



NATURAL RESOURCE MANAGEMENT PLAN

MACKAY WHITSUNDAY ISAAC

2014-
2024



CONTENTS

PG 4 TRADITIONAL OWNER FOREWORD

PG 6 FOREWORD and VISION

PG 8 INTRODUCTION

Chapter 1

Regional Summary

PG 12 Regional Context

PG 13 Condition and Trends

PG 16 Our Values

PG 18 Drivers of Change

Chapter 2

The Planning Process

PG 23 Regional Planning - Brief History

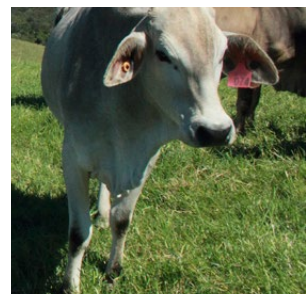
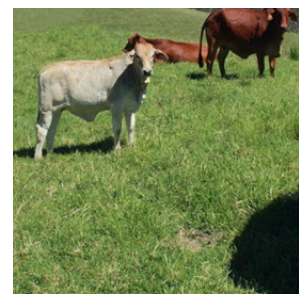
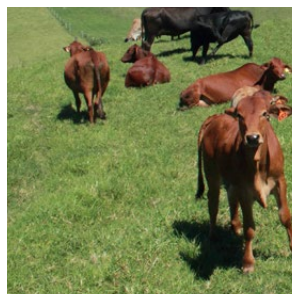
PG 24 Plan Development

PG 28 What a Difference a Year Can Make

1 PG10



2 PG22



Chapter 3

Local landscapes of Mackay, Whitsunday & Isaac

- PG32 Whitsunday Coast & Islands
- PG36 Proserpine & Bloomsbury
- PG40 Calen & Seaforth
- PG44 Eungella
- PG48 Pioneer Valley
- PG52 Mackay Region
- PG56 Mackay City
- PG60 Sarina & Isaac



PG30 3



PG64 4

Chapter 4

Goals, Outcomes and Management Actions

- PG66 People
- PG68 Terrestrial Environment
- PG70 Coastal & Marine Environment
- PG72 Agriculture
- PG74 Industry
- PG76 Climate



PG78 5

Chapter 5

Implementation

- PG79 What we Plan to Do
- PG80 Achieving the Vision
- PG82 Goals and Indicators
- PG83 Principles of Delivery
- PG84 GLOSSARY
- PG86 WITH THANKS





Acknowledgement of Country

“We would like to respectfully acknowledge the Ngaro, Yuwi-bara, Koinjmal, Gia and Wiri Traditional Owners on whose land and sea Country this plan applies. We would also like to pay our respects to the elders both past, present and future, and acknowledge the important role Traditional Owners have had and continue to have in managing this land for the benefit of all Australians.”

Traditional Owner Foreword

As Traditional Owners we have a spiritual and cultural connection to the land and sea – our Country. The natural resources that make up Country are important to many people for many reasons.

The management of natural resources is important, we have been doing it all our lives and our ancestors have before us. We have a spiritual connection to the land, that is where we come from, it is everything out there, it is significant to Aboriginal people. For thousands of years Mother Earth has provided for us giving us bush tucker, medicine, fresh water, shelter and much more so we have to look after her. You have to see it through our eyes.

The sustainability of our environment ensures that our cultural practices are maintained and continued on our land (including waters) and sea Country now and into the future.

The ideas we have included in this plan are the ‘long view’ of what we would like Country to look like. We need to look after Country for our children and grandchildren, not just ourselves.

“We would like our ideas and deep understanding of Country to be included in planning for the future of the region. This will help us to work together to look after Country and teach all of our children to do the same, so our values, culture, and heritage is protected” (Aunty Carol Pryor, Ngaro Elder).

We encourage the whole community to share the vision for our region and work together to make this happen.

Reef Catchments Traditional Owner Reference Group

ARTWORK BY NGARO / GIA TRADITIONAL
OWNER NICKY-BIDJU PRYOR.
- Bidju Designs

JURU

GIA

NGARO

YUWI - BARA

WIRI

KOINJMAL

“ We share
the vision of
the broader
community and
look forward to
helping make
this a reality. ”

Foreword

The Mackay, Whitsunday and Isaac Natural Resource Management Plan 2014-2024 is a strategic plan, developed by the community and stakeholders.

Our region is rich in natural resources that enable us to sustain major agriculture, tourism and resource industries amidst a natural and biodiverse environment.

Mackay, Whitsunday and Isaac sit at the gateway of the Great Barrier Reef and surrounding islands, drawing visitors from all over the world. Our productive agricultural land comprises sugar cane, cattle grazing and horticulture which has supported and shaped our economy, culture and heritage since the 19th Century. More recently the surrounding Central Queensland coalfields have influenced our region through the provision of vital infrastructure to support the mining industry, including one of the world's largest coal terminals at Hay Point.

Our region is home to an abundance of iconic species and landscapes, with the Clarke Connors Range providing habitat for many endemic terrestrial species, and the coastline a key habitat for migratory shorebirds and turtles.

Our region has a wealth of natural resources but these are not limitless, and if lost they are irreplaceable. The way our community uses natural resources is influenced by many factors. Sensible, balanced management is required to ensure we don't impact the ability of the land and sea to provide what we need, thereby damaging our industries, economies and well-being. Pressures on our ability to properly manage our natural resources include:

- Population growth and related issues in capacity, coastal development, infrastructure and pressure on fringing environmental areas
- An increasingly variable climate, and our community's ability to respond to such changes as the population grows
- Poor or inappropriate land management and the effects this has on natural assets (land, water, biodiversity) in delivering vital ecosystem services
- Water quality, both terrestrial and marine, including impacts of terrestrial activity on our water resources
- Invasive species and the impacts of these on the economy and environment
- Lack of cultural heritage knowledge capture and the need to empower Traditional Owner groups to protect culturally significant locations.

Our region is an exceptionally beautiful, productive and diverse place, and this Natural Resource Management Plan provides the framework for a collaborative approach for maintaining, enhancing and restoring the natural resources on which we all depend.

We invite you to be part of this plan by taking action, and participating in its implementation and review.

Robert Cocco

Chief Executive Officer
Reef Catchments Limited

Vision



A region that is resilient and adaptive to change; where people, the environment, production and development exist together in balance.”



Introduction

The Natural Resource Management Plan 2014-2024 has been developed by the Mackay, Whitsunday and Isaac community and is intended to be used by, and benefit, the community.

The plan builds on the aspirations of previous Natural Resource Management Plans produced in 2005 and 2008, and is designed to continue as a living document that is updated again in 2024.

The aim of developing this plan, similar to previous plans, is to guide investment and activity in natural resource management across the region. This plan aims to:

- bring together and share up to date information regarding natural resource condition and trends
- highlight the pressures on those assets and associated risks
- connect stakeholders to encourage involvement and partnership opportunities
- identify collaborative and strategic actions in addressing these risks and opportunities.

The plan has a two scale structure, setting strategic direction for natural resource management regionally, while capturing our community values and priorities at a local landscape scale. The intention of this is to create an overarching community strategy that is used to influence statutory plans and policies, and is further refined into more detailed operational plans.

The plan begins by context setting with a 'Regional Summary' of our natural resources, their condition and trends, and the drivers of change operating upon them in Chapter 1. This is followed by an introduction to how the document was developed, 'The Planning Process', in Chapter 2, outlining the methodology employed to achieve a collaborative, strategic plan.

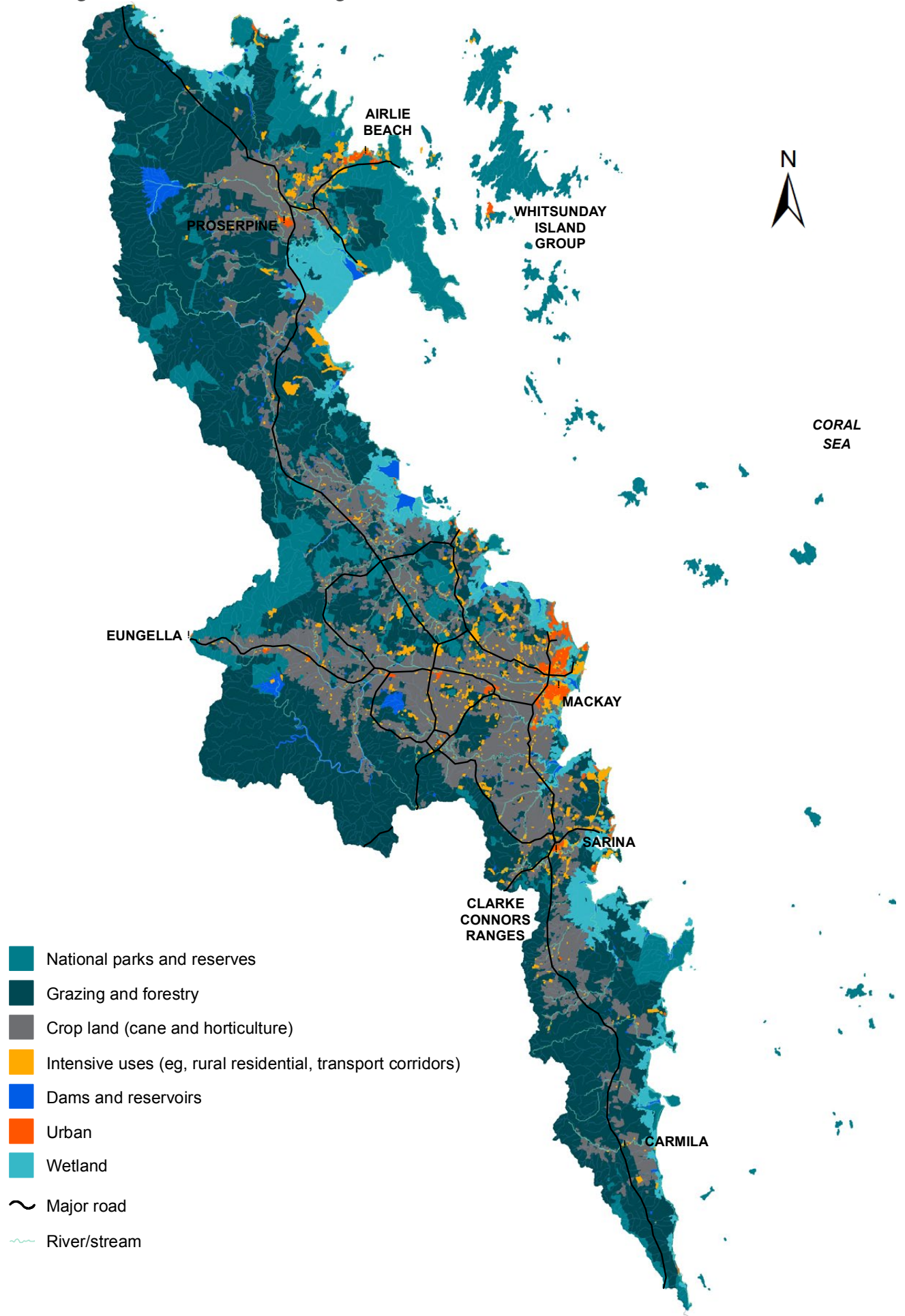
In Chapter 3, we explore stories at the local landscape scale, looking at our region's 'Local Landscape' as eight distinct social areas with unique values and visions.

Chapter 4 filters these local values and visions through eight systems, or themes, that help make sense of natural resource management in relatable terms to the regional community. It is in this chapter, 'Systems' that the outcomes and management actions necessary to achieve the goals and vision are outlined.

In Chapter 5, the plan concludes with 'Implementation', listing key collaborators necessary to achieve management actions, outcomes, goals and ultimately the vision, and indicators to assess how the region's community and stakeholders are tracking toward these.



Mackay, Whitsunday and Isaac NRM Area





Regional Summary

 **9** nationally important wetlands

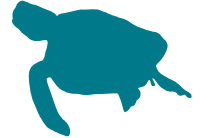
 **62,094 ha** tidal land



1.45 million overnight visitors a year

 **204** islands

49,616 square km's ocean based



 **139,320** people live in our region.

 **42%** grazing land

 **10%** forestry
937,532 hectares land base

 **18%** sugar cane land

 **20%** conserved land

Whitsunday Regional Council

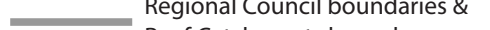
Mackay Regional Council

Isaac Regional Council

 River

 Main Road

 Major Town

 Regional Council boundaries & Reef Catchments boundary

The Regional Context

Extending from south of Bowen to Clairview, the Mackay, Whitsunday and Isaac catchment region on the Central Queensland Coast spans over 900,000 hectares land base, encompassing some of Australia's most spectacular landscapes.

The region extends from the western boundary of the Clarke Connors Range, shrouded in high altitude rainforests, across the expansive cane fields and grazing lands of the coastal lowlands, intersected with rivers and wetlands including the Proserpine, O'Connell and Pioneer Rivers, then flows out to the Coral Sea, continental islands and the Great Barrier Reef.

The Great Barrier Reef is the world's largest World Heritage Area, containing the largest single collection of coral reefs in the world with many diverse ecosystems of immense conservation value.

The region is one of the most biodiverse in the Great Barrier Reef catchment area, and is known for iconic, nationally significant sites such as Eungella National Park, Whitsunday Islands National Park, Cape Palmerston National Park, Goorganga Plains, Sand Bay, St Helens Bay, and Sarina Inlet wetlands, in addition to other conservation and High Ecological Value areas.

The population of 139,320 people is concentrated in the coastal zone and major urban centres of Mackay, Airlie Beach and Cannonvale. Smaller regional centres include Proserpine, Calen, Mirani, Sarina and Carmila which service the rural industry and provide for a variety of lifestyles.

The climate represents a transitional zone between wet and dry tropics, with high rainfall and productive, mineral-rich soil. Landscapes of the region sustain agricultural and industrial sectors, while providing diversity for our tourism sector.

The region has significant agricultural production including the largest area of sugar cane production in Australia, as well as cattle grazing and horticulture.

The resources sector provides jobs and investment through the mining services, transport and ports facilities. The region also welcomes a large number of tourists who come to enjoy the recreational opportunities provided by our tropical setting.

For Aboriginal people who identify with this Country, the land and sea is rich with cultural heritage and provides them with their identity and opportunities for traditional practices.

For many residents who have arrived more recently, the employment opportunities, enviable lifestyle, access to services and natural landscapes make the region a very attractive place to call home.

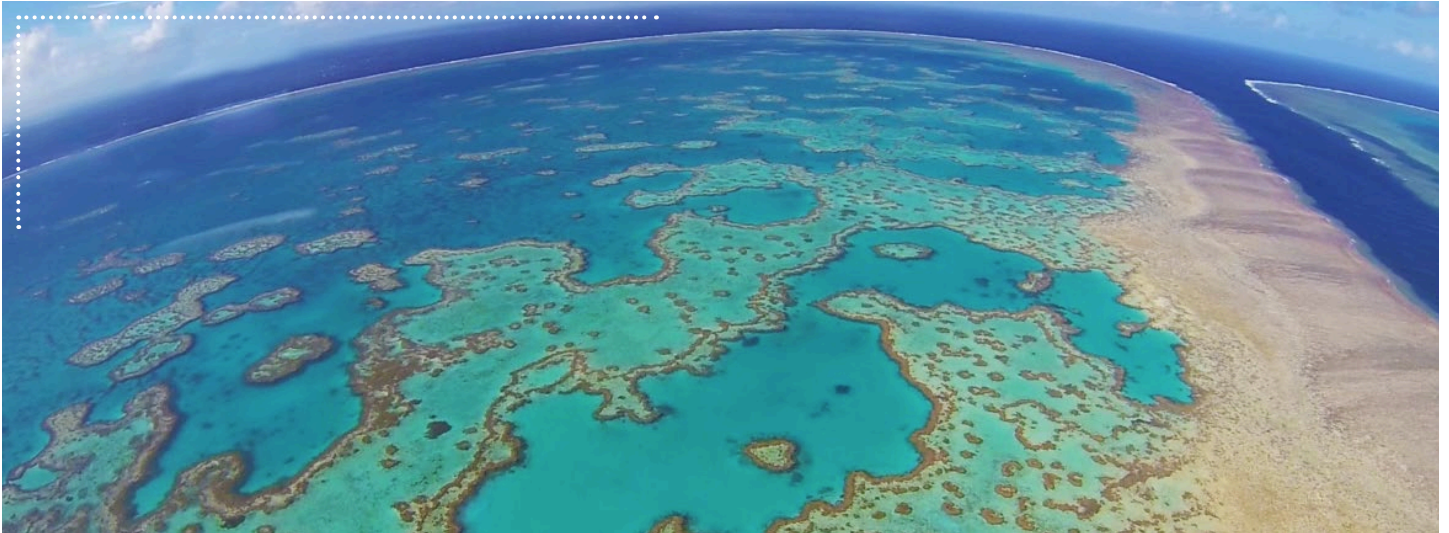
Looking to the future, this Natural Resource Management Plan has been developed with an understanding of the diversity of the region and the need to balance population growth, development, agricultural production and environmental management to ensure we continue to prosper but not at a cost to the natural resources that are critical to sustain our communities.



Condition and Trends

This summary of findings comes from the supporting ‘State of Region Report’ (2013) document.

This section highlights the value of the region’s natural assets, and then reports on the state of these assets as at 2013, based on the best available scientific information.



Marine

The Great Barrier Reef is the most extensive coral reef system in the world with some of the richest biological diversity on the planet.

Australian oceans contribute more than \$42 billion to the Australian economy, more than the agricultural sector, a calculation which does not include the provision of ecosystem services via carbon storage and fish nurseries essential to fishing and recreation industries. Regional marine waters support the largest group of charter boat operators in Australia with an annual turnover in excess of \$100 million.

The marine area is an important breeding ground for Humpback whale, the Indo-Pacific humpback dolphin and recently discovered Australian snub-fin dolphin. Dugong and six of the world’s seven species of marine turtles, which are of high cultural significance to Traditional Owners, are also present.

Key commercial fisheries within the lagoon include pelagic fish (mackerel and shark), scallops and bugs with a revenue of \$2 million per annum, with recreational fisheries likely to be worth considerably more.

Seagrass is one of the most ecologically and economically valuable biological systems on earth due to its ability to influence its surroundings. Seagrass is present in the region and highly valued for regulating nutrient cycles and providing a food source and habitat for a number of key species, including dugong.

Marine Condition & Trends

- ➔ While there have been significant improvements in understanding Great Barrier Reef catchments, gaps in knowledge exist particularly in understanding cumulative impacts of the multitude of land and sea uses and activities.
- ➔ Overall the outlook for the Great Barrier Reef is poor, with the main threats identified as climate change, land based run-off, coastal development and some remaining impacts from illegal fishing and poaching.
- ➔ The region is considered at moderate risk of degraded water quality impacting ecosystem health. Main contaminants are high levels of nitrogen and very high levels of pesticide entering the Great Barrier Reef Lagoon via rainfall runoff into creeks and rivers.
- ➔ Extreme rainfall, floods and tropical cyclones have severely impacted marine water quality and Great Barrier Reef ecosystems in recent years.
- ➔ Inshore seagrass meadows adjacent to developed areas of the coastline have declined over the past three to five years, and are considered to be in poor condition (gauged by nutrient levels and abundance of seagrass).
- ➔ Over 30 pieces of Federal and State legislation regulate port developments in the Great Barrier Reef - presenting complexity in the decision making process which impedes efficient and effective assessment of coastal developments.

Plains and Ranges

The Clarke Connors Range is one of the largest wilderness areas in Queensland, a wildlife corridor of state significance, and represents an area of outstanding natural values.

The area has endemic species (that do not occur elsewhere), including three species of frogs, one species of gecko, one species of skink and one species of bird, the Eungella honeyeater. The mammal fauna is rich and includes a threatened subspecies of the yellow bellied glider, and a distinct sub-species of swamp rat. The area also supports a large population of the nationally endangered quoll or native cat, a species which has experienced massive decline elsewhere.

There are 24 regional ecosystems represented in the Clarke Connors Range, many of which remain structurally intact, with more than 40 rare and threatened plants including a range of species only found along transitional areas.

Eungella National Park in the Clarke Connors Range is of high value for tourism with over half of visitors to Mackay taking a trip to Eungella, often to view a platypus in the wild as this is one of the only places in Australia where you can do so.

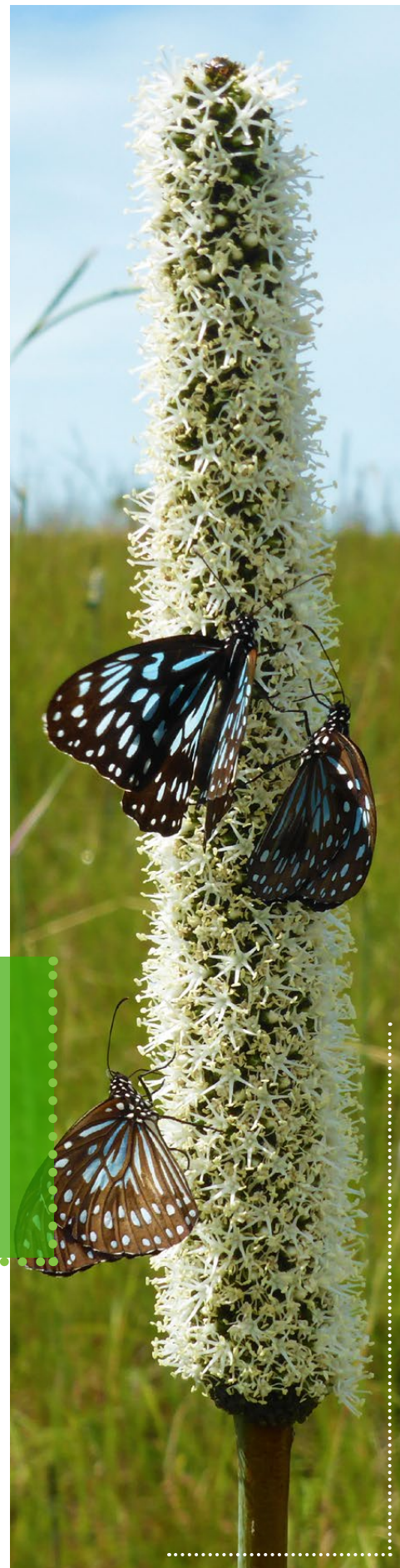
Other significant areas for biodiversity occur along the hinterland plains and ranges, including Cape Hillsborough and Cape Palmerston National Parks, and the Conway and Dryander Ranges. While the hinterland is used for agricultural production, this is supported by natural values such as remnant vegetation that contributes to water retention and erosion control, and provides habitat for species which can regulate agricultural pests.

The region's wetland areas are host to high species diversity including birds, amphibians, reptiles and insects, and 45 species of freshwater fish.

Plains and Ranges Condition & Trends

- ➔ Improved fire management practice is expected to have had a positive impact on inland biodiversity, however no empirical data has been captured to validate this.
- ➔ Likewise data gaps limit knowledge of vegetation or habitat condition in the area so the impact of invasive species is unknown. Local knowledge suggests invasive species continue to be a major threat to both the economy and environment.
- ➔ The region contains species that will be significantly impacted by temperature increase associated with climate change, as they reach their northern limits on the Central Queensland Coast (both latitude and altitude) and have high water availability requirements.
- ➔ Due to widespread flooding in 2010-2013, the water area index increased for the first time in over a decade, causing an extension of waterbird habitat and resulting increase in the number of waterbirds.

A major reason for seeking sustainable environmental solutions is to maintain the benefits that come to humans from nature and its components.





Coast and Islands

The region encompasses 900 km of mainland coastline, increasing to 2,000 km inclusive of islands. The beaches and foreshores that make up this extensive area are critical buffers between the sea and land environments, providing essential ecosystem services such as nutrient regulation, and protection from extreme weather events

The coastline has habitats of international significance such as Mackay region, which is the fifth most important area in Queensland for six species of shorebird, including beach stone curlew, and a key habitat for marine turtles. The coastal zone also contains 1,069 hectares of beach scrub, a critically endangered ecological community at a national level.

Coasts and islands have very high recreational values and contribute to the lifestyle of communities in the region.

The region's tropical beaches are major tourism attractions, generating a steadily increasing \$1,156 million in tourism expenditure per annum, including iconic Whitehaven Beach on Whitsunday Island. They also host the region's ports and harbours, exporting agricultural and resource products with values in the billions of dollars.

Of the region's 204 islands, many are contained within the 18 National Parks that cover the islands, where 31% of the 643,000 visitors to Whitsunday each year will stay at least one night, while 34% visit the islands by boat.

Because development is focused on the coastal zone, incremental loss of vegetation and biodiversity values means that 9 out of 10 beach and foreshore ecosystems have either 'Endangered' or 'Of Concern' biodiversity status.

Coast and Islands Condition & Trends

- ➔ Continued loss of vegetation and biodiversity values associated with coastal development (including mangroves) continues with 37% of remnant vegetation cleared across the region's beach and foreshore ecosystems. Although most of this was pre-1997 it has continued incrementally.
- ➔ Monitoring suggests that human disturbance is a factor impacting on roosting shorebird populations. Most recent surveys recorded 16,568 shorebirds of 32 species of which 21 species were migratory.
- ➔ Turtle and dugong mortality continues to rise with declining seagrass beds, their primary food source.
- ➔ Visitation to islands continues to increase in high use areas such as Whitehaven Beach, however most

- ➔ National Park islands are managed appropriately to minimise negative impacts.
- ➔ Islands are important refuge or 'arks' as key species continue to thrive in the absence of many threats which prevail on the mainland, such as fire, pests and weeds.
- ➔ Insufficient baseline data makes determining the status of key fauna and flora species on islands difficult, however Proserpine rock wallaby populations are sustained on Gloucester and Hayman Islands.
- ➔ Most estuaries are largely unmodified, however Pioneer is extensively modified, and another five including Bakers Creek and Proserpine River are considered significantly modified.

Our Values

Natural Resource Values in the Region; A Community Perspective.

The below summary is the result of consultation with:

- 35 targeted stakeholders via one-to-one meetings and during 2 workshops in Proserpine and Mackay
- 55 community members in 8 open public meetings across the region from Dingo Beach to Carmila
- 3 Traditional Owner Reference Group meetings
- the broader community via regular media releases and promotional activities.

Consultation activities are summarised in two supporting documents; 'Envisioning Possible Futures for the Mackay, Whitsunday and Isaac Natural Resource Management Region' and 'Open Public Meetings – Summary of Findings'.

WHAT VALUABLE THINGS DO OUR LANDSCAPES PROVIDE FOR US?

Common themes among stakeholder and community groups included the favourable climate, productive agricultural land, the people, the sense of community and small town sizes, access to good services (health, school, infrastructure), and the enviable lifestyle including recreational opportunities and proximity to a diversity of natural landscapes, such as the hinterland ranges and the Great Barrier Reef. Services provided by functioning ecosystems are valued by the community, such as access to good quality water, clean air and healthy, fertile soil. Traditional Owners identified cultural and spiritual values of the landscape as important in providing them with their sense of Aboriginality.

WHAT POSITIVE CHANGES HAVE OCCURRED IN THE LANDSCAPE?

The emerging theme of this section across all communities and stakeholder groups was improved management practices and opportunities, including better access to invasive species control, fire management, beach and marine debris collection and new technologies that allow farmers to manage land more sustainably.

The resilience of landscapes was identified as a positive change, as people observed many areas have recovered from pressures and events. Many participants in rural areas considered the concentration of development in urban centres as beneficial, with less rapid development occurring in rural areas so far.

WHAT NEGATIVE CHANGES HAVE OCCURRED?

Participants were mainly concerned about the pace, scale and nature of development in their communities and other related impacts of a growing and increasingly transient population.

These include reduced community cohesiveness and capacity, a lack of empathy with regard to environmental concerns, loss of knowledge about land management and a regional disconnect between residents and the landscapes in which they live.

The consensus across the region was that good models exist for accommodating growth, and that it can happen without compromising the integrity, character and function of the existing landscapes.

Other related concerns emerged, such as encroachment of the built environment on good quality productive agricultural land, and the division of small rural lots or 'hobby farms' and the ensuing land management issues of 'part-time farmers', such as inconsistencies in control of invasive species, wildfire, and erosion. The decreasing viability of agricultural production was a key theme, with farmers' primary concern being succession planning and the difficulty of attracting or retaining workers and family when better career opportunities exist nearby, particularly in the mines.

Other negative changes identified included weak governance arrangements that enable poor land management, and a trend toward environmental degradation such as increased erosion and of some invasive species.

Traditional Owners identified lack of consultation as a key issue, with their views not represented adequately at all levels of decision making.

HOW DO YOU WANT THE LANDSCAPE TO LOOK IN THE FUTURE?

Targeted stakeholder groups, members of the public and Traditional Owners united in the following visions. These underpinning aspirations have provided a lens through which all the Natural Resource Management Plan outcomes and management actions have been viewed.

Balance – A balance of land uses exist including agriculture, urban and infrastructure, tourism, protected areas and functioning ecosystems. Visions for the region are strategic and long-term.

Community capacity – Communities are connected to their landscapes, with access to knowledge to manage land, and a meaningful stake in the decision making processes at all levels.

Resilient, sustainable communities – Industries are diverse, development is collaborative and well planned, communities are resilient to boom and bust cycles, and are self sufficient (food, energy, industry). Young people are attracted to live and work here.



Fully utilised and actively managed land – Land is used according to best multiple benefits that goes beyond purely economics, including use of by-products and improved ecological connectivity. People have access to incentives to manage land to the best of their abilities.

WHAT DO WE NEED TO MAKE THIS HAPPEN?

Participants were forthcoming with potential ways to achieve the collective vision for the region. Common themes emerged including:

Strategic and collaborative planning and management – Consider all perspectives and work together for most viable, appropriate and sustainable outcomes. Support communities, including Traditional Owners, to take part in, understand, and ultimately have ownership of the future of the region. Improve information flow cross sectorally.

Build community capacity – Connect people to the land, share knowledge, involve people in decision making, educate, empower communities to make decisions, create foci for fostering community e.g. community gardens.

Cape Hillsborough

“It was a big walk up there, but a really nice view and so pristine with the ocean and islands. I thought, - ‘I’ll take a picture.’”

- Jayden Cali, 13 years old
Winner of the NRM Photo Competition

Innovation and diversification – Continue to promote best management and innovative practices, encourage diversification of industry to enable economic and social resilience.

Promote adaptability and resilience to changes – Consider options for farm succession planning and adaptability to changes, for example the climate. Restore and protect key habitats, ensure development is appropriate, support all industries to function, and become more sustainable e.g. produce own food.

Drivers of Change

Between the coastal zone and Clarke Connors Range lie extensive plains of fertile, alluvial flats, which host the Mackay, Whitsunday and Isaac region's agriculture including sugar cane, cattle grazing and horticultural enterprises. The primary intensive land use is sugar cane which, while only making up 18% of the catchment area, constitutes 96% of the intensive agriculture in the region. Mackay is the largest sugar producing region in Australia, producing around 30% of Queensland's sugar cane with a crop value of around \$500 million a year. By land use, grazing accounts for 42% of the region, with 50% of the region's beef cattle run by approximately 10% of the enterprises, and 11% of grazing undertaken on improved pastures. The value of agriculture is \$891 million, or nearly 10% of Queensland's total value of agricultural production.

The region has experienced significant economic, urban and population growth in the last 30 years, largely due to the flow on impacts of mining in the Central Queensland Coalfields and related industries such as construction, transport and logistics. Ports and associated infrastructure servicing these mines are of significant importance to the region, with one of the biggest coal terminals in the world at Hay Point supporting the highest value of exports in Queensland at \$13 billion. In addition, tourism is regionally significant with 1.45 million overnight visitors welcomed annually, spending around \$1 billion.

Economy



For more information regarding regional drivers of change, please refer to the 'Socio-Economic Overview' supporting document

Demography

- Gross Regional Product is estimated at around \$6.8 billion per annum.
- The local economy is dominated by the primary industry sector and the flow-on impacts of mining in the broader region, such as the provision of inputs and labour for the sector. But mining has significant "leakage" of benefits out of region, for example due to 'fly in, fly out' and 'drive in, drive out' workers, and limited inputs from local businesses.
- High wages in mining and related sectors create difficulties to attract labour into lower paying sectors.
- Primary industry employment is almost 1.5 times as important as the State average, but the relative importance is declining.
- Tourism is regionally significant, particularly in coastal zone and Whitsunday.

- The population, currently around 140,000 is expected to grow 47% by 2031. Growth will be focussed on the coastal zone with flow-on growth attributable to major mining projects, which are largely located outside the region.
- Analysis of socio-economic capacity indicates the major difference between the State and the region is in education attainment, where education in the region matches regional needs of economy (less tertiary educated, more trades).

- Land use change in the coastal zone will result in losses of biodiversity and new sources of water pollutants.
- Land use intensification, particularly in beef production areas, and to a lesser extent in sugar and horticulture areas will result in more erosion and chemical runoff unless well managed.
- Population growth and tourism will trigger a greater demand for nature-based recreation and tourism. This reinforces the need to manage trade-offs between short-term development and long-term sustainability.
- Regional growth may languish in a post mining boom era creating limitations of financial resources, which in turn will reduce pressures on the natural asset base.
- More intensive weather events will impact on some sectors, with the majority of impacts being negative.

Critical need for:

- Biodiversity protections to mitigate losses from land use change, including exploring potential of environmental markets.
- Multiple actions to address waterway health and water quality.
- Risk management in coastal development and shipping movements.
- Risk management and adaptation to climate change.

Implications for NRM Planning



Policy Responses



Future socio-economic drivers

- Significant population growth will trigger more intensive urban and peri-urban land use in coastal zone.
- The region will maintain international competitive advantage in providing services to mining in the broader region. Production growth is forecast at a slower rate with more ship movements and a continued but more moderate need for port expansion as mines move from development to operational phase.
- Sugar will struggle to capture a major share of world growth in production because the region has relatively high costs on world standings, so growth is expected to be limited in the medium term.

- Horticulture is a small sector that has potential to grow regionally as the domestic market grows and counter-seasonal opportunities expand. Major processing and value adding is unlikely in the short-term as Australia is a very high cost processing country.
- Tourism will slowly recover. Growth in the international market in the short-term will be slow, however will recover as Australian dollar stabilises.
- Horticulture and tourism are highly vulnerable to climate change.
- Northern Australia has a competitive advantage in beef and international markets are growing fast, so gradual intensification of the sector is expected.

Climate

Australia is a continent with high natural climate variability and experiences natural hazards including cyclones, droughts, floods and wildfire. Climate change is a global issue requiring the concerted efforts of communities, industries and governments to address.

Our region has higher natural climate variability than other parts of Australia, with large variations in annual and seasonal rainfall and distinct climatic zones. Eton is a drier part of the region with average annual rainfall of 1380 mm, while Sarina has an average rainfall of 1700 mm per annum.

Climate trends and projections for the Mackay, Whitsunday and Isaac Council regions include:

- Average annual temperatures for the region are 24°C (maximum) and 17°C (minimum)
- Annual mean surface temperatures have increased by 1.1°C (1950-1970) and annual mean temperature increased 0.3°C (1999-2009)
- Average maximum temperatures have increased by 0.9°C and minimum temperatures increased by 1.4°C (1950-2007)
- Projections for the NRM region indicate that annual temperatures will increase to:
 - 26°C (maximum) and 18°C (minimum) by 2030
 - 27°C (maximum) and 20°C (minimum) by 2070
- Average annual rainfall fell nearly 14% compared with the previous 30 years, which is generally consistent with natural variability experienced over the last 110 years
- Annual rainfall is unlikely to change, however, the intensity of 'extreme' weather events is projected to increase
- 1 in 100 year rainfall events (460mm in 24 hours) are likely to occur every 70 years by 2013, and every 60 years by 2050
- 1 in 100 year extreme temperature events (41.6°C) may occur every 20 years by 2030 and every 6 years by 2050

The potential impacts of climate change are numerous and varied, with biodiversity, ecosystem services, infrastructure, industry and communities being vulnerable to potential changes. Examples of these impacts include:

Biodiversity

Climate change will lead to changes to the locations of suitable habitat for many species; particularly species that require specific habitats.

Ecosystem Services

Ecosystem services provided by natural areas are expected to decline including adverse impacts on agricultural production systems.

Infrastructure

Infrastructure will be damaged more often by increases in the magnitude, extent and duration of flooding, landslips, erosion and transport of sediments and debris. Coastal infrastructure has added risk of damage from sea level rise and storm surges.

Industry

Local industries are reliant on functioning natural resources. Extreme events that damage important areas of the Great Barrier Reef may generate severe and long lasting reductions in visitation numbers that will have major impacts for the tourism industry.

Society

Disease risk may increase with increased outbreaks of dengue, Ross River fever and Japanese encephalitis. Psychological impacts are likely to be significant for those in affected industries.

Traditional Owners

Indigenous peoples' cultural practices, including customary harvesting, rely on access to a range of resources that are likely to be impacted negatively by climate-induced changes.

Population growth and continued development in floodplains and the coastal zone puts increasing pressure on ecosystem services provided by natural assets that are also the most likely affected by climate change. The risk and vulnerability of communities that live in these areas will also increase.

A 'Climate Sustainability Plan' based on sustainable development principles is being developed for the region that will include:

- Climate projections for important climate variables and seasons as defined by regional stakeholders
- Existing and potential future risk (to ecosystems, land uses and communities) in the landscape
- Costs of extreme events and maladaptation
- Collaborative strategies and actions for sustainability
- Priorities for mitigation and adaptation
- Corridors for improved biodiversity and landscape resilience
- National and other relevant international policies and markets
- Future directions



Policy and legislation

This is not a statutory or government plan, it exists to guide strategic activity while considering the wider policy context and how this may support or limit the outcomes of the plan.

A review was conducted of Australia's environmental law framework, focused on changes that affect NRM groups and their aims. This is a supporting document in the plan package; 'Environmental Guide on Recent Changes to Environmental Planning Laws' (2014). Key findings from the review include:

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

- In 2014 Queensland and Commonwealth Governments released a draft agreement to transfer Commonwealth powers under the EPBC Act 1999 to Queensland.
- Queensland will use State assessment processes to approve developments that have significant impacts on Matters of National Environmental Significance (MNES).
- A Queensland Government strategic assessment to manage the impact of development on MNES in the Great Barrier Reef region is being considered by Commonwealth. If endorsed, coastal development will be assessed and managed in accordance with the program.

The Carbon Credits (Carbon Farming Initiative) Amendment Bill 2014 (the Bill) (Commonwealth)

- This Bill amends various Acts in order to establish the Emissions Reduction Fund (ERF), to allow proponents to undertake approved emissions reduction projects.
- Under the changes, the regulator will issue Australian carbon credit units for emissions reductions, which can then be purchased through the ERF or used under voluntary carbon offsetting programmes.
- Under the Bill NRM plans will no longer be a mandatory consideration.

Water Act 2007 (Commonwealth)

- A review was announced in 2014 to focus on whether the Act is delivering on its objectives effectively, with minimum necessary regulatory burden.
- Recent changes include Water for the Environment Special Account, from which money will be given to industry to improve water usage efficiency.

Water Act 2000 (Queensland)

- The review of the Act currently underway provides an opportunity for groups to comment about how they would like to see water governed in Queensland.
- New levee management regulations are important for landholders; and there will be greater regulation of levees that will affect the amount of water on a floodplain.

Vegetation Management Act 1999 (Queensland)

- Changes to the protection of high value regrowth on freehold and Indigenous land:
 - greater flexibility for landholders in property-scale vegetation management

- may threaten targets for maintaining and increasing native vegetation cover, addressing land degradation, and maintaining or enhancing biodiversity.

Sustainable Planning Act 2009 (Queensland)

- The new development assessment provisions set out the State's criteria for assessing development, this may make it:
 - easier to understand the scope of permissible development and respond to individual applications
 - easier for assessment managers to prioritise economic considerations over environmental matters
 - more difficult for the public to participate in the approval process.
- Changes in contaminated land assessment triggers and reducing regulation of development on contaminated land create risks to water quality, soil, and air, as well as biodiversity and human health.

Land Act 1994 (Queensland)

- Changes encourage conversion of leasehold land to freehold land. The implications of this may include:
 - Lesser obligations of landholders (specifically regarding vegetation)
 - Impacts on Native Title rights
- Rolling leases have also been introduced which provide less opportunity for NRM groups to work with leaseholders to address land, pest, vegetation issues, etc.

Nature Conservation Act 1992 (Queensland)

- Grazing has been allowed in certain National Parks and reserves – this may affect weed, pests, and impact on targets associated with flora and fauna.
- Management Statements are now required in place of Management Plans. These are a lesser document and include broad goals, and no consultation requirements.

Fisheries Act 1994 (Queensland)

- Review of the act is currently underway and likely to include consultation.
- Changes to permitting have occurred which have expanded the purpose of permits; this may affect goals/targets relating to fish stocking and biodiversity.

State Development and Public Works Organisation Act 1971 (Queensland)

- Red tape reduction amendment introduced the Impact Assessment Report process which will replace some Environmental Impact Statements, resulting in decreased public participation and decrease in access to information.

Coastal Protection and Management Act 1995 (Queensland)

- The Coastal Management Plan 2014 replaced the Coastal Plan 2012, and resulted in many changes.
- An overarching change is the new plan is less prescriptive and provides more discretion to local governments regarding determining policies; this also provides the opportunity for locally relevant strategies to be developed.

The Planning Process



Regional Planning

A brief history

The current era of Natural Resource Management in Queensland began in 1989 with the Decade of Landcare, a movement which continues to provide essential on-ground works to this day.

Plans were issue, organisation and regionally specific

1989
2000

From this foundation, the Integrated Catchment Management (ICM) program was launched to manage natural resources on a wider scale, with funding made available from the Queensland Government to manage pilot projects to support on-ground efforts.

Plans were regionally and organisation specific but covered multiple issues

1990s

The Natural Heritage Trust (NHT) provided \$162 million for community projects and \$25 million for state-wide projects in Queensland. To provide more accountability the Government required regional priorities to be clearly articulated in a plan with progress monitored. The 'regional delivery model' was developed with Regional NRM Bodies developed across Australia who were responsible for developing Regional NRM Plans.

Plans were regionally specific, covered multiple asset based issues and some key partners, e.g. Landcare

1997
2001

The National Action Plan for Salinity and Water Quality (NAP) jointly provided \$319.5 million with NHT. This represented a commitment by the Australian and State Governments to tackle these two major issues facing Australia's rural industries and communities.

Plans were regionally specific, covered multiple asset based issues and some key partners, e.g. Landcare

1999

The regional NRM delivery model was functioning and generally supported by stakeholders as a tool to create behavioural change and more sustainable NRM practices.

Plans were regionally specific, covered multiple asset based issues, included some partners and included SMART targets

2002
2008

The Australian Government delivered its \$2 billion Caring for our Country (C4oC) program, the successor of NHT and NAP. CfoC Business Plan included the Government's priorities which were not explicitly incorporated in existing NRM Plans.

Existing plans were regionally specific, covered multiple asset based issues included some partners and had some spatial capacity

2008
2013

The Australian Government committed to continue C4oC with another \$2 billion funding.

Existing regionally specific, asset based spatial plans were at the half way review point – next generation NRM plans to be spatially enabled, systems based and include all key partners

2013
2018

The Australian Government announced the Regional Natural Resource Management Planning for Climate Change Fund to update all NRM Plans across Australia to guide planning for climate change impacts on the land, and to maximise the environmental benefits of carbon farming projects.

Next Generation NRM plans to include detailed consideration of climate impacts. For Reef Catchments NRM group, a separate Climate Plan will also be developed including detailed regional climate projections and adaptation and mitigation options.

2013
2016

Plan Development

The Natural Resource Management (NRM) Plan 2014-2024 was developed with the aim of uniting a region of distinct individuals, groups and organisations with a wide range of aspirations and challenges in the management of natural resources.

To ensure the plan achieves these aims, it has been developed in line with the following principles:

- Based on the best available science
- Collaborative and guided by community and stakeholders
- Specific at both a regional and local landscape scale
- Guides activity for managing the region's natural resources

This approach seeks to provide strategies to best manage land in achieving social, economic and environmental objectives in areas where agriculture, mining, tourism and other productive land uses compete with environmental and biodiversity goals.

This NRM Plan builds on the aspirations of the previous regional NRM Plan's produced in 2005 and 2008.

The NRM Plan process

Engagement

Values

Arriving at the NRM Plan's priorities began with understanding the condition of our natural resources today, the threats that challenge their condition, and who is responsible for the condition of these. This information formed the basis of the State of Region Report (2013), a key supporting document of this plan.

Visions

The next step was to ask everyone with a stake in natural resources in the region (stakeholders), what they would like these resources to look like in the future so they can continue to provide for our social and economic needs.

Participation

The NRM Plan has been developed with the advice received during extensive stakeholder consultation over a 6 month period in 2013-2014. This involved both targeted stakeholders and the general public. Representatives included all levels of government, industry, community and private sectors, and Aboriginal and Torres Strait Islander representatives.

Feedback formed the basis of the stakeholder consultation summary (2014) and envisioning possible futures for Mackay, Whitsunday and Isaac (2014) documents, two foundational documents of the NRM Plan.

Plan Development

The Committee

To drive and guide the technical development of NRM Plan a group of experts (representative of key regional stakeholder groups) came together as the 'NRM Plan Development Committee'. This group reviewed baseline information, identified strategic priorities and informed the outcomes and management actions required to deliver these.

The plan was also supported by expert panel groups from Reef Catchments and other theme based panels that exist to support the delivery of NRM around the region.

Systems Supporting Values

Initially the list of the region's values, determined through consultation, were analysed to define the key regional 'systems' responsible for delivering each of these services or values. This analysis identified eight systems critical to the ability of our region to deliver what the community needs (systems are described in the next section).

Current Versus Desired Condition

Each system was examined through a 'state and transition modelling' exercise to identify the current, preferred and undesirable states for each system. This process also identified the 'drivers' that move the systems between these states.

Drivers of System Change & Management Actions

The identification of drivers indicated where intervention was required to deliver the desired system state. In other words, what actions might restore and maintain the ability of our systems to deliver the services or values we need.

Management actions included in previous NRM plans were also reviewed to determine their relevance to delivering the outcomes identified through the new planning process. By considering these existing management actions and evaluating their historical effectiveness, it was determined whether they were still the most appropriate.

This process also helped identify opportunities to change existing actions to improve their effectiveness and relevance to delivering the current plan's outcomes and priorities. Gaps in management actions were identified and where no appropriate management actions existed, new actions were drafted.

In Practice

In practice, this approach emphasises the need to maintain the capacity of social and ecological systems to deliver goods and services. Strategies are developed to avoid undesirable tipping points. Generally, plans will recognise the importance of maintaining or building diversity and landscape connectivity, maintaining buffers, building human capacity and fostering learning and experimentation.

This NRM Plan represents a collective voice, and stakeholders may use it in the following ways to ensure its objectives are achieved:

Australian and State Government:

To integrate strategic policy and legislation, and statutory and non-statutory regional planning with NRM Plans by understanding values and priorities at a regional scale. To maximise potential collaborations.

Local Governments:

To integrate regional NRM planning with local planning guidelines and policies, find commonalities with community strategic plans, and to identify further partnership opportunities to deliver plans.

Regional NRM groups:

To set priorities and use the NRM Plan to collaborate with stakeholders in delivering these. NRM Groups are facilitators of the NRM planning process, but the plan is owned by the regional community.

Industry organisations:

To consider NRM in development of strategic plans, and align where possible to the outcomes of the plan in leveraging funding, setting priorities and collaboratively delivering NRM initiatives and industry programs and projects.

Voluntary and landcare groups:

To deliver on-ground NRM outcomes with support from State and Commonwealth investment, and to identify further opportunities to work in partnerships under a devolved funding model.

Indigenous groups:

To have a voice in cultural heritage management and land management activities, be involved in collaborative decision making and to support such delivery with traditional knowledge and practices.

Universities and other education institutions:

To identify gaps in current knowledge that could be filled with applied research and deliver coordinated skills enhancement for NRM, while creating opportunities to educate people about NRM.

Community:

To learn more about the region, the challenges we face, and what is being done to protect the values we hold. Local people in the region will have the opportunity to take part in decision making, priority setting and on ground action as part of the planning process and plan review.

Beyond the Plan

Planning is only the start of making a real difference in our communities. The next step is to coordinate action across stakeholders, and embed the planning outcomes into operational plans and projects.

As a result, the strategic aims outlined in the NRM Plan are supported by operational management actions (pp.67-77), which clearly link strategy and action so stakeholders responsible for developing and implementing projects can be assured that their outputs will realise the strategic intent of the regional NRM Plan.

The NRM Plan is also supported by a set of recommendations to improve the extent and effectiveness of implementation. The recommendations are centred around the need for:

- **Effective knowledge management** - the ability to continually improve the baseline of scientific information that supports the NRM Plan.
- **Continued stakeholder engagement** – the importance of maintaining strategic relationships developed during the planning process to monitor the NRM Plan and ensure priorities are addressed.
- **Sound governance** – maintaining the defined roles and responsibilities of a community and stakeholder owned NRM Plan to ensure its success and ongoing ownership during implementation.
- **Education and promotion** – the use of the NRM Plan as a tool to generate interest in NRM issues, while informing the regional community about natural assets and the need to balance our use of these.

Planning is only the start of making a real difference in our communities. The next step is to coordinate action across stakeholders, and embed the planning outcomes into operational plans and projects.

Link to Operational Plans

Management actions were intentionally kept at a strategic level so that all regional NRM stakeholders could identify actions relevant to their organisational operations.

These strategic management actions also provide a link to a range of supporting operational plans. These supporting plans will convert strategic management actions into priorities for on ground action by spatially locating them in the region and assessing options based on the CARE factors: Cost, Achievability, Risk and Effectiveness.

The draft management actions were reviewed as a part of the draft NRM Plan feedback process.

Plan Review

The draft NRM plan was released for public comment during a series of follow up meetings and information sessions in May-June 2014. This provided stakeholder groups with an opportunity to review the draft plan, ask questions and make submissions on how the plan could best support the vision for the future of the region.

Our Approach

It was decided that a new approach would be adopted to guide a 'next generation NRM Plan'. This approach aimed to complement the previous plans' asset based approach, which looked at natural assets such as water, biodiversity and land separately with corresponding goals for each resource.

This new approach still considers our existing natural assets, however also analyses the external forces operating upon such resources. The new approach, known as a 'systems approach', considers the land and community as interdependent. The systems are the moving parts of our region that directly influence the condition of our resource base, and should be considered as integral to realistic priority setting. It also helps stakeholders who developed the NRM Plan to better understand the local community's capacity to act, which in turn highlights where support is most needed to respond to emerging challenges.

In addition to looking at systems, we have acknowledged that community members have expertise in their local area, and vested interest in protecting their local values. As a result, we have divided the region into 8 interlinking 'local landscapes', to better capture this valuable local knowledge. These landscapes are social as well as geographic and ecological, with the anticipation that people will support priorities that are specific to their landscapes, and take action in their implementation.

Resilience

Resilience is the capacity of a system to tolerate disturbances without passing a threshold in which they transition into a different state with different structures or functions. Often this transition is difficult to reverse. This NRM Plan employs resilience thinking, to define and understand the dynamics of people and landscapes and look at how the above systems behave in response to drivers and shocks. It is important to identify potential 'tipping points' in system behaviour and key variables that influence a system so we know when a system is transitioning into a different state.

The NRM Plan Package

The NRM Plan includes brief summaries from supporting documents about the region's assets, the condition of these and the threats operating upon them. However the detail of this analysis remains in the supporting documents. This way, the NRM Plan can be succinct, focused and easy to understand, with the option to explore specific interests in a little more detail if desired.

SUPPORTING DOCUMENTS

- **State of Region Report, Mackay, Whitsunday and Isaac, Reef Catchments, 2013**
- **Stakeholder Consultation Summary Reef Catchments, 2013**
- **Socio-economic overview, Reef Catchments, 2014**
- **Envisioning possible futures for Mackay, Whitsunday and Isaac, Reef Catchments, 2013**
- **Environmental Guide on Recent Changes to Environmental Planning Laws for Queensland NRM Groups, 2014**
- **Hilbert et al. Climate Change Issues and Impacts in the Wet Tropics NRM Cluster Region, James Cook University, 2014**
- **Natural Resource Planning for Climate Change Mackay Whitsunday Isaac. Report prepared by RPS Australia East Pty Ltd, 2013**

A systems approach considers the land and community as interdependent. Systems are the moving parts of our region that directly influence the condition of our resource base.

NRM priorities have been set at a regional and a landscape scale. This is to enable community members and stakeholders to understand the NRM Plan at a scale that is appropriate to them.

ENGAGEMENT WITH ALL REGIONAL STAKEHOLDERS



SYSTEMS APPROACH

GATHER SCIENTIFIC DATA

GATHER SOCIO-ECONOMIC INFORMATION AND OTHER DRIVERS OF CHANGE

IDENTIFY LANDSCAPE PRIORITIES



HOW TO ACHIEVE THIS

WHO CAN DO WHAT? ROLES AND RESPONSIBILITIES

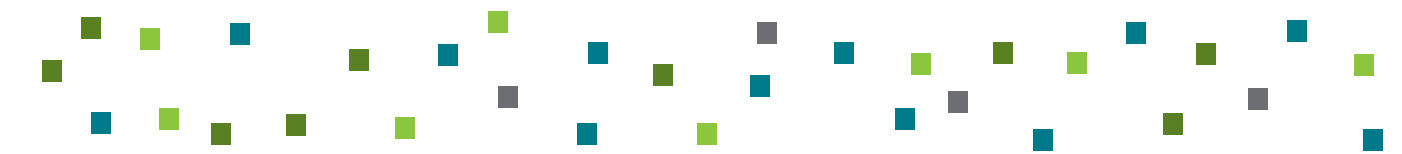
REGIONAL GOALS, KEY OUTCOMES AND MANAGEMENT ACTIONS

GATHERING AND REFINING INFORMATION

MAKING DECISIONS AND SETTING GOALS



SHARING OF INFORMATION



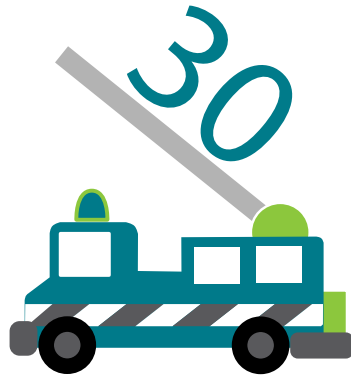
What a difference a



139,320

call the region home.

About 3,000 more than the previous year



Rural Fire Brigades and 300

landholders involved in fire planning influencing over 120,000 ha of land



improved 4,828 ha through improved management practice with investment of \$4,163,097 including landholder contribution.

For example, over 150km of protective fencing



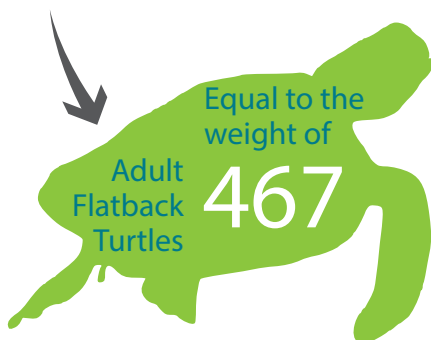
42 tonnes of rubbish & marine debris removed from our beaches and coastal reserves to prevent rubbish from ending up in our waterways and oceans



5,312



native seedlings planted to improve the condition of the coastal environment, replace removed weed species, stabilise the dune system and provide habitat for native animals such as marine turtles and shorebirds



770 metres of coastal fencing installed to protect dune environments, waterways and ocean



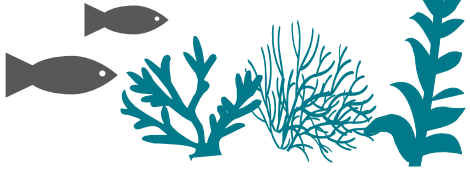
year can make...

437 km

of fish habitat

opened up through the installation of two fishways, improving

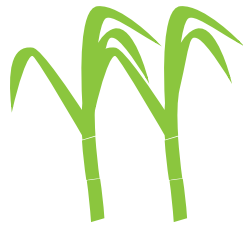
aquatic connectivity



“ You can see a positive culture spreading. People are more aware, so are doing more to look after our resources. ”

- Resident, Mirani

227 cane enterprises improved 40,627 ha



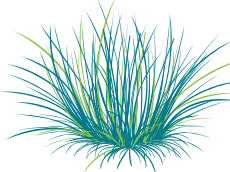
by implementing nutrient, chemical and water management practices with investment of

\$13,247,454

including landholder contribution



168



hectares of invasive species removed in Mackay coastal habitats to promote native rehabilitation. That is an area the size of

247 football fields



2

- x Large woody debris structures installed
- x Rock structures installed
- x Stream banks stabilised

improving water quality and increasing fish habitat for important recreational, commercial and indigenous fish species



8



horticulture enterprises enhanced

276ha

through improved management practice with investment of

\$301,289

including landholder contribution

3,269,968

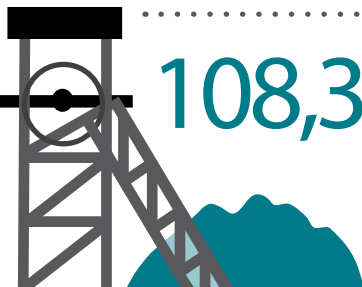
tonnes of sugar, grain and petroleum exported annually



via Mackay Harbour

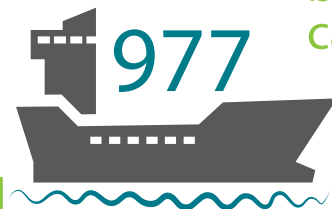
108,307,702

tonnes of coal exported in over



977

bulk carriers from Hay Point



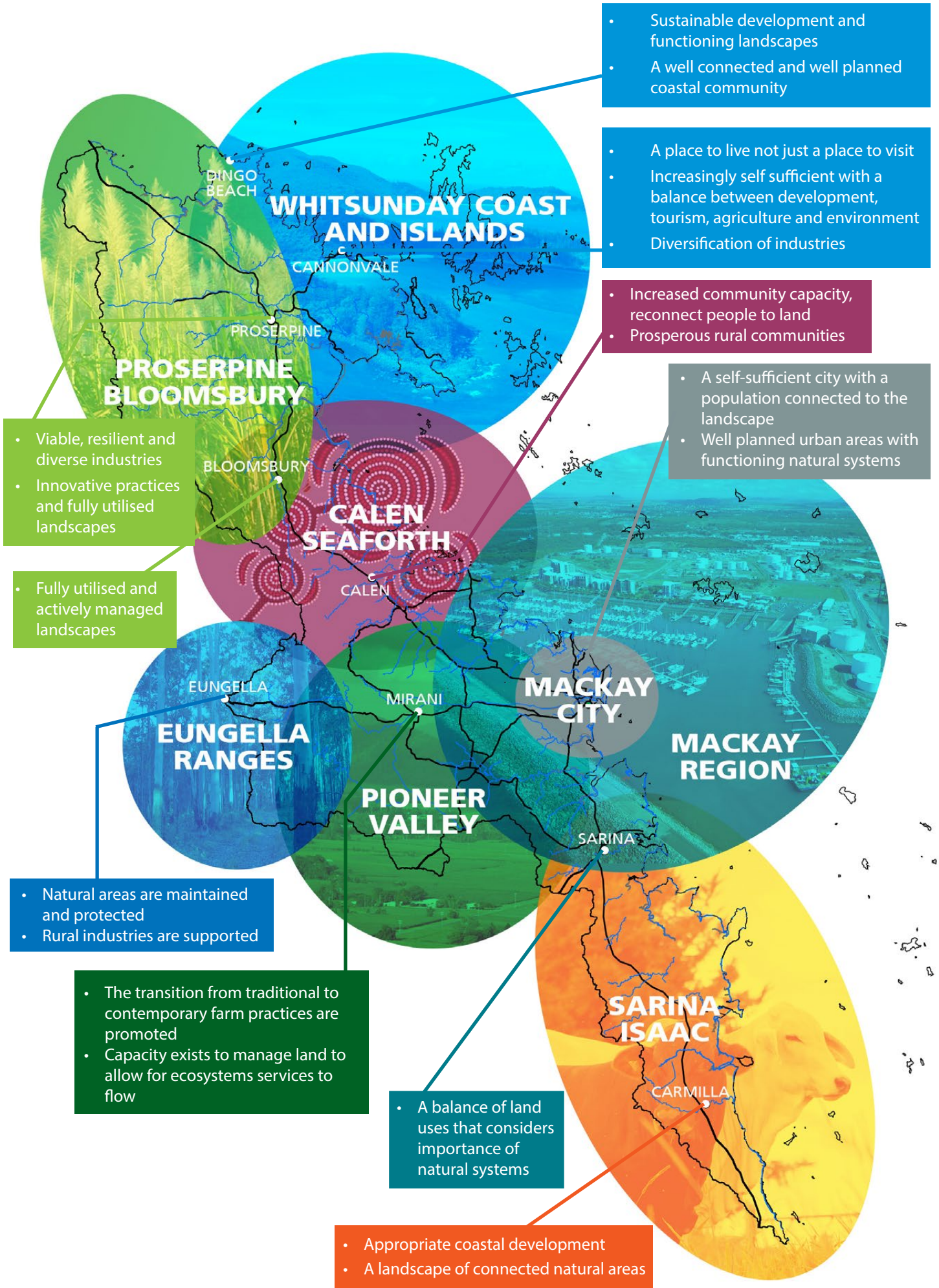


Landscapes

“

We have divided the region into eight local landscapes to better capture valuable local knowledge.

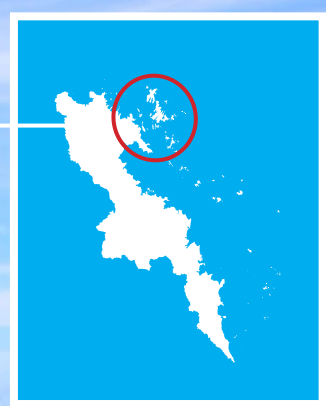
Local landscapes and key visions.



MACKAY | WHITSUNDAY | ISAAC NRM REGION

LANDSCAPE SNAPSHOT

- Gateway to Great Barrier Reef and Whitsunday Islands
- Rich terrestrial and marine diversity
- Humid sub-tropical climate, 1600 mm rainfall per annum



“

This area has incredible scenery and attracts people from all over the world, but our community is tight knit, everyone knows everyone. It feels diverse, but local too”
- Resident, Cannonvale

Whitsunday Coast & Islands.

VISION: A place to live and not just a place to visit, where the community is building towards self sufficiency and has achieved a balance between development, tourism, agriculture and the environment.

General Description

The Whitsunday Coast and Islands is an internationally renowned tourist destination symbolic of Australia's spectacular tropical east coast scenery, seafaring and beach culture, and year round sunshine. Such a great number of visitors combined with a host of tourism activities make this area highly transitory, active and culturally diverse.

Landscape Location

The Whitsunday Coast and Islands local landscape is situated on the north east part of the region and extends from the coastline just south of Gloucester Island, to Midge Point along the southern whitsunday coast. The area encompasses the Whitsunday Islands as far south as the Repulse Group.

Community

With a permanent population of 3,550 in 2011, Airlie Beach acts as a gateway to the Whitsunday Islands and parts of the Great Barrier Reef, with nearby Abel Point and Port of Airlie marinas providing regular ferry services to the islands. Cannonvale with a population of 4,990 people is the major business and commercial hub for the area with higher density residential development. Smaller communities include Shute Harbour, Mandalay, Jubilee Pocket, Dingo Beach, Hideaway Bay, Strathdickie and Conway.

Hamilton Island is the most developed island, with significant tourism accommodation and facilities, and permanent residential development.

The coastline and islands form part of Ngaro sea-country, whose people have a rich cultural history and connection to this area, evidenced by numerous cultural sites and stories.

Natural Environment

This area forms part of the region's 2,000 kilometres of coastline and islands, containing almost 25% of all the continental islands that occur along the Queensland coast.

The landscape is dominated by two coastal ranges; Conway and Dryander, whose rainforest clad massifs comprise several flat top ridges formed on gently inclining late-stage rhyolite lavas. It also includes isolated sandy beaches interspersed by small rocky headlands and mangrove lined estuaries, and extensive rocky and shingle foreshores of the Conway Peninsula through to Hydeaway Bay and Dingo Beach.

The area has some of the largest tidal ranges that occur along the Queensland coast ranging from approximately +/- 4m in the north to +/- 6m in the south.

The coastal hills remain relatively undeveloped and are shrouded in dense rainforest, vine thicket and eucalypt forest, contributing markedly to the scenic amenity of the area.

There exists within the Great Barrier Reef lagoon internationally significant marine fauna groups including the Indo-Pacific humpback dolphin and recently discovered Australian snub-fin dolphin, while the Whitsunday islands provide important calving area for humpback whales.

Few large mammals naturally occur on islands, although some introduced populations exist (e.g. brushtail possums on Hayman, goats on Whitsunday, and grey kangaroos on Brampton) with the exception of the endangered Proserpine rock wallaby on Gloucester Island.

There are only three plant species known to be endemic to Queensland's islands, two of which are found within the region. An endemic leaf tailed gecko and freshwater crayfish occur on Whitsunday Island.

Towards the coast, dugong protection areas exist to the west of Gloucester Island and to the south in the Conway area.

Inland, the summit of Mt Dryander is covered by 486 ha of endemic rainforest ecosystem. Dryander and Conway Ranges support a suite of endemic species including leaf-tail geckos, and plants such as Mt Blackwood Holly.

Land Use and Enterprises

This landscape is made up of majority high ecological value areas that are managed for nature conservation including Dryander and Conway National Parks and Conway State Forest, in addition to areas of Marine National Park and Marine Habitat Protection Areas.

Urban development occurs around most populations centres with the exception of Airlie Beach where the topography, scenic amenity and environmental values restricts extensive urban spread.

Of the National Park islands, five (South Molle, Long, Hook, Lindeman and Brampton Islands) have been partly developed as tourist resorts on land leased from the National Park. However, most of these are not currently operating largely because of market downturns. A further three resorts are on privately owned islands Hayman, Hamilton and West Molle, also known as Daydream, and resort infrastructure is currently being developed on Dent Island.

Inland and towards Proserpine agricultural land emerges, the majority of which is sugar cane and grazing.

1.92 million visitor days are recorded on the Great Barrier Reef each year with 800,000 and 120,000 of those visiting the Townsville/Whitsunday and Mackay/Capricorn areas respectively during 2011/2012. Across this region, tourism industries are responsible for employing at least 30,000 people directly.

It is approximated that the value of the tourism industry regionally is \$577 million, with recreational boating and fishing in Whitsunday alone comprising more than 20% of the vessels registered for the whole Great Barrier Reef.

Although difficult to quantify, the ecological value of this local landscape is also significant with key habitats and ecosystems

providing essential services that in turn support regional industries.

Climate

There are significantly different rainfall patterns across the region with Airlie Beach existing in the 1600 mm per annum rainfall belt.

Airlie Beach, Cannonvale and the area around Goorganga Plains are located in an area deemed high hazard for storm tide and sea level rise risk.

Whitsunday and Hook Island along with Hideaway Bay and parts of Dingo Beach feature areas of very high to high risk for bushfire.

Comprising majority coastal residential areas, this area is vulnerable to tropical cyclone activity which has the potential to damage the area significantly in both short term (infrastructure, habitat) and long term (tourism decline due to coral death) timeframes.

Local priorities

Sustainable planning and development

We need to maintain a balance between environmental and social values in urban and peri-urban development, to improve the health of our natural ecosystems and ensure land is managed within our capabilities. We will achieve this by engaging stakeholders to ensure the balance is maintained.

A place to live not just a place to visit – a self sufficient area with a diversity of industries

We would like Whitsunday Coast and Islands to be a place for locals, as well as our visitors, by ensuring we are resilient to international and domestic tourism and mining market fluxes. We would like our existing development areas to be renovated, as opposed to building anew, and there should be a lesser dependence on external input. We will achieve this by engaging local stakeholder groups to advocate for self sufficiency, for example in growing and retaining fresh produce in our region for our consumption locally.

Connectivity to natural areas

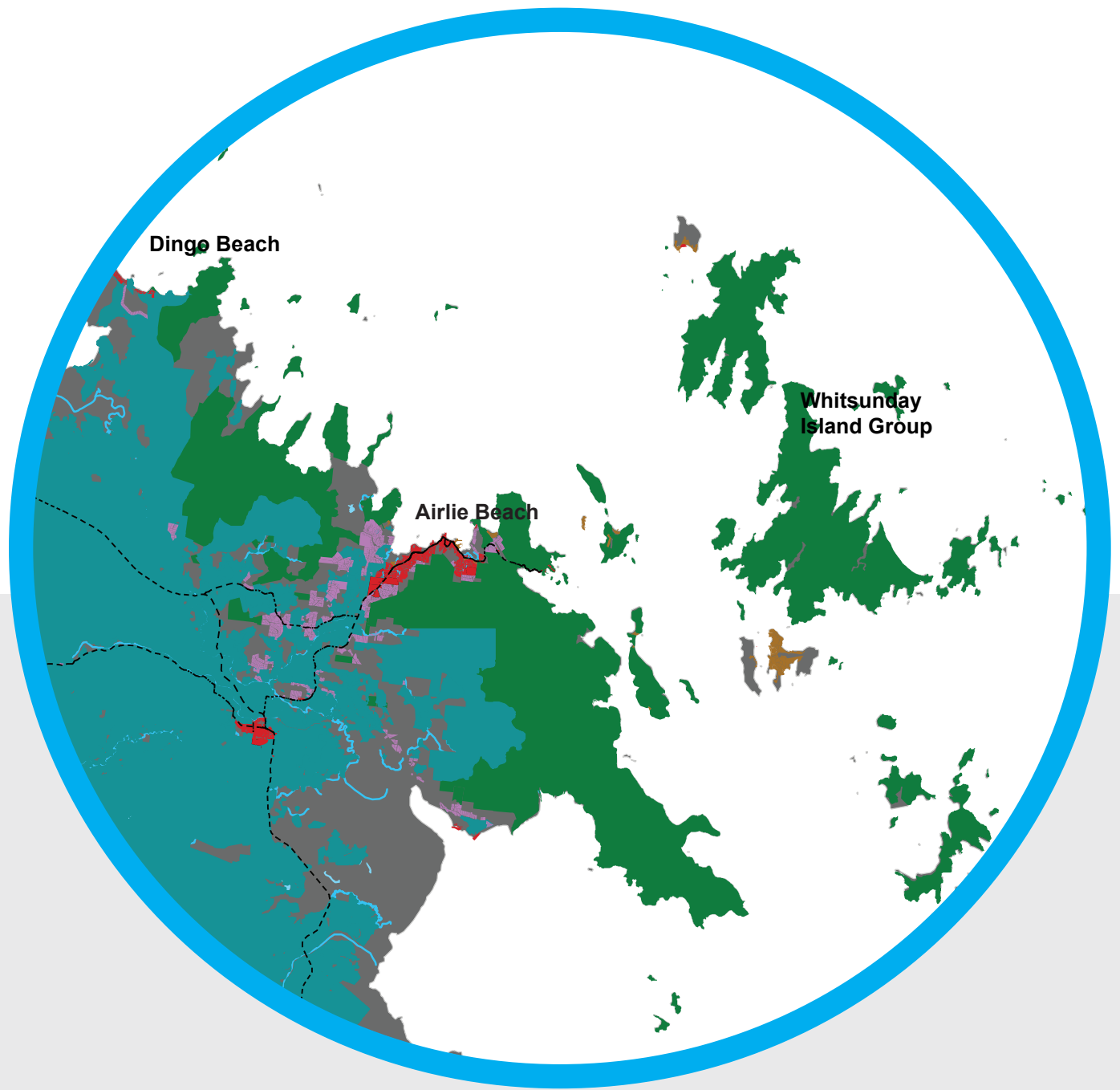
We need to provide habitat connectivity, in particular between the key land and sea interface and in areas of riparian vegetation. Such connectivity should also be considered in development proposals and in adapting to increased climate variability.

Support and celebrate our diverse community

We would like to celebrate our diversity and help people understand the value of our cultural influences, and educate people about the special places 'beyond the reef', including nearby agricultural landscapes. Aboriginal Traditional Owners of the Whitsunday Coast and Islands sea-country would like to have the opportunity to take part in natural resource management and other activities.

Whitsunday Coasts & Islands

High Competition Between Land Uses.



Parks and Reserves



Agricultural Land Use



River / Stream



Main Road

Tourism



Rural Residential



Urban



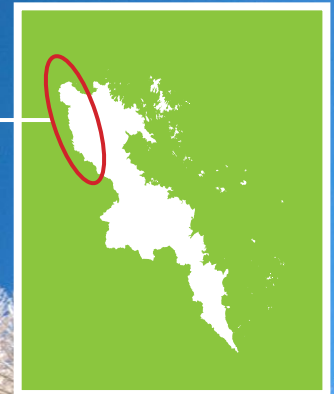
You can't destroy the environment, the very thing that people come from all over the world to see."

- Tourist, Dingo Beach



LANDSCAPE SNAPSHOT

- Proserpine next civic hub north of Mackay
- Goorganga Plain wetlands complex
- Sugar cane and beef cattle production
- Transition between cane/grazing and horticulture of Bowen region
- Humid subtropical climate, 1600 mm rainfall belt per annum



Proserpine & Bloomsbury.

VISION: A place where viable, resilient and diverse industries exist, driven by innovative practice and actively managed landscapes.

General Description

The productive plains of the Proserpine and Bloomsbury area are characterised by seasonal stands of cane and the familiar passing of cane trains during harvest. Elsewhere rural homesteads nestle by open plains of grazing country in the valleys of the dramatic Clarke-Connors Range which bounds the region's westerly limit.

Landscape Location

The Proserpine Bloomsbury landscape extends from the northerly most part of the catchment, to the westerly most part, encompassing a portion of the Clarke Connors Range. It tracks south along the Bruce Highway as far as Bloomsbury, and east to Strathdickie, overlapping with Whitsunday Coast and Islands area.

Community

Although the population of 3,390 people is similar to that of Cannonvale, Proserpine serves as rural civic hub with local level retail and commercial services more aligned with the areas agricultural focus. A main feature of this locality is the Proserpine Mill, which supports the surrounding sugar industry.

This area also encompasses Bloomsbury, a highway town south of Proserpine on the Bruce Highway. Although no other major centres exist, rural residential areas feature such as Lethebrook, Kelsey Creek and Crystal Brook.

The Gia identify as Traditional Owners of this Country.

Natural Environment

Between the coastal zone and Clarke Connors Range lie extensive plains of alluvial flats, intruded in parts by coastal hills and ranges and the Gregory and Proserpine Rivers.

The Goorganga Plain wetlands complex extends south from Proserpine and consists of approximately 16,850 hectares of seasonal wetlands, recognised in the Directory of Important Wetlands in Australia. It is particularly significant because it consists of a diverse range of wetland ecosystems graduating from marine to freshwater environments.

Goorganga has important ecological functions including floodwater detention, nutrient assimilation and sediment trapping. It provides habitats for rare and endangered plant and animal species, as well as valuable nursery habitats for

many fish species. It also hosts migratory bird species and large numbers of resident waterbirds.

The areas wetlands are dynamic ecosystems with significant bird, reptile, amphibian and insect species, for example Peter Faust Dam which supports an estimated 1500 nesting pairs of pied cormorants, 200 pairs of black swans and more than 400 pairs of Australian pelicans.

Although the hinterland plains, coastal hills and ranges are largely an agricultural landscape, the areas still support biodiversity. For example, remnant hillside and riparian vegetation provides habitat, in particular nesting hollows, for owls and other species that play roles in regulating agricultural pests such as cane rats.

Land Use and Enterprises

Proserpine is the key commercial service and administration centre for the Whitsunday region. The land around Proserpine comprises some of the best agricultural land in the region, with cane production centred on the land around the Proserpine Mill. Radiating further from the cane area is extensive grazing land which makes up the dominant regional land use, and areas of National Park and State Forest. Some horticulture and aquaculture operations also occur in the area.

The value of agriculture production in Mackay, Whitsunday and Isaac council regions was \$891 million in 2010-2011 which represents nearly 10% of Queensland's total value. Sugar cane in this area underpins the economic stability of the community and contributes to the identity of the community, with 1.632 million tonnes of cane crushed at the Proserpine Mill in 2013. Likewise, grazing has a significant influence on the economy and lifestyle of the area.

Although the majority of tourist activity occurs on the coast, Peter Faust Dam or Lake Proserpine also attract tourists and locals alike to enjoy watersports and freshwater fishing, with 20,000 barramundi fingerlings restocked annually.

This area contains key transport infrastructure that supports regional tourism including the railway station in Proserpine, Whitsunday Coast Airport, and the only hospital outside Mackay.

Climate

Proserpine and Bloomsbury have a humid subtropical climate, and in winter temperatures in outlying areas sometimes dip below zero. The highest rainfall in the region occurs to the north east of the town in Conway National Park. The localities of Midge Point, Hideaway Bay, Crystalbrook and Kelsey Creek are usually the driest in the region owing to influences such as distance from the ocean and rain shadows.

The area has been affected by tropical cyclones most significantly Cyclone Ada in January 1970 and Cyclone Ului in March 2010. A cyclone shelter was completed in 2013 at Proserpine State Primary School.

The Gregory River estuary area to the north and the Goorganga Plains wetlands complex south east of Proserpine are located in areas deemed high hazard for storm tide and sea level rise risk. Goorganga Plains is also subject to severely erosive flooding.

To the west and along the Clarke Connors Range areas of very high to high risk for bushfire occur.

Local priorities

Viable, resilient and diverse industries

We as rural communities want to remain autonomous, keeping adequate local service provision and continuing to live a regional lifestyle. To be resilient, we need to be viable and diverse. Our industries must be varied to support the economy during changing market conditions. Working with stakeholders we need to identify areas which should be retained as important agricultural land, and how to manage this with biodiversity outcomes. Resilience will require planning for farm succession, good governance, attractive investment in the land, and ability to 'go the extra mile' in property management for multiple benefits.

Innovation and sustainable production

We will seek opportunities for our industries and communities to remain viable. This will include investment in new technologies and best management practice techniques. We need support to fully explore opportunities like environmental markets, generation of by-products, and on farm tourism to supplement our farm income. We will continue to support a culture of innovation and best practice in agriculture by supporting locally based trial sites, education and research.

Fully utilised and actively managed land

We want to see land used to its full potential within sustainable limits. For example, Cathu State Forest could be used more for forestry and less for car and bike rallies. Land should be managed at a landscape scale, in particular for invasive species and fire, so we can as a community share the responsibility of land management across fence lines. Small block holders should be aware of their responsibilities and part they play in whole of landscape management.

Support the protection of important wetlands

Goorganga Plains Wetland is valuable to our community both environmentally and economically, while also providing cultural significance to Traditional Owners. The wetlands and surrounding areas support beef cattle, sugar cane and forestry as well as nearby residential land use. It also provides ecological functions including floodwater detention, nutrient assimilation and sediment trapping and habitat for rare and endangered species. We need to work with not just landholders, but other beneficiary stakeholders to design and implement programs that ensure appropriate management.

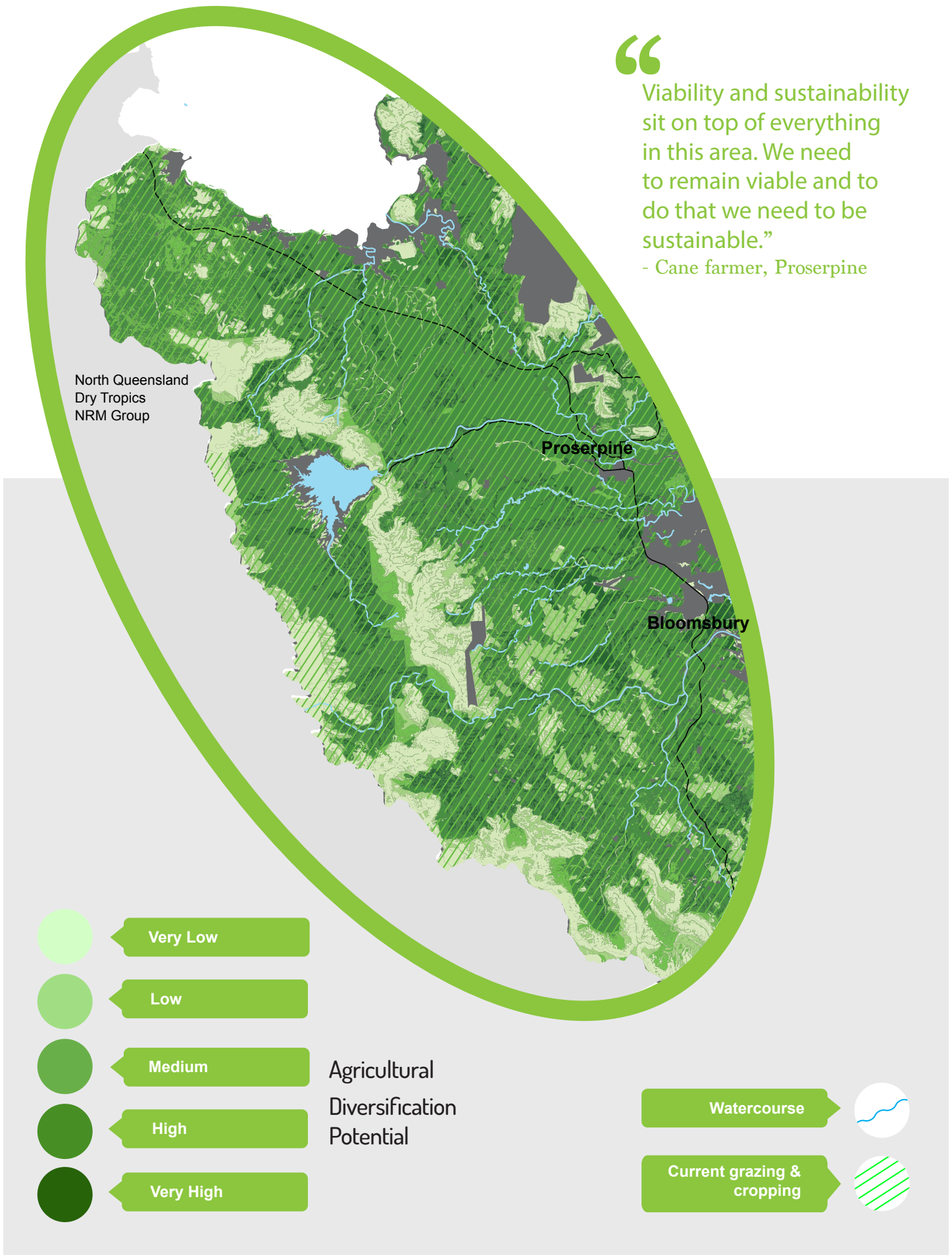
Proserpine & Bloomsbury

Opportunities to Diversify Agricultural Industry.

“

Viability and sustainability sit on top of everything in this area. We need to remain viable and to do that we need to be sustainable.”

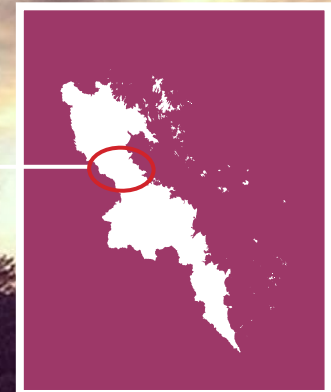
- Cane farmer, Proserpine



LANDSCAPE SNAPSHOT

- Mount Ossa National Park and Mount Martin National Park
- Dugong protection area along coast
- Sugar cane and cattle
- 1600 mm rainfall belt per annum

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Calen & Seaforth.

VISION: A place of prosperous rural communities where people are connected to their landscapes and have the capacity to look after it.

General Description

The Calen and Seaforth area is diverse and encompasses the Clarke Connors Range, a narrow corridor of productive agricultural hinterland and coastal hills, the estuaries of Blackrock and Murray creek giving way to a coastline punctuated by mangroves and beaches, toward the offshore continental islands of the Newry group.

Landscape Location

The Calen and Seaforth local landscape is situated in the middle of the region, and overlaps with five other local landscapes.

Community

Calen is a small community centred around the Bruce Highway, with a population of 452 in 2011, and is about equidistant between Proserpine and Mackay. Neighbouring Seaforth is a coastal holiday and fishing town with a population of 788. The average age of the Seaforth population is 47, which is 11 years above the Airlie Beach average (also the state average, 36). Other rural living areas in the district include Pindi Pindi, Yalboroo and Mount Ossa.

Seaforth and the surrounding coastal area are more popular with intrastate tourists than the prevailing interstate and international tourists captured in the Whitsunday Coast and Islands landscape.

Midge Point, a coastal community south east of Proserpine, features tourist enterprises that are marked for redevelopment and some residential accommodation.

Several National Park areas exist in this landscape including part of Eungella National Park, Newry Islands National Park and Mount Ossa National Park.

Cape Hillsborough National Park conserves a rugged section of coastline and includes McBride's Point and a melaleuca wetland adjoining Ball Bay.

The region's coastline and islands are part of Ngaro Traditional Owner sea-country. Yuwi-bara identify as Traditional Owners of the inland area.

Natural Environment

The Calen and Seaforth local landscape is located in the Central Queensland Coast bioregion and comprises a diversity of geology and landforms with National Parks occurring on steep landforms thus limiting physical disturbance and maintaining the integrity of plant communities.

Outside of the National Parks, the landscape has been extensively cleared for agriculture, resulting in a patchy landscape of cane and grazing enterprises with patches of remnant vegetation.

The geology of Cape Hillsborough is unique and differs from everything else along the Mackay coast. The vegetation and associated wildlife is a unique combination found nowhere else in the region.

Mount Ossa National Park and Mount Martin National Park are situated on low granitic mountains that rise from the Central Queensland Coastal plains. These mountains and low hills form a semi-continuous link between the uplands of the Clarke and Connors Ranges, the lowland plains and coastal areas.

Plant species of particular note are the Mount Blackwood holly *Graptophyllum ilicifolium*, a localised shrub restricted to areas such as Mount Blackwood and Mount Dryander.

Rainforests in the area are known to provide habitat for several near threatened and threatened plant species, including palm forest *Trigonostemon inopinatus*. Mount Ossa National Park vegetation is predominantly notophyll/microphyll vine forest with emergent hoop pine.

The eight islands in Newry Islands National Park have geological characteristics that are uncommon for inshore islands. The cliffs on the eastern side of Outer Newry Island are unusual because they occur along a protected coastline and are made of sandstone which is uncommon in the region. Red Cliff and Acacia Islands have excellent examples of geological folds and faults. The islands contains several types of vegetation including rainforest, mangroves, acacia and melaleuca woodland. Fauna such as koalas and turtles are present.

There is a large dugong protection area along the Calen and Seaforth coast which corresponds with the prevalence of sea grass.

Land Use and Enterprises

This local landscape is made up of cane production along the Bruce Highway, grazing further afield, nature conservation and an area of wetlands. Cane mills in Farleigh and Proserpine service the area.

The town of Calen hosts a steadily growing population.

Residents and visitors are attracted to the broad sandy beaches, rugged landscapes and the diversity of plants and animals of the Calen and Seaforth coastal area.

Climate

There are significantly different rainfall patterns across the region with this local landscape existing in the 1600 per annum high rainfall belt.

The salt pans of the Blackrock and Murray Creek estuaries are located in an area deemed high hazard for storm tide and sea level rise risk.

There is a low erosion risk across the lowlands and coastal area however this increases toward the steeper slopes of the Clarke Connors range.

Areas of high risk exist for bushfires along the hinterland plain, which corresponds with patchiness of vegetation in the landscape.

With a coastal population, this area is vulnerable to tropical cyclone activity which has the potential to damage the area significantly.

“

We are far enough from urban areas to avoid big changes, I would hate to see the coast damaged.”

- Landholder, Seaforth

Local priorities

Increased community capacity, reconnect people to land

We feel our community has been fragmented by dividing land into rural blocks which makes good land management difficult. New landholders need to understand their responsibilities and be penalised if they do not achieve a certain standard of, for example, invasive species control. Landholders also need to understand they are part of the wider community and everything is connected. We can achieve this by having more opportunities to get involved in community activities, and more incentive to do so. Education and regulation will ensure our new neighbours are part of whole of landscape land management. We need a more robust solution than traditional engagement activities.

Prosperous rural communities

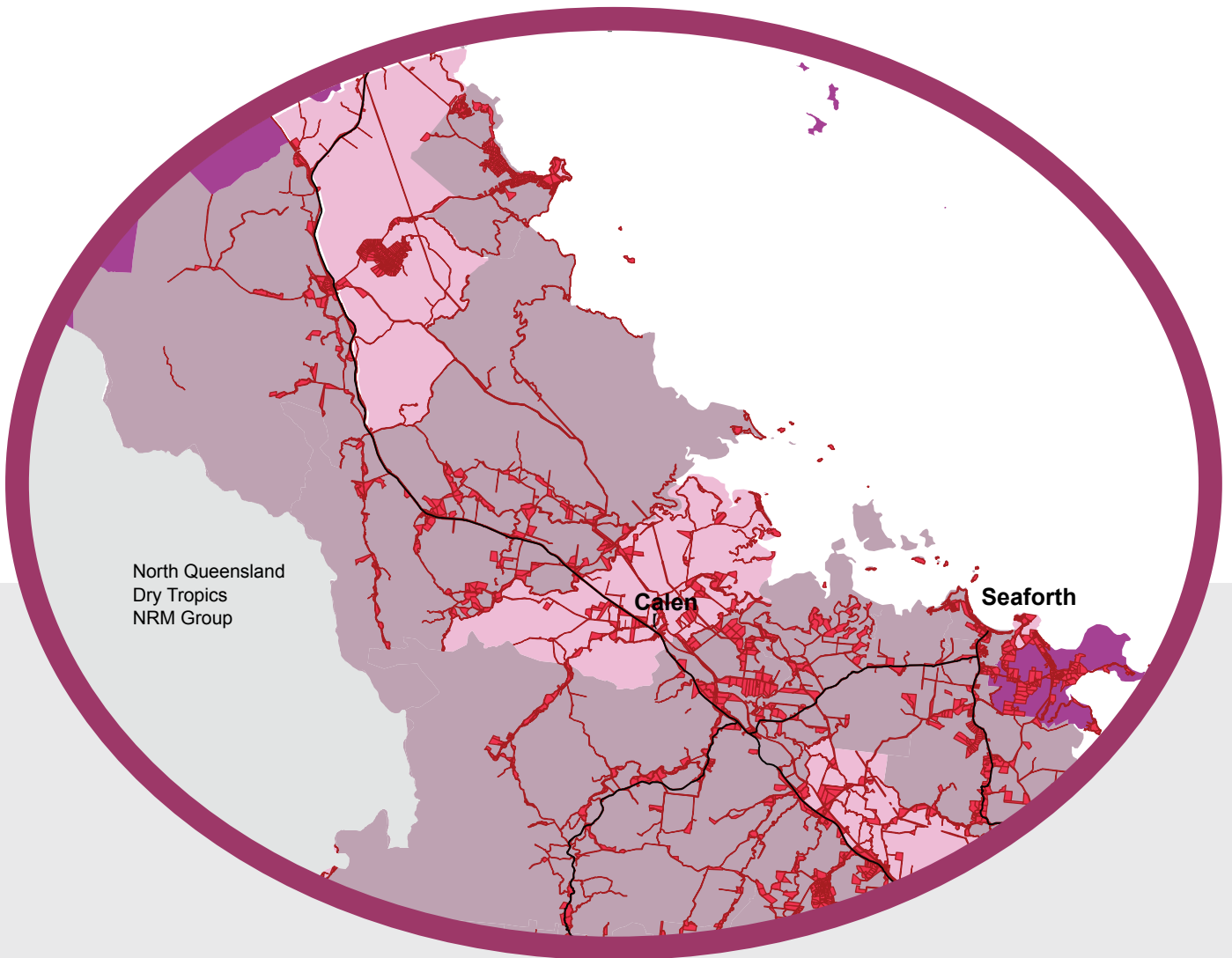
We would like to protect our agricultural land. We want to create a prosperous and resilient rural community. We believe this is possible by seeking opportunities such as the use of by-products from agriculture. The scientific community, industry bodies and governments can help us seek such alternatives to supplement our farm income. Land planning should consider the potential of the land for agricultural production, and review alternative sites for other land uses such as urban development. It may not be cost effective but it may be more appropriate and as a result more accepted, and more sustainable.

Work towards removing barriers to good land management and local decisions

Working with Government, we would like to be empowered to make the best decisions for our land and to be provided with adequate resources to address our local needs and priorities. Decision makers and landholders should be more collaborative in planning. Relationships based on mutual trust and respect will result in a better understanding and acceptance of each others decisions.

Map 3: Calen & Seaforth

Opportunity to Build Community Capacity.



Community Capacity

Community capacity considers home ownership, median family income, non English speaking, persons over 65 living alone and children 4 or younger.



High



Medium



Low

Blocks <=25ha

Road

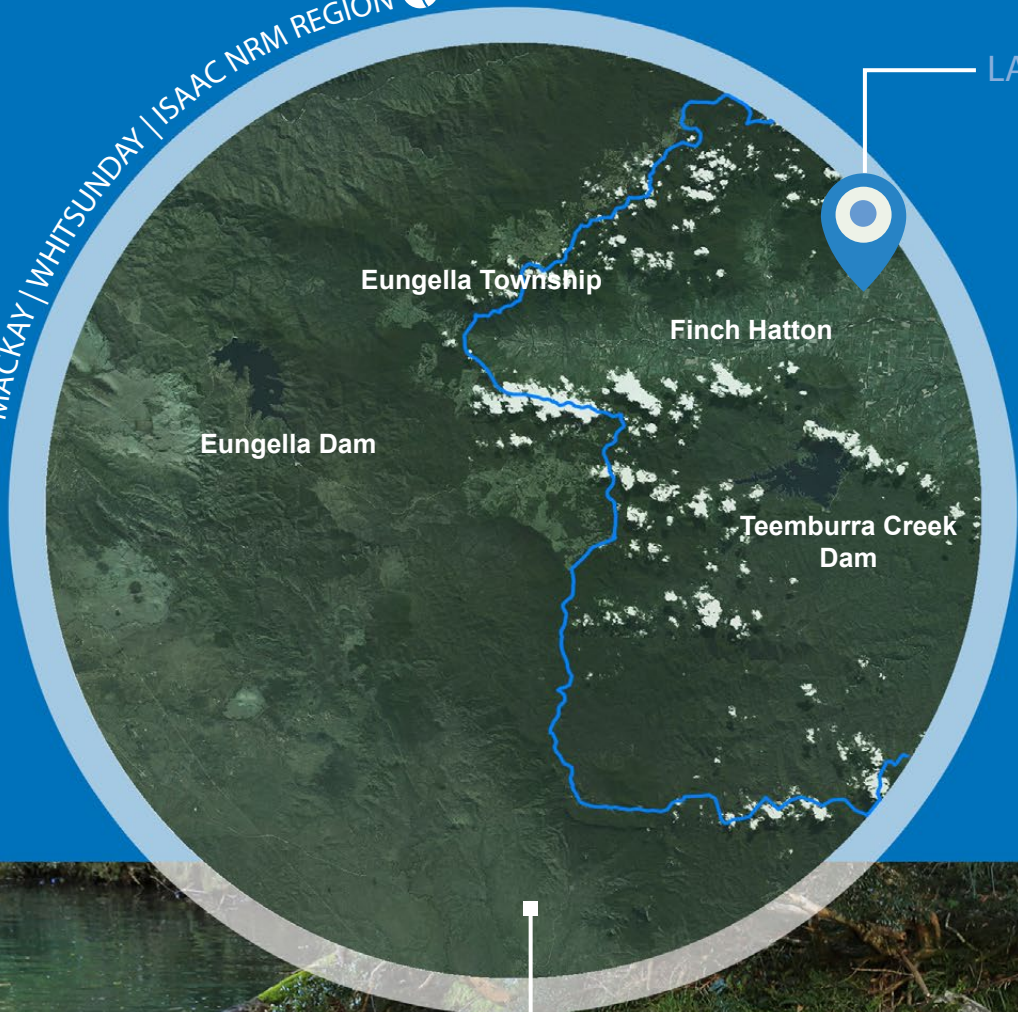


“

There is a general lack of interest in participating toward any community activities. It's dominated by a willing handful and a disengaged majority.”

- Landholder, Calen

LANDSCAPE SNAPSHOT



- Eungella National Park
- One of largest wilderness areas in Queensland
- Overlap between tropical and sub-tropical influences
- High ecological significance including endemic species



Eungella.

VISION: A place where rural industries are supported and natural areas are well maintained and protected.

General Description

Eungella represents a world away from the surrounding regions, which is best expressed in the Aboriginal translation; 'land in the cloud'. Nearly 700 metres above sea level at the head of the fertile Pioneer Valley, Eungella provides the only public access point by road to the dense rainforest interior of the Clarke Connors Range.

Landscape Location

The Eungella landscape is the most westerly of the region and encapsulates the majority of Eungella National Park and the most significant portion of the Clarke Connors Range.

Community

Eungella's population was 422 people in 2011, with a median age of 43 (6 years above the state average). In the ranges few communities outside of Eungella Township exist, however there are some farmsteads, outlying properties and small developments at Broken River to cater for tourists.

The Eungella community is distinct in that it is isolated from the Pioneer Valley by the steep Mackay-Eungella mountain road which acts as the only access point from the wider region, beside the Turrawulla Road which drops to the western side of the ranges. Although Eungella has some amenities, the commercial and administrative centre for this locality is Mackay.

The Wiri identify as Traditional Owners of this Country.

Natural Environment

The range forms the Clarke Connors subregion of the Central Queensland Coast Bioregion and contains the head waters of three major rivers across the region (Proserpine, O'Connell and Pioneer).

The Clarke Connors range reaches an altitude of 1276 metres on Mt Dalrymple near Eungella Township. The area is listed on the Register of the National Estate as one of the largest wilderness areas in Queensland with outstanding natural values, being an overlap between tropical and sub-tropical influences.

As an area that has remained relatively stable during major climatic changes over time, Eungella is a centre of endemism supporting 3 species of endemic frog, 1 species of endemic gecko, and 2 skinks, in addition to the Eungella honeyeater.

There are another 120 bird species in Eungella which provides a core refugia and movement corridor. Mammal species are also rich and include the yellow bellied glider and a distinct species of swamp rat which may be a new sub-species.

Land Use and Enterprises

The dominant industry of the area is beef cattle grazing. A substantial part of the ranges lie within protected areas or State Forest, making nature conservation one of the other major land uses. Other land uses include the only dairy farming in the region, hobby farming and ecotourism.

Over half of visitors to Mackay make the trip to Eungella which provides a range of accommodation types and tourist experiences, including visiting Broken River; one of the only places in Australia where you can view a platypus in the wild.

Although the majority of tourism activity occurs in the National Park, Eungella Dam is located approximately 27km west of Broken River and is a popular site for camping, fishing and recreational water based activities.

Climate

Average rainfall varies from 1600 mm per annum, to 1200 mm in the south and 1000 mm to the west.

The range will continue to act as a climate change refuge. The most reliable climate change scenarios suggest that both temperature and rainfall change will be similar across the region, however the range is likely to continue to be relatively wetter and cooler than elsewhere. This is important because the area is separated from the Wet Tropics and South East Queensland rainforests by dry tropical belts, which will offer refuge to Central Eastern Queensland's high altitude rainforest adapted ecosystems, flora and fauna.

Contributing factors include only minor temperature increases and changes in rainfall, however species with biophysical or habitat requirements found only in the area that are unable to adapt, may disappear.

Wildfire is a medium to high risk, which may limit the area's capacity to act as a climate change refuge. This area is more vulnerable due to fire sensitive communities such as rainforests, vine thickets and vine forests, as well as its elevated position in the landscape.

In 2010 Cyclone Ului tore through the Eungella community extensively damaging the Eungella Chalet, Eungella Community Hall, Uniting Church, Eungella National Park, surrounding farms and homes. More intense future cyclonic activity renders Eungella vulnerable due to its largely exposed location.

Also due to its altitude, nearly all of this area is susceptible to erosion, with the majority considered to represent a high risk.

“

People can't keep living in their own little economically driven world. Change needs to occur by looking at all angles and perspectives.

- Resident, Eungella

Local priorities

Natural areas are maintained and protected

We would like to protect the natural areas and have long term planning in place to support this. We need to strongly consider how we utilise the Ranges, and ensure we look at long term protection of this incredibly unique environment. We can do this by ensuring planning for the landscape involves lots of perspectives, and the community has a stake in decisions; respecting our local expertise and considering our aspirations. The area is quite pristine and it should be protected from the large scale and short term development.

Rural industries are supported

While we have a valuable natural environment, we also want to see our rural industries supported so that the land which the pioneers farmed can continue to provide an economy for us. Farms should continue to be beautiful and havens for wildlife with much vegetation left in tact. Without the rural industries we will suffer as a community, so it is important that we include farming as a key part of plans for the region. We also see the value in tourism as a lucrative and relatively low impact activity, and so would support the promotion of future tourism activities.

Strong, resilient community and connection to landscape



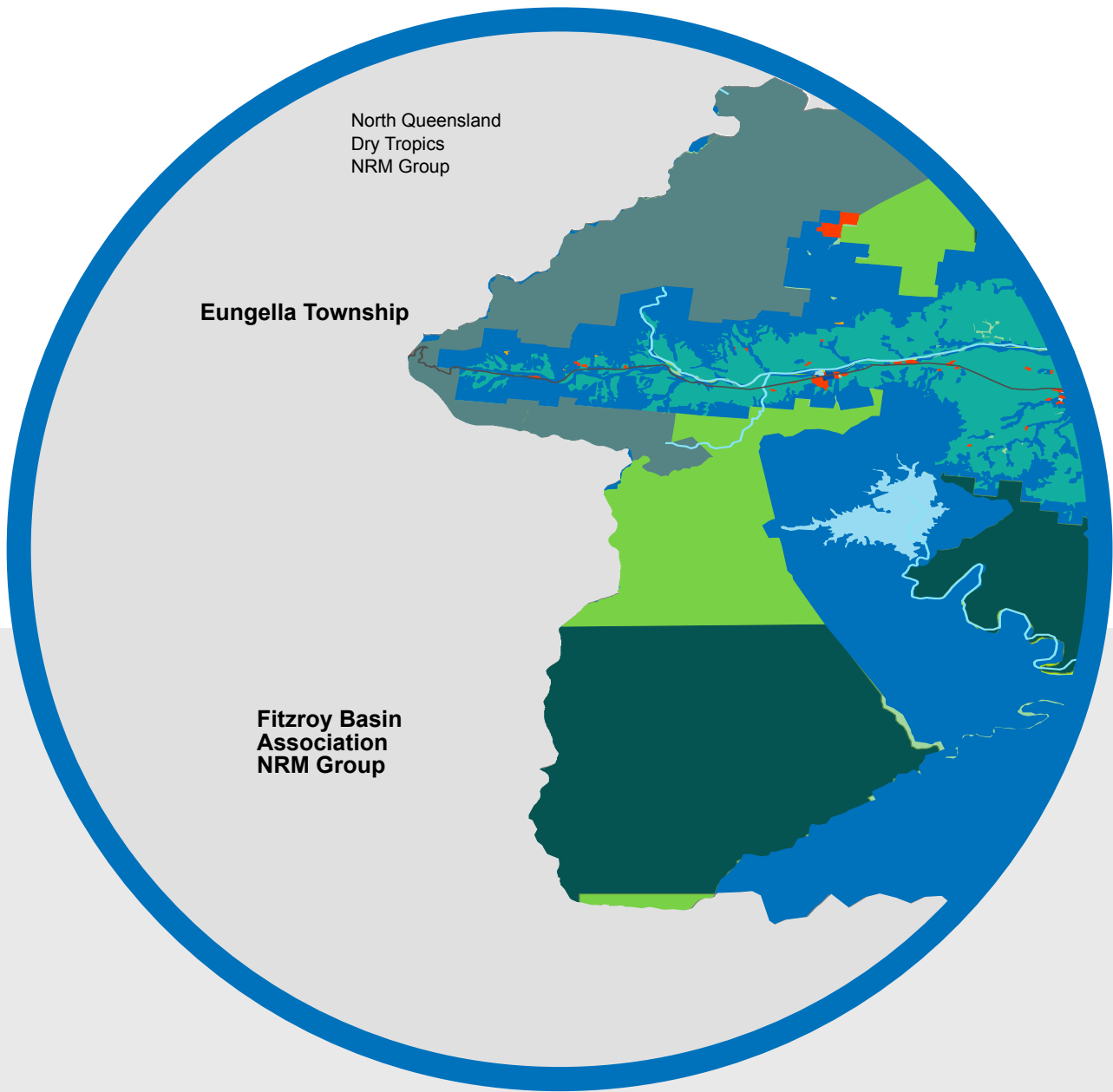
Community spirit is not what it used to be. We think strong communities are those that are united and more connected to their landscapes. Educating residents, visitors and the next generation about Eungella and the Ranges will be key to sharing what it is we value, and what we want it to look like in the future. We would like to improve the viability of towns such as Eungella, to maintain community identity while attracting new residents and businesses. We will achieve this by working with local government and other agencies to identify key investment opportunities, and promote the advantages of living in the area.

Increase resilience of the area to effects of climate change

We need to support research and development about the short and long term effects of climate variability with a focus on the potential identification of climate refuge areas, and immediate threats such as increasingly intense weather events which isolate Eungella and have severely impacted the community and industry capacity to function in the past.

Eungella

Managing Balance between Productive and Natural Landscapes.



Land Use



Horticulture



Irrigated Cropping



Livestock Grazing



Residential

Protected Area

Forest Reserve



State Forest



Eungella National Park



Watercourse



Main Road



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LANDSCAPE SNAPSHOT

- 1489 km² Pioneer River catchment
- Fertile plains, extensive agricultural production
- Picturesque and historic valley with increasing tourism and recreation
- 800 mm to 1200 mm rainfall per annum



Pioneer Valley.

VISION: A place renowned for innovative, contemporary best management farm practices, where land is actively managed and ecosystem services maintained.

General Description

The Pioneer Valley is one of the most fertile and picturesque valleys in Australia. The community within is steeped in pioneering history including one of the oldest sugar mills in Australia in Pleystowe, which only recently closed since its first crush in 1869. The valley provides a dramatic entrance to Eungella National Park, rising high in the Clarke Connors Range to the west.

Landscape Location

The Pioneer Valley local landscape encompasses the majority of the central valley area, overlapping with Eungella to the west and Mackay Region to the east.

Community

Several small towns make up the Pioneer Valley landscape. The most populated is Marian with 3,019 people and neighbouring Mirani, with 1672 (in 2011). Other smaller localities include Pleystowe, Gargett, Pinnacle, Finch Hatton and Netherdale.

Culturally, the Pioneer Valley's small farming towns are reminiscent of the pioneering era, each with each its own distinct character.

The productive plains of the Pioneer Valley have been modified to become one of the most productive sugar cane areas in Australia. The Marian Mill is the largest in the area and has earned 'super mill' status within the Australian sugar industry.

The Wiri and Yuwi-bara identify as Traditional Owners of this Country.

Natural Environment

The Pioneer River is an icon of the region, with a catchment covering 1489 km². Rising in the Pinnacle Ranges, the river flows in a northerly direction into the Pioneer Valley then swings east at Mirani, before flowing into the Coral Sea at Mackay.

The longest tributary of the Pioneer River is Cattle Creek with the other major tributary being Blacks Creek. Beginning in the Clarke Connors Range, Cattle Creek rapidly loses altitude until reaching the valley floor. Its main tributaries are Cattle Creek

North and Finch Hatton Creek which drain the highest parts of the catchment.

Although the valley floor is predominantly used for sugar cane production, there are areas of remnant vegetation mainly on slopes that act as key refuge for plant and animal species. Furthermore, the grassy woodlands that characterise the vegetation of the valley provide key ecosystem services, most notably in regulating the water cycle and ensuring water is retained in the landscape. Woodlands increase the ability of rainfall to infiltrate the soil, and reduce soil erosion.

As the valley narrows between Pinnacle and Finch Hatton, State Forest occurs on either side where a diversity of fauna and flora occur.

Land Use and Enterprises

With an annual throughput in excess of 2 million tonnes, the Marian Mill supports the area's lucrative cane industry. There are also areas of production forestry and grazing.

Supported by the Teemburra Dam and several weirs, the Pioneer River system provides Mackay and surrounding areas with a reliable supply of water to support the rapidly growing regional population.

As a main thoroughfare to Eungella National Park, Pioneer Valley has numerous local attractions to encourage visitors to remain in the area. These include Finch Hatton Gorge, Mirani Museum, and the pies of Pinnacle Pub, which rank highly among things to experience in the Mackay Region.

Another local attraction, Kinchant Dam is 41 kilometres west of Mackay and provides fishing and water sport activities, in addition to holding 62,800 mega litres of irrigation and drinking water for the surrounding area.

“

The public has old thoughts about farming, but times have changed.”

- Cane farmer, Mirani

Climate

The mean annual rainfall over the Pioneer catchment is between 800 mm and 1200 mm. Typically, rainfall episodes are short and intense and it is during this period that the Pioneer River is particularly prone to flooding. Flood-producing high rainfalls have are typically associated with tropical cyclones and tropical rain depressions.

Cattle Creek typically records the highest rainfall in the Pioneer catchment. Runoff is rapid, because descent from the ranges is steep, and as a result the risk of severely erosive flooding is high.

Fire risk is generally low in the valley proper, however becomes of high risk where fuel loads occur such as production forestry areas.

“

Good management of farm land does exist, there are so many examples of it. We just need to keep going with what works.”

- Cane farmer, Marian

Local priorities

Balance of environmental, production and development values

We recognise that the Pioneer Valley has lots of different values, and we would like to have a long term vision that everyone can relate to and help realise. Development has changed our community, as many people who live here are those who commute to Mackay and do not get fully involved. We value our small local businesses, our lifestyle and our heritage. We do not want to continue to be subjected to the same development terms as the city, as our community has a unique dynamic that is lost in planning focussed on developed areas. Our vision is different to Mackay and we would like development to consider more than economic returns. We promote long term viable farming that uses natural resources appropriately. We want to seek opportunities for economic diversification, including the uptake of agricultural by-products and harnessing tourism opportunities.

The transition from traditional to contemporary farm practices is promoted

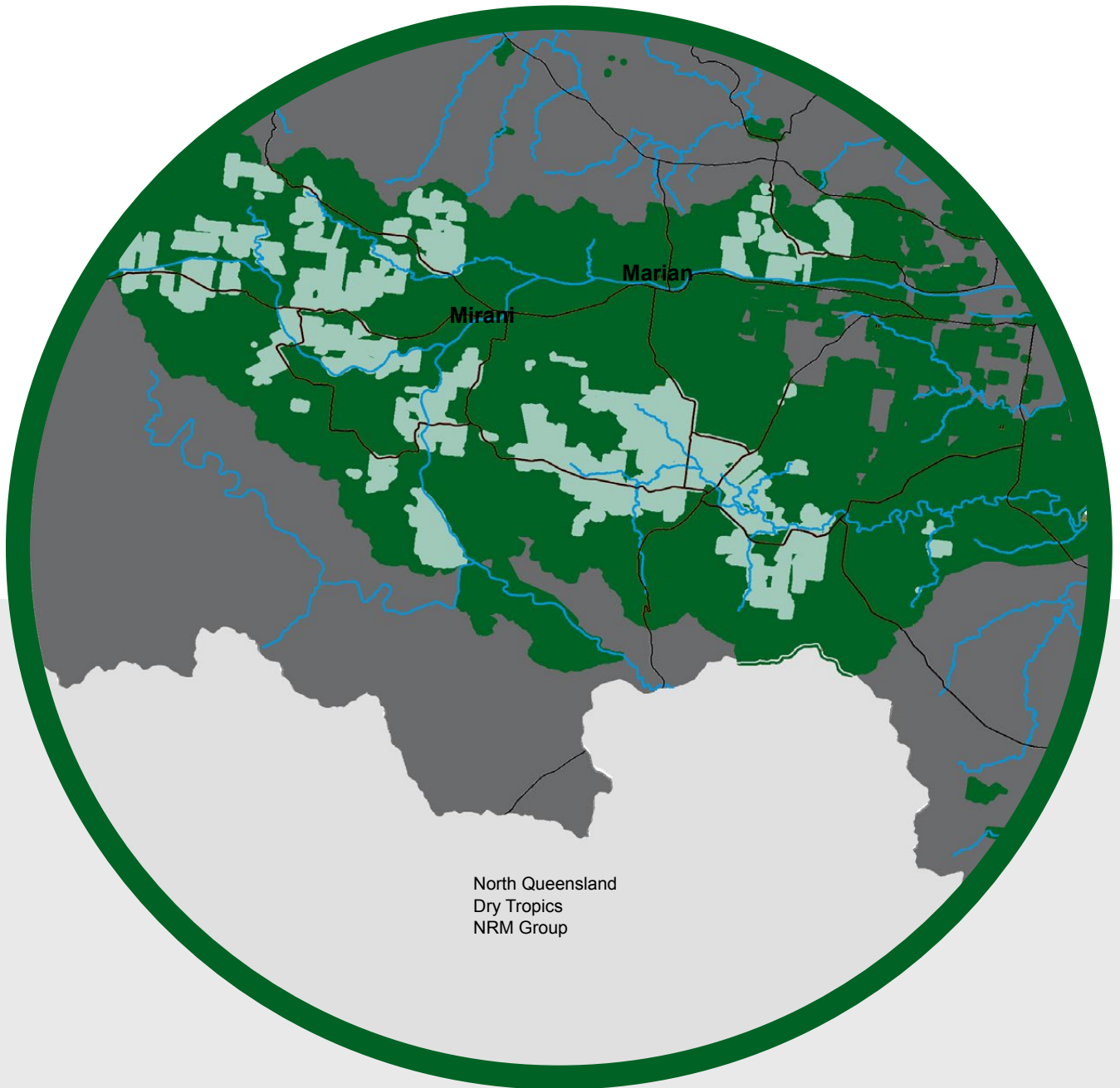
The Pioneer Valley is home to a new generation of farmers who manage the land with new technologies and consider the environment as a key part of production. We need to be more promotional of our capabilities as viable businesses. We can achieve this by sharing our successes when they occur and utilising existing networks to promote our practices. We need to renew the reputation of farming as an industry, lifestyle and culture so that people understand that innovative management practices have enabled farmers to reduce their impact on water quality. Farmers are not the best self-promoters, so support is needed to achieve influence in decision making.

Community is capable and connected

Natural resources are our livelihood and we do care about the health of the environment and the future of our landscape. There is a need to promote natural resource management and empower people to act so we can improve the health of the land that sustains us. We believe an invigorated community spirit would enhance a sense of responsibility for the land. There are few economic incentives for farmers to remain on farms and not use property for superannuation. A strong community should be resilient to short term changes to achieve long term sustainability.

Pioneer Valley

Increasing Innovation in Agricultural Practice.



North Queensland
Dry Tropics
NRM Group

Adoption of Innovative
Agricultural Practice



High



Medium

River / Stream



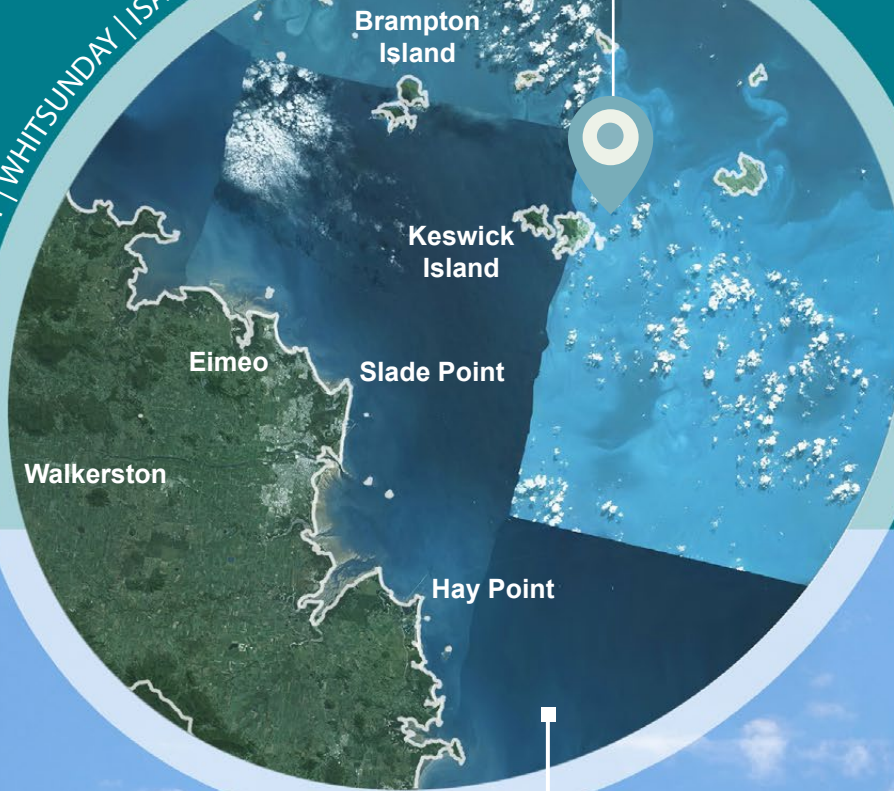
Road



LANDSCAPE SNAPSHOT

- Mackay city suburbs
- The Pioneer River
- 31 beaches and lesser developed continental islands
- Islands include Brampton, St Bees, Scawfell and Keswick
- One of the largest sugar producing regions in Australia

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“

We look at the land like it has to produce something. We should find a way to leave only the necessary sized footprint.”

- Resident, Walkerston



Mackay Region.

VISION: A place that supports a balance of land uses that considers the importance of natural systems.

General Description

The Mackay Region represents a transition between traditional agricultural industries still evolving and progressing from their establishment in the 19th Century, and growing industrial developments as a result of the mining boom. The region acts as a conduit between the Bowen Basin, the Coral Sea, and the international markets beyond. Mackay Region's character is one of constant change, amid consistent custom; a place where the prosperity of the past, present and future converge.

Landscape Location

The Mackay Region landscape extends from the Mackay continental islands off the east coast and west to the Pioneer Valley. It extends north to Seaforth and south to Sarina, with Mackay City positioned as a nucleus within the landscape area.

Community

The Mackay Regional Local Government Area is one of the fastest growing in Queensland. Looking to the future, strong growth is forecast, with a projected regional population upwards of 200,000 in coming decades.

The region's growth is fuelled by strong activity in the resource sector and growth in related industries such as construction and logistics.

Mackay region has numerous population centres, including Kuttabul in the north and the most populated regional town Sarina in the south, with 5,731 people in 2011. Hay Point is another notable community with a population of 1,471.

The Mackay region is famous for its history as one of Australia's largest cane farming regions however, in recent years, the mining industry has become the mainstay of the local economy. The associated population growth and urban, regional and infrastructure development has created a diverse community, particularly in Mackay city.

The islands off the coast are less developed than their northerly counterparts in Whitsunday, however Keswick has a lease to sustain a permanent population.

Yuwi-bara identify as Traditional Owners of the inland area of the Mackay Region, while Ngaro identify as Traditional Owners of the sea-country and islands.

There are about 25 different nationalities represented in the region, including communities from Malta, South Africa, the Netherlands and Germany. The region also boasts the largest Australian South Sea Islander population in Queensland.

Natural Environment

The region comprises 31 beaches, the Pioneer River and several National Parks.

The areas scenic values are outstanding, with spectacular volcanic features rising out of the coastal plain, large areas of undeveloped bushland, panoramic views, gallery rainforests, streams, undeveloped beaches and mangroves. This area, particularly Cape Hillsborough National Park continues to become a popular destination for people seeking nature-based recreation experiences.

Cape Hillsborough National Park conserves a rugged section of coastline including McBride's Point and a melaleuca wetland adjoining Ball Bay. The geology, vegetation and associated wildlife of Cape Hillsborough is unique and differs from everything else along the Mackay coast.

Mount Ossa and Mount Martin are significant as they represent the natural values of the coastal mountains as elevated, remnant vegetation lying across climatic, geological and other environmental gradients.

The semi-deciduous notophyll/mesophyll vine forest at Reliance Creek National Park is considered endangered as it is estimated that less than 10 per cent of its pre-European extent remains in a natural to semi-natural condition. This habitat is thought to have been common along lowland and riverine areas in the Mackay area, but has been extensively cleared. The rainforest contained in the park provides important seasonal feeding areas for bird life.

Yuwi-bara cultural sites are known to exist in the area.

The Newry, Cumberland and Brampton Island groups have geological affinities with coastal hills of the Mackay coast. There is a strong environmental gradient between the Northumberland and Percy Islands which corresponds to a latitudinal change resulting in decreased rainfall in the south, but also an east-west gradient as a result of sea exposure.

Land Use and Enterprises

The Mackay Region is the largest sugar producing region in Australia and hosts much of the engineering, manufacturing and mining service industries supporting the wider Mackay, Whitsunday and Isaac economy. It is also the gateway to rich coal deposits in the Bowen and Galilee Basins.

The Mackay Region comprises an area of 7,622 km² and includes significant reaches of the highly productive Pioneer Valley cane country, supported by Racecourse Mill. The region is nicknamed the 'sugar capital of Australia' because it produces more than a third of Australia's sugar cane.

The Mackay Region is diverse. While cane still dominates the landscape and culture with mills at Racecourse, Mirani and Sarina, the majority of the region's industrial and manufacturing land also exists here, characterising the landscape in areas.

The Port of Hay Point, 35 km to the south of Mackay, is made up of two bulk coal terminals; Dalrymple Bay Coal Terminal and Hay Point Services Coal Terminal. In 2013/14, over 100 million tonnes of coal was exported through the two terminals making Hay Point one of the largest coal ports in the world.

Although tourism remains focussed in Whitsunday, in Mackay Region this is growing with increased domestic visitation, with corresponding increases in the population and economic growth of the region.

Climate

The Mackay Region average annual rainfall is 1600 mm. Monsoonal low pressure systems and tropical cyclones occasionally effect Mackay, and cause very heavy, prolonged periods of rain, with up to 200 mm often being recorded in 24 hours during these systems, increasing the area's susceptibility to flood.

The Pioneer River has a relatively well recorded flood history with documented evidence of flooding as far back as 1884. Since that time many devastating floods have occurred, with the highest occurring in February 1958 which peaked at 9.14 metres at Forgan Bridge.

Flooding is the most prevalent issue in the region with high hazard areas existing along the entire coast. These also correspond with sea level rise high risk areas.

The Mackay Region landscape is relatively flat with few and minimal erosion risk areas identified.

Fire in the area is low risk for the most part, however in areas east and west of the Bruce Highway from The Leap northwards, a higher fire risk is present.

Local priorities

A balance of land uses that considers the importance of natural systems

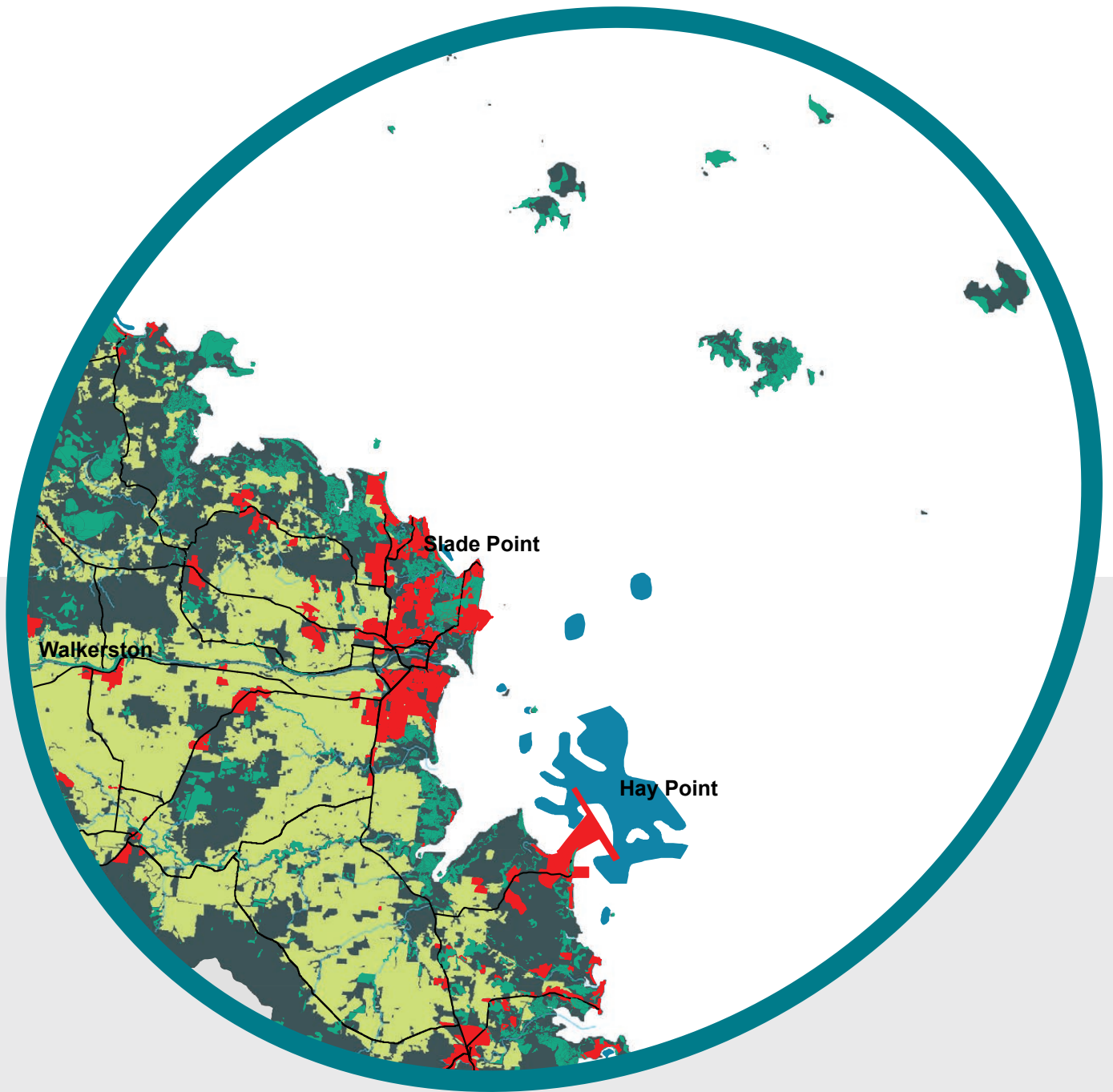
We would like to build on and extend the positive good practice that is emerging with regard to improved land management. In achieving this, we need to look beyond the paddock and look at whole systems, and understand how this all links together. We can have multiple land uses and maintain environment integrity if we work together at a bigger scale. We do not want to return the land to its condition in 1877, we just don't want to destroy what we need as a community to make a living and have a lifestyle. We want to be viable in the long-term in the face of future challenges, such as population growth and urban sprawl from Mackay. We need to be more strategic in how we manage landscapes and consider all competing land uses and values, in particular our European and Aboriginal heritage values.

Community capacity and stewardship

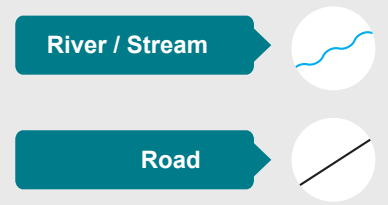
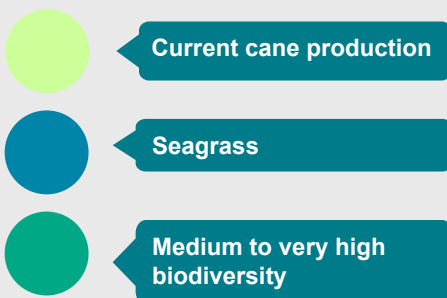
We would like to explore the options for looking after resources so that decisions are fair and sustainable. For example, having a percentage of land on a property left in tact for our own purposes i.e. ecosystem services, and seek reimbursement for additional areas left untouched which will contribute to the bigger system. This would create a spirit of stewardship. We acknowledge the importance of educating rural residential landholders about the bigger system of which they are an integral part. We will achieve improved community capacity by exploring options such as shared activities i.e. community gardens, landscape scale pest management, and promoting best management practice and natural resource management among our community networks.

Mackay Region

Managing Intensive Land Use to Minimise Ecological Impact.



Biodiversity Values

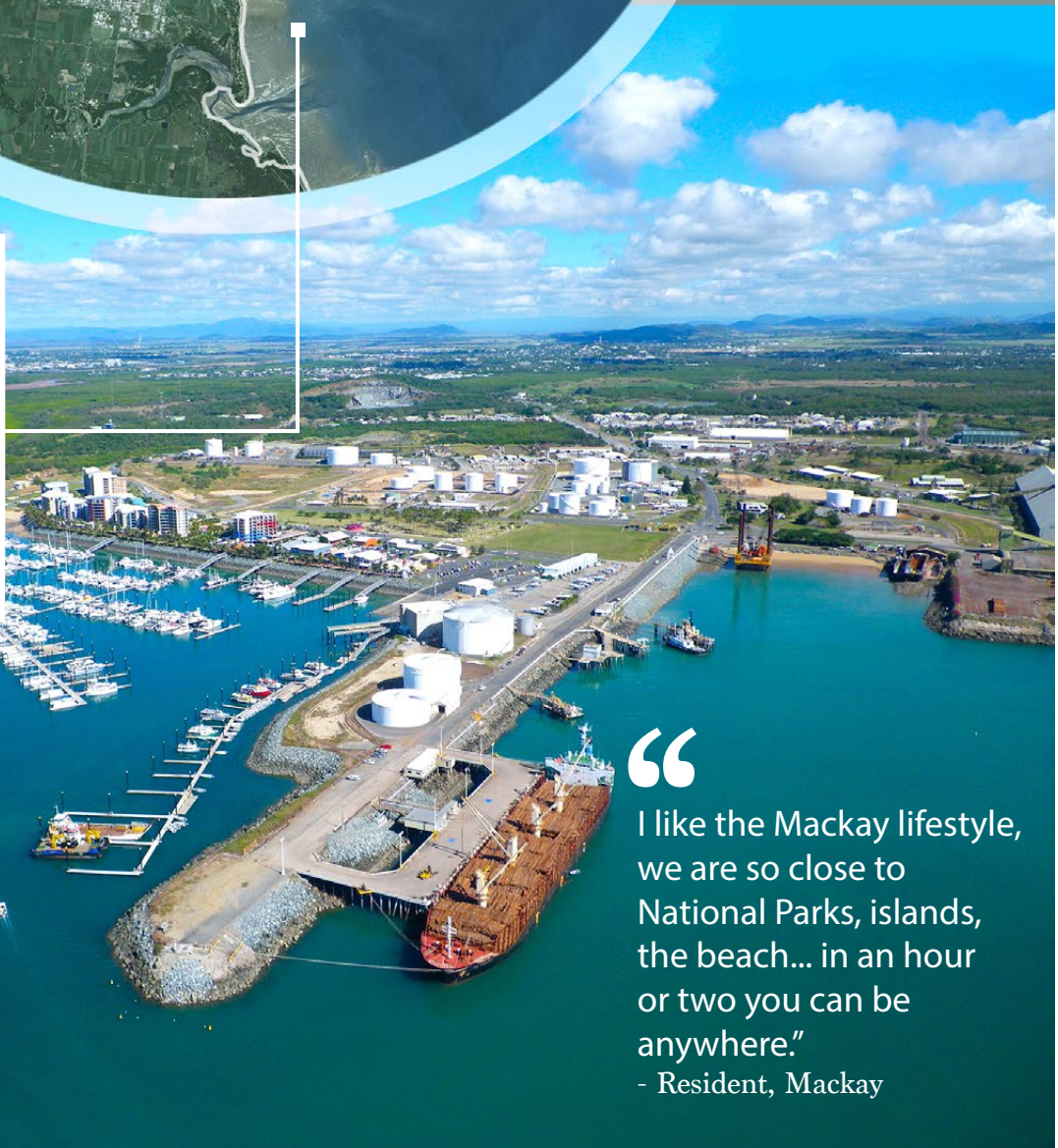
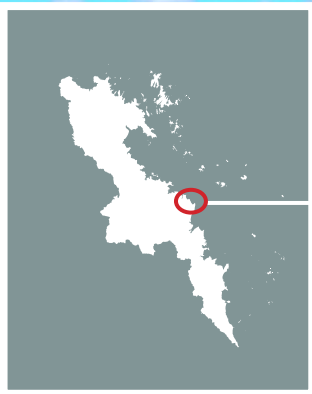


LANDSCAPE SNAPSHOT

MACKAY | WHITSUNDAY | ISAAC NRM REGION



- Capital of the region, provides main urban area and service centre
- 87,324 people live in Mackay City
- Export-oriented industries
- 5th most important area in Queensland for shorebirds
- Transitional zone between 1800 mm and 1200 per annum rainfall belts



“

I like the Mackay lifestyle, we are so close to National Parks, islands, the beach... in an hour or two you can be anywhere.”

- Resident, Mackay

Mackay City.

VISION: A place of well planned urban areas including functioning natural systems and a self sufficient population connected to their landscape

General Description

Mackay City is firmly fixed in a long-term cycle of growth and demand. Expanding employment, investment and development opportunities, a strong economy and attractive lifestyle contribute to Mackay's position as one of Queensland's most rapidly developing and dynamic cities.

Landscape Location

Mackay City landscape encompasses the urban area that sits within the boundary of Mackay Region landscape.

The city limits according to the Local Landscape also include Glenella, Paget and Walkerston.

Community

With a population of 87,324 Mackay is the only city in the region and is growing steadily by approximately 50 people per week.

Mackay City centres around a small grid system, pivoted on the main thoroughfare of Victoria Street, which runs parallel with the Pioneer River. Mackay City reaches beyond the central business district towards the popular Northern Beaches residential areas of Eimeo, Bucasia and Blacks Beach, and to the surrounding areas simply known as 'East', 'South' and 'West' Mackay. Mackay is widely recognised as the gateway to the Bowen Basin coal mining reserves of Central Queensland. It is the single largest coal reserve in Australia, with 34 operational coal mines exporting more than 100 million tonnes annually. As a result, Mackay is well represented by the 'fly in fly out' and 'drive in drive out' population.

Natural Environment

Mackay urban area is contained to the north, south and west by extensive cane lands, residential areas and wetlands. Mackay beaches and foreshores provide critical buffers between sea and terrestrial environments, with the Mackay region being the 5th most important area in Queensland for shorebirds, and among the 25 most important sites for shorebirds in Australia. This coastline is of international significance for 6 species.

Numerous beaches exist in the Mackay City local landscape including Blacks Beach, Harbour Beach and Town Beach.

Land Use and Enterprises

Mackay's Gross Regional Product is estimated at \$6.624 billion. This is largely due to its export-oriented industries including coal and sugar.

All coal produced in the region is exported and the largest export recipients are Korea, Japan and China. Mackay is the location of choice for many mining service companies that supply and consult to the mine operators. This is due to its strategic proximity to the mines, major highways and train lines, and the Hay Point coal terminals. Most of these companies are headquartered in the suburb of Paget.

Mackay produces a sizeable portion of Australia's domestic supplies and exports of sugar cane. Growers are capable (in good seasons) of supplying up to 6.5 million tonnes of cane to the factories for processing. On average, Mackay Sugar produces about 850,000 tonnes of raw sugar and 180,000 tonnes of the by-product molasses annually. Mackay Harbour is also home to one of the largest bulk-sugar loading terminals in the world.

Compared to many of its neighbouring cities and regions in Queensland, Mackay's tourism industry is small and still developing. About 685,000 domestic and international overnight visitors come to the region annually. More telling, however, is that domestic and international visitor night stays have increased to 2.7 million annually, an increase of nearly 1 million since 2000.

Like tourism, the marine industry in Mackay is small but has a lot of potential. Mackay is well situated to become a major service centre for the marine industry, being in close proximity to the Whitsundays, and located halfway between Brisbane and Cairns. Currently the Mackay Marina is the largest base in the district for the maintenance, refit and other related services for all marine craft.

Climate

Mackay exists in the transitional zone between the higher 1800 mm per annum rainfall belt of the north and the lower 1200 mm rainfall belt to the south.

The majority of Mackay urban limit exists in an area identified as a high hazard for storm tide and high risk of sea level rise, in particular north through the Bassett Basin along Slade Point Road and in the eastern part of the city centre. The central business district is classified as medium risk for storm tide and is also a sea level rise risk area.

Due to the intensive land use of the area, no wildfire risk is present.

“

The natural environment should be woven throughout the urban landscape, not so separated, not interconnected concrete jungles where you need to drive elsewhere to see nature.”

- Resident, Mackay

Local priorities

A self sufficient city with a population connected to the local landscape

We want to look beyond dated models of urban development and become a truly enterprising, innovative and sustainable city. We want to harvest a reputation as a self sufficient city by decreasing emissions, supporting innovative energy systems and improving programs that help residents understand the link between land use, ecosystems services, the impacts of climate change, and the ways they can help reduce their ecological and carbon footprints. We can achieve this via activities such as community gardens and markets to reduce the distance food has to travel before consumption, a network of bike paths to reduce car use, mechanisms such as ‘adopt a beach/ bush’ that encourage communities to take action and ownership in their local suburbs, and seek opportunities to become involved in renewable energy schemes, such as existing solar power incentives.

Well planned urban areas with functioning natural systems

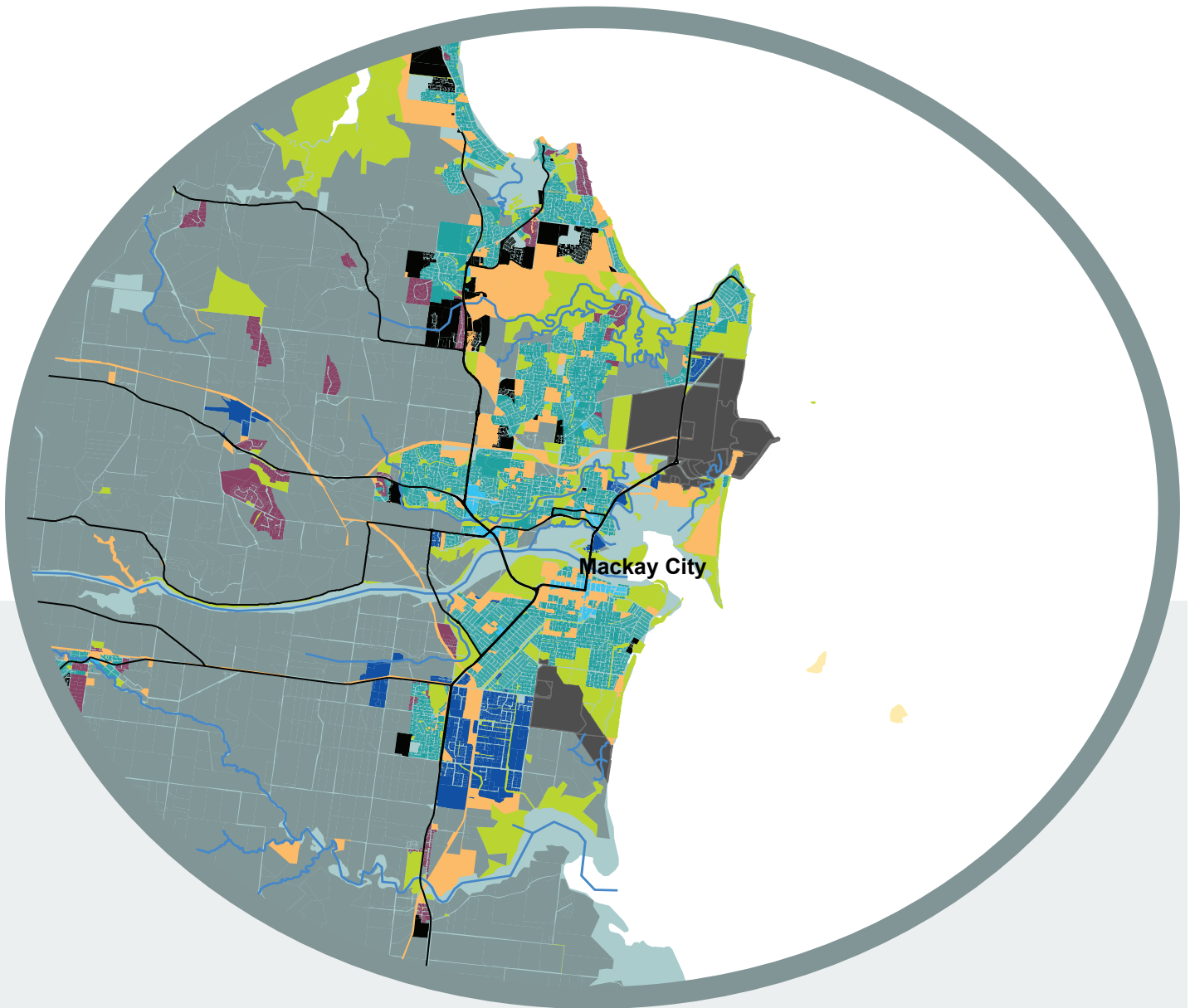
We would like to draw on existing models of urban areas that are developed with the natural environment woven throughout. Our foreshores and beaches are some of our most valued resources, and we would like to see them protected. Development is occurring on areas where we have seen flood historically. We are concerned that this is not appropriate, nor is development on the foreshore that restricts public access and causes erosion. We would like to be involved in planning and better understand planner’s decisions. We appreciate that a growing population has to live somewhere, but we think poor decisions at the planning stage are being made that will compromise the long-term vision for our city.

Equip people and landscapes to be resilient to climate variability

We need to promote an understanding of weather and climate patterns to improve our capacity to adapt as a community to changes in weather and climate in the future. We will achieve this by educating community members and decision makers about the common sense adaptation options available, and the potential economic, social and environmental cost of not acting.

Mackay City

Opportunities for Urban Green Space Connectivity.



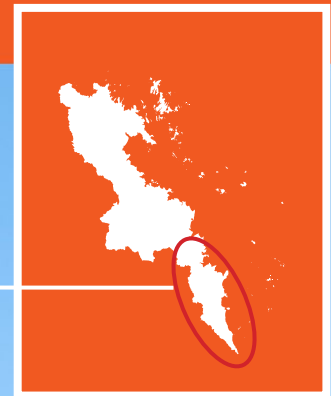
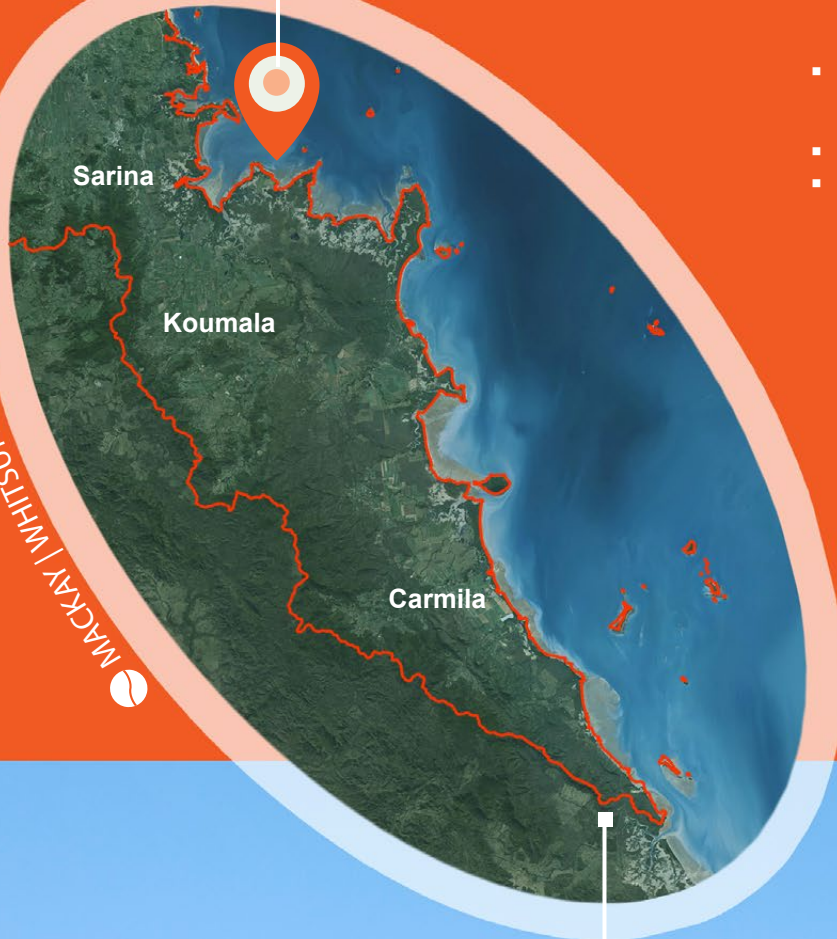
Regional Planning Zones



LANDSCAPE SNAPSHOT

- Cape Palmerston National Park and distinctive Mount Funnel
- Wetlands of Rocky Dam (Tedlands Wetlands)
- More extensive grazing land
- 1200 mm per annum rainfall band

MACKAY | WHTSUNDAY | ISAAC NRM REGION



Sarina & Isaac.

VISION: A place where appropriate coastal development is supported alongside a landscape of connected natural areas.

General Description

The Sarina and Isaac landscape is environmentally, climatically, and culturally distinct. Receiving less rainfall and with fewer population centres, the area is characterised by open grazing country as you move south along the Bruce Highway from the Sarina cane lands.

Landscape Location

The Sarina and Isaac landscape encompasses all of the coastal portion of Isaac Regional Council as it sits within the Mackay, Whitsunday and Isaac catchment boundary. Sarina represents its northerly most point and Clairview is the most southerly locality.

Community

With 398 people living in Carmila and surrounds at 2011, this local landscape has a low population and is serviced by both Mackay to the north and Moranbah to the west. There is an agricultural focus with sugar cane dominant in the north around the Sarina milling area, giving way to grazing further south.

Other localities include Koumala, Ilbilbie and Clairview.

The area exists in an overlap of approximate Traditional Owner boundaries, with Koinjmal to the south, Yuwi-bara in the north, and Wiri and Barada inland to the west.

Natural Environment

Although the majority land use is cane and grazing, land west of the highway contains extensive native vegetation. National Parks include West Hill and Northumberland Islands, and Cape Palmerston on the coast. Cape Palmerston National Park is home to the distinctive Mount Funnel which rises 344 metres above the Isaac landscape.

Cape Palmerston National Park features sandy dunes, unspoilt beaches and rocky headlands, and protects a range of plant communities and threatened animals including the threatened false water-mouse and beach stone-curlew. Areas of seagrass important for marine wildlife such as turtle and dugong exist off the coast.

Rocky Dam near Koumala is a wetland comprising 216.4 km² of fish habitat area that are protected from commercial development while allowing sustainable fishing to continue.

Land Use and Enterprises

This landscape comprises mostly grazing land, with cane around Sarina, and forestry to the south west. Localised industrial areas exist around Sarina.

Climate

Average annual rainfall is less than that of the greater region with Clairview receiving 1200 mm per annum.

The fire risk in this local landscape is high as a result of higher fuel loads and drier weather. This risk increases west of the Bruce Highway.

The landscape mostly represents a medium hazard for storm tide, although the wetlands of Rocky Dam represent a high risk storm tide area.

The area is characterised by a higher risk of erosion along the west of the Bruce Highway and in the highlands that extend east toward Cape Palmerston National Park.

“

Our block is wonderful, so many trees and so much wildlife has returned since we bought it and started fixing it up. It's like an oasis, there are more birds than you can imagine.

- Small block holder, Carmila

Local priorities

Appropriate coastal use

As a community, we identify as being connected to the Isaac coastline and we want the coast to be valued by visitors and decision makers too. We would like to see development concentrated in already developed areas around Mackay. We are not just a thoroughfare of the Bruce Highway, we have an identity that we want to protect and the environment is central to this. We need to work with council to express our views. We can achieve appropriate coastal use by incorporating natural resource management at an early stage in planning and also in education of the next generation.

A landscape of connected natural areas

We would like the Isaac landscape to be connected so that all land parcels of all sizes contribute to natural resource management and there is no fragmentation. Landholders should uphold a high standard of management practice. We need to invest in projects that provide habitat connectivity, in particular at the marine-terrestrial coastal interface and in areas of riparian vegetation. Such connectivity should also be considered in development proposals.

Water resources

We would like secure and reliable water provision. Our area receives lower rainfall than Mackay and Whitsunday, and we rely on the environment for water resources. Some of our community members support the development of a dam to achieve this, the construction of which will also bring positive leisure and tourism opportunities similar to Mackay, Eungella and Proserpine.

“

You can only educate people who want to learn. You need to incorporate natural resource management at an early age, have it in the school curriculum and get young people involved.”

- Landholder, Carmila

“

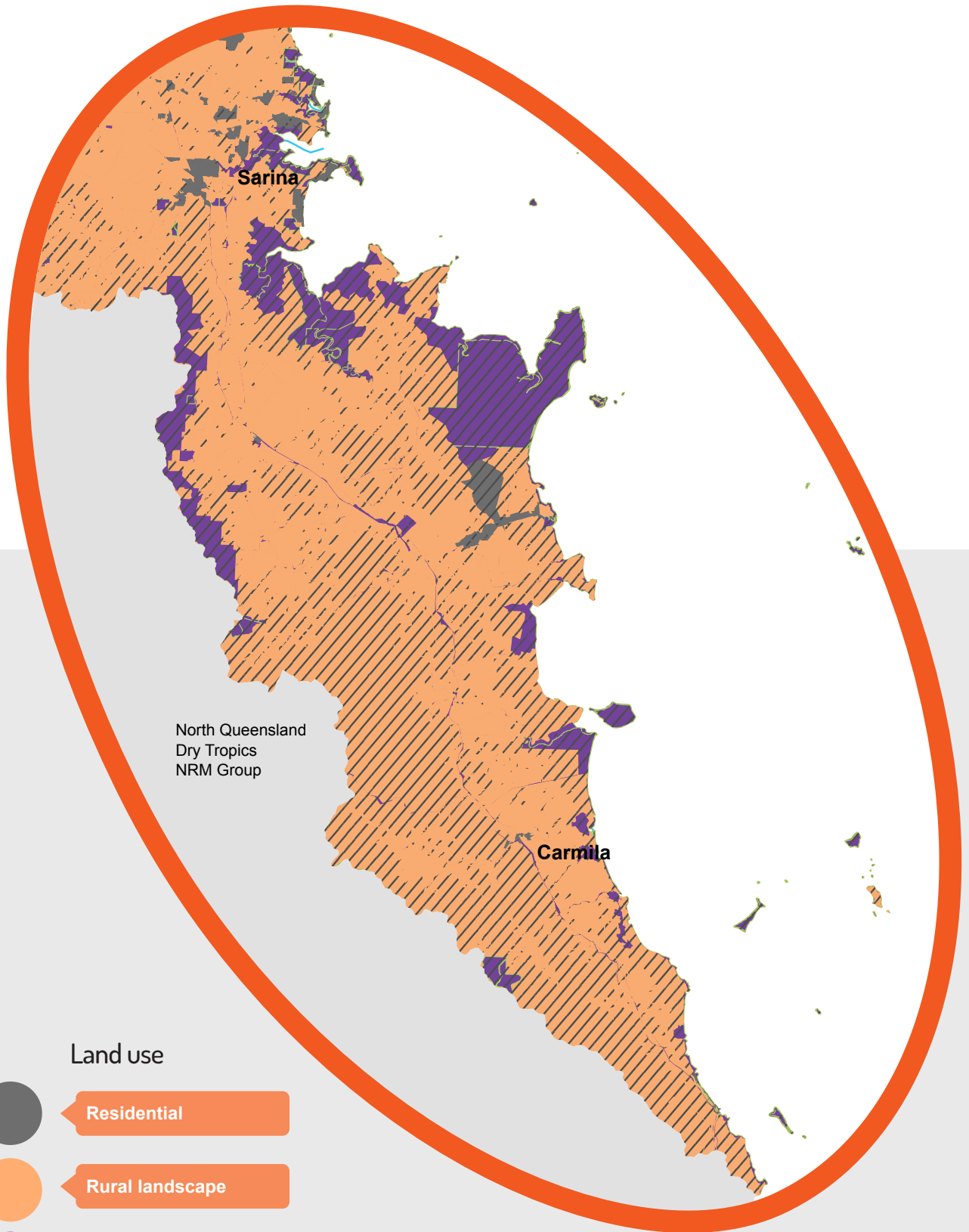
Part-time farmers on small, even sometimes quite big blocks, can be a problem. You’ve got miners and mill workers trying to be farmers.”

- Resident, Sarina







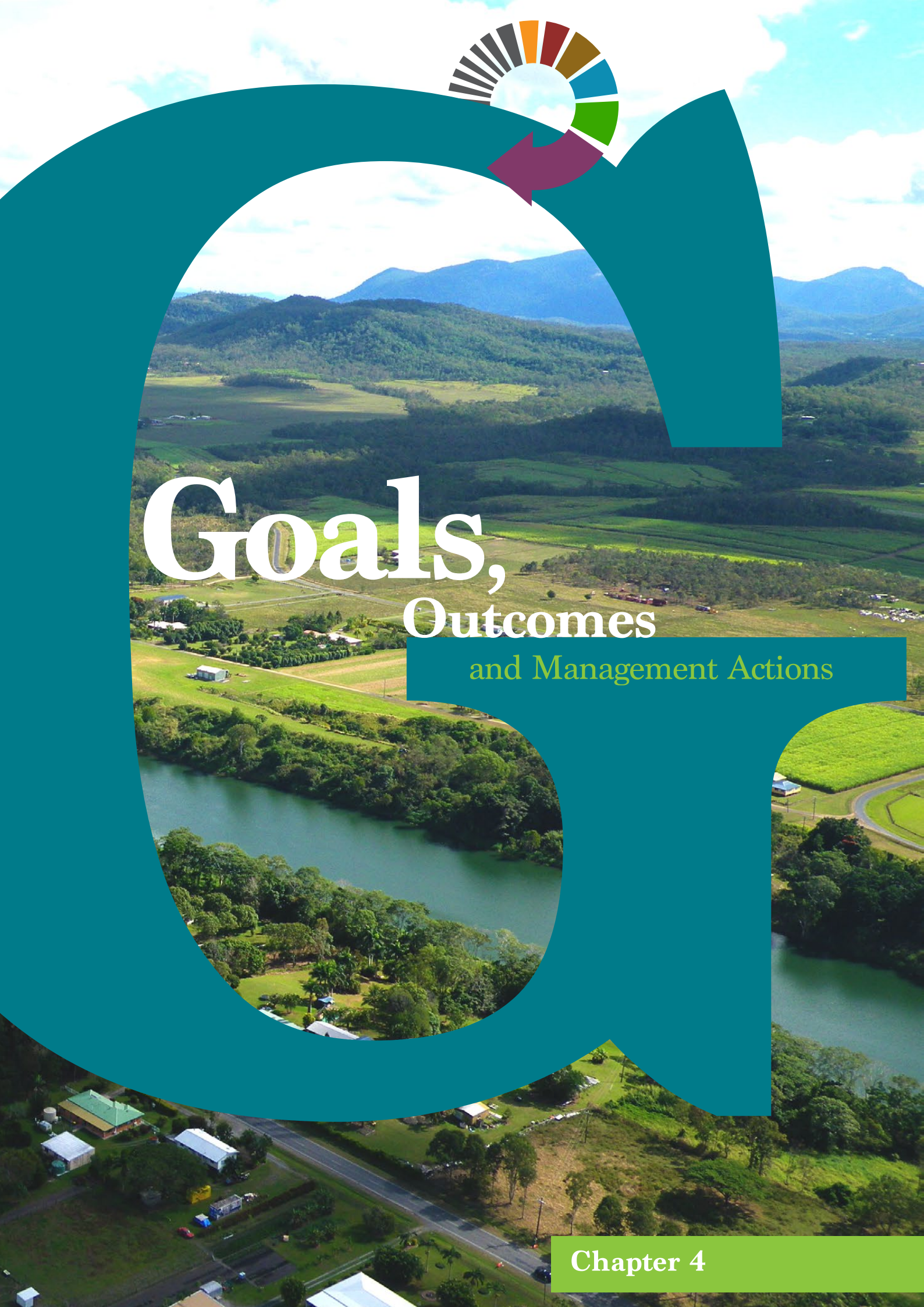
Sarina & Isaac

Connected Natural Areas



Land use

-  Residential
-  Rural landscape
-  Natural Area Reserves
-  Remnant Vegetation



Goals, Outcomes and Management Actions

Regional Goals

Goals are derived by identifying regional systems. Systems are a set or group of interrelated things that interact in a functional way and produce outputs or outcomes.

At a local scale an individual farm can be considered a system where people, machinery, infrastructure, plants, animals and natural resources interact as a functional group of things to produce agricultural outputs like sugar and beef. At a regional scale all agricultural activities can be considered as a larger

agricultural system which includes the producers, processors and retailers of agricultural commodities. The following definitions describe key systems, as identified by the regional community and stakeholders, to help make sense of how the region works as a whole.



People

This includes individuals, community groups and networks, and the organisations and institutions that support them. The outputs of this system include the cohesive social fabric of our communities which nurtures and supports members and in turn enables them to function in society, and as productive elements of other systems.



Terrestrial Environment

This includes the mainland areas of functional natural environments which exist outside, around and within areas developed for agriculture, industry, infrastructure and urban settlement. These include remnant native vegetation, waterways and wetlands and existing reserve networks of State Forests and National Parks. The outputs delivered include visual and recreational amenity, clean air, water, fauna and flora habitat and culturally significant sites to Traditional Owners.



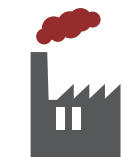
Coastal and Marine Environment

This includes all coastal and marine areas and encompasses the continental islands and 50,000 km² of ocean spanning the Great Barrier Reef Lagoon, Coral Sea and fringing coral reefs. The outputs delivered include marine, coastal and island flora and fauna habitat, visual and recreational amenity, productive marine fishery, a basis for economically significant tourism industry and areas of cultural significance for Traditional Owners



Agriculture

This includes land that is predominantly used for agricultural production purposes such as sugar cane, grazing and horticulture, while also encompassing agricultural vegetation communities and regional ecosystems. The outputs delivered include significant economic values to the region, employment, lifestyle opportunities, cultural and heritage values, support of rural communities and some visual and recreational amenity.



Industry

This includes resources that are utilised primarily by industry that is not deemed agricultural, for example tourism, construction and mining infrastructure. The outputs delivered include economic values that drive regional economic development, employment, lifestyle opportunities, in addition to business and investment opportunities for the region.



Climate

The ability of the above systems to mitigate and adapt to increased climate risk and more severe weather events in the future. This includes increased temperatures, changes to rainfall patterns and sea level rise. The outputs delivered include raising awareness and minimising risks in terms of losses from economic, social and environmental impacts of an increasingly unstable climate.

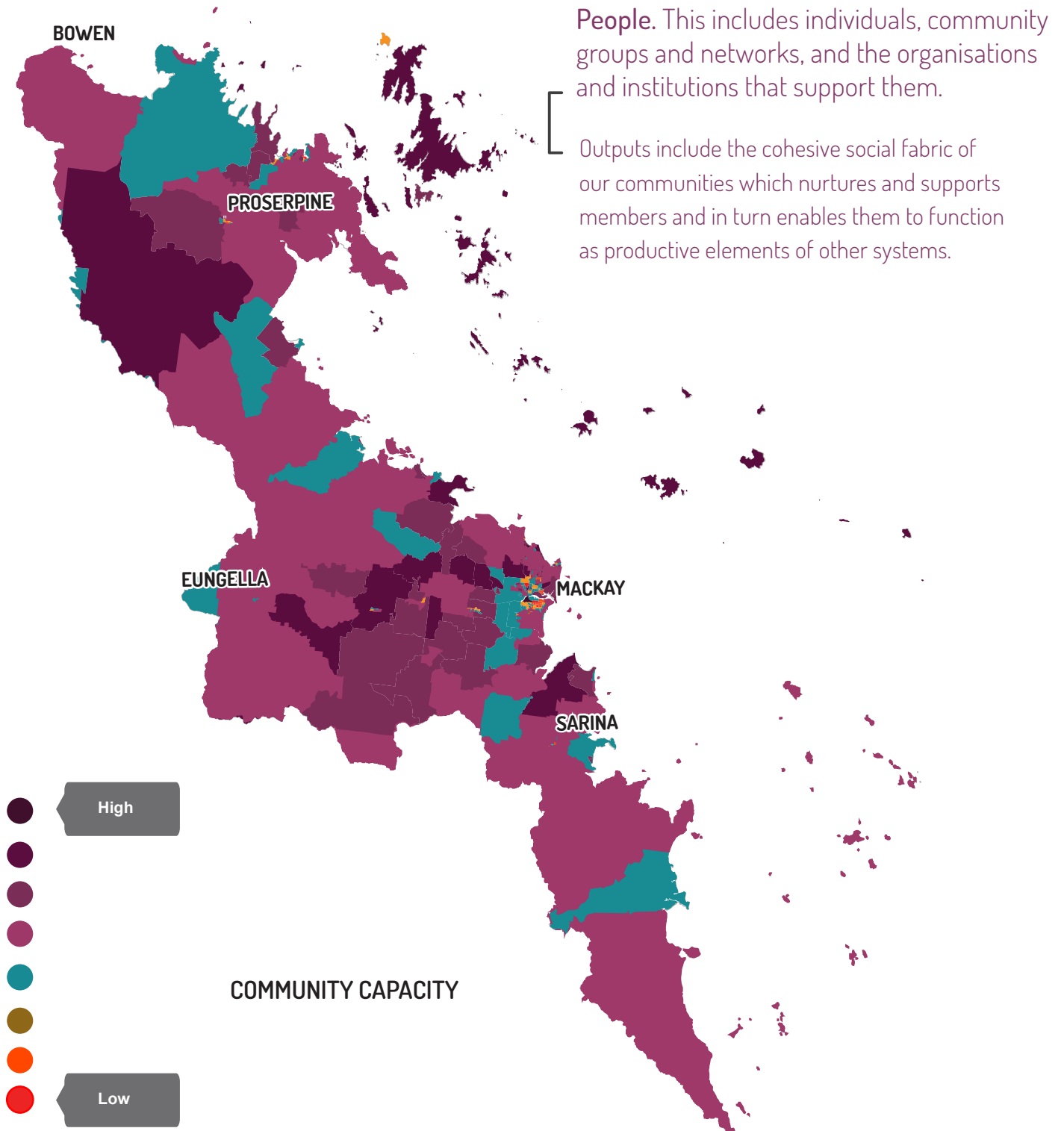
People



Goal: Resilient communities that are well connected to their local environment.

People. This includes individuals, community groups and networks, and the organisations and institutions that support them.

Outputs include the cohesive social fabric of our communities which nurtures and supports members and in turn enables them to function as productive elements of other systems.



Key Outcomes Management Actions

P1: Rural and urban land users have capacity to make informed decisions about the land

1. Promote natural resource management by developing and implementing community awareness activities around key projects.
2. Ongoing communication and strategic planning is undertaken in an integrated, collaborative manner
3. Increase number of people taking part in related activities, and increase people's capacity to be involved in natural resource land management.
4. Support a better understanding of Traditional Owner cultural and other values to better integrate these into decision making.
5. Community groups and stakeholders have easy access to information, provide input and are directly involved in the delivery of improved natural resource outcomes.
6. Target engagement of peri-urban landholders in recognition of their varied levels of capacity.
7. All local government and industry planning documents recognise the goals, outcomes and actions that are outlined in the NRM Plan.

P2: Communities are more self sufficient and as a result, more resilient

8. Support communities to become more sustainable locally in food production by collaboratively seeking opportunities to produce, sell and purchase food locally.
9. Explore opportunities for people to engage with and understand their landscape, and improve opportunities for young people to become involved as custodians of the land and sea.
10. Landholders are given the opportunity to cooperatively manage pressures such as feral pigs and water quality that benefit their own land and the broader landscape.
11. Integrate natural resource management into existing curriculums, and create opportunities for students to become involved in natural resource management activities.
12. Ensure communities have access to information about being more sustainable, for example in energy and water use.

P3: Traditional Owners have a role in decision making and action regarding stewardship of Country

13. Increased involvement of Traditional Owners to integrate cultural and other Aboriginal values in decision making at all scales.
14. Increase involvement of Traditional Owners in natural resource management, including monitoring and management of culturally significant sites and species.
15. Support Traditional Owners in taking part in and sharing Indigenous land, sea and water management techniques, such as traditional burning.
16. Enable successional planning by supporting the development of projects that identify and protect cultural values for Traditional Owner groups.
17. Raise community awareness regarding culturally significant sites and objects, providing an interpretation of Aboriginal heritage and values so that they are better understood.
18. Promote intergenerational sharing of knowledge and opportunities for young Traditional Owners to take part in decision making and management activities.
19. Ensure Indigenous knowledge is captured and securely stored in a way that allows Traditional Owner groups to have control over accessibility and use of knowledge for regional planning and activities.

“How do you wake up the community? It all starts with community and we need a conscience about how the land and sea is looked after.”

- Resident, Cannonvale

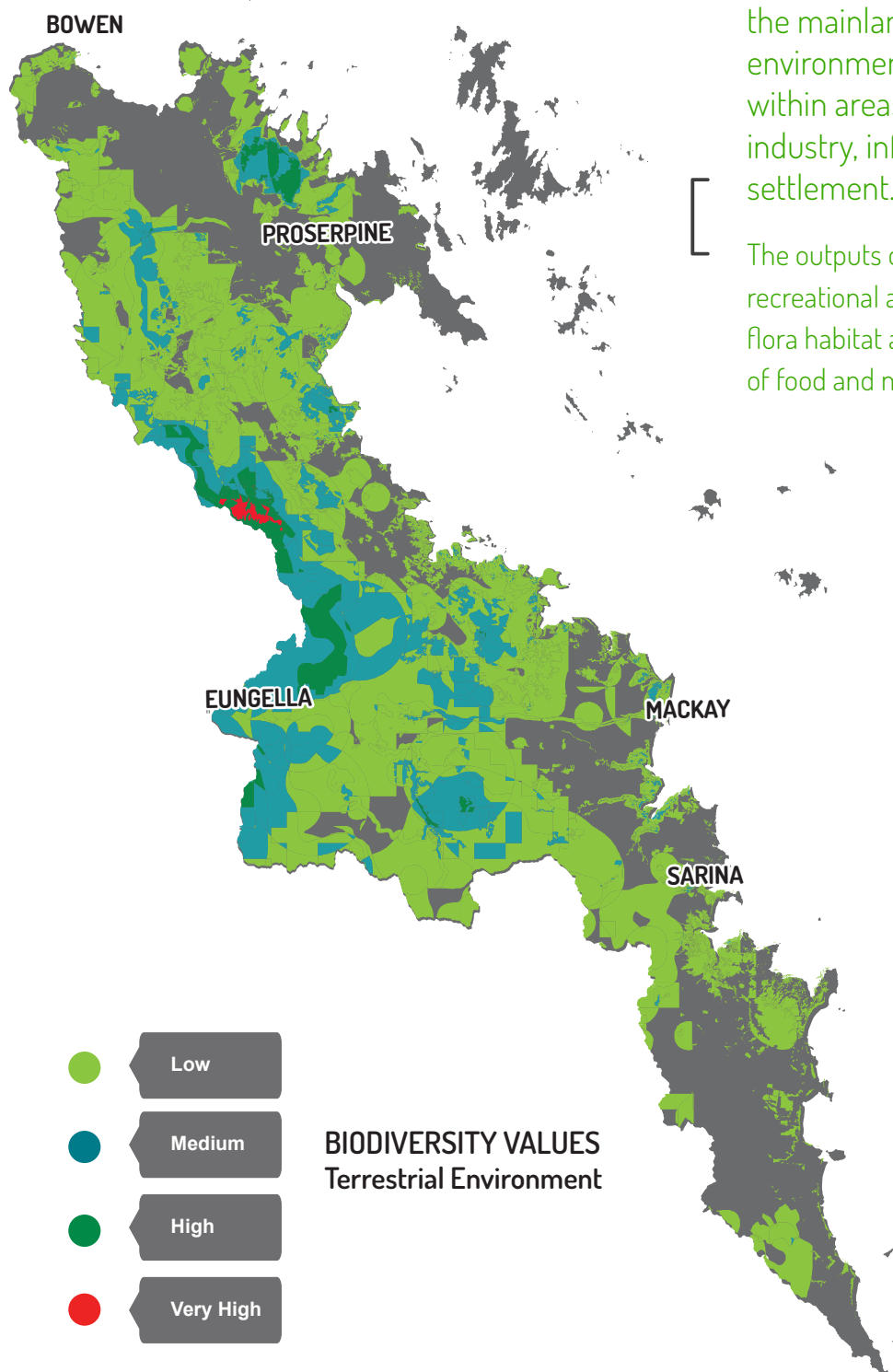
Terrestrial Environment



Goal: Balanced, sustainable land use and functional, connected natural areas with maintained biodiversity.

Terrestrial Environment. This includes the mainland areas of functional natural environments which exist around and within areas developed for agriculture, industry, infrastructure and urban settlement.

The outputs delivered include visual and recreational amenity, clean air, water, fauna and flora habitat and a culturally significant source of food and medicine for Traditional Owners.



Key Outcomes Management Actions

TE1: Promote a collaborative multi-stakeholder approach to identify sustainable land use options

1. Regional planning collaboratively incorporates information to guide suitable land use change, and monitors the effectiveness and sustainability of land use options.
2. Habitat essential for the survival of key threatened species is identified at an appropriate scale and protected in the long-term from urban and agricultural expansion.
3. Contribute to and coordinate innovative and cooperative landscape scale projects that reduce environmental pressures and threats.
4. High priority areas for conservation are identified collaboratively, prioritised for action in line with stakeholder values and vision, and implemented cost effectively.
5. On-ground, long term monitoring is undertaken to ensure actions implemented are achieving objectives for conservation.

TE2: Regional land use planning and activities integrate maintenance and connection of valuable biodiversity areas

6. Undertake research that identifies essential habitat mapping for key species, such as the rufous owl, northern quoll and platypus.
7. Recover and maintain species and ecosystems through improved and integrated land management practices.
8. Provide assistance and incentives to landholders for re-alignment of management practices by supporting development and implementation of property plans that have production and environmental outcomes.
9. Continue education and awareness for land managers and the general public around the potential pests, disease and transmission vectors for these particularly considering projected temperature increases.
10. Maintain or improve water quality and in turn ecosystem health by supporting activities that reduce terrestrial pollutants in priority areas.

TE3: High biodiversity natural areas are actively managed to maintain and improve their ecosystem function

11. Ensure natural resource management planning and activities occur at an appropriate scale that recognises actions are connected and have cumulative impacts.
12. Improve the condition, extent and connectivity of key conservation areas through activities such as revegetation, improved fire management, weed and pest animal control.
13. Ensure key existing corridors including the Clarke Connors Range and other strategic corridors, continue to support the current diversity of ecosystems and species and act as corridors and climate change refuges.
14. Remnant vegetation is actively managed for its nature conservation and ecosystem service value.
15. Develop co-operative, cost effective and sustainable invasive species programs which significantly reduce their environmental impacts.
16. Long term monitoring programs are implemented to establish and refine the effectiveness of management interventions.
17. Improve condition of high priority in-stream fish habitats, including creating fish passages at fish barrier sites.

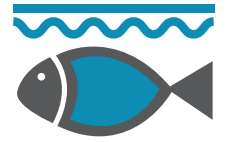
TE4: Ecosystem services delivered by natural areas are understood and valued by the broader community

18. Promote research and development regarding ecosystem service values in the region.
19. Promote biodiversity values of wetlands and of the impacts of various management and rehabilitation regimes on fisheries values.
20. Ecosystems and component species that perform important ecosystem services are prioritised and rehabilitated.
21. Promote awareness regarding the value of natural assets, including the species and ecosystems on which the community depends for their business and leisure.
22. Provide advice, assistance and incentives to landholders to reduce their impact on key conservation areas.

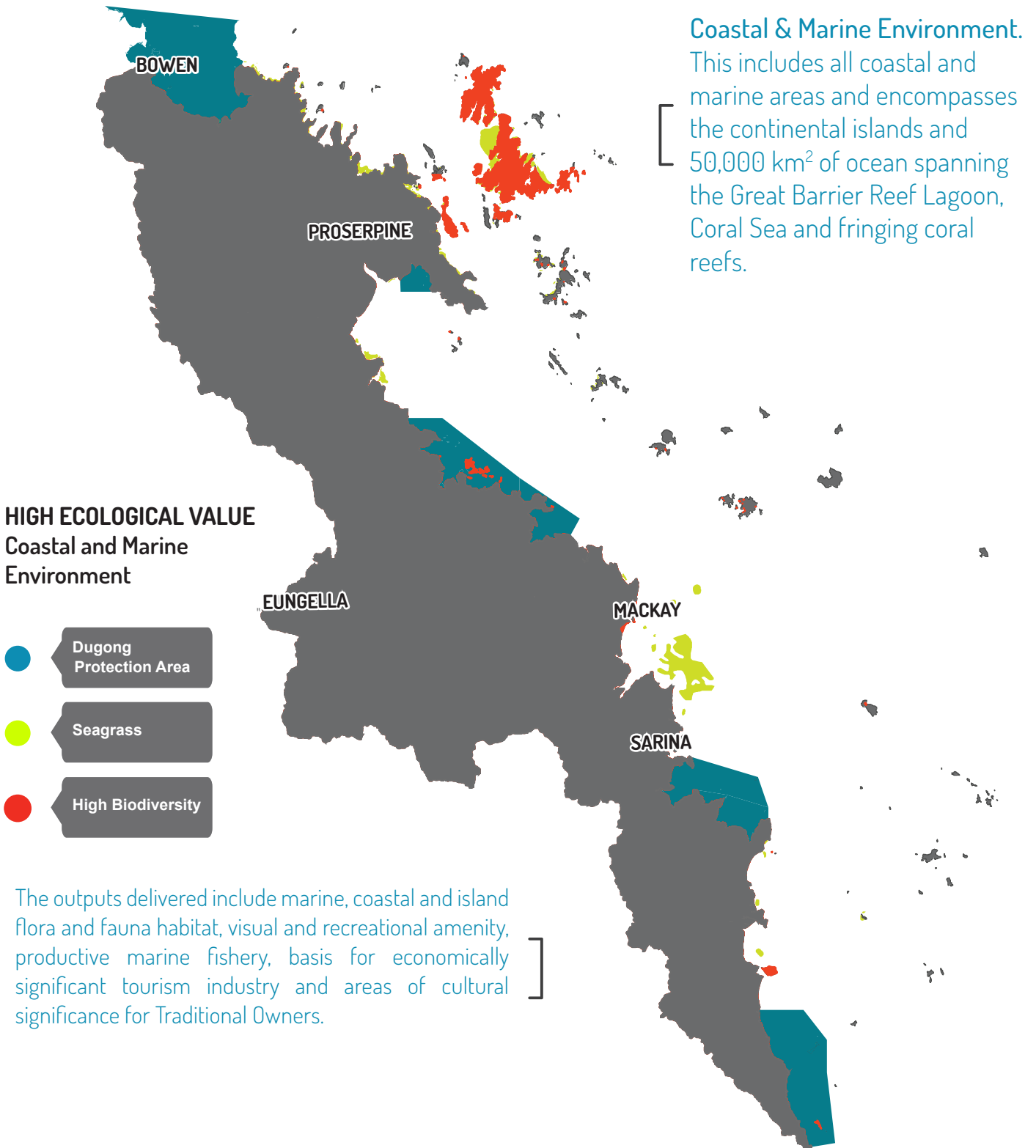
“Plans should change as communities change. I understand the economies of building high density urban areas, but it is not in the best interests of the community and the environment. Does that not have a value too?”

- Tourism operator, Pioneer Valley

Coastal & Marine Environment



Goal: Functional coastal and marine ecosystems and terrestrial-marine interface that contribute to reef health.



Key Outcomes Management Actions

CME1: Integrated and multidisciplinary marine and coastal plans are developed and implemented by stakeholders

1. Implement collaborative coastal management plans that engage community and ensure protection of coastal ecosystems.
2. Facilitate opportunities for Traditional Owner involvement in natural resource management through the coastal management planning process.
3. Develop and implement island management plans which take into account the existing condition and trend of ecosystems and species, the levels and types of human use, and management of pressures and threats.
4. Support research and development and long term monitoring projects which contribute to the adaptive management of coast and marine ecosystems.
5. Ensure coastal management plans guide multiple value rehabilitation works, such as restoring environmental infrastructure that helps protect coastal communities from the effects of climate change.

CME2: Coastal communities' capacity is increased so they can take part in active management of coastal and marine environments

6. Facilitate the active involvement of coastal communities in coastal and marine Natural Resource Management by providing meaningful engagement and capacity building opportunities.
7. Support key community based monitoring programs where these can contribute to adaptive management of the coastal zone e.g. Turtle Watch, Seagrass Watch.
8. Support Traditional Owners to monitor culturally significant species, such as dugong and marine turtles, to help foster sustainable use of marine resources.
9. Raise awareness of threatening processes impacting on coastal and marine resources with a view to preventing activity that damages these ecosystems.

CME3: High priority coastal and marine areas are actively managed to ensure natural values are maintained or improved

10. Actively manage threats to coastal and island ecosystems to maintain biodiversity values.
11. Improve marine water quality in line with targets and objectives identified in the water quality improvement plan via improved land management practice targeting high priority terrestrial areas.
12. Improve collaborative land use planning and management to deliver projects that minimise threats to threatened coastal and marine ecosystems such as saltmarsh, mangrove, seagrass and beach scrub communities, and key species such as turtle, dugong, humpback whale, Indo-Pacific humpback dolphin, Australian snub-finned dolphin, various shorebird species, and water mouse.
13. Monitor coastal and marine environments for new and emerging threats and highly vulnerable areas i.e. COTS (crown of thorns starfish), anchor damage and development of new pollutants.
14. Ensure pelagic fish, bug and scallop fisheries are sustainable in the long term and continue to complement recreational fisheries.

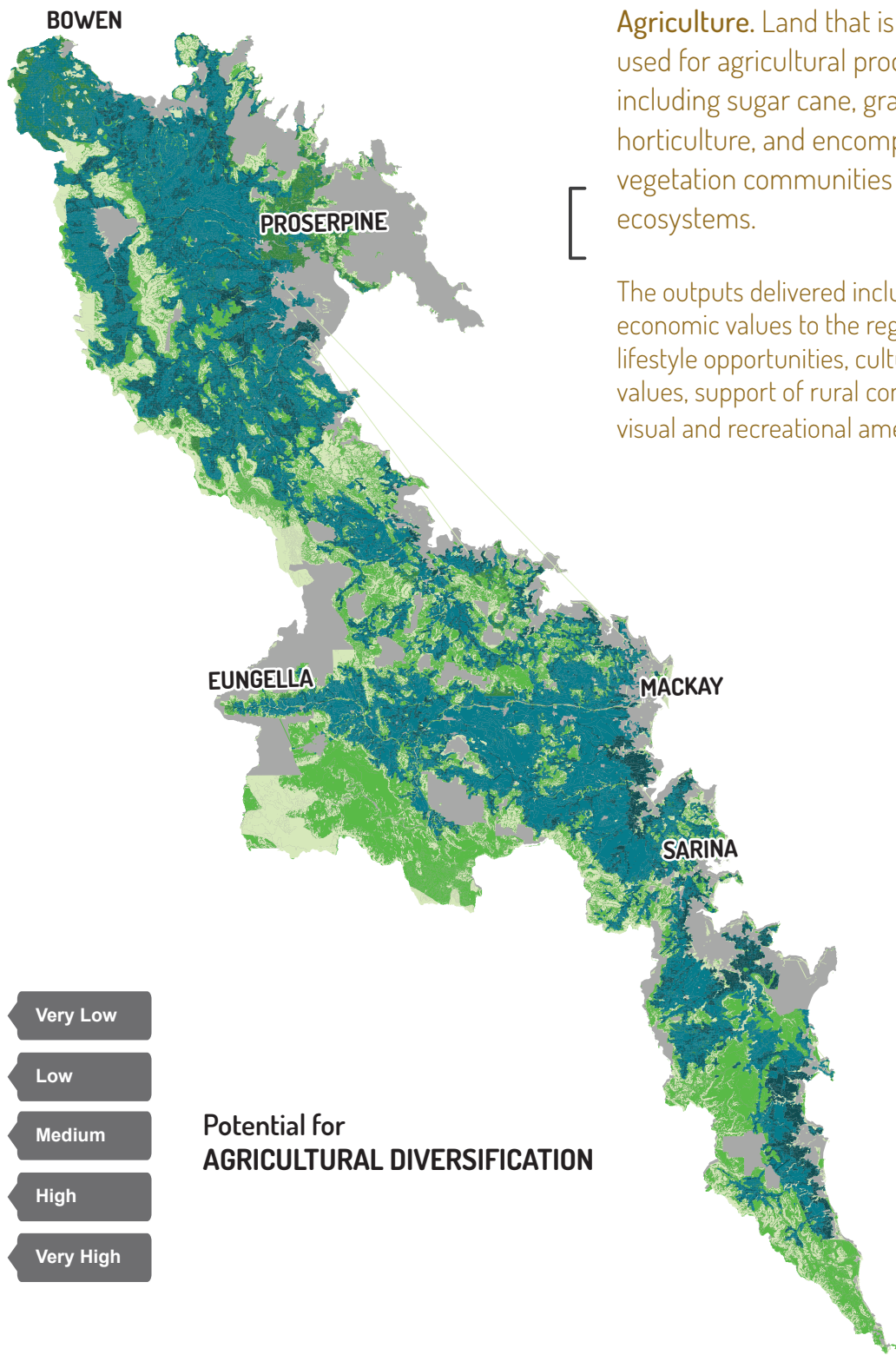
“You can’t stop growth and change, but it needs to be sustainable. Muddy Bay (Port of Airlie) can’t become the blueprint as to how things will be developed in the future.”

- Resident, Dingo Beach

Agriculture



Goal: Viable, productive and sustainable local agricultural businesses that have balance and diversity.



Agriculture. Land that is predominantly used for agricultural production purposes, including sugar cane, grazing and horticulture, and encompassing agricultural vegetation communities and regional ecosystems.

The outputs delivered include significant economic values to the region, employment, lifestyle opportunities, cultural and heritage values, support of rural communities and some visual and recreational amenity.

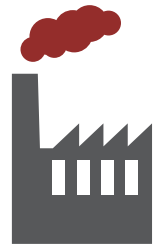
Key Outcomes Management Actions

<p>A1: Landholders have capacity and knowledge to move towards implementation of evolving best management practice activities</p>	<ol style="list-style-type: none"> 1. Improve land manager understanding of the key natural resource management issues impacting land and water resource health, and in moving from dated and conventional, to best management and innovative practices. 2. Promote best management practice and the positive impact of this on water quality, soil health, ecosystem health and profitability. 3. Create easy to access decision support tools at an appropriate scale. 4. Identify impact of improved management practice on freshwater, estuarine and marine ecosystem health and undertake key indicator species monitoring to measure change. 5. Communicate impacts and uptake of best management practice throughout industry and the community. 6. Develop catchment based models of improved environmental outcomes resulting from implementation of best management practice, which can integrate farm and catchment scale monitoring. 7. Deliver activities that invest in and promote irrigation and water best management practice, increasing adoption of water management action plans.
<p>A2: Continuous improvement of best management practice to reflect innovative science, knowledge and practice</p>	<ol style="list-style-type: none"> 8. Support industry and landholders in identification of innovative practice via research and development to enable continual improvement of best management practice standards. 9. Promote new innovative solutions as they emerge via agricultural industry groups and networks. 10. Update ABCD frameworks and the definition of best and aspirational management practices according to prevailing technologies and achievements. 11. Development of best management practice frameworks for a range of other activities, such as integrated pest management activities for the management of high priority pest plants and animals. 12. Support land managers to document, monitor, evaluate and thus constantly improve farm based practices to be in line with known best management practice. 13. Explore incentives such as environmental stewardship payments for those participating in increasingly innovative practice.
<p>A3: Promote the vision and viability of a diverse range of agricultural options</p>	<ol style="list-style-type: none"> 14. Undertake research and development regarding agricultural opportunities regionally. 15. Support advocacy that promotes agriculture as a desirable economic and lifestyle opportunity. 16. Support educational activities such as young farmers networks and trial activities. 17. Support a communications network that identifies communication strategies and activities for stakeholders to promote vision and viability of agricultural options. 18. Develop and implement community awareness activities around key projects.
<p>A4: Protect highly productive agricultural land and identify areas for production</p>	<ol style="list-style-type: none"> 19. Collaboratively identify the most appropriate areas for a variety of land uses including agricultural development. 20. Support the development of an integrated and collaborative commodity and natural resource management group chartered with considering resource condition, its linkage to agricultural practices, and strategic planning for the delivery of a balance of land uses.

“The community has changed a lot in the last 20 years. It used to be just production and cane families, and now there are lots of towns and small blocks. People are growing disinterested, distracted. The community used to be linked to the mill, the school, the shop, all the local services. But now, out of 30 people in my class at school, I’m the only one still here.

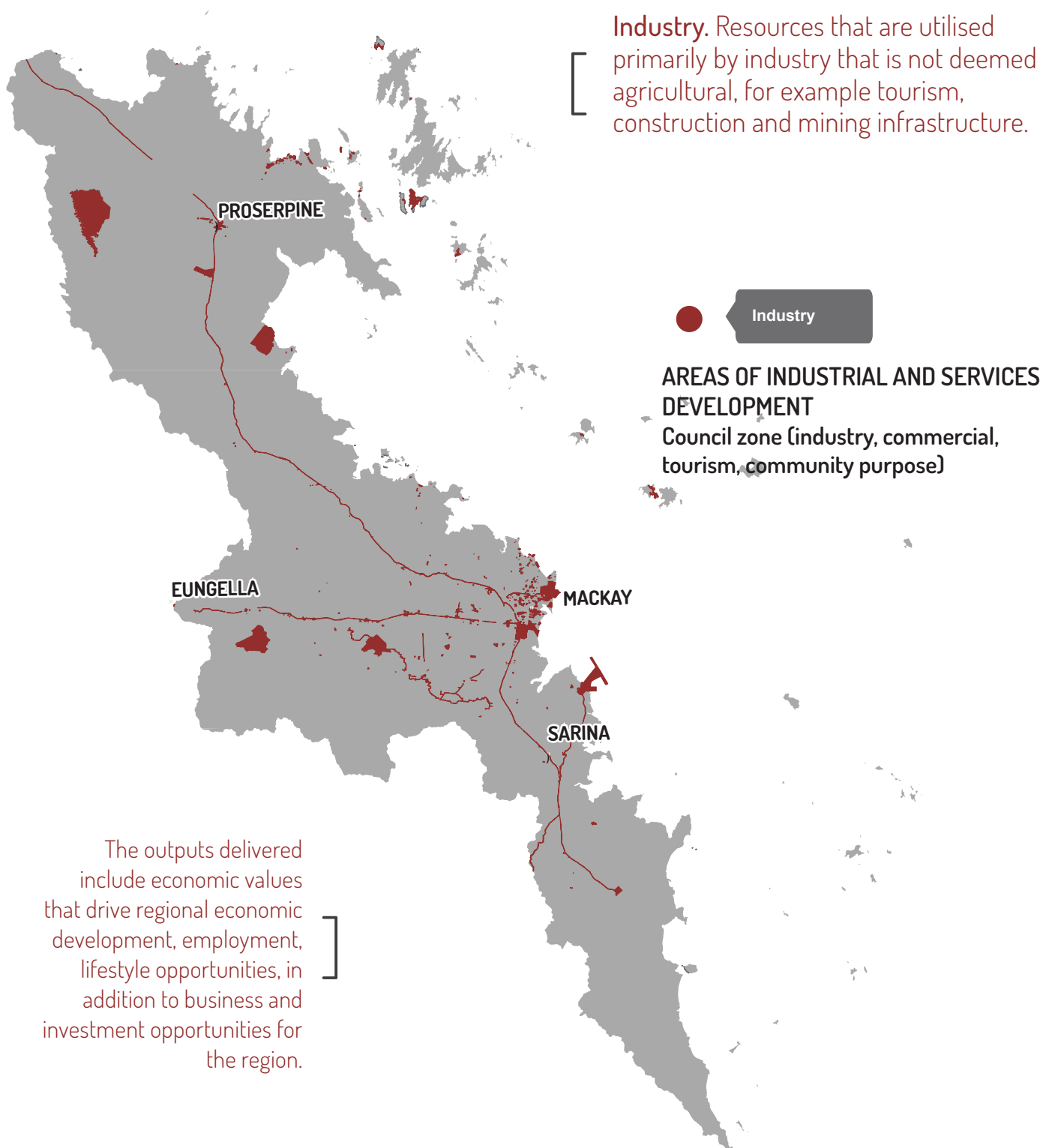
- Cane farmer, Farleigh

Industry



Goal: Locally supported commercial development that meets the needs of current and future Mackay, Whitsunday and Isaac populations.

Industry. Resources that are utilised primarily by industry that is not deemed agricultural, for example tourism, construction and mining infrastructure.



The outputs delivered include economic values that drive regional economic development, employment, lifestyle opportunities, in addition to business and investment opportunities for the region.

Key Outcomes Management Actions

i1: A more diverse profile of industries exist in the region

1. Stakeholders work together to identify and promote best fit industry and commercial development in the region, that includes consideration of economic, social, environmental and climate change implications.
2. Harness transferable skills of workforce and support creation of related educational and employment opportunities to prepare for emerging future markets.
3. Explore opportunities to promote the area as an attractive place for a diversity of industries.

i2: Industry has the capacity to be environmentally sustainable, and to promote this

4. Stakeholders work towards aligning their related strategic objectives by addressing key natural resource management priorities as identified in the NRM Plan and other similar plans.
5. Support stakeholders including government, industry and landholders, to identify innovative practice (via research and development) that enables continual improvement of best management practice in urban design and development.
6. Develop and deliver tools that generate awareness of land management practices that negatively impact the environment to influence community and stakeholder decision making.
7. Work with stakeholders to develop a reporting program which can evaluate urban adoption of best management practice aligned to improved use of land and water resources.
8. Support water management planning for commercial uses that takes into account protection of natural flows and ecosystem health.
9. Increase awareness of water and energy use efficiency in homes, businesses and industries, and seek provision of an integrated package of incentives to enable improvements.
10. Stakeholders have the capacity to document, monitor, evaluate and thus constantly improve urban based practices to be in line with known best management practices that improve resource condition.
11. Promote successes of industry and support schemes that acknowledge and encourage low impact environmental activities, for example award and certification schemes.
12. Support local government in projects that seek to minimise waste generation in urban and rural communities, including best practice solid waste management.
13. Support the implementation of stormwater quality management plans for the region's urban areas.
14. Work collaboratively to support extractive industry to develop guidelines, policies and legislative frameworks that ensure best possible outcomes for economy, community and environment.

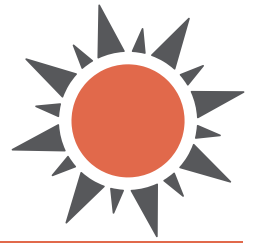
i3: Industry sectors are integrated and land use planning considers environmental, economic, cultural and social elements

15. Support further research and development in understanding the environmental, economic, cultural and social impacts resulting from land tenure changes.
16. Improve collaboration in consideration of whole of landscape planning for commercial development, including community input and non-economic indicators, to identify most appropriate locations.
17. Stakeholder plans recognise the goals, outcomes and management actions that are outlined in the NRM Plan.

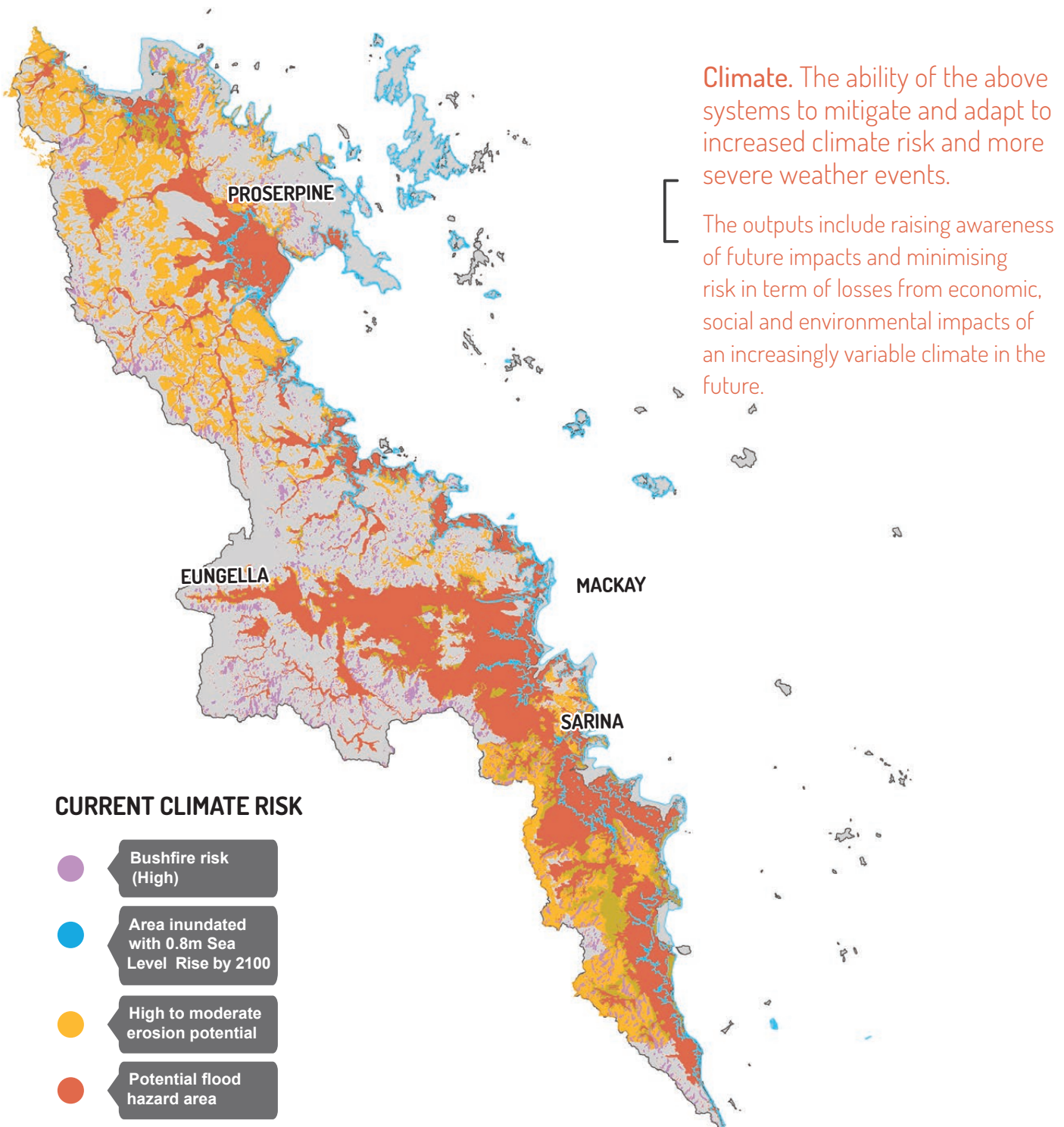
“We need to make the most of the land and strike a balance so that community can survive boom through bust. We need to advance and move toward diversifying our industries.”

- Resident, Calen

Climate



Goal: People, environments and industries adapt to impacts of an unstable climate, and undertake actions to mitigate the pace and magnitude of such change.



Key Outcomes Management Actions

<p>C1: Assist communities to understand existing and projected future climate change using scientifically validated, easy to understand, regionally specific and up to date information</p>	<ol style="list-style-type: none"> 1. Support continued development of regionally specific climate information including projected economic, environmental and social impacts. 2. Make regionally specific climate information available to support decision making, for example, increased intensity of extreme weather events on productivity and natural resource condition. 3. Make available the defend, retreat and adapt options that may be required for all land use areas, particularly urban populations.
<p>C2: Support stakeholders to plan and make decisions based on future climate change scenarios</p>	<ol style="list-style-type: none"> 4. Support collaboration between industry, government, the scientific community, Traditional Owners and other key stakeholders to enable more informed decision making for policy and planning that incorporates future climate risk. 5. Support regional planning initiatives to strategically and collaboratively incorporate climate change projections into decision making. 6. Support the regional community to develop strategies, plans and actions which enhance their capacity and behaviours in adapting to the impacts of climate change. 7. Encourage use of climate related technologies and information to improve ability to manage for climate variability, including provision of climate decision support tools and access to relevant regional climate information.
<p>C3: Promote and support emerging mitigation and adaptation opportunities and action</p>	<ol style="list-style-type: none"> 8. Support the uptake and further development of technologies that improve energy efficiency and reduce greenhouse gas emissions, and raise awareness about their multiple benefits. 9. Prioritise activity that is known to increase resilience to future climate scenarios, for example maintaining coastal vegetation as a buffer from storm tide, cyclones and high winds. 10. Collaboratively identify and maintain ecological corridors to improve landscape connectivity and resilience. 11. Collaboratively develop and implement regionally specific climate plans to provide mitigation and adaptation options available within the region.

“Cyclones are getting worse and the beaches take the brunt of all that energy. They create huge erosion issues. The she-oaks, mangroves, coconut trees along the coast are natural buffers.

- Resident, Hideaway Bay

Implementation



What we plan to do

The NRM Plan has been developed collaboratively and provides a basis from which to work together in delivering our region's vision in a coordinated way.

As a result, in implementing the NRM Plan cooperation across participant stakeholders is encouraged so that the vision and corresponding goals, outcomes and management actions are our shared regional responsibility.

Enabling collaboration in outcome delivery will allow for improved capacity, knowledge sharing, management and potential pooling of resources. The aim of this delivery approach is to continue collaboration and share a commitment to monitor and evaluate goals, outcomes and management actions, capturing a regional overview of progression toward the collective vision.

Preliminary work has been done via the NRM Plan stakeholder engagement process to identify potential indicators to suggest the goals are responding to achieved outcomes and management actions, as outlined overleaf.

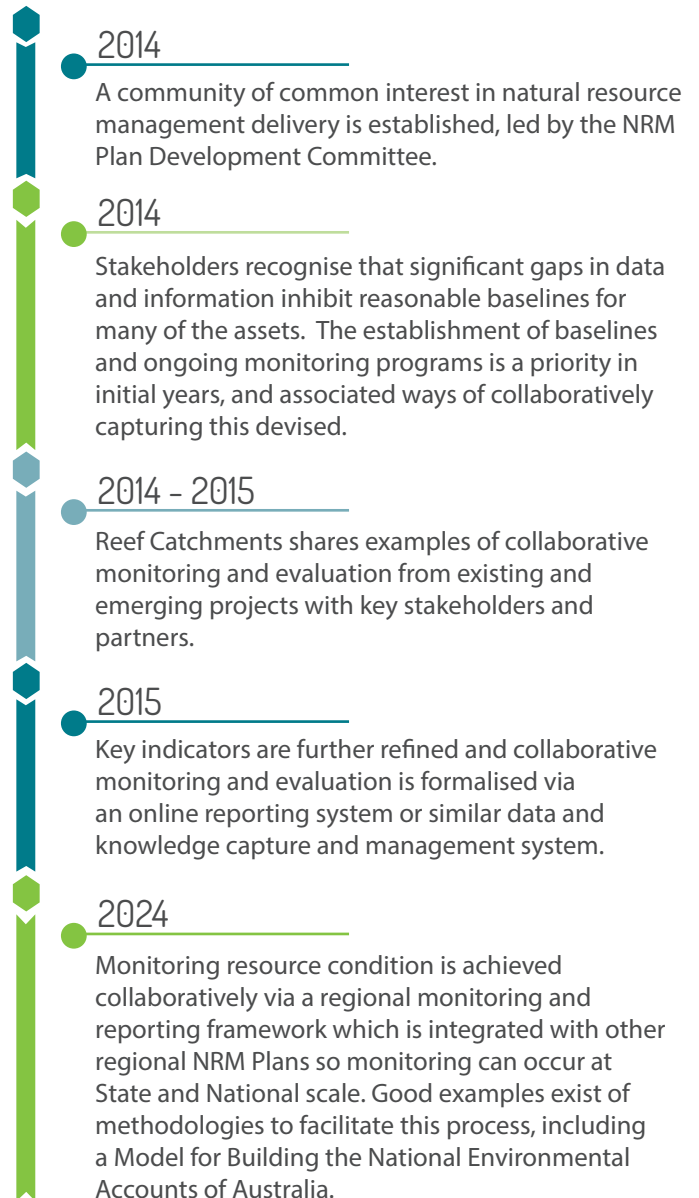
To monitor this, stakeholders responsible for development of the NRM Plan will come together annually to review progress and adjust management actions accordingly. This will provide a short term solution to achieving an adaptively managed plan, allowing for continued knowledge transfer across the region and ongoing alignment of activity.

In the longer term, stakeholders agreed the importance of collectively capturing activity in line with NRM Plan goals, outcomes and management actions. It is the long term aim of this plan to support a framework that can guide regional monitoring and evaluation, providing a whole of region response to the plan's deliverables.

When we plan to do this

This plan provides a strategic framework for managing natural resources in the region until 2024. It also considers the region's potential needs beyond 2024, to ensure that decisions do not compromise long term needs and issues such as climate change.

A suite of shorter term operational plans, strategies and policies will be more routinely updated (3-5 years) to allow for changing investor and political preferences and emerging opportunities. However, the NRM Plan Development Committee will meet annually to ensure activity is in line with the outcomes desired from the community and stakeholders.



“We have to look after mother earth, because she provides for us. For thousands of years, she has provided for us. We have to work together to help her heal.”

- Ngaro Elder



Achieving the vision





Key collaborators have been identified to achieve each key outcome in the next 10 years. Management actions that support each key outcome are expected to occur on a shorter time frame (1-3 years) and are more likely to change and be managed adaptively during the period of this plan.

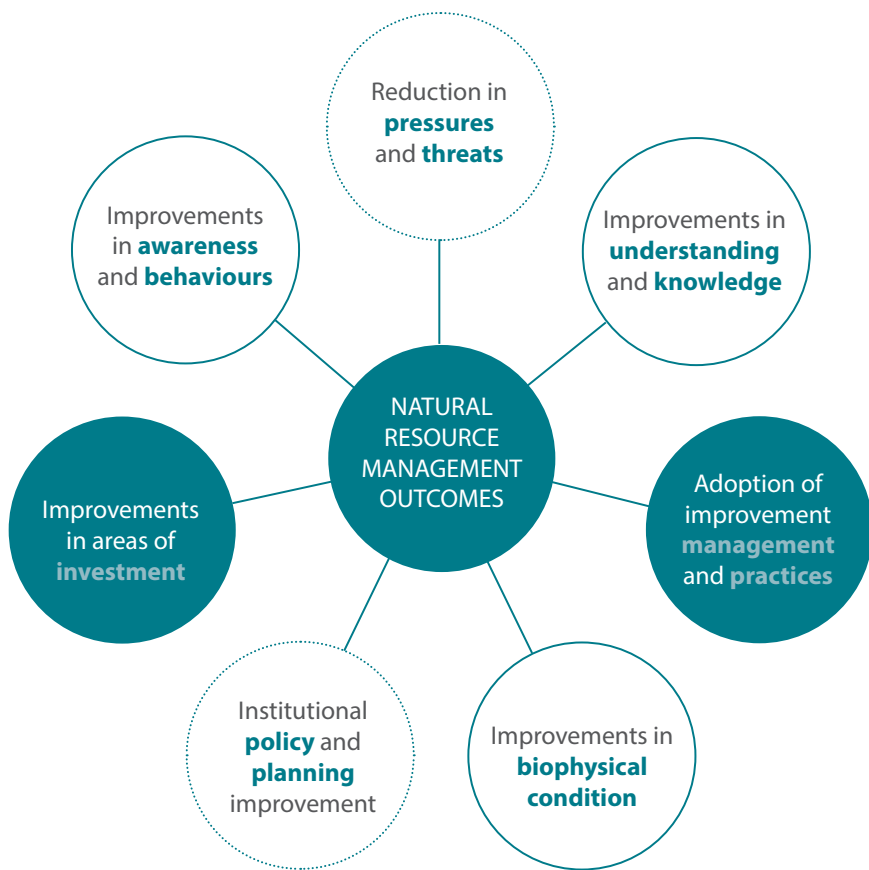
The status of outcomes is described as:

- Occurring** Outcome is already largely occurring with good consensus and commitment from stakeholders and with some projects and activities resourced and implemented.
- Commitment** Outcome is one that NRM Plan stakeholders have committed to (at least in principle) and which are underpinned by a series of projects and activities.
- Emerging** Outcome is in the defining or implementation phase and has started, or is due to start, in the next few years.
- Considered** Outcome is under consideration and may not be currently resourced.

Key collaborators identified do not have any formal requirements to deliver the outcomes. However in the future it is anticipated that the delivery of outcomes will be a shared commitment by stakeholders, including identification of a lead collaborator to coordinate the delivery of their outcome.

System	Goal	Key Outcomes	Key Collaborators	Status
People 	Resilient communities that are well connected to their local environment	P1: Rural and urban land users have capacity to make informed decisions about the land	Industry groups (Canegrowers, Agforce, Growcom), Reef Catchments, Landcare, Local Government	Commitment
		P2: Communities are more self sufficient and as a result, more resilient	Local government, State government, industry groups, education institutions	Commitment/ Emerging
		P.3 Traditional Owners have a role in decision making and action regarding stewardship of Country	Traditional Owners and groups (e.g. TORG), all levels Government, Reef Catchments, Central QLD Land Council	Considered/ Emerging
System	Goal	Key Outcomes	Key Collaborators	Status
Terrestrial Environment 	Balanced, sustainable land use and functional, connected natural areas with biodiversity maintained	TE1: Promote a collaborative multi-stakeholder approach to identify sustainable land use options	State Government, Local Government, Reef Catchments, research organisations	Emerging
		TE2: Regional land use planning and activities integrate maintenance and connection of high value biodiversity areas	Local Government, Reef Catchments, research organisations	Emerging/ Commitment
		TE3: High biodiversity natural areas are actively managed to maintain and improve their ecosystem function	Reef Catchments, Local Government	Emerging/ commitment
		TE4: Ecosystem services delivered by natural areas are understood and valued by the broader community	Industry Groups, Reef Catchments, Landcare	Considered/ Emerging

System	Goal	Key Outcomes	Key Collaborators	Status
Coastal and Marine Environment 	Functional coastal and marine ecosystems that contribute to Reef health	CME1: Integrated and multidisciplinary marine and coastal plans are developed and implemented by stakeholders	Local and State Government, Reef Catchments	Occurring/ Commitment
		CME2: Coastal communities' capacity is increased so they can take part in active management of coastal and marine environments	Coast care, community groups (Turtle Watch, Seagrass Watch)	Emerging/ Commitment
		CME3: High priority coastal and marine areas are actively managed to ensure natural values are maintained or improved	GBRMPPA, State and Local Government, Reef Catchments	Emerging/ Commitment
System	Goal	Key Outcomes	Key Collaborators	Status
Agriculture 	Viable, productive and sustainable local agricultural businesses that have balance and diversity	A1: Landholders have capacity and knowledge to move towards implementation of evolving best management practice activities	Reef Catchments, Industry Groups, Local Government	Commitment/ Occurring
		A2: Continuous improvement of ABCD frameworks to reflect innovative science, knowledge and practice	Industry related research institutions (SRA, Productivity Commission, MLA), Reef Catchments and working group members (includes producers)	Occurring/ Commitment
		A3: Promote the vision and viability of a diverse range of agricultural options	Australian and State Government	Considered
		A4: Protect highly productive agricultural land and identify areas for production	Australian, State and Local Government, research institutions (SRA), industry groups	Commitment/ Occurring
System	Goal	Key Outcomes	Key Collaborators	Status
Industry 	Locally supported commercial development that meets the needs of current and future Mackay, Whitsunday and Isaac populations	i1: A more diverse profile of industries exist in the region	RDA, Resource Industry Network, Chambers of Commerce	Considered/ Emerging
		i2: Industry has the capacity to be environmentally sustainable, and to promote this	Local Government, Industry Groups	Considered/ Emerging
		i3: Industry sectors are integrated and land use planning considers environmental, economic, cultural and social elements	State and Local Government	Considered/ Emerging
System	Goal	Key Outcomes	Key Collaborators	Status
Climate 	People, environments and industries adapt to impacts of an unstable climate, and undertake actions to mitigate the pace and magnitude of such change.	C1: Assist communities to understand existing and projected future climate change using scientifically validated, easy to understand, regionally specific and up to date information	Local Government, Reef Catchments, research institutions (BOM, JCU, CSIRO), industry groups	Emerging/ Commitment
		C2: Support stakeholders to plan and make decisions based on potential future climate change scenarios	Local Government, Reef Catchments, research institutions (BOM, JCU, CSIRO)	Emerging
		C3: Promote and support emerging mitigation and adaptation opportunities and action	State and Local Government, Reef Catchments, research institutions (BOM, JCU, CSIRO)	Considered/ Emerging



“You need to get planning ahead of development, development shouldn’t push planning. We need longer time frames and to have a say (the community).”

- Resident, Carmila

Goals

Indicators

<p>People Resilient communities that are well connected to their local environment</p>	<p>Socio-economic factors (population, age profile and distribution, health, education, housing, religion), crime, wellbeing, NRM activity, attitudes, knowledge, skills, participation, behavioural change, cultural capacity</p>
<p>Terrestrial Environment Balanced, sustainable land use and functional, connected natural areas with biodiversity maintained</p>	<p>Natural asset condition, species (profiles, distribution, diversity), vegetation extent and condition, water quality, NRM activity, baseline knowledge, research projects, agricultural production</p>
<p>Coastal and Marine Environment Functional coastal and marine ecosystems and in tact terrestrial-marine interface that contributes to Reef health</p>	<p>Reef health, water quality, species (profiles, distribution, diversity), coastal function, vegetation extent and condition, NRM activity, baseline knowledge, research projects</p>
<p>Agriculture Viable, productive and sustainable local agricultural businesses that have balance and diversity</p>	<p>Farm profitability, agricultural production, land use and land use change, invasive species prevalence, fire prevalence, erosion, water use, energy use, profit margin, markets, NRM activity (BMP), access to funding, employment, demographics</p>
<p>Industry Locally supported commercial development that meets the needs of current and future Mackay, Whitsunday and Isaac populations</p>	<p>Contribution to regional economy, industry diversity, education, partnerships, research, practice change and behaviour, awareness and consideration of NRM (BMP), ecological footprint, water and energy use</p>
<p>Climate Variability People, environments and industries adapt to impacts of an unstable climate, and undertake actions to mitigate the pace and magnitude of such change</p>	<p>Knowledge and understanding, attitudes, skills, emissions, adaptation activity, political capacity, extent of collaborative planning and activity, long-term planning</p>

Principles Underpinning NRM Plan Delivery

Key principles to collaboratively delivering NRM goals:

1. Collaboratively deliver NRM Plan goals, outcomes and management actions.

Although capacity will fluctuate in stakeholders' ability to support plan delivery, the NRM Plan will be implemented to the extent agreed by stakeholders.

2. Base NRM Plan on the best information available at the time and invest in acquiring information on an ongoing basis to continually improve the knowledge base.

Up-to-date information regarding the state and trends of the region's environment is critical for effective NRM planning. Information on possible future changes, such as population growth and increased climate variability, is also important in understanding the ongoing NRM balance and to determine an acceptable level of risk due to uncertainty.

While the NRM Plan (2014) is based on the State of Region Report (2013), the most up to date information should continually be sought to allow for the most appropriate decisions to be made.

Where possible, information should be gathered in such a way that it enables improved information-sharing and research coordination between stakeholder groups. This will also allow for gaps in knowledge to be targeted collectively as a priority for research.

3. Maintain a collaborative approach so that stakeholders are able to make an informed contribution to NRM planning, including consideration of the appropriate balance in resource use.

Stakeholder input is essential to ensure that NRM occurs with a consideration of multiple competing priorities and objectives.

Community information and education programs should be an integrated part of NRM plan delivery and designed appropriately, based on community input to increase knowledge, understanding and informed participation in NRM. This will increase positive action in the preservation of resources at the individual and household scale.

NRM planning should be based on a process that is transparent and inclusive, recognising different consultation approaches are appropriate in different circumstances.

4. Manage natural resources on a whole of catchment basis, with local 'socio-ecological' landscapes consulted to gain the best available local information.

The management of NRM should be integrated, considering all aspects of the landscape from the Clarke Connors Range across the plains and to the coast and marine environment.

The challenges associated with different parts of the environment should be considered and managed holistically, as has been widely accepted via Reef Rescue with resulting catchment scale management actions.

5. Consider 'PESTILE' and other influencing factors when making decisions in NRM planning.

Consideration of existing scientific knowledge should be supported by the awareness of the political, environmental, social, technological, Indigenous, legal and economic factors that have influence in decision making and achieving outcomes of the NRM Plan. The aim is to optimise multiple outcomes and minimise the number of trade-offs necessary, while acknowledging that a total solution will not be an option.

6. Ensure NRM Plan outcomes are translated to actions that are the most cost effective and highest priority for the catchment.

The NRM Plan should have line of sight connectivity to operational plans to the extent that resulting actions are cost-effective, prioritised, feasible, community endorsed, and with the fewest trade-offs.

7. Actions occur that are the most cost effective and highest priority for the catchment.

There is need to periodically review the NRM Plan, with support from stakeholders involved in its development, to ensure that the plan can adapt to reflect additional information/knowledge and changing circumstances.

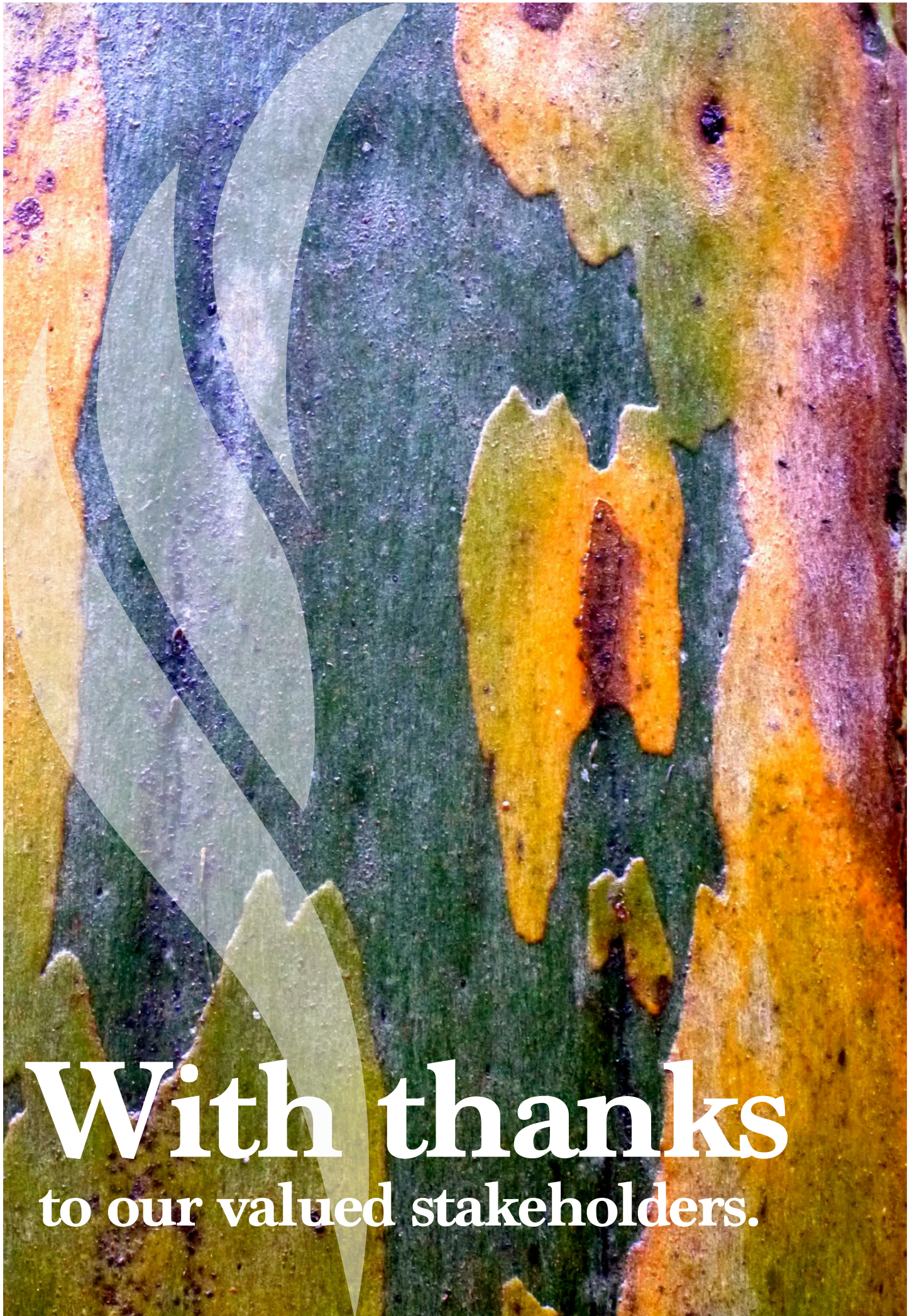
Planning should recognise that some responses are short-term and are required to be more adaptive, such as those outlined in more operational plans. The NRM Plan is designed to have a longer planning horizon because the outcomes are visionary and aspirational.

Glossary



Glossary

Biodiversity:	Describes the multitude of different species and ecosystems in co-existence in an area and existing within an interconnected ecological system. It also includes genetic diversity, the variety of genes within a species.
Catchment:	An identifiable area within which all rainfall run-off drains to a single drainage exit point in the form of a creek, wetland, river or similar watercourse.
Climate:	The average weather pattern over years or decades.
Climate Change:	A long term change in the average weather patterns occurring over decades to centuries.
Climate Variability:	Climate variability relates to shorter term interactions between the ocean and atmosphere that may occur over months to decades, for example weather patterns influenced by El Niño Southern Oscillation (ENSO).
Community:	For the purposes of this plan, community comprises all individuals that live, work, visit or have cultural connection to the Mackay, Whitsunday and Isaac region.
Connectivity (habitat):	The functional ecological connectedness of habitats.
Country:	A term used by Aboriginal people to refer to the land to which they belong. Aboriginal language usage of the word Country is much broader than standard English and incorporates cultural and spiritual meaning.
Ecosystem:	A group of living organisms including both plants and animals that exist in an area and their non-living physical and chemical components such as light, humidity and water.
Elders:	Key person and keeper of knowledge within Aboriginal communities who hold positions of respect and authority in the community.
Governance:	A set of arrangements established to manage the delivery of outcomes. Includes all processes of governing, whether undertaken by a government, network, formal or informal organisation.
Habitat:	An area or areas occupied, periodically or occasionally, by a species, population or community.
Indigenous Australians:	The original inhabitants of Australia. Includes Aboriginal and Torres Strait Islander peoples.
Local Landscape:	Areas of similar social, economic and ecological characteristics, also known as socio-ecological systems. This plan identifies 7 such landscapes.
NRM:	Natural Resource Management. Describes a coordinated set of actions that seek to conserve and manage Australian natural resources (land, water, fauna and flora) via reactive (rehabilitation) and proactive (planning) actions.
Region:	Unless otherwise specified, region refers to the boundary of Reef Catchments Limited regional NRM body as recognised by the Australian Government for funding purposes.
Resilience:	The capacity of a system to absorb disturbance while essentially retaining its functionality and overall structure.
Stakeholder:	Any individuals or groups that have an interest in issues relating to natural resource management in the Mackay, Whitsunday and Isaac region particularly. Stakeholders are engaged based on their level of interest and influence in the outcomes of the NRM Plan.
Sustainable:	Actions that do not damage the environment in the long term and allow it to maintain its resilience (function and structure). Can also relate to social or economic sustainability. For example, sustainable agriculture maintains environmental health, economic profitability, and social and economic equity.
Systems:	A group of interacting, interrelated or interdependent elements forming a complex whole.



With thanks
to our valued stakeholders.

- Agforce
- Canegrowers
- Central Queensland Land Council
- CQUniversity
- Commonwealth Scientific and Industrial Research Organisation (CSIRO)
- Great Barrier Reef Marine Park Authority
- Growcom
- Isaac Regional Council
- James Cook University
- Mackay Conservation Group
- Mackay and District Turtle Watch Association
- Mackay Recreational Fishers Alliance Inc
- Mackay Region Chamber of Commerce
- Mackay Regional Council
- Mackay Tourism Ltd
- Mackay Whitsunday Regional Economic Development Committee
- North Queensland Bulk Ports
- Pioneer Catchment and Landcare Group Inc
- Plane Creek Productivity Services
- Queensland Government Department of Agriculture, Fisheries and Forestry
- Queensland Government Department of Natural Resources and Mines
- Queensland Government Department of State Development, Infrastructure and Planning
- Queensland NRM Planners Network
- Queensland Parks and Wildlife Services
- Reef Catchments Ltd
- Regional Development Australia
- Regional Groups Australia
- Resource Industry Network
- Sarina Landcare Catchment Management Association Inc
- Tandy Group
- Traditional Owner Reference Group
- Whitsunday Catchment Landcare Inc
- Whitsundays Marketing and Development
- Whitsunday Regional Council
- Wilmar



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**A region that is resilient and adaptive to change;
where people, the environment, production and
development exist together in balance.”**

Map Data:

State of Queensland (Department of Science, Information Technology, Innovation and the Arts) 2014, State of Queensland (Department of Environment and Heritage Protection) 2013, Great Barrier Reef Marine Park Authority, Australian Bureau of Statistics, Mackay Regional Council, Whitsunday Regional Council, Isaac Regional Council.

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