



Southern Gulf
NRM

REGIONAL NATURAL RESOURCE MANAGEMENT PLAN

A plan to assist the Southern Gulf community to protect and restore the environment through improved management practices and sustainable livelihoods.



ACKNOWLEDGEMENTS

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Australian Government

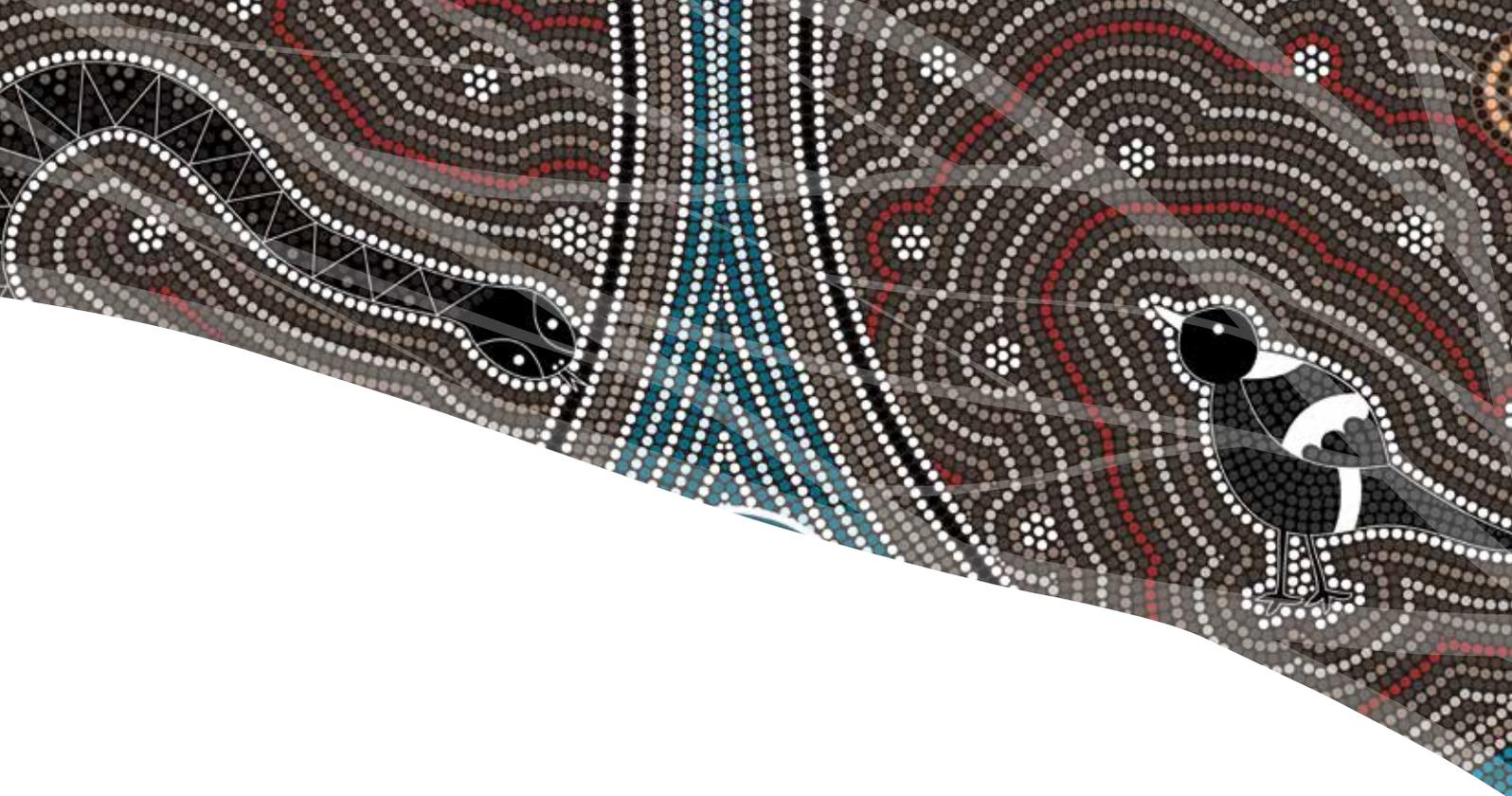
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Southern Gulf NRM recognises that this plan relates to the country of the many Aboriginal communities of the Southern Gulf Region. In completing the plan, we formally acknowledge the Traditional Owners of the Southern Gulf Region and pay respect to Elders past and present of our region's Aboriginal communities. We honour the deep spiritual, cultural and customary connections of Traditional Owners to the region, including waterways, land and sea country and look forward to a growing and influential role for Aboriginal people in natural resource management.



MESSAGE FROM THE CHAIR

Our region and our country are full of dynamic natural systems. When these ecosystems are resilient, supported by a complex natural biodiversity and able to use and reuse their resources internally and sustainably, they can cope with stress. Resilient ecosystems can cope with drought and flooding rains, with fire and scorching hot days. Landscape denuded of its strength in diversity and resource vitality cannot cope with such stresses. This plan is a clear, scientifically-grounded and transparent statement of what needs to be done in NRM, why action is needed, and how the best possible actions are determined and delivered.

The plan is based on the best science and methodological approaches currently available. The benefits of the Regional Plan's approach, methods and targets, are continually reviewed by the Board and through active discussion with stakeholders.

The Southern Gulf NRM Plan demonstrates the leadership of Southern Gulf NRM in the region. This plan will guide the partnerships we form in the regional community and our influence in policy, planning and investment for NRM in the Southern Gulf. Natural resource management is not possible without active community involvement. Southern Gulf NRM places a particular priority on its links with the regional community to be sure our own priorities reflect the needs of the community and the landscape. This Plan reflects the very significant engagement between Southern Gulf NRM formed over many years with the regional community and key

stakeholders, and the Board thanks you for your involvement and commitment to a sustainable future for our region.

The NRM Plan places great importance on working with Traditional Owners and respecting the value of the natural resources of the region. We will continue to work to build partnerships with the Aboriginal communities of the region.

The NRM Plan also sets boundaries. There are simply not sufficient financial and practical resources for the community to address everything. We must set priorities. Where do we best direct our limited resources for greatest effect? The NRM Plan determines these priorities and defends our choices. We must continue to challenge ourselves and our NRM Plan, and improve it with future versions. We respond to what we have learned by following the plan, to make a better plan for next time.

The NRM Plan recognises that climate change is continuing to increase in influence over the region as a driver of change. While this will bring new challenges, there are opportunities from the new economy in carbon farming.

The region has a proud history, strong people and a robust basis for the management of natural resources. Through this NRM Plan we will continue to seek to improve the management and sustainable use of the lands and seas of the Southern Gulf NRM Region.

Megan Munchenberg
CHAIRPERSON



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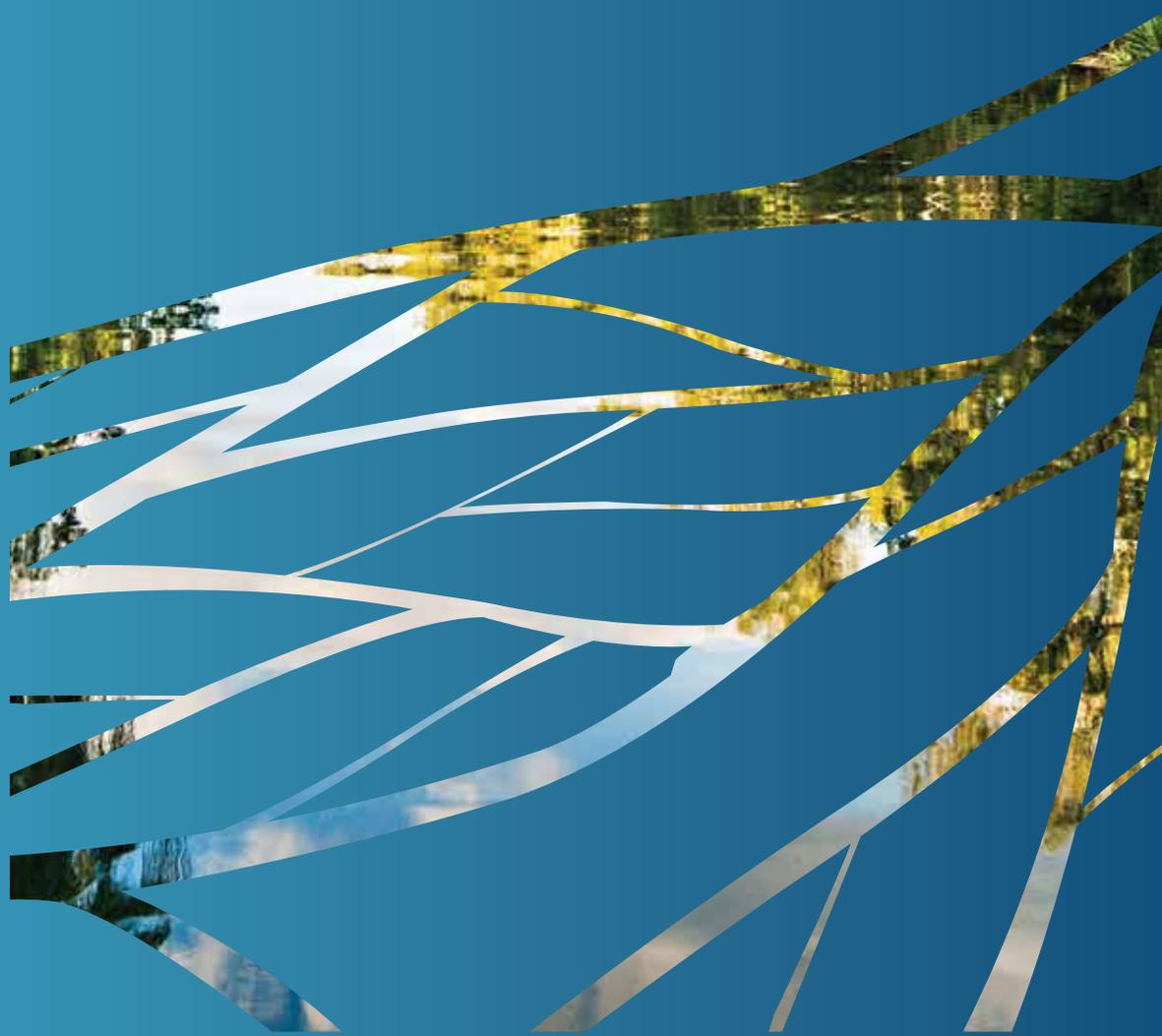
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SOUTHERN GULF NRM
Leaders in Natural Resource Management







OUR VISION

A strong and vibrant community that prospers through sustainable NRM and respects the culture, rights and interests of all stakeholders.

WHO WE ARE

Southern Gulf NRM was formed in 1996 to assist the community to improve environmental management and sustainable production. We recognise that natural resource management is the foundation of sustainable management and development for the region.

Our region is vast; our natural resources underpin its future; and our population is small. Our organisation adds value in this remote region through our unique skills and by providing capacity for project coordination and delivery of on-ground outcomes.

Our work has only been possible with the support and involvement of the Southern Gulf community and with funding from the Australian and Queensland Governments and industry partners.



OUR TRACK RECORD

SUSTAINABLE GRAZING PROGRAM

Southern Gulf NRM has been assisting pastoralists through grazing land management programs. We are helping land managers establish monitoring programs to assess the condition of their pastures, and to adopt modern herd management practices that are a win-win for production, conservation and atmospheric carbon.

WEED MANAGEMENT

Recognising that weed spread is one of the greatest threats to biodiversity and production, Southern Gulf NRM has been a leader in weed management programs for 15 years. Our key successes have been assisting landholders contain and control prickly bushes that invade productive grazing lands and rubber vine and bellyache bush that is proving devastating to highly biodiverse riparian areas. Over the last three years, Southern Gulf NRM weed control programs have treated infestations over an area of the order of 450,000 ha.

BIODIVERSITY CONSERVATION

Southern Gulf NRM has assisted with the mapping, monitoring and management of threatened and iconic species in our region. This has included surveys of the Gouldian Finch and little known grass-wrens. In partnership with landholders we have assisted in fencing important wetlands to enable better management of livestock and feral pigs. We have supported projects to reduce the risk of cat predation of the endangered Julia Creek Dunnart.

CAPACITY BUILDING

Southern Gulf NRM has assisted landholders to develop skills in management and property planning. This includes providing maps of property infrastructure, developing property management plans and regional fire management plans. Through grants and other assistance, we have assisted regional schools to contribute to natural resource management projects. Our information services help to ensure that the regional community is kept well informed of developments in natural resource management policy and practice. We have built partnerships with regional Aboriginal communities to identify and communicate important cultural information as a basis for improved understanding.

SOUTHERN GULF NRM NETWORK

The Southern Gulf region is fortunate to have a vast number of people and organisations involved in natural resource management. Here we list many of those whose contributions to NRM help to make Southern Gulf a great place in which to live and work. First and foremost, we acknowledge the Traditional Owners, past and present, for their long custodianship of the region's land and seas. We also acknowledge the contribution of many other individuals, groups and NRM-related programs. These contributions vary considerably, but all are important. Many people undertake the hands-on management of the environment and its resources. This includes every pastoral manager, Indigenous ranger and Landcare volunteer. Others

provide project coordination or funding, develop strategic approaches to sustainable development or contribute to our natural resource knowledge base. Many work in partnership with Southern Gulf NRM and other organisations, but others just go about their daily work with little formal engagement in the wider network. The role of some may seem marginal to natural resource management. But even general store keepers are guardians of local knowledge and special places, and champion and protect the region's environmental values. We have tried to provide a comprehensive list not only in recognition of the work that they do, but to facilitate linkages across this wide network. We apologise for any omissions, and hope that these will be brought to our attention.

20 Million Trees programme	Australian Department of Environment and Energy	Biosecurity Queensland
AA Co	Australian Farm Institute	Birdlife Australia
ABC local radio	Australian Fisheries Management Authority	Boulia Shire Council
Aboriginal Carbon Fund	Australian Livestock and Property Agents Association	Bularnu Waluwarra Wangkayujuru Aboriginal Corporation
AgForce	Australian Lot Feeders' Association	Burke Shire Council
Agricultural consultants	Australian Quarantine Inspection Service	Burketown Barramundi Fishing Organisation
AquaBAMM	Australian Rangelands Society	Burketown State School
Arruwurra Aboriginal Corporation	Australian Wader Studies Group	Burrumbuttock Hay Runners
Atlas of Living Australia	Bangku-Bangku Makiya	Bush Heritage Australia
Aussie Helpers	Barkly Highway State School	Bushfires NT
Australian Conservation Foundation	Bidunggu Aboriginal Corporation	Business Management Consultants
Australian Department of Agriculture and Water Resources		

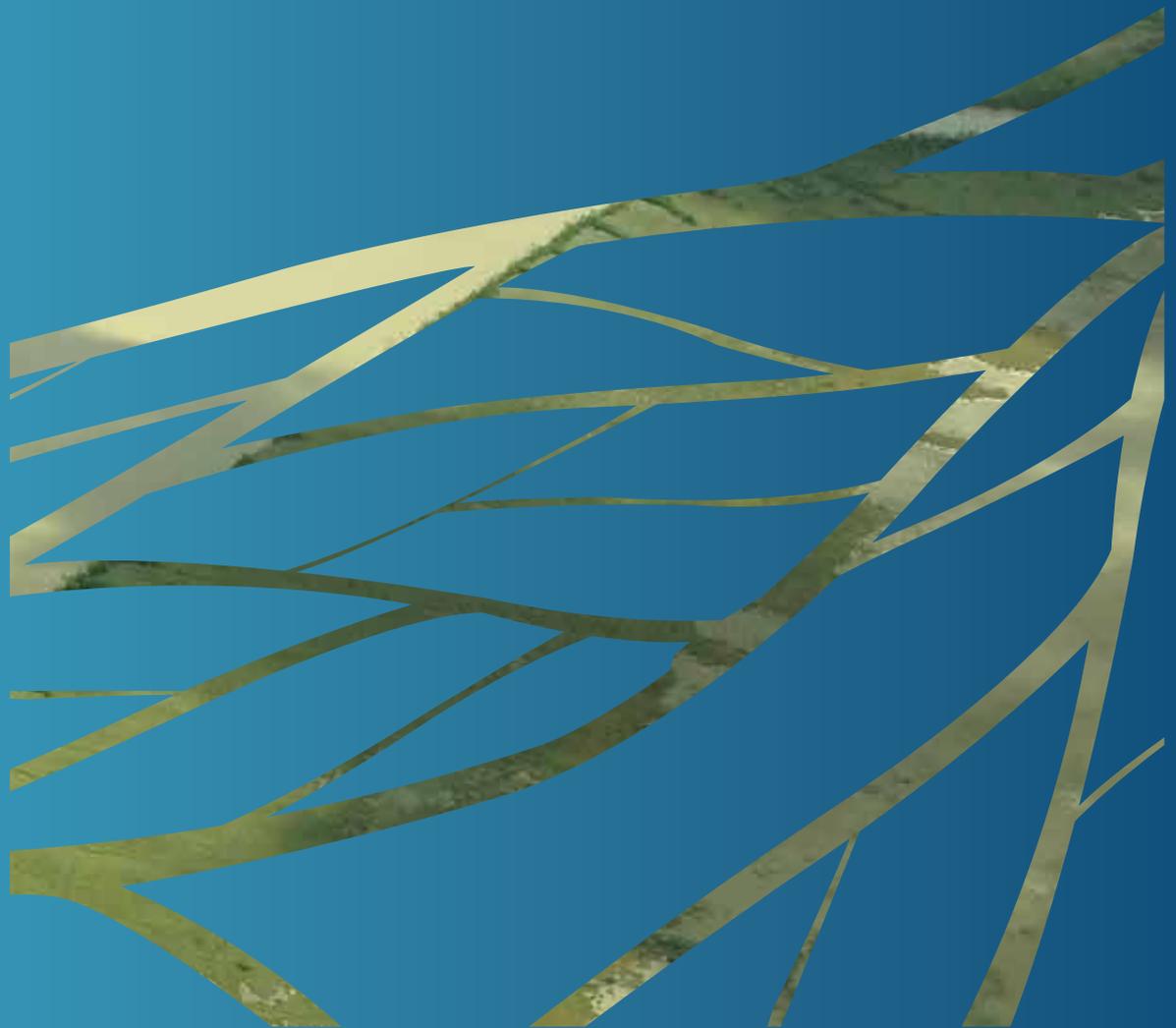
Bynoe Community Advancement Society	Doomadgee State School	Gulf Region Aboriginal Corporation RNTBC
Cairns and Far North Environment Centre	Ecotourism ventures	Gulf Savanna Development
Cameron Downs State School	Emissions Reduction Fund	Happy Valley State School
Camooweal Landcare	Employment agencies	Healy State School
Camooweal State School	Employment and skills development service providers	Hotels and motels
Campervan and Motorhome Club of Australia	Environmental consultants	Hughenden Landcare
Caravan parks and camping grounds	Environmental Defenders Office	Hughenden State School
Carpentaria Land Council Aboriginal Corporation	Ergon Energy	Indigenous Land and Sea Ranger program
Carpentaria Newspapers	Etheridge Shire Council	Indigenous Protected Area Programme
Carpentaria Shire Council	Farm Safe Queensland	Indigenous rangers
Century Environment Committee	Financial institutions	Indjalandji-Dhidhanu People
Charles Darwin University	Fishermen's Portal	Irrerety Aboriginal Corporation
Cloncurry Shire Council	Flinders Shire Council	James Cook University
Cloncurry State School	FutureBeef	Julia Creek State School
Commonwealth Development and Employment Program	Gangalidda and Garawa Native Title Aboriginal Corporation RNTBC	Kaiadilt Aboriginal Corporation
Conservation Volunteers Australia	Gangalidda Garrawa Rangers	Kalkadoon Aboriginal Corporation
Consolidated Pastoral Holdings	GhostNets Australia	Kalkadoon Community
Coopers Creek Catchment Committee	Good Shepherd Catholic College	Kalkadoon Native Title Aboriginal Corporation
Country Women's Association - Gregory Branch	Green Army programme	Kalkadoon State High School
Croydon Shire Council	Green Nomads	Kalkadoon Tribal Council
CSIRO	Greening Australia	Karumba State School
Desert Channels Queensland	Gregory Landcare Group	Kukatj Gkuthaarn Aboriginal Corporation
Desert Knowledge Australia	Griffith University	Kurtjar Economic Development Aboriginal Corporation
Desert Uplands Build-Up and Development Strategy Committee	GrowCom	Lake Eyre Basin Coordinating Group
Directory of Important Wetlands Australia	Gudjala People	Landcare Australia
Doomadgee Aboriginal Shire Council	Gulf Aboriginal Development Corporation	Landcare Queensland
	Gulf Catchments Pest Task Force	Latrobe University
	Gulf Cattlemen's Association	LiveCorp
	Gulf Christian College	Local fire brigades and associations
	Gulf of Carpentaria Commercial Fisherman's Association	

Local government councillors	National Bellyache Bush Management Group	Northern Miner
Malalawirri Aboriginal Corporation	National Climate Change Adaptation Research Facility	Northern Prawn Fishery
McKinlay Shire Council	National Environmental Science Programme	Northern Prawn Fishery Management Advisory Committee
Meat and Livestock Australia	National Farmers Federation	NQ Dry Tropics
Members of Parliament	National Landcare Advisory Committee	NRM Spatial Information Hub
Middle Park Traditional Owners Aboriginal Corporation	National Landcare Facilitator	OZfish
Mingginda Aboriginal Corporation	National Landcare Programme	Pastoral companies
Mining Companies	National Rural Women's Coalition	Pastoral land managers
Mitakoodi Aboriginal Corporation	National Rubber Vine Management Group	Pew Charitable Trusts
Mitakoodi Kurrithila/Mayi Aboriginal Corporation	NatureAssist	Pimurra Traditional Owners Aboriginal Corporation
Mitakoodi Traditional Owners Aboriginal Corporation	Nature Refuges program	Pitta Pitta Aboriginal Corporation RNTBC
Mob FM (Mount Isa Media Association)	Ngumarryina Development Aboriginal Corporation	PowerLink
Mornington Island State School	Ninti One	Prairie State School
Mornington Shire Council	Normanton State School	QRAA
Mount Isa-Townsville Economic Development Zone	North Australian Indigenous Land and Sea Management Alliance	Queensland Boating and Fisheries Patrol
Mount Isa Aboriginal Media Association (Aboriginal Corporation)	North Queensland Conservation Council	Queensland Commercial Fisherman's Organisation
Mount Isa and District Four Wheel Drive Club	North Queensland Natural History Group	Queensland Department of Agriculture and Fisheries
Mount Isa Central State School	North West Canoe Club	Queensland Department of Education and Training
Mount Isa Chamber of Commerce	North Western Queensland Cultural, Heritage and Community Council Aboriginal Corporation	Queensland Department of Environment and Heritage Protection
Mount Isa City Council	Northern Australia Development Office	Queensland Department of Infrastructure, Local Government and Planning
Mount Isa District Bowhunters	Northern Australia Fire Information website	Queensland Department of National Parks, Sport and Racing
Mount Isa Fish Stocking Group	Northern Australia Quarantine Strategy	Queensland Department of Natural Resources and Mines
Mount Isa Landcare Group	Northern Development Cooperative Research Centre	Queensland Department of Premier and Cabinet
Mount Isa Mines (Glencore)	Northern Gulf Resource Management Group	Queensland Department of Science, Information Technology and Innovation
Mount Isa School of the Air		
Mount Isa Special School		
Mount Isa Tourism Association		
Myuma Group		
NapCo		

Queensland Department of State Development	Roadhouses and corner stores	Traditional Waanyi Elders Aboriginal Corporation
Queensland Department of Transport and Main Roads	Roper River Landcare	Tropical Rivers and Coastal Knowledge
Queensland Farmers' Federation	Rural Fire Service Queensland	TropWATER
Queensland Globe	Rural Industries Research and Development Corporation	University of Central Queensland
Queensland Herbarium	Savannah Guides	University of Queensland
Queensland Indigenous Land and Sea Grant program	Schools	University of Southern Queensland
Queensland Naturalists' Club	Sort Recycling	Upper Landsborough Catchment Landcare Group
Queensland Parks and Wildlife	Southern Gulf NRM	Veterinarians
Queensland Rail	Spinifex State College	Waanyi Aboriginal Corporation
Queensland Regional Groups Collective	St Francis Catholic School, Hughenden	Wangkayujuru People
Queensland School of Distance Education	St Joseph's Catholic School, Cloncurry	War on Western Weeds
Queensland Seafood Industry Association	St Joseph's Catholic School, Mount Isa	Watering Australia Foundation
Queensland Seafood Marketers Association	St Kieran's Catholic Primary School, Mount Isa	Wellesley Island Sea Rangers
Queensland Weed Spotter's Network	Stanbroke Pastoral Company	Wentworth Group of Concerned Scientists
RAMSAR	Strategic Offsets Investment Corridors program	Western Queensland Regional Organisation of Councils
Rangelands NRM Alliance	Summit Resources	Widjagudgeegudgee Aboriginal Corporation
Red Meat Advisory Council	Sunfish Queensland	Wildlife Preservation Society of Queensland
RegenAg	Sunset State School	WildNet database
Regional Development Australia – Townsville and North West	Sunwater	Winton Shire Council
Resource Consulting Services	TAFE Queensland North	Working on Country Programme
Resourcing Women of the North	Tangaroa Blue	WWF
Richmond Fish Stocking Association	Territory NRM	Yirendali People
Richmond Shire Council	The Nature Conservancy	Yulluna Aboriginal Corporation RNTBC
Richmond State School	The Wilderness Society	Yulluna Traditional Owners Aboriginal Corporation
Rimirimi Aboriginal Corporation	Tourism associations	Yumba Community Aboriginal Corporation
	Tourist information services	
	Townview State School	
	Traditional Owners and Elders	



WHY A NATURAL RESOURCE MANAGEMENT PLAN?



WHY A NATURAL RESOURCE MANAGEMENT PLAN?

The Southern Gulf region is a remote region with unique natural resource values and significant NRM challenges. While the landscapes are mostly intact, natural resource condition has been degraded by weed, pest animals, fire, erosion or overgrazing. These threats need to be addressed to maintain and restore natural resource condition, and to provide the environment and natural-resource-based enterprises with resilience to face future challenges, including climate change. Effort to address threats needs to be invested wisely. An NRM plan identifies the areas that need most attention and the places where effort is likely to be most effective. It also provides a means of assessing whether our efforts have been successful.

Southern Gulf's natural assets are well-documented, with a wealth of scientific study continually adding to our understanding of the region and how best to manage it. An NRM plan can translate this knowledge into action, ensuring that management efforts are evidence-based.

The Southern Gulf community has come through much hardship as a result of dispossession, drought and financial stress. Its capacity to manage natural resources has been severely stretched, and many managers struggle to adapt to change. The community needs assistance to improve its capacity to undertake the management required to restore our natural resources to good condition. So an important part of an NRM plan is identifying the capacity issues that limit best practice NRM and how best to address them.

The Southern Gulf region is also increasingly affected by changes occurring nationally or across the globe. Existing pressures to open up more land for irrigated agriculture and for pastoralists to increase production are likely to intensify. On top of these pressures come the increasing community expectations that food should be produced in an environmentally and ethically sound way, and with a low carbon footprint. However, these pressures also provide opportunities to gain livelihoods from

emission reduction and conservation.

An NRM plan can identify emerging issues and appropriate responses to allow the community benefit from new opportunities.

SG NRM is a small, but committed organisation with limited resources and capacity. We need to target our resources to where we can have most influence. An NRM plan can provide guidance to ensure our efforts have a lasting legacy. It can also identify where collaboration with partners will maximise our impact.

In summary, the purpose of an NRM plan is to draw on the best available information about natural resource values and threats to:

- Set a strategic framework for prioritising investment
- Establish principles and mechanisms for engaging stakeholders
- Identify opportunities for collaboration and alignment of effort
- Identify the role of SG NRM as a core NRM delivery agent and the scope of the work that we intend to do to improve natural resource condition and management capacity
- Identify priority natural resource condition and management capacity issues within this scope, and the extent to which we can have an influence on them
- Provide a suite of objectives for improving natural resource condition and management capacity along with management actions for achieving them
- Identify tools for monitoring and evaluating progress to assess the success of our investment and ensure lessons learnt are used to improve future plans and SG NRM activities



PLAN PREPARATION >> DEVELOPMENT OF SCOPE

This plan builds on, updates and refines earlier NRM planning work in the region. The 2005 Southern Gulf Catchment Natural Resource Management Plan provided a comprehensive assessment of the natural resource values and issues in the Southern Gulf region and provided a long list of actions to address them. SG NRM's work was aligned to this plan, but because the plan's scope was so large, and because it did not provide a good guide for prioritising actions in the face of limited resources, the plan fell into abeyance.

In 2014, the Australian Government provided funding to update the region's NRM plan to incorporate climate change considerations through its Regional Natural Resource Management Planning for Climate Change Fund. Although there has been much progress in the region, many of NRM issues remain the same as they were in 2005. SG NRM therefore determined that the revised plan would draw on the good foundations of the earlier plan, but that its scope would be more strategic and its objectives more achievable. Therefore, it was decided that the scope of this plan is to

- Update the 2005 Southern Gulf Catchment Natural Resource Management Plan
- Incorporate climate change considerations
- Acknowledge the range of NRM issues across in the Southern Gulf region, including issues that have arisen since 2005
- Provide action plans to address these issues, focusing on the role of SG NRM and what it can achieve through its partnerships with the Southern Gulf community

SG NRM will use this plan as a guiding document to plan its investments and effort. The plan may also be used by Southern Gulf stakeholders to identify constructive approaches to addressing NRM issues in the region and potential partnerships with SG NRM. However, the plan does not commit either SG NRM or its partners to any specific action.



PLAN PREPARATION >> INFORMATION GATHERING

The 2005 Southern Gulf Catchment Natural Resource Management Plan was used as the foundation for this plan. The Australian Government’s Regional Natural Resource Management Planning for Climate Change Fund enabled the information in the earlier plan to be updated through a number of studies in the region and across the Monsoonal North (Table 1). These studies reviewed knowledge gained through the previous decade; the progress that has been made in NRM in the region; and new and emerging NRM issues. They focused on climate change, its impacts and appropriate management responses; and considered other drivers of change in the region along with the associated opportunities they are presenting for natural resource managers. There was a particular emphasis on building community and environmental resilience to facilitate adaptation to climate change and other challenges that the region is likely to face.

Table 1. Resources commissioned to inform the planning process

SOUTHERN GULF RESOURCES	MONSOONAL NORTH RESOURCES
Land asset review ¹	Climate change projections ²
Inland waters asset review ³	Cross-realm planning assessments ⁴
Biodiversity asset review ⁵	Climate knowledge needs ^{6,7}
Identification of biodiversity investment areas ⁸	Biodiversity climate response maps ⁹
Coastal and marine asset review ¹⁰	Aquatic ecosystems risk assessment ¹¹
Community resilience assessment ¹²	Beef industry update ¹³
Related legislation and strategies ¹⁴	Conservation economy update ¹⁵
Climate data synthesis ¹⁶	Carbon management ¹⁷
Climate change synthesis ¹⁸	Social resilience ¹⁹

Notes: The Monsoonal North extends from Broome to Townsville, and includes the entire Southern Gulf region

PLAN PREPARATION >> CONSULTATION

This plan is based on a sound understanding of the Southern Gulf NRM community, its issues and priorities and its capacity to address them. SG NRM's relationship with this community extends back nearly 20 years. Extensive consultation was undertaken in preparation of the 2005 plan. Since then, SG NRM has instituted several mechanisms to remain engaged with the community and keep track of its priorities. The SG NRM board has been representative of the region's sectoral interests, advisory bodies guide the organisation's work and staff maintain close relationships with stakeholders through their project involvement and outreach activities. SG NRM works with a wide range of Southern Gulf NRM partners, from individual landholders and the smallest Landcare and Indigenous groups to large industry groups and state government agencies. These partnerships have created an alignment of purpose, ensuring that SG NRM's work reflects regional priorities.

Additional engagement processes were undertaken to inform this plan. These include

- Close consultation with the SG NRM board to define direction, scope and priorities

- Circulation of a postcard inviting participation in the planning process
- Regular updates on planning processes through the organisation's newsletter (Southern Gulf Links), website (www.southerngulf.com.au/) and Facebook page (www.facebook.com/SouthernGulfCatchments/?fref=ts)
- A phone survey²⁰ of Southern Gulf stakeholders resident in the region to identify priority NRM issues and climate change awareness and concerns (mainly inland respondents)*
- Direct consultation to fill gaps in phone survey by increasing input from the Indigenous and near-coastal communities¹⁰
- Assessment of the results of other regional consultative processes, notably for northern marine regional planning^{21,22}, Indigenous Protected Area planning²³⁻²⁸ and pest management planning²⁹

Issues raised in these consultations processes were incorporated in the plan wherever possible and addressed in the action plans in areas where SG NRM has a role.

* No. of respondents:

Grazing sector, 46; Conservation sector, 6; Indigenous sector, 3; Local Government, 6; Coastal and Marine sector, 1; Mining sector, 16

PLAN STRUCTURE >>

This plan is organised into four programs that encapsulate both regional priorities and the intended contribution of SG NRM. These programs cover building the NRM capacity of the region and the viability of its natural-resource-based enterprises, managing threats and protecting its assets (Figure 1).

These programs were chosen as the basis of the plan in recognition that

- prosperity of the region's Natural-resource-based enterprises is an important foundation for effective natural resource management
- the region's distinctive environmental values must be recognised and protected
- threats to productivity and the environment must be directly addressed
- people and communities must be at the centre of effective natural resource management

For each program, diagrams have been constructed identifying relevant regional priorities along with the priority SG NRM has allocated to its own involvement in addressing them, and the roles it intends to fill (Figure 2).

SG NRM priorities have been classified as:

- Established SG NRM priority – for work that SG NRM is already doing and will continue to undertake
- Emerging SG NRM priority – for new areas of activity or activities where SG NRM intends to renew its efforts
- Minor SG NRM role – issues for which SG NRM expects to have minimal involvement, often because other Southern Gulf stakeholders are already leading the effort in these areas

The roles SG NRM intends to take are classified as:

- Influencing policy and planning
- Synthesising and communicating knowledge
- Providing skills development activities and services
- Assisting the work of others
- Initiating and leading projects

Long-term goals have been set for each program to form a strategic framework to improve natural and cultural production values and NRM capacity in the Southern Gulf region (Table 4).

Figure 1. Four programs of the Southern Gulf Natural Resource Management Plan

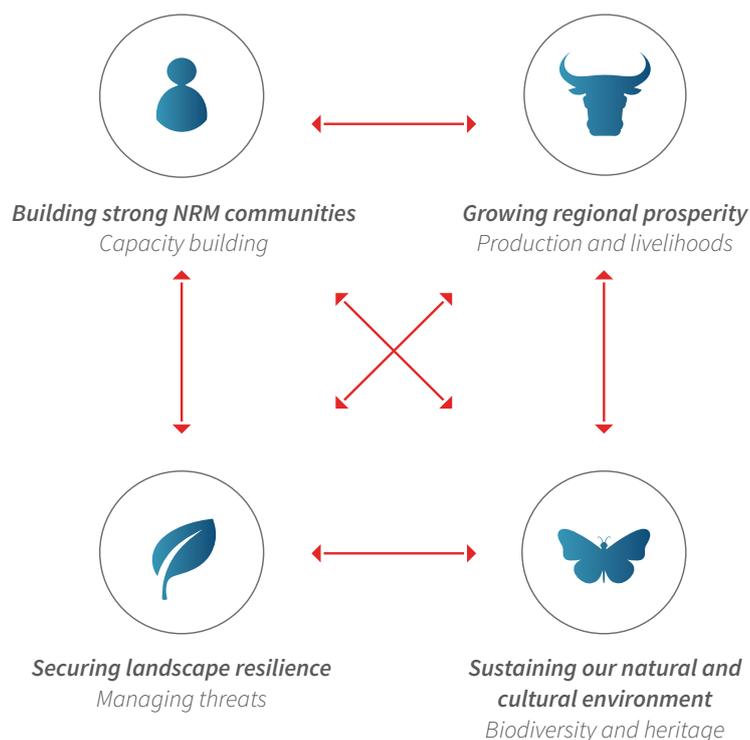




Figure 2. Regional priorities and SG NRM role across the four programs

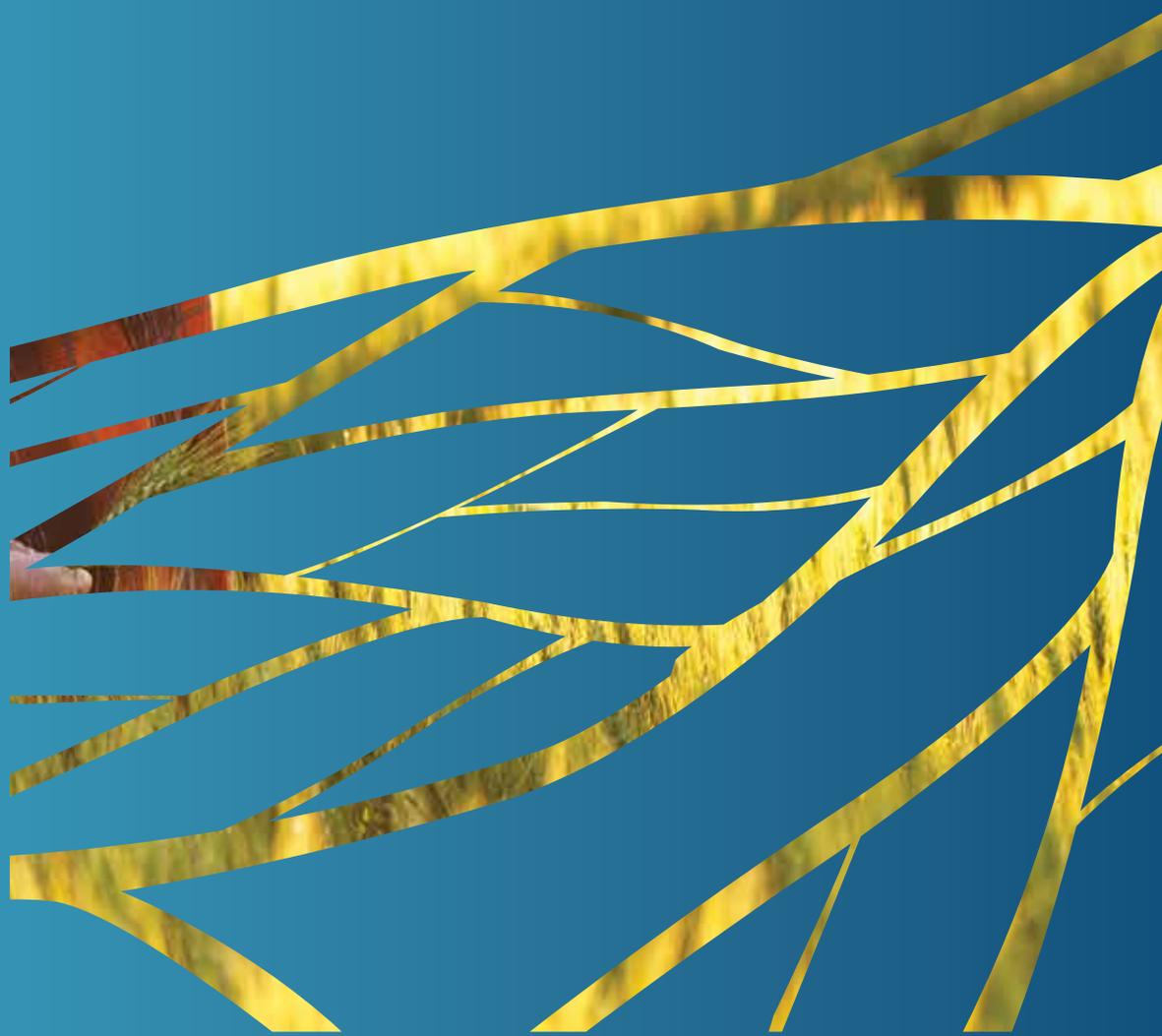
Table 4. Long term objectives for each program

1 BUILDING STRONG NRM COMMUNITIES	
1.1	The Southern Gulf NRM community is working together effectively to improve sustainable production and environmental management
1.2	Southern Gulf NRM organisations and enterprises are well-equipped to address their NRM priorities and adapt to change
1.3	A supportive policy and planning environment facilitates sustainable NRM in the Southern Gulf region
2 GROWING REGIONAL PROSPERITY	
2.1	Pastoral enterprises are profitable, resilient and sustainable through use of best practice management
2.2	Indigenous organisations are actively engaged in the management of their traditional land and sea estates across tenure in accordance with their own aspirations
2.3	Southern Gulf's water resources are sustainably managed to meet the needs of communities, the environment and industry
2.4	Southern Gulf marine and freshwater fisheries are managed sustainably
2.5	Sustainable tourism is contributing to the well-being and environmental condition of the Southern Gulf region; and the quality of visitor experiences are enhanced through increased appreciation of the region's natural, cultural and human assets
2.6	The viability of Southern Gulf enterprises is enhanced through participation in conservation economy projects to reduce carbon emissions, protect biodiversity and improve land condition and water quality
3 SECURING LANDSCAPE RESILIENCE	
3.1	The Southern Gulf community understands the threats to the region's environmental, cultural and production values, the imperative for addressing them, and best-practice options for doing so
1.2	New and emerging threats to Southern Gulf's natural and production values are quickly identified and averted
1.3	Natural, cultural and production values of the Southern Gulf region are being restored through best-practice management of weed and pest animals
1.4	Fire is being managed to sustain the natural and production values of the Southern Gulf region
1.5	Southern Gulf natural resource managers are reducing their greenhouse gas emissions
1.6	Legacies of poor historical land use practices are managed to minimise adverse environmental impacts and restore environmental conditions
4 SUSTAINING OUR NATURAL AND CULTURAL ENVIRONMENT	
4.1	The Southern Gulf community understands and appreciates the region's biodiversity and cultural values and is engaged in their conservation
4.2	Long-term conservation of biodiversity of the Southern Gulf region is based on an understanding of values, condition and trends, and demonstrated effective management options
4.3	Biodiversity and heritage values of the Southern Gulf are protected for future generations and restore environmental conditions



BUILDING STRONG NRM COMMUNITIES

Capacity building







BUILDING STRONG NRM COMMUNITIES >> CAPACITY BUILDING

People and communities lie at the heart of natural resource management. Southern Gulf NRM’s approach to Building Strong NRM Communities involves:

- Strengthening the capacity and resilience of Southern Gulf NRM as an NRM delivery agent
- Building strong partnerships with Southern Gulf NRM organisations to ensure strategic alignment and collaboration in natural and cultural resource management
- Enhancing the capacity of Southern Gulf NRM organisations and enterprises to address their NRM priorities and adapt to change

- Influencing strategy development to facilitate sustainable NRM in the Southern Gulf region
- Building knowledge and encouraging participation in NRM activities in school and community groups as a foundation for the future

Southern Gulf NRM’s Building Strong NRM Communities program will provide the foundational work to support Programs 2-4.

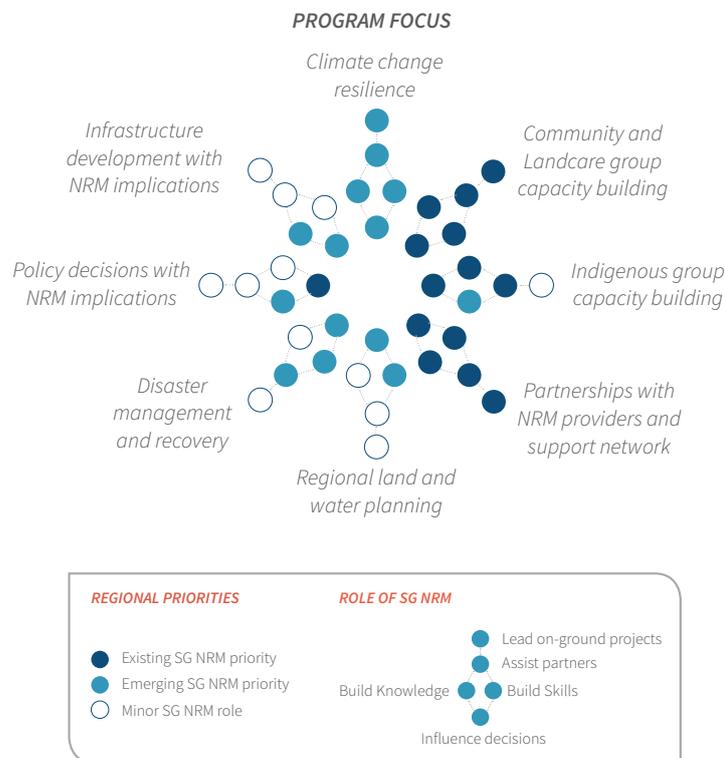


Figure 3. Regional priorities for Building Strong NRM Communities



Community and Landcare group capacity

building is an ongoing priority for SG NRM. These groups form the backbone of urban and pastoral NRM in the Southern Gulf, as well as caring for riparian environments. SG NRM has a long history of assisting these groups develop governance arrangements, plan, prioritise and prepare funding proposals, and has provided them with financial support through its grant programs. SG NRM also organises workshops, field days and training sessions to build the NRM skills of these organisations. Many of SG NRM's publications are directed at raising environmental awareness and bolstering NRM participation in the Landcare movement and assisting groups decide what issues to address and management actions to undertake. The remoteness and sparse population of the Southern Gulf region creates particular challenges for these small community groups, meaning that ongoing support will be required to maintain their capacity.

Indigenous group capacity building is an ongoing priority for SG NRM. Many small Indigenous organisations call on SG NRM for the same kind of support that other small NRM groups require. SG NRM helps them develop governance arrangements, plan, prioritise and prepare funding proposals. Indigenous

groups also benefit from SG NRM's grant programs, workshops, field days and training, as well as SG NRM's environmental publications and technical guidelines. Indigenous disadvantage and remoteness means that some groups may require ongoing support to maintain their capacity.

Partnerships with NRM providers and support networks

is an ongoing priority for SG NRM. We recognise the importance of aligning effort to maximise outcomes. In particular, SG NRM works closely with NRM groups from neighbouring regions and State Government agencies in weed, feral animal, fire and pastoral extension projects. Partnerships with research institutions are also required to ensure research effort is strategically directed to address NRM needs. With tightening economic circumstances, such alignments will become increasingly important.

Regional land and water planning is an emerging priority for SG NRM. Increasing development pressure on riparian areas has implications for both biodiversity and production. These environments provide both essential habitat and landscape connectivity and will be important for providing climate change resilience. Moreover, if not carefully planned, ground and surface water extraction may adversely affect Nationally Important Wetlands and Endangered spring communities, as well as marine fisheries in the Gulf of Carpentaria. Water extraction for irrigation may also adversely affect existing pastoral enterprises and Indigenous communities, as well as their future development options.



Policy decisions with NRM implications are an ongoing priority for SG NRM. SG NRM has been part of discussions about the development of NRM-related policies and programs, including the National Landcare Programme and weed management strategies. It also represents the Southern Gulf region's interests in the Queensland Regional Groups Collective. There is also a need for regional interests to be represented in other areas of policy development that affect NRM capacity. Some areas of strategy development are directly related to NRM, such as debt relief, structural adjustment funding and tick control zones. Many other decisions can indirectly influence NRM capacity through their impact on community resilience. This includes decisions about funding for remote area schools and communities and the focus of environmental research. Ensuring NRM implications are considered in such policy development will help to maintain and enhance the NRM capacity of the Southern Gulf community.

Infrastructure development with NRM implications is an emerging priority for SG NRM. Enterprise viability and regional NRM capacity are affected by decisions made about transport, energy, communications and supply chain infrastructure. For example, best practice pastoral management means being able to reduce stock numbers in response to unfavourable climatic conditions. Whether it is viable to do so depends on all-weather road access and the distance to the closest point of sale. So decisions made about transport infrastructure and placement of meatworks effect on-ground NRM. Ensuring NRM implications are considered in infrastructure planning will help to maintain and enhance the viability of Natural-resource-based enterprises and their capacity to adopt best practice management.

Climate change resilience is an emerging priority for SG NRM. Climate change resilience is reliant on strong institutions, financial stability and strong community networks that enable the community to function well, particularly in times of stress and upheaval. An initial assessment of the Southern Gulf community rated it as having only moderate resilience¹². It also identified key building blocks to improving regional resilience, including sustainable and equitable land use planning and water allocation; infrastructure development to improve NRM capacity; facilitating pathways out of debt; and restructuring drought relief and insurance arrangements. These building blocks align with the regional priorities identified above. Ongoing assessment of the resilience of the Southern Gulf NRM community is required to track progress in these areas and to identify further options for resilience building. At an individual level, natural resource managers that are able to plan strategically; use sound business management principles; are prepared to experiment and try new ideas; and are strongly linked in to industry and community networks are most able to cope well with climate variability and change¹⁹. Only a small proportion of pastoralists across northern Australia possess the requisite skills or are actively linked to support networks. There is no information on the resilience of other northern natural resource managers or of the Southern Gulf NRM community in particular. Building climate change resilience of Southern Gulf natural resource managers therefore requires close examination skills and networks to identify where capacity building would be most effectively focused.



WHO HAS A ROLE?

SG NRM aims to maintain and enhance its capacity to support sustainable NRM in the Southern Gulf region. Key contributions from SG NRM include will include:

- Building partnerships across the NRM network
- Assisting capacity building or small and emerging NRM groups
- Gathering, synthesising and distributing NRM information
- Influencing regional planning and policy development to facilitate sustainable NRM
- Facilitating resilience assessment to inform capacity building at a community and individual level

The extent to which we can achieve these aims will depend on the commitment of other NRM organisations, particularly our **advisory bodies**, regional **Indigenous institutions**, neighbouring regional **NRM bodies**, **Queensland and Australian Government agencies** and **research and development organisations**.

Policy development for the Southern Gulf region is largely in the hands of the **Australian and Queensland Governments**. This includes policy to direct development of land and water resources and provide infrastructure for transport, energy communications. The **Australian Government's** development agenda is enunciated through its White Paper on Developing Northern Australia³⁰ and the **State Government's** focus is on development along the Flinders and Gilbert's rivers³¹. Development of the Flinders River catchment is being delivered by the federal **Office of Northern Australia** and the **Queensland Department of Agriculture and Fisheries**, and is supported by some landholders and venture capitalists. Opposition to such development is coming from other **landholders** and **conservation NGOs**.

Regional Development Australia-Townsville and North West represents regional interests and concerns in matters to do with economically, environmentally

and socially sustainable development. Representatives of sectoral interests in this region include the **Mount Isa-Townsville Economic Development Zone**, **Gulf Savanna Development**, the **North Australian Indigenous Land and Sea Management Alliance**, **Carpentaria Land Council Aboriginal Corporation**, **AgForce**, the **Gulf Cattlemen's Association**, the **Minerals Council of Australia** and **Conservation NGOs**. Decisions made by the **Northern Territory Government** also influence development in our region, its **Northern Australia Development Office** being particularly active in its pursuit of infrastructure development to support freight movement across the north.

Government policies covering disaster relief and structural adjustment and the policies of **financial institutions** and **insurance companies** also influence the capacity of Southern Gulf enterprises in remain viable and undertake best-practice NRM.

Research and development (R&D) organisations have a role in identifying impediments to sustainable development and NRM community resilience and to identify means of overcoming these barriers. Key players in this area include the **National Environmental Science Program – Northern Australia Hub** and, hopefully, the **Cooperative Research Centre for Developing Northern Australia**. Along with **schools** and **other educational institutions**, **R&D organisations** also have a role in improving the NRM literacy of the Southern Gulf region.

Numerous, often small, **NRM organisations**, especially **Landcare groups**, and **Indigenous organisations** are central to building NRM capacity in the Southern Gulf region.

Funds for NRM capacity building projects are largely sourced from the **Australian Government's** National Landcare Programme and National Landcare Programme and Indigenous Advancement Strategy (Jobs, Land and Economy Programme) and the Queensland Regional Natural Resource Management Investment Program managed by the **Queensland Department of Natural Resources and Mines**.

1. Building Strong NRM Communities Action Plan

KEY

● Existing SG NRM priority ● Emerging SG NRM priority

L: Lead on-ground projects; A: Assist partners; K: Build knowledge; S: Build skills; I: Influence decisions

1.1 <i>The Southern Gulf NRM community is working together effectively to improve sustainable production and environmental management</i>	SG NRM role
1.1.1 Strengthen the capacity and resilience of Southern Gulf NRM as an NRM delivery agent, with a particular emphasis on governance and management, sustainable financing, engagement with the regional community, engagement with policy makers and ensuring excellence in project development and delivery	I
1.1.2 Build and strengthen partnerships across the Southern Gulf NRM network	S
1.1.3 Undertake collaborative planning and project development with statewide and national NRM organisations and NRM organisations from neighbouring regions	A L
1.1.4 Ensure extension and communication activities are inclusive and reach the diversity of Southern Gulf's community, tailoring specific events and publications for under-represented sectors, including Indigenous people, women, migrants and youth	L
1.1.5 Annually report on partnerships and collaborative efforts of SG NRM	K
1.1.6 Annually report on the progress of the plan and periodically update plan as appropriate	L
1.2 <i>Southern Gulf NRM organisations and enterprises are well-equipped to address their NRM priorities and adapt to change</i>	SG NRM role
1.2.1 Undertake a resilience assessment of Southern Gulf natural resource managers to identify their capacity to <ul style="list-style-type: none"> • plan strategically • use sound business management principles • experiment and try new ideas • form strong linkages with industry and community networks 	K S A L
1.2.2 Run mentoring and skills development programs to address gaps in the capacity of natural resource managers identified in Action 1.2.1	L
1.2.3 Assist emerging Indigenous organisations build the capacity to plan and prioritise, obtain funding and implement natural and cultural management programs	K A S
1.2.4 Support school, community and Landcare groups to identify NRM priorities and design and implement NRM projects	K A S L
1.2.5 Develop and make accessible a Tropical Trove of environmental and sustainable production knowledge in collaboration with neighbouring NRM regions in support of programs 2-4, and extending coverage to <ul style="list-style-type: none"> • Regional land and water planning • Disaster management and recovery • NRM implications of strategic policy and infrastructure development • Climate change resilience 	K S A
1.2.6 Hold and attend field days, workshops and events to increase NRM participation, knowledge and skills in the Southern Gulf in support of programs 2-4	L
1.2.7 Support adaptive property management planning to improve sustainability of management practices and to ensure integration between management for production, biodiversity conservation and threat management, as detailed in programs 2-4	K A S L
1.2.8 Periodically survey Southern Gulf NRM to assess NRM capacity and knowledge	K L

1.3 A supportive policy and planning environment facilitates sustainable NRM in the Southern Gulf region	SG NRM role
1.3.1 In collaboration with neighbouring NRM regions, engage new sectors such on NRM issues and forge linkages and networks with these industries to distribute key NRM messages	I
1.3.2 Represent Southern Gulf NRM interests in regional land and water planning water extraction on ground and surface water supplies are properly monitored safeguards are in place to minimise adverse impacts on environmental and production values	I
1.3.3 Represent Southern Gulf NRM interests in strategy development regarding the direction of irrigated agriculture	I
1.3.4 Represent Southern Gulf NRM interests in strategy development for improving reliability of water supply, transport, energy, communications and supply chain infrastructure required for sustainable NRM	I
1.3.5 Represent Southern Gulf NRM interests in strategy development for reforming disaster relief funding and insurance arrangements	I
1.3.6 Represent Southern Gulf NRM interests in strategy development to improve natural resource research and information delivery (e.g. through National Environment Science Program, National Climate Change Adaptation Research Facility, Universities and CSIRO)	I
1.3.7 Support efforts of the pastoral industry to identify pathways out of debt to underpin viable and environmentally sustainable enterprises	I
1.3.8 Annually report on contribution of SG NRM to regional strategy development	K L
1.3.9 Periodic revision of the NRM plan based on assessment of progress	L





GROWING REGIONAL PROSPERITY

Sustainable production and livelihoods







BUILDING REGIONAL PROSPERITY >> SUSTAINABLE PRODUCTION + LIVELIHOODS

Southern Gulf NRM's program for Growing Regional Prosperity involves:

- Raising community understanding of Southern Gulf natural resources, the links between resource condition and enterprise viability, and best practice options for management
- Improving pastoralists' understanding of grazing land condition and trends to target extension efforts and assess their effectiveness
- Assisting managers efforts to improve the management of their enterprises, and monitor the effectiveness of their management practices to feed back into adaptive management planning

Southern Gulf's natural-resource-based enterprises will also benefit from

- Building and strengthening partnerships to provide a supportive business, policy and planning environment (Program 1)
- Improving understanding and adoption of sustainable resources use and water allocation principles (Program 1)

- Reducing adverse impacts of weeds, pest animals, fire and poor tourism practices on production values (Program 3)

Southern Gulf NRM's Growing Regional Prosperity program will also contribute to Sustaining Our Natural and Cultural Environments (Program 4) through

- Enhancing the viability of Indigenous management of natural and cultural values
- Increasing the capacity of producers to consider and manage for conservation outcomes
- Improving the biodiversity condition of grazing lands
- Improving the quality of water draining from grazing lands
- Developing off-stream water-points to promote river and wetlands health
- Reducing the draw-down on the Great Artesian Basin, and the pressure on associated springs

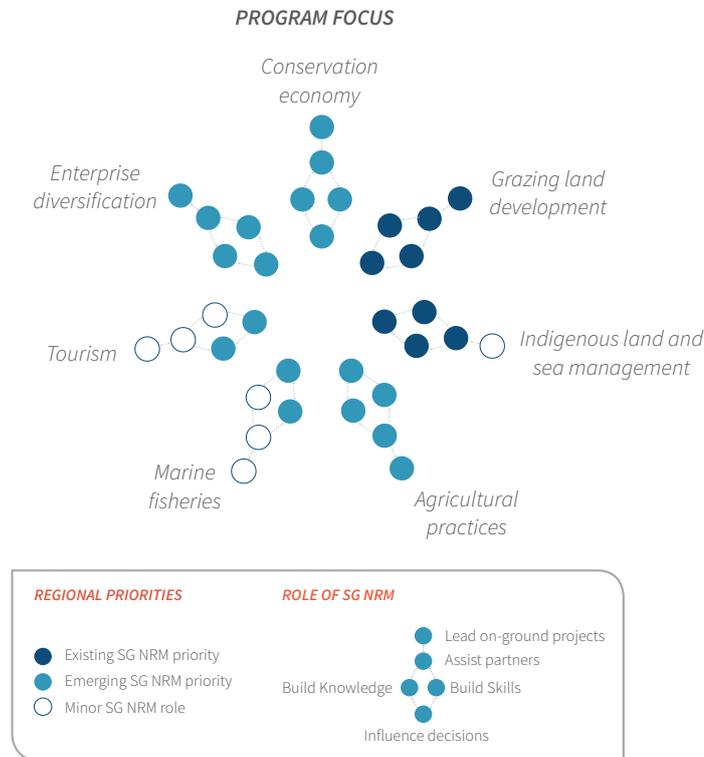


Figure 4. Regional priorities for Growing Regional Prosperity

Grazing land management is an ongoing priority for SG NRM. The vast majority of the Southern Gulf region is used for grazing cattle (Figure 5). In partnership with the Queensland Department of Agriculture and Fisheries and beef industry organisations, SG NRM has a long history of working with the pastoral community to improve management. This has included extension to inform producers of strategies to improve management of grazing lands, herds and businesses to increase production efficiency and reduce pressures on enterprises, pastures and biodiversity. Best practice is now widely understood to include matching stocking rates to available pasture resources and in response to climate variability; fencing to land type; culling non-productive animals; segregating cattle of different classes for efficient management; and monitoring pasture condition using the Stocktake Plus app and the ABCD pasture condition framework. This work is starting to have traction. An increasing number of Southern Gulf pastoral enterprises are benefiting from practice improvement, with the result that ground cover trends in the region have been improving since 1990 (Figure 6), even

though drought has temporarily reversed these gains over the last three years (Figure 7). Producers need ongoing support to increase uptake of best practice management and instil resilience to drought. Such work should focus on parts of the regions that have declining ground cover trends and properties that have been worst affected by recent droughts. Monitoring tools, such as VegMachine³² and Forage³³ and Stocktake Plus³⁴, are available to allow investment to be targeted to areas of greatest need and for assessing the contribution projects make to regional grazing land condition.

The possibility of a regionally-based meat processor at Hughenden creates both exciting opportunities and challenges for NRM in the Southern Gulf. Reduced stock transport and other logistical costs, increased carcass utilisation and improved market access to Asia should contribute to the prosperity of the regional beef industry. A well designed project could also create opportunities to drive market-based improvements in the sustainability of beef supply chain. A poorly designed project could have the reverse effect.

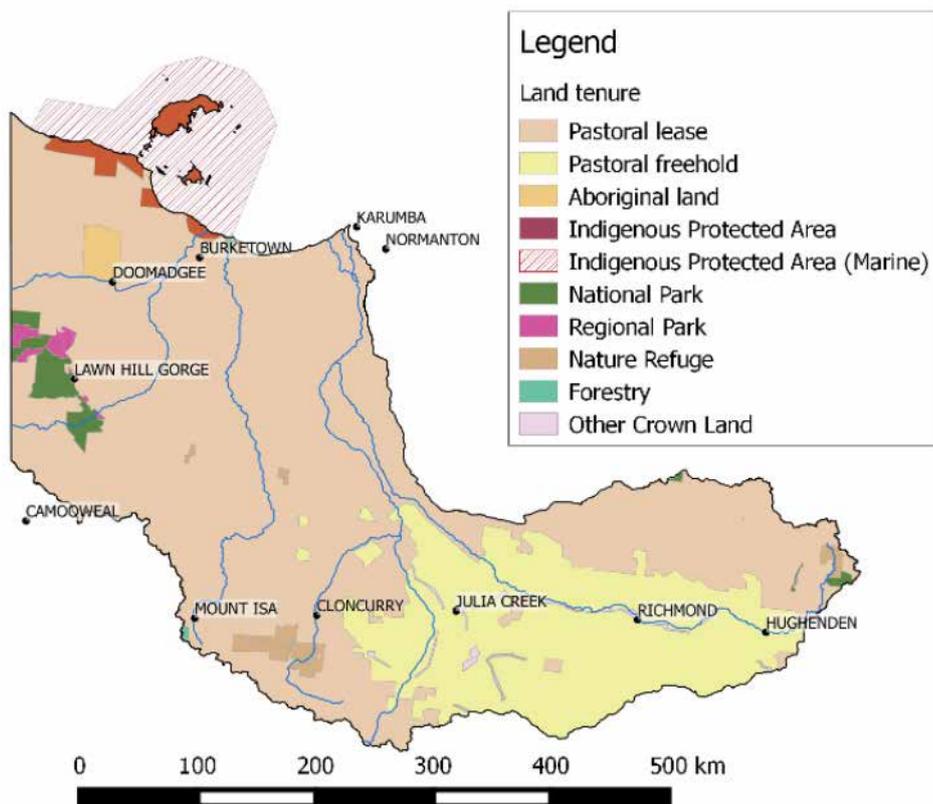


Figure 5. Land tenure in the Southern Gulf region

Source: Geoscience Australia (2004)³⁵, Australian Department of the Environment (2014)³⁶, Queensland Government (2015)³⁷

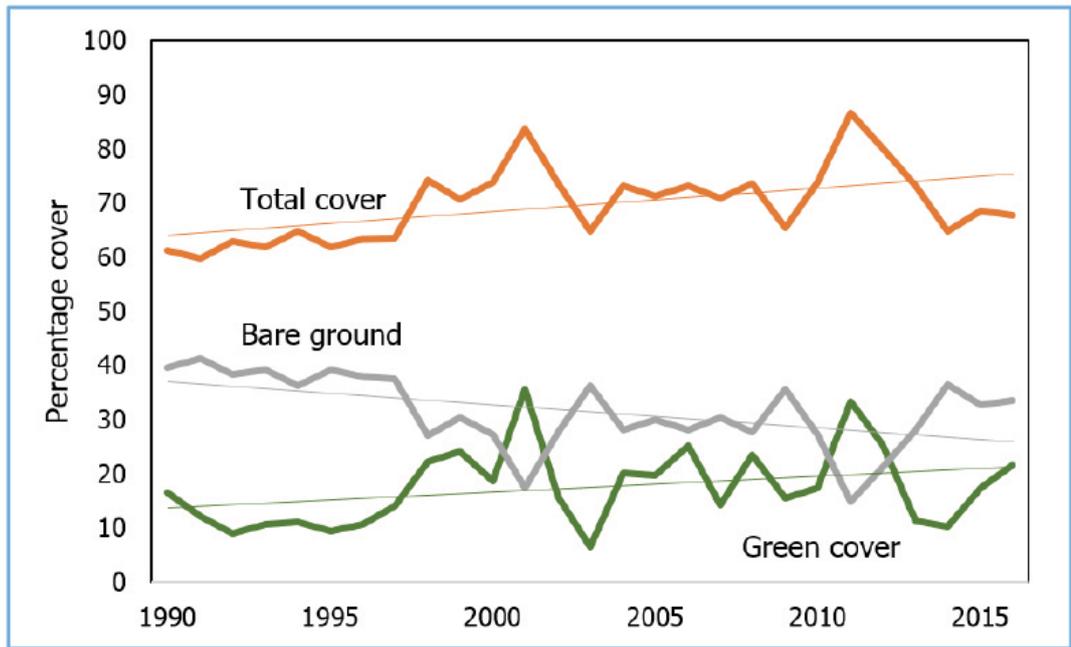


Figure 6. Region-wide trend in January ground cover from 1990 to 2016

Source: Queensland Department of Science, Information Technology and Innovation (2016)³²

Supporting **Indigenous land and sea management** is an ongoing SG NRM priority. The Southern Gulf region benefits from a number of strong Indigenous organisations that are leaders in healthy country planning; managing land and sea ranger groups; establishing Indigenous Protected Areas; and directing future Indigenous economic development. Other Indigenous groups still need support to meet their NRM objectives, including undertaking

cultural and natural resource management on their own estates and providing fee-for-service NRM across other land tenures. Even strong groups, such as GhostNets Australia, may require advocacy to ensure continued funding of their important work. Indigenous groups will also benefit from a range of NRM programs that do not specifically target Indigenous managers, including support for improving pastoral management (this

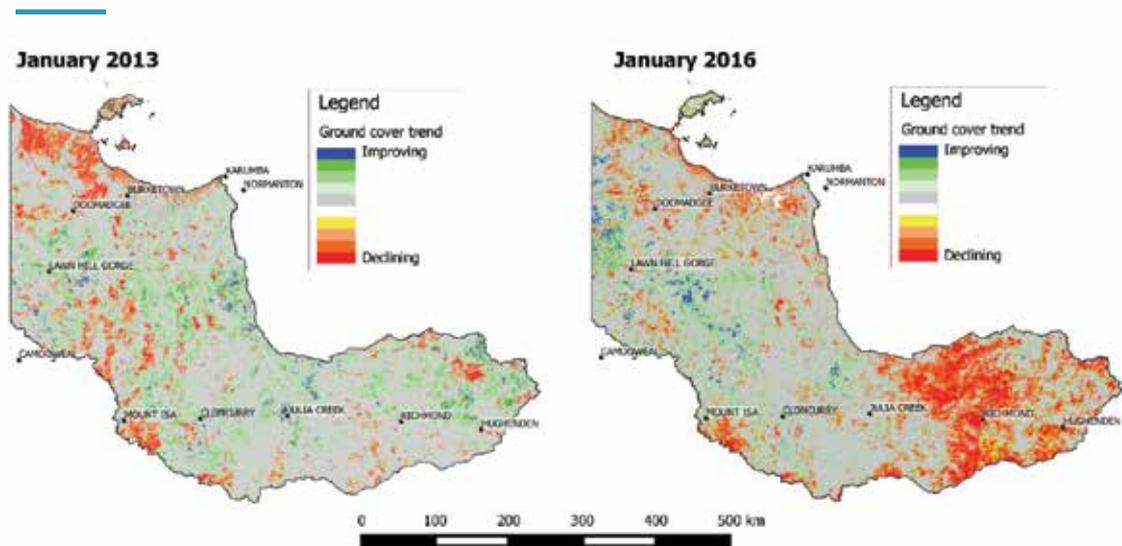


Figure 7. Snapshots of regional ground cover trend in January 2013 and 2016

Source: Joint Remote Sensing Research Project (2016)³⁸

program), control of weeds and pest animals (Program 3), conservation of wetlands and threatened species (Program 4) and participation in the conservation economy (this program).

Agricultural practices are an emerging priority for SG NRM, with the floodplains of the Flinders catchment being the focus of irrigated agricultural development. Agricultural extension will be required as the area converted to cropping increases. Well-established agricultural extension programs in adjoining regions will

provide a useful model for demonstrating best practice and ensuring its adoption.

Water-use efficiency is a renewed SG NRM priority. Between 1989 and 2008, more than 219 bores were capped and 1,013 km of bore drains were replaced with piping, resulting in water savings in excess of 55,200 ML per annum of flow³⁹. However, aquifer draw-down is an ongoing issues for the Great Artesian Basin, and extraction of ground and surface water for new agricultural enterprises may disadvantage

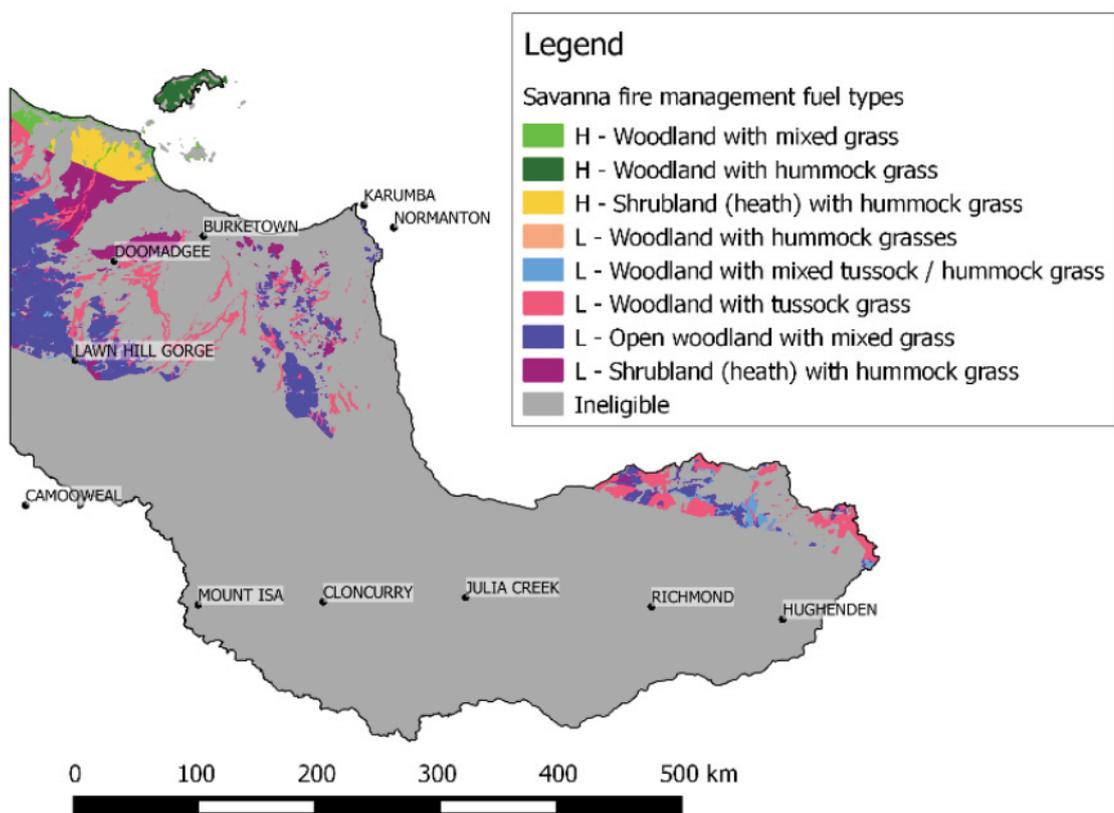


Figure 8. Eligible fuel type for Savanna Fire Management projects

Source: Crowley et al. (2016)⁴³



other producers in the region. Maintaining environmental flows and water quality is also important for the prosperity of Gulf of Carpentaria fisheries. So, it is important that efficient water management is embedded into future agricultural development, and that water quality is improved through adoption of best practice grazing land management and provision of off-stream water sources.

Marine and freshwater fisheries are important elements of NRM in the Southern Gulf region, although not areas in which SG NRM has capacity to undertake a leading role. Each fishery has its own management arrangements to ensure long term industry and ecological viability. It is important that these processes are supported and that land-based activities – including grazing land management, development of riparian areas and water extraction – are managed to minimise any adverse impacts.

Tourism is also an important aspect of NRM in the Southern Gulf region in which SG NRM has a minor role. When well-managed, tourism can provide visitors with rewarding experiences of the region's environmental and cultural values, as well as contribute to the regional economy. The Queensland Government is facilitating a process of regionally-based tourism plans⁴⁰. A next-generation tourism plan would help the Southern Gulf tourism industry to benefit from and contribute to the region's natural and cultural resources.

The **carbon economy** is an emerging priority for SG NRM. As well as mitigating climate change, management to reduce carbon emissions has the potential to

improve the financial resilience of Southern Gulf enterprises. Two methods of carbon abatement have such potential in the Southern Gulf region: savanna fire management and improved herd management^{13,15}. Savanna fire management is applicable in areas that experience regular and extensive late dry season fires, and where grass growth produces heavy fuel loads on an annual basis. Areas that meet these criteria occur in north of the Southern Gulf region (Figure 8). Savanna fire management projects based on sale of carbon credits alone are unlikely to be viable at the current price of \$12.25 per tonne^{41,42}. However, when combined with other sources of income, they could boost the viability of Indigenous ranger programs, or subsidise fire management to protect pasture assets. Improved herd management is another emission reduction method that can enhance the viability of pastoral enterprises¹⁵. It involves adopting practices that reduce the number of cattle required to produce each kilogram of meat. Pastoralists can select from a range of management practices to achieve this aim, all of which are consistent with SG NRM's current extension programs to improve herd efficiency and environmental outcomes. Obtaining income from carbon credits can help defray the costs of infrastructure required to make these changes, which may also be eligible for funding through the Queensland Government's sustainability loans⁴⁴. Landholders are likely to need help to separate real opportunities from the hype; to understand whether emission reduction methods are applicable on their properties; and to navigate their way through establishing and implementing emission reduction projects.

The conservation economy is also an emerging priority for SG NRM. Like the carbon economy, the conservation economy has double benefits: improving both the condition of our natural and cultural environment and the financial resilience of Southern Gulf natural-resource-based enterprises. There are several pathways for the Southern Gulf land managers to engage in the conservation economy¹⁵. These include establishing an Indigenous Protected Area (IPA) or ranger program; entering into Nature Refuge agreements; or participating in an environmental offsets program. The Wellesley Islands and much of the adjoining mainland are already a designated IPA (Figure 5), and several Indigenous ranger groups operate in the region supported by the Australian and Queensland Governments. There are also four Nature Refuges in the region, which may be eligible for financial assistance from the Queensland Government⁴⁵. The Queensland Government is currently refining its priorities under the Nature Refuges program. However, areas in the Southern Gulf region that are most likely to attract such funding must be in good condition and have appropriate management arrangements and contain one or more of the following features:

- Threatened species or their habitat
- Endangered or Of Concern regional ecosystems
- Habitats and ecosystems that are poorly represented in existing protected areas
- Significant wetlands

Other land with high conservation values may also be eligible for more enduring funding under Queensland's Environmental Offsets Framework⁴⁶. In this case, the land must provide like-for-like environmental values to those that will be damaged in a development project, such as might arise through clearing vegetation for mining or agriculture. The land must also be in a Strategic Investment Offset Area (Figure 9). These areas have been selected for their high conservation value and the linkages they provide between such areas, and hence have a high likelihood of providing resilience in the face of climate change⁸.

Another potential pathway for biodiversity conservation funding is through NGO partnerships¹⁵. Bush Heritage Australia is already working with Waanyi Garawa to improve the conservation management on the Gulf Plains bioregion⁴⁷. Future investment by conservation NGOs is also likely to focus on supporting Aboriginal-owned or managed land. Amateur naturalist groups may also assist where iconic species occur on privately-managed land. Birdlife Australia has been undertaking Grasswren surveys in the region, and may be interested in further work to conserve these species⁴⁸.



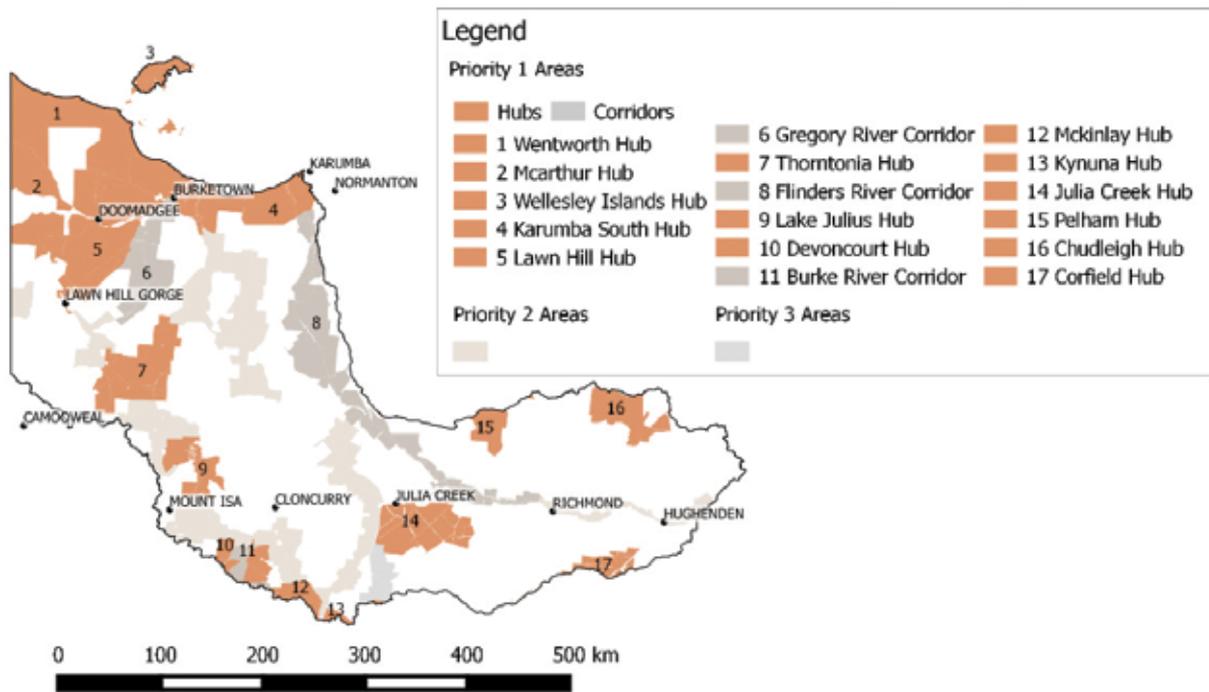


Figure 9. Priority strategic investment corridors indicating high conservation value hubs and corridors

Source: Queensland Department of Environment and Heritage Protection (2016)⁸

WHO HAS A ROLE?

SG NRM aims to be a trusted source of information and influence about sustainable production and NRM-based livelihoods options in the Southern Gulf region. SG NRM's roles will include:

- Developing and implementing projects to improve grazing land management and to build grazing enterprise resilience
- Leading monitoring and reporting of grazing land condition and trend to inform further extension effort
- Promoting water-use efficiency and supporting land managers establish sustainable water supply solutions for stock and domestic purposes
- Leading investigation into options for diversifying NRM enterprises, particularly through the participation in the conservation and carbon economies
- Promoting and facilitating research to address specific gaps in our understanding of how to increase uptake of improved practices
- Supporting the efforts of Indigenous organisations



to derive income and employment from cultural and natural resource management, both on their own land and as service providers to other landholders

- Supporting the efforts of stakeholders to develop sustainable management plans

By representing the interests of the SG NRM community in strategic development forums, SG NRM will foster a supportive business, policy and planning environment in which natural-resource-based enterprises can flourish (Program 1). SG NRM will undertake many of these activities in partnership with NRM bodies from neighbouring regions and with **industry peak bodies** and **advisory bodies**.

Pastoral land managers are the mainstay of the Southern Gulf economy and a primary source of regional prosperity. Their commitment to improving sustainability is demonstrated by the regional improvement in ground cover over the last 30 years. However, to achieve region-wide industry sustainability, many more pastoralists must follow the lead of industry champions and make radical changes to their enterprises, reducing grazing pressure and emissions and improving pasture condition as a means of improving beef production efficiency and, in turn, profitability. They must be prepared to trial new practices and assess their impacts to decide what works best on their properties. Participation in monitoring and reporting of environmental outcomes will also help demonstrate sustainability to an increasingly discerning market. Their preparedness to participate in the conservation economy will further bolster the viability of cattle grazing enterprises.

Indigenous Traditional Owners are the custodians of large areas of the Southern Gulf. It is for them to decide how this land is to be developed. Where they wish to pursue cultural and natural land management, **Indigenous land and sea rangers** will do the hard work, managing and monitoring the outcomes. As representatives of **Traditional Owners, Indigenous institutions** manage these programs and determine the level of their engagement with SG NRM and other Southern Gulf stakeholders, including **Non-government Organisations**.

Researchers and **extension officers** have a role in building our knowledge of sustainable practices and how to increase their adoption. **Queensland Department of Science, Information Technology and Innovation** and **Queensland Department of Agriculture and Fisheries** have been foremost in developing tools to support and assess sustainable management.

The **Queensland Government** also has jurisdiction over the state's natural resources, and has powers to regulate how they are managed and to penalise poor management. Along with the **Australian Government**, the **Queensland Government** also provides funds for programs to support practice improvement and to underwrite Indigenous land and sea management. The **Australian Government** also sets carbon policy and manages the Emission Reduction Fund, which regulates and pays for emission reduction activities.

Fisheries stakeholders include **commercial** and **amateur fishers** and **Traditional Owners**, and their representative bodies. Their collaborative efforts underpin the sustainability of the fisheries that operate in the Southern Gulf region. The **Australian** and **Queensland Governments** licence marine fisheries, assess their environmental performance and promote their ecologically sustainable management.

Tourism stakeholders include the **tourist industry**, the **tourists** themselves and members of the **Southern Gulf community** who own, manage and use the land and resources on which tourism activities occur. The **Queensland Government** recognises tourism as a state interest and is developing regional tourism plans within a sustainable development framework.

Funds for NRM projects to build regional prosperity are largely sourced from the **Australian Government's** National Landcare Programme and Indigenous Advancement Strategy (Jobs, Land and Economy Programme) and the Queensland Regional Natural Resource Management Investment Program managed by the **Queensland Department of Natural Resources and Mines**.

2. Growing Regional Prosperity Action Plan

KEY

● Existing SG NRM priority ● Emerging SG NRM priority

L: Lead on-ground projects; A: Assist partners; K: Build knowledge; S: Build skills; I: Influence decisions

2.1 Pastoral enterprises are profitable, resilient and sustainable through use of best practice management	SG NRM role
2.1.1 Deliver and facilitate targeted extension to improve productivity, profitability and sustainability of grazing enterprises as part of a property planning package that includes a commitment to annual reviews of practice uptake and environmental outcomes	I
2.1.2 Deliver tailored communications and targeted extension to inform producers about management practices that build grazing enterprise resilience and improve grazing land condition, and ensure their uptake	S
2.1.3 Utilise the network of pastoral demonstration sites, case studies and local champions to promote novel or innovative grazing land management practices that achieve integration of good land and environmental management principles with sound business management	A L K
2.1.4 Improve understanding of trends in land condition through a network of sites to be monitored by land managers so as to know where most improvement is needed; whether practice change is being effective and to ensure lessons learnt are fed back into future program design	
2.1.5 Use remotely-sense ground cover assessment to identify sites in need of land restoration, to track changes in ground cover (and link with on-ground monitoring in Action 3.2.5) and as a measure of practice improvement	K
2.1.6 Assess practices used to manage pastoral enterprises, herds and land condition, as well as impact practice on enterprise viability through a biennial survey across the region and through direct interview participants of grazing extension participants	L
2.2 Indigenous organisations are actively engaged in the management of their traditional land and sea estates across tenure in accordance with their own aspirations	SG NRM role
2.2.1 Support implementation of best practice management by Indigenous pastoral enterprises, consistent with the activities listed above	A
2.2.2 Support Indigenous participation in the conservation economy through management of Southern Gulf's Nationally Important Wetlands to protect cultural and biodiversity values	A
2.2.3 Facilitate, on request by partners, fee-for-service delivery for Indigenous land and sea rangers to provide NRM services (e.g. fire, weed and pest animal management, and biodiversity monitoring) across a range of land tenures	I A
2.2.4 Promote the continuation and expansion of Indigenous land and sea ranger marine debris collection and monitoring program on shorelines and beaches	I
2.3 Southern Gulf's water resources are sustainably managed to meet the needs of communities, the environment and industry	SG NRM role
2.3.1 Distribute information to promote efficient water-use practices	
2.3.2 Pursue opportunities to support fencing of waterways to exclude feral animals and livestock and allow wetland restoration	I K
2.3.3 Advise, support and assist producers to implement sustainable stock watering systems that will aid in herd and native pasture management and reduce impacts on natural water sources	S L
2.3.4 Pursue opportunities to support capping of artesian bores and replacement of open channels with pipes to improve water-use efficiency	

2.4 <i>Southern Gulf marine and freshwater fisheries are managed sustainably</i>	SG NRM role
2.4.1 Promote stakeholders efforts to develop an evidence-based sustainable management framework for Southern Gulf marine and freshwater fisheries	I
2.4.2 Distribute information on the value of marine and freshwater fisheries and best-practice management approaches	K
2.5 <i>Sustainable tourism is contributing to the well-being and environmental condition of the Southern Gulf region; and the quality of visitor experiences are enhanced through increased appreciation of the region's natural, cultural and human assets</i>	SG NRM role
2.5.1 In partnerships with tourism stakeholders, develop materials to communicate the region's natural and heritage values and distribution through tourist information networks to enhance the experiences of visitors to the Southern Gulf region and encourage appropriate tourist behaviour	A K
2.5.2 Engage in regional tourism planning processes to ensure appropriate consideration of NRM based issues and opportunities	I
2.6 <i>The viability of Southern Gulf enterprises is enhanced through participation in conservation economy projects to reduce carbon emissions, protect biodiversity and improve land condition and water quality</i>	SG NRM role
2.6.1 Develop regionally-relevant extension materials to inform Southern Gulf land managers of their realistic options to participate in the conservation economy	K
2.6.2 Facilitate projects to reduce carbon emissions using fire management by helping land managers to: <ul style="list-style-type: none"> • Understand the financial and environmental benefits • Identify whether such projects will be viable on their properties • Navigate Emission Reduction Fund agreements • Identify and implement the necessary changes to herd management and infrastructure, and • Understand the financial support that may be available to undertake such management changes 	K S A L
2.6.3 Facilitate projects to reduce carbon emissions through improved herd management by helping land managers to: <ul style="list-style-type: none"> • Understand the financial and environmental benefits • Identify whether such projects will be viable on their properties • Navigate Emission Reduction Fund agreements • Plan and manage fire to minimise emissions while protecting biodiversity and/or production values, and • Understand the financial support that may be available to undertake such management changes 	K S A L
2.6.4 Facilitate offset agreements between developers and Southern Gulf land holders to ensure conservation effort is strategically invested in areas with long-term conservation value	I
2.6.5 Establish a network of, and broker partnerships between, willing providers and financial backers of conservation economy services	I
2.6.6 Support market-based efforts to promote sustainably produced beef and link to the grazing extension package	I
2.6.7 Survey Southern Gulf NRM community periodically to assess regional participation in the conservation/carbon economy	K L



SECURING LANDSCAPE RESILIENCE

Managing threats







SECURING LANDSCAPE RESILIENCE >> MANAGING THREATS

Southern Gulf NRM’s approach to Securing Landscape Resilience involves:

- Improving Southern Gulf community’s knowledge of threats to environmental, cultural and production values; the impacts they have; and best-practice options for management
- Continuing to facilitate strategic management of these threats to reduce their impact
- Monitoring to identify the places where threat management is most needed and will be most effective; to assess whether our efforts are being wisely invested; and to inform future investment strategies

Southern Gulf’s NRM Securing Landscape Resilience program will also benefit from:

- Building partnerships to maximise the effective management of threats to environmental and production values (Program 1)

Southern Gulf NRM’s Securing Landscape Resilience program will also contribute to Growing Regional Prosperity (Program 2) and Sustaining Our Natural and Cultural Environments (Program 4) through:

- Early detection and rapid response to new and emerging biosecurity threats
- Effective management of weeds, pests, fire soil erosion and marine pollution
- Restoration of the productive capacity of degraded landscapes
- Minimising the adverse impact of mine sites on the environment
- Increasing landscape resilience to climate change

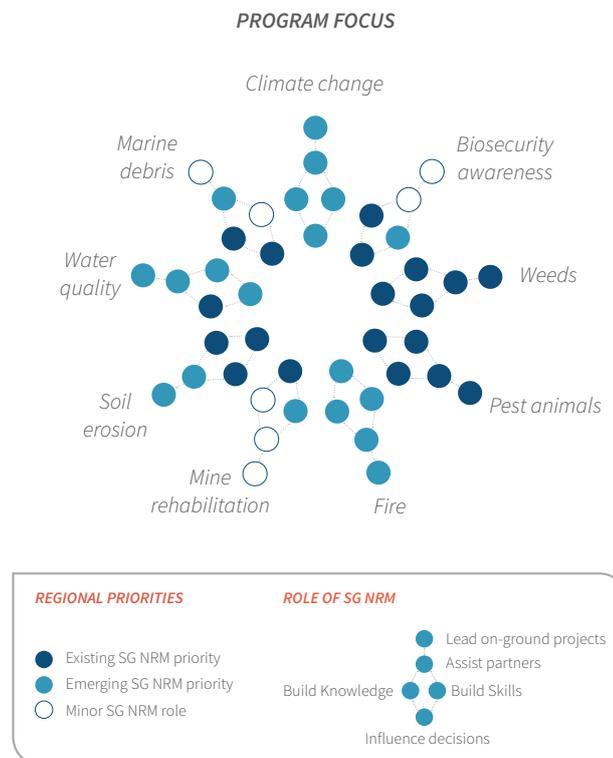


Figure 10. Regional priorities for securing landscape resilience

Biosecurity awareness is an ongoing priority for SG NRM. There is a constant need to alert the Southern Gulf community of new and emerging weeds, pests, pathogens and diseases that could have serious consequences for the environment, production and human health. Vigilance is required to prevent cane toads establishing on the Wellesley Islands. There is also a need to raise awareness of the importance of hygiene to minimise the spread of weed seeds, diseases and/or pathogens in hay, vehicles and machinery. Expansion of irrigated cropping provides another biosecurity challenge in the region, increasing the risk of agricultural pests and diseases spreading between areas of agriculture that have hitherto been separated by large areas of pastoral lease and Aboriginal land.

Weed management is an ongoing priority for SG NRM. Strategic management of priority weeds is being guided by the Southern Gulf Catchments Regional Pest Management Plan, which is also aligned with national, state, regional and local government weed management strategies. These plans and strategies focus weed control effort into the areas where it can have most impact: isolated stands, upstream ends of infestations and the edges of containment areas. Under this guidance, the Southern Gulf community has had substantial success in reducing the impact of transformer

weeds that affect both biodiversity and production values. On properties that have sustained weed control over a period of six to seven years, the number of Prickly Acacia plants needing treatment has been reduced by up to 75%⁴⁹. But continued effort is required. Prickly Acacia (*Vachellia nilotica*), Rubber Vine (*Cryptostegia grandiflora*) and Bellyache Bush (*Jatropha gossypifolia*) and other transformer weeds still occupy large areas of highly productive and environmentally significant riparian areas, and could easily regain their former dominance (Figure 11). Reliable information on weed impacts and effective management, financial support and assistance to develop and implement property and regional pest management plans are required maintain landholders' commitment to weed control. There is also for research to improve methods for controlling weeds, notably through biological control agents.

Pest animal management is an ongoing priority for SG NRM and is also guided by the Southern Gulf Catchments Regional Pest Management Plan. The plan identifies pigs, cats, foxes, wild dogs and dingos and cane toads as the most significant pests in the region. Feral pigs degrade wetlands and prey on the nests of marine turtles. Cats and foxes also prey on native animals, with cats being

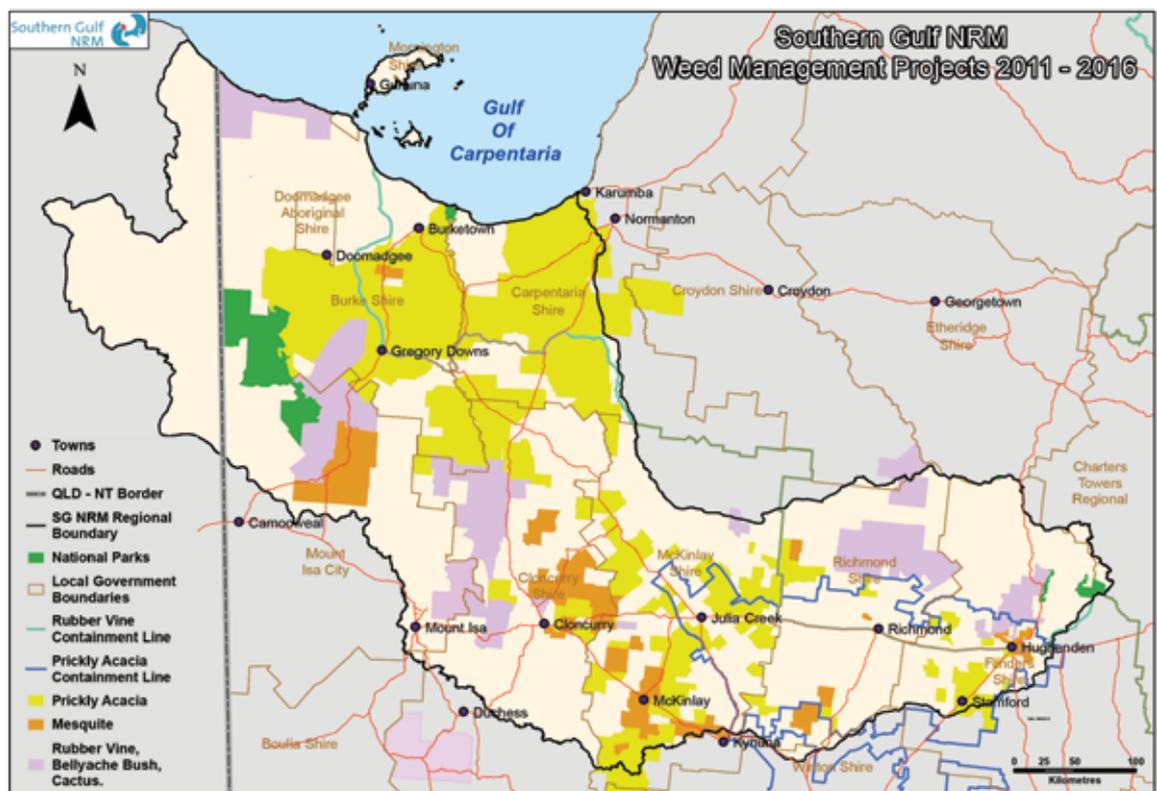


Figure 11. Focus of weed control in Southern Gulf and adjoining catchments

Source: Southern Gulf NRM

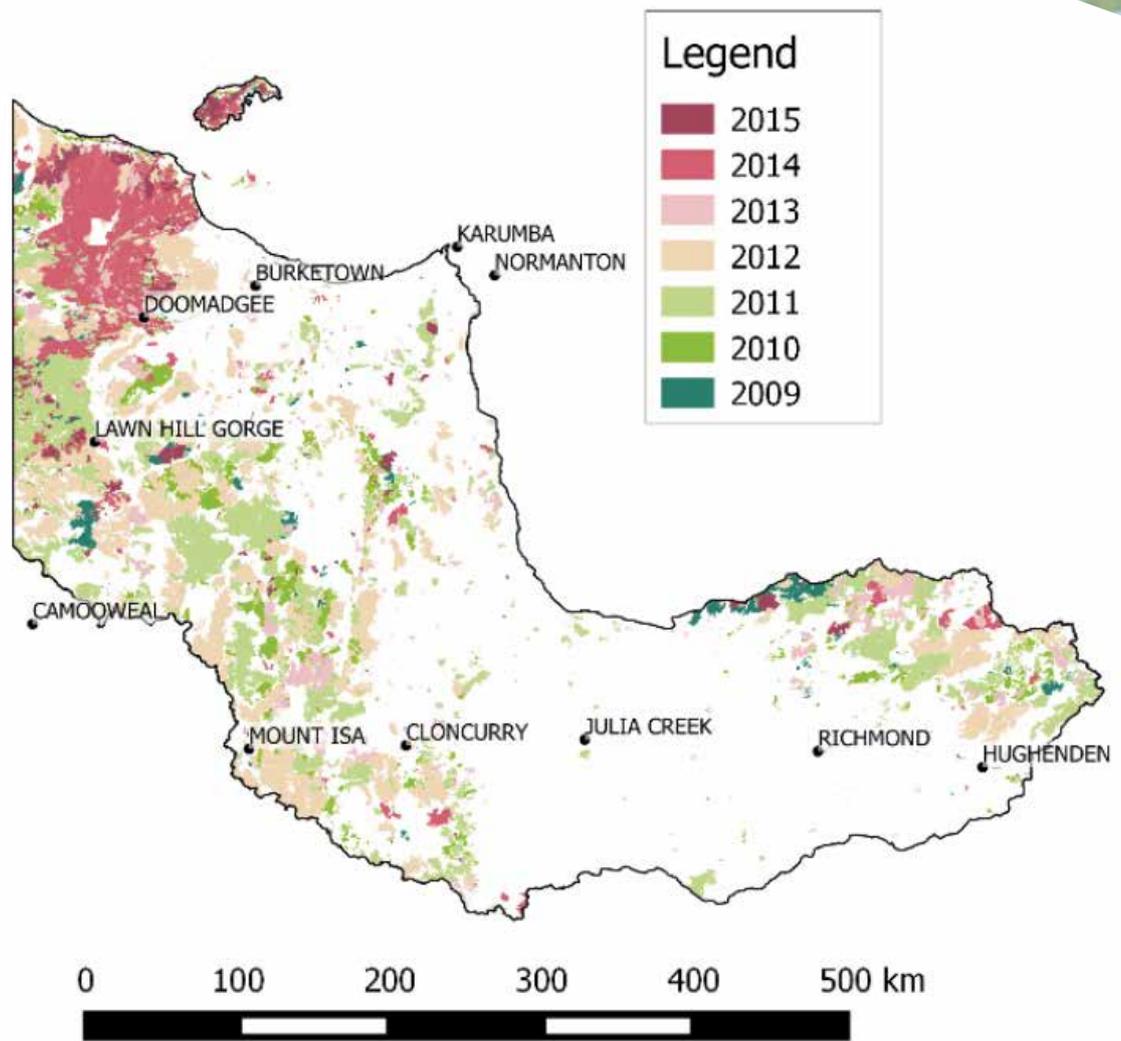


Figure 12. Seven-year fire history of the Southern Gulf region showing the year of the last fire
 Source: North Australia Fire Information website

considered one of the main drivers of the decline of small mammals across northern Australia⁵⁰. Predation of calves by wild dogs and dingoes prey is seen as one of the most significant issues affecting cattle production in the Gulf region⁵¹. Strategic use of fencing, baiting and aerial culling is required to reduce the impact of these pests. Cane Toads spread across the Southern Gulf region in the 1980s, but have not yet reached the Wellesley Islands, and should be prevented from doing so.

Fire is a renewed priority for SG NRM. It is hard to maintain momentum with fire management in the Southern Gulf region because some areas of the region rarely experience fire, spinifex fuel load take some time to recover after fire, and high fire danger years can be interspersed with many years of drought. However, periodic wildfires affect large areas of the region, with some areas being burnt

annually (Figure 12). Land managers need assistance to develop and implement adaptive fire management plans at the property-scale and across neighbouring properties. A key element of these plans should be a commitment to annual reviews of implementation and effectiveness.

Mine rehabilitation is an ongoing priority for SG NRM. Mining companies have a responsibility to restore mine sites as operations wind down. However, there are many abandoned mine sites in the Southern Gulf region that have never been rehabilitated. A national strategy has been developed for the management of such mines, and provides options for minimising their impact and turning them into a resource⁵². Landholders with abandoned mines on their properties need assistance to identify and implement the best management options for their particular circumstances.

Soil erosion is an ongoing priority for SG NRM. Recent work in the region has shown that mechanical intervention (especially contour ripping and shallow water pondage) followed by seeding and stock exclusion can improve the condition of highly degraded grazing land, even under drought conditions (Figure 13). Areas with the highest level of land degradation should be identified and landholders assisted to identify and implement the most appropriate options to rehabilitate their degraded lands. Monitoring of treated areas will help demonstrate benefits to other landholders and inform future rehabilitation efforts. Rehabilitation of wetlands also needs to focus on control of erosion by reducing access by feral pigs and livestock.

Water quality improvement is an emerging priority for SG NRM. Current work focused on improving the condition of grazing lands, rehabilitating degraded land and controlling feral pig populations already has water quality benefits. Results of this work can be brought together to raise landholder awareness of the linkages between land management and water quality and the downstream benefits for aquatic health, fisheries and the marine environment.



Figure 13. Rehabilitation of degraded land using contour ripping, seeding and stock exclusion

Source: Lauder et al. (2014)⁵³



Marine debris is a renewed priority for SG NRM. The previously well-supported efforts of Indigenous land and sea ranger groups and GhostNets Australia was successful at reducing marine debris in the Gulf of Carpentaria. However, this success has meant that marine debris is no longer a high profile issue, even though vigilance is still required to ensure that gains made are not lost. Ongoing funding is required to allow this work to continue.

Climate change is an emerging priority for SG NRM as it is expected to increase the stress on our environments, production systems, infrastructure and human resources. Climate change mitigation and adaption are elements of Programs 1, 2 and 4. In addition, emission reduction efforts are required to minimise the extent of climate change.

Carbon-friendly technologies can not only provide alternative energy sources and reduce emissions, but can also have NRM benefits. A good example is installation of solar-powered pumps to allow water points to be established away from environmentally sensitive streams and wetlands. Because adoption of such technologies help the Australian Government achieve its Renewable Energy Target, they may also be eligible for funding through the Australian Government's Small-scale Renewable Energy Scheme.

WHO HAS A ROLE?

SG NRM aims to be a trusted source of information about threats to natural, cultural and production environments as well as effective management options for minimising these threats. SG NRM's roles will include:

- Developing and implementing projects to manage weeds, pest animals, fire and soil erosion
- Providing regional leadership in water quality improvement initiatives through these projects combined with our practice-improvement projects
- Leading the monitoring of management effectiveness and incorporating this information into future strategy and project planning
- Promoting and facilitating research to inform threat management
- Fostering collaborative arrangements to maximise strategic threat management (through Program 1)

Landholders have legal obligations to manage certain pest species and fire on their lands, and lease conditions may require them to maintain the land in good condition. Many **state government agencies** and all **local governments** also own land in the Southern Gulf region, and so have similar obligations to manage them. Permission of Southern Gulf's **pastoral landholders, Indigenous Traditional Owners and other landholders** (including **state and local governments**) will be required for work to occur on their land. It is important that they understand the value of managing threats collaboratively across property boundaries and land tenures. **Indigenous institutions** who manage land and sea ranger programs will determine the extent to which they wish to manage threats independently, collaboratively or as service providers.

As hands-on practitioners, **pastoral land managers, Indigenous land and sea rangers, government staff and Landcarers** have the greatest knowledge of where threats need to be managed. They also do the physical work in often trying conditions. As they are best placed to say what works and what doesn't, their participation in project development, monitoring and reporting will be invaluable. **Local Government** provide operational and coordination leadership for pest and weed management under Queensland legislation and have

important roles in enforcing compliance. **Advisory bodies** made up of these stakeholders, such as the Gulf Catchments Pest Task Force, are important for communicating regional priorities back to decision makers to direct management effort.

The **Australian and Queensland Governments** have jurisdiction over the nation's natural resources, and prioritise NRM programs at the national and state level, including by publishing lists of declared weeds and pest animals that landholders are obliged to manage, and lead the development of national and state-level weed management strategies. Their priorities often determine the allocation of resources to NRM. The **Queensland Department of Environment and Heritage Protection** has oversight of mine site rehabilitation and has introduced legislation to ensure the obligations of mining companies are met. **Queensland Department of Natural Resources and Mines** monitors and manages abandoned mines. The **Australian Quarantine Inspection Service** provides a first line of defence against new biosecurity threats, as well as information and support for biosecurity surveillance. The **Australian Government** supports the adoption of alternative energy technologies through its Small-scale Renewable Energy Scheme.

Researchers have a role in building our knowledge of threats to natural and cultural environments and production values, where these occur and how best to manage them. **Biosecurity Queensland** provides maps showing current and potential distributions and strategic management zones, and has an extension role to support management of weeds and pest animals. Similarly, **Rural Fire Service Queensland** has an extension role to support fire management. The **North Australian Fire Information (NAFI)** site aids fire management through providing up-to-date information on the location of fires as well as planning and reporting tools.

Funds for securing landscape resilience projects are largely sourced from the **Australian Government's** National Landcare Programme and National Landcare Programme and Indigenous Advancement Strategy (Jobs, Land and Economy Programme) and the Queensland Regional Natural Resource Management Investment Program managed by the **Queensland Department of Natural Resources and Mines**.

3. Securing Landscape Resilience Action Plan

KEY

● Existing SG NRM priority ● Emerging SG NRM priority

L: Lead on-ground projects; A: Assist partners; K: Build knowledge; S: Build skills; I: Influence decisions

3.1 <i>The Southern Gulf community understands the threats to the region's environmental, cultural and production values, the imperative for addressing them, and best-practice options for doing so</i>	SG NRM role
3.1.1 Develop and distribute materials to communicate threats to Southern Gulf's biodiversity, the threats they face and effective management options, focusing on: <ul style="list-style-type: none"> Impact of weeds, pest animals, wildfires, erosion, marine debris and climate change on environmental and production values; How threats may be affected by or interact with climate change Best-practice management options Links between management practices, biodiversity, water quality, wetland health and fisheries 	A L K
3.1.2 Periodically assess the Southern Gulf NRM community' understanding of NRM threats and their management	L K
3.2 <i>New and emerging threats to Southern Gulf's natural and production values are quickly identified and averted</i>	SG NRM role
3.2.1 Develop and distribute information to facilitate early detection and eradication of priority and emerging biosecurity (weeds, pests, pathogens and diseases) threats to the Southern Gulf region	A L
3.2.2 Develop and distribute information to reduce the risk of weeds being spread through movement of hay, vehicles and machinery	K
3.2.3 Collaborate with State Government and amateur fishing groups to promote the importance of maintaining Southern Gulf's status as one of the few catchments in Queensland not infested by pest fish species	I
3.2.4 Assist recreation fishing groups to detect and report suspected occurrences of exotic fish species in the Southern Gulf region	A K
3.2.5 Annually report on new threats detected in the Southern Gulf region and nature and effectiveness of responses	L K
3.3 <i>Natural, cultural and production values of the Southern Gulf region are being restored through best-practice management of weed and pest animals</i>	SG NRM role
3.3.1 Support the development and implementation of priority and regional pest management plans, and ensure regular implementation reporting and review of the Southern Gulf NRM Regional Pest Management Plan 2011	I A
3.3.2 Facilitate research into the control of priority weeds as identified in the Southern Gulf NRM Regional Pest Management Plan 2011	S L
3.3.3 Support strategic management of priority weeds as identified in the Southern Gulf NRM Regional Pest Management Plan 2011, focusing on high value riparian corridors	K
3.3.4 Periodically report on the regional extent of priority weeds	L
3.3.5 Monitor and report on weed management efforts by establishing a network of monitoring plots at weed treatment sites, and embed monitoring and reporting into project delivery	S L
3.3.6 Support strategic management and monitoring of feral pigs to assist the restoration of Nationally Important wetlands and protection of marine turtle nesting sites	S L
3.3.7 Support strategic management and monitoring of wild dogs to protect production values	I S A L
3.3.8 Report on the effort invested in pest management projects, establish a network of monitoring plots at pest animal treatment sites, and embed monitoring and reporting into project delivery	I S A L
3.3.9 Investigate the feasibility of, and if appropriate, support eradication of cats and rats from islands with high biodiversity values; implement measures elsewhere to mitigate the risk of cat predation on vulnerable wildlife	I S A L

3. Securing Landscape Resilience Action Plan (cont.)

KEY

● Existing SG NRM priority ● Emerging SG NRM priority

L: Lead on-ground projects; A: Assist partners; K: Build knowledge; S: Build skills; I: Influence decisions

3.4 Fire is being managed to sustain the natural and production values of the Southern Gulf region	SG NRM role
3.4.1 Support fire planning and management at the property-scale and across property clusters as part of an adaptive planning process that includes a commitment to annual reviews of implementation and effectiveness	I A
3.4.2 Monitor and report fire extent and patchiness across the Southern Gulf region and in project areas using remotely-mapped fire scars	S L
3.5 Southern Gulf natural resource managers are reducing their greenhouse gas emissions	SG NRM role
3.5.1 Investigate and pursue options to support adoption of carbon-friendly technologies, focusing on alternative energy sources that have NRM benefits (e.g. solar-powered pumps)	I A L
3.6 Legacies of poor historical land use practices are managed to minimise adverse environmental impacts and restore environmental conditions	SG NRM role
3.6.1 Support rehabilitation of grazing lands to reduce impacts on production values and water quality, and assess effectiveness by monitoring improvement of key indicators	K S L
3.6.2 Trial, demonstrate and support best-practice approaches for controlling gully erosion to reduce impacts on wetlands, and assess effectiveness by monitoring improvement of key indicators	K
3.6.3 Build skills in local government, the pastoral industry and Indigenous communities in best practice road drainage design to minimise risks of soil erosion and other adverse impacts of poor practice	A S L
3.6.4 Collaborate with government, land managers and the mining industry in identifying and monitoring abandoned mines in the Southern Gulf region and in facilitating remediation	I
3.6.5 Assist landholders to access support for <ul style="list-style-type: none"> • monitoring water quality impacts of abandoned mines • interpreting the results, and • implementing appropriate measures when unacceptable pollution levels are detected 	A S K
3.6.6 Assist landholder efforts to rehabilitate abandoned mines through their participation in weed management, erosion control and revegetation projects	





SUSTAINING OUR
NATURAL + CULTURAL
ENVIRONMENT

Biodiversity, wetlands and heritage







SUSTAINING OUR NATURAL + CULTURAL ENVIRONMENT >> BIODIVERSITY, WETLANDS + HERITAGE

Southern Gulf NRM's program for Sustaining Our Natural and Cultural Environment involves:

- Raising understanding and awareness of the biodiversity values of the Southern Gulf region and the threats they face
- Improving our understanding of biodiversity condition and trends, and effective management options to target and assess our conservation efforts
- Assisting natural resource managers' efforts to undertake conservation management and to monitor its effectiveness

Southern Gulf's natural and cultural environment will also benefit from:

- Building and strengthening partnerships to maximise effectiveness of the management of natural, cultural and production landscapes (Program 1)
- Improving understanding and adoption of sustainable resources use and water allocation principles (Program 1)
- Facilitating improvement in management of production landscapes and water-use efficiency and participation in the conservation economy, with flow-on benefits to biodiversity and water quality (Program 2)
- Reducing adverse impacts of weeds, pest animals, fire and poor tourism practices on natural and heritage values (Program 3)

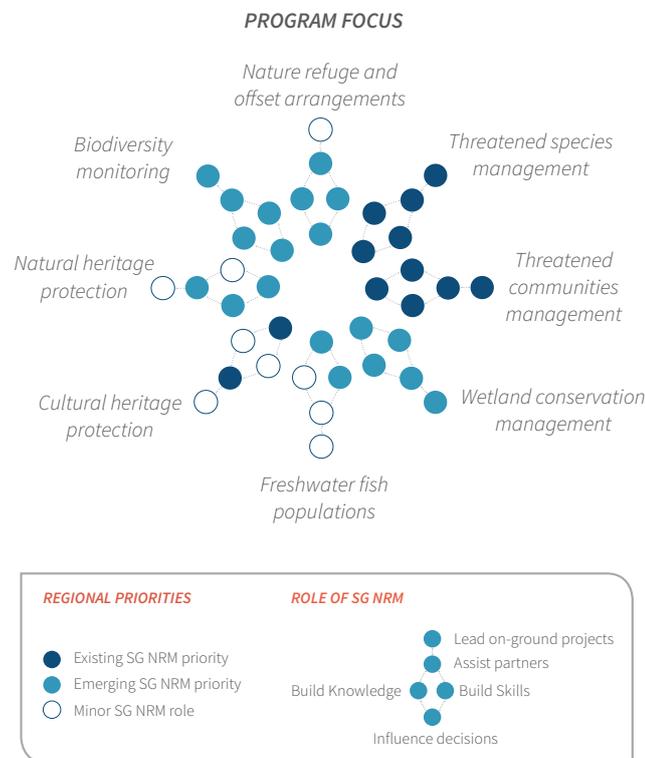


Figure 14. Regional priorities for sustaining our natural and cultural environments

Threatened species management is an ongoing priority for SG NRM. The Southern Gulf region is home to small suite of unique species that are restricted in extent, including the Julia Creek Dunnart, Carpentarian Grasswren, Carpentarian Antechinus and Gulf Snapping Turtle (Table 3). It also contains Queensland's only remaining wild population of Gouldian Finches. The retention of substantially intact natural vegetation in Southern Gulf and the relatively low level of disturbance to its estuarine and marine environments also enables the region to support a wide range of species that may be threatened elsewhere in the world. This includes three freshwater

sawfish, several marine turtles, the Red Goshawk and, potentially, the Night Parrot⁵⁴.

Activities to protect and restore threatened species of the Southern Gulf region have been identified in the Back-on-Track process⁵⁵, and include:

- Raising community awareness of the region's biodiversity values and the importance of maintaining the environment in good condition to ensure their persistence (including through the adoption of sustainable grazing and fishing practices)

Table 3. Threatened species with significant populations in the Southern Gulf region

COMMON NAME	SPECIES	NATIONAL STATUS	QUEENSLAND STATUS	IMPORTANCE OF SOUTHERN GULF
TERRESTRIAL SPECIES				
Julia Creek Dunnart	<i>Sminthopsis douglasi</i>	Endangered	Endangered	Critical
Gouldian Finch	<i>Erythrura gouldiae</i>	Endangered	Endangered	High
Star Finch (eastern)	<i>Neochmia ruficauda ruficauda</i>	Endangered	Endangered	Medium
Night Parrot	<i>Pezoporus occidentalis</i>	Endangered	Endangered	Uncertain
Red Goshawk	<i>Erythrotriorchis radiatus</i>	Vulnerable	Endangered	High
Pink Gidgee	<i>Acacia crombiei</i>	Vulnerable	Vulnerable	Critical
Carpentarian Antechinus	<i>Pseudantechinus mimulus</i>	Vulnerable	-	High
Solanum	<i>Solanum carduiforme</i>	-	Vulnerable	High
FRESHWATER / ESTUARINE SPECIES				
Gulf Snapping Turtle	<i>Elseya lavarackorum</i>	Endangered	Vulnerable	Critical
Green Sawfish	<i>Pristis zijsron</i>	Vulnerable	-	Critical
Freshwater Sawfish	<i>Pristis pritsis</i>	Vulnerable	-	Medium
Dwarf Sawfish	<i>Pristis clavata</i>	Vulnerable	-	Medium
MARINE SPECIES				
Olive Ridley Turtle	<i>Lepidochelys olivacea</i>	Endangered	Endangered	Medium
Loggerhead Turtle	<i>Caretta caretta</i>	Endangered	Endangered	Medium
Leatherback Turtle	<i>Dermodochelys coriacea</i>	Endangered	Endangered	Medium
Australian Snubfin Dolphin	<i>Orcaella heinsohni</i>	-	Vulnerable	Medium

- Reducing total grazing pressure across the pastoral estate (including from livestock and pest species, such as pigs, goats and camels)
- Protecting wetlands from erosion caused by pigs and livestock
- Restoring natural stream flow and wetland function
- Reducing the extent of transformer weeds that alter the structure and composition of native ecosystems (focusing on Prickly Acacia, Rubber Vine, Bellyache Bush and Calotrope)
- Reduction of ghost nets and other marine debris
- Reducing pigs and wild dogs predation on turtle nests
- Controlling and excluding feral cats and, to a lesser extent, foxes
- Reducing the extent of late dry season fire and using fire to manage woody thickening
- Vigilance against illegal collection and trade in fauna and flora

These actions will help threatened and other native species to survive the additional pressures of climate change (including increased temperatures and dry season length, ocean acidification and coastal erosion and salinisation of near-coastal wetlands as a consequence of sea-level rise).

Conservation effort needs to be strategically directed to ensure most benefit, and consider both current ecological value and likelihood of persistence under a

changing climate. This may be achieved by focusing effort on strategic investment areas (Figure 9). Monitoring of threatened species is also required to inform the conservation effort undertaken and to assess its success in an adaptive management cycle. Conservation agreements may be appropriate in areas supporting significant threatened species populations. Where considerable investment is required, funding may be available through offset arrangements, from government grants or through partnerships with conservation NGOs (Program 2).

Threatened communities management is an emerging priority for SG NRM. Very little of the vegetation of the Southern Gulf region has been cleared or highly altered, although much of it has been disturbed or degraded by cattle and/or feral animals, weed invasion and disrupted fire regimes over the last 150 years. The only communities that are classified as Endangered at the state or national level are all associated with springs fed by Great Artesian Basin (Figure 15). Of the 33 spring-fed wetlands known to occur in the Southern Gulf region, 29 support nationally-Endangered communities of ground-water dependent species. Some of these springs also feed a palustrine wetland community (Regional Ecosystem 2.3.39) that has been listed as Endangered in Queensland because of degradation caused by water extraction, excavation, feral pigs and livestock⁵⁶.

The Southern Gulf also contains 30 regional ecosystems that have an Of Concern remnant vegetation status⁶¹. Most are highly restricted in extent, with 21 having an

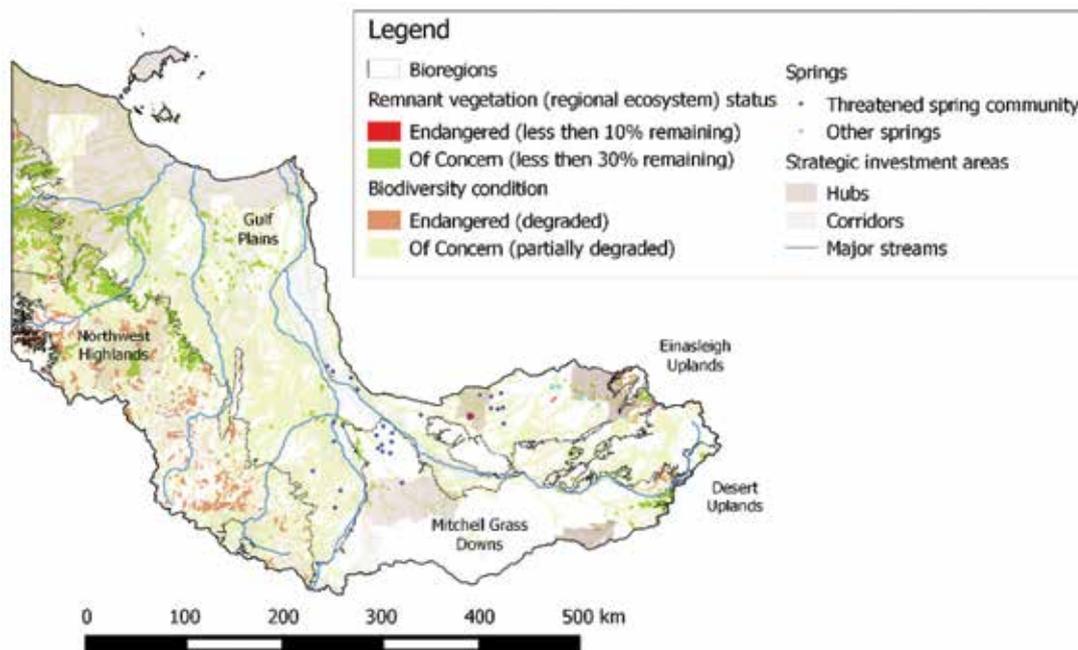


Figure 15. Threatened communities in the Southern Gulf region

Source: Bioregions, Australian Department of the Environment (2012)⁵⁷; Regional Ecosystems, Queensland Department of Science, Information Technology and Innovation (2013, 2015a, b)⁵⁸⁻⁶⁰; Springs, Rod Fensham (pers. comm. 20 Nov 2013), Strategic investment areas, Queensland Department of Environment and Heritage Protection (2016)⁸

extent of less than 30 km². The most extensive of these (eucalypt woodland on sandy outwashes and Darwin Woollybutt (*Eucalyptus miniata*) woodlands in the Northwest Highlands) are well-represented in Protected Areas. Another nine regional ecosystems are considered threatened because of fragmentation, weed invasion or overgrazing. This includes Darwin Box (*Eucalyptus tectifica* 160 km²) woodlands, swamp woodlands on the floodplains of the Nicholson and Leichhardt Rivers dominated by Gutta Percha (*Excoecaria parvifolia* 160 km²) and River Cooba (*Acacia stenophylla* 84 km²) and low Gidgee (*Acacia cambagei*) woodlands (116 km²) in the Desert Uplands.

As well having a remnant vegetation status, regional ecosystems are also classified according to their condition for biodiversity. Extensive parts of the Southern Gulf have an Endangered or Of Concern biodiversity status as a result of overgrazing, weed invasion, feral animal damage or mismanaged fire regimes. This includes extensive riparian areas that have been degraded by Rubber Vine, Prickly Acacia, Bellyache Bush and Calotrope (*Calotropis procera*).

Restoration of degraded ecosystems will benefit from landscape-scale improvements to grazing land management (Programs 2) and control of weeds, pest

animals and fire (Program 3). Remnant vegetation and biodiversity status should be considered when deciding where to undertake these activities. Endangered spring-fed wetlands will also benefit from capping of Artesian bores (Program 3) and development of alternative watering points (Program 2). However, targeted management will also be required. In particular, fencing of springs and small areas of remnant vegetation will assist their recovery, particularly if pigs can be excluded. As with threatened species conservation, both current ecological value and likelihood of persistence under a changing climate should be considered when deciding which parts of the region should be targeted for conservation of threatened communities; and monitoring should be undertaken to assess need and effectiveness of management intervention. Again, conservation agreements may be appropriate in areas supporting significant Endangered communities and funding may be available through offset arrangements, from government grants or through partnerships with conservation NGOs (Program 2).

Wetland conservation is an area of renewed focus for SG NRM. The Southern Gulf region contains innumerable high conservation value aquatic ecosystems (Figure 16). These range from extensive mudflats that support shorebirds to tiny swamps in the arid south-west and

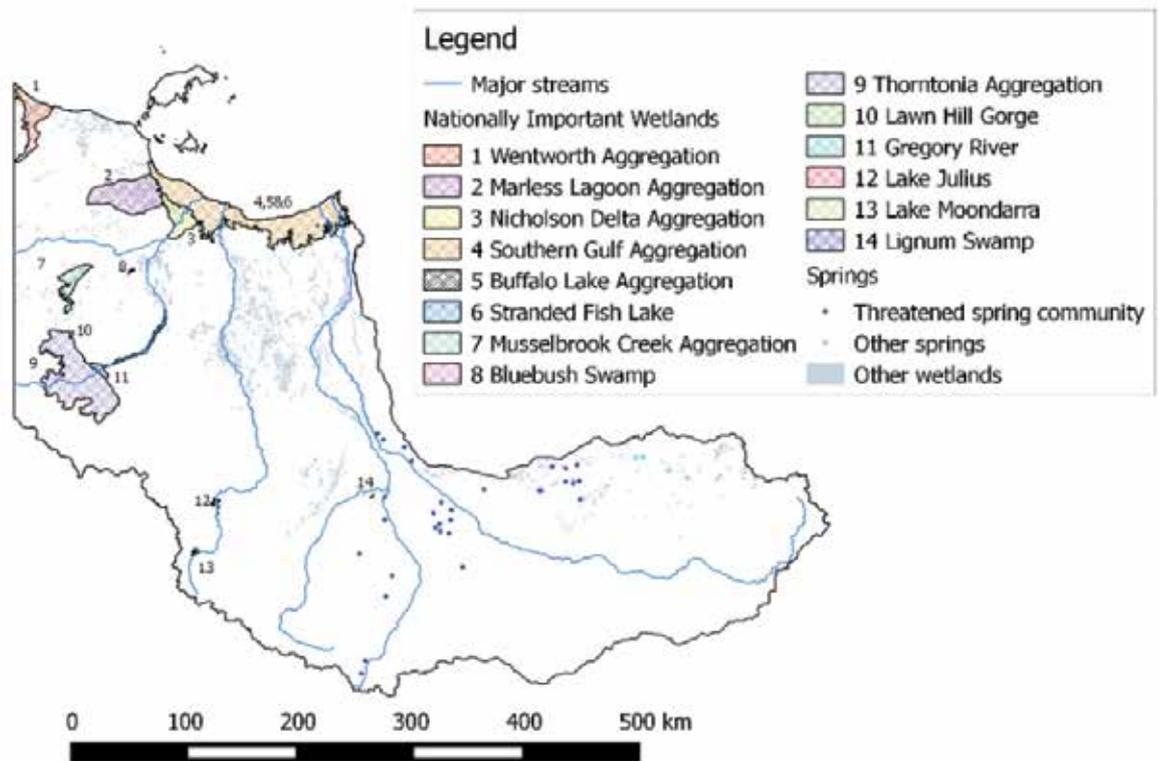


Figure 16. Wetlands of the Southern Gulf region

Source: Australian Department of the Environment (2010)⁶³, Springs, Rod Fensham (pers. comm. 20 Nov 2013), Other wetlands, Queensland Department of Science, Information Technology and Innovation (2013, 2015a, b)⁵⁸⁻⁶⁰

the Endangered Great Artesian Basin springs in the upper Flinders catchment. Large areas are classified as Nationally Important Wetlands. Landholders in these areas should be encouraged to enter into conservation agreements, fence out stock and feral animals (Program 3) and monitor their recovery. Thirteen wetlands in the Leichhardt River catchment have already been prioritised for conservation based on their uniqueness and likely response to on-ground management⁶². Similar prioritisation exercises that also include consideration of sea-level rise and other expressions of climate change may prove useful to inform further conservation effort.

Freshwater fish populations are a focus of renewed effort for SG NRM. Since 2005, SG NRM has commissioned several studies to fill gaps in our knowledge of the region's freshwater fish and condition of the region's waterways^{62,64-66}. These studies revealed a high diversity of species in the region; waterways that are generally in good condition; and the lack of exotic fish species, but also highlighted issues of degraded riparian vegetation and erosion caused by pigs and cattle. As noted earlier, the region is important for freshwater and estuarine sawfish, which are threatened by poor fishing practices and trophy hunting. Partnerships between regional stakeholders to raise awareness of the values of the region's fish populations and the importance of keeping our waterways free of pest fish, and of managing other threats are an important foundation for improved conservation outcomes. In particular, there is an ongoing need to protect and restore fish passages to maintain the health of fish populations in the region. Freshwater fish populations will also benefit from protection of freshwater wetlands (this program) and improvements in the quality of water draining from pastoral lands (Program 2), and control of feral pigs and other sources of erosion (Program 3).

Heritage protection is an ongoing priority for SG NRM. Protection of Indigenous cultural heritage through management of cultural sites and maintenance and revival of Traditional Knowledge is a matter of vital interest to the Traditional Owners of the region. SG NRM has a long history of support the region's Indigenous people in these pursuits. We recognise the leadership and expertise of Indigenous organisations in this area, and will support them in this role wherever possible. We also recognise that cultural landscapes encompass natural values as well as material culture, and that both face similar threats, including from pest animals, water pollution, weeds and poorly managed fire regimes. Indigenous heritage programs will benefit from the consideration of cultural values in the prioritisation of projects to manage these threats (Program 3), as well as for management of threatened species and communities and to restore degraded wetlands (this program). Other support for Indigenous organisations undertaking cultural heritage projects provided in this plan includes capacity building

(Program 1), and facilitation of conservation economy participation (Program 2).

Natural heritage protection is an emerging priority for SG NRM. The Southern Gulf region is home to the Riversleigh fossil mammal site, which, along with Naracoorte caves in South Australia, constitutes one of Australia's 19 World Heritage Areas. Riversleigh and Naracoorte are superb illustrations of the key stages in the evolution of the unique fauna of Australia. They are outstanding for the extreme diversity and the quality of preservation of their fossils and help us to understand the history of mammal lineages in modern Australia. The Riversleigh Management Strategy⁶⁷ requires the site to be managed for conservation of its heritage and biodiversity values with participation and involvement by Traditional Owners and other community members. These values will benefit from an integrated approach to management of threats, especially of weeds, fire and pest animals, across the landscape (Program 3).

Biodiversity monitoring and research is an area of increasing priority for SG NRM. The organisation has historically supported and commissioned research to improve NRM in the region. Researchers and amateur naturalists have also been active in expanding our understanding of the region's biodiversity and management needs since the region's last NRM plan was produced. However, there is a need for further research to improve our understanding of the region's biodiversity and how to manage it. This includes understanding where the most significant populations of threatened species occur; where management intervention will have the most impact; how successful our management efforts are; and how to increase adoption of biodiversity-friendly practices. Including natural resource managers in research and monitoring allows them to provide their perspectives on the best approaches to conservation management and what constitutes success, and will also maximise the likelihood that lessons learnt will be applied to management⁶⁸.

Conservation agreements and offset arrangements are a relatively new priority for SG NRM. Many private landholders are willing to set aside parts of their property for dedicated conservation management⁶⁹⁻⁷¹, but there are few opportunities to obtain financial support for doing so in the Southern Gulf, as the region's conservation values are not widely appreciated¹⁵. Conservation agreements and offset arrangements are among the most promising options. Potential investors in conservation activities need to be made aware of the region's values and the capacity of the NRM community to provide enduring outcomes, and natural resource managers wishing to undertake conservation management need assistance to identify opportunities to fund their conservation efforts.

WHO HAS A ROLE?

SG NRM aims to be a trusted source of information about the region's biodiversity values, threats and effective management options. Key contributions from SG NRM include will include:

- Developing and implementing projects to manage land for biodiversity conservation, including for the conservation of threatened species and communities and wetlands
- Raising awareness and knowledge of regional biodiversity values
- Monitoring and reporting biodiversity condition and trend
- Promoting and facilitating research to address specific gaps in our understanding of biodiversity values and management needs
- Supporting capacity building of Indigenous organisations and other stakeholders undertaking cultural and natural heritage projects (Program 1)
- Facilitating brokerage of conservation agreements and offset arrangements to support biodiversity conservation (Program 2)
- Influencing regional planning and policy development to maximise protection of the region's natural and cultural values (under Program 1)

Pastoral landholders, Indigenous Traditional Owners and other **landholders** (including **state and local governments**) are pivotal to conservation efforts across much of the Southern Gulf region. The extent of their willingness to dedicate their land and resources to long-term conservation management will determine the extent to which the region's biodiversity and cultural values can be maintained in perpetuity.

Queensland Parks and Wildlife Service, Traditional Owners of the Wellesley Islands and land owners of the Gulf region's three Nature Refuges, have dedicated their lands to biodiversity conservation.

As hands-on practitioners, **Pastoral land managers, Indigenous land and sea rangers, government staff** and **Landcare volunteers** will do the hard work of managing dedicated conservation areas in often trying conditions. They are also best placed to say

what works and what doesn't, so their participation in project planning, monitoring and reporting will be invaluable.

Researchers and **amateur naturalists, amateur and commercial fishers** and **tourists** also have a role in building our knowledge of natural environments, and their condition and trend, and is spreading the word about Southern Gulf.

As representatives of **Traditional Owners, Indigenous institutions**, in particular **Indigenous ranger groups**, are the leaders in cultural heritage protection and biodiversity conservation on Indigenous estates, and determine the extent to which land is developed or conserved, and the type of partnerships they wish to enter into with **SG NRM** and other Southern Gulf stakeholders.

The **Australian** and **Queensland Governments** have jurisdiction over the nation's biodiversity, and prioritise biodiversity assets at the national and state level, which determine the allocation of resources. They develop policy that is supportive of biodiversity conservation and cultural heritage protection and regulate development and requirements for offsetting adverse impacts of development. They also have an enforcement role, regulating the management of vegetation and protection of biodiversity and cultural heritage.

Conservation NGOs also have a role in supporting conservation effort. **Bush Heritage Australia** and **Birdlife Australia** are already active in the region. Increased NGO involvement to support local aspirations and priorities would be welcome.

Funds for sustaining our natural and cultural environment projects are largely sourced from the **Australian Government's** National Landcare Programme and National Landcare Programme and Indigenous Advancement Strategy (Jobs, Land and Economy Programme) and the Queensland Regional Natural Resource Management Investment Program managed by the **Queensland Department of Natural Resources and Mines**.

4. Sustaining Our Natural and Cultural Environment Action Plan

KEY

● Existing SG NRM priority ● Emerging SG NRM priority

L: Lead on-ground projects; A: Assist partners; K: Build knowledge; S: Build skills; I: Influence decisions

4.1 <i>The Southern Gulf community understands and appreciates the region's biodiversity and cultural values and is engaged in their conservation</i>	SG NRM role
4.1.1 Develop and distribute materials to raise appreciation of the values of Southern Gulf's biodiversity, the threats they face and effective management options, focusing on <ul style="list-style-type: none"> • natural and cultural heritage • priority rare and threatened species • threatened communities • shorebirds and migratory seabirds • Nationally Important Wetlands • groundwater-dependent systems and artesian waters • native fish species 	L K
4.1.2 Enthuse young people in the Southern Gulf about the region's cultural and natural values through school visits, excursions and events and by developing classroom resources in collaboration with regional Indigenous institutions and neighbouring NRM regions	A K
4.1.3 Assess the Southern Gulf NRM community' understanding and appreciation of the region's natural assets biennially and opportunistically at events	L K
4.2 <i>Long-term conservation of biodiversity of the Southern Gulf region is based on an understanding of values, condition and trends, and demonstrated effective management options</i>	SG NRM role
4.2.1 Improve understanding of the Southern Gulf region's biodiversity values and their management through <ul style="list-style-type: none"> • strong partnerships with research institutions and investors • research to support systematic expansion of the current scientific knowledge base about biodiversity values and threats • research to inform targeted management of biodiversity and assess and improve its effectiveness 	K A
4.2.2 Prioritise operational investment in biodiversity management to <ul style="list-style-type: none"> • protect and/or restore priority species/communities and habitats • generate multiple, ecosystem-wide benefits • leave a lasting legacy in the face of climate and land use change and identify appropriate management regimes to achieve conservation objectives in priority areas 	K L
4.2.3 Assist landholders to identify sections of their properties to be managed for biodiversity conservation, prioritising areas that are most likely to maintain high conservation values in the long-term	K L
4.2.4 Establish a network of biodiversity monitoring sites, and enlist the support of landholders to monitor and report on trends as part of a property planning package that includes annual review of management and environmental condition, prioritising properties with nature refuges or other conservation agreements	K L
4.2.6 Support efforts by Indigenous land and sea management groups, amateur naturalist groups and researchers to document biodiversity status and trends focusing on <ul style="list-style-type: none"> • priority rare and threatened species • shorebirds and migratory seabirds • Nationally Important Wetlands and ensuring results are rigorously collected and made widely accessible wherever possible	K S L
4.2.7 Explore additional opportunities for citizen science to contribute to biodiversity monitoring and reporting	K A

4. Sustaining Our Natural and Cultural Environment Action Plan(cont.)

KEY

● Existing SG NRM priority ● Emerging SG NRM priority

L: Lead on-ground projects; A: Assist partners; K: Build knowledge; S: Build skills; I: Influence decisions

4.3 Biodiversity and heritage values of the Southern Gulf are protected for future generations	SG NRM role
<p>4.3.1 Assist land holders who are willing to manage dedicated areas of their land for biodiversity through</p> <ul style="list-style-type: none"> • entering into conservation agreements (e.g. Nature Refuge, Offset agreements) • fencing out livestock and pest animals • managing weeds, pest animals and fire <p>by helping them obtain financial assistance and technical advice and support to undertake the above actions</p>	<p>K S L</p>
<p>4.3.2 Prioritise support for conservation efforts to protect the region’s most unique threatened species through action 4.3.1 and participation in national recovery planning</p> <ul style="list-style-type: none"> • Julia Creek Dunnart • Carpentarian Antechinus • Carpentarian Grasswren • Gulf-snapping Turtle • Gouldian finch 	<p>K S I L</p>
<p>4.3.3 Prioritise support for biodiversity conservation in action 4.3.1 to land that has one or more of the following features:</p> <ul style="list-style-type: none"> • Threatened species and/or communities • Nationally Important Wetland • groundwater-dependent systems • Strategic off-set corridors • Indigenous-held land and cultural values • National Heritage values 	<p>K S I L</p>
<p>4.3.4 Support efforts by Traditional Owners to regain, maintain, share and hand down cultural knowledge to succeeding generations and restore connection to country</p>	<p>K A</p>
<p>4.3.5 Identify potential barriers to fish passage in the Southern Gulf region and provide infrastructure developers with guidelines for fishway planning and design</p>	<p>K I</p>
<p>4.3.6 Survey Southern Gulf NRM community biennially to assess adoption of biodiversity conservation practices</p>	<p>K</p>
<p>4.3.7 Report annually on additions to the National Reserve System</p>	<p>L</p>



PLAN IMPLEMENTATION

Guiding effort and brokering partnerships



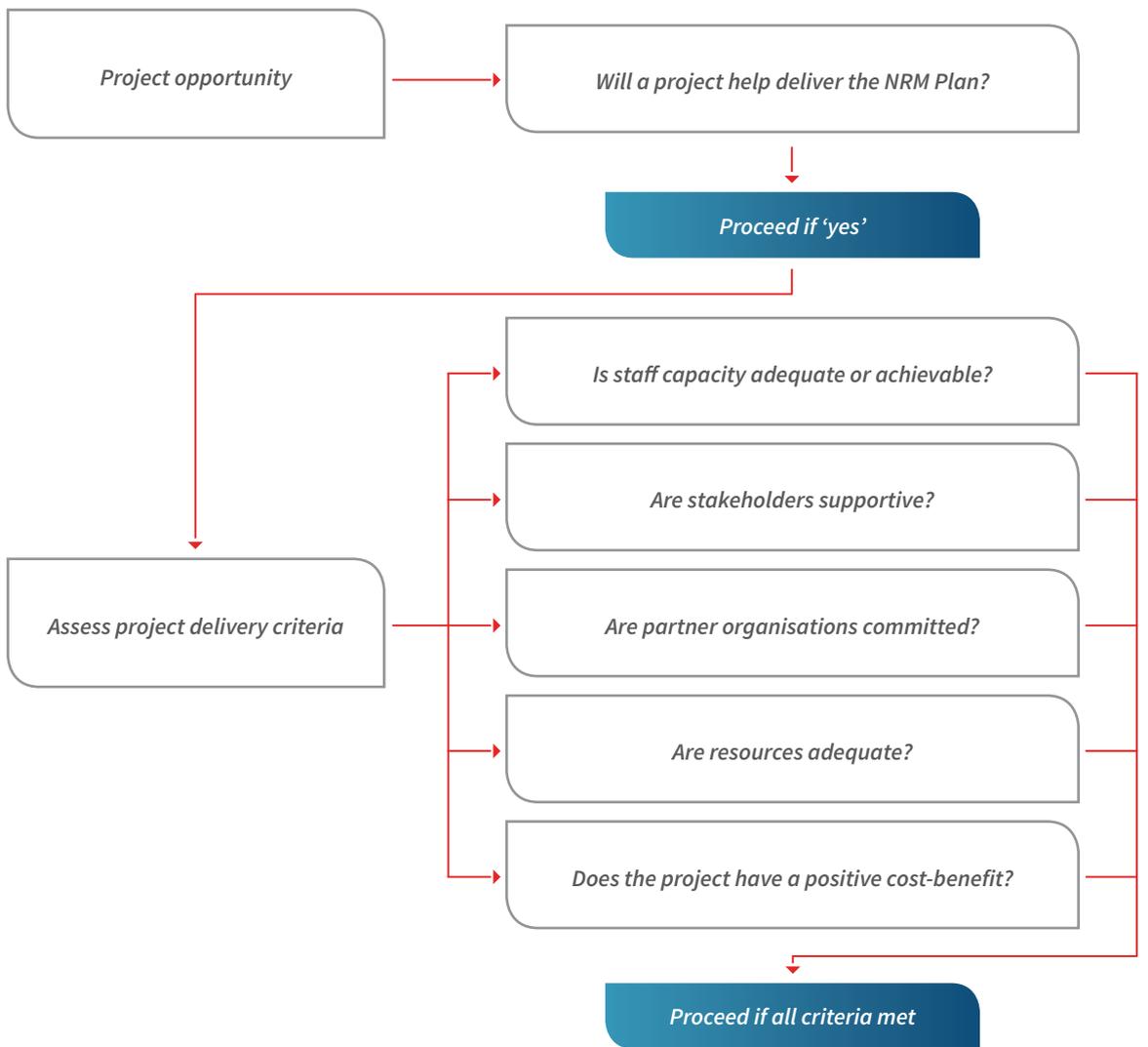
PLAN IMPLEMENTATION

This NRM plan will guide SG NRM’s future activities and investments and collaboration with partners. Effort will be invested across all programs, and projects designed and delivered in alignment with the actions identified to meet the long-term goals. This plan is a living document and will be adapted as new information and opportunities emerge. The plan is already being implemented – several projects and activities meeting the plan’s objectives are already underway (Error! Reference source not found.).

When deciding where to invest its efforts, SG NRM will assess potential projects against both the objectives of

the plan and the capacity of SG NRM and its partners to deliver a successful outcome (Figure 17).

As the plan identifies both SG NRM priorities and regional NRM priorities, other organisations with an interest in NRM in the Southern Gulf region may use this document to identify opportunities to collaborate with SG NRM to pursue shared objectives, or to guide their independent initiatives. SG NRM will actively pursue partnerships and liaise with potential investors in the region to help make sure that the goals in this plan are achieved.





COMMUNITY ENGAGEMENT PRINCIPLES

Southern Gulf NRM has developed this plan based on its long association with and understanding of the Southern Gulf NRM community. The plan therefore identifies regional priorities before deciding where SG NRM can most effectively use its resources to addressing them. To ensure that regional priorities continue to inform the implementation and revision of this plan, and that the community has ownership and is supportive of these activities, SG NRM undertakes to use best-practice community engagement processes, including:

- Building and strengthening relationships with the Southern Gulf NRM community by:
 - Fostering positive relations with key Southern Gulf NRM sectors, demonstrating respect for their roles and responsibilities, intellectual property, priorities and timeframes
 - Developing both collaborative and supportive partnerships to pursue shared objectives
 - Holding and attending community events to extend SG NRM's networks
- Keeping the Southern Gulf NRM community informed of SG NRM activities and opportunities for participation by:
 - Providing regular updates of SG NRM activities and related natural resource management news through publications and websites

- Holding and attending community events to distribute information about SG NRM programs and opportunities for participation
- Providing opportunities for the Southern Gulf NRM community to participate in decisions made by SG NRM by:
 - Engaging the Southern Gulf NRM community through strong governance arrangements that incorporate community input through a regionally-based board with input from advisory committees and working groups
 - Ensuring the community has the opportunity to contribute to all significant plans and strategies by inviting input at during development and by seeking feedback in a review period
 - Making sure that staff capture priorities, needs and issues of participants in SG NRM projects to incorporate into future planning and project development
 - Providing informal opportunities for the Southern Gulf community to raise priorities, needs and issues, such as at community events
 - Undertaking targeted surveys to gather information on Southern Gulf NRM priorities

MONITORING, EVALUATION, REPORTING + IMPROVEMENT

To enable assessment of the success of this plan at meeting its objectives, monitoring, evaluation, reporting and improvement (MERI) have been embedded as actions in each program. Four types of MERI will be undertaken (Table 4):

- milestones and reporting requirements for each project

- regular surveys of NRM capacity and attitudes
- regular assessment of practice improvement
- regular assessment of resource condition

This information will be presented in annual reports and used to guide future investments.

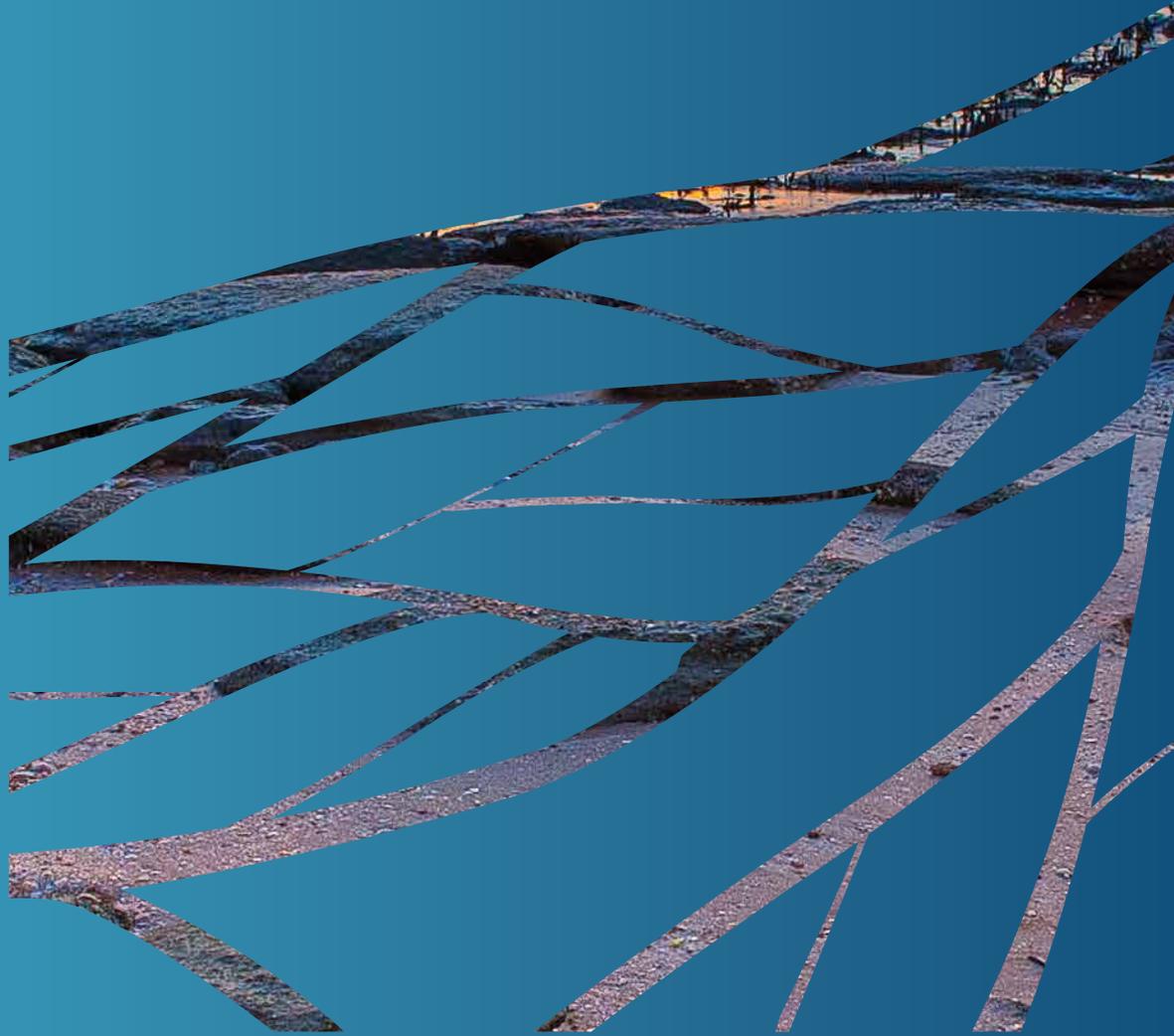
Table 4. Projects embedding monitoring and reporting into the NRM plan

PROJECT	NRM CAPACITY & ATTITUDES	PRACTICE IMPROVEMENT	RESOURCE CONDITION	PROJECT & PROGRAM ACTIVITY
All projects				●
BUILDING STRONG NRM COMMUNITIES				
1.1.5 Annually report on partnerships and collaborative efforts of SG NRM	●			●
1.1.6 Annually report on the progress of the plan and periodically update plan as appropriate	●	●	●	●
1.2.8 Periodically survey Southern Gulf NRM	●			
1.3.8 Annually report on contribution of SG NRM to regional strategy development				●
GROWING REGIONAL PROSPERITY				
2.1.5 Use remotely-sense ground cover assessment to identify sites in need of land restoration, to track changes in ground cover (and link with on-ground monitoring in Action 3.2.5) and as a measure of practice improvement			●	●
2.1.6 Assess practices used to manage pastoral enterprises, herds and land condition, as well as impact practice on enterprise viability through a biennial survey across the region and through direct interview participants of grazing extension participants		●		●
2.6.7 Survey Southern Gulf NRM community periodically to assess regional participation in the conservation/carbon economy		●		●

Table 4. Projects embedding monitoring and reporting into the NRM plan (cont.)

PROJECT	NRM CAPACITY & ATTITUDES	PRACTICE IMPROVEMENT	RESOURCE CONDITION	PROJECT & PROGRAM ACTIVITY
SECURING LANDSCAPE RESILIENCE				
3.1.2 Periodically assess the Southern Gulf NRM community' understanding of NRM threats	●			●
3.2.5 Annually report on new threats detected in the Southern Gulf region and nature and effectiveness of responses			●	●
3.3.1 Support the development and implementation of priority and regional pest management plans, and ensure regular implementation reporting and review of the Southern Gulf NRM Regional Pest Management Plan 2011		●		●
3.3.4 Periodically report on the regional extent of priority weeds			●	●
3.3.5 Monitor and report on weed management efforts by establishing a network of monitoring plots at weed treatment sites, and embed monitoring and reporting into project delivery		●	●	
3.3.8 Report on the effort invested in pest management projects, establish a network of monitoring plots at pest animal treatment sites, and embed monitoring and reporting into project delivery			●	●
3.4.1 Support fire planning and management at the property-scale and across property clusters as part of an adaptive planning process that includes a commitment to annual reviews of implementation and effectiveness		●	●	●
3.4.2 Monitor and report fire extent and patchiness across the Southern Gulf region and in project areas using remotely-mapped fire scars			●	●
SUSTAINING OUR NATURAL ENVIRONMENT				
4.1.3 Assess the Southern Gulf NRM community' understanding and appreciation of the region's natural assets biennially and opportunistically at events	●			●
4.2.4 Establish a network of biodiversity monitoring sites, and enlist the support of landholders to monitor and report on trends as part of a property planning package that includes annual review of management and environmental condition, prioritising properties with nature refuges or other conservation agreements			●	●
4.2.5 Support efforts by Indigenous land and sea management groups, amateur naturalist groups and researchers to document biodiversity status and trend			●	●
4.3.6 Survey Southern Gulf NRM community biennially to assess adoption of biodiversity conservation practices		●		●
4.3.7 Report annually on additions to the National Reserve System			●	●

NEXT STEPS



NEXT STEPS

Commencing in 2016, this plan will guide the major focus for the work of Southern Gulf NRM over the coming years. SG NRM will report to its members, stakeholders and investors on successes, progress and issues in our annual report each year. The Southern Gulf NRM community will be consulted to identify emerging issues and any changes in priorities. Where priorities change because new issues arise or goals are achieved, a new plan will be formulated. The MERI program will be used to identify what worked and what didn't, and to revise and refine goals and priority actions; and the community engagement principles will be followed to ensure the plan reflects the needs and aspirations of the Southern Gulf NRM community.



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