodiversity Strategy is a strategic ten year plan for the management of the region's biodiversity. The strategy outlines the context for biodiversity conservation in the Scenic Rim and reflects Council's vision for the Region:

By 2026, Scenic Rim will be a network of unique rural communities embedded in a productive and sustainable landscape…

…Our community will support sustainable farms, businesses and industries that are compatible with our environment and lifestyle and provide rewarding employment and prosperity for residents. Residents will benefit from the region's productive farmland, stunning natural environment and character-filled towns and villages which attract tourists and visitors and provide ecosystem services for the broader South East Queensland community….

The role of the Strategy is to inform Council planning and operational activities including the development and implementation of the Planning Scheme and policies. It will also assist Council decision making and community initiatives and drive a range of targets, strategies and actions that will deliver the corporate vision.

The strategy will support the engagement of the community and key stakeholders to build and strengthen partnerships in order to maintain and enhance the region's biodiversity. The development of partnerships will also assist in monitoring and reporting outcomes for Council, the community and investors.

THE SCENIC RIM'S GONDWANA RAINFORESTS ARE AMONG THE OLDEST FORESTS ON THE PLANET. THESE FORESTS ARE WHERE FLOWERS FIRST BLOOMED AND SONGBIRDS FIRST SANG. THE WORLD HERITAGE STATUS OF THESE FORESTS RECOGNISES THE UNIVERSAL VALUE OF THIS GLIMPSE INTO THE HISTORY OF OUR PLANET.

MAINTAINING BIODIVERSITY IS KEY TO HUMAN EXISTENCE, CULTURE, WELLBEING AND PROSPERITY

ABBREVIATIONS

EPBC	Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)
HA	Hectares
NCA	Nature Conservation Act 1992
NRM	Natural Resource Management
RVMC	Regional Vegetation Management Codes
SARA	State Assessment and Referral Agency
SDAP	State Development Assessment Provisions
SEQ	South East Queensland
SEQ NRM PLAN	South East Queensland Natural Resource Management Plan (2009-2031)
SPA	Sustainable Planning Act 2009
SPP	State Planning Policy 2013
VMFA	Vegetation Management Framework Amendment Act 2013 (Qld)

THE IMPORTANCE OF BIODIVERSITY

Biodiversity underpins the processes that provide benefits to humans and is a fundamental measure of livability. It is essential for supporting our way of life through direct provision of services including clean air, water, food and materials. These direct benefits have flow on effects for creating healthy and livable communities with access to clean resources required to support life. In addition, biodiversity underpins processes required to support industries reliant on key services including water purification, pollination, soil formation and nutrient recycling.

Biodiversity forms an essential part of why residents and visitors alike choose the Scenic Rim as a destination. Lifestyle qualities, tree-change and wilderness qualities are all drawcards for residents and visitors of the region. These values form an intrinsic showcase that invites visitors to stay and enjoy the region.

WHAT IS BIODIVERSITY?

Biodiversity is defined as the variability among living organisms from all sources (including terrestrial, aquatic and other ecosystems and the ecological complexes of which they are part). It occurs at a variety of scales including genetic diversity, species diversity and ecosystem diversity.

Biodiversity is recognised as an important feature of healthy natural assets and increases flexibility and resilience in the face of change (i.e. resilience from natural disasters including floods, droughts and fires).

The more diverse a system is, the more it is able to absorb stresses and compensate for damage or loss in one part of the system.

Natural assets that provide habitats for flora and fauna and support biological processes that provide biodiversity include:

- Rainforests, bushland and native grasslands
- Rivers, streams, dams and lakes
- Wetlands
- Forested ranges and peaks (including the unique cloud forests of the Border Ranges)
- Viable corridors of suitable vegetation

In assessing, protecting and maintaining biodiversity, it is essential to account for the full range of living and non-living processes and ecosystem functions responsible for maintaining biodiversity. It is also important to understand the connection between biodiversity and life support systems including the provision of air, water and land.

KEY INDUSTRIES THAT RELY ON NATURAL ASSETS INCLUDE AGRICULTURE AND HORTICULTURE, MINING, TOURISM, RECREATION, WATER SUPPLY AND HEALTH. THESE INDUSTRIES ARE WORTH OVER $368 MILLION TO THE LOCAL ECONOMY PER YEAR

SCENIC RIM ECONOMIC BRIEF 2014

TABLE 1: IMPORTANCE OF BIODIVERSITY FOR LIFESTYLE, WELLBEING AND ECONOMIC PROSPERITY

BENEFITS	SERVICES DEPENDENT ON BIODIVERSITY
Tourism and Recreation	Water purification, pollination, soil formation and nutrient recycling all required for maintaining natural beauty that attracts tourists and provides recreational opportunities.
Agriculture	Water purification, pollination, pest and disease control, soil formation and nutrient recycling all required for growing crops, grazing cattle, timber harvesting, growing turf etc. Diverse ecosystems can assist in managing erosion, salinity and land degradation.
Amenity and Livability	Water purification, pollination, soil formation and nutrient recycling provide clean drinking water, clean air, building materials and micro-climates that create livable communities.
Cultural Heritage	Water purification, pollination, soil formation and nutrient recycling all required for environmental values that support cultural, social and spiritual systems.

CASE STUDY

GRANTS HELPING TO FIND THE SPOTTED-TAILED QUOLL

Quolls are Australia's largest carnivorous marsupials on the mainland and an important keystone predator; if we can protect the Quoll and its habitat, we also help to conserve many other species.

The Spotted Tailed Quoll (Dasyurus maculatus) was thought to be extinct in the Scenic Rim region. In March 2012, reports of sightings from the community prompted Queensland's Quoll Seekers Network (QQSN) to seek an Environmental Grant from the Scenic Rim Regional Council to survey for, and educate people about, this important species. A partnership between QQSN and Council was formed to find the quoll.

The 'Quoll Discovery Experience' was held at The Outlook in Boonah to engage and raise awareness of this rare and elusive animal with locals who also provided leads to finding this cryptic marsupial. Permission was sought from local residents and Land for Wildlife members to gain access to properties, some of which included trekking up mountains, trudging through waist-deep grasslands, and exploring caves with ten kilograms of chicken carcasses and cameras in tow, all in hope of capturing a picture of a quoll. A total of eight sites were surveyed within the Mt Alford area utilising fourteen surveillance cameras and chicken carcasses as bait to attract the elusive quolls.

After three months of searching, the hard work paid off. A healthy male quoll was photographed, providing valuable evidence that they are still persisting in the region. This project has enabled important data to be collected about Spotted-Tailed Quoll species providing invaluable information in developing future quoll conservation efforts.

MEETING LEGISLATIVE OBLIGATIONS

Implementing the actions in this Strategy will not only manage biodiversity that is critical for the community and economy of the region but will also assist Council in meeting legislative requirements for the protection of natural values.

Relevant legislation and plans are listed in Table 2. The full relevance of these documents is described in Appendix A.

TABLE 2: LEGISLATION AND PLANS APPLICABLE THE SCENIC RIM BIODIVERSITY STRATEGY.

COMMONWEALTH
Environment Protection and Biodiversity Conservation Act (1999)
STATE PLANS AND LEGISLATION
Sustainable Planning Act (2009) QLD (SPA)
State Planning Policy (2013) QLD (SPP)
Local Government Act (2009) QLD (LGA)
Environmental Protection Act (1994) QLD (EPA)
The Nature Conservation Act (1992) QLD (NCA)
The Vegetation Management Act (1999) and Vegetation Management Framework Amendment Act (2013) QLD
Biosecurity Act 2014 QLD
The Land Protection (Pest and Stock Route Management) Act (2002) QLD
Water Act (2000) QLD
Environmental Offsets Act (2014) QLD
REGIONAL PLANS
South East Queensland Regional Plan (2015-2041)
South East Queensland Natural Resource Management Plan (2009 - 2031)
SCENIC RIM REGIONAL COUNCIL
Community Plan (2011 - 2026)
Corporate Plan (2013 - 2018)
Draft Scenic Rim Regional Council Planning Scheme
Pest Management Plan (2010- 2015)

THE STORY OF BIODIVERSITY IN THE SCENIC RIM

Formed from the remnants of Gondwana, the Scenic Rim has evolved to become a reservoir of distinct, exceptional and irreplaceable flora and fauna species, geological features and vegetation communities.

The region is an international biodiversity hotspot consisting of World Heritage areas, National Parks and nationally significant biodiversity corridors. The diversity of flora and fauna in the region is reflected in the variety of vegetation groups present including montane heath, rainforests, wet and dry eucalypt forests as well as freshwater wetlands.

The region provides direct links to ancient times. Species including Antarctic Beech and Hoop Pine found in the ancient Gondwana rainforests provide a remnant link from over forty million years ago. These forests once covered the continent but have been reduced through the ages due to the drying of Australia and consequently the emergence and dominance of more drought and fire adapted plants (Myrtaceae and Proteaceae).

The unique geologic history has contributed significantly to biodiversity of the region. The iconic mountain ranges of the Scenic Rim occurred out of three major shield volcanoes resulting from a “hot-spot” in the region. These major volcanoes are the Main Range Shield Volcano, Focal Peak Shield Volcano and Tweed Volcano Caldera (Mt Warning). The remnants of the Focal Peak Volcano include several major intrusive plugs and dykes including Mount Barney, Mount Maroon and Mount May. These features rise up in direct contrast to the Walloon coal measures observed around the outskirts of Beaudesert. These distinct geological features have resulted in the assortment of ecosystems throughout the Scenic Rim.

The distinct geology of the region has given rise to a variety of habitats - from high altitude basalt ranges with dense rainforest or tall wet sclerophyll to dry sclerophyll forests on sandstone foothills to wide floodplains with swamps and Bluegum forests to Vine Scrubs and Ironbark Forests on Walloon sedimentary rocks. This wide altitudinal variation is associated with the Tweed Caldera and past Volcanic Activity. The highest point is Mt Superbus (1370m) with substantial forests above 500m sea level.

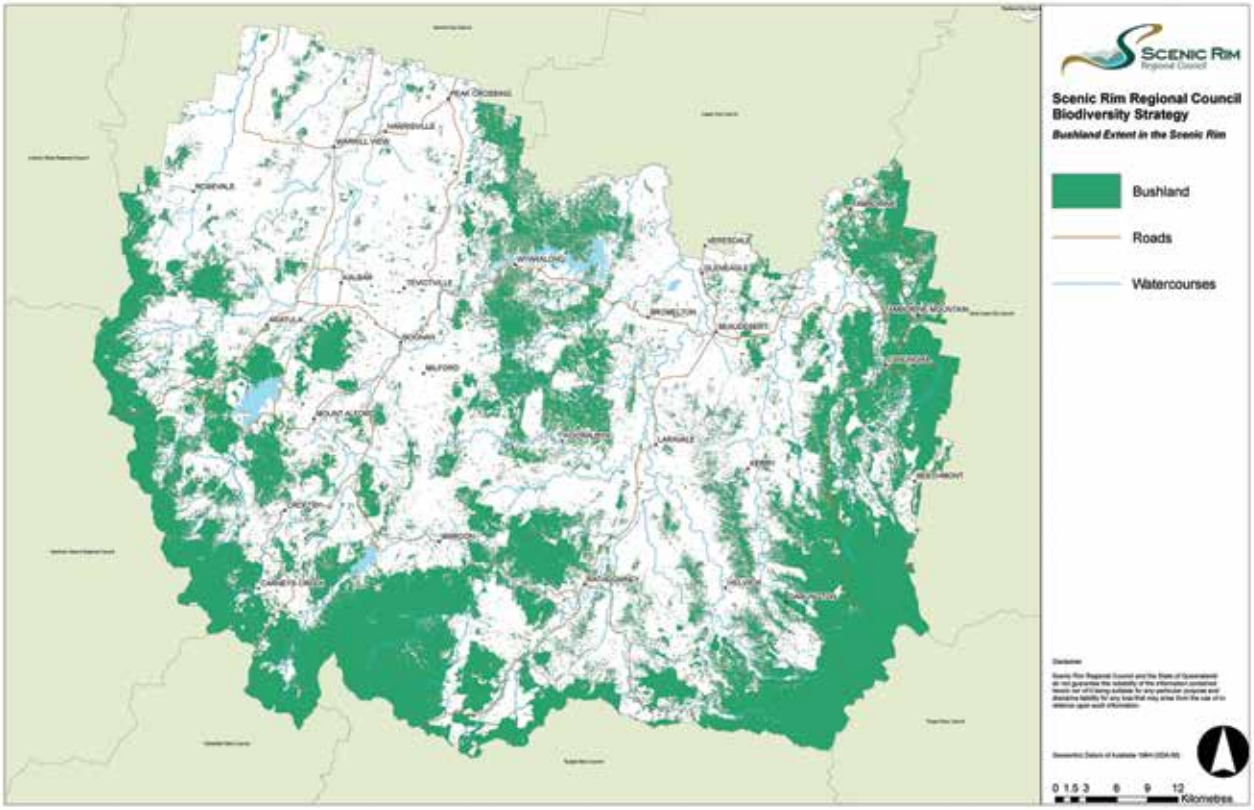
The Scenic Rim contains the headwaters for many regionally important waterways - the Bremer and Warrill, the Logan and Albert (with Canungra Creek), and the Coomera. These waterways have a significant impact on downstream users and urbanised areas of Ipswich, Brisbane, Logan and the Gold Coast. In particular they have a large impact on parts of Moreton Bay and play a crucial role in water quality and biodiversity downstream.

Wetlands within the Scenic Rim cover over 50,000 ha with 130 being over 10 ha in size. These wetlands provide important habitat for birds and other plants and animals. In addition, wetlands also provide refuge from extremes of weather, in particular drought. Animals including cattle often rely on these areas for water and feed during times of drought. Wetlands play an important role in improving water quality by trapping sediments, filtering pollution and absorbing pollutants (Department of Environment and Heritage, 2013).

In addition to the diversity of ecosystems, the Scenic Rim is a significant biogeographic region. The area contains a unique mixture of species residing in the upper and lower limits of their distributions (particularly due to the overlap between tropical

and subtropical forests). This feature is termed the Macleay-McPherson Overlap and is considered one of Australia's greatest areas of biodiversity. There is also a western overlap of species with the occurrence of the most eastern extent of Brigalow Belt communities. The current extent of bushland in the Scenic Rim is shown in Figure 1.

FIGURE 1: BUSHLAND EXTENT IN THE SCENIC RIM



PLANTS

The Scenic Rim region contains an astounding 1,926 vascular plants and 799 non-vascular plants (HERBRECS Database). Species including Antarctic Beech (Nothofagus moorei) and Hoop Pine (Araucaria cunninghamii) found in the ancient Gondwana rainforests provide a remnant link from over forty million years ago. Other species including Swamp Tea-tree (Melaleuca Irbyana) and Brigalow (Acacia harpophylla) have been cleared extensively and now exist in small important remnants throughout the Scenic Rim. A list of endangered, near threatened and vulnerable species is provided in table 3.

The region is considered a hotspot of endemism with many species found only in the Scenic Rim. The Mt Barney Tea-tree (Leptospernum barneyense) is one example of extreme endemism being restricted to select locations on Mt Barney and Mt Maroon.

The region is recognised as an important area for acacia (wattle) in Australia having extremely high levels of both diversity and endemism. These two factors suggest that the Scenic Rim may be the birthplace of the acacia genus.

TABLE: 3 ENDANGERED, NEAR THREATENED AND VULNERABLE PLANT SPECIES

LEGISLATION	ANIMAL SPECIES	NUMBER
Nature Conservation Act (1992) (NCA)	Near Threatened	52
	Vulnerable	49
	Endangered	16
Environmental Protection and Biodiversity Conservation Act (1999) (EPBC)	Vulnerable	38
	Endangered	15

VERTEBRATE ANIMALS

The Scenic Rim region contains many regionally and nationally iconic species including the Glossy Black Cockatoo, Albert's Lyrebird, Koala and Brush-tail Rock Wallaby. Wilderness areas in the Scenic Rim provide some of South East Queensland's last sanctuaries for many iconic species including the Spotted-Tailed Quoll (Dasyurus maculatus) (Wild Guide, 2011).

There is a wide diversity of arboreal mammals within the region indicating a good supply of food resources (young trees) but unfortunately, there is a shortage of hollows for habitat. Hollow bearing trees (old trees) are in short supply as a result of historic logging and land clearing.

Historic clearing has created ideal habitat for larger macropods at the expense of smaller wallabies. Small animals are restricted to forested mountains and require better connected habitat in a range of landscape zones.

Severe reduction of past rainforests has resulted in the decline of rainforest species, especially birds. Bush birds have been declining all along the eastern ranges of Australia in the recent times. Rural production landscapes can play a significant role in the recovery of these bush birds through very simple changes to management.

TABLE: 4 ENDANGERED, NEAR THREATENED AND VULNERABLE ANIMAL SPECIES.

LEGISLATION	ANIMAL SPECIES	NUMBER
Nature Conservation Act (1992) (NCA)	Near Threatened	63
	Vulnerable	53
	Endangered	15
Environmental Protection and Biodiversity Conservation Act (1999) (EPBC)	Vulnerable	28
	Endangered	13

CASE STUDY

NATURE CAN BE GOOD FOR FARMERS

Scenic Rim farmers face a challenge; the sector is changing with markets requiring greater volumes from the farm at lower prices. Scenic Rim farmers often find it difficult to expand to obtain the efficiencies of scale required to make a farm profitable as local land prices are currently being driven by population growth and urban encroachment.

The enhancement of Scenic Rim's environment presents an opportunity for primary producers to develop a strong regional nature based brand to assist local producers to create new and niche markets.

The Scenic Rim already produces a wide range of premium local products including meat, fruit, vegetables, nuts and dairy, along with processed and packaged food and beverages that are recognised in Australian markets. The region has an evolving food and wine culture, a strong environmental ethos and a wide variety of culinary tourism experiences that help showcase our premium food products to local, domestic and international tourists. But to gain and keep a premium nature brand the region will need strong natural resource management practices together with environmental protection frameworks. These credentials will support our quality food and wine reputation across a range of products, from niche and novel brands, to high-quality bulk commodities, and tourism experiences.

Positioning the Scenic Rim agricultural sector to better reflect its inherent quality will help producers achieve price premiums, attract market share for food products and encourage investment and development in our food and beverage sectors.

INVERTEBRATE ANIMALS

The region is rich with invertebrates (animals without backbones such as insects, spiders, molluscs, worms, crustaceans) which form the basis for life on earth and are crucial for the survival of all habitats. Some of Australia's largest butterflies can be found in the region. One species, the Richmond Birdwing (Ornithoptera richmondia) has a wing span of up to 16 cm in males and 13 cm in females (Departmennt of Environment and Heritage Protection).

The region has one of the highest diversities of Gondwana-related land snails in Australia, and also has a number of snails and slugs descended from northern hemisphere ancestors, including some relatively large species in the rainforest which can sometimes be seen at night feeding on luminous fungi. The Lamington Cray is another interesting invertebrate found in the Scenic Rim region. Depending on its location in the region, these freshwater crayfish can vary in colour from bright blue to greenish-brown (Wild Guide, 2011).

DIVERSITY OF VEGETATION

There are 65 individual Regional Ecosystems in the region. Regional Ecosystems (RE's) are vegetation communities in a bioregion that are consistently associated with a particular combination of geology, landform and soil. Biodiversity relies on an adequate representation of a variety of vegetation types.

Species richness (or the total number of species) and taxonomic diversity (total number of species of certain groups, e.g. the total number of mammals) is an indicator for biodiversity. Species richness provides direct benefit, in particular for people who enjoy bird watching, observing large vertebrates and collecting flowers or invertebrate species such as butterflies, beetles or spiders that rely on a diverse range of habitats.

There have been some recent advances in conserving important vegetation types with the extension of Mt Barney, Lamington and Main Range National Parks with an additional 538 ha of vegetation now included in the national estate.

POORLY CONSERVED ECOSYSTEMS

The South East Queensland Natural Resource Management Plan (SEQ NRM Plan) sets a minimum target of 4% conservation of all regional ecosystems. There are 15 vegetation types considered poorly conserved (Table 5) (Map 2). The Scenic Rim Region has significant areas these vegetation types. This presents an opportunity to for Scenic Rim to contribute to the SEQ regional target of 4%. This will aid in the resilience of SEQ into the future.

TABLE 5: SEQ TARGET FOR POORLY CONSERVED ECOSYSTEMS THAT OCCUR WITHIN THE SCENIC RIM

VEGETATION TYPE (REGIONAL ECOSYSTEM)*	SHORT TITLE	FUTURE REQUIREMENT ACROSS SEQ TO MEET REGIONAL TARGET OF 4% (HA)	AVAILABLE WITHIN SCENIC RIM (HA)
12.3.1	Gallery Rainforest on Alluvial Plains	281.39	124.15
12.3.10a	Blue Gum Forest on Alluvial Plains	159.95	18.67
12.3.3	Brigalow Forest on alluvial plains	6,346.77	434.37
12.3.3b	Blue Gum Forest with irbyana on alluvial plains	120.78	20.22
12.3.3c	Irbyana Forest on alluvial plains	63.44	2.83
12.3.3d	Gum-topped Box Forest on alluvial plains	149.03	10.15
12.8.14a	Gum-topped Box Open Forest on volcanic rocks	78.63	326.98
12.8.23	Brigalow Forest on volcanic rocks	45.76	8.89
12.9-10.11	Irbyana Open Forest on Sedimentary Rocks	96.37	62.35
12.9-10.11a	Spotted Gum and Ironbark Forest with irbyana on sedimentary rocks	202.33	76.74
12.9-10.12	Seeana Open Forest on Sedimentary Rocks	520.26	83.91
12.9-10.17a	Gully Forest on sedimentary rocks	19.38	1,733.56
12.9-10.6	Brigalow Vine Scrub on sedimentary rocks	1,228.79	125.66
12.9-10.7	Ironbark Open Forest on sedimentary rocks	2,057.62	5,945.29
12.9-10.7a	Blue Gum and Ironbark Open Forest on sedimentary rocks	271.44	529.88
TOTAL		**11,641.94**	**9,503.65**

*For a complete description of Regional Ecosystems, see Appendix C.

THE SEVEN CORE BUSHLANDS OF THE SCENIC RIM

(FIGURE 2)

LITTLE LIVERPOOL RANGE

27,000 with 3555 ha within the Scenic Rim.

The Little Liverpool Range is a mountain range of the Scenic Rim that extends from the Main Range northwards to the area between Marburg and Hatton Vale where the Warrego Highway crosses the range. The range forms the drainage divide between the Bremer River valley and Laidley Creek valley, This core contains a wide variety of forests and woodlands. The majority of vegetation within this core is on private property.

MAIN RANGE

16,665 ha

The Main Range core is an iconic range of mountains separating the Scenic Rim from western regions. This core is characterised by impressive mountain peaks including the highest peak in southern Queensland (Mt Superbus) that formed from the ancient Main Range shield volcano.

The area contains parts of the Gondwana Rainforests of Australia World Heritage Area that is home for rare and endangered wildlife and a popular bushwalking destination. It has a diverse assemblage of ecosystems and forest types including rain forest, mountain heath, forests and woodlands. Much of this core is within the Main Range National Park.

MT BARNEY

24,468 hectares

The Mt Barney core is a visually stunning landscape characterised by rugged mountain peaks, ridges and isolated crags displaying evidence of the Focal Peak eruption 24 million years ago.

Mount Barney core is one of the largest areas of undisturbed natural vegetation remaining in South East Queensland. It is significant for nature conservation, with many rare and highly endemic plant species, especially on the higher peaks. Much of the country is open eucalypt forest with some beautiful grassy slopes, the lower country bearing tall, spreading eucalypts, brush boxes and angophoras. The rainforest and wet sclerophyll forest of Mount Barney provide critical habitat for many species.

FLINDERS PEAK

5,583 ha

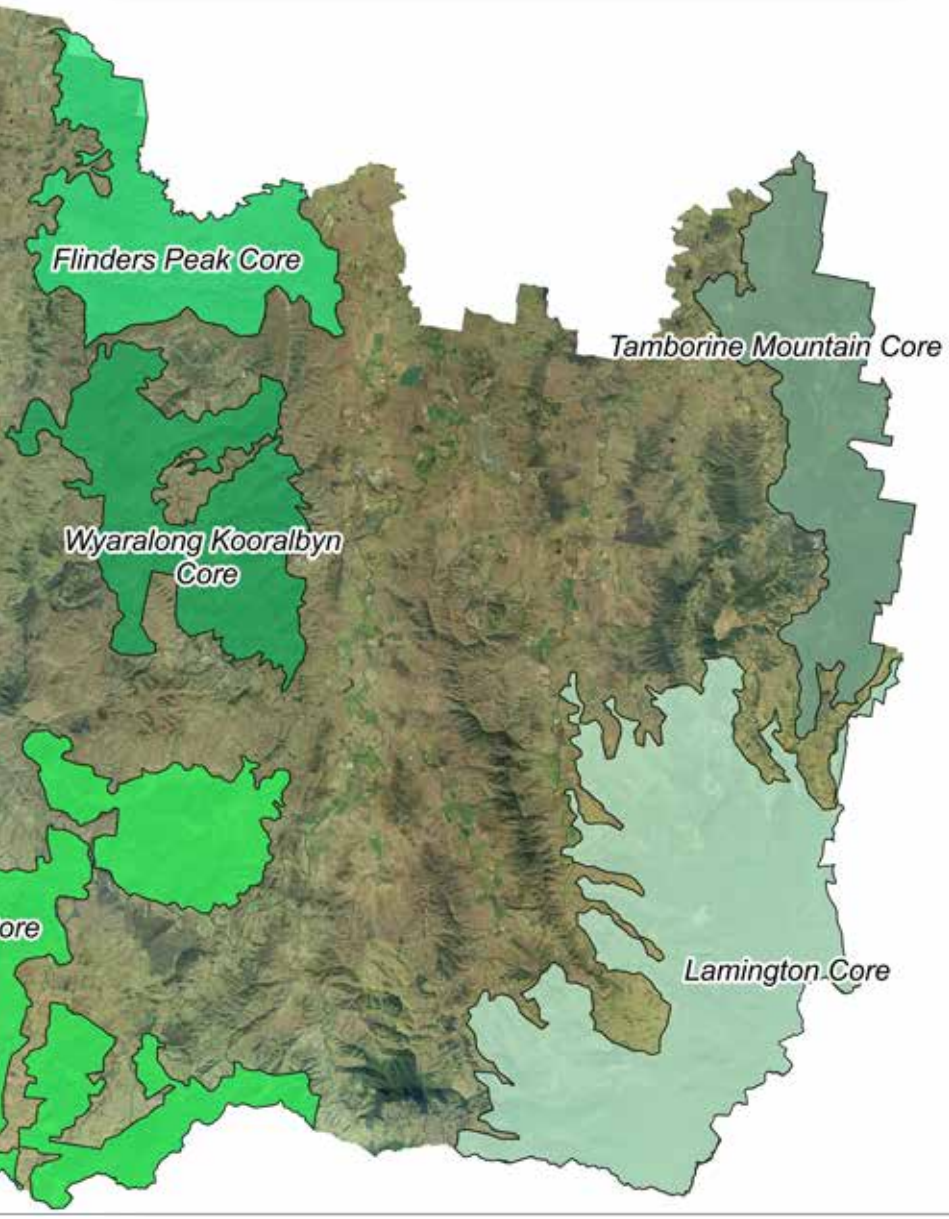
The area forms part of the regionally significant Flinders Karawatha wildlife corridor and is listed on the Register of the National Estate. The core forms part of a 60 kilometre long corridor extending into Brisbane's southern suburbs.

The core acts as an important wildlife habitat with a range of distinctive habitats providing refugia for a number of rare fauna.

WYARALONG KOORALBYN

8,147 ha

The Wyaralong Kooralbyn core consists of steep hills with forest and woodlands on Marburg sandstone formations. The area is a vital corridor providing linkages to Mt Barney National Park located to the south and the Flinders Kirrawatha corridor in the north. The majority of remnant vegetation of this core is private property. The area also contains the Wyalong recreation area which provides recreation values for the region.



TAMBORINE MOUNTAIN

8,674 ha

The Tamborine Mountain core contains many plant communities including areas of rainforest with distinctive piccabeen palm groves, wet eucalypt forest dominated by tall flooded gums, open forest with bracken fern understorey and woodland. Tamborine Mountain's ancient uprising is the result of eruptions from a huge shield volcano in the Mount Warning area of northern New South Wales about 20 to 23 million years ago. The area is home to ten different types of forest including subtropical rainforest, wet eucalypt forest and open eucalypt forest. Incredibly, these forests contain more than 900 different species of plants.

LAMINGTON

26,821 ha

The Lamington core is characterised by lush rainforests, ancient trees, spectacular views, extensive walking tracks, exceptional ecological importance and natural beauty including the Gondwana Rainforests of Australia World Heritage Area. The area attracts thousands of visitors each year which make this core an important economic resource as well as an outstanding environmental asset.

Lamington core includes a series of densely forested valleys and ranges rising to more than 1100 metres on the crest of the McPherson Range, which marks the New South Wales—Queensland border.

CORE BUSHLAND, CRITICAL CORRIDORS AND STEPPING STONES

There are seven core bushlands with a size greater than 5000ha within the Scenic Rim (Table 6) (Figure 2). These large bushland areas of valuable habitat are unique in the SEQ Region and provide many benefits such as climate regulation, buffering against extreme weather events and refugia for plants and animals in a changing climate.

TABLE 6: THE SEVEN CORE BUSHLANDS OF THE SCENIC RIM

CORE BUSHLAND	AREA (HA)
Flinders Peak Core	5,583
Lamington Core	26,821
Little Liverpool Range Core	3,555 (of 27,000)
Main Range Core	16,665
Mt Barney Core	24,468
Tamborine Mountain Core	8,674
Wyaralong Kooralbyn Core	8,147

Critical linkages and stepping stones link core vegetation. The term critical linkage includes remnant and regrowth vegetation in stepping stone, nodes, links and corridors that allow the movement of genetic material between core areas (Figure 2). Where feasible, areas of vegetation should be connected to one of the Core areas (each greater than 5000ha) (Figure 2). The last time these large corridors were measured in 2011, they all remained intact but had suffered a 50ha reduction of combined area.

The Flinders Peak Core and corridor is currently under pressure from land use change with significant fragmentation in areas. Support to connect this corridor south to the Border Ranges through the Wyaralong Kooralbyn Core would establish a valuable addition to the region's natural infrastructure.

Other bushland areas of 500-5,000ha have had smaller areas of 1-20ha fragmented from existing corridors (Figure 3). Incremental loss of key corridors threatens the resilience and adaptive capacity of natural assets and the community and economy that rely on them.

PROTECTED AREAS OF THE SCENIC RIM

The Scenic Rim is a junction for a number of national and internationally recognised corridors that connect across state boundaries. The World Heritage listed Gondwana Rainforests are remnants of Gondwana, the ancient southern supercontinent that divided up 40 million years ago to form Australia. Gondwana was covered by rainforests with the same types of species that can still be found today. These forests were selected as National Parks due to their exceptional biodiversity, rarity and/or extremely high conservation value providing habitat for more than 200 rare or threatened plant and animal species, including 2,000 year old Antarctic Beech Trees.

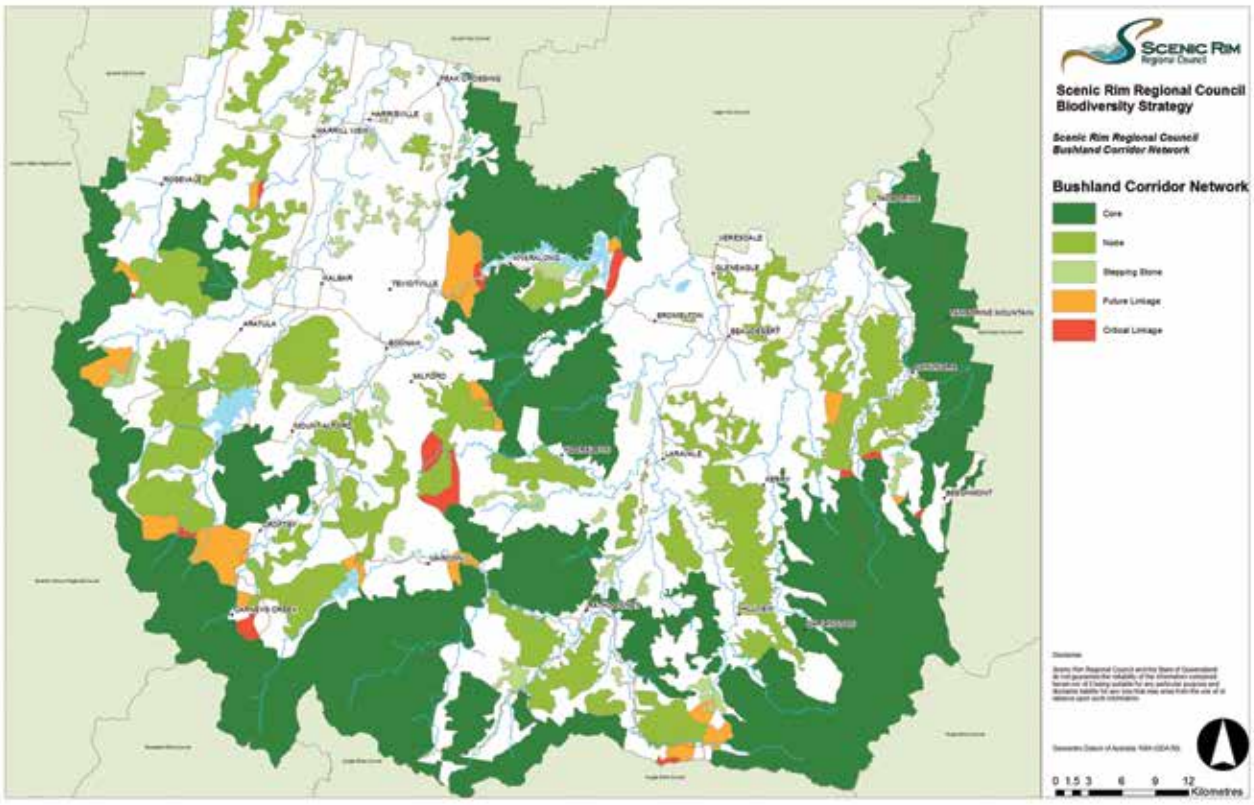


FIGURE 3: SCENIC RIM BUSHLAND CORRIDOR NETWORK

TABLE 7: PROTECTED AREAS OF THE SCENIC RIM 2014

PROTECTED AREA TYPE	NAME
Gondwana Rainforests World Heritage Area	- Lamington National Park. - Mt Chinghee National Park. - Mt Barney National Park. - Main Range National Park.
National Park	- Moogerah Peaks (Mt French) National Park. - Tamborine National Park.
Conservation Park	- Knapp Creek Conservation Park.
Council Reserve	Council has 172 parcels of land throughout the Scenic Rim Region. Councils key reserves include: - Denham Scenic Reserve. - Knapps Peak. - Waterfall Creek. - Sandy Creek Reserve. - Tamborine Escarpment Reserve. - Nindooinbah Reserve. - Fassifern Reserve.

BIODIVERSITY ON PRIVATE LAND

In addition to protected areas, private landholders play an important role in managing biodiversity. Much of the regions biodiversity exists on private land and in recognition Council has developed and facilitated a variety of different partnerships with landholders throughout the region for biodiversity conservation (Table 8). Council currently coordinates three programs:

Nature Refuge - A Nature Refuge is a voluntary agreement between a landholder and the Queensland Government. Each nature refuge is negotiated directly with the landholder through a nature refuge agreement. Nature refuge status results in protection of natural values within the declared site.

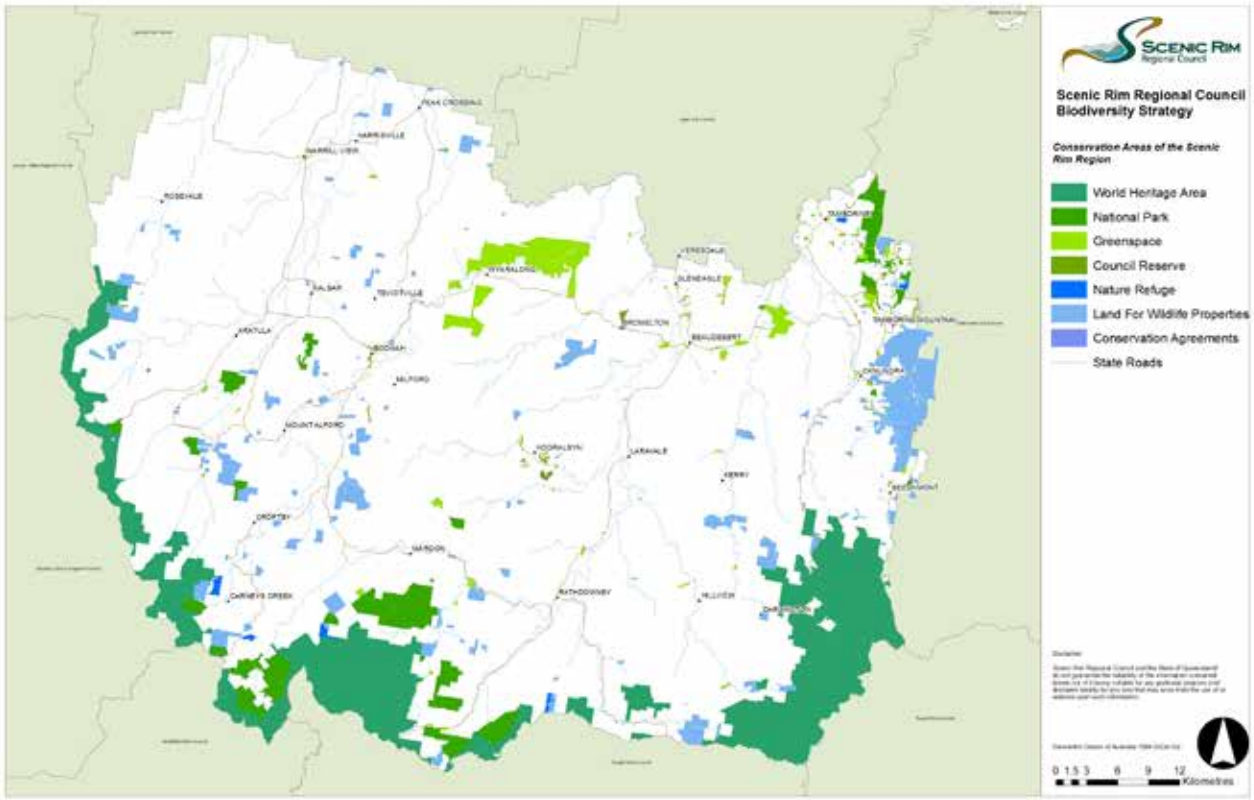
Conservation Covenants and Agreements - A conservation covenant is a voluntary agreement made between a landholder and an authorised body (such as a Covenant Scheme Provider) that aims to protect and enhance the natural, cultural and/or scientific values of certain land. The owner continues to own, use and live on the land while the natural values of an area are conserved by the landholder in partnership with the Covenant Scheme Provider. Voluntary Conservation Covenants or Voluntary Conservation Agreements (VCAs) are offered through Local Government and are usually accompanied by a rate rebate or other financial incentive.

Land for Wildlife - Land for Wildlife is a free, voluntary conservation program that supports landholders to protect native plants and animals on their property.

TABLE 8: PRIVATE PROPERTY PARTNERSHIPS WITHIN THE SCENIC RIM.

PARTNERSHIP TYPE	NUMBER OF PROPERTIES 2014
Nature Refuge	8
Conservation Covenant and Agreements	10
Land for Wildlife	221 19 (working towards being recognised as Land for Wildlife)

FIGURE 4: CONSERVATION AREAS OF THE SCENIC RIM REGION



KEY INDUSTRIES THAT BENEFIT FROM BIODIVERSITY

TOURISM

Nature-based attractions represent the top five most appealing attractions in Australia with 53% of tourists nominating Australia's beaches to be the most appealing attraction followed by Australian wildlife (46%), the Great Barrier Reef (44%), rainforest and national parks (42%) and unspoilt natural wilderness (40%) (Hajkowicz et. Al, 2013). The Scenic Rim has large areas of the latter two.

The Scenic Rim possesses world class natural assets that will continue to attract tourists in greater numbers into the future. The pressures on global biodiversity and natural habitats as a result of a changing climate and human pressures will increase the value of natural areas and habitats that remain pristine. This represents a commercial advantage for the local tourism industry as the region's richness in natural assets and biodiversity are an increasingly valuable attraction for tourists. As a result, the numbers of visitors seeking nature-based experiences are expected to increase requiring a more effective and holistic management of natural assets for positive tourism outcomes.

AGRICULTURE

Agriculture, fisheries and forestry contribute over $220 million dollars per annum to the local economy (Scenic Rim Economic Brief, 2014). This important industry relies on the ecological services, such as soil and water provided by the environment.

Agriculture and human health both benefit from the ecological service that nature provides though clean water, improved soil condition, erosion prevention, pollination, pest control, flood mitigation, soil formation, improved pasture growth and treatment of waste material.

The biodiversity and productivity of agricultural soils are threatened by:

- Increasing salinity
- Declining soil health
- Loss of agricultural land to urban and industrial development
- Soil erosion
- Lack of access to secure water supplies
- Vegetation fragmentation and clearing in upper catchments

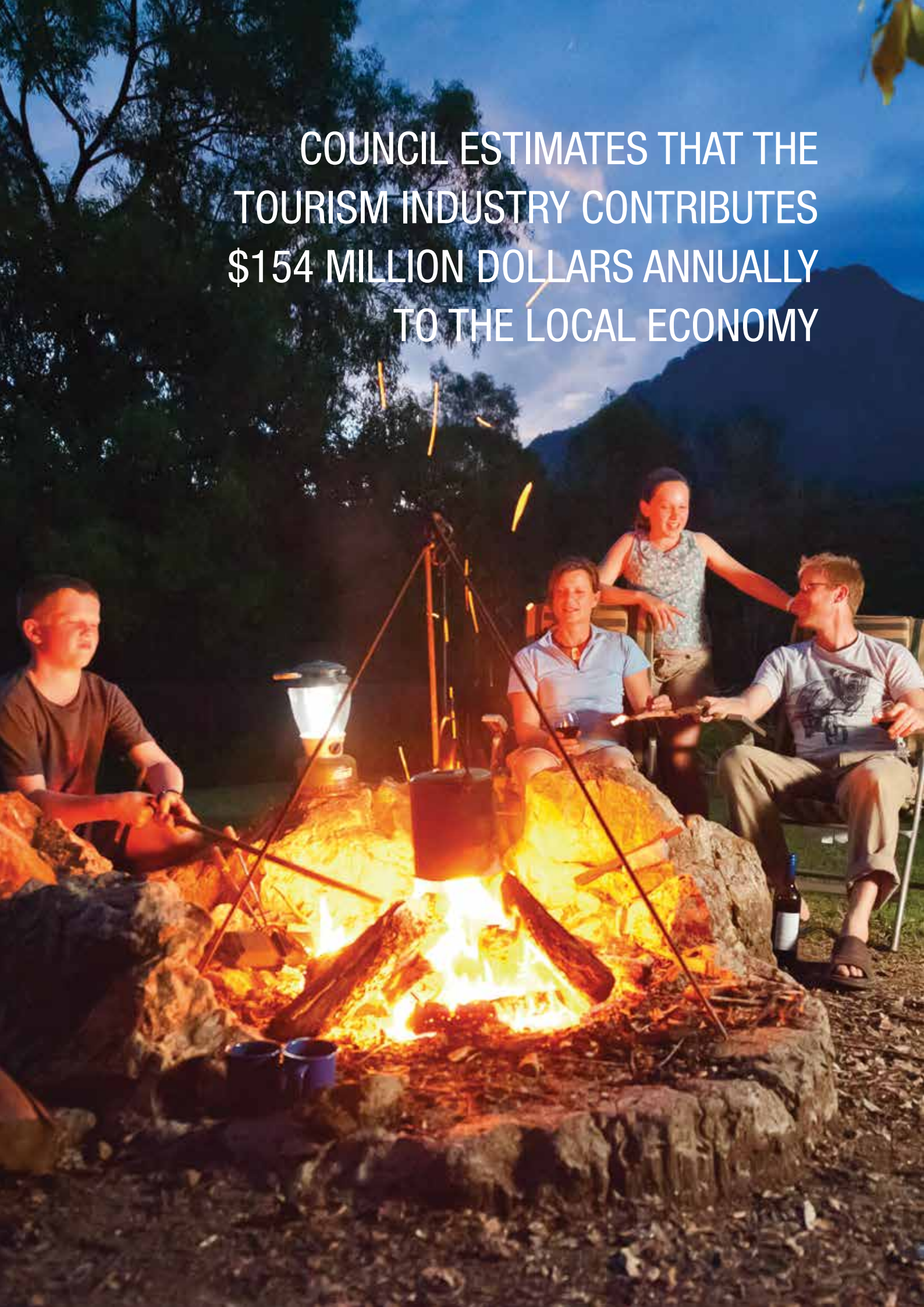
A loss in biodiversity will reduce the ecological service that nature can provide and in turn have negative impacts on productivity and profitability of farmland. A modest decline in primary production attributable to a loss in ecological services would result in significant economic flow on impacts over the next twenty years (Marsden, Jacobs and Assoc, 2010). A fall in agricultural production will also have a serious impact on regional SEQ affecting employment, social character and downstream logistics and manufacturing.

RECREATION

Open space and nature-based recreational opportunities are key drivers of quality of life and important factors in why people choose to live in or visit South East Queensland. The following livability factors top the list of what SEQ residents say they value about living in the region (Queensland Government 2010):

- Openness or spaciousness
- Closeness to natural areas
- Attractive appearance of neighbourhood
- Range of flora and fauna
- Recreational opportunities
- Community size

These factors play a major role in maintaining the quality of life in SEQ. Maintaining these factors is highly reliant on maintaining biodiversity. Even a modest decline of 2% in recreational activity due to loss or damage to natural assets (excluding fishing) could result in a decline in expenditure of approximately $200 million dollars across the SEQ region over the 2009-2031 period (Marsden, Jacobs and Assoc, 2010).

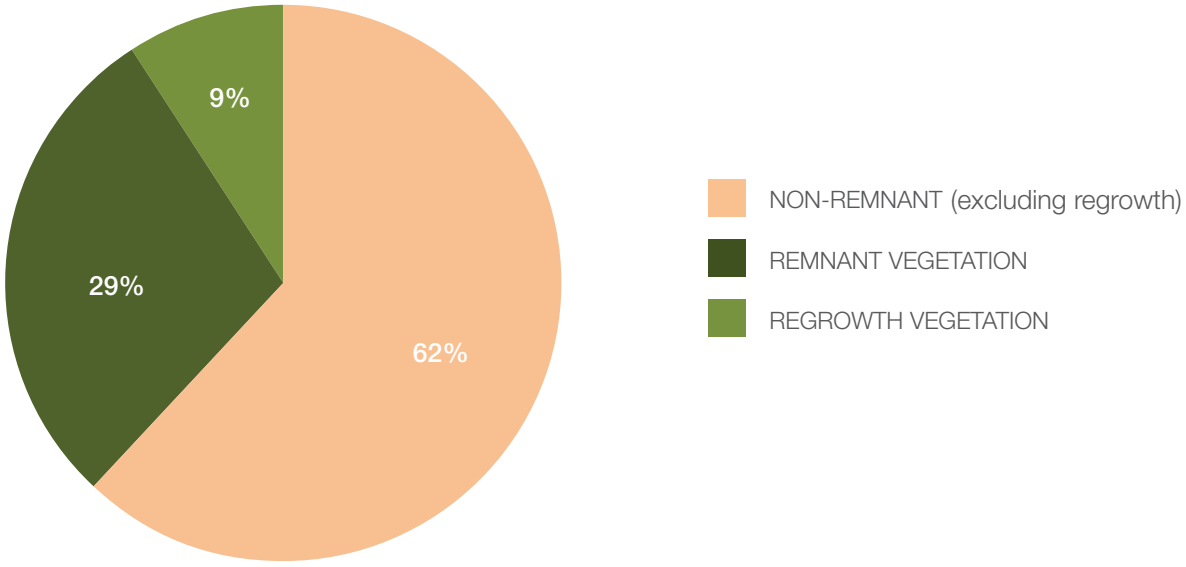

COUNCIL ESTIMATES THAT THE
TOURISM INDUSTRY CONTRIBUTES
$154 MILLION DOLLARS ANNUALLY
TO THE LOCAL ECONOMY

CHALLENGES FOR BIODIVERSITY

CURRENT TRENDS FOR BIODIVERSITY IN THE SCENIC RIM

Measuring trends in changes to natural assets can guide strategic planning and investment to ensure the biodiversity of the Scenic Rim doesn't decline. This will also assist the decision making process to ensure best returns on investment for multiple benefits for the environment, people and the economy.

FIGURE 5: VEGETATION (%) IN THE SCENIC RIM REGION



Bushland covers 38% (161,919 ha) of the Scenic Rim Region of which 29% is remnant vegetation (123,360 ha) (DNRM, 2013) and 9% is regrowth vegetation. The majority of vegetation and associated biodiversity values are currently retained on private property and managed by private landholders (table 9). Working with and supporting landholders to voluntarily manage properties as part of the broader landscape of the region is essential for maintaining biodiversity.

TABLE 9: VEGETATION OWNERSHIP IN THE SCENIC RIM

VEGETATION TYPE	OWNERSHIP (HA)		
Tenure	Public	Private	Total
Remnant Vegetation	51,052	72,308	123,360
Non-Remnant Woody Vegetation	1,196	37,363	38,559
TOTAL	**52,501**	**119,031**	**161,919**

VEGETATION TYPE	OWNERSHIP (% OF ALL VEGETATION)		
Tenure	Public	Private	Total
Remnant Vegetation	29.76%	42.15%	71.92%
Non-Remnant Woody Vegetation	0.84%	27.24%	28.08%
TOTAL	**30.61%**	**69.39%**	**100.00%**
(Version 8 Remnant and SPOT 2012 Non-Remnant)			

CHANGE IN THE AREA OF VEGETATION

The Scenic Rim area lost a total of 2,296ha of bushland (401ha remnant vegetation and 1,895ha of regrowth vegetation) between 2001-2009 (SEQ NRM Plan 2014 Update).

Current research by CSRIO (Walpole S. (1999) Assessment of the economic and ecological impacts of remnant vegetation on pasture productivity. Pacific Conservation Biology 5 , 28–35), suggest that thirty percent 30% vegetation cover represents the threshold at which the environmental, social and economic fabric of the Scenic Rim becomes severely compromised. Aiming for 35% or greater will provide a buffer against unforeseen losses in vegetation.

Strategic areas where vegetation is regenerating should be protected and managed to ensure the region does not fall below the minimum threshold required to ensure landscape resilience. These areas provide cost effective methods of increasing bushland cover.

For agriculture to remain sustainable into the future, ecosystem services such as pest and disease control, pollination, favorable climate and water quality need to be guaranteed. The supply of these services is at risk if bushland extent falls below 30%.

Although maintaining and enhancing remnant vegetation to 30% has been nominated as a target, recent research suggests that for every percent of bushland lost there is a correlating loss in biodiversity (Storch Et. Al, 2012). Research indicates that reduction of native vegetation cover below 30% across a catchment significantly impacts the provision of ecological services. This can have serious impacts upon the local economy including the agricultural sector (Doerr Et. al, 2013). The priority of this Strategy is to address these potential losses and support actions that contribute to the cover of vegetation needed to provide the benefits for a healthy and prosperous region into the future.

CASE STUDY

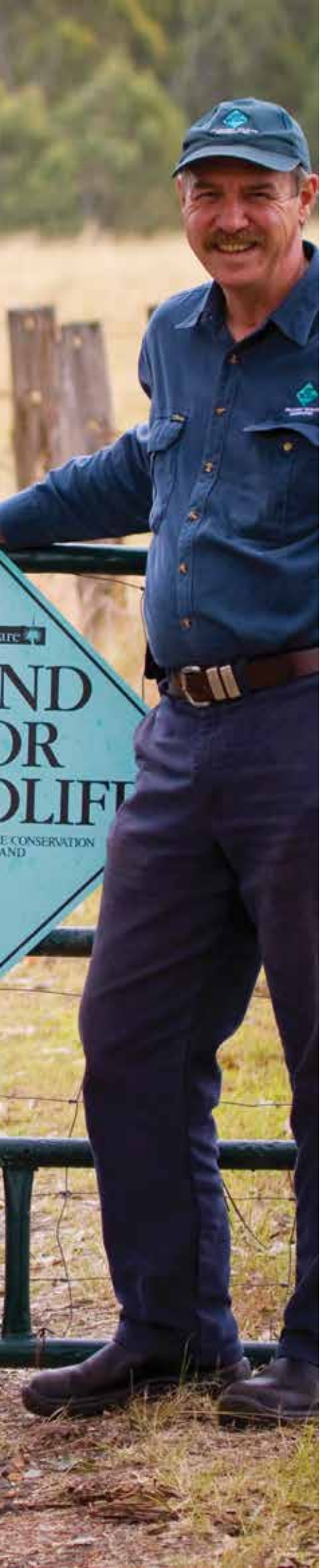
CONSERVATION PARTNERSHIPS

Over two thirds of all vegetation in the Scenic Rim is on private property.

Private properties form a critical component in supporting habitat for native plants and animals. The planning and delivery of positive environmental outcomes requires a cooperative approach between Council and the landholders of the Scenic Rim. Landholders are equipped with local knowledge and have the ability to proactively observe and manage environmental values on private properties.

Councils **Habitat Protection Program** provides a range of initiatives designed to aid landholders in the protection and management of environmental values on private property. The program plays a crucial role in creating better land management partnerships between Council, landowners and the community, and enhances the protection of the Region's valuable natural assets. Within the Habitat Protection Program, landholders can take part In Land for Wildlife, Conservation Agreements and Nature Refuges providing a variety of features and commitments to meet the different needs of applicants.

Innovative and engaging approaches in the Habitat Protection Program are continually being developed and revised to better achieve economic, social and environmental outcomes for communities of the Scenic Rim. All landholders are encouraged to play a part in ensuring the Scenic Rim remains scenic for everyone to enjoy.



EXTENT OF RIPARIAN VEGETATION

Practices surrounding waterways and linked wetlands have increased erosion and altered the range of aquatic habitats that once supported a complex web of aquatic life in the Scenic Rim. River recovery depends essentially on riparian recovery and reconnecting rivers with their floodplains. A number of native fish species are regionally significant and require a focused effort on habitat reinstatement as well as pest species reduction.

Stabilising waterways usually involves reinstating vegetation on the banks and adjacent lands. The area of waterways vegetated or otherwise is therefore an indicator of waterway health and biodiversity (Table 10).

TABLE 10: EXTENT OF VEGETATED WATERWAYS IN THE SCENIC RIM REGION

WATERWAY	AREA (KM)
Un-vegetated	4,791
Vegetated	2,986

South East Queensland Catchments 2014

MAJOR DRIVERS OF THREATS TO BIODIVERSITY

Three key regional drivers of change in the extent and condition of natural assets over the last decade which will continue to influence society, economy and the environment of the Scenic Rim are:

1. Demographic changes including population growth and migration with associated infrastructure and intensification
2. Land use changes (particularly the scale of development) with associated vegetation clearing
3. Changing climatic conditions including extreme weather events

POPULATION GROWTH AND DEVELOPMENT

The population of the Scenic Rim is estimated to grow to 81,985 people by 2036 (Queensland Government, 2015). Regional centres including Beaudesert, Tamborine Mountain and Boonah require increasingly larger amounts of land to accommodate new residents. Industrial areas including the Bromelton State Development Area will also have profound impacts on biodiversity in the region.

LAND USE CHANGE

Habitat loss and fragmentation often associated with agriculture and land use change are two priority concerns for biodiversity. As vegetation patches are reduced in size they become isolated and the on-going viability of plants and animals is severely affected. This ultimately leads to a reduction in species migration, dispersal, recycling of nutrients, pollination of plants and other natural functions required for ecosystem, social and economic health.

Loss of soil is also a consequence of inappropriate land use and vegetation management which can threaten the economic viability of many enterprises. Based on known plans for development and other land use change, it is estimated, there is potential for 3,322ha of bushland to be affected by 2031 (SEQ NRM Plan 2014 Update).This is below the bushland cover target of a minimum of 30% for the Scenic Rim.

CHANGING CLIMATE

Changes in climatic conditions may be placing increased pressure on biodiversity, society and the economy. Pressures including extreme weather events including flooding events in 2011 and 2013 and the Millennium Drought (2001-2009) as well as heat waves have the ability to alter the range and abundance of many plants and animals.

The impacts of a changing climate are likely to result in changes in species distribution and abundance. While some species will adapt and even thrive in new conditions, other species will be susceptible to reduced range and local extinction.

PEST PLANTS AND ANIMALS

Invasive weeds have the potential to outcompete native flora reducing biodiversity within the region. This in turn places pressure on native fauna reliant on food

sources and habitat. Invasive pest animals can often out-compete native animals for resources and habitat.

Introduced pests place increased pressure on natural systems including predation on native fauna, competition with native animals and damage to habitat. Pest animals have the ability to extinguish entire species through predation, disturbance of habitat and removal of food sources. Many pest and weed species have naturalised throughout the region creating significant challenges for management.

Pest plants and animals also impact upon agricultural production. Currently legislative focus has aimed at the impact of these pests on agricultural business but not biodiversity. Pest plant and animal management requires an integrated approach to enable cost effective outcomes which support biodiversity.

LAND MANAGEMENT AND AGRICULTURAL PRACTICES

Unsustainable agricultural and land use practices pose a threat to the biodiversity of the Scenic Rim Region. Increased soil erosion, water quality decline, salinity and habitat fragmentation all pose threats for retaining biodiversity within the region. These issues also impact on the economy especially agriculture as well as infrastructure including roads, bridges and water storages.

A whole of landscape approach involving all land managers is required to ensure biodiversity and farm productivity is maintained and the flow on benefits can be received right across the community and the economy. In particular, this requires appropriate management of National Parks and engagement of peri-urban or rural residential land managers in natural asset management.

Peri-urban land use change and urban development represents specific issues for land use planners and natural asset management. Increasing numbers of smaller lots can complicate whole of landscape approaches to natural asset management.

FIRE MANAGEMENT

Maintaining an appropriate fire regime is important for the maintenance of biodiversity. In many cases, fire frequency and intensity can result in reduced biodiversity, weed invasion and habitat destruction. Different ecosystems require different fire management regimes to maintain biodiversity. Areas such as rainforests require total fire exclusion in contrast to certain dry eucalypt forests that require periodic burning to reduce fuel loads and initiate obligate seeder species. Mismanagement of controlled burns, fire planning and management can result in reduced biodiversity and increased safety risk to landholders.

SALINITY

Strategic vegetation management forms part of the integrated approach for addressing salinity. The Purga, Teviot and Upper and Mid Warrill sub catchment are at risk from salinity. There are currently 25 sub-catchments in the Scenic Rim affected by dryland salinity. The major extents include Purga Creek sub catchment (220 ha) and Warrill Creek sub catchment (205 ha).

Focusing vegetation management in these sub-catchments will enhance biodiversity while decreasing the risk of salinity damage to agricultural land and waterways. A Salinity Management Plan is available for Roadvale in the Purga Creek sub catchment.

A VISION FOR BIODIVERSITY

The Scenic Rim Regional Council's vision for biodiversity is:

BY 2025, THE REGIONS UNIQUE NATURAL ENVIRONMENT AND BIODIVERSITY IS RECOGNISED, PRESERVED AND ENHANCED IN PARTNERSHIP WITH THE COMMUNITY FOR FUTURE GENERATIONS.

It aims to:

- Minimise the impact of pest species, improving degraded land and waterways, and protecting and enhancing environmental corridors.
- Ensure environmental considerations and sustainability principles are integrated into key decision making processes, policies and procedures including future land use planning, and infrastructure and organisational service delivery.
- Manage future growth opportunities and development to preserve our natural assets and to enhance our rural lifestyle.
- Work to improve the vibrancy of our towns and villages whilst recognising their heritage values and natural assets.
- Build and strengthen the social fabric of our growing region which is based on friendly, active and healthy communities and our natural environment.
- Develop a planning vision and supporting planning instruments for the region which promotes community aspirations and clearly articulates the unique qualities of our natural assets and the identity of our towns, villages and communities.
- Engage and partner with key stakeholders in all sectors to progress prosperity and sustainability through coordinated decision making and regional ecosystem investment that duly recognises the significance of our environment and ecosystem services.
- Ensure we operate in a way that recognises and supports business needs and aspirations while protecting broader community and environmental interests.
- Recognise and manage the impacts of climate change and peak oil.

CASE STUDY

MILLION TREES FOR THE SCENIC RIM

Planting a tree is a simple way to enhance our environment. Planting one million trees however, has the ability to significantly alter the regional landscape, creating real positive environmental change while enhancing our natural resources. Scenic Rim Regional Council has committed to an ambitious plan to see one million native trees planted across the region by 2025.

The program seeks to achieve this outcome through the delivery of several initiatives aimed at providing trees to residents, community groups, rural land holders and schools. The program plans to address issues of biodiversity loss while achieving sustainable land practices, waterway restoration and beautification of the region. Trees are important for maintaining a healthy environment and provide shade and clean air for the community while helping increase habitat for wildlife, improving water quality and creating biodiversity values.

The Scenic Rim Million Trees Program is divided into initiatives, each providing specific objectives and outcomes for the public. Each initiative aims to plant as many trees as possible while achieving community, habitat and rural outcomes in the region.

The Million Trees program has been designed to be flexible in nature allowing for a variety of participants. Catering for governments, non-government organisations (NGOs), community groups, businesses and individuals to participate in the program, it combines project experience with local knowledge, promoting the best possible environmental outcomes and returns.

Fostering relationships between the community and investors will enhance the region's social, economic and ecological sustainability framework, ensuring that the Scenic Rim is able to safeguard the essential ecological services our South East Queensland population centres rely on well into the future.

OBJECTIVES, STRATEGIES AND ACTIONS

To achieve council's strategic vision for the Scenic Rim, a series of actions and strategies need to occur. These actions and strategies have been developed around four key themes.

- Protecting our Biodiversity
- Enhancing our Environment
- Working Together
- Building and Sharing our Knowledge

This section provides strategies and actions to guide Council planning and investment to achieve the goals.

PROTECTING OUR BIODIVERSITY

OBJECTIVE

Biodiversity Values Including Terrestrial And Aquatic Systems And Ecological Processes Of The Scenic Rim Are Protected.

PERFORMANCE MEASURE	
• Area of bushland (including remnant and woody regrowth) • Percentage of poorly conserved regional ecosystems • Condition and size of the seven regional core bushlands • Size and severity of salinity affected land	
1	**Develop mechanisms to protect and enhance biodiversity within the Scenic Rim Regional Council Planning Scheme.**
1.1	Protect the region's biodiversity and natural assets from impacts of a degraded environment by developing planning tools to address key threats such as vegetation loss, plant and animal pests, salinity, poor water quality, soil loss for the benefit of people and their welfare.
1.2	Include an environmental offset policy in the Scenic Rim Regional Council Planning Scheme to mitigate the impacts of development.
1.3	Develop planning mechanisms for protecting local environmental values and defining locally significant species.
1.4	Develop planning mechanisms addressing park design, layout and maintenance through the incorporation of social and environmental best practice.
1.5	Protect and enhance the seven Core Habitat areas, World Heritage areas and National Parks with adequate buffers of compatible development and vegetation retention.
1.6	Develop planning mechanisms for the protection of Bushland in significant corridors.
2	**Integrate environmental considerations and sustainability principles including the precautionary principle into key corporate governance frameworks and decision-making processes.**
2.1	Strengthen the current quality management systems for Council works which may include the application of an environmental offsets system.
2.2	Utilise Council Local Laws in environmental considerations.
2.3	Utilise the Scenic Rim Biosecurity Plan in coordinating pest management across the region.
2.4	Utilise Council regulatory tools in the protection and management of waterways, wetlands and water quality.
2.5	Protect environmental values through the use of voluntary statutory tools such as covenants and agreements .

ENHANCING OUR ENVIRONMENT

OBJECTIVE

Connectedness and condition of terrestrial and aquatic systems are enhanced providing habitat for the regions diversity of flora, fauna and ecological functions.

PERFORMANCE MEASURE	
• Area of bushland (including remnant and woody regrowth) • Riparian vegetation coverage • Number of trees, shurbs, understory plants and other species planted • Amount and condition of vegetation on Council managed land	
3	**Develop a regional corridor network to provide core habitat and key linkages.**
3.1	Advocate for the extension of the regional Flinders Peak to Karrawtha corridor to include Mount Barney and the Border Ranges.
3.2	Identify and map the critical corridors, key linkages and nodes including priority regeneration areas.
3.3	Work with the community to enhance vegetation in core bushland areas, corridors, stepping stones and nodes.
4	**Enhance and protect significant landscapes, ecosystems, flora and fauna.**
4.1	Work with Government, NGO's and the public to protect and enhance poorly conserved ecosystems.
4.2	Support management efforts for the recovery of Commonwealth, State and locally significant species.
4.3	Review Council's river management and rehabilitation program, to ensure wetlands, waterways and water quality are protected and enhanced.
5	**Maintain and improve the planning and management framework for Councils Natural Areas (Bushland) Reserve System to focus resources where they deliver the greatest benefit.**
5.1	Consider ecological values in the management of Council controlled lands.
6	**Provide programs and support in enhancing the environment.**
6.1	Provide grants, subsidies and rebates and investigate extending the use of other market-based instruments to improve the environment of the Region.
6.2	Assist local land managers to enhance the environment, with incentives, information and support.
6.3	Continue investment in Council programs including Scenic Rim One Million Trees Program, Environmental Grants and Habitat Protection Program.
6.4	Investigate options to assist local farmers in managing their waterways. (e.g. riparian fencing)
6.5	Support land managers in the control of pest animals, including foxes and cats.
6.6	Investigate and promote mechanisms that provide economic incentives in the retention of native regrowth, such as agri-forestry.
6.7	Encourage the adoption of water sensitive urban design by the local development industry.

WORKING TOGETHER

OBJECTIVE

Cooperation, participation and collaboration are central to all actions in responding to existing and emerging threats in a coordinated and timely manner.

PERFORMANCE MEASURE	
• Partnerships between Council and other agencies • Partnerships between Council and community groups • Collaboration efforts between Council and other agencies • Collaboration efforts between Council and private landholders	
7	**Encourage a coordinated approach to Biodiversity management across the region by working cooperatively with Government and other key management agencies.**
7.1	Work cooperatively with the State government and other key management agencies to ensure a coordinated approach to Biosecurity management across the region.
7.2	Investigate management frameworks to improve the delivery of catchment management.
8	**Maintain relationships and develop partnerships with key stakeholders such as Government agencies, NGO's, catchment management and community groups within the region.**
8.1	Attract environmental investment to the region by providing funding to projects that align with Councils biodiversity vision.
8.2	Collaborate with government agencies, research institutions and NGO's to research and monitor biodiversity within the region.
8.3	Work in partnership with agricultural business to encourage and support best environmental practice.
8.4	Assist landholders through effective information programs to better understand their legal obligations, to ensure compliance with local laws and planning scheme provisions.
8.5	Explore and develop new ways to engage groups that are not traditionally involved in conservation (e.g. peri-urban property owners).
9	**Partner and collaborate with individuals and groups.**
9.1	Continue to foster partnerships with established Indigenous groups.
9.2	Assist in strengthening the Scenic Rim nature based brand to assist local farmers and tourism operators in marketing their products.
9.3	Build and support volunteer efforts in nature conservation and pest management.
9.4	Support the community in their conservation efforts by continuing current popular programs such as Environmental Grants and the Habitat Protection Program.

BUILDING AND SHARING OUR KNOWLEDGE

OBJECTIVE

Knowledge is developed, shared, maintained and reviewed to provide new and adaptive approaches in preserving biodiversity values.

PERFORMANCE MEASURE	
• Education events and projects provided • Environmental publications developed • Monitoring and review including healthywaterways report card	
10	**Develop a knowledge hub of regional and local environmental information that shares Council's knowledge and data about Biodiversity with community and industry.**
10.1	Support local survey and monitoring activities in strengthening local knowledge of flora and fauna.
10.2	Improve the ability to respond to threats to biodiversity through education and training.
10.3	Provide information to encourage and empower the community to make informed decisions about issues including, sustainability, livability and biodiversity.
10.4	Improve knowledge of local cultural heritage and environmental values.
10.5	Utilise Council's capacity for information sharing to inform residents and visitors of unique biodiversity values found in the Scenic Rim.
11	**Educate, Innovate and lead in environmental awareness.**
11.1	Investigate innovative tools to assist in raising environmental awareness within the community and private enterprise.
11.2	Deliver education programs that align with Council's biodiversity vision.
11.3	Support communities and environmental organisations in developing biodiversity events to share best practice and promote new and innovative approaches for biodiversity conservation.
11.4	Support opportunities to deliver environmental education in partnership with key stakeholders that align with Council's Biodiversity vision.
11.5	Facilitate learning opportunities for the adoption of environmental best practice by the agricultural and development sectors.
12	**Ensure biodiversity management and investment are monitored and reviewed.**
12.1	Strengthen partnerships with research and higher education institutions to enhance research, monitoring and reporting outcomes.
12.2	Review the SRRC Biodiversity Strategy at five years.
12.3	Develop an implementation plan to provide support and direction in achieving Scenic Rim Regional Council's Biodiversity vision.

CASE STUDY

MACADAMIA CONSERVATION, WHERE CONSERVATION IS GOOD FOR INDUSTRY

Wild populations of Macadamias are the long term insurance policy for the Macadamia industry.

Macadamias are an Australian icon; they originated in the rainforest on the east coast of Australia. They are part of our heritage and a food that has long been treasured and traded by Australia's traditional owners and is now enjoyed by people all over the world. The "macca", an Australian nut, has become a global success story and is Australia's only native plant to become an internationally commercial food.

Macadamias in the wild have become very rare. It is estimated that over 80% of wild macadamia trees have been lost since European settlement and that many of the populations remaining today are at risk of extinction.

The wild populations need to be protected to preserve the genetic diversity of this economically important species. Protecting the genetic diversity of the wild population helps the "macca" industry to respond to future challenges that disease, climate, pests or the market may present. Remnant vegetation that contains the genetic stock of Macadamias is threatened by residential development, clearing, farming and inappropriate fire regimes. Climate change, in the form of variable rainfall and higher temperatures, is also likely to intensify the risk to wild species, making smaller populations more vulnerable to changes, altering natural balances.

The Macadamia Conservation Trust is a not for profit organisation which along with the Australian Macadamia Society Ltd have been working with the Scenic Rim Regional Council to conserve remaining wild macadamia trees in their native habitat for future generations. So far valuable preliminary surveys and conservation work have commenced, culminating in the development of a species recovery plan which has become the first conservation plan developed by a farming body to receive formal recognition from the Australian Government.

The implementation of this plan has now commenced under a new project, "Wild about Macadamias".

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GLOSSARY OF TERMS

BACK ON TRACK - A prioritisation of SEQ region fauna and flora species for recovery actions and threat abatement.

BIODIVERSITY (BIOLOGICAL DIVERSITY) - The different communities, native plants, animals and micro-organisms, the genes they contain and the ecosystems they form.

BUSHLAND - Areas of relatively mature native vegetation remaining in the landscape. Could be pre-european or mature regrowth. This includes remnant and regrowth vegetation.

CATCHMENT - The entire geographic area drained by a river and its tributaries.

CLIMATE CHANGE/FUTURE CLIMATE CHANGE - A range of changes to local climate over the next 70 years based on the current unprecedented rise in CO2 in the atmosphere. Such a drastic change is forecast to bring on an accelerated greenhouse effect affecting the whole world climate.

CONSERVATION - The retention of current levels of biodiversity.

DISTURBANCE - Accelerated change caused by human activity or extreme natural events.

ECOLOGICAL SUSTAINABILITY - is a balance that integrates:

(a) Protection of ecological processes and natural systems at local, regional, State and wider levels; and

(b) economic development; and

(c) maintenance of the cultural, economic, physical and social wellbeing of people and communities.

(Queensland Government, 2009)

ECOSYSTEM - A community of organisms interacting with one another and their environment.

ECOSYSTEM SERVICES - Services provided by functioning ecosystems that are essential to human survival (e.g. provision of clean air and water).

ECOTOURISM- Ecologically sustainable tourism with a primary focus on experiencing natural areas that fosters environmental and cultural understanding, appreciation and conservation.

FAUNA - Animals

FLORA - Plants

HABITAT - The physical location of an organism in the environment, the type of environment, vegetation and climate inhabited by an organism.

HABITAT FRAGMENTATION - Habitat becomes isolated from other habitat due to separation by human activities including development and land clearing leading to loss of ecological function.

MONTANE - This ecosystem is characterised by low stunted heath like vegetation growing in mountainous areas. Other characteristics include lack of soil nutrients, hard rock and tough growing conditions.

NON-REMNANT VEGETATION - All vegetation that is not mapped within the Vegetation Management Act (1999) as remnant vegetation or regrowth vegetation.

NON VASCULAR - Non-vascular plants are plants without a vascular system (xylem and phloem). Although non-vascular plants lack these particular tissues, many possess simpler tissues that are specialised for internal transport of water.

POORLY CONSERVED - Less than 4% of the pre-clearing extent is represented in protected areas.

PRECAUTIONARY PRINCIPLE - An approach to risk management states that if an action or policy has a suspected risk of causing harm to the public or to the environment, in the absence of scientific consensus that the action or policy is not harmful, the burden of proof that it is not harmful falls on those taking an action.

RAMSAR CONVENTION - The Convention on Wetlands of International Importance, called the Ramsar Convention, is an intergovernmental treaty that provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources.

RARE AND THREATENED - A general term to describe all species that are categorised for likelihood of extinction as other than common or "least concern". Includes "near threatened", "vulnerable" and "endangered".

REFUGIA - Areas in the landscape that are buffered from extreme weather by features such as dense leaf cover, hills and gullies. Refugia are areas which will face the least long term change in climate and allow for plants and animals to move between areas as these changes occur. It is an area which is stable, accessible and large enough to sustain viable populations of the species residing within it. (Reside Et al, 2013).

REGIONAL ECOSYSTEMS - Vegetation communities in a bioregion that are consistently associated with a particular combination of geology, landform and soil.

REMNANT VEGETATION - Vegetation defined as remnant as per the Vegetation Management Act (1999).

RIVERINE - Associated with the banks of a freshwater watercourse (creeks, rivers, pond or lake).

SALINITY - The increased accumulation of excessive salts in land and water at sufficient levels to impact on humans and natural assets (plants, animals, aquatic ecosystems, water supplies, agriculture or infrastructure.

SEQ BIOREGION - One of the 89 large geographically distinct bioregions in Australia based on common climate, geology, landform, native vegetation and species information.

THREATENED SPECIES - Includes Endangered and Vulnerable under the Nature Conservation Act 1992. Species identified as critically endangered, endangered or vulnerable (IUCN categories International Union for the Conservation of Nature and Natural Resources) in the Environmental Protection Agency's Back on Track species prioritisation framework.

VASCULAR - A large group of plants that are defined as those land plants that have lignified tissues (the xylem) for conducting water and minerals throughout the plant. They also have a specialised non-lignified tissue (the phloem) to conduct products of photosynthesis.

SCENIC RIM REGIONAL COUNCIL

BIODIVERSITY STRATEGY