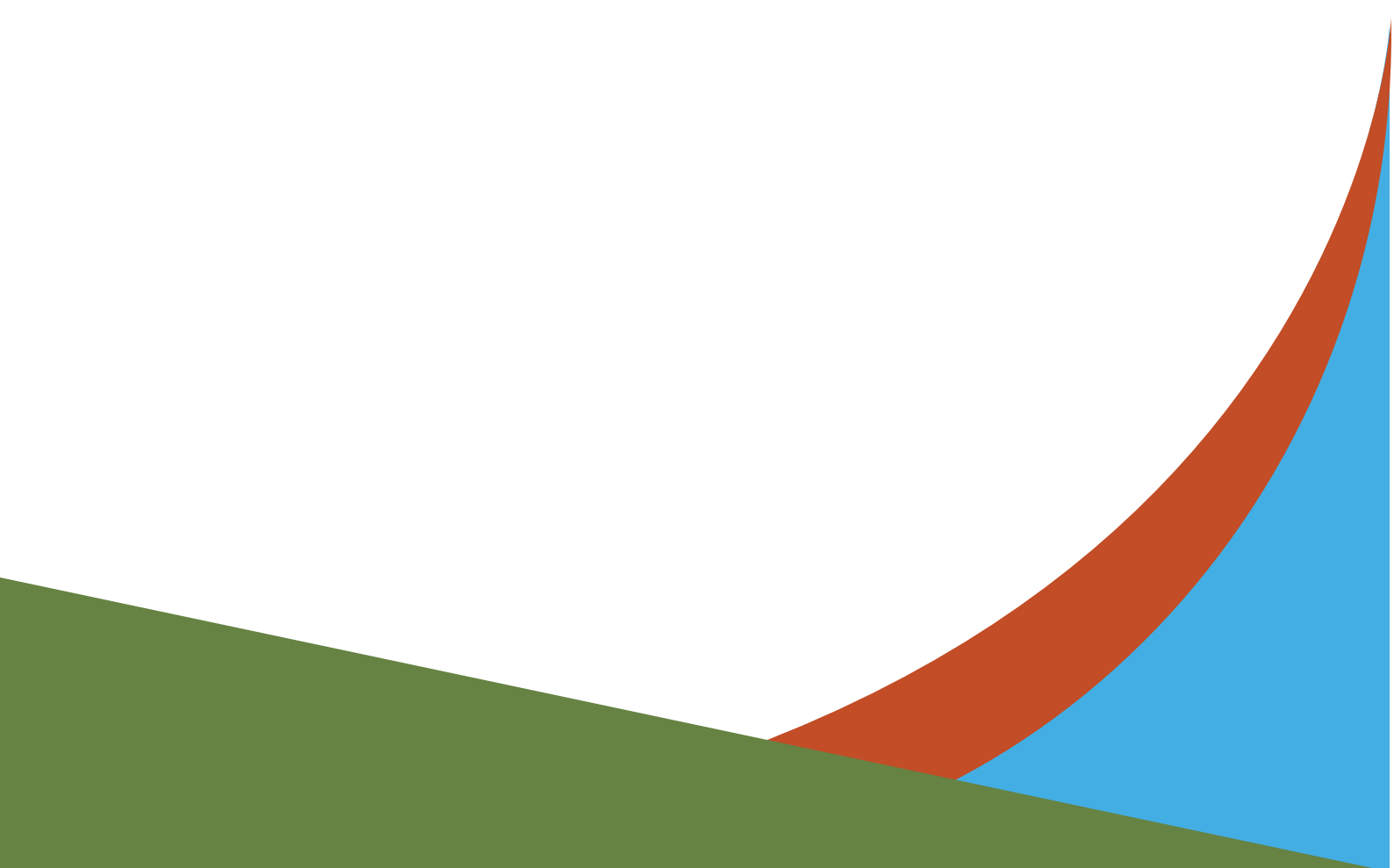




Stronger Landscapes

An Emergency Preparedness and Response Plan for
Biodiversity and Agricultural Natural Assets in
Southern Queensland

Version 7.0 28th June 2024



Disclaimer

This document has been prepared with all due diligence and care, based on the best available information at the time of preparation. The actions described in this EPR Plan do not commit stakeholders to delivery as this depends on matters of resource availability and management priority which are beyond the scope of this plan.

Acknowledgement of Country

Southern Queensland Natural Resources Management Limited trading as Southern Queensland (SQ) Landscapes acknowledges and embraces traditional First Nations history, custodianship, culture and relationships with mutual respect and understanding and strives to deliver the promise of reconciliation. SQ Landscapes recognises the enduring contributions of the First Nation Peoples of Southern Queensland. The Auburn Hawkwood, Badjiri, Barunggam, Bidjara, Bigambul, Boonthamurra/Bunthamarra, Budjiti, Djaku-nde/Jangerie Jangerie, Euahlayi/Yuwaalaraay, Gamilaraay/Gamilaroi, Giabul, Githabul, Gunggari, Kooma, Iman, Jarowair, Kullilli, Kungardutyi Punthamara, Kunja, Mandandanji, Mardigan, Morrawarri/Murrawarri, Palpamudramudra Yandrawandra, Wakka Wakka, Wangkumarra/Wongkumara, Western Bundjalung, and Western Wakka Wakka Nations have taken care of the natural assets of Southern Queensland for well over 40,000 years. As a company dedicated to the sustainable use of our natural assets, we hold the knowledge and work of these Nations in the highest regard and respect.

This Plan should be cited as follows:

Southern Queensland Landscapes (2024) Stronger Landscapes: An Emergency Preparedness and Response Plan for Biodiversity and Agricultural Natural Assets in Southern Queensland, SQ Landscapes, Toowoomba.

Stronger Landscapes: an Emergency Preparedness and Response Plan for Biodiversity and Agricultural Natural Assets in Southern Queensland project is funded by the Australian Government's Natural Heritage Trust and delivered by Southern Queensland Landscapes, a member of the Commonwealth Regional Delivery Partners Panel.

Foreword – Emergency Preparedness Plans

Queensland is a global biodiversity hotspot – home to more than half of Australia’s native species. Some of these species are found nowhere else in the world. Yet, some of these precious plants and animals are at risk of extinction and natural events such as cyclones, floods, drought and fire contribute to their decline. We know now that these threats are being exacerbated by climate change.

At the same time, Queensland’s agricultural output is expanding and intensifying. More than 88% of Queensland’s land is used for primary production and this means how we manage agriculture is intertwined with how we manage our environment.

Across mainland Queensland there are 11 regional NRM organisations working with partners, on the ground through its 334 highly qualified staff operating out of 27 rural and regional offices, to help communities become more resilient to the effects of climate change and to farm more sustainably. At the same time, using the best possible science, regional NRM organisations are ensuring our species and ecosystems – which provide essential environmental services for all of society – can withstand the threats which would otherwise impact their survival.

By supporting communities to be prepared for disasters we will reduce the impact of these catastrophic events on species, ecosystems and agricultural natural capital assets.

Strategically the Queensland regional NRM sector works collegiately with each other and across all levels of Government and regional stakeholders to align efforts, planning and resources to maximise the efficiency and effectiveness of emergency preparedness, response and recovery.

Table of Contents

Disclaimer	i
Acknowledgement of Country.....	i
Foreword – Emergency Preparedness Plans	ii
FIRST PEOPLES AND EMERGENCY RESPONSE AND PREPAREDNESS.....	1
Natural assets are Cultural assets.....	1
First Nations engagement for this EPR Plan	1
Legal framework for protecting Cultural Heritage.....	2
1.0 BACKGROUND.....	3
Previous emergency events in Southern Queensland.....	4
2.0 OBJECTIVES OF THIS PLAN.....	5
3.0 SCOPE	6
4.0 ROLE OF SOUTHERN QUEENSLAND LANDSCAPES IN EMERGENCY PREPAREDNESS AND RESPONSE	8
How SQ Landscapes fits within the broader emergency management framework/system for Southern Queensland.	8
5.0 IDENTIFICATION OF SOUTHERN QUEENSLAND ASSETS AND SUSCEPTIBILITY	11
Biodiversity assets in Southern Queensland	11
Agricultural natural assets in Southern Queensland.....	13
Emergency scenarios that pose a threat to the identified assets	15
Individual asset’s current susceptibility to emergency scenario/s and why	16
BIODIVERSITY ASSETS.....	19
Species of National Environmental Significance (SNES)	20
Currawinya National Park and Ramsar Wetland	23
GAB discharge spring wetlands	30
Gondwana Landscapes - World Heritage Area	34
Carnarvon National Park Mt Moffat Section	39
South West Corner – Bulloo River Floodplains.....	43
Traprock.....	47
Balonne Junction	51
AGRICULTURAL NATURAL ASSETS	57
Intensive cropping	57
Grazing priorities	60
Intensive animal production.....	64
Forestry.....	68
6.0 ASSET PREPAREDNESS	73

Preparedness actions for protecting Biodiversity assets.....	73
Currawinya National Park and Ramsar Wetlands.....	74
Species of National Environmental Significance (SNES)	78
Gondwana Landscapes - World Heritage Area	84
GAB discharge spring wetlands	90
Carnarvon National Park Mt Moffat Section	93
South West Corner – Bulloo River Floodplains.....	100
Traprock.....	102
Balonne Junction	103
Preparedness actions for protecting agricultural natural capital assets	106
Preparedness actions for protecting intensive cropping natural capital assets	107
Preparedness actions for protecting grazing natural capital assets	112
Intensive animal	119
Forestry.....	119
7.0 ASSET RESPONSE	121
Response actions for protecting Biodiversity assets	121
Bushfire.....	122
Currawinya National Park and Ramsar Wetlands.....	122
Species of National Environmental Significance (SNES)	123
Gondwana Landscapes - World Heritage Area	124
Mt Moffat Section of Carnarvon National Park.....	125
South West Corner – Bulloo River Floodplains.....	126
Traprock.....	127
Balonne Junction	128
Drought - response actions for protecting biodiversity assets.....	129
Currawinya National Park and Ramsar Wetlands.....	129
GAB discharge spring wetlands	129
South West Corner – Bulloo River Floodplains.....	130
Gondwana Landscapes - World Heritage Area	131
Balonne Junction	132
Animal/plant diseases - response actions for protecting biodiversity assets	134
Currawinya National Park and Ramsar Wetlands.....	134
Species of National Environmental Significance (SNES)	135
Gondwana Rainforests of Australia World Heritage Area	136
Mt Moffat Section of Carnarvon National Park.....	137
Gondwana Landscapes (World Heritage Area).....	138
South West Corner – Bulloo River Floodplains.....	139
Traprock.....	140

GAB discharge spring wetlands	141
Balonne Junction	142
New pest outbreak - response actions for protecting biodiversity assets	143
Currawinya National Park and Ramsar Wetlands	144
Species of National Environmental Significance (SNES)	146
Gondwana Landscapes - World Heritage Area	147
Mt Moffat Section of Carnarvon National Park	148
GAB discharge spring wetlands	149
South West Corner – Bulloo River Floodplains.....	150
Heatwave – response actions for protecting biodiversity assets	151
Species of National Environmental Significance (SNES)	151
Gondwana Landscapes (World Heritage Area).....	152
Response actions for protecting agricultural natural capital assets.....	153
Drought - response actions for protecting agricultural natural capital assets	154
Cropping lands.....	154
Grazing lands	154
Forestry.....	156
Animal/plant diseases - response actions for protecting agricultural natural capital assets.....	156
Cropping Lands.....	156
Grazing lands	157
Intensive livestock	158
Forestry.....	158
New pest outbreaks - response actions for protecting agricultural natural capital assets	160
Cropping Lands.....	160
Grazing lands	160
Bushfire - response actions for protecting agricultural natural capital assets	161
Grazing lands	161
Forestry.....	162
Heatwave - response actions for protecting agricultural natural assets	162
Intensive animal production.....	162
8.0 COMMUNITY/STAKEHOLDER ENGAGEMENT	163
8.1 Engagement, Collaboration and Coordination activities	163
8.2 Raising Public Awareness	163
8.3 Education and Training	163
8.4 Key gaps.....	163
9.0 LEGAL FRAMEWORK.....	165
10.0 RISK MANAGEMENT INCLUDING MITIGATION STRATEGIES	166

11.0 MONITORING AND DATA	167
Monitoring.....	167
Data	167
12.0 KEY CONTACTS	168
Glossary	169
Key Abbreviations.....	170
Appendix A: Priority of Mapped Hazards to Asset and percentage of area at risk	172
Appendix B: Priority to address threats to EPR Landscapes.....	175
APPENDIX C: RISK MATRIX	176
APPENDIX D: PROJECT RISK REGISTER.....	177
Appendix E: Data used for Asset Threat identification.....	181
Appendix F: Climate-Smart Agriculture Program	184
Appendix G: Elevate Heat Load Management Plan.....	185
Appendix H: Emergency Management Agencies Qld.....	186
Appendix I: Likely Habitat Species of National Significance in SQL Region	187

Lists of tables and figures

Table 1: Threatened Species Action Plan 110 Priority Species - Priority Species of National Environmental Significance in Southern Queensland	11
Table 2: Threatened Ecological Communities in Southern Queensland.....	11
Table 3: Biodiversity assets in Southern Queensland by area and percentage of region.	12
Table 4: Agricultural natural capital assets in Southern Queensland by area and percentage of region	14
Table 5: Spatially identified hazards in Southern Queensland	16
Table 6: Threatened Species Action Plan 110 Priority Species - Priority Species of National Environmental Significance in Southern Queensland	20
Table 7: Area of native forests for timber production	68
Table 8: Priority for actions to address threats to landscape areas	121
Table 9: Gaps in knowledge and data for Stronger Landscapes	164
Figure 1: Drought declarations by Southern Queensland Local Government Area 1963-2011	5
Figure 2: Area covered by the biodiversity and agricultural natural capital assets emergency preparedness and response plan for Southern Queensland.....	7
Figure 3: Disaster management arrangements for Queensland and the role of SQ Landscapes.....	9
Figure 4: Process to identify and analyse biodiversity and agricultural assets for Stronger Landscapes.	17
Figure 5: Process to include results of spatial analysis and risk assessment in Stronger Landscapes ..	17
Figure 6: Priority EPR Landscapes in Southern Queensland	18
Figure 7: Interaction of Ramsar Wetland Currawinya Lakes and floodplains and buffering areas.....	19
Figure 8: Overlapping 'habitat likely' for Species of National Environmental Significance.	21
Figure 9: Currawinya Landscape Area, Ramsar Wetland and Great Artesian Basin Springs.	24
Figure 10: Known locations of Great Artesian Basin Springs, Threatened Ecological Community.....	31

Figure 11: Gondwana Landscape Area and Overlapping 'habitat likely' for Species of National Environmental Significance.	35
Figure 12: Mt Moffat Landscape Area and Overlapping 'habitat likely' for Species of National Environmental Significance.	40
Figure 13: South West Corner Landscape Area and Overlapping 'habitat likely' for Species of National Environmental Significance.	44
Figure 14: Traprock Landscape Area and Overlapping 'habitat likely' for Species of National Environmental Significance.	48
Figure 15: Balonne Junction Landscape Area and extent of Threatened Ecological Communities.....	52
Figure 16: Cropping Land Use and Southern Queensland Cropping Priority Areas.	58
Figure 17: Grazing Land Use and Southern Queensland Grazing Priority Areas.	61
Figure 18: Indicative location of Intensive Animal Production Land Use.	65
Figure 19: Forestry Land Use and State Forest including Timber Reserves and Resource Reserves.....	70
Figure 20: Species of National Environmental Significance Habitat Likely and Bushfire Risk.	73

FIRST PEOPLES AND EMERGENCY RESPONSE AND PREPAREDNESS

Extreme events present risks to the health and wellbeing of First Nations peoples that can increase food, water, energy and housing insecurity, and impact connection to Country.

Acute and chronic climate change impacts such as bushfires, heatwaves, droughts and floods may widen health inequities for First Nations Peoples as First Nation's health and wellbeing is underpinned by connection to Country and social relationships.

Climate change is likely to increase the risk of food, water, energy and housing insecurity for communities in rural and remote areas. First Nations peoples, particularly those living in remote and coastal areas may be particularly exposed to climate impacts, including extreme heat, droughts and sea level rise. This could result in loss of connection to Country, cultural heritage, traditional practices and resilience techniques.

Natural assets are Cultural assets

All the landscapes described in this EPR Plan (Emergency Preparedness and Response Plan) are part of a cultural landscape alive with an energy that tells the story of their creation and human's interaction and stewardship over tens of thousands of years. In more recent times other cultures have left their indelible mark on these landscapes.

First People's view of the world places a high value on the social and cultural well-being of communities, rather than only on the physical well-being of an individual. Relationships with Country are not compartmentalised into cultural activities, and social activities, but rather all is woven into a comprehensive way of living within Country in a mutually beneficial manner.

First Nation well-being begins where relationships with each other and the natural environment meet. These intersections generate responsibilities for remembering what has come before, realising well-being today, and creating sustainable conditions for future generations. Many of these intersections occur where water is present.

First Nation's science and knowledge is based on a tried and successful approach to landscape stewardship which includes ecological and cool burning practices and the principles of mutually beneficial and sustainable take of natural assets.

First Nations engagement for this EPR Plan

As a result of the assessment of natural disaster and emergency events as they impact Country in Southern Queensland, the recommendation is for the conduct of a more meaningful and extensive First Nations risk assessment for the Region. At a national scale, a first pass assessment of First Nations climate risks is underway. This assessment recognises that a longer timeframe is required compared to other assessments, recognising the diversity of climate risk interpretations and experiences among First Nations peoples.¹

The time frame for the development and delivery of this EPR Plan was not conducive to respectful and meaningful engagement or for the creation of a co design arrangement with First Nations in Southern Queensland. This version of the EPR Plan for Southern Queensland respects the aspirations and related caring for Country actions stated by First Nations as part of recent collaborations with a range of stakeholders including Southern Queensland Landscapes, Queensland Parks and Wildlife Service and Partnerships, Local Governments and State Government agencies. First Nations have also applied their accumulated and continually evolving science and knowledge in a range of Caring for Country plans and strategies. Many of these strategies have been honoured in the identification of

¹ DCCEEW 2024, National Climate Risk Assessment – first pass assessment report, Department of Climate Change, Energy, the Environment and Water, Canberra, March. CC BY 4.0.

emergency preparedness and response planning and action for the landscapes identified in this EPR Plan.

Legal framework for protecting Cultural Heritage

In Queensland, Aboriginal sites are protected under the *Aboriginal Cultural Heritage Act 2003*, the *Aboriginal and Torres Strait Islander Heritage Protection Act 1984* (Cwlth) and the *Nature Conservation Act 1992* (Qld). The level of protection offered to sites listed on the Register of the National Estate under the *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth) is, at this stage, unclear.²

The Queensland Acts are administered by the Department of Seniors, Disability Services, Aboriginal and Torres Strait Islander Partnerships (DSDATSIP). The Acts create a positive duty of care, instructing reasonable and practicable measures to ensure any activity does not harm Aboriginal or Torres Strait Islander cultural heritage.³ This is referred to as the cultural heritage duty of care.

Cultural heritage (including objects and sites) can be registered by the Department under either the Aboriginal Cultural Heritage Register or the Torres Strait Islander Cultural Heritage Register.⁴ The Cultural Heritage Register is a database of information that is meant to be considered in land use planning and be used as a research and planning tool more generally.⁵

The cultural heritage duty of care informed by the available evidence in cultural registers and other appropriate knowledge repositories will guide all EPR activities on Country. The principles of free prior and informed consent will guide all discussions with First Nations regards planning and implementation of EPR activities.

² State of Queensland, Environmental Protection Agency (2005) Carnarvon National Park Management Plan, Queensland Parks and Wildlife Service, Brisbane. Carnarvon National Park Management plan (des.qld.gov.au)

³ *Aboriginal Cultural Heritage Act 2003* (Qld) s 23(1) and *Torres Strait Islander Cultural Heritage Act 2003* (Qld) s 23(1).

⁴ *Aboriginal Cultural Heritage Act 2003* (Qld) Part 5 and *Torres Strait Islander Cultural Heritage Act 2003* (Qld) Part 5. The Aboriginal and Torres Strait Islander Cultural Heritage Register can be accessed here: <https://culturalheritage.datsip.qld.gov.au/achris/public/home>

⁵ *Aboriginal Cultural Heritage Act 2003* (Qld) s 47(2) and *Torres Strait Islander Cultural Heritage Act 2003* (Qld) s 47(2).

1.0 BACKGROUND

There is a growing need to enhance our preparedness for natural disasters and their impact on biodiversity and agricultural natural capital assets. Ensuring the survival of species and habitats helps to preserve key ecosystem services such as clean air, water, and climate regulation, all of which profoundly affect human well-being. Disaster preparedness bolsters the resilience of ecosystems, enabling them to recover and flourish following catastrophic events.

Better preparation and response also contribute to stronger regional economies through sectors such as tourism and agriculture. For example, by investing in disaster preparedness, long-term costs for recovery and restoration post-disaster are reduced.

Southern Queensland Landscapes has been contracted by the Australian Government to deliver a 'Biodiversity and Agricultural Natural Capital Emergency Preparedness & Response Plan' (the EPR Plan). This will build on the lessons learned during recent droughts, floods and the 2019-20 Black Summer bushfires and consider the potential impact of future severe weather and other threats such as new pest outbreak and disease. This also reflects the critical role of SQ Landscapes in supporting preparedness and response of natural resources; particularly with a predicted future marked by severe weather seasons.

Based on previous events and available projection, this EPR Plan considers the most likely disaster scenarios in Southern Queensland as follows:

1. An increase in more intense and larger impact area of wildfires.
2. Increases in localised flooding due to more isolated and intense rainfall events.
3. Increase in variability/changes in seasons due to climate change incl. droughts, heatwaves.
4. Pest plant and animal invasion.
5. Outbreaks of new plant and animal diseases.

In addition to providing the Australian Government with information addressing these scenarios related to nationally significant natural assets, the Strong Landscapes Plan is intended to be a tool that is useful for SQ Landscapes and the community. As a tool it can provide an opportunity for SQ Landscapes to explore future investment with other agencies across all levels of government, to guide action by volunteer groups and to seek funding from third parties, such as not for profits or philanthropic organisations.

While there is no requirement from the Australian Government to update the Plan, SQ Landscapes will update it regularly where it aligns with other business and the review of current regional planning documents (e.g. the regional NRM Plan developed for the Regional Land Partnerships Program – RLP).

The EPR Plan contributes, in part, to actions under Target 17 of the *Threatened Species Action Plan 2022-32*⁶ and Outcomes 1, 2 and 3 of the Natural Heritage Trust (NHT), by addressing vulnerability from extreme weather events relevant to biodiversity and agricultural natural capital assets identified in the management unit and improving emergency response and planning within jurisdictions. The Plan also contributes to Outcomes 1 and 3 of the Climate-Smart Agriculture Program by supporting the agriculture sector to build resilience to climate change and conserve natural capital and biodiversity on-farm.

⁶ <https://www.dcceew.gov.au/sites/default/files/documents/threatened-species-action-plan-2022-2032.pdf>

Previous emergency events in Southern Queensland

Southern Queensland experiences a range of extreme weather events including heatwaves, floods and fires. Recent fires concentrated in the east of the region in September-October of 2023 impacted 665,540 ha – an area 6 times greater than the 2019 Black-Summer bushfire extent in SEQ (measured at 101,300 ha).

In October 1918, fires killed 2 people and over 100,000 sheep over a huge area from Charleville to Blackall, Barcaldine and Hughenden. In January and February 1951 fires burned over 2,834,000 ha killing 40,000 sheep, 550 stock and 650 km of fencing in the Charleville area.

Flooding impacted the Balonne Shire between November 2021 to May 2022 resulting in:

- Minor loss of quality agricultural soils across the shire due to flood waters.
- Topsoil losses and soil fertility (organic losses).
- Weed transfers occurring in riverine areas during flooding.
- Increase in weeds and green waste (flood debris) in river systems across the region.
- Public health and biosecurity concerns due to the increase of mosquito and sand-fly populations.
- Disconnection of power to Council assets including shelters, park lights and electric facilities (BBQs) along the Balonne River, St George.⁷

Drought is a significant feature of the landscapes of Southern Queensland with some local government areas experiencing long periods of dry weather (Figure 1). While drought declarations have been lifted for LGAs in the region at the time of writing this Plan, Southern Queensland can expect an increased risk of extreme temperature shifts, like heatwaves and hotter days, and increased fire danger associated with drought.^{8 9}

A large anthrax incident occurred on a beef cattle property in the St George area in early March 2017. A successful incident response stopped the spread of the disease and prevented the disease in remaining livestock through vaccination. Trade at the state and national level was maintained and local trade from the property resumed after a period of movement restriction.

Regular severe storms occur across the region impacting on identified assets; for example, 124 mm fell in 6 hours at Wilsons Peak (on the Main Range west of Mt Barney) on the 4th of June 2016.¹⁰ A tornado was also observed near Allora on the 31st of December 2017 however no damage was recorded. Wind gusts estimated at 100-120 km/hr were recorded at Ballandean with tree limbs brought down and pea sized hail on the 26th of October 2010. A 78 km/hr wind gust was recorded at Warwick with several roofs blown off and trees down on the 29th of November 2015.

⁷ Balonne Shire Council (2021-22) Southern Queensland Floods Local Recovery and Resilience Plan Endorsed by the LDMG on 7 September 2022.

⁸ Department of Environment and Science (2019) Climate change in the South West Queensland region, State of Queensland.

⁹ Department of Environment and Science (2019) Climate change in the Eastern Downs region, State of Queensland.

¹⁰ <http://www.bom.gov.au/australia/stormarchive/> accessed 5 April 2024.

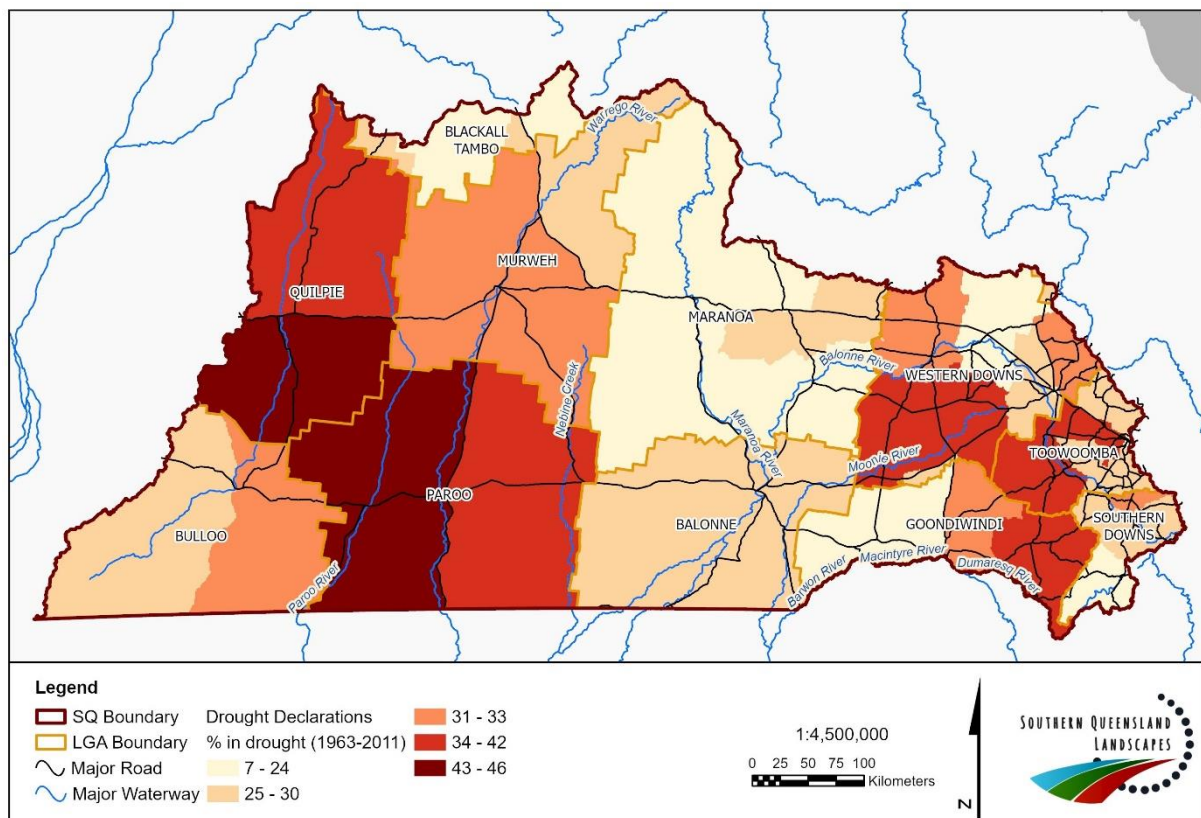


Figure 1: Drought declarations by Southern Queensland Local Government Area 1963-2011

2.0 OBJECTIVES OF THIS PLAN

The objective of this plan is to build on the lessons learned from previous natural disasters and to consider the future potential risks to identified Federal, State and Regional natural assets of future severe weather events and other threats such as new outbreaks of new pest outbreak and disease.

This Plan does not duplicate existing State and Local government emergency plans for protecting life, property, essential services and infrastructure. This plan will support those existing plans through better integration of biodiversity and agricultural natural capital asset data and information into current and future emergency planning and responses. This includes efforts to enhance the resilience of biodiversity and agricultural assets by assessing the risks and threats posed by natural disasters and other threats and then undertaking planning to improve outcomes through actions and management before, during (to the extent possible) and after to support recovery.

3.0 SCOPE

The EPR Plan focuses on identifying the vulnerability of biodiversity and agricultural natural capital assets to a range of potential natural disasters and hazards in Southern Queensland. These assets are those identified by the Australian Government in the *Threatened Species Action Plan 2022-32* and other existing information sources at a national, state and regional scale.

The Plan recommends additional information to include in emergency response and planning within jurisdictions but does not present a detailed action plan to implement recommendations.

The Plan identifies current actions being undertaken by SQ Landscapes that impart resilience to biodiversity and agricultural natural capital assets thus contributing to improved emergency preparedness and response.

The National Emergency Risk Assessment Guidelines (NERAG) have been employed to provide a deliberate and repeatable process to identify the susceptibility of the identified assets to emergency scenarios.¹¹ A bespoke product (in a spreadsheet format) has been created to allow input from stakeholders as part of an ongoing review process especially as new information comes to hand from local knowledge or research.

Stakeholder scope includes those having an interest or a role to play in emergency preparedness and response planning for biodiversity and agricultural natural capital assets. These assets are described as follows:

- Biodiversity assets refer to assets identified by jurisdictions, environment management agencies or environmental law as important to preserve during emergencies or natural disasters – e.g. threatened species, ecological communities or habitat features. In this context, the focus will be on Matters of National Environmental Significance (MNES) and actions which address ‘Fire regimes that cause declines in biodiversity’ under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).
- Agricultural natural capital assets refer to on-farm natural resources that are relied on for food and fibre production, including soil, air, water, riparian areas, remnant native vegetation, agroforestry and environmental plantings and animals.¹²

The EPR Plan can be activated to:

- add value to current emergency planning and responses by helping to provide more detailed information on risks to Federal, State and Regional natural capital and NRM assets.
- help achieve actions in local disaster management plans and resilience action plans.
- help raise awareness of the public to their responsibilities for disaster preparedness.
- be used to attract resources for emergency preparedness and response activities.

Local Disaster Management Plans (LDMP) prepared by Councils as required under Section 57 of the *Disaster Management Act 2003* is an important starting point to establish the context, governance and key stakeholders in the collaboration required to successfully develop an EPR Plan.

The Plan is based on an understanding of how priority actions from [Flourishing Landscapes Healthy Communities](#) Plan interact with emergency preparedness work of other stakeholders, including state and local governments.

The geographic scope of the Plan is shown in Figure 1Figure 2. Although the focus is on assets in Southern Queensland, emergency events and natural assets spread across jurisdictions including state borders. This creates the need for a coordinated approach to planning and response involving a

¹¹ Australian Institute for Disaster Resilience (2020) National Emergency Risk Assessment Guidelines, Commonwealth of Australia.

¹² Animals refers to commercial livestock e.g. cattle, sheep, goats, horses, pigs etc.

range of stakeholders. Cross regional and inter-state opportunities have been identified with initial discussions commenced.

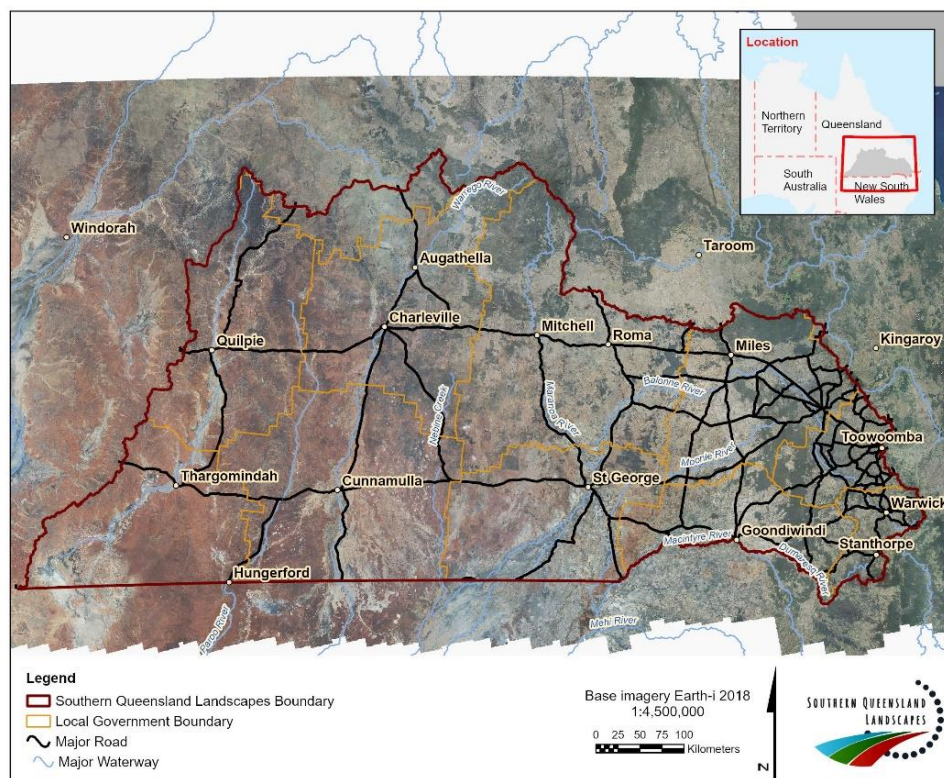


Figure 2: Area covered by the biodiversity and agricultural natural capital assets emergency preparedness and response plan for Southern Queensland.

This Plan takes a landscape systems approach to emergency preparedness and response rather than an individual species approach. This is a central tenet of this Plan supported by the reality that the available data does not allow a species approach to planning. The [Flourishing Landscapes Healthy Communities](#) Plan sets the precedent for a landscape and habitat approach by employing available data on the location of regional ecosystems and the likely habitat for species to guide strategic regional investment and action.

A landscape approach also focuses planning and response on supporting land managers including First Peoples to enhance socio-ecological resilience through the use of their knowledge of their land, their capacity to adapt, and their willingness to work with the natural processes towards recovery of habitats and biodiversity.

4.0 ROLE OF SOUTHERN QUEENSLAND LANDSCAPES IN EMERGENCY PREPAREDNESS AND RESPONSE

SQ Landscapes has traditionally played a key role in supporting the protection and enhancement of natural assets through planning and preparing for and recovering from natural emergencies.

SQ Landscapes recent response to 2023 bushfires is one example of the organisation's capacity to employ available data to provide a unique landscape analysis of impacts to guide responses including:

- Identification and mapping of the fire extent through application of GIS and Mapping technology including Sentinel/Copernicus Data Space, Queensland Government Statewide Imagery Subscription Plan.
- An assessment of cultural and environmental values within the impacted zone.
- Review of the impact of the fire in relation to key assets identified in [Flourishing Landscapes Healthy Communities](#)¹³

SQ Landscapes played a lead role in coordinating the response to the 2021/22 floods in Southern Queensland starting with the engagement of landholders to gauge the impact of the floods on biodiversity and agricultural natural assets. This impact assessment was analysed to produce a map of hotspots. This hotspots map guided the development of investment for repair actions on the ground.

SQ Landscapes has coordinated program proposals and on ground actions for a range of preparedness and recovery activities including the Northern Basin Riparian Fencing program and a range of projects to support land managers to conserve Endangered Ecological Communities (EECs) including Brigalow and Weeping Myall remnants, Natural Grasslands and Poplar Box Grassy Woodlands and the Currawinya Ramsar Wetlands.

The knowledge and expertise gained from experiences such as this coupled with well-established and growing community networks, places SQ Landscapes in good stead to mobilise significant organisational capacity (when resourced appropriately) before, during and after natural emergencies.

How SQ Landscapes fits within the broader emergency management framework/system for Southern Queensland.

SQ Landscapes has productive working relationships with relevant officers in Local Governments who administer Local Disaster Management Plans and Biosecurity Plans. SQ Landscapes will continue to refine these roles commensurate with organisational capacity and resources.

3 illustrates the emergency management framework for Queensland. SQ Landscapes will initially focus its role at the top end of the triangle in a local capacity as advisor on matters of EPR for biodiversity and agricultural natural capital assets. This role will progress the community's goals as stated in [Flourishing Landscapes Healthy Communities](#).

¹³ Mooney, S. (2023) Bushfire Extent and Impacts to Flourishing Landscapes and Healthy Communities, September-October 2023 bushfires, Southern Queensland Landscapes, Toowoomba.

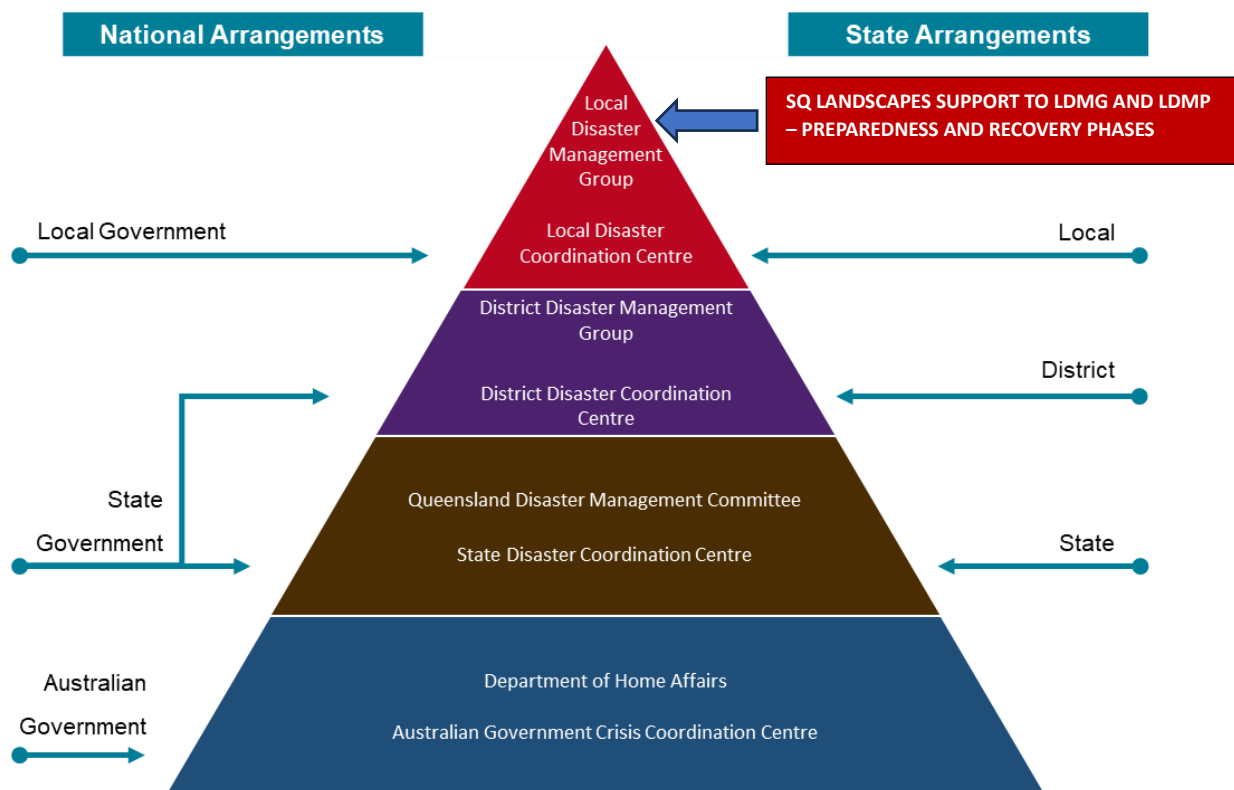


Figure 3: Disaster management arrangements for Queensland and the role of SQ Landscapes

SQ Landscapes has assembled a unique warehouse of data and a portfolio of landscape analysis of risks to key natural assets which can direct actions for mitigating risk levels and supporting recovery. This body of knowledge was compiled to inform Flourishing Landscapes Healthy Communities and is continually refined to inform program delivery.

In terms of action during a response phase, SQ Landscapes will consider available organisational capacity if invited to provide advice during an emergency such as a bushfire. This may include attending the Local and District Disaster Coordination Centres to provide on the spot strategic and management advice for priority biodiversity and agricultural natural capital assets.

SQ Landscapes also participates in the Regional Bushfire Advisory Committee which includes representatives from the Rural Fire Service, Queensland Parks and Wildlife Service and Partnerships (QPWS&P), Queensland Police Service, Department of Resources, and Transport and Main Roads. The Committee is developing a community engagement plan for discussing vegetation management with emergency services and community. SQ Landscapes will seek to coordinate engagement and share knowledge within this process as appropriate.

Many of the landscapes featured in this EPR Plan include National Parks and other public estates. Fighting fires on National Parks is the primary responsibility of QPWS&P. Fire management has an important role to play in parks and reserves. Core business for QPWS&P is to protect life and property, mitigate wildfires and maintain natural diversity in accordance with the *Forestry Act 1959*, *Nature Conservation Act 1992 (Qld) (NCA)*; and the *Fire and Emergency Services Act 1990 (Qld)*.¹⁴

On private land, the responsibility lies with landholders and the Queensland Fire Service. Responsibility on State Forest rests with QPWS&P and the Department of Agriculture and Fisheries.

¹⁴ State of Queensland (2020) Barakula State Forest Draft Resource Information, Queensland Parks & Wildlife Service (QPWS) and Partnerships, Department of Environment and Science, Brisbane. [Barakula SF Resource Information_DRAFT 2020.pdf](#)

These groups work in close association with one another and, where necessary, may all be involved in the suppression of a wildfire at the same time. The State Emergency Service can also be called in to provide logistic support to fire fighters. Wildfire response procedures are often prepared for each of the management units within a National Park.¹⁵ SQ Landscapes has working relationships with all these organisations and will promote the EPR Plan in planning, response and recovery actions.

SQ Landscapes has productive working relationships with relevant officers in Local and State Governments who administer Biosecurity Plans.

SQ Landscapes is a member of several biosecurity and pest management groups including:

- Southern Downs Pest Management Advisory Committee
- Queensland Dog Offensive Group (QDOG)
- Toowoomba Regional Council Biosecurity Advisory Committee
- Invasive Species Queensland (formerly Weed Society of QLD).

These forums discuss emerging pest and disease threats and best practice management as well as providing a coordinated approach to avoidance and mitigation.

The *Biosecurity Act 2014* (the Act) provides the framework for minimising biosecurity risks and facilitating the timely and effective response to biosecurity events and impacts. The Act imposes a general biosecurity obligation on each person to manage biosecurity risks in their control and prevent biosecurity events from occurring. All stakeholders must take reasonable and practical measures to prevent or minimise biosecurity risks, such as those presented by invasive plants and animals. Risk-based decision-making is included in the Act. This means that an appropriate level of response can be actioned to address a potential risk. In addition, the Act includes the principle that a lack of full scientific certainty will not be used as a reason to postpone preventative action or to delay response to a biosecurity risk.¹⁶

This EPR Plan provides SQ Landscapes with the opportunity to work with stakeholders to support the objectives of the Act. SQ Landscapes has been officially recognised in several Local Government Biosecurity Plans as having the potential to play the following key roles in pest and disease management:

- early detection
- landholder support
- field days
- funding opportunities
- support for weed control in environmentally significant areas
- regional planning/funding support for pest management programs.

¹⁵ The State of Queensland (2005) Carnarvon National Park Management Plan Environmental Protection Agency.

¹⁶ State of Queensland, 2019 Queensland invasive plants and animals strategy 2019–2024 Invasive Plants and Animals in Biosecurity Queensland, Department of Agriculture and Fisheries.
https://www.daf.qld.gov.au/data/assets/pdf_file/0008/1441637/qld-invasive-plants-animals-strategy.pdf

5.0 IDENTIFICATION OF SOUTHERN QUEENSLAND ASSETS AND SUSCEPTIBILITY

Biodiversity assets in Southern Queensland

Assets including but not limited to Matters of National Environmental Significance (MNES) under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) with biodiversity values, were mapped during the development of Flourishing Landscapes and Healthy Communities¹⁷.

Data sets have been assembled to describe assets identified as Matters of National Environmental Significance (MNES) under the EPBC Act including:

- Species of National Environmental Significance (SNES)
- Heritage Register of the National Estate (RNE)
- World Heritage Areas
- Collaborative Australian Protected Areas Database (CAPAD) – Terrestrial
- Ecological Communities of National Environmental Significance
- Ramsar Wetlands of Australia.

Table 1: Threatened Species Action Plan 110 Priority Species - Priority Species of National Environmental Significance in Southern Queensland

Scientific name	Common name	EPBC threatened status
<i>Anthochaera phrygia</i>	Regent Honeyeater	Critically Endangered
<i>Atrichornis rufescens</i>	Rufous Scrub-bird	Endangered
<i>Botaurus poeciloptilus</i>	Australasian Bittern	Endangered
<i>Dasyurus hallucatus</i>	Northern Quoll, Digul [Gogo-Yimidir], Wijingadda [Dambimangari], Wiminji [Martu]	Endangered
<i>Delma torquata</i>	Adorned Delma, Collared Delma	Vulnerable
<i>Dichanthium queenslandicum</i>	King Blue-grass	Endangered
<i>Erythrorhynchus radiatus</i>	Red Goshawk	Endangered
<i>Lasiornis kreffti</i>	Northern Hairy-nosed Wombat, Yaminon	Critically Endangered
<i>Lathamus discolor</i>	Swift Parrot	Critically Endangered
<i>Macrotis lagotis</i>	Greater Bilby	Vulnerable
<i>Pedionomus torquatus</i>	Plains-wanderer	Critically Endangered
<i>Petrogale penicillata</i>	Brush-tailed Rock-wallaby	Vulnerable
<i>Phascolarctos cinereus</i> (combined populations of Qld, NSW and the ACT)	Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory)	Endangered
<i>Philoria kundagungan</i>	Mountain Frog	Endangered
<i>Pseudomys novaehollandiae</i>	New Holland Mouse, Pookila	Vulnerable
<i>Rhodomyrtus psidioides</i>	Native Guava	Critically Endangered

Table 2: Threatened Ecological Communities in Southern Queensland

Brigalow (<i>Acacia harpophylla</i> dominant and co-dominant)
Coolibah - Black Box Woodlands of the Darling Riverine Plains and the Brigalow Belt South Bioregions
Dunn's white gum (<i>Eucalyptus dunnii</i>) moist forest in north-east New South Wales and south-east Queensland

¹⁷ The NRM Plan for the Southern Queensland Region available at [Flourishing Landscapes Healthy Communities](#)

Grey box-grey gum wet forest of subtropical eastern Australia
Lowland Rainforest of Subtropical Australia
Natural Grasslands of the Queensland Central Highlands and northern Fitzroy Basin
Natural grasslands on basalt and fine-textured alluvial plains of northern New South Wales and southern Queensland
New England Peppermint (<i>Eucalyptus nova-anglica</i>) Grassy Woodlands
Poplar Box Grassy Woodland on Alluvial Plains
Semi-evergreen vine thickets of the Brigalow Belt (North and South) and Nandewar Bioregions
The community of native species dependent on natural discharge of groundwater from the Great Artesian Basin
Weeping Myall Woodlands
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland

Complementary spatial analysis by SQ Landscapes has identified regional landscapes where a broad range of biodiversity assets exist including those above plus state and regional values. Some local governments identify matters of local environmental significance (MLES) and include them in Planning Schemes. These values will be investigated as resources permit. Feedback on the maps from stakeholders during engagement for the [Flourishing Landscapes Healthy Communities](#) Plan provided further information and identified gaps and inaccuracies.

The regional extent of biodiversity assets in Table 1 shows a wide coverage of species (36%) and ecological communities (27%) of national significance, remnant forests (56%) and areas of biodiversity significance (64%), and nature conservation priority areas (31%). Other biodiversity assets are more localised with World Heritage Areas (0.03%), Ramsar Wetlands (0.5%), Protected Areas and Nature Refuges (7%), and water asset priority areas (10%).

Table 3: Biodiversity assets in Southern Queensland by area and percentage of region.

Asset	Scale	Extent (ha)	% of Region
Species of National Environmental Significance - Habitat Likely	National	11,259,410	36
Heritage Register of the National Estate (RNE)	National	3,999,229	13
World Heritage Areas	National	8,223	0.03
Collaborative Australian Protected Areas Database (CAPAD) – Terrestrial (2022)	National	1,286,427	4
Ecological Communities of National Environmental Significance (likely)	National	8,343,569	27
Ramsar Wetland of Australia	National	150,867	0.5
Directory of Important Wetlands	National	158,432	0.5
Biodiversity Status of Remnant Regional Ecosystems (2021)	State	17,693,315	56
Combined Biodiversity Planning Assessments (2006-2009)	State	19,972,807	64
Protected Areas and Nature Refuges (2023)	State	2,331,340	7
Grazing Landuse	State	26,067,969	83
SQL Endangered Ecological Communities (EECs)	Regional	952,779	3
SQL Nature Conservation Priority Areas	Regional	9,733,790	31
Water Asset Priority Areas	Regional	3,243,849	10

SQL Project Investments	Regional	924,374	3
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Nature conservation priority areas (confluence approach) were mapped for the Flourishing Landscapes and Healthy Communities Plan and included:

- Areas of special biodiversity values
- Endangered Ecological Communities (EPBC Act)
- Remnant and woody vegetation
- Vulnerable Regional Ecosystems (Endangered and Of Concern)
- Poorly conserved Regional Ecosystems (<4% extent within Protected Area)
- High Value regrowth
- Wetlands and floodplain ecosystems
- Areas of high ecological value

Water asset priority areas (confluence approach) were mapped for the Flourishing Landscapes and Healthy Communities Plan and included:

- Riparian vegetation
- Woody vegetation on slopes
- Spring density
- Artesian and Sub-artesian water bore density
- Wetland and floodplain ecosystems
- Areas of high ecological value (water)
- Waterhole density

In addition, SQ Landscapes records the location and nature of all government and industry investments (SQL Project Investments) that are designed to enhance the extent and condition of biodiversity and agricultural natural capital assets while building in resilience from extremes. This spatial data set and accompanying project data base will enable revegetation and other investments to be factored into emergency planning, preparedness and response activities. All government and industry investment delivered by SQ Landscapes covers an area up to 1 million hectares (3%).

Agricultural natural assets in Southern Queensland

Agricultural natural capital assets in Southern Queensland were mapped during the development of the [Flourishing Landscapes Healthy Communities](#) Plan.

Available data was used to describe the following assets which when combined identify cropping priority areas:

- Agricultural land classes weighted for cropping
- Proximity to perennial and non-perennial major waterways
- Density of Sub-artesian water bores
- Presence of floodplains.

The following data was combined to identify grazing priority areas:

- Agricultural land classes weighted for grazing
- Presence of floodplains
- Below average bare ground, in the drought year 2018, for each Grazing Land Management Type
- Presence of open woodlands.

Cropping and Grazing mapped priority areas are the focus of actions for [Flourishing Landscapes Healthy Communities](#). Analysis and prioritisation of these areas guide investment in planning and on-

ground action for natural resource management outcomes. A similar approach has been used to focus attention on the necessary emergency preparedness and response actions.

The results of this assessment appear in Table 2 and includes total areas of grazing (83%), cropping (8%), forestry (3%) and intensive animal production (0.02%). Further analysis of these land uses based on the data above identified state mapped strategic cropping land (16%), cropping priority areas (5%) and grazing priority areas (13%).

Table 4: Agricultural natural capital assets in Southern Queensland by area and percentage of region

Asset	Scale	Extent (ha)	% of Region
Strategic Cropping Land	State	5,125,564	16
Grazing Land Use (2015)	State	26,067,969	83
Cropping Land Use (2015)	State	2,512,167	8
Forestry Land Use (2015)	State	1,063,064	3
Intensive Animal Production Land Use (2015)	State	5,510	0.02
SQL Cropping Priority Areas	Regional	1,667,280	5
SQL Grazing Priority Areas	Regional	4,139,106	13

Future data audits will investigate the existence and status of agroforestry and environmental plantings in the region. Intensive livestock facilities have been located using available land use datasets. Potential impacts on animals and related natural assets have been analysed. The resultant inventory of identified assets has been reviewed, updated and packaged as a geodatabase which can be shared with stakeholders as part of the EPR Plan.

Emergency scenarios that pose a threat to the identified assets

Regional, remote and First Nations communities often face increased risks from increased severity or frequency of climate-driven events or gradual longer-term cumulative climate change more than larger urban areas. This is due to the proximity of rural and remote communities to natural environments and the often-interwoven value of nearby natural environments within community identities. Regional, remote and First Nations communities are often highly dependent on the natural environment for the ecosystem services they deliver. For instance, the provision of food, fibre, water, timber, biodiversity, amenity and medicines. Changes in ecosystem services through changing climate may exacerbate the vulnerability of these communities and adversely impact their lives.¹⁸

SQ Landscapes and previous NRM entities in Southern Queensland have a long history of engagement and an established and growing network of stakeholders in the region. This network provides the knowledge and experience to frame the likelihood of different threats such as bushfires, drought, floods, cyclones, diseases, and new pest outbreaks pose to biodiversity and agricultural natural assets. SQ Landscapes and stakeholders have analysed these threats based on extensive experience and local knowledge of the unique characteristic and vulnerabilities of the environment.

Ongoing collaborations with First Nations have provided further windows into the past of major events and changes in the current health and functioning of Country. First Nation science and knowledge in combination with other approaches to natural asset stewardship is required to address the emergency scenarios described in this EPR Plan.

Collaborations with academia including University of Southern Queensland (USQ) have also provided key information on climate scenarios for agricultural systems. The Southern Queensland and Northern New South Wales Drought Hub (SQNNSW Hub) has provided input on best practice agriculture and preparing for extreme weather conditions. The focus has been on drought management techniques, tools, processes and approaches that support holistic, sustainable, productive, and profitable management of natural resources within extreme variable climate conditions.

Combined, these valuable insights and predictions of the future have informed emergency scenarios entertained in this Plan. These insights have also been informed by information sources such as the Long Paddock, a Queensland Government initiative that provides details of the expected changes to temperature and rainfall. The Long Paddock website also provides time series projections of the climate scenarios to assist in the conduct of a risk assessment for each identified asset.¹⁹ It highlights the likely impacts on people, businesses and the environment and presents ways to respond. Emergency scenarios have also been informed by projections from reports on climate change Australia's Natural Resource Management Regions by CSIRO and Bureau of Meteorology.^{20 21}

The full list of hazards generated by the emergency scenarios assessed in the risk assessment for this Plan includes:

- Bushfire
- Drought
- Floodplains (Flood)
- Severe storms – Wind and/or Rainfall

¹⁸ DCCEEW 2024, National Climate Risk Assessment – first pass assessment report, Department of Climate Change, Energy, the Environment and Water, Canberra, March. CC BY 4.0.

¹⁹ <https://www.longpaddock.qld.gov.au/qld-future-climate/regions/#responseTab2>

²⁰ Watterson, I. et al. 2015, Rangelands Cluster Report, Climate Change in Australia Projections for Australia's Natural Resource Management Regions: Cluster Reports, eds. Ekström, M. et al., CSIRO and Bureau of Meteorology, Australia

²¹ Ekström, M. et al. 2015, Central Slopes Cluster Report, Climate Change in Australia Projections for Australia's Natural Resource Management Regions: Cluster Reports, eds. Ekström, M. et al., CSIRO and Bureau of Meteorology, Australia.

- Animal/plant diseases (new outbreaks)
- New pest outbreak (new infestations)
- Heatwave
- Dust Storm

This list reflects the hazards addressed in Local Government Disaster Management Plans to ease the integration of this Plan into this key documents.

Table 3 lists the hazards mapped with the data currently available that may impact the identified assets in varying degrees. Drought (52%) and flood (32%) affected landscapes account for higher regional coverage, followed by fire frequency (20%) and bare ground (top 20% of identified areas) (20%).

Table 5: Spatially identified hazards in Southern Queensland

Hazard	Scale	Extent	% of Region
Severe Winds	State	5,834,852	19
Floodplains and buffer (Flooding)	State	10,066,905	32
Bare Ground Top 10%	Regional	2,910,042	9
Bare Ground Top 20%	Regional	6,255,278	20
Drought more than 30% of time	State	16,226,538	52
Bushfire Prone Vegetation	State	459,542	1
Higher Fire Frequency	Regional	6,179,076	20

For the purposes of this assessment and EPR Plan, a heatwave occurs when the maximum and minimum temperatures are unusually hot over 3 days.²² This is compared to the local climate and past weather. Severe and extreme heatwaves have claimed more lives than any other natural hazard in Australia.²³ The frequency of heatwaves is predicted to increase in Southern Queensland in the future. The impacts of heat waves are not isolated but interact with other events which may have already occurred, co-occur (especially drought or fire) or will occur in the near future.²⁴

Threatening animal and livestock diseases considered in the risk assessment include:

- Foot-and-mouth-disease (FMD)
- Lumpy Skin Disease (LSD)
- Japanese Encephalitis (JE)
- African Swine Fever (ASF)

Individual asset's current susceptibility to emergency scenario/s and why

This inventory of assets described above was reviewed, updated and packaged as a geodatabase which can be shared with stakeholders as part of the EPR Plan. The datasets were overlaid in a geographic information system and landscapes possessing a concentration of SNES and TECs were

²² www.bom.gov.au/australia/heatwave/knowledge-centre/understanding.shtml accessed 7 May, 2024.

²³ http://www.bom.gov.au/australia/heatwave/knowledge-centre/?utm_medium=internal&utm_source=bom-blog&utm_campaign=public-safety&utm_term=heatwave&utm_content=text-121020-hkc accessed 5 April 2024.

²⁴ Breshears, D.D., Fontaine, J.B., Ruthrof, K.X., Field, J.P., Feng, X., Burger, J.R., Law, D.J., Kala, J. and Hardy, G.E.S.J. (2021), Underappreciated plant vulnerabilities to heat waves. *New Phytol*, 231: 32-39. <https://doi.org/10.1111/nph.17348>

selected as priority landscapes for further analysis (**Error! Reference source not found.**). Ramsar and World Heritage sites were selected for further analysis in their own right.

The NERAG guidelines were employed in a risk assessment for each asset versus each of the threats. The risk assessment is supported by information for why the emergency poses a threat, susceptibility of the asset to the threat and an explanation for the level of susceptibility. The tables are established in Excel to facilitate the use of pivot tables to identify which assets are threatened by which emergency scenario and to allow grouping based on the level of susceptibility. This will provide bespoke products based on the asset of concern or the threat being addressed.

The results of this analysis formed the basis of the Stronger Landscapes Plan (**Error! Reference source not found.**).

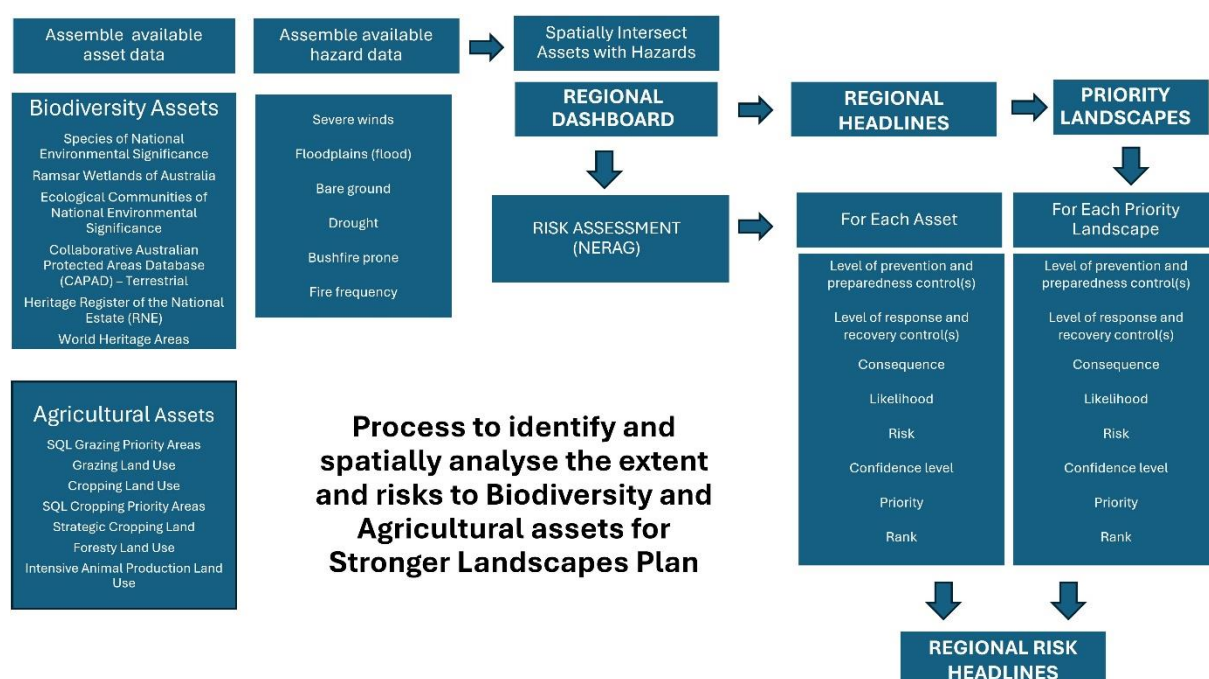


Figure 4: Process to identify and analyse biodiversity and agricultural assets for Stronger Landscapes.

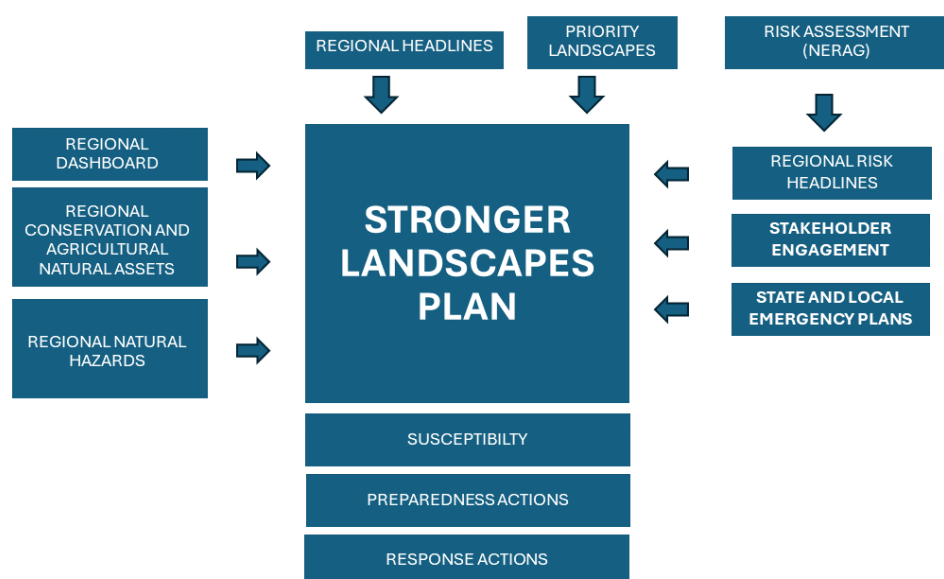


Figure 5: Process to include results of spatial analysis and risk assessment in Stronger Landscapes

The first pass of the National Climate Risk Assessment compiled by the Department of Climate Change, Energy, the Environment and Water also informed individual assets' current susceptibility to emergency scenario/s and why.²⁵

The result of the intersects to identify priority EPR landscapes for further assessment appears in Figure 6.

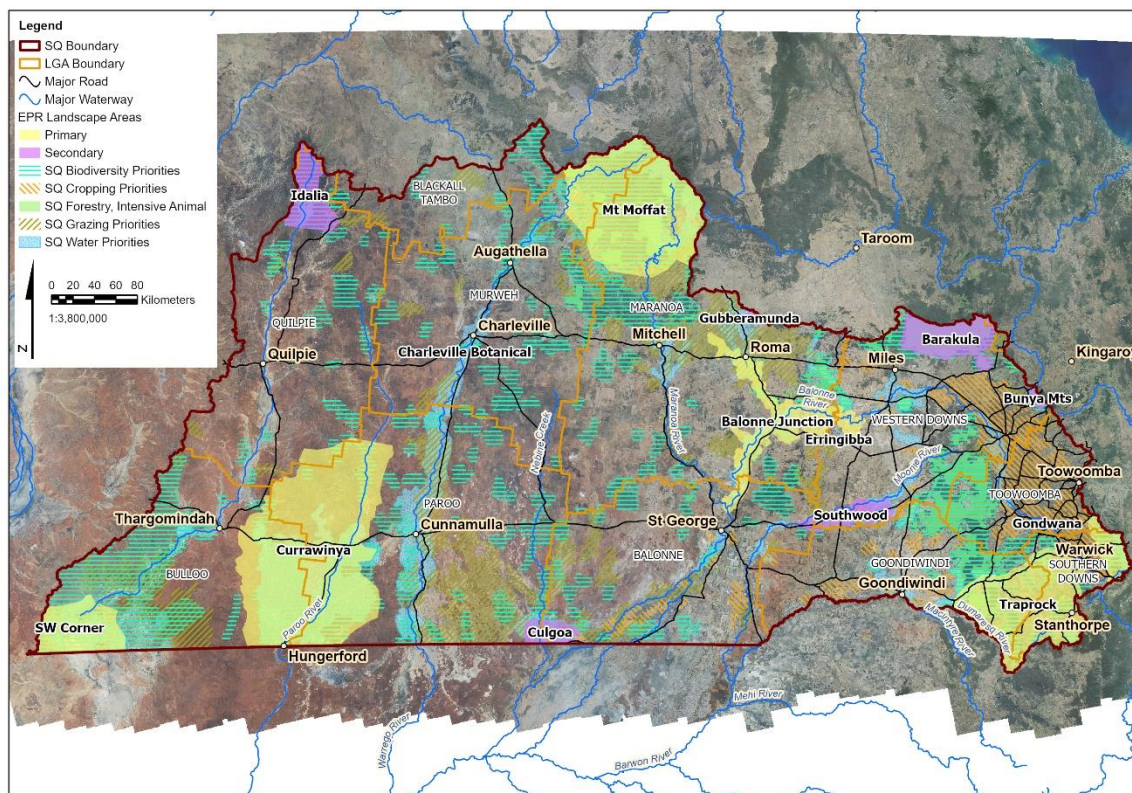


Figure 6: Priority EPR Landscapes in Southern Queensland

Spatially intersecting individual priority landscapes (assets) with hazards produced maps such as Figure 7 which shows the close interaction between flood potential and the Currawinya National Park and Ramsar Wetland. A range of analyses carried out by SQ Landscapes using available data has informed the following assessments presented in the table format provided by the Australian Government.

²⁵ DCCEW 2024, National Climate Risk Assessment – first pass assessment report, Department of Climate Change, Energy, the Environment and Water, Canberra, March. CC BY 4.0.

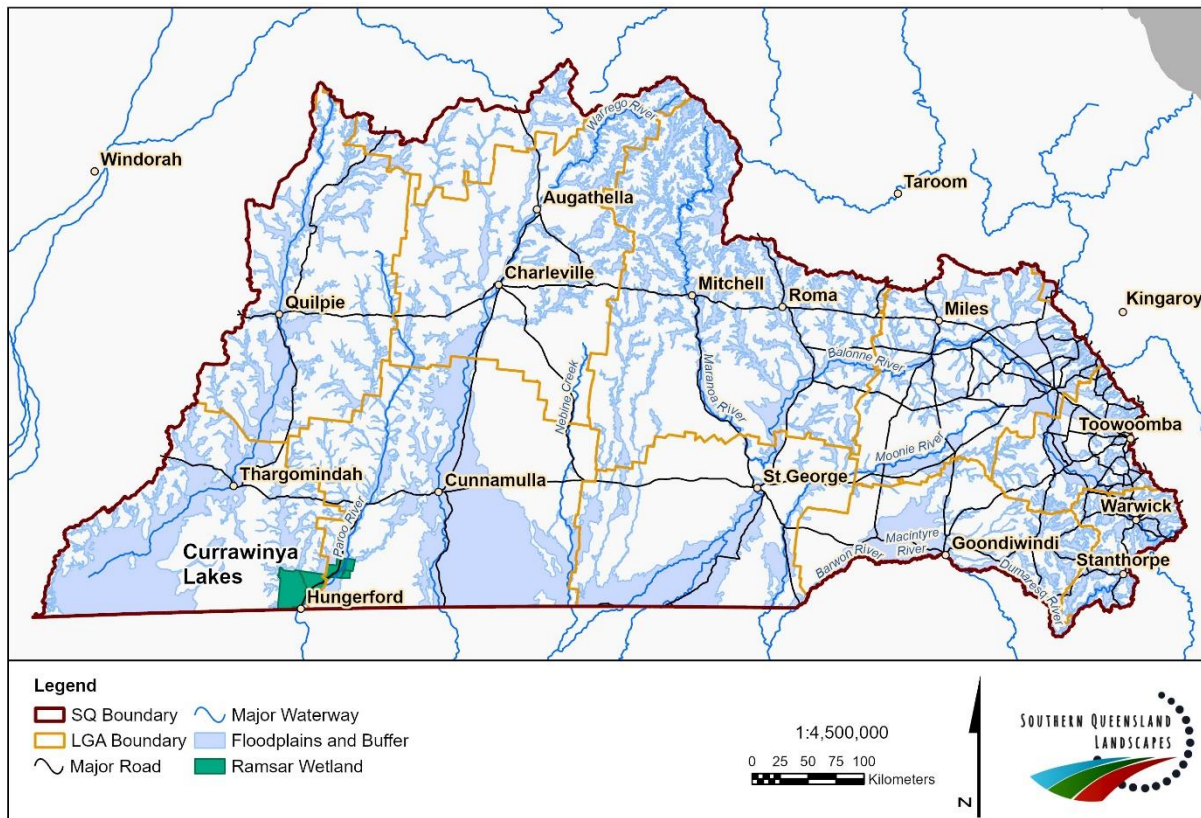


Figure 7: Interaction of Ramsar Wetland Currawinya Lakes and floodplains and buffering areas

BIODIVERSITY ASSETS

Climate change impacts such as shifts in phenology, weather conditions and changes to landscapes are changing the habitat of animals and plants. This may lead to incursions of invasive pests, diseases and weeds that are better adapted to new climate regimes and habitats. This can affect the natural and economic values of these landscapes with flow-on impacts to primary industries and agricultural communities, and to businesses that rely on the natural environment, such as tourism. It may also lead to further increase in hazards with flow-on effects to communities and businesses. First Nations communities are likely to be adversely impacted through changes to hunting and harvesting grounds, connection to Country and displacement of native food sources.²⁶

²⁶ DCCEW 2024, National Climate Risk Assessment – first pass assessment report, Department of Climate Change, Energy, the Environment and Water, Canberra, March. CC BY 4.0.

Species of National Environmental Significance (SNES)

Bushfire, animal/plant diseases, new pest outbreaks, heatwave and drought have been assessed as presenting high to very high threats to species of national ecological significance.

The SNES dataset was analysed to identify the highest density or overlapping 'habitat likely' of SNES across the SQ Region. This analysis informed the identification of priority landscapes for the conduct of a threat risk assessment. A separate risk assessment was undertaken for SNES as a unique dataset. Figure 8 highlights the challenges with adopting a species approach to planning due to the paucity of observed data in the expansive landscapes of western Queensland.

Table 6: Threatened Species Action Plan 110 Priority Species - Priority Species of National Environmental Significance in Southern Queensland

Scientific name	Common name	EPBC threatened status
<i>Anthochaera phrygia</i>	Regent Honeyeater	Critically Endangered
<i>Atrichornis rufescens</i>	Rufous Scrub-bird	Endangered
<i>Botaurus poiciloptilus</i>	Australasian Bittern	Endangered
<i>Dasyurus hallucatus</i>	Northern Quoll, Digul [Gogo-Yimidir], Wijingadda [Dambimangari], Wiminji [Martu]	Endangered
<i>Delma torquata</i>	Adorned Delma, Collared Delma	Vulnerable
<i>Dichanthium queenslandicum</i>	King Blue-grass	Endangered
<i>Erythrorhynchus radiatus</i>	Red Goshawk	Endangered
<i>Lasiornis krefftii</i>	Northern Hairy-nosed Wombat, Yaminon	Critically Endangered
<i>Lathamus discolor</i>	Swift Parrot	Critically Endangered
<i>Macrotis lagotis</i>	Greater Bilby	Vulnerable
<i>Pedionomus torquatus</i>	Plains-wanderer	Critically Endangered
<i>Petrogale penicillata</i>	Brush-tailed Rock-wallaby	Vulnerable
<i>Phascolarctos cinereus</i> (combined populations of Qld, NSW and the ACT)	Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory)	Endangered
<i>Philoria kundagungan</i>	Mountain Frog	Endangered
<i>Pseudomys novaehollandiae</i>	New Holland Mouse, Pookila	Vulnerable
<i>Rhodomyrtus psidioides</i>	Native Guava	Critically Endangered

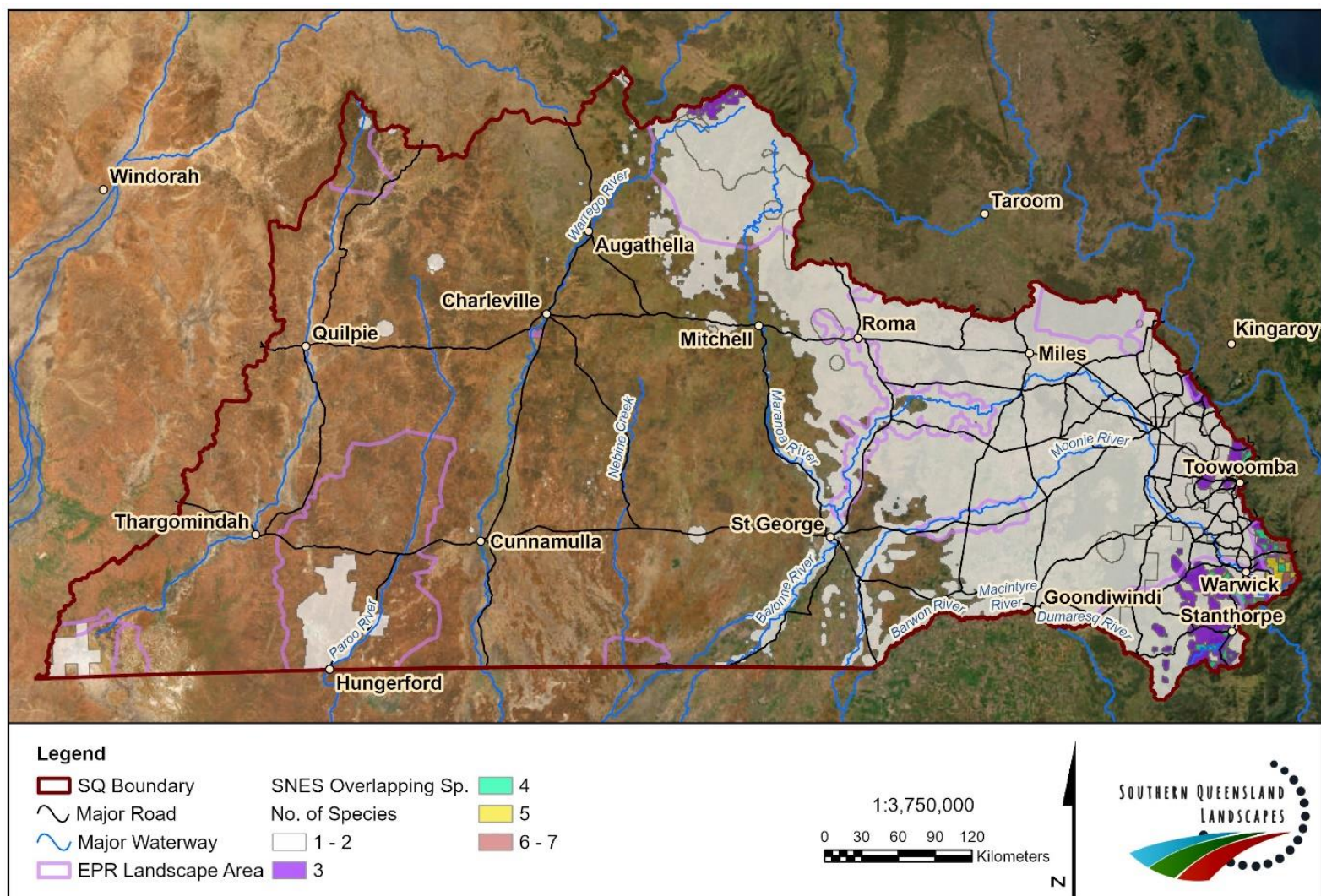


Figure 8: Overlapping 'habitat likely' for Species of National Environmental Significance.

Asset	Emergency scenario	Why it poses a threat	Susceptibility	Why
Species of National Environmental Significance (SNES)	Bushfire	A bushfire has the potential to permanently destroy an ecosystem or species recognised at the national level. Post event, there would be an increased threat of weeds and invasive species, increased erosion and overall loss of biodiversity.	Extreme risk with catastrophic consequences (high confidence).	Many SNES are highly susceptible to bushfire. The increasing occurrence of fires burning into the night due to higher temperatures and lower humidity associated with climate change is significant because rising humidity at night usually slows the growth of fire. ²⁷
	Animal / plant diseases	Disease has the potential to permanently destroy an ecosystem or species recognised at the national level. New outbreaks of disease are difficult to control. Avoidance is the priority.	Extreme risk with catastrophic consequences almost certain (moderate confidence).	Diseases such as Myrtle rust - <i>Austropuccinia psidii</i> have severely impacted SNES such as the native guava (<i>Rhodomyrtus psidioides</i>).
	New pest outbreak	New pest outbreaks have the potential to severely damage or contribute to the loss of an ecosystem or species recognised at the national level.	Extreme risk with catastrophic consequences almost certain (moderate confidence).	Fire ants have been found in the east of the SQ region.
	Heatwave	A heatwave has the potential to contribute to a significant loss or impairment to an ecosystem or species recognised at the national level.	High risk with moderate consequence likely (low confidence).	Certain SNES are extremely susceptible to extended periods of high temperatures.
	Drought	Extended drought has the potential to result in significant loss or impairment of an ecosystem or species recognised at the national level. Drought will also reduce water levels in waterways increasing the risk of fish being drawn into irrigation pumps.	High risk with moderate consequence likely (moderate confidence).	As a result of climate change, the region is predicted to experience an increase in temperatures, decrease in overall precipitation and increase in heavy rainfall events.

²⁷ Cunningham, C.X., Williamson, G.J. & Bowman, D.M.J.S. (2024) Increasing frequency and intensity of the most extreme wildfires on Earth. Nat Ecol Evol. <https://doi.org/10.1038/s41559-024-02452-2>

Currawinya National Park and Ramsar Wetland

Animal/plant diseases, new pest outbreaks and severe storms have been identified as serious threats to the Currawinya National Park and Ramsar Wetland. Bushfire and drought are also high priorities.

Currawinya Lakes is one of five sites in Queensland listed under the International Convention on Wetlands of International importance especially as Waterfowl Habitat (Ramsar Convention). Ramsar wetlands are recognised under the EPBC Act and principles for their management are outlined in Schedule 6 of the Act. Currawinya National Park was gazetted on 11 May 1991 to protect the integrity and function of its wetlands, as well as the important habitats it provides for migratory bird species. It protects threatened and representative mulga ecosystems and wildlife; and significant Indigenous and non-Indigenous cultural heritage sites. Currawinya Lakes was listed as a Ramsar site in 1996 for its outstanding wetland values and features. The Ramsar site currently covers approximately 97% of the national park although significant wetland values are recognised over the entire national park. Future consideration may be given to modifying the boundary of the Ramsar site to align with the national park boundary.²⁸

In addition to the important habitats it provides for migratory bird species, Currawinya National Park contains the following ecological communities and species of national significance.

Threatened Ecological Communities present:

- The community of native species dependent on natural discharge of groundwater from the Great Artesian Basin (50 sites) (Endangered).

Species of National Environmental Significance habitat likely:

- Greater Bilby *Macrotis lagotis* (Vulnerable – EPBC).

²⁸ NPRSR. 2014. Currawinya Lakes Ramsar Site / Currawinya National Park: Ramsar Management Summary 2014. Brisbane: Department of National Parks, Recreation, Sport and Racing Government.

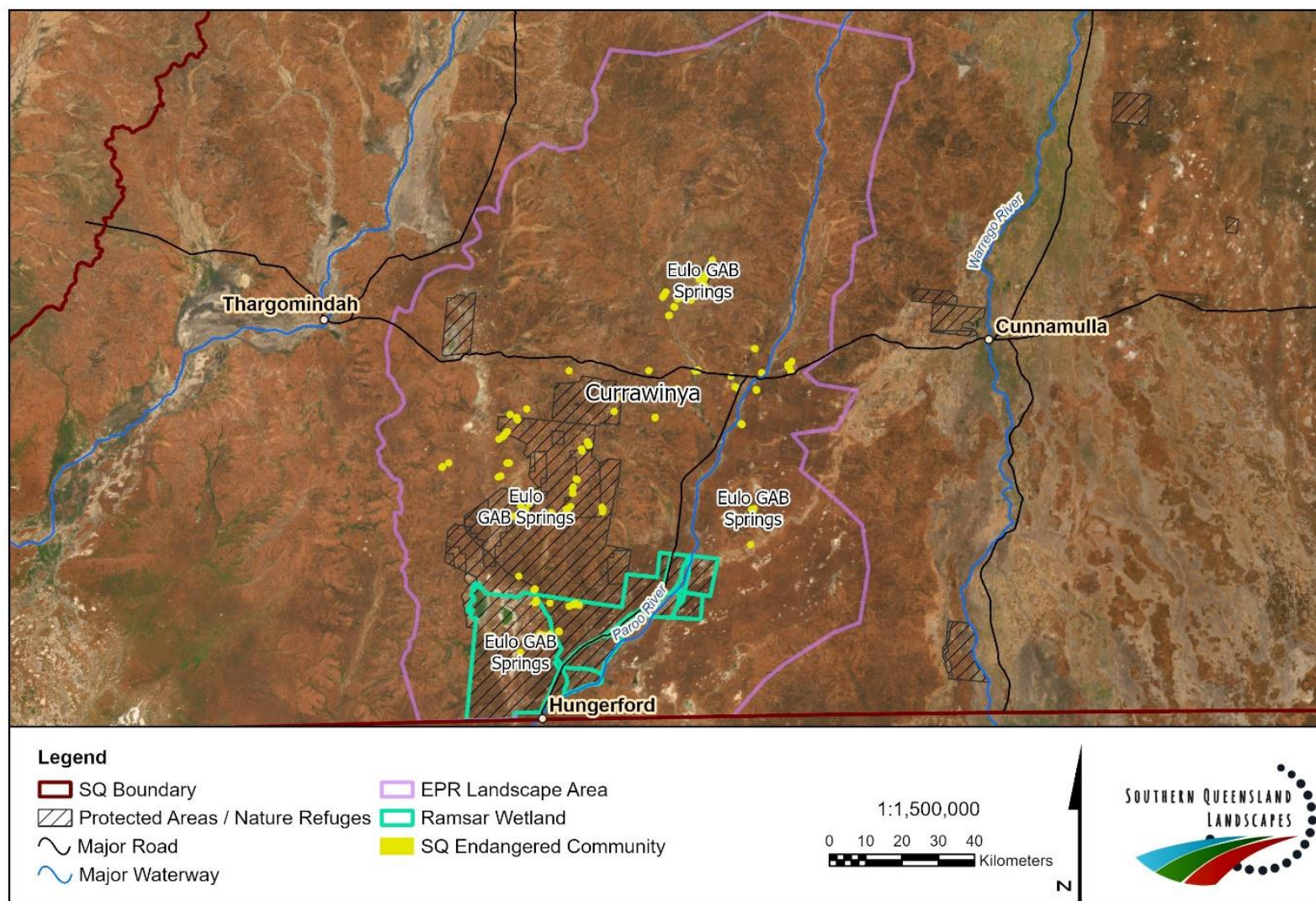


Figure 9: Currawinya Landscape Area, Ramsar Wetland and Great Artesian Basin Springs.

Asset	Emergency scenario	Why it poses a threat	Susceptibility	Why
Currawinya National Park and Ramsar Wetlands	New pest outbreak	Increased abundance and distribution of non-native fish species would adversely affect the site's ecological character. The presence of feral pigs and goats continues to be a management issue for the site. Fire ants are not in the area but when present can sting animals and can severely damage ecosystems. Carbon farming projects in the vicinity of Currawinya are often left unmanaged and can harbour fire risks and new pest outbreaks.	Almost certain to have major consequences. High confidence.	Current impacts caused by invasive weeds such as: invasive grasses—Buffel Grass; annuals—Mexican Poppy, saffron thistle, Noogoora Burr, Bathurst Burr, Spiny Emex, Sesbania Pea; shrubs—African Boxthorn, Downy Thorn Apple; and cactus— Rope Cactus include competition with native species and modification to lake ecology and functioning. Any new infestations would add more pressure to the lake system. The threat rating from the NP Management Plan is high. Threats of new infestations include floods carrying water lettuce from the Warrego River system into Currawinya where it is not currently found. Current impacts caused by the presence of introduced species including cattle and feral goats, feral horses, feral pigs, feral cats and red foxes within the channels. Grazing and ground disturbance leads to a reduction in water quality. Any new pest outbreak would add more pressure to the lake system. The NP Management Plan gives new pest outbreaks a high threat rating. Other threats include the introduction of carp and other non-native fish currently in

Asset	Emergency scenario	Why it poses a threat	Susceptibility	Why
				the Warrego River system but not found in Currawinya.
	Animal/plant diseases	Disease has the potential to permanently destroy an ecosystem or species recognised at the national level. New outbreaks of disease are difficult to control. Avoidance is the priority. Bird flu is a highly infectious disease of birds. All bird species are thought to be susceptible to bird flu. Wild birds are the source and can infect farmed or domestic poultry. They can also infect animals such as pigs and horses. The disease can affect more than 140 bird species. Many wild birds and waterfowl (especially geese, ducks and swans) carry the virus but generally don't show signs of the disease. While some strains of avian flu tend to produce mild or no visible disease (called low pathogenic), H5N1 and H7N3 are both highly pathogenic viruses. This means they cause severe illness in poultry and wild birds. Millions of migratory birds arrive from northern Asia each year in spring. August to November is the highest risk period. Australia has historically been protected from highly pathogenic avian flu because it's spread by migrating ducks, geese and swans (known as waterfowl) from Asia. Their flyways bypass Australia.	Rare but potentially catastrophic consequences.	Bird flu is currently rare in Australia but could lead to deaths of birds in the National Park with potential to spread to other species of national significance.

Asset	Emergency scenario	Why it poses a threat	Susceptibility	Why
		However, with a range of different wild birds now infected by H5N1 (Clade 2.3.4.4b), including in Antarctica, there may be new bird migration routes by which the virus could enter Australia.²⁹ Migratory birds have arrived carrying other strains of avian influenza into Australia. It is only a matter of time before HPAI H5N1 arrives. The virus can survive for a long time in droppings, respiratory secretions, water, feathers, eggs and meat hence the need for culling and decontamination of impacted properties which remain under quarantine.		
	Severe storms	Localised heavy rain events on the western side of the Park are contributing erosion and sedimentation to the Lakes. Direct impact from lightning strikes and wind gusts can also cause damage to national parks and state forests. Landslip susceptibility can increase due to wind and rain.³⁰ Tourism can be impacted due to environmental damage sustained as a result of an event. Storms can wash seeds of pest plants into unaffected areas.	Likely with major consequences.	Rainfall intensity is expected to increase as temperature and moisture content of the atmosphere increase. A 1°C increase in temperature may result in an increase in rainfall intensity of 3-10%. More intense storms are likely to increase runoff, reduce infiltration, reduce soil moisture levels and pasture growth, and increase the risk of soil erosion.³¹ Isolated severe storms are becoming more frequent and contributing to erosion and sedimentation of the Lakes.

²⁹ Wille, M. (2024) Chickens, ducks, seals and cows: a dangerous bird flu strain is knocking on Australia's door, The Conversation, May 2024.

³⁰ Queensland Fire and Emergency Services (2017) Queensland State Natural Hazard Risk Assessment, The State of Queensland (Queensland Fire and Emergency Services).

³¹ Cobon DH, Terwijn MJ, and Williams AAJ (2017). Impacts and adaptation strategies for a variable and changing climate in the EASTERN DOWNS REGION. International Centre for Applied Climate Sciences, University of Southern Queensland, Toowoomba, Queensland, Australia.

Asset	Emergency scenario	Why it poses a threat	Susceptibility	Why
	Bushfire	A bushfire has the potential to permanently destroy ecosystems or species recognised in the Currawinya Lakes Ramsar Site and impact water quality. Post event, there would be an increased threat of weeds and invasive species, increased erosion and overall loss of biodiversity.	Unlikely but with potentially catastrophic consequences.	Currawinya Lakes is highly susceptible to bushfire. Wetland communities in the Currawinya National Park are susceptible to fires from adjacent fire-adapted communities.
	Drought	Extended drought has the potential to result in damage to or loss of an ecosystem or species recognised in the Currawinya Lakes Ramsar Site.	There is moderate confidence that drought will almost certainly have a major impact.	As a result of climate change, the region is predicted to experience an increase in temperatures, decrease in overall precipitation and increase in heavy rainfall events. The NP Management Plan awards drought a high threat rating.
	Flood	A flood has the potential to exacerbate erosion, sedimentation and therefore impact water quality in the lakes of Currawinya, destroy habitat and impact species that depend on highly specific water quality conditions. Flooding may also impact tourism due to environmental damage sustained as a result of an event. ³²	High confidence that damage from a severe flood is unlikely. Flash flooding is more of a certainty based on predictions of climate change.	Currawinya Lakes are less susceptible to flooding as wetlands depend on periodic inundation to function. The quality of water entering the system from upstream catchments particularly from extreme events following periods of drought or bushfire is of concern. The transport of weed species not currently established in the Currawinya Lakes Ramsar Site from neighbouring catchments during extreme flooding events is of concern. Flash floods are occurring more frequently well west of the Great Dividing Range and are predicted to increase into the future.
	Heatwave	Vulnerabilities across Queensland exist for Areas of Ecological Significance (e.g. national parks,	Likely with moderate consequence.	National parks, wildlife reserves, conservation areas and wildlife populations are highly vulnerable to heatwaves and

³² Queensland Fire and Emergency Services (2017) Queensland State Natural Hazard Risk Assessment, The State of Queensland (Queensland Fire and Emergency Services).

Asset	Emergency scenario	Why it poses a threat	Susceptibility	Why
		wildlife reserves and conservation areas) related to the increased risk of bushfire during heatwave conditions. Wildlife populations are also highly vulnerable in heatwaves.³³ Minimum temperatures are rising on sharper trajectory than the maximum. In general, animals need 6-8 hrs of cooler weather before 3am where the temperature is less than 24 degrees especially in feedlot situations. In the absence of these conditions over several days (>3) the accumulated heat load builds leading to poorer animal health and death. The lack of the cooling effect of wind exacerbates this situation. There is evidence that overtime DNA in fauna is damaged because of accumulated heat loads leading to intergenerational impacts. Spring can be a high-risk time for accumulated heat load.³⁴ Heat in general increases evaporation decreasing soil moisture and having a detrimental impact on ground cover and biodiversity.		additionally to the increased risk of the secondary hazard of bushfire. Large scale bush and wildfires across areas of national parks, state forests and Areas of Ecological Significance have been observed as a result of exacerbated bushfire conditions.
	Dust Storm	Deposits sediment in the Lakes.	Likely with minor consequence but with a low confidence.	Dust storms can also “clean” the Lakes by mobilising sediments.

³³ Queensland Fire and Emergency Services (2017) Queensland State Natural Hazard Risk Assessment, The State of Queensland (Queensland Fire and Emergency Services).

³⁴ *Pers com* Vicki Mayne Climate Project Officer, Central & Southwest Queensland Northern Australia Climate Program, 16 April 2024.

GAB discharge spring wetlands

Drought, flood, animal/plant diseases, new pest outbreaks and dust storms have been identified as serious threats to the GAB discharge spring wetlands.

Significant species observed across a diverse range of springs:

- *Eragrostis fenshamii* (Springs Lovegrass) - Vulnerable (NCA, updated 2022; pending assessment under EPBC Act)
- *Eriocaulon carsonii* subsp. *euloense* (Salt Pipewort – Eulo Subspecies) - Endangered (QLD and AUST)
- *Hydrocotyle dipleura* - Vulnerable (QLD; awaiting assessment nationally under EPBC Act)
- *Lobelia fenshamii* - Vulnerable (QLD; awaiting assessment nationally under EPBC Act)
- *Myriophyllum artesium* (Springs Milfoil) - Not listed (delisted under Nature Conservation Act in 2022; awaiting assessment nationally under EPBC Act)
- *Plantago* sp. - Not listed; would qualify for listing as Critically Endangered
- *Sporobolus pamela* (Springs Fairy Grass) - Endangered (QLD and AUST)
- *Utricularia fenshamii* (Fensham's Bladderwort) - Meets IUCN criteria for listing as Vulnerable and a nomination form is currently being prepared.
- *Calocephalus glabratus* (Eulo Poached Eggs) - Vulnerable (NCA, QLD).^{35 36}

³⁵ Field Guide to Endemic and Disjunct Biota of the Eulo Supergroup Springs Compiled by Jen Silcock, June 2023.

³⁶ Department of Environment, Science and Innovation, Queensland (2013) Plants of Eulo Artesian Springs Supergroup DIWA nationally important wetland, WetlandInfo website, accessed 17 June 2024. Available at: <https://wetlandinfo.des.qld.gov.au/wetlands/facts-maps/wildlife/?AreaID=diwa-wetland-eulo-artesian-springs-supergroup&Kingdom=plants>

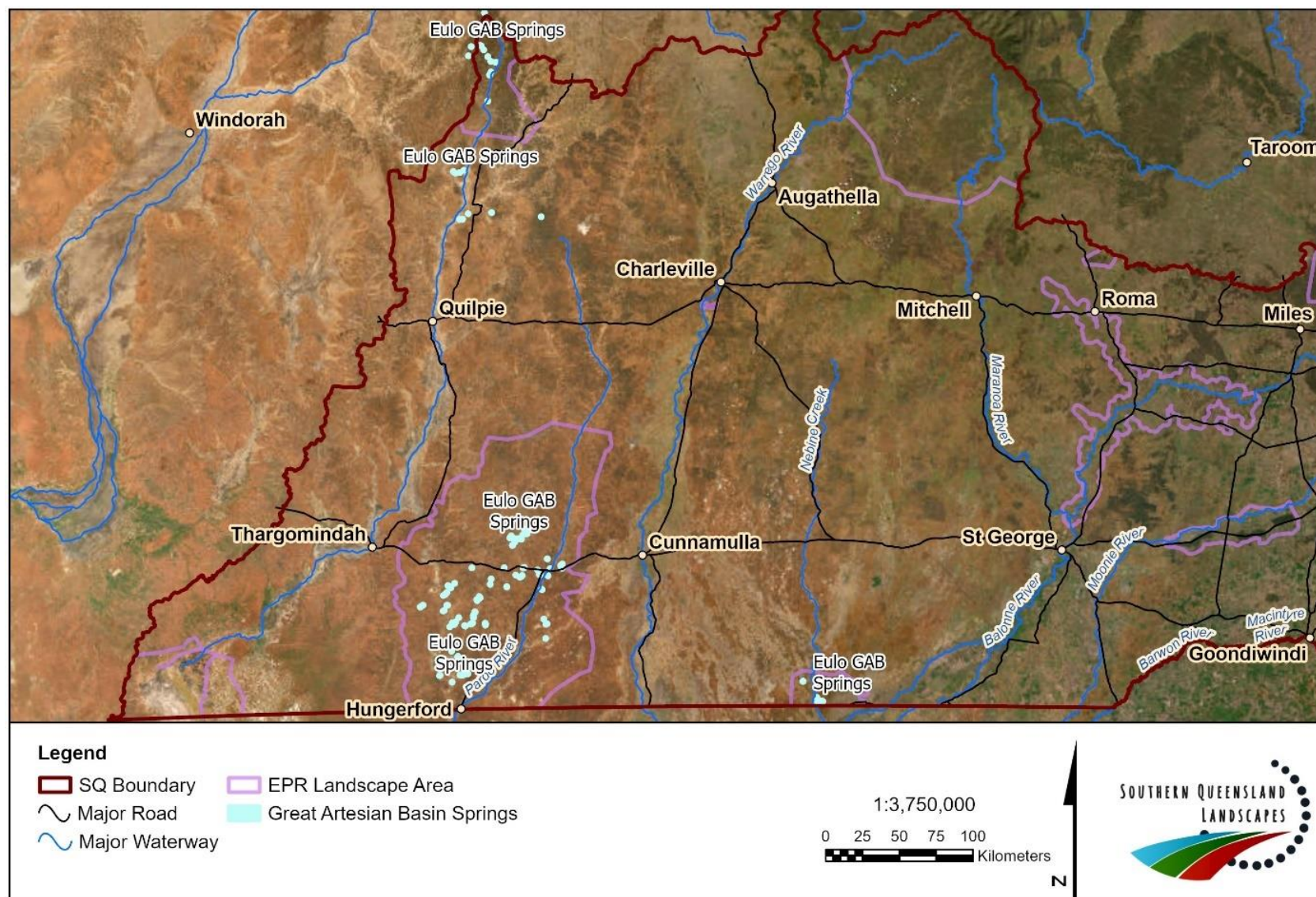


Figure 10: Known locations of Great Artesian Basin Springs, Threatened Ecological Community.

Asset	Emergency scenario	Why it poses a threat	Susceptibility	Why
GAB discharge spring wetlands	Drought	Aquifer draw-down in times of drought for residential, commercial and agricultural use.	Major consequence with a high-risk level.	Spring flows in the discharge areas of the GAB have declined dramatically as a result of aquifer pressure decline from artificial extraction. The loss of springs as a result of draw-down has been most severe in the Flinders River, Bourke, Springvale, Barcaldine and Eulo supergroups. The high rate of spring extinction and decline has almost certainly resulted in the loss of endemic species.
	Flood	A flood has the potential to exacerbate erosion and sedimentation in the TEC, destroy habitat and displace species who are not well adapted to aquatic or semiaquatic conditions.	Moderate but rare	This TEC is less susceptible to flood, as significant effort has been made to control erosion and many of the plants are somewhat flood resistant.
	Animal/plant diseases	Unknown impacts to endemic species.	Major but unlikely	
	New pest outbreak	Cane toads consume a large proportion of the available endemic aquatic taxa. ³⁷ Exotic ponded pasture species para grass (<i>Urochloa mutica</i>) and hymenachne (<i>Hymenachne amplexicaulis</i>) are known to infest GAB springs and can displace the native species. ³⁸ Total grazing pressure from stock, ferals and native animals can be considerable. Trampling and pig rooting can be a major disturbance	Catastrophic and likely	Springs subject to high grazing pressure from cattle and pest animals often receive high nutrient loading. Grazing animals can disturb or destroy geological structures associated with the springs, affecting or possibly blocking spring vents. Other deleterious impacts upon GAB springs include destruction of vegetation, impacts on fish and spring invertebrates, and changes to water chemistry. Physical damage, such as

³⁷ Clifford, S.E. et al (2020) Do Cane Toads (*Rhinella marina*) Impact Desert Spring Ecosystems? In The Royal Society of Queensland (2020) Proceedings of the Royal Society Of Queensland, Springs of the Great Artesian Basin eds Angela H. Arthington, Renee A. Rossini, Steven C. Flook, Sue E. Jackson, Moya Tomlinson and Craig S. Walton.

³⁸ Fensham R.J, Ponder, W.F. and Fairfax, R.J. 2010. Recovery plan for the community of native species dependent on natural discharge of groundwater from the Great Artesian Basin. Report to Department of the Environment, Water, Heritage and the Arts, Canberra. Queensland Department of Environment and Resource Management, Brisbane.

Asset	Emergency scenario	Why it poses a threat	Susceptibility	Why
		around the edge of the spring wetlands. The vegetation of individual small wetlands can be completely destroyed by a single incident.³⁹ Introduced aquatic fauna such as mosquito fish <i>Gambusia holbrooki</i> are present in many larger springs and may pose a serious threat to native fauna through predation and competition.⁴⁰ Potential threats posed by tourist visitation include trampling of wetland vegetation and practices associated with inappropriate bathing (i.e. soap, sunscreen and detergents).		trampling and pugging in spring pools, can be severe, destroying plants, impacting insect habitat, disturbing the soil surface and creating multiple small pools with increased nutrients from manure and anaerobic conditions.⁴¹ Further research and monitoring is required to better establish the threat the cane toad poses to GAB spring communities. This includes establishing an accurate distribution map of cane toads at GAB springs, as well as establishing if the cane toads are breeding within the springs.
	Dust Storm	Deposition of sediment in spring can alter the unique water chemistry required for endemic species.	Moderate but rare. Low confidence based on lack of data.	Dust storms may become more frequent with drying climate. Dust storms can also provide a beneficial service by removing sediments on or nearby springs through wind action.

³⁹ Fensham R.J, Ponder, W.F. and Fairfax, R.J. 2010. Recovery plan for the community of native species dependent on natural discharge of groundwater from the Great Artesian Basin. Report to Department of the Environment, Water, Heritage and the Arts, Canberra. Queensland Department of Environment and Resource Management, Brisbane.

⁴⁰ Fensham R.J, Ponder, W.F. and Fairfax, R.J. 2010. Recovery plan for the community of native species dependent on natural discharge of groundwater from the Great Artesian Basin. Report to Department of the Environment, Water, Heritage and the Arts, Canberra. Queensland Department of Environment and Resource Management, Brisbane.

⁴¹ Fensham R.J, Ponder, W.F. and Fairfax, R.J. 2010. Recovery plan for the community of native species dependent on natural discharge of groundwater from the Great Artesian Basin. Report to Department of the Environment, Water, Heritage and the Arts, Canberra. Queensland Department of Environment and Resource Management, Brisbane.

Gondwana Landscapes - World Heritage Area

The Gondwana Rainforests of Australia World Heritage Area include the most extensive areas of subtropical rainforest in the world, large areas of warm temperate rainforest and nearly all of the cool temperate rainforest. Few places on Earth contain so many plants and animals that remain relatively unchanged from their ancestors in the fossil record.⁴²

The Main Range section of the Gondwana Rainforests of Australia was inscribed on the World Heritage List in 1994. It meets three of the four criteria for World Heritage listing:

1. an outstanding example representing the major stages of the Earth's evolutionary history.
2. an outstanding example representing significant ongoing geological processes, biological evolution and man's interaction with his natural environment.
3. an area containing the most important and significant habitats where threatened species of plants and animals of outstanding universal value from the point of view of science and conservation still survive.

Bushfire, severe storms, animal/plant diseases and new pest outbreaks have been identified as the top threats to the Gondwana Rainforests of Australia of the Main Range National Park and adjacent buffer areas.

The Gondwana Landscape Area identified for the purposes of this EPR Plan includes the buffer area adjacent to the Main Range National Park. This buffer area is mainly private land managed by a range of landholders.

This EPR Plan is informed by the Main Range National Park and Spicers Gap Road Conservation Park Management Statement.⁴³

⁴² Commonwealth of Australia (2011) Gondwana Rainforests of Australia. Department of Sustainability, Environment, Water, Population and Communities, Canberra.

⁴³ State of Queensland (2024) Main Range National Park and Spicers Gap Road Conservation Park Management Statement, Queensland Parks & Wildlife Service (QPWS), Department of Environment, Science, and Innovation, Brisbane.

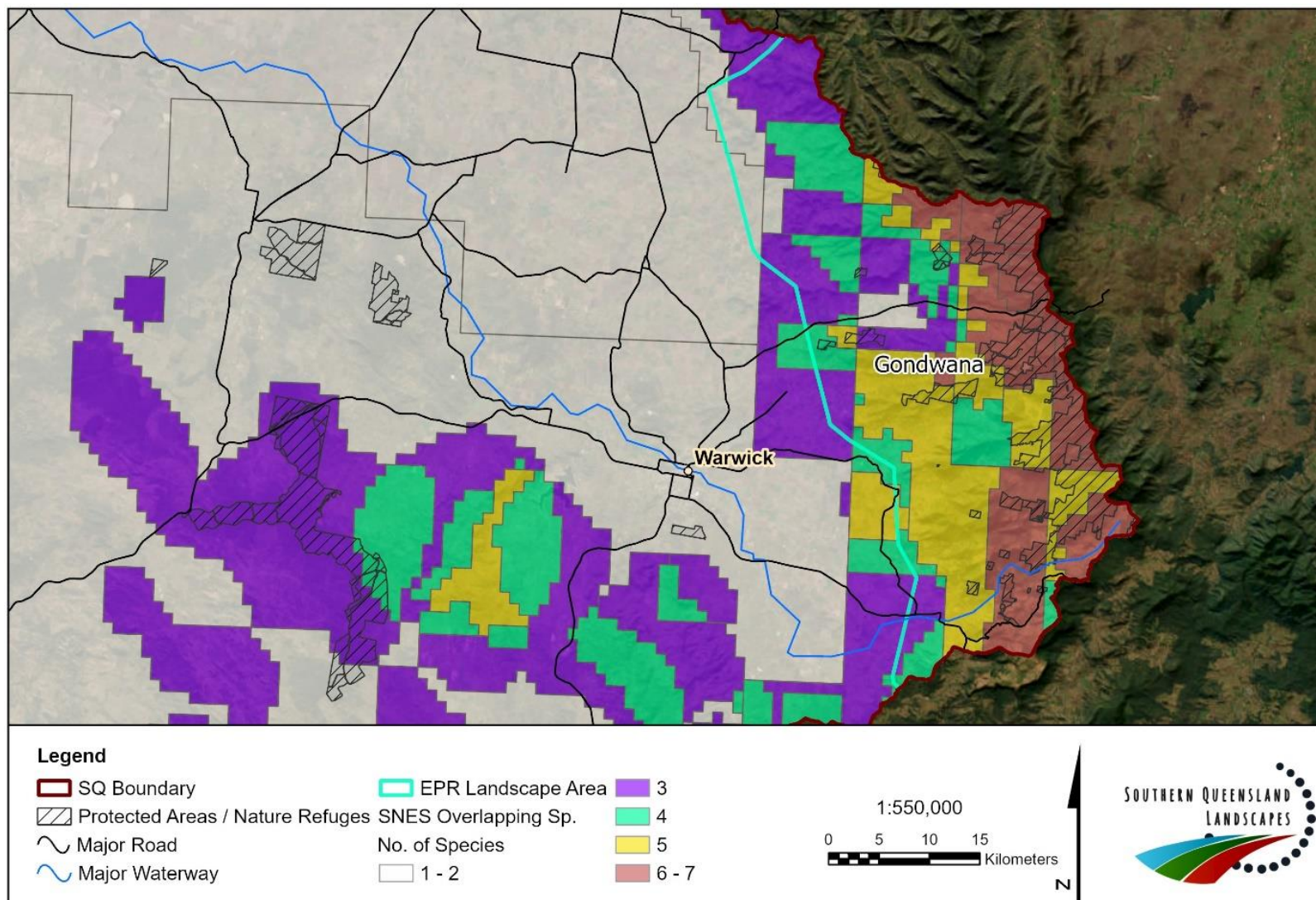


Figure 11: Gondwana Landscape Area and Overlapping 'habitat likely' for Species of National Environmental Significance.

Asset	Emergency scenario	Why it poses a threat	Susceptibility	Why
Gondwana Landscapes - World Heritage Area	Bushfire	A bushfire has the potential to permanently destroy an ecosystem or species recognised at the national level. Many of the ecological communities and species in the Main Range National Park are highly susceptible to bushfire. Post event, there would be an increased threat of weeds and invasive species, increased erosion and overall loss of biodiversity.	Very high risk with catastrophic impact (high confidence).	Severe bushfires have a nominal occurrence of one in 100 years however because of climate change, the region is predicted to experience an increase in temperatures and a decrease in overall precipitation. These projected conditions are conducive to an increase in bushfires.
	Animal/plant diseases	Disease has the potential to permanently destroy an ecosystem or species recognised at the national level. Diseases such as Myrtle rust (<i>Austropuccinia psidii</i>) have severely impacted SNES in the Park such as the native guava (<i>Rhodomyrtus psidioides</i>). Bell miner associated die-back (BMAD) results from the interaction between Bell Miners (bellbirds), sap sucking scale insects called psyllids and various species of eucalypts.⁴⁴ The dieback eventually leads to tree death. The stressed trees also become more susceptible to other insect new	Very high (highest confidence).	As ecosystems become more stressed under changes to climate, they will become more susceptible to disease and related impacts.

⁴⁴ In a balanced forest bell miners exist in small discreet colonies along the edges of moist sclerophyll forests. However, BMAD develops when natural control mechanisms break down and both Bell Miners and psyllids explode in plague proportions. The psyllids defoliate the trees which are successively attacked as new soft regrowth emerges which is richer in nitrogen and more accessible than the older leaves, establishing a positive feedback loop which eventually leads to tree death.

Asset	Emergency scenario	Why it poses a threat	Susceptibility	Why
		pest outbreaks such as wood borers as well as fungal pathogens. ^{45 46}		
	Severe storms	A severe storm has the potential to impact significant loss or impairment of an ecosystem or species recognised at the national level. Direct impact from lightning strikes, wind gusts and storm surge causing damage to national parks, state forests and coastal areas. Landslip susceptibility increases due to wind and rain. Tourism can be impacted due to environmental damage sustained as a result of an event. A landslide at Cunninghams Gap occurred following heavy rain in January 2011. A severe weather event in January 2013 substantially damaged walking tracks.	Moderate (lowest confidence).	Climate change is likely to increase the frequency and severity of hazards such as severe storms and subsequent flooding and can lead to soil degradation, erosion and damage or destruction to habitats.
	New pest outbreak	New pest outbreaks have the potential to severely damage or contribute to the loss of an ecosystem or species recognised at the national level. Fire ants sting animals and can severely damage ecosystems.	High (high confidence).	Climate change will promote changes in the ranges of invasive species. ⁴⁷
	Heatwave	A heatwave has the potential to contribute to a significant loss or impairment to an ecosystem or species recognised at the national level.	Very high (lowest confidence).	There is likely to be a substantial increase in the temperature reached on the hottest days, and an

⁴⁵ Kathryn T.A. Lambert, Nick Reid, Richard H. Loyn, Paul G. McDonald, Understanding and managing the role of bell miners (*Manorina melanophrys*) in forest dieback: A review of the ecological and management evidence, Forest Ecology and Management, Volume 523, 2022, 120470, ISSN 0378-1127, <https://doi.org/10.1016/j.foreco.2022.120470>

⁴⁶ Silver, MJ and Carnegie AJ (2017) An independent review of bell miner associated dieback. Final report prepared for the Project Steering Committee: systematic review of bell miner associated dieback.

⁴⁷ State of Queensland (Department of Environment and Resource Management) (2010) Climate Change in Queensland: What the Science is Telling Us, Queensland Climate Change Centre of Excellence, Brisbane.

Asset	Emergency scenario	Why it poses a threat	Susceptibility	Why
				increase in the frequency of hot days and the duration of warm spells.

Carnarvon National Park Mt Moffat Section

Animal/plant diseases, new pest outbreaks and bushfire have been identified as the top threats to the Mt Moffat Section of Carnarvon National Park.

Threatened Ecological Communities:

- White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland - Critically Endangered
- Poplar Box Grassy Woodland on Alluvial Plains - Endangered
- Weeping Myall Woodlands - Endangered
- Brigalow (*Acacia harpophylla* dominant and co-dominant) - Endangered
- Natural Grasslands of the Queensland Central Highlands and northern Fitzroy Basin - Endangered
- Semi-evergreen vine thickets of the Brigalow Belt (North and South) and Nandewar Bioregions – Endangered

Species of National Environment Significance (habitat likely):

- *Dichanthium queenslandicum* King Blue-grass
- *Delma torquata* Adorned Delma, Collared Delma
- *Dasyurus hallucatus* Northern Quoll, Digul [Gogo-Yimidir], Wijingadda [Dambimangari], Wiminji [Martu]
- *Phascolarctos cinereus* Koala (combined populations of Qld, NSW and the ACT)

Carnarvon National Park is one of the few reserved areas in the Brigalow Belt that have significant representation of softwood scrub with smaller pockets in the Mount Moffatt section. A large population of Austral cornflower (*Stemmacantha australis*) occurs on Marlong Plain in the Mount Moffatt section. A monitoring program was commenced at Mount Moffatt for *Stemmacantha australis* and a comprehensive fauna survey program is also underway. New data may provide more accurate information as to the presence and locality of significant species.

This EPR Plan is informed by the Carnarvon National Park Management Plan.⁴⁸

⁴⁸ The State of Queensland, Environmental Protection Agency (2005) Carnarvon National Park Management Plan, Queensland Parks and Wildlife Service, Brisbane. Carnarvon National Park Management plan (des.qld.gov.au)

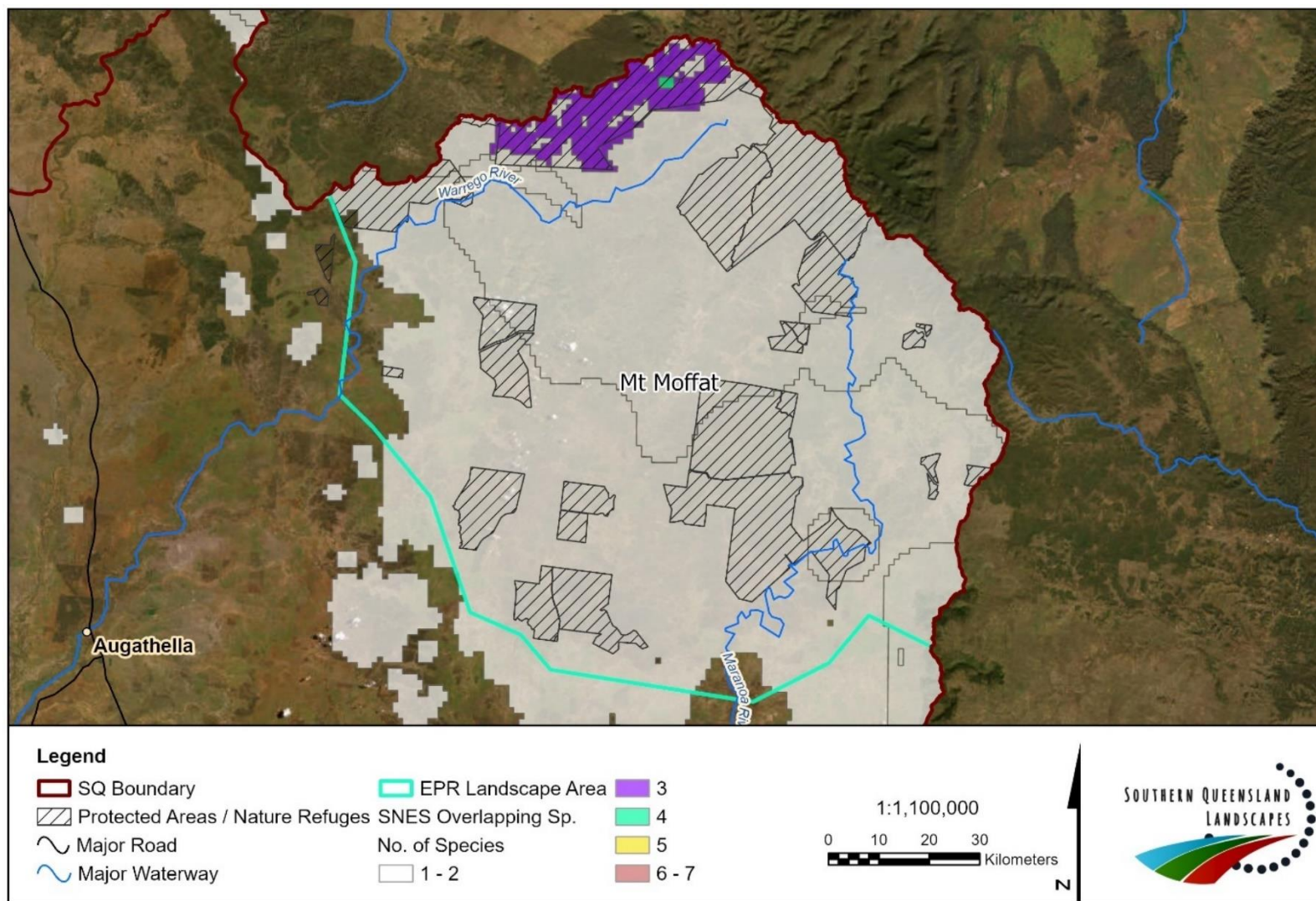


Figure 12: Mt Moffat Landscape Area and Overlapping 'habitat likely' for Species of National Environmental Significance.

Asset	Emergency scenario	Why it poses a threat	Susceptibility	Why
Carnarvon National Park Mt Moffat Section	Bushfire	A bushfire has the potential to permanently destroy an ecosystem or species recognised at the national level.	Very high (high confidence) Extreme risk with major consequences.	Many of the ecological communities and species in the Mt Moffat section are highly susceptible to bushfire including semi-evergreen vine thickets of the Brigalow Belt (North and South) and Nandewar Bioregions (listed as endangered).
		Severe wildfire can occur, especially during the warmer months, over all sections of the park.		
		Post event, there would be an increased threat of weeds and invasive species, increased erosion and overall loss of biodiversity.		
		To the south of the park are the upper reaches of Warrego and Maranoa Rivers. Land management practices within the park and on surrounding areas can affect the water quality of these river systems so an integrated approach to land management is required.		
	Animal / plant diseases	Disease has the potential to permanently destroy an ecosystem or species recognised at the national level.	Very high (highest confidence) High risk with major consequences.	
	New pest outbreak	New pest outbreaks have the potential to severely damage or contribute to the loss of an ecosystem or species recognised at the national level.	High (high confidence) High risk with major consequences.	Protecting ecological and culturally significant sites is challenging once feral deer are in the area. Restoration and revegetation efforts are expensive to maintain, as deer-proof fencing and tall vegetation guards are needed.
		Fire ants sting animals and can severely damage ecosystems.		Fire ants have been detected in the east of Southern Queensland.
		The encroachment of exotic grasses such as Buffel grass (<i>Cenchrus ciliaris</i>) and green panic (<i>Panicum</i>		Intrusion of exotic grasses into new areas can increase the area

Asset	Emergency scenario	Why it poses a threat	Susceptibility	Why
		<i>maximum</i>) dramatically increases the risk of destruction to these fire sensitive communities.		susceptible to bush fire. Any new introduced pasture species can have similar effects.
		Feral pigs occur on all sections of the park. Their numbers fluctuate depending on the season and water availability, so the damage they inflict on the park is both seasonal and irregular. They dig for roots and tubers of plants in soft soil and mud and can cause extensive damage.		Feral pigs have the potential to spread new pest outbreaks and disease into unaffected areas.
		Predatory animals (e.g. wild dogs, foxes and cats) kill native animals and also compete with them for food and shelter. Although not yet in large numbers, these animals pose a potential threat for small to medium-sized prey, including mammals, birds and reptiles. Rabbits occur in the park in small numbers and are not seen as a major threat.		Predatory animals are not present in large numbers and there is an opportunity to minimise the impact of this threat.

South West Corner – Bulloo River Floodplains

Animal/plant diseases, bushfire, drought and new pest outbreaks have been identified as the top threats to the South West Corner – Bulloo River Floodplains.

Species of National Environment Significance (habitat likely):

- Plains wanderer – critically endangered

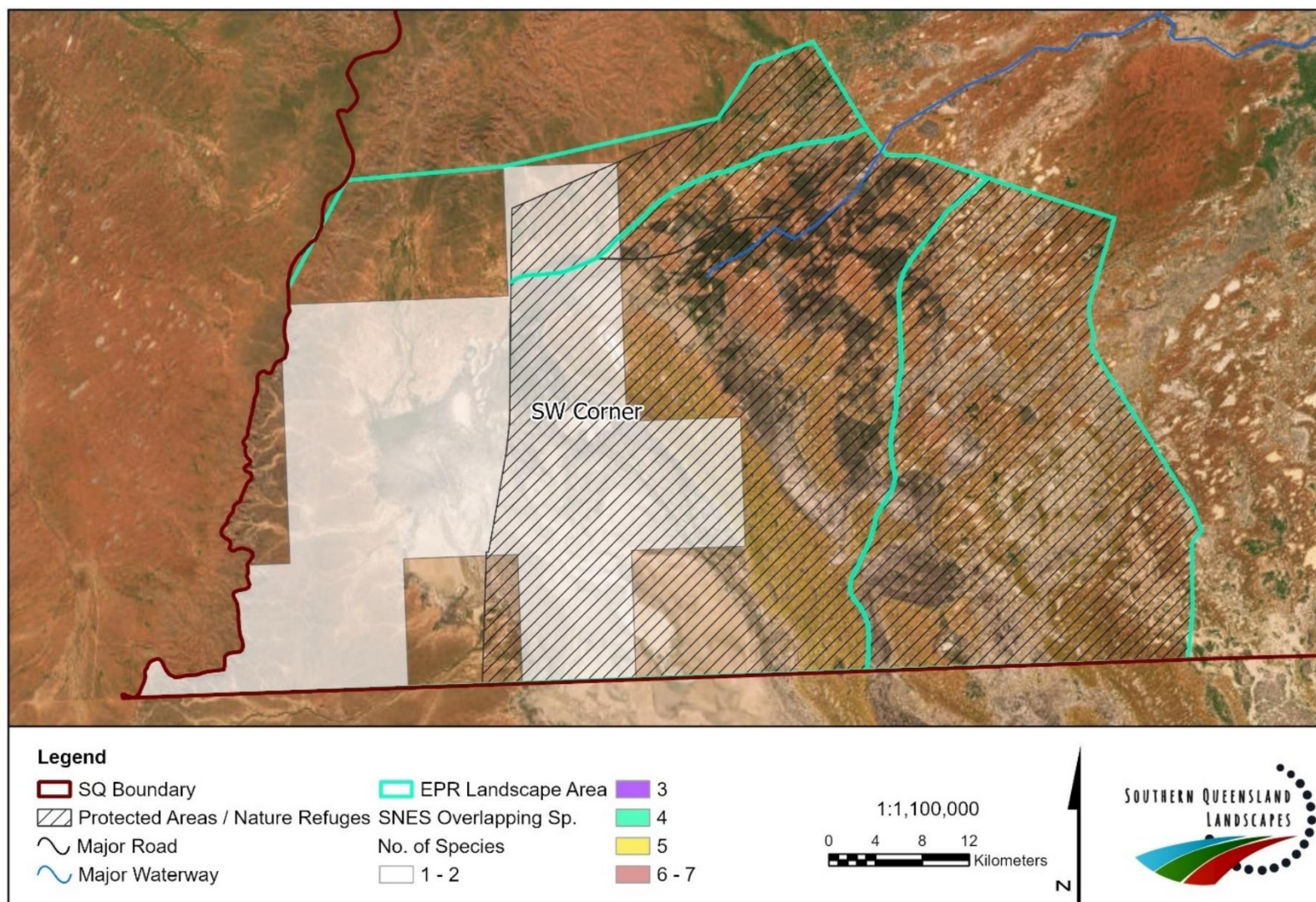


Figure 13: South West Corner Landscape Area and Overlapping 'habitat likely' for Species of National Environmental Significance.

Asset	Emergency scenario	Why it poses a threat	Susceptibility	Why
South West Corner – Bulloo River Floodplains	Animal/plant diseases	Disease has the potential to permanently destroy an ecosystem or species recognised at the national level. New outbreaks of disease are difficult to control. Avoidance is the priority. Bird flu is a highly infectious disease of birds. All bird species are thought to be susceptible to bird flu. The disease can affect more than 140 bird species. Many wild birds and waterfowl (especially geese, ducks and swans) carry the virus but generally don't show signs of the disease. However, they can infect other birds and poultry they come into contact with.	High risk but low confidence. Rare but potentially catastrophic consequences.	Bird flu is currently rare in Australia but could lead to deaths of birds in the park with potential to spread to other species of national significance.
	Bushfire	A bushfire has the potential to permanently destroy ecosystems or species. Post event, there would be an increased threat of weeds and invasive species, increased erosion and overall loss of biodiversity.	Unlikely but potentially catastrophic consequences. Extreme risk with high confidence.	Severe bushfires have a nominal occurrence of one in 100 years however as a result of climate change, the region is predicted to experience an increase in temperatures and a decrease in overall precipitation.
	Drought	Extended drought has the potential to result in damage to or loss of an ecosystem or species recognised in the southwest corner.	Unlikely but major consequences. Extreme risk with high confidence.	As a result of climate change, the region is predicted to experience an increase in temperatures, decrease in overall precipitation and increase in heavy rainfall events.
	New pest outbreak	The presence of feral pigs, rabbits and goats continues to be a management issue for the site. Fire ants are not in the area but when present can sting animals and can severely damage ecosystems.	Unlikely chance of new outbreaks. New outbreaks could lead to moderate impacts on the ecosystems in the Bulloo floodplains.	Threats include the introduction of carp and other non-native fish currently in the Warrego River system but not found in the Bulloo River.

Asset	Emergency scenario	Why it poses a threat	Susceptibility	Why
			Medium risk but low confidence.	
Cross Border issues				
Narriearra Caryapundy Swamp National Park (NSW) Caryapundy Swamp Ramsar site	Hydrological changes that alter flood patterns.	Climate change is predicted to exacerbate existing threats to the natural and cultural values of the wetland. However, most importantly it relies on river flows from the Bulloo River in Queensland, largely a free-flowing river.	Possible related to droughts and upstream changes to hydrology. Bulloo River is unregulated at this point in time.	Narriearra Caryapundy Swamp National Park is located in the remote channel country of the Bulloo Overflow in far north-western NSW, known as 'corner country'. The Dog Fence (or Dingo Fence) forms the northern boundary of the park on the New South Wales/Queensland border. Managing issues that affect the Bulloo Overflow will require integration with Bulloo Downs Nature Refuge and other stakeholders across the New South Wales/Queensland border. Threats to the nationally threatened grey grass wren include habitat loss, grazing by introduced herbivores, hydrological changes that alter flood patterns, and potential predation by foxes and cats. ⁴⁹

⁴⁹ Statement of Management Intent: Narriearra Caryapundy Swamp National Park

Traprock

Bushfire, animal/plant diseases, drought, floods, severe storms and new pest outbreaks are significant risks to the natural assets of the Traprock region.

Threatened Ecological communities (TEC) present in the Traprock region are:

- Poplar Box Grassy Woodland on Alluvial Plains
- White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland
- Weeping Myall Woodlands
- Semi-evergreen vine thickets of the Brigalow Belt (North and South) and Nandewar Bioregions
 - Threats affecting SEVT EC include:
 - clearing;
 - fire;
 - weeds;
 - grazing; and
 - vertebrate new pest outbreaks.
- New England Peppermint (*Eucalyptus nova-anglica*) Grassy Woodlands
- Brigalow (*Acacia harpophylla* dominant and co-dominant)
- Natural grasslands on basalt and fine-textured alluvial plains of northern New South Wales and southern Queensland

Habitat for the following Species of National Environmental Significance exist in the Traprock:

- *Delma torquata* Adorned Delma, Collared Delma - Vulnerable
- *Petrogale penicillata* Brush-tailed Rock-wallaby - Vulnerable
- *Anthochaera phrygia* Regent Honeyeater - Critically Endangered
- *Lathamus discolor* Swift Parrot - Critically Endangered
- *Phascolarctos cinereus* Koala - Endangered
- *Botaurus poiciloptilus* Australasian Bittern – Endangered

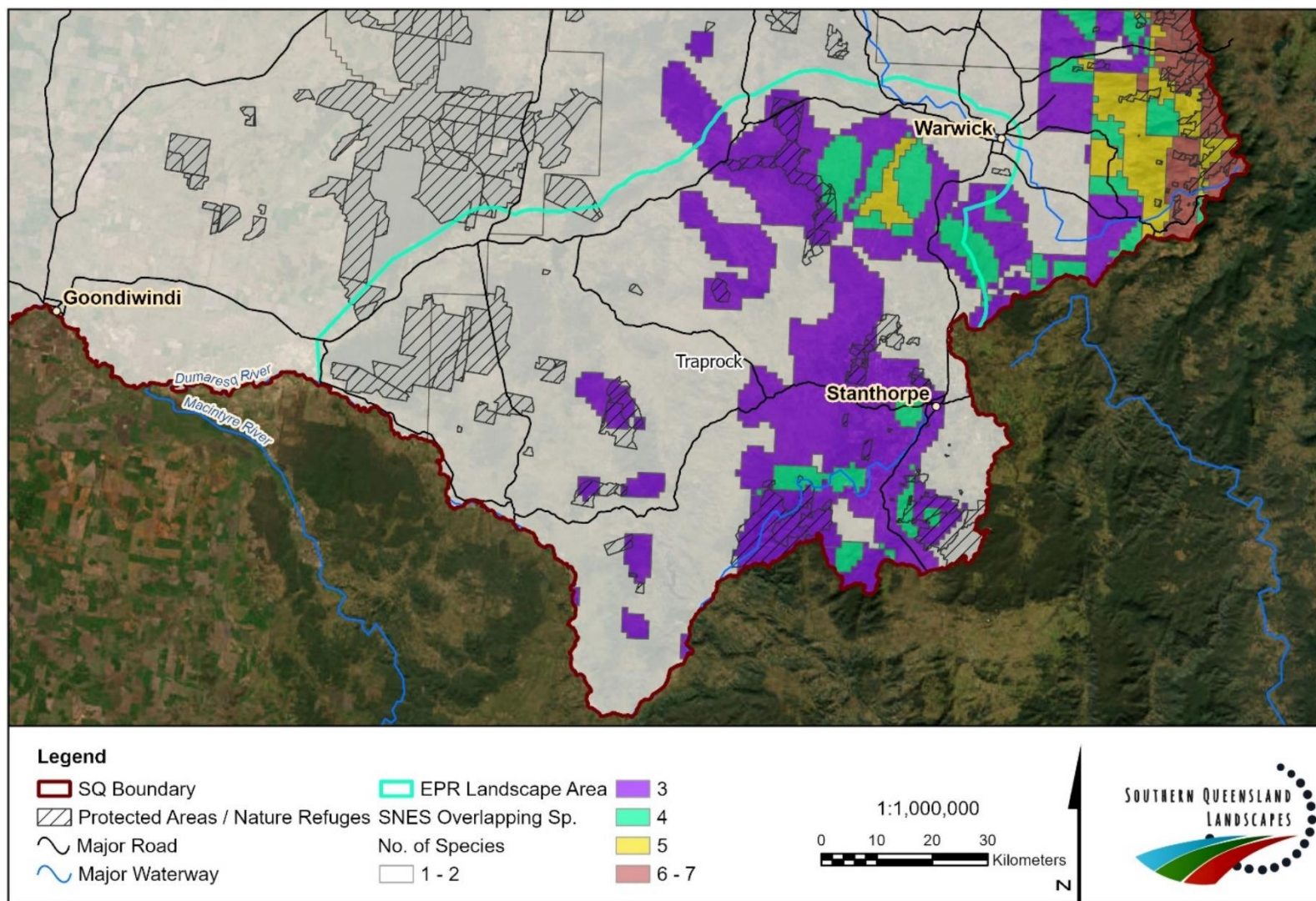


Figure 14: Traprock Landscape Area and Overlapping 'habitat likely' for Species of National Environmental Significance.

Asset	Emergency scenario	Why it poses a threat	Susceptibility	Why
Traprock	Bushfire	Too frequent or extensive burning may limit recruitment of some species, cause local extinctions of fire sensitive species, facilitate the spread of some exotic species (such as Coolatai Grass), reduce fauna habitat features (fallen logs, hollow trees, litter) and threaten fauna populations (Clarke 1999; Davies 1999). Morgan and Lunt (1999) found that a lack of fire in Australian temperate grasslands can lead to sward collapse and weed invasion. Fire becomes a serious threat where fuel characteristics have been changed by the presence of introduced grass pasture species such as Buffel grass (<i>Pennisetum ciliare</i>) or Green Panic (<i>Megathyrsus maximus var. pubiglumis</i>) in areas adjacent to thickets (Fensham 1996; McDonald 1996) or where thickets have been invaded by lantana (<i>Lantana camara</i>) (Fensham et al. 1994; Fensham 1996).	A catastrophic bushfire is unlikely however the risk is extreme based on a moderate level of confidence.	Severe bushfires nominally occur once in 100 years however as a result of climate change, the region is predicted to experience an increase in temperatures and a decrease in overall precipitation which increases the risk of an extreme bushfire in the future. Species of national environmental significance and related habitats are susceptible to bushfire including semi-evergreen vine thickets of the Brigalow Belt (North and South) and Nandewar Bioregions.
	Animal/plant diseases	<i>Phytophthora cinnamomi</i> is an introduced root-rot fungus which represents a major threat to native ecosystems. A microscopic soil-borne organism, widespread in southern Australia, <i>P. cinnamomi</i> attacks the roots and basal stem tissue of living plants. It interferes with the movement of water and nutrients to plants, causing root-rot and may result in the death of the plant. It is known that some component species of Box-Gum Grassy Woodland [e.g. grass trees (<i>Xanthorrhoea</i> spp.)] are	A disease outbreak is unlikely however the risk is extreme based on a moderate level of confidence.	<i>Phytophthora cinnamomi</i> is not widespread in the Traprock area.

Asset	Emergency scenario	Why it poses a threat	Susceptibility	Why
		susceptible to dieback caused by <i>P. cinnamomi</i> . Dieback caused by the root-rot fungus (<i>Phytophthora cinnamomi</i>) is listed as a Key Threatening Process under the EPBC Act.		
	Drought	Extended drought has the potential to result in damage to or loss of an ecosystem or species recognised in the Traprock.	Drought is likely to impact TECs and SNES in the Traprock Landscape Area.	As a result of climate change, the region is predicted to experience an increase in temperatures, decrease in overall precipitation and increase in heavy rainfall events.
	New pest outbreak	Where pigs do occur, their digging appears to kill some trees by severing their roots which results in the canopy layer becoming more open. They also destroy brush turkey mounds and disturb fallen and decaying trees. Buffel grass (<i>Pennisetum ciliare</i>) and Green Panic (<i>Megathyrsus maximus</i> var. <i>pubiglumis</i>) and Parthenium (<i>Parthenium hysterophorus</i>) are considered to pose a threat to semi-evergreen vine thickets because they facilitate the incursion of fire into them. ⁵⁰	Medium risk of a major new outbreak.	Climate change will promote changes in the ranges of invasive species. ⁵¹

⁵⁰ McDonald, W.J.F. 2010. National recovery plan for the “Semi-evergreen vine thickets of the Brigalow Belt (North and South) and Nandewar Bioregions” ecological community. Report to Department of the Environment, Water, Heritage and the Arts, Canberra. Queensland Department of Environment and Resource Management, Brisbane

⁵¹ State of Queensland (Department of Environment and Resource Management) (2010) Climate Change in Queensland: What the Science is Telling Us, Queensland Climate Change Centre of Excellence, Brisbane.

Balonne Junction

Bushfire, drought, animal/plant diseases are significant risks to the natural assets of the Balonne Junction priority landscape area.

Threatened Ecological Communities (TECs) in the Balonne Junction Landscape Area:

- Poplar Box Grassy Woodland on Alluvial Plains
- Coolibah - Black Box Woodlands of the Darling Riverine Plains and the Brigalow Belt South Bioregions

The main potential threats to the coolibah ecological community relate to further land clearing and:

- changes to water flows and patterns
 - inappropriate grazing regimes
 - invasion by exotic species (especially Lippia (*Phyla canescens*) and African Boxthorn (*Lycium ferocissimum*))
 - fragmentation of forests
 - further changes to water flows and patterns associated with river regulation infrastructure and water storage for irrigation
 - climate change impacts.
- Weeping Myall Woodlands
 - Brigalow (*Acacia harpophylla* dominant and co-dominant).

The Balonne Junction Landscape Area contains likely habitat for:

- *Delma torquata*
- *Phascolarctos cinereus* (Koala, combined populations of Qld, NSW, ACT).

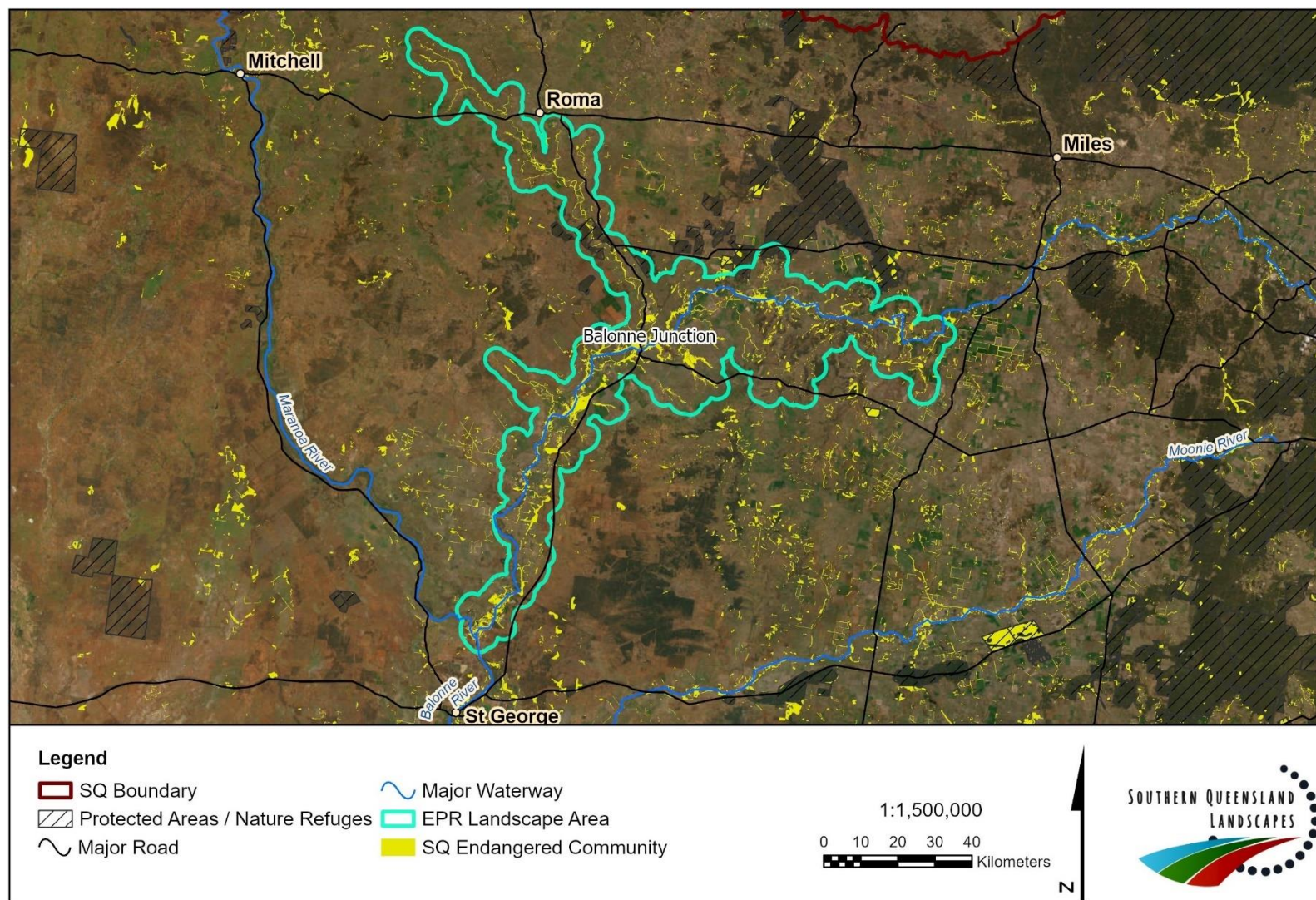


Figure 15: Balonne Junction Landscape Area and extent of Threatened Ecological Communities.

Asset	Emergency scenario	Why it poses a threat	Susceptibility	Why
Balonne Junction	Bushfire	Bushfire can result in widespread alteration of landscapes, a loss of floral and faunal diversity, and impacts on Indigenous culture.	Catastrophic bushfire is unlikely, but risk level is extreme. High confidence.	Fires are rare in Coolibah – Black Box Woodlands. Little is known about historical fire regimes in the ecological community; however, an appropriate fire regime may be decades between burns (Benson et al., 2006; Benson, 2008). It is thought that more regular, low intensity fires may have contributed to a sparser ecological community to what is mostly evident today, as fires would have prevented establishment of some seedlings (Maher, 1995; Queensland Herbarium, 2009). Small, isolated fragments are less buffered against disturbances, such as invasion by weeds or pasture species that encroach from their margins or impacts from surrounding agricultural activities such as spray drift. Their longer-term outlook is for continued decline in size and quality.⁵² Fire risk is predicted to increase in brigalow communities due to the

⁵² Coolibah – Black Box Woodlands of the Darling Riverine Plains and the Brigalow Belt South Bioregions listing advice <https://www.environment.gov.au/biodiversity/threatened/communities/pubs/66-listing-advice.pdf> accessed 21 May 2024.

Asset	Emergency scenario	Why it poses a threat	Susceptibility	Why
				widespread exotic grass species invasions, particularly Buffel grass.⁵³ If climate change results in increasing temperatures and lower and more erratic rainfall, it is probable that unplanned, high-intensity fires will become a greater threat throughout the Brigalow Belt.
	Drought	Climate change can act additionally to existing pressures on already stressed ecosystems and interacts with disturbance regimes (such as altered fire regimes), land use change, water extraction, pollution, over harvesting, habitat degradation, disease and pathogens, eutrophication, invasive alien species and other agents of change. This can create rapid ecosystem transformations and reduce the supply of familiar ecosystem goods and services.⁵⁴ Periodic inundation is essential for the persistence of many components of the Coolibah – Black Box Woodlands ecological community.	Drought would have major impacts with a high risk of occurring. High confidence.	Extended periods of drought that impact on threatened ecological communities exacerbate any impacts due to altered natural water flow regimes. In addition to this, climate change projections suggest that rainfall and runoff in the region are likely to decrease thereby disrupting the natural hydrology of the floodplain. The impacts of drought would act through the physiology of the key plant species involved and their differential responses to low water availability. It is notable that many

⁵³ Ponce Reyes, R, Firn, J, Nicol, S, Chadès, I, Stratford, DS, Martin, TG, Whitten, S, Carwardine, J 2016 Priority Threat Management for Imperilled Species of the Queensland Brigalow Belt CSIRO, Brisbane.

⁵⁴ Ponce Reyes, R, Firn, J, Nicol, S, Chadès, I, Stratford, DS, Martin, TG, Whitten, S, Carwardine, J 2016 Priority Threat Management for Imperilled Species of the Queensland Brigalow Belt CSIRO, Brisbane.

Asset	Emergency scenario	Why it poses a threat	Susceptibility	Why
		The widespread development of infrastructure to regulate and divert water for irrigation and other human use, has led to considerable disruption of natural flooding-drying cycles in the major river catchments. Changes to the volume and distribution of overland flows impacts on regeneration events in Coolibah - Black Box Woodlands community. Small, isolated fragments are less buffered against disturbances, such as invasion by weeds or pasture species that encroach from their margins or impacts from surrounding agricultural activities such as spray drift. Their longer-term outlook is for continued decline in size and quality. The amount of Coolibah - Black Box Woodlands community in reserves is generally very low.		trees in the Coolibah – Black Box Woodlands community died in the severe drought commencing in 2002.⁵⁵ Increased warming and extended drought periods will significantly threaten species in the Brigalow Belt with small ranges and limited ability to migrate.⁵⁶
	Animal/plant diseases	Disease could result in permanent destruction of ecosystems or species recognised at the national level.	Rare but high-risk level with moderate confidence.	Some component species of Box-Gum Grassy Woodland [e.g. grass trees (<i>Xanthorrhoea</i> spp.)] are susceptible to dieback caused by <i>P. cinnamomi</i> (Keith McDougall, pers. comm.). Dieback caused by the root-rot fungus (<i>P. cinnamomi</i>) is

⁵⁵ Coolibah – Black Box Woodlands of the Darling Riverine Plains and the Brigalow Belt South Bioregions listing advice <https://www.environment.gov.au/biodiversity/threatened/communities/pubs/66-listing-advice.pdf> accessed 21 May 2024.

⁵⁶ State of Queensland (2019) Climate change in the Eastern Downs region, Department of Environment and Science, Brisbane.

Asset	Emergency scenario	Why it poses a threat	Susceptibility	Why
				listed as a Key Threatening Process under the EPBC Act. ⁵⁷
	New pest outbreak	Most areas of the ecological community have been impacted by heavy grazing, contributing to the loss of grazing-sensitive palatable species and the replacement of native plant species by weeds.	Moderate impact and new outbreaks are rare. Medium risk level. Moderate confidence.	Weed invasion is a key factor contributing to the degradation of this ecological community. Given the broad extent of the ecological community from western NSW to south-eastern Queensland, the range of weed species that could invade remnants of the ecological community is potentially large. Given that many of the weeds now present in the ecological community are highly invasive and problematic to manage, plus the threat from the establishment and spread of new weed species, weeds are highly likely to continue to contribute to the reduction in integrity of threatened ecological communities in the Balonne Junction well into the future.
		Lippia, African Boxthorn and Coolatai Grass are known to be aggressive environmental weeds that invade native grassy ecosystems.		
		Weed invasion is likely to be exacerbated by alteration to flow regimes, as described in drought above.		
		Feral deer also compete for food with native herbivores such as kangaroos and wallabies. Deer are a threat to the Critically Endangered White Box – Yellow Box – Blakely’s Red Gum Grassy Woodland and Derived Native Grassland.		

⁵⁷ Department of Environment, Climate Change and Water NSW. 2010. National Recovery Plan for White Box - Yellow Box - Blakely’s Red Gum Grassy Woodland and Derived Native Grassland. Department of Environment, Climate Change and Water NSW, Sydney.

AGRICULTURAL NATURAL ASSETS

Climate change is likely to increase the frequency and severity of hazards such as severe storms and subsequent flooding and can lead to soil degradation, erosion and damage or destruction to habitats. Drought conditions and increased temperatures can impact soil health and reduce streamflow into rivers, lakes and dams. Ecosystem services to primary industries are the benefits provided by environmental assets (e.g. soil, water, vegetation and atmosphere) that flow into goods and services and their improved productivity. Ecosystem services important to primary industry productivity include water (landscape and river), soil quality, landscape stability and biological services such as pollinators and pest control. Prolonged impacts on ecosystem services may lead to further pressures on environmental assets such as through increased competition for available water between primary production, cultural use, environmental flows and domestic needs.⁵⁸

Intensive cropping

Drought, animal/plant diseases and new pest outbreaks are the highest priority threats to agricultural natural capital assets used for cropping.

⁵⁸ DCCEEW 2024, National Climate Risk Assessment – first pass assessment report, appendix – risk descriptions, Department of Climate Change, Energy, the Environment and Water, Canberra, March. CC BY 4.0.

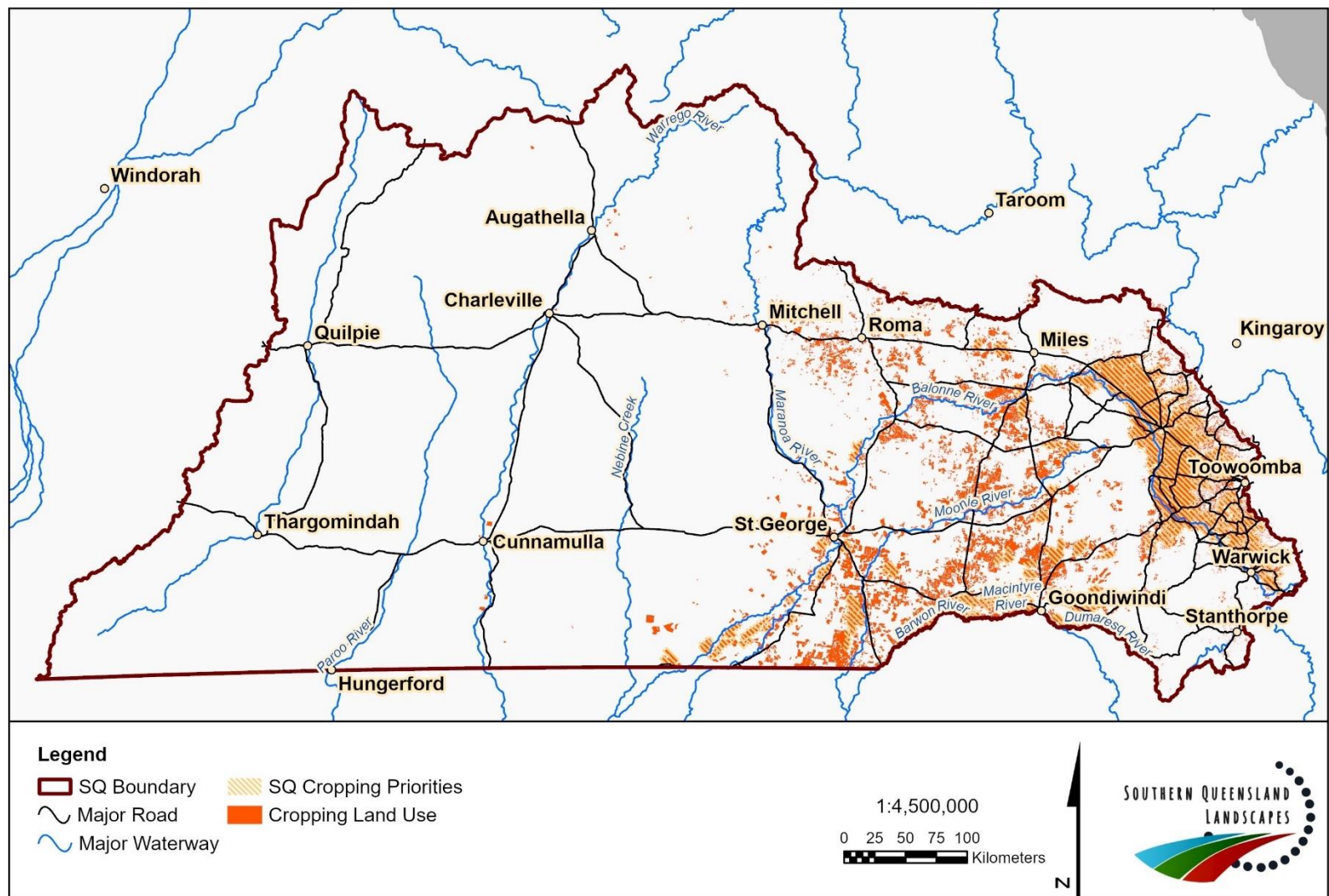


Figure 16: Cropping Land Use and Southern Queensland Cropping Priority Areas.

Asset	Emergency scenario	Why it poses a threat	Susceptibility	Why
Intensive cropping	Animal / plant diseases	Disease can lead to a decline of economic activity, and/or loss of asset value greater than 0.4% of gross product produced by area of interest. Animal and plant diseases pose a serious threat to food security, food safety, national economies, biodiversity and the rural environment. Examples of animal/plant diseases include powdery mildew, barley and sorghum rust, nematodes and phytophthora.	High (moderate confidence)	A major disease outbreak occurs on average once in every 100 years.
	New pest outbreak	New pest outbreak can lead to a decline of economic activity, and/or loss of asset value greater than 0.4% of gross product produced by area of interest. Fall armyworm (FAW) has had a major impact since arriving in Queensland in 2020, with infestations in maize and sorghum this year (2024) the most severe to date. Fire ants sting livestock and people and can have major impacts on electricity infrastructure, machinery and irrigation, particularly by clogging up pipes.	High (high confidence)	A new pest impacts an agricultural area once in every ten years. Climate change will promote changes in the ranges of invasive species. ⁵⁹
	Drought	Drought can lead to a decline of economic activity, and/or loss of asset value greater than 0.4% of gross product produced by area of interest.	High (high confidence)	Severe drought occurs on average once in every ten years. This could become more difficult to predict

⁵⁹ State of Queensland (Department of Environment and Resource Management) (2010) Climate Change in Queensland: What the Science is Telling Us, Queensland Climate Change Centre of Excellence, Brisbane.

Asset	Emergency scenario	Why it poses a threat	Susceptibility	Why
		Climate change has direct consequences including impacts from drought and low water availability. Climate change also affects disease transmission. Drought poses a threat to habitats that provide pollination and integrated pest management services to agriculture.		and last for extended periods under projected changes to climate.

Grazing priorities

Bushfire, drought, animal/plant diseases and new pest outbreaks are the highest priority threats to grazing lands.

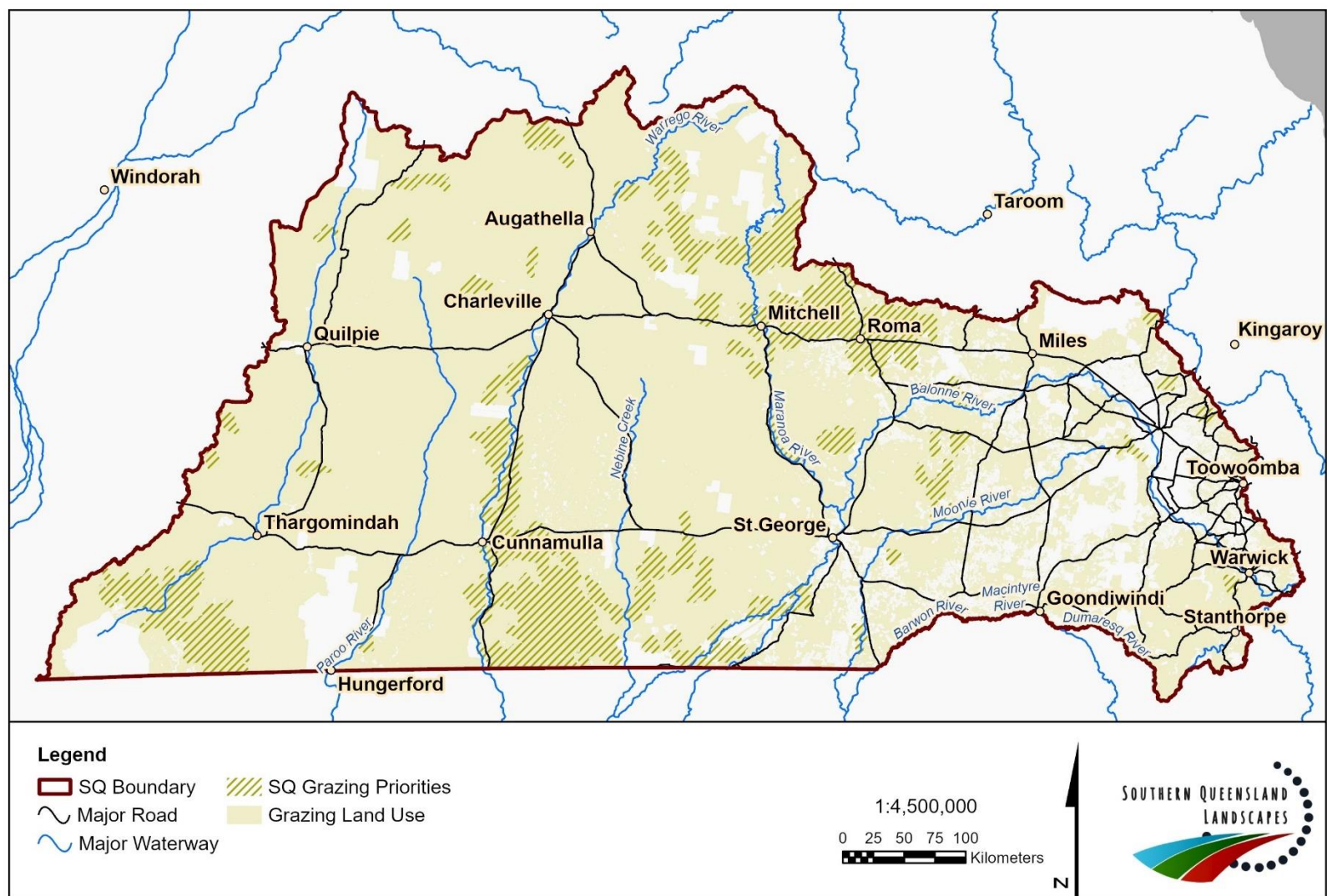


Figure 17: Grazing Land Use and Southern Queensland Grazing Priority Areas.

Asset	Emergency scenario	Why it poses a threat	Susceptibility	Why
Grazing Priorities	Bushfire	Bushfire can damage grasslands and destroy fodder particularly going into winter or a dry period. Stock can also be directly impacted or suffer from the unavailability of standing fodder. This can lead to a decline in economic activity, and/or loss of asset value greater than 0.4% of gross product produced by a grazing priority area. While cool burns in tune with the seasons and physiology of individual grassland species can be advantageous, uncontrolled bushfire is very often too hot damaging plant and soil biodiversity.	High (moderate confidence).	Severe bushfires occur on average once in every 100 years.
	Animal/plant diseases	Animal disease such as foot and mouth have the potential to severely impact livestock and the grazing asset. Rusts and other disease can decrease the productivity of fodder species. This can lead to a decline of economic activity, and/or loss of asset value greater than 0.4% of gross product produced in a grazing priority area. Excessive wet weather can turn soils anaerobic leading to a loss of soil biodiversity and pasture dieback. Pasture dieback begins in small patches which can grow to affect large areas, significantly reducing pasture productivity. ⁶⁰	High (moderate confidence).	A new disease outbreak occurs on average once in 100 years. Diseases such as Foot-and-mouth-disease (FMD), Lumpy Skin Disease (LSD), Japanese Encephalitis (JE) and African Swine Fever (ASF) are on the National List of Notifiable Animal Diseases. Pasture dieback has spread rapidly since 2015 and affects many sown and native summer grass species. The cause of pasture dieback has not been confirmed.

⁶⁰ State of Queensland (2023) Management of pasture dieback, Department of Agriculture and Fisheries, Meat and Livestock Australia and the Australian Government.

Asset	Emergency scenario	Why it poses a threat	Susceptibility	Why
	New pest outbreak	Established new pest outbreaks currently cost the grazing industry in Queensland \$160 million/year in control measures. ⁶¹ Fire ants sting livestock and people and can have major impacts on electricity infrastructure, machinery and irrigation, particularly by clogging up pipes. Fire ants pose a risk to Australia's environment, economy and outdoor way of life. This represents a major impact on economic activity.	High (high confidence).	A new pest impacts an agricultural area once in every 10 years. Climate change will promote changes in the ranges of invasive species. ⁶²
	Drought	Drought can lead to a decline of economic activity, and/or loss of asset value greater than 0.4% of gross product produced by area of interest.	High (high confidence).	Severe drought occurs on average once in every 10 years. This could become more difficult to predict and last for extended periods under projected changes to climate. In the range lands ecosystems, more frequent and severe droughts would be detrimental to ground cover and possibly grassland composition. Increased deep soil cracking with more frequent or intense droughts may particularly affect perennial grasses. ⁶³

⁶¹ <https://www.agriculture.gov.au/abares/research-topics/biosecurity/biosecurity-economics/cost-of-established-pest-animals-and-weeds-to-australian-agricultural-producers> accessed 2nd April 2024

⁶² State of Queensland (Department of Environment and Resource Management) (2010) Climate Change in Queensland: What the Science is Telling Us, Queensland Climate Change Centre of Excellence, Brisbane.

⁶³ State of Queensland (2019) Climate change in the Eastern Downs region, Department of Environment and Science, Brisbane.

Intensive animal production

Intensive animal production includes beef, poultry and pork.

Animal disease outbreak, heatwave and new pest outbreak are the highest risks for natural agricultural assets related to intensive animal production.

Intensive livestock operations have a small physical footprint but require large volumes of feed and produce large amounts of product including waste. A small percentage of these operations exist on floodplains and while small areas exist in fire prone areas, a larger area occupy landscapes where fire frequency is high. High wind can also be a factor in some areas and in combination with drought and high fire frequency requires a medium level of preparedness.

Of higher concern is the risk of new outbreaks of animal disease.

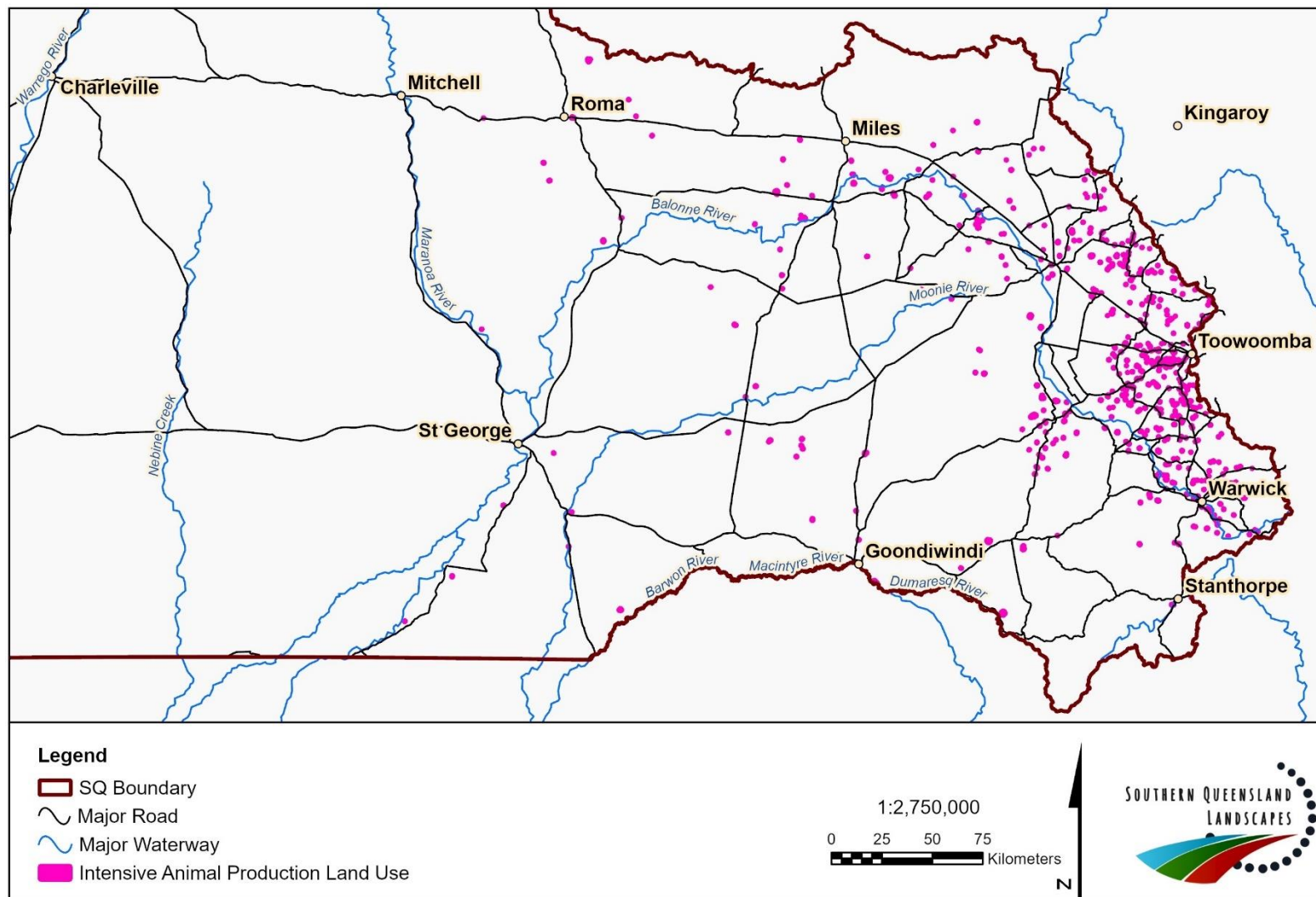


Figure 18: Indicative location of Intensive Animal Production Land Use.

Asset	Emergency scenario	Why it poses a threat	Susceptibility	Why
Intensive animal production	Heatwave	Excessive heat load (EHL), or heat stress, describes the situation where lot-fed livestock, primarily cattle, are not able to dissipate body heat effectively and their body temperature rises above normal. EHL initially leads to reduced feed intake and production losses but can, in extreme cases, lead to tissue organ damage and death. The factors that contribute to body heat load in cattle are complex and include environmental conditions and animal characteristics.	High (moderate confidence).	A combination of two or more of the following conditions can lead to EHL in Australian lot feed cattle: • Recent rainfall. • A high ongoing minimum and maximum ambient temperature. • A high ongoing relative humidity. • An absence of cloud cover with a high solar radiation level. • Minimal air movement over an extended period (4-5 days). • A sudden change to adverse climatic conditions.
	Bushfire	Bushfire can damage intensive livestock infrastructure and animals. Stock can also be directly impacted or suffer from the unavailability of standing fodder. This can lead to a decline in economic activity, and/or loss of asset value greater than 0.4% of gross product produced by intensive animal enterprises.	High (moderate confidence).	Severe bushfires occur on average once in every 100 years.
	Animal/plant diseases	Animal disease such as foot and mouth have the potential to severely impact livestock and intensive animal production. Rusts and other disease can decrease the productivity of fodder species and thus food for intensive livestock production. This can lead to a decline of economic activity, and/or loss of asset value greater than 0.4% of	High (moderate confidence).	A new disease outbreak occurs on average once in 100 years. Diseases such as Foot-and-mouth-disease (FMD), Lumpy Skin Disease (LSD), Japanese Encephalitis (JE) and African Swine Fever (ASF) are on the National List of Notifiable Animal Diseases.

Asset	Emergency scenario	Why it poses a threat	Susceptibility	Why
		gross product produced by intensive animal production.		
	New pest outbreak	Fire ants sting livestock and people and can have major impacts on electricity infrastructure, machinery and irrigation, particularly by clogging up pipes. Fire ants pose a risk to Australia's environment, economy and outdoor way of life. This represents a major impact on economic activity and any new incursions of new pest outbreaks into intensive animal establishments is a priority.	High (high confidence).	A new pest impacts an agricultural area once in every 10 years. Climate change will promote changes in the ranges of invasive species. ⁶⁴
	Drought	Drought can lead to a decline of economic activity, and/or loss of asset value greater than 0.4% of gross product produced by area of interest.	High (high confidence).	Severe drought occurs on average once in every 10 years. This could become more difficult to predict and last for extended periods.
	Flood	Very small amounts of the landscape where intensive animal production are situated is potentially prone to flooding.	High confidence that damage from a severe flood is unlikely. Flash flooding is more of a certainty based on predictions of climate change.	Flash floods are occurring more frequently west of the Great Dividing Range and are predicted to increase into the future.

⁶⁴ State of Queensland (Department of Environment and Resource Management) (2010) Climate Change in Queensland: What the Science is Telling Us, Queensland Climate Change Centre of Excellence, Brisbane.

Forestry

A number of the priority landscape areas in this Plan play host to large areas of native forests for timber products (Table 7).

Table 7: Area of native forests for timber production

Area	Ha of forestry
Mt Moffat	1,211,145
Traprock	843,164
Gubberamunda	17,947
Barakula	291,033
Southwood	146,960
Balonne Junction	519,028
Gondwana	121,899

State forests have provided significant amounts of forestry products, and many areas are still actively harvested. For example, the Barakula State Forest contains two main business themes in relation to timber products:

1. Native Forest – Cypress Pine White Pine (*Callitris glaucophylla*) which supplies high value termite resistant timber to the local sawmilling industry (approx. 15,000 tonnes annually). Much of the better-quality cypress area were manually thinned/treated to remove poorer quality or over abundant stems to promote growth to the better-quality trees. This operation became uneconomical in the late nineties and ceased.
2. Native Forest Hardwood contain a variety of dry eucalypt species consisting of Spotted gum (*Corymbia citriodora*), Narrow-leaved ironbark (*Eucalyptus crebra*), Grey box (*Eucalyptus moluccana*) and Forest Red Gum (*Eucalyptus tereticornis*) which supplies approx. 16,000 m³ of milling timber to local sawmills. A range of sleeper blocks, fencing timbers and power poles are also sourced from these timbers.⁶⁵

The forestry industry is a significant economic resource. In the Maranoa local government area, forestry employs 80 people (1.28% of local employment). The industry in the Maranoa area includes state-owned hardwood and cypress pine native forests and cypress pine processing. Key towns are Roma, Injune and Mitchell.⁶⁶

⁶⁵ State of Queensland (2020) Barakula State Forest Draft Resource Information, Queensland Parks & Wildlife Service (QPWS) and Partnerships, Department of Environment and Science, Brisbane.

⁶⁶ State of Queensland (2016) Queensland forest & timber industry An overview.

State forests provide pollination services. DAF is responsible for the management of 346 apiary sites within Barakula, and works conjointly with DESI to engage with apiarists for planned burn notifications and management of sites and access.

State Forests also provide habitat for significant species. Barakula is likely to contain the following species:

- *Phascolarctos cinereus* Koala (EPBC-Endangered)
- *Botaurus poiciloptilus* Australasian Bittern (EPBC-Endangered)
- *Dasyurus hallucatus* Northern Quoll, Digul [Gogo-Yimidir], Wijingadda [Dambimangari], Wiminji [Martu] (EPBC-Endangered)

Barakula also contains the following TECs:

- Poplar Box Grassy Woodland on Alluvial Plains
- Weeping Myall Woodlands
- Brigalow (*Acacia harpophylla* dominant and co-dominant)
- Natural grasslands on basalt and fine-textured alluvial plains of northern New South Wales and southern Queensland
- Semi-evergreen vine thickets of the Brigalow Belt (North and South) and Nandewar Bioregions.

The priority risk for Forestry is bushfire.

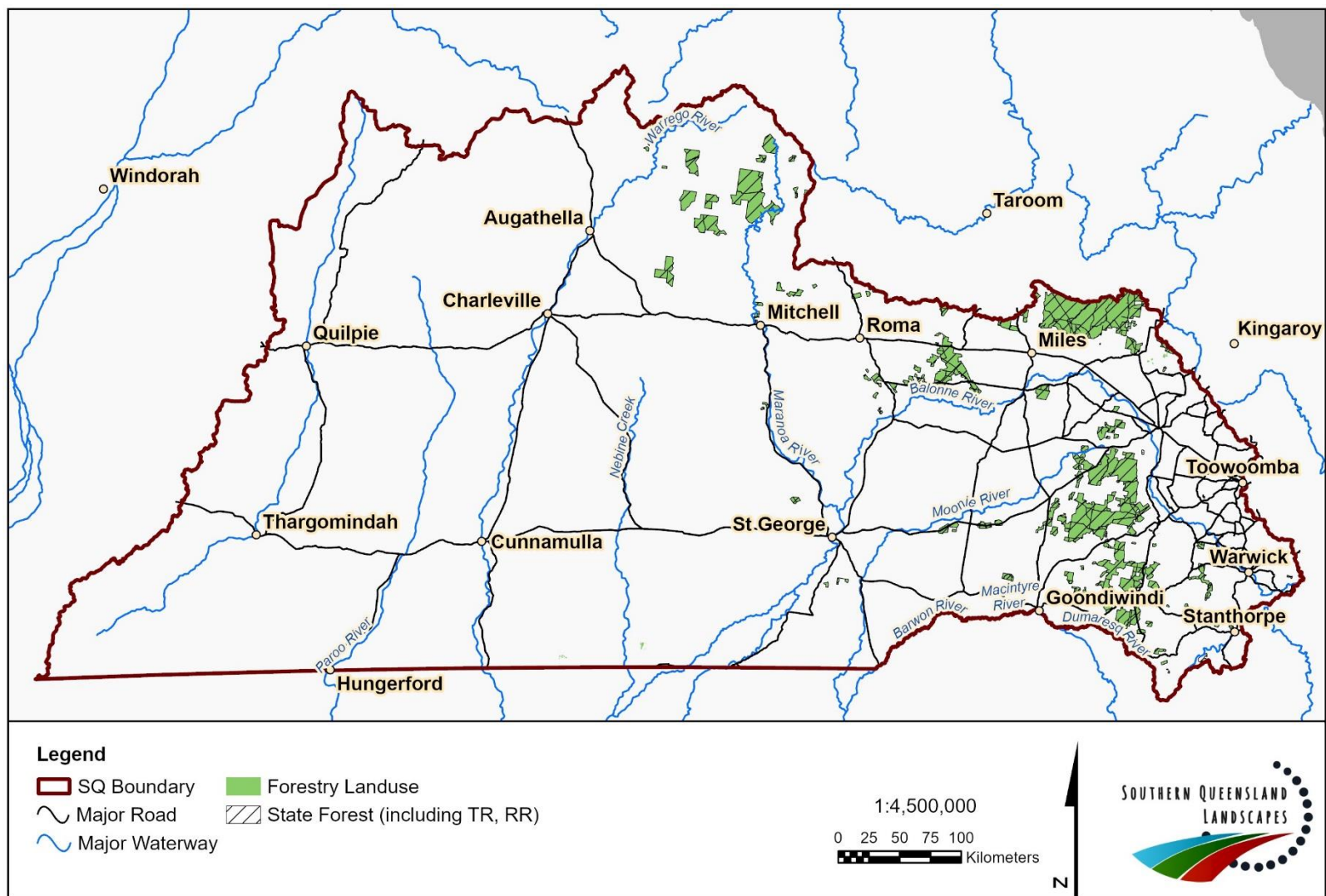


Figure 19: Forestry Land Use and State Forest including Timber Reserves and Resource Reserves.

Asset	Emergency scenario	Why it poses a threat	Susceptibility	Why
Forestry	Bushfire	Wildfires can decrease the availability of timber to be cut and can also reduce the quality and thus the royalty per cubic metre or tonne, as well as value of processed products. Post event, there would be an increased threat of weeds and invasive species, increased erosion and overall loss of productivity and biodiversity. More frequent and intense bushfires could also increase the incidence and severity of certain new pest outbreaks, diseases and weeds. Fire management is a particular challenge with regard to the fire sensitive species including white cypress pine (<i>Callitris glaucophylla</i>) classed as a core timber resource.	High with high confidence.	Projected increases in summer temperatures and declines in rainfall are predicted to exacerbate the risk of fire and increase the challenges associated with fire management.
	Pest outbreak	Pest animals provide a vector for pathogens; digging that contributes to soil erosion and the spread of weeds; and direct damage to plants by browsing, trampling or rubbing. This habitat destruction can have flow on effects to other fauna that are sustained by healthy habitats. Deer are well established in areas of SQ and have the potential to spread into new areas.	Likely to occur with moderate impacts. High risk level, high confidence.	A new pest incursion is likely every 10 years. Impacts such as grazing, rubbing and tree destruction by feral deer on threatened plants may contribute to their decline and/or extinction. ⁶⁷

⁶⁷ Government of South Australia (2023) National Feral Deer Action Plan 2023-2028, Department for Primary Industries and Regions South Australia.
<https://feraldeerplan.org.au/wp-content/uploads/2023/08/National-Feral-Deer-Action-Plan-2023-28.pdf>

Asset	Emergency scenario	Why it poses a threat	Susceptibility	Why
	Disease outbreak	The introduced pathogens <i>Phytophthora cinnamomic</i> (phytophthora root-rot) and <i>Austropuccinia psidii</i> (myrtle rust) are the most damaging diseases in native forests because of the broad suite of highly susceptible species that they affect.	Extreme risk level, likely to occur with major consequences.	A new disease incursion is likely every 10 years.
	Drought	Drought causes widespread mortality and secondary insect attack in both eucalypt native forests and pine plantations.	Extreme risk, almost certain to occur with major consequences.	A significant drought occurs at least every 10 years.

6.0 ASSET PREPAREDNESS

Preparedness actions for protecting Biodiversity assets

The following tables present information on preparedness actions, where the actions should take place, roles and responsibilities including the status of any actions that might be underway. These tables will be built upon in the next phase of engagement.

Bushfire, new pest outbreak and Floods have been included in the assessment based on their high priority for further action, with Figure 19 showing likely habitat for species of national environmental significance, potential bushfire intensity risk, and fire frequency.

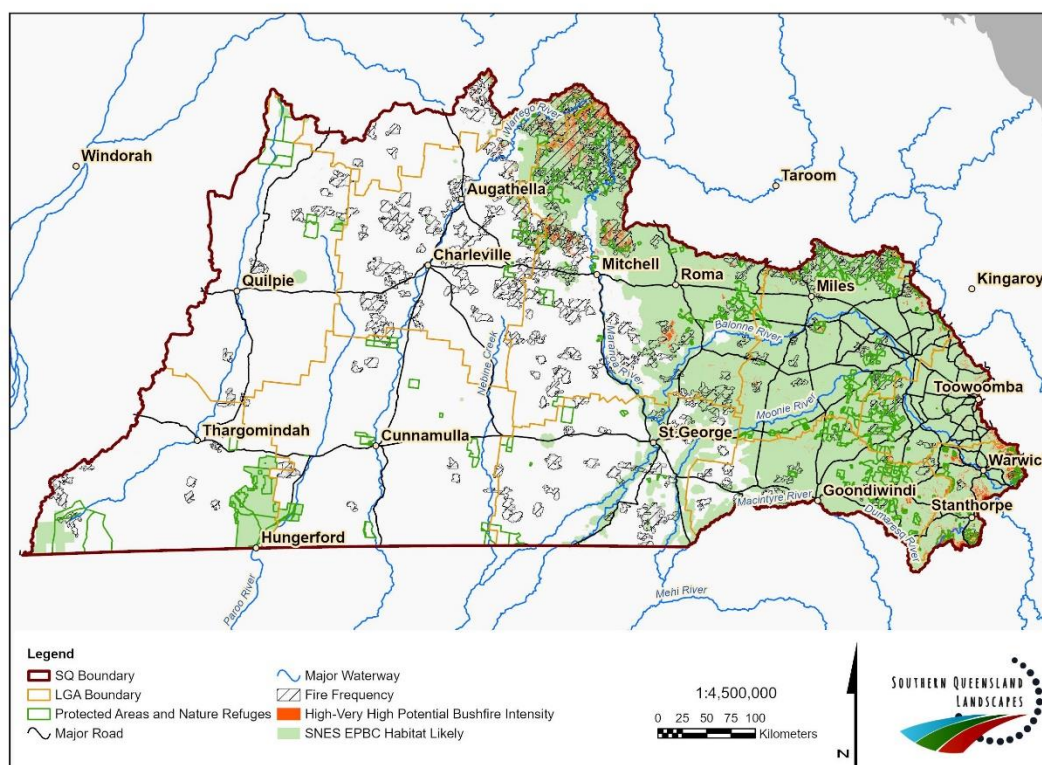


Figure 20: Species of National Environmental Significance Habitat Likely and Bushfire Risk.

Currawinya National Park and Ramsar Wetlands

Preparedness actions for Currawinya National Park and Ramsar Wetlands are listed in the Currawinya National Park Management Plan⁶⁸ codesigned by the Budjiti People and Queensland Parks and Wildlife Service & Partnerships (QPWS&P), Department of Environment, Science and Innovation.

Asset	Emergency scenario	Actions (number in brackets refer to high priority 1 to lower priority 5 from Currawinya NP Management Plan).	Where	Who	Is action currently underway?
Currawinya National Park and Ramsar Wetlands	Bushfire	Mitigate the potential severity and impacts of wildfire on neighbouring properties. (1)	Neighbouring properties to Currawinya NP.	<u>Best placed:</u> Land Managers and RFS. <u>Others who could do it:</u> State and Local Governments, SQ Landscapes could provide support and coordinate field days on ecological (cool) burning.	SQ Landscapes are currently working with landholders adjacent to the Park to support floodplain restoration.
		Facilitate reciprocal fire training (contemporary and traditional) for Budjiti People and QPWS&P staff as opportunities arise. (2)	Currawinya NP and surrounding region up stream	<u>Best placed:</u> QPWS&P and Budjiti People. <u>Others who could do it:</u> State and Local Governments	SQ Landscapes are currently working with landholders adjacent to the Park to support floodplain restoration.
		Increase the current understanding and knowledge of the role of fire in the Currawinya landscape. (3)	Currawinya NP and surrounding region up stream	<u>Best placed:</u> QPWS&P, SQ Landscapes, Bulloo Shire Council. <u>Others who could do it:</u> State and Local Governments	SQ Landscapes has supported ecological burning field days with First Nations, Local Government and RFS.
		Implement a proactive approach to introducing fire into the landscape when appropriate burning conditions occur. (3)	Currawinya NP and surrounding region up stream	<u>Best placed:</u> QPWS&P and Budjiti People. <u>Others who could do it:</u> State and Local Governments, SQ Landscapes	SQ Landscapes has supported ecological burning field days with First Nations, Local Government and RFS.
		Continue to engage with Budjiti People to ensure cultural fire management obligations are being met. (2)	Currawinya NP and surrounding region up stream	<u>Best placed:</u> QPWS&P and Budjiti People. <u>Others who could do it:</u>	

⁶⁸ State of Queensland, 2021 Currawinya National Park Management Plan, Budjiti People and Queensland Parks and Wildlife Service & Partnerships (QPWS&P), Department of Environment and Science.

Asset	Emergency scenario	Actions (number in brackets refer to high priority 1 to lower priority 5 from Currawinya NP Management Plan).	Where	Who	Is action currently underway?
				SQ Landscapes	
		Manage change and improve resilience of lakes and wetland systems by reducing impacts of non - climate stressors to reduce the rate of expected transition from climate change.	Currawinya NP and surrounding region upstream	<u>Best placed:</u> QPWS&P and Budjiti People <u>Others who could do it:</u> SQ Landscapes	SQ Landscapes are currently working with landholders adjacent to the Park to support floodplain restoration.
		Use bushfire prone area mapping with land use planning and mitigation operations along with predictive analytics and fire weather forecasts to proactively manage this hazard before risks manifest. ⁶⁹	Currawinya NP and surrounding region upstream	<u>Best placed:</u> QPWS&P, RFS, Local Government and Budjiti People <u>Others who could do it:</u> SQ Landscapes	Unknown.
	New pest outbreak	Maintain the current level of engagement with stakeholders to mitigate the potential impacts of New pest outbreak on neighbouring properties and the protected area estate. (2)	Currawinya NP and surrounding region upstream	<u>Best placed:</u> QPWS&P, SQ Landscapes <u>Others who could do it:</u> Local Government	SQ Landscapes has a number of projects that engage landholders in landscape restoration.
		Implement an adaptive management approach to the control and removal of feral goats within the park. (1)	Currawinya NP	<u>Best placed:</u> QPWS&P, State Government <u>Others who could do it:</u> Local Government	There has been an on-going program involving the Budjiti People over many years to remove feral goats.

⁶⁹ Queensland Fire and Emergency Services (2017) Queensland State Natural Hazard Risk Assessment, The State of Queensland (Queensland Fire and Emergency Services).

Asset	Emergency scenario	Actions (number in brackets refer to high priority 1 to lower priority 5 from Currawinya NP Management Plan).	Where	Who	Is action currently underway?
		Continue to engage with Budjiti People and other relevant stakeholders with regard to pest management. (2)	Currawinya NP and surrounding region upstream	<u>Best placed:</u> QPWS&P, SQ Landscapes <u>Others who could do it:</u> State Government	SQ Landscapes maintains connections with Budjiti People through field days and workshops.
		Improve knowledge of the distribution and population structure of feral cats, red foxes, wild dogs and other vertebrate new pest outbreaks within the park. (3)	Currawinya NP	<u>Best placed:</u> Universities and NGOs, QPWS&P and Budjiti People <u>Others who could do it:</u> SQ Landscapes	Unknown.
		Investigate control strategies for feral cats, red foxes, wild dogs and other vertebrate new pest outbreaks in order to establish a self-sustaining population of greater bilbies, and other reintroduced threatened species, within the park. (3)	Currawinya NP.	<u>Best placed:</u> Universities and NGOs, QPWS&P and Budjiti People <u>Others who could do it:</u> SQ Landscapes	As part of NP management. SQ Landscapes has conducted surveys and supported pig control on the Park.
		Improved knowledge of the distribution and impacts of Buffel grass within the park. (3)	Currawinya NP.	<u>Best placed:</u> QPWS&P and Budjiti People <u>Others who could do it:</u> SQ Landscapes, Universities and NGOs	Unknown.
		Investigate control strategies for Buffel grass within the park. (3)	Currawinya NP.	<u>Best placed:</u> QPWS&P and Budjiti People <u>Others who could do it:</u> SQ Landscapes	Unknown.
		Engage key stakeholders to develop the Currawinya greater bilby enclosure management plan. (1)	Currawinya NP.	<u>Best placed:</u> Save the Bilby Fund, QPWS&P and Budjiti People <u>Others who could do it:</u> SQ Landscapes	Unknown.

Asset	Emergency scenario	Actions (number in brackets refer to high priority 1 to lower priority 5 from Currawinya NP Management Plan).	Where	Who	Is action currently underway?
		Install fencing around artesian spring wetlands to reduce the impacts of domestic and feral ungulates. ⁷⁰	Currawinya NP and surrounding region upstream	<u>Best placed:</u> QPWS&P and Budjiti People <u>Others who could do it:</u> SQ Landscapes	Some springs have been fenced.
		Maintain Wild Dog Fence ⁷¹ to control spread of disease.		<u>Best placed:</u> Biosecurity Qld, Bulloo Shire Council.	The wild dog barrier fence is administered by Biosecurity Qld.
		Conduct surveys of Bulloo River and Lakes of Currawinya to detect pest species.		<u>Best placed:</u> Bulloo Shire Council, SQ Landscapes.	Bulloo Shire Council currently conduct annual fish surveys in the Bulloo. SQ Landscapes conduct fish surveys in Currawinya Lakes NP.
		As per Fire Ant Response Plan 2023–24	SQL Region	<u>Best placed:</u> National Fire Ant Eradication Program, Qld Government. <u>Others who could do it:</u> SQ Landscapes could coordinate investment proposals as well as provide early detection, landholder support and field days.	The full Fire Ant Response Plan 2023–24 is unable to be published as it is currently cabinet-in-confidence as at 14 May 2024.

⁷⁰ Peck, S. (2020) Effectiveness of Fencing to Manage Feral Animal Impacts on Springs Proceedings of the Royal Society of Queensland Springs of the Great Artesian Basin, The Royal Society of Queensland.

⁷¹ The wild dog barrier fence is administered by Biosecurity Queensland. It is approximately 2,500 km long and protects 26.5 million hectares of sheep and cattle grazing country.
<https://www.daf.qld.gov.au/business-priorities/biosecurity/invasive-plants-animals/animals/barrier-fences/wild-dog-barrier-fence-panel>

Species of National Environmental Significance (SNES)

Preparing for the impacts of drought, animal/plant diseases, New pest outbreak and bushfire are priorities for the majority of SNES.

Asset	Emergency scenario	Actions	Where	Who	Is action currently underway?
Species of National Environmental Significance	Drought	Maintain refugia habitat for species of national significance.	All mapped likely habitat areas for priority species.	<u>Best placed:</u> Land managers. <u>Others who could do it:</u> SQ Landscapes could coordinate investment proposals.	SQ Landscapes has delivered the Northern Basin Riparian Fencing Project. Northern hairy-nosed wombats have been released at Powrunna State Forest near St George in south-west Queensland. Up to 60 wombats will be gradually translocated from Epping Forest National Park (Scientific) to Powrunna in the coming years. The critically endangered species of wombat has been brought back from the brink of extinction through the work of the Department of Environment, Science and Innovation.
		Maintain and enhance remaining areas of endangered ecological communities. Further clearance and fragmentation of endangered ecological communities should be avoided.	Remnant TECs in likely habitat areas.	<u>Best placed:</u> Land managers. <u>Others who could do it:</u> SQ Landscapes	No action currently, however SQ Landscapes has delivered RLP Projects to support land managers to conserve EECs including a \$5.3 million dollar investment from the Australian Government through the National Landcare Program focused on improving three ecosystems in Southern Queensland including Brigalow and Weeping Myall remnants in the

Asset	Emergency scenario	Actions	Where	Who	Is action currently underway?
					Murray-Darling Basin, Natural Grasslands and Poplar Box Grassy Woodlands of the Darling Downs and the Currawinya Ramsar Wetlands of south-west Queensland. 33 field days were held, attracting some 568 participants; 50 of whom identified as First Peoples. Fifty-one people also took part in on-ground works through the project which included 28,159 hectares of weed reduction and 178,980 hectares of pest control and a further 93,686 hectares of practice change.
		Maintain vegetation frameworks and landscape diversity to provide suitable habitat for species of national significance.	All mapped likely habitat areas for priority species.	<u>Best placed:</u> Landholders <u>Others who could do it:</u> SQ Landscapes	SQ Landscapes has delivered the Northern Basin Riparian Fencing Project.
		Liaise with planning authorities to ensure that planning takes the protection of the ecological community into account, with due regard to principles for long-term conservation.	All mapped likely habitat areas for priority species.	<u>Best placed:</u> SQ Landscapes, State and Local Governments <u>Others who could do it:</u> Service providers	SQ Landscapes has conducted initial work through Flourishing Landscapes and Healthy Communities to map and raise awareness of vegetation frameworks and landscape diversity in the Southern Downs Region.
		Raise awareness of SNES within State Government authorities and the local community (e.g. through active Conservation Management Networks,	SQL Region	<u>Best placed:</u> SQ Landscapes, Landcare, Environment Groups, State Government	Conservation, Landcare and environmental networks promote the values of biodiversity and support conservation actions.

Asset	Emergency scenario	Actions	Where	Who	Is action currently underway?
		Landcare groups and other groups), as well as local councils.		<u>Others who could do it:</u> Local Government	
		Investigate formal conservation arrangements, management agreements and covenants on private land and investigate inclusion in reserve tenure. This is particularly important for areas that maintain vegetation frameworks and landscape diversity to provide suitable habitat for species of national significance.	All mapped likely habitat areas for priority species.	<u>Best placed:</u> State Government, Local Government <u>Others who could do it:</u> SQ Landscapes could support land managers by including nature refuges in investment proposals and programs.	State Government coordinates the Nature Refuge program. There are currently 42 nature refuges in SQ including Bulloo Downs Nature Refuge which encompasses 246,746 hectares in the Southwest corner.
		Increase conservation of forests on fertile soil for koalas, sugar gliders and other foliage-feeding fauna. ⁴	Drought resilient areas in mapped habitat e.g. trees on floodplains, vegetation around permanent waterholes.	<u>Best placed:</u> Land managers, SQ Landscapes, Environment Groups <u>Others who could do it:</u> State and Local Governments	No targeted investment for this action. The Australian Government has funded Researching Koalas in the Rangelands Project, a \$200,000 investment to support research, knowledge sharing and on-ground works in Western Queensland. The project is aimed at the continued conservation of the koala, which was listed as Endangered in Queensland in 2022.
		Fish friendly water extraction	Waterways and permanent waterholes.	<u>Best placed:</u> Land managers, SQ Landscapes, Industry.	The Australian Government has funded the Fish Friendly Water Extraction program in Queensland supported by Queensland Department of Regional Development, Manufacturing and Water.

Asset	Emergency scenario	Actions	Where	Who	Is action currently underway?
	Animal / plant diseases	Target control of key existing disease using appropriate methods.	All mapped likely habitat areas for priority species.	<u>Best placed:</u> Local Government, Land managers, Biosecurity Qld.	Biosecurity Plans are in place for each Local Government Area.
		Prevent the introduction of new, or further spread of disease.		<u>Others who could do it:</u> SQ Landscapes could coordinate investment proposals as well as provide early detection, landholder support and field days.	
	New pest outbreak	Target control of key existing weeds which threaten ecological communities, using appropriate methods. Manage sites to prevent the introduction of new, or further spread of existing, invasive weeds.	All mapped likely habitat areas for priority species.	<u>Best placed:</u> Local Government, Land managers, Biosecurity Qld. <u>Others who could do it:</u> SQ Landscapes could coordinate investment proposals as well as provide early detection, landholder support and field days.	Biosecurity Plans are in place for each Local Government Area. SQ Landscapes has projects underway for pest animal and plant management.
		Ensure chemicals, or other mechanisms used to manage weeds, do not have significant adverse, non-target impacts on the ecological community.	All mapped likely habitat areas for priority species.	<u>Best placed:</u> Land managers. <u>Others who could do it:</u> SQ Landscapes could provide advice and raise awareness.	Unknown.
		Control introduced pest animals to allow natural regeneration and to manage threats, especially to threatened species, at known sites through coordinated landscape-scale control programs.	All mapped likely habitat areas for priority species.	<u>Best placed:</u> Local Government, Biosecurity Qld. <u>Others who could do it:</u> SQ Landscapes could coordinate investment proposals as well as provide	Biosecurity Plans are in place for each Local Government Area. SQ Landscapes is implementing actions under the Queensland Government's Feral Pest Management Program.

Asset	Emergency scenario	Actions	Where	Who	Is action currently underway?
				landholder support and field days.	The Feral Deer Strategy has identified Containment Buffer Zones to focus actions to stop the establishment of large populations, through localised eradications and suppression programs, and coordinated surveillance and response, particularly to new incursions. ⁷²
	Bushfire	Discourage the use of fire as a means to control weeds in or near to TECs especially those susceptible to fire and that contain species of national environmental significance (SNES).	All mapped likely habitat areas for priority species.	<u>Best placed:</u> Land managers, RFS, First Nations. <u>Others who could do it:</u> SQ Landscapes could coordinate investment proposals and on ground works as well as landholder support and field days.	SQ Landscapes is supporting cultural burning workshops.
		Ensure that managed fires and, where possible, wildfires do not enter buffer zones around remnants.	All mapped likely habitat areas for priority species.	<u>Best placed:</u> RFS, Land managers <u>Others who could do it:</u> SQ Landscapes	SQ Landscapes is supporting cultural burning workshops.
		Negotiate appropriate standing procedures with local fire brigades, in relation to establishing fire control lines in native vegetation areas, to avoid unnecessary destruction of the ecological community.	All mapped likely habitat areas for priority species.	<u>Best placed:</u> Local fire brigades <u>Others who could do it:</u> SQ Landscapes	EPR Plan provides an opportunity to discuss options with RFS.

⁷² Government of South Australia 2023 National Feral Deer Action Plan 2023-2028 Department for Primary Industries and Regions South Australia.
<https://feraldeerplan.org.au/wp-content/uploads/2023/08/National-Feral-Deer-Action-Plan-2023-28.pdf>

Asset	Emergency scenario	Actions	Where	Who	Is action currently underway?
		Involve landowners in, and promote community programs that assist with, the conservation of SNES.	All mapped likely habitat areas for priority species.	<u>Best placed:</u> SQ Landscapes, State and Local Government <u>Others who could do it:</u>	EPR provides an opportunity to raise awareness of the value of SNES and options for conservation.
		Raise awareness about the importance of large trees, and coarse woody debris (dead trees, logs) as faunal habitat and refugia.	All mapped likely habitat areas for priority species.	<u>Best placed:</u> SQ Landscapes, Landcare, Environment Groups <u>Others who could do it:</u> Local Government	Unknown.
	Heatwave	Maintain refugia waterholes in river systems.	All mapped likely habitat areas for priority species.	<u>Best placed:</u> Landholders <u>Others who could do it:</u> SQ Landscapes	SQ Landscapes has delivered the Northern Basin Riparian Fencing Project. Maintaining and enhancing the refugia waterholes is an important secondary outcome of this action.
	Severe Storms	Maintain vegetation frameworks including edge sealing to buffer the impact of high winds, hail and damaging rain.	All mapped likely habitat areas for priority species including Bunya Mountains. ⁵	<u>Best placed:</u> Landholders, State Government, QPWS&P <u>Others who could do it:</u> SQ Landscapes	National Park Management Plans include working with land holders in the buffer zones adjacent to Parks.

⁴ Department of Environment and Science (2019) Climate change in the Eastern Downs region, State of Queensland.

⁵ Queensland Reconstruction Authority (2022) Darling Downs Resilience Strategy, State of Queensland.

Gondwana Landscapes - World Heritage Area

Uncontrolled bushfire and animal/plant disease outbreak are extreme risks for the Gondwana Rainforests of Australia of the Main Range National Park with high regional priority amongst the identified assets in this Plan.

New pest outbreak are a high risk and severe storms and heatwave a medium risk with medium to high priority for further action in regional terms.

Preparedness actions are listed in the Main Range National Park and Spicers Gap Road Conservation Park Management Statement.⁷³

Asset	Emergency scenario	Actions	Where	Who	Is action currently underway?
Gondwana Landscape Area - World Heritage Area	Bushfire	Review fire management strategy to incorporate new burning guidelines for the regional ecosystems in the park. The effectiveness of planned burns and the impact of wildfire needs to be assessed to provide for adaptive management. The response to fire of endangered and of-concern regional ecosystems and of threatened plants and animals should be included in this assessment.	Main Range National Park	<u>Best placed:</u> QPWS&P, First Nations <u>Others who could do it:</u> RFS	QPWS&P is reviewing the fire management strategy. The “Post-fire Assessment Report – Natural Values: 2019 bushfire complex, Main Range National Park and adjacent QPWS estate, South West Queensland Region” assesses impact of the 2019 fires, recommends actions to support recovery and preparedness. ⁷⁴
		Raise awareness about the importance of large trees, and coarse woody debris (dead trees, logs) as faunal habitat.	Main Range National Park and buffer areas.	<u>Best placed:</u> QPWS&P, SQ Landscapes, Landcare, Environment Groups <u>Others who could do it:</u> SQ Landscapes could coordinate investment proposals and on ground action to maintain	Unknown.

⁷³ State of Queensland (2024) Main Range National Park and Spicers Gap Road Conservation Park Management Statement 2013, Queensland Parks & Wildlife Service (QPWS&P), Department of Environment, Science, and Innovation. [Main Range NP and Spicers Gap Road CP Management Statement 2013 - extended 2024 \(des.qld.gov.au\)](https://des.qld.gov.au/main-range-np-and-spicers-gap-road-cp-management-statement-2013-extended-2024)

⁷⁴ Hines H.B., Levy S., Laidlaw M.J., Midtaune, K., Finlayson, S. and Meiklejohn A. (2021) Post-fire Assessment Report – Natural Values: 2019 bushfire complex, Main Range National Park and adjacent QPWS estate, South West Queensland Region. Brisbane: Department of Environment and Science, Queensland Government.
https://parks.des.qld.gov.au/data/assets/pdf_file/0028/256546/qpws-post-fire-evaluation-main-range-np.pdf

Asset	Emergency scenario	Actions	Where	Who	Is action currently underway?
				and enhance areas with habitat.	
		Implement a program of regular planned burning and cooperation with neighbours to reduce the incidence of wildfires in Main Range National Park.	Buffer area around the Park	<u>Best placed:</u> Land managers, QPWS&P, First Nations, RFS <u>Others who could do it:</u> SQ Landscapes could coordinate investment proposals and on ground actions.	Yes – action in the NP Management Plan.
		Ensure that managed fires and, where possible, wildfires do not enter buffer zones around the Park.	Buffer area around the Park	<u>Best placed:</u> RFS, Land managers <u>Others who could do it:</u> SQ Landscapes could coordinate investment proposals and on ground actions.	SQ Landscapes has supported ecological burning workshops.
		Negotiate appropriate standing procedures with local fire brigades, in relation to establishing fire control lines neighbouring the Park, to avoid fire entering the Park.	Buffer area around the Park	<u>Best placed:</u> RFS, QPWS&P <u>Others who could do it:</u> SQ Landscapes	EPR Plan provides an opportunity to discuss options with QPWS&P and RFS.
		Involve landowners in and promote community programs that assist with the conservation of the Park.	Buffer area around the Park	<u>Best placed:</u> QPWS&P <u>Others who could do it:</u> SQ Landscapes could assist with landholder and community involvement in programs that assist with the conservation of the Park.	EPR provides an opportunity to raise awareness of the value of the World Heritage Area and options for conservation.
	Animal/plant diseases (1)	Manage bell miner associated die-back.	Main Range National Park	<u>Best placed:</u> QPWS&P <u>Others who could do it:</u> SQ Landscapes could coordinate	Caring for our Country funding from the Commonwealth Government has been provided to monitor and treat areas

Asset	Emergency scenario	Actions	Where	Who	Is action currently underway?
				investment proposals and on ground action.	suffering from bell miner associated die-back through aerial surveys and helicopter ignition. The aim of the project is to maintain ecosystem health through re-establishing healthy forest structures.
		Avoid the introduction of new animal and plant diseases.	Main Range National Park, surrounding buffer areas and access points	<u>Best placed:</u> QPWS&P, Biosecurity Qld, Land managers. <u>Others who could do it:</u> SQ Landscapes could coordinate investment proposals as well as provide early detection, landholder support and field days.	QPWS&P Operational Policy – Pest Plant and Pathogen Spread Prevention, is being implemented to reduce the risk of introducing and spreading pest plants and disease. Biosecurity Plans are in place for each Local Government Area.
		Contain new animal and plant diseases in buffer areas.	Buffer area around the Park	<u>Best placed:</u> Landowners, Biosecurity Qld, Local Government <u>Others who could do it:</u> SQ Landscapes could raise awareness of potential diseases, avoidance and management.	Biosecurity Plans are in place for each Local Government Area.
	Severe storms (2)	Maintain vegetation frameworks including edge sealing to buffer the impact of high winds, hail and damaging rain.	Buffer areas to NP and large bushland areas.	<u>Best placed:</u> Landholders, State Government, QPWS&P <u>Others who could do it:</u> SQ Landscapes could coordinate investment proposals and on ground actions.	National Park Management Plans include working with land holders in the buffer zones adjacent to Parks.

Asset	Emergency scenario	Actions	Where	Who	Is action currently underway?
	New pest outbreak (2)	Implement the QPWS&P Level 2 pest management strategy.	Main Range National Park	<u>Best placed:</u> QPWS&P <u>Others who could do it:</u>	Unknown
		Target control of key existing weeds which threaten ecological communities, using appropriate methods.	Main Range National Park and buffer.	<u>Best placed:</u> Local Government, Land managers, Biosecurity Qld. <u>Others who could do it:</u> SQ Landscapes could coordinate investment proposals as well as provide early detection, landholder support and field days.	Biosecurity Plans are in place for each Local Government Area. SQ Landscapes has projects underway for pest animal and plant management.
		Manage sites to prevent the introduction of new, or further spread of existing, invasive weeds.		<u>Best placed:</u> Local Government, Land managers, Biosecurity Qld. <u>Others who could do it:</u> SQ Landscapes could coordinate investment proposals as well as provide early detection, landholder support and field days.	Biosecurity Plans are in place for each Local Government Area. SQ Landscapes has projects underway for pest animal and plant management.
		Control introduced pest animals to allow natural regeneration and to manage threats, especially to threatened species, at known sites through coordinated landscape-scale control programs.	Main Range National Park and surrounding buffer areas	<u>Best placed:</u> QPWS&P, Local Government <u>Others who could do it:</u> SQ Landscapes could provide support through information and attracting investment (grants etc.).	Biosecurity Plans are in place for each Local Government Area.
		As per Fire Ant Response Plan 2023–24	SQL Region	<u>Best placed:</u> National Fire Ant Eradication Program, Qld Government.	The full Fire Ant Response Plan 2023–24 is unable to be published as it is currently

Asset	Emergency scenario	Actions	Where	Who	Is action currently underway?
				<u>Others who could do it:</u> SQ Landscapes could coordinate investment proposals as well as provide early detection, landholder support and field days.	cabinet-in-confidence as at 14 May 2024
	Heatwave	Maintain refugia especially south facing slopes, waterways and other well shaded topographic features.	On Park and in buffer areas.	<u>Best placed:</u> QPWS&P, Landowners, First Nations <u>Others who could do it:</u> SQ Landscapes could provide support through information and attracting investment (grants etc.).	No current action targeted on refugia.
					SQ Landscapes has delivered the Blackfish Recovery Project in the headwaters of the Condamine River. The project enhanced protection of 13.84 kilometres of critical headwater creek lines through measures such as riparian revegetation and regeneration, and the installation of riparian fencing, livestock watering points, and creek crossings. The project aimed to increase riparian vegetation, which reduces sedimentation, improves water quality, and provides a buffer against rising water temperatures, all of which are crucial for the persistence of Blackfish.
	Drought	Maintain refugia especially south facing slopes, waterways and other well shaded topographic features.	All mapped likely habitat areas for priority species.	<u>Best placed:</u> Land managers. <u>Others who could do it:</u> SQ Landscapes could coordinate investment proposals.	Unknown.

Asset	Emergency scenario	Actions	Where	Who	Is action currently underway?
		Investigate options for slow the flow activities to rehydrate the landscape.		<u>Best placed:</u> Land managers, SQ Landscapes. <u>Others who could do it:</u>	SQ Landscapes has experience in coordinating the design and deliver of slow the flow structures.

GAB discharge spring wetlands

Drought, flood, animal/plant diseases, new pest outbreak and dust storms have been identified as serious threats to the GAB discharge spring wetlands.

While many of the conservation practices for springs are general, not all springs are the same thus management requires a range of site-specific approaches.

Asset	Emergency scenario	Actions	Where	Who	Is action currently underway?
GAB discharge spring wetlands	Drought	Watertight actions: • Completion of bore capping. • Control bores that may benefit flows to springs. • Ensure future water allocations preserve spring flow. • Development of capacity to monitor spring flows. • Monitor the impacts of coal seam gas and petroleum extraction on aquifer draw-down.	GAB springs	<u>Best placed:</u> Department of Regional Development, Manufacturing and Water (RDMW) (QLD). <u>Others who could do it:</u> SQ Landscapes could coordinate investment proposals and on ground actions.	Yes – action in the NP Management Plan.
		Foster responsible landholder management of spring wetlands.	GAB	<u>Best placed:</u> RDMW, First Nations, landholders. <u>Others who could do it:</u> SQ Landscapes.	The Queensland Government continues to work closely with the Australian Government, landholders, investors and other stakeholders to save water and restore pressure. The aim is to make the Basin watertight by 2032, a goal legislated in the Great Artesian Basin and other regional aquifers (GABORA) water plan.
		Increase the involvement of Indigenous custodians in spring management.	GAB	<u>Best placed:</u> RDMW, First Nations, landholders. <u>Others who could do it:</u>	Unknown

Asset	Emergency scenario	Actions	Where	Who	Is action currently underway?
				SQ Landscapes.	
		Secure populations of native species within GAB discharge spring wetlands through perpetual conservation agreements.	GAB	<u>Best Placed:</u> Landholders, DoR <u>Others who could do it:</u> SQ Landscapes.	Queensland has a Nature Refuge Conservation Agreement available to landholders.
	Animal/plant diseases	Avoid the introduction of new animal and plant diseases.	GAB	<u>Best placed:</u> QPWS&P, Biosecurity Qld, State and Local Government. <u>Others who could do it:</u> SQ Landscapes could coordinate investment proposals as well as provide early detection, landholder support and field days.	Yes, through QPWS&P Currawinya Lakes NP Management Plan.
	New pest outbreak	Manage populations of exotic plant species in the vicinity of springs.	GAB	<u>Best placed:</u> QPWS&P (on park), non-Governmental fish biologists and universities, landholders, local landcare group, conservation-orientated non-government organisations, SQ Landscapes. <u>Others who could do it:</u> SQ Landscapes could coordinate investment proposals as well as provide	QPWS&P Management Plan for Currawinya. Biosecurity Plans are in place for each Local Government Area. SQ Landscapes has projects underway for pest animal and plant management.

Asset	Emergency scenario	Actions	Where	Who	Is action currently underway?
				early detection, landholder support and field days.	
		Manage feral animals. Feral pig management at all sites where they occur. Pig and goat fencing may be desirable at some high-priority springs and requires careful design and ongoing maintenance.	GAB and high priority springs.	<u>Best placed:</u> Land managers, QPWS&P (on park), DoR, landholders. <u>Others who could do it:</u> SQ Landscapes could coordinate investment proposals as well as provide early detection, landholder support and field days.	Yes, through QPWS&P Currawinya Lakes NP Management Plan.
		As per Fire Ant Response Plan 2023–24 ⁷⁵	SQL Region	<u>Best placed:</u> National Fire Ant Eradication Program, Qld Government. <u>Others who could do it:</u> SQ Landscapes could coordinate investment proposals as well as provide early detection, landholder support and field days.	The full Fire Ant Response Plan 2023–24 is unable to be published as it is currently cabinet-in-confidence as at 14 May 2024
	Increasing tourist impacts	Monitor tourist impacts and manage accordingly. Facilitate and manage tourist access at other sites. Develop and implement tourist visitation management plans for selected sites.	GAB	<u>Best placed:</u> QPWS&P (on park), DoR (Qld), universities, Traditional Owner groups, education and interpretation specialists. <u>Others who could do it:</u> SQ Landscapes could coordinate investment proposals.	Yes, through QPWS&P Currawinya Lakes NP Management Plan.

⁷⁵ <https://www.fireants.org.au/> accessed 14 May 2024.

Carnarvon National Park Mt Moffat Section

Animal/plant diseases, new pest outbreak and bushfire have been identified as the top threats to the Mt Moffat Section of Carnarvon National Park.

Asset	Emergency scenario	Actions	Where	Who	Is action currently underway?
Carnarvon National Park Mt Moffat Section	Animal/plant diseases	Avoid the introduction of new animal and plant diseases.		<u>Best placed:</u> QPWS&P, Biosecurity Qld, State and Local Government. <u>Others who could do it:</u> SQ Landscapes could coordinate investment proposals as well as provide early detection, landholder support and field days.	Biosecurity Plans are in place for each Local Government Area.
	New pest outbreak	Work co-operatively with neighbouring land users, relevant community groups and government bodies to control declared plants and weeds and prevent the introduction of new species to the park. (CNPMP, 21).	Buffer areas to the Park.	<u>Best placed:</u> QPWS&P (on park), land managers. <u>Others who could do it:</u> SQ Landscapes could coordinate investment proposals as well as provide early detection, landholder support and field days.	As part of NP Management Plan. The implementation of these actions is contingent on resources being available.
		Give priority to the management of weed species in habitats of high conservation value, at disturbed sites, around watering points, along park boundaries and in popular visitor areas. (CPNMP, 21)		<u>Best placed:</u> QPWS&P (on park), land managers. <u>Others who could do it:</u> SQ Landscapes could coordinate investment	

Asset	Emergency scenario	Actions	Where	Who	Is action currently underway?
				proposals as well as provide early detection, landholder support and field days.	
		Monitor the occurrence of existing and new weed species along access roads to the park and firebreaks, and control as necessary. (CPNMP, 21)		<u>Best placed:</u> QPWS&P (on park). <u>Others who could do it:</u> SQ Landscapes could provide support for early detection, landholder support and field days.	
		Ensure that park staff are trained to correctly identify, and control weed species occurring on the park, and that they have a comprehensive knowledge of species that are likely to invade the park from adjacent areas. (CPNMP, 21)		<u>Best placed:</u> QPWS&P	
		Continue to encourage park users to clean boots and camping equipment and wash down their vehicles before entering the park if they have previously been in weed-infested areas. (CPNMP, 21)		<u>Best placed:</u> QPWS&P (on park). <u>Others who could do it:</u> SQ Landscapes could provide support for awareness raising activities.	
		Develop and implement a community education program to raise the awareness of the negative effects that pasture grasses such as buffel grass can have on natural ecosystems. (CPNMP, 21)		<u>Best placed:</u> QPWS&P. SQ Landscapes could provide support for awareness raising activities.	

Asset	Emergency scenario	Actions	Where	Who	Is action currently underway?
		Control feral animals.		<u>Best placed:</u> Land managers, QPWS&P (on park), landholders. <u>Others who could do it:</u> SQ Landscapes could coordinate investment proposals as well as provide early detection, landholder support and field days.	
		Keep fences stock-proof and continue feral animal and stock control activities to minimise the potential for spreading weed infestations into the park. (CPNMP, 21)		<u>Best placed:</u> QPWS&P (on park), land managers. <u>Others who could do it:</u> SQ Landscapes could coordinate investment proposals as well as provide early detection, landholder support and field days.	As part of NP Management Plan.
		Develop a Feral Animal Management Strategy for the park and implement recommendations as part of the annual works program. (CPNMP, 22)		<u>Best placed:</u> QPWS&P (on park).	As part of NP Management Plan.
		Liaise with neighbouring landholders to determine appropriate fencing arrangements, and construct boundary fencing as funding permits. (CPNMP, 22)		<u>Best placed:</u> QPWS&P (on park). <u>Others who could do it:</u> SQ Landscapes could coordinate investment proposals and provide	As part of NP Management Plan.

Asset	Emergency scenario	Actions	Where	Who	Is action currently underway?
				support to land managers.	
		Encourage Traditional Owner involvement in feral animal control programs. (CPNMP, 22)		<u>Best placed:</u> QPWS&P (on park).	As part of NP Management Plan.
		As per Fire Ant Response Plan 2023–24 ⁷⁶	SQL Region	<u>Best placed:</u> National Fire Ant Eradication Program, Qld Government. <u>Others who could do it:</u> SQ Landscapes could coordinate investment proposals as well as provide early detection, landholder support and field days.	The full Fire Ant Response Plan 2023–24 is unable to be published as it is currently cabinet-in-confidence as of 14 May 2024.
		Incorporate an animal pest management component for established and potential new pest outbreaks into interpretive programs aimed at park visitors, user groups and the local community. (CPNMP, 22)		<u>Best placed:</u> QPWS&P (on park).	
	Bushfire	Where possible, regulate the frequency and intensity of fire to maintain plant species composition and structure, and the ecological dynamics of all vegetation communities. The fire management plan for the park should also take into account the ecological requirements of		<u>Best placed:</u> QPWS&P (on park).	As part of NP Management Plan.

⁷⁶ <https://www.fireants.org.au/> accessed 14 May 2024.

Asset	Emergency scenario	Actions	Where	Who	Is action currently underway?
		noteworthy and indicator species. (CNPMP, 24)			
		Where fire sensitive species have been invaded by pasture species, make every effort to minimise fire invasion into these areas (e.g. by burning from the edge of softwood scrubs) (CNPMP, 24)		<u>Best placed:</u> QPWS&P (on park).	As part of NP Management Plan.
		Develop a fire plan for Carnarvon National Park as part of the statewide QPWS&P Fire Management System. This is likely to involve the compilation of fire management strategies for each management unit. (CNPMP, 23)		<u>Best placed:</u> QPWS&P (on park).	As part of NP Management Plan.
		Update wildfire response procedures annually and conduct wildfire responses in accordance with incident control systems. Fire management activities will be co-ordinated with landholders, residents, traditional owners, local authorities and relevant fire fighting agencies. (CNPMP, 23)		<u>Best placed:</u> QPWS&P (on park).	As part of NP Management Plan.
		Document the fire history of the park including date, source of fire, extent, intensity and recovery, and record the information within a geographic information system (e.g. Parkinfo). (CNPMP, 23)		<u>Best placed:</u> QPWS&P (on park).	As part of NP Management Plan.
		Undertake research and monitoring to determine the most suitable fire regimes with relation to the frequency, intensity and timing of burns for natural		<u>Best placed:</u> QPWS&P (on park).	As part of NP Management Plan.

Asset	Emergency scenario	Actions	Where	Who	Is action currently underway?
		communities and populations within the park. (CNPMP, 24)			
		Adopt precautionary fire management measures including well-placed and well-maintained fire control lines, clearing around buildings and other facilities, education of visitors and discussions with neighbours on their fire responsibilities, and general staff preparedness for fire emergencies. (CNPMP, 24)		<u>Best placed:</u> QPWS&P (on park).	Firebreaks occur within the more commonly visited sections of Carnarvon National Park (i.e. Carnarvon Gorge, Salvator Rosa, Mount Moffatt and Ka Ka Mundi). However, due to the rugged terrain and high erosion potential of soil types found in the park, firebreaks are not intended for use as a major fire management tool. Where possible park staff try to undertake burning operations in conjunction with neighbouring properties, using natural boundaries such as cliff lines and creeks to manage fire.
		Support Traditional Owner participation in the formulation of fire plans. (CNPMP, 24)		<u>Best placed:</u> QPWS&P (on park).	As part of NP Management Plan.
		Where possible, ensure fire management activities do not damage culturally significant materials and places. Location maps may need to be developed to delineate general areas that require protection from fire, noting that confidentiality will need to be respected. (CNPMP, 24)		<u>Best placed:</u> QPWS&P (on park).	As part of NP Management Plan.
		Where possible, ensure fire is excluded from fire sensitive communities such as		<u>Best placed:</u> QPWS&P (on park).	As part of NP Management Plan.

Asset	Emergency scenario	Actions	Where	Who	Is action currently underway?
		the softwood scrubs and rainforest. (CNPMP, 24)			
		Develop monitoring programs to measure any edge effects from fire. (CNPMP, 24)		<u>Best placed:</u> QPWS&P (on park).	As part of NP Management Plan.
		As part of the park education program, develop and conduct a public education program to raise public awareness and understanding of the role of fire in natural ecosystem and cultural heritage management. (CNPMP, 24)		<u>Best placed:</u> QPWS&P (on park).	As part of NP Management Plan.
		Manage Carnarvon National Park in the regional context by developing a working partnership with relevant catchment management organisations, Landcare groups and traditional owner groups. (CPNMP, 16)		<u>Best placed:</u> QPWS&P (on park).	As part of NP Management Plan.
		Support Traditional Owners to conserve cultural heritage. (CPNMP, 25)		<u>Best placed:</u> QPWS&P (on park).	As part of NP Management Plan.
		Update emergency response procedures for each management unit of the park on an annual basis. (CPNMP, 38)		<u>Best placed:</u> QPWS&P (on park).	As part of NP Management Plan.
		QPWS continue to participate in local disaster management group counter-disaster planning meetings and take an active role in the review of such plans. (CPNMP, 21)		<u>Best placed:</u> QPWS&P (on park).	As part of NP Management Plan.

South West Corner – Bulloo River Floodplains

Animal/plant diseases, bushfire, drought and new pest outbreak have been identified as the top threats to the South West Corner – Bulloo River Floodplains.

Asset	Emergency scenario	Actions	Where	Who	Is action currently underway?
South West Corner – Bulloo River Floodplains	Animal/plant diseases	Avoid the introduction of new animal and plant diseases.	Bulloo River Floodplains	<u>Best placed:</u> Bulloo Shire Council, Biosecurity Qld <u>Others who could do it:</u> SQ Landscapes could coordinate investment proposals as well as provide early detection, landholder support and field days.	Unknown
		Target control of key existing disease using appropriate methods.	Bulloo River Floodplains	<u>Best placed:</u> RDP	Unknown
		Maintain Wild Dog Fence ⁷⁷ to control spread of disease.		<u>Best placed:</u> Biosecurity Qld, Bulloo Shire Council.	The wild dog barrier fence is administered by Biosecurity Qld.
	Bushfire	Ecological burns	Bulloo River Floodplains	<u>Best placed:</u> Land managers <u>Others who could do it:</u> First Nations, SQ Landscapes	SQ Landscapes has supported ecological burning field days in adjacent areas with First Nations, Local Government and RFS.
		Fire breaks	Bulloo River Floodplains	<u>Best placed:</u> Land managers	Unknown
		Vegetation management	Bulloo River Floodplains	<u>Best placed:</u> Land managers	Unknown
	Drought	Restore floodplains in upstream catchments targeting persistent bare ground rehabilitation and other “slow the flow”	Bulloo River Floodplains		SQ Landscapes are currently working with landholders in

⁷⁷ The wild dog barrier fence is administered by Biosecurity Queensland. It is about 2500 km long and protects 26.5 million hectares of sheep and cattle grazing country.

<https://www.daf.qld.gov.au/business-priorities/biosecurity/invasive-plants-animals/animals/barrier-fences/wild-dog-barrier-fence-panel>

Asset	Emergency scenario	Actions	Where	Who	Is action currently underway?
		measures to enhance soil water storage once the drought breaks thus accelerating the rate of wetland/landscape recovery.			adjacent area to support floodplain restoration.
	New pest outbreak	Target control of key existing weeds which threaten ecological communities, using appropriate methods. Manage area to prevent the introduction of new, or further spread of existing, invasive weeds.	Bulloo River Floodplains	<u>Best placed:</u> Local Government, Land managers, Biosecurity Qld. <u>Others who could do it:</u> SQ Landscapes could coordinate investment proposals as well as provide early detection, landholder support and field days.	Biosecurity Plans are in place for each Local Government Area. SQ Landscapes has projects underway for pest animal and plant management.

Traprock

Bushfire, animal/plant diseases, drought, floods, severe storms and new pest outbreak are significant risks to the natural assets of the Traprock region.

Asset	Emergency scenario	Actions	Where	Who	Is action currently underway?
Traprock	Bushfire	Support landholders to enter into conservation agreements with semi-evergreen vine thickets (SEVT) on property.	Mapped SEVT in Traprock	<u>Best placed</u> : DESI, DoR, SQ Landscapes	Nature Refuges cover 843,164 ha of Traprock.
		Liaise with landholders and other natural resource managers to develop appropriate burning practices and other procedures to minimise fire damage to remnant areas of SEVT on private and public lands.	Mapped SEVT in Traprock	<u>Best placed</u> : QPWS&P, DESI, DoR, SQ Landscapes, RFS	Unknown
		Encourage landholders through appropriate incentive programs to protect and foster regrowth SEVT and associated vegetation in buffer areas around and in corridors linking remnant SEVT.	Mapped SEVT in Traprock	<u>Best placed</u> : DESI, DoR, SQ Landscapes	Unknown
		Consult with and involve Traditional Owners when conducting works in SEVT TEC.	Mapped SEVT in Traprock	<u>Best placed</u> : DESI, DoR, SQ Landscapes	Unknown
		Develop and implement an education program to increase the awareness of government and non-government organisations regarding SEVT conservation, and their responsibilities for SEVT protection and management.	Mapped SEVT in Traprock	<u>Best placed</u> : DESI, DoR, SQ Landscapes	Unknown

Balonne Junction

Bushfire, drought, animal/plant diseases are priority risks for the Balonne Junction priority landscape.

Asset	Emergency scenario	Actions	Where	Who	Is action currently underway?
Balonne Junction	Bushfire	Establish adequate buffer zones to protect remnants.	Priority TECs	<u>Best placed:</u> Land managers <u>Others who could do it:</u> SQ Landscapes could coordinate investment proposals as well as provide landholder support and field days.	SQ Landscapes has implemented a project funded by the Australian Government to enhance the condition of Brigalow and Weeping Myall TECs through changed land management practices across 8,000 ha.
		Develop and implement a suitable fire management strategy for the Coolibah-Black Box Woodlands ecological community.	Coolibah-Black Box Woodlands TEC	<u>Best placed:</u> State Government <u>Others who could do it:</u> SQ Landscapes could coordinate investment proposals as well as provide, landholder support and field days.	Unknown
		Protect important regrowth vegetation.	Priority TECs	<u>Best placed:</u> Land managers, Local and State Government <u>Others who could do it:</u> SQ Landscapes could coordinate investment proposals as well as provide landholder support and field days.	SQ Landscapes has implemented a project funded by the Australian Government to enhance the condition of Brigalow and Weeping Myall TECs through changed land management practices across 8,000 ha.
		Protect brigalow stands from fire. It is possible that grazing can be used to manage grass fuel loads. It may also be possible in some cases to develop techniques with cool	Brigalow TEC.	<u>Best placed:</u> Land managers <u>Others who could do it:</u> SQ Landscapes could coordinate investment proposals as well as provide landholder support and field days.	As above

Asset	Emergency scenario	Actions	Where	Who	Is action currently underway?
		fires that reduce fuel loads without killing brigalow.			
		Protect and conserve remnant and regrowth areas of the ecological community. Prevent clearance of this endangered ecological community and of nearby native vegetation including buffer zones and connecting corridors.	TECs	<u>Best placed:</u> Land managers <u>Others who could do it:</u> SQ Landscapes could coordinate investment proposals as well as provide landholder support and field days.	As above
		Liaise with planning authorities to ensure that planning takes the protection of remnants into account, with due regard to principles for long-term conservation.	TECs	<u>Best placed:</u> Local and State Government <u>Others who could do it:</u> SQ Landscapes could provide mapping and landscape analysis support and coordinate community collaboration.	Unknown
		Liaise with local councils and State authorities to ensure road widening and maintenance activities (or other infrastructure or development activities) involving substrate or vegetation disturbance in areas where the Coolibah-Black Box Woodlands occur do not adversely impact the ecological community.	TECs	<u>Best placed:</u> Local and State Government <u>Others who could do it:</u> SQ Landscapes could provide mapping and landscape analysis support and coordinate community collaboration.	Unknown

Asset	Emergency scenario	Actions	Where	Who	Is action currently underway?
	Drought	Ensure that any further development of river regulation infrastructure and water storage for irrigation minimises impacts on the ecological function of the ecological community by way of hydrological changes and changed flow patterns.	Balonne Junction	<u>Best placed:</u> State Government <u>Others who could do it:</u> SQ Landscapes could coordinate investment proposals as well as provide landholder support and field days.	Unknown
	Animal/plant diseases	Avoid the introduction of new animal and plant diseases.	Balonne Junction	<u>Best placed:</u> QPWS&P, Biosecurity Qld, State and Local Government. <u>Others who could do it:</u> SQ Landscapes could coordinate investment proposals as well as provide early detection, landholder support and field days.	Biosecurity Plans are in place for each Local Government Area. SQ Landscapes has projects underway for pest animal and plant management.

In New South Wales, the listed Brigalow ecological community comprises Brigalow vegetation in the Mulga Land bioregions and the northern floodplains (Threatened Species Scientific Committee 2001). It includes the following three vegetation communities of Benson et al. (2006):

- Community 29-Brigalow open woodland on red earth and clay plains mainly in the Mulga Lands Bioregion,
- Community 31-Brigalow-Gidgee open woodland on clay plains west of the Culgoa River, Mulga Lands Bioregion, and
- Community 35-Brigalow-Belah woodland on alluvial often gilgaied clay soil mainly in the Brigalow Belt South Bioregion.⁷⁸

The Stronger Landscapes Plan will consider cross border issues and opportunities for coordination of emergency preparedness and response planning and action.

⁷⁸ Brigalow (*Acacia harpophylla* dominant and co-dominant) at <https://www.environment.gov.au/cgi-bin/sprat/public/publicshowcommunity.pl?id=28> accessed 6 June 2024.

Preparedness actions for protecting agricultural natural capital assets

The following tables present information on preparedness actions, where the actions should take place, who is best placed to do it and who could do it including the status of any actions that might be underway.

New pest outbreak, animal/plant diseases, drought and bushfire have been included in the assessment based on their high priority for further action.

Preparedness actions for protecting intensive cropping natural capital assets

Drought, animal/plant diseases and new pest outbreak are the highest priority threats to agricultural natural capital assets used for cropping.

Asset	Emergency scenario	Actions	Where	Who	Is action currently underway?
Cropping natural capital assets	Drought	Regenerative agriculture	Regional priority cropping lands including Condamine, Maranoa/Balonne and Border Rivers.	<u>Best placed:</u> Land managers, Landcare <u>Others who could do it:</u> SQ Landscapes, Consultants	SQ Landscapes has supported land managers to enhance knowledge of regenerative agriculture through field days and workshops.
		Enhance functioning of floodplains to increase soil moisture and underground water.	Toe slopes adjacent to floodplains and riparian area management in regional priority cropping lands including Condamine, Maranoa/Balonne and Border Rivers.	<u>Best placed:</u> Land managers <u>Others who could do it:</u> SQ Landscapes, State Government has provided investment.	SQ Landscapes has delivered projects aimed at enhancing floodplains.
		Continue to design participatory, tailored and comprehensive drought monitoring and early warning systems, integrating multi-scale climate, soil and water information. ¹	Regional priority cropping lands including Condamine, Maranoa/Balonne and Border Rivers.	<u>Best placed:</u> Federal, State and Local governments. <u>Others who could do it:</u> Stanthorpe and Roma (SQ Landscapes) Drought Nodes.	Stanthorpe and Roma (SQ Landscapes) Drought Nodes.
		Increase local capacity for effective interpretation and usage of drought monitoring, early warning and short-term forecasting products. ¹	Regional priority cropping lands including Condamine, Maranoa/Balonne and Border Rivers.	<u>Best placed:</u> Federal and State governments, Industry, USQ Climate Centre, Drought Hubs, SQ Landscapes.	Centre For Applied Climate Sciences, University Southern Queensland have Climate Project Officers who work with the community to understand and use climate information to enhance preparedness actions.
		Promote agricultural production systems that are drought resistant. ¹	Regional priority cropping lands	<u>Best placed:</u>	Stanthorpe and Roma (SQ Landscapes) Drought Nodes.

Asset	Emergency scenario	Actions	Where	Who	Is action currently underway?
			including Condamine, Maranoa/Balonne and Border Rivers.	Industry, Drought Hubs, SQ Landscapes.	
		Encourage the cultivation of drought-resistant species and varieties in drought-prone areas to improve crop, meat and fibre yields during drought. ¹	Regional priority cropping lands including Condamine, Maranoa/Balonne and Border Rivers.	<u>Best placed:</u> Industry, Drought Hubs. <u>Others who could do it:</u> SQ Landscapes	Stanthorpe and Roma (SQ Landscapes) Drought Nodes.
		Design “build back better” approach that reduces risk to landscape health and enhances preparedness to future droughts by utilising effective and targeted investments during the recovery, rehabilitation and reconstruction phases. ¹	Drought prone areas of the region.	<u>Best placed:</u> Industry, Drought Hubs, Land managers. <u>Others who could do it:</u> SQ Landscapes	Stanthorpe and Roma (SQ Landscapes) Drought Nodes.
		Implement land use planning at landscape scale to encourage sustainable land use in drought-prone areas. ¹	Drought prone areas of the region.	<u>Best placed:</u> State Government, Local Government, SQ Landscapes	Flourishing Landscapes Healthy Communities integrates the analysis of available data to guide landscape planning for strategic NRM outcomes – SQ Landscapes lead.
		Improve communication and information-sharing processes to increase awareness of risks to landscapes and natural environment associated with drought. ¹	In priority asset landscapes.	<u>Best placed:</u> Federal and State governments, Industry, USQ Climate Centre, Drought Hubs, SQ Landscapes.	Centre For Applied Climate Sciences, University Southern Queensland have Climate Project Officers who work with the community to understand and use climate information.
	Animal/plant diseases	Target control of key existing disease using appropriate methods.	Regional priority cropping lands including Condamine, Maranoa/Balonne and Border Rivers.	<u>Best placed:</u> Local Government, land managers, Biosecurity Qld. <u>Others who could do it:</u> SQ Landscapes could coordinate investment proposals as well as	Biosecurity Plans are in place for each Local Government Area.

Asset	Emergency scenario	Actions	Where	Who	Is action currently underway?
				provide early detection, landholder support and field days.	
		Operate and promote early warning systems.	Regional priority cropping lands including Condamine, Maranoa/Balonne and Border Rivers.	<u>Best placed:</u> Local Government, Land managers, Biosecurity Qld. <u>Others who could do it:</u> SQ Landscapes could support early detection.	Local Biosecurity Groups meet regularly to share information. SQ Landscapes is a member of these groups.
		Prevent the introduction of new, or further spread of disease.	SQ Transition zones between areas of current infestations and unaffected areas particularly in regional priority areas.	<u>Best placed:</u> Local Government, land managers, Biosecurity Qld. <u>Others who could do it:</u> SQ Landscapes could coordinate investment proposals as well as provide early detection, landholder support and field days.	Local Biosecurity Groups meet regularly to share information. SQ Landscapes is a member of these groups.
	New pest outbreak	Target control of key existing weeds using appropriate methods.	Regional priority cropping lands including Condamine, Maranoa/Balonne and Border Rivers.	<u>Best placed:</u> Local Government, Land managers, Biosecurity Qld. <u>Others who could do it:</u> SQ Landscapes could coordinate investment proposals as well as provide early detection, landholder support and field days.	Biosecurity Plans are in place for each Local Government Area. SQ Landscapes has projects underway for pest animal and plant management.

Asset	Emergency scenario	Actions	Where	Who	Is action currently underway?
		Provide alternative agents of pollination such as commercial bee hives.	Regional priority cropping lands.	<u>Best placed:</u> Land managers, Commercial beekeepers. <u>Others who could do it:</u> SQ Landscapes could support field days and provide information.	Commercial beekeepers provide more than 100,000 hives each year in Queensland to provide pollination services to agriculture.
		Prevent the introduction of new, or further spread of existing, invasive weeds.	Regional priority cropping lands.	<u>Best placed:</u> Land managers. <u>Others who could do it:</u> SQ Landscapes could provide advice and raise awareness.	Local Biosecurity Groups meet regularly to share information. SQ Landscapes is a member of these groups.
		Control introduced pest animals; where possible use coordinated landscape-scale control programs. This includes New pest outbreak like Varroa Mites in the bee keeping industry.	Regional priority cropping lands including Condamine, Maranoa/Balonne and Border Rivers.	<u>Best placed:</u> Local Government, Biosecurity Qld, Industry. <u>Others who could do it:</u> SQ Landscapes has supported landscape scale control of feral pigs.	Biosecurity Plans are in place for each Local Government Area.
		Maintain and promote existing washdown facilities to limit spread.	SQ transition zones between areas of current infestations and unaffected areas particularly in regional priority cropping areas.	<u>Best placed:</u> Local Government, Biosecurity Qld. <u>Others who could do it:</u> SQ Landscapes could promote.	Local and State Governments have programs promoting machinery hygiene and operate washdown facilities at: • Chinchilla • Roma • Dalby • Miles
		Promote machinery hygiene standards.	SQ transition zones between areas of current infestations and unaffected areas particularly in regional	<u>Best placed:</u> Local Government, Biosecurity Qld. <u>Others who could do it:</u> SQ Landscapes could promote.	

Asset	Emergency scenario	Actions	Where	Who	Is action currently underway?
			priority cropping areas.		
		As per Fire Ant Response Plan 2023–24 ⁷⁹	SQL Region	<u>Best placed:</u> National Fire Ant Eradication Program, Qld Government. <u>Others who could do it:</u> SQ Landscapes could coordinate investment proposals as well as provide early detection, landholder support and field days.	The full Fire Ant Response Plan 2023–24 is unable to be published as it is currently cabinet-in-confidence as of 14 May 2024

¹ Department of Agriculture and Fisheries (2021) Darling Downs Regional Drought Resilience Plan 2022–2030, State of Queensland.

⁷⁹ <https://www.fireants.org.au/> accessed 14 May 2024.

Preparedness actions for protecting grazing natural capital assets

Bushfire, drought, animal/plant diseases and new pest outbreak are the highest priority threats to grazing lands.

Asset	Emergency scenario	Actions	Where	Who	Is action currently underway?
Grazing natural capital assets	Drought	Promote regenerative agriculture.	Regional priority grazing areas and areas of higher bare ground.	<u>Best placed:</u> Land managers, Industry, Landcare. <u>Others who could do it:</u> SQ Landscapes, Consultants.	SQ Landscapes has supported land managers to enhance knowledge of regenerative agriculture through field days and workshops.
		Continue to design participatory, tailored and comprehensive drought monitoring and early warning systems, integrating multi-scale climate, soil and water information. ¹	Regional priority grazing areas and other drought prone areas.	<u>Best placed:</u> Federal, State and Local governments. <u>Others who could do it:</u> Stanthorpe and Roma (SQ Landscapes) Drought Nodes.	Stanthorpe and Roma (SQ Landscapes) Drought Nodes.
		Increase local capacity for effective interpretation and usage of drought monitoring, early warning and short time forecasting products. ¹	Regional priority grazing areas and other drought prone areas.	<u>Best placed:</u> Federal and State governments, Industry, USQ Climate Centre, Drought Hubs, SQ Landscapes.	Centre For Applied Climate Sciences, University Southern Queensland have Climate Project Officers who work with the community to understand and use climate information.
		Promote agricultural production systems that are drought resistant. ¹	Regional priority grazing areas and other drought prone areas.	<u>Best placed:</u> Industry, State Government, SQ Landscapes.	Stanthorpe and Roma (SQ Landscapes) Drought Nodes.
		Encourage the cultivation of drought-resistant species and varieties in drought-prone areas to improve crop, meat and fibre yields during drought. ¹	Regional priority grazing areas and other drought prone areas.	<u>Best placed:</u> Industry, State Government. <u>Others who could do it:</u> SQ Landscapes could promote.	Stanthorpe and Roma (SQ Landscapes) Drought Nodes.

Asset	Emergency scenario	Actions	Where	Who	Is action currently underway?
		Design “build back better” approach that reduces risk to landscape health and enhances preparedness to future droughts by utilising effective and targeted investments during the recovery, rehabilitation and reconstruction phases. ¹	Regional priority grazing areas and other drought prone areas.	<u>Best placed:</u> SQ Landscapes, Industry Bodies.	Stanthorpe and Roma (SQ Landscapes) Drought Nodes.
		Implement land use planning at landscape scale to encourage sustainable land use in drought-prone areas. ¹	Regional priority grazing areas and other drought prone areas.	<u>Best placed:</u> State Government, Local Government. <u>Others who could do it:</u> SQ Landscapes could support planning through data analysis and alignment to NRM planning GIS and coordinate community engagement.	Flourishing Landscapes Healthy Communities integrates the analysis of available data to guide landscape planning for strategic NRM outcomes – SQ Landscapes lead.
		Improve communication and information-sharing processes to increase awareness of risks to landscapes and natural environment associated with drought. ¹	Regional priority grazing areas and other drought prone areas.	<u>Best placed:</u> USQ Climate Centre, Drought Hubs, SQ Landscapes	Centre For Applied Climate Sciences, University Southern Queensland have Climate Project Officers who work with the community to understand and use climate information.
		Improving soil water retention – floodplain restoration and other “slow the flow” initiatives. ² Improving soil water retention across all lands can provide wide co-benefits such as sequestering carbon, soil quality improvement, wind protection, drought resilience and more biodiverse landscapes.	Regional priority grazing areas and other drought prone areas.	<u>Best placed:</u> Land managers <u>Others who could do it:</u> Support from SQ Landscapes, State Government has provided investment.	SQ Landscapes has delivered projects aimed at enhancing floodplains.

Asset	Emergency scenario	Actions	Where	Who	Is action currently underway?
		Manage stocking rate around long-term carrying capacity (LTCC) to maintain land condition.	Regional priority grazing areas and other drought prone areas.	<u>Best placed:</u> Land managers <u>Others who could do it:</u> Support from DAF and SQ Landscapes. State Government has provided investment for drought and business resilience programs.	Future Beef have programs and information available. DAF and SQ Landscapes conduct grazing futures workshops as part of the Farm Business Resilience Program with QRIDA.
		Implement wet season spelling to encourage good land condition.		<u>Best placed:</u> Land managers <u>Others who could do it:</u> Support from DAF and SQ Landscapes.	Future Beef have programs and information available. DAF and SQ Landscapes conduct grazing futures workshops as part of the Farm Business Resilience Program with QRIDA.
		De-stocking early in low rainfall periods to preserve groundcover. ²	Regional priority grazing areas, drought prone areas and areas of persistently higher bare ground.	<u>Best placed:</u> Landholders	As part of current grazing management.
		Increasing fodder and grain storage. ²	Regional priority grazing areas, drought prone areas and areas of higher bare ground.	<u>Best placed:</u> Landholders	Governments provide support for enhancing drought resilience.
	Animal/plant diseases	Target control of key existing disease using appropriate methods. Prevent the introduction of new, or further spread of disease.	SQ and Qld.	<u>Best placed:</u> Local Government, Land managers, Biosecurity Qld. <u>Others who could do it:</u> SQ Landscapes could coordinate investment proposals as well as provide early detection,	Biosecurity Plans are in operation for each Local Government Area.

Asset	Emergency scenario	Actions	Where	Who	Is action currently underway?
				landholder support and field days.	
		Operate and promote early warning systems for new outbreaks of animal/plant disease.	SQ and Qld.	<u>Best placed:</u> Local Government, Land managers, Biosecurity Qld. <u>Others who could do it:</u> SQ Landscapes.	Local Biosecurity Groups meet regularly to share information. SQ Landscapes is a member of these groups.
		Conduct ecological cool burns while ground is moist and other conditions are right to avoid soils going anaerobic. Anaerobic conditions can provide favourable conditions for plant disease and pasture dieback.	Regional priority grazing areas.	<u>Best placed:</u> Land managers, First Nations, RFS. <u>Others who could do it:</u> SQ Landscapes.	SQ Landscapes has supported ecological burning workshops in collaboration with First Nations and Rural Fire Service, supported by Local and State government.
		Early detection - know the signs of LSD (cattle and buffalo) FMD (cloven-hoofed animals) and ASF (pigs). Report suspected cases of emergency animal diseases to veterinarian and the Emergency Animal Disease Watch Hotline on 1800 675 888 immediately. Protect livestock and livelihood by: • having a property biosecurity management plan in place • ensuring biosecurity entity registration details are up to date • displaying biosecurity signage on the property		<u>Best placed:</u> Land managers, DAF, Animal Health Australia (AHA), Plant Health Australia (PHA). <u>Others who could do it:</u> SQ Landscapes could provide early detection, landholder support and field days.	DAF have Emergency animal diseases preparedness program including Facebook for updates and biosecurity alerts. AHA and PHA exist to enhance Australia's capability to detect and respond to emergency animal and plant diseases. Supporting Australia's domestic and international market focus is a key priority for AHA and PHA. AHA and PHA aim to ensure that Australia's emergency preparedness and response capabilities are strong and able

Asset	Emergency scenario	Actions	Where	Who	Is action currently underway?
		using the Farm Check-In app when people visit the property.			to deal with increasing biosecurity risks to the agricultural sector.
		Pasture dieback: - Grazing management – lightly or ungrazed areas with continual high pasture yield are more commonly and/or severely affected. - Increase pasture composition/diversity.	Areas in priority grazing areas adjacent to affected areas.	<u>Best placed:</u> Land managers, DAF Beef Extension Officers. <u>Others who could do it:</u> SQ Landscapes could provide early detection, landholder support and field days.	The Queensland Pasture Resilience Program is a partnership between DAF, MLA and the Australian Government. The Future Beef website has information and important contacts. www.futurebeef.com.au
	New pest outbreak	Target control of key existing weeds using appropriate methods. Prevent the introduction of new, or further spread of existing, invasive weeds.	SQ and Qld.	<u>Best placed:</u> Local Government, Land managers, Biosecurity Qld. <u>Others who could do it:</u> SQ Landscapes could coordinate investment proposals as well as provide early detection, landholder support and field days.	Biosecurity Plans are in place for each Local Government Area. SQ Landscapes has projects underway for pest animal and plant management.
		Control introduced pest animals. Where possible use coordinated landscape-scale control programs.	SQ and Qld.	<u>Best placed:</u> Local Government, Biosecurity Qld. <u>Others who could do it:</u> SQ Landscapes has supported landscape scale control programs including feral pigs.	Biosecurity Plans are in place for each Local Government Area.
		Maintain and promote existing washdown facilities to limit spread of New pest outbreak. ³	SQ Transition zones between areas of current infestations and	<u>Best placed:</u> Local Government, Biosecurity Qld.	Local and State Governments have programs promoting

Asset	Emergency scenario	Actions	Where	Who	Is action currently underway?
			unaffected areas particularly in regional priority grazing areas.	<u>Others who could do it:</u> SQ Landscapes could promote.	machinery hygiene and operate washdown facilities at: • Chinchilla • Roma • Dalby • Miles
		Raise community awareness of pest threats through: • Media • Field Days and Identification workshops • State-wide generic advertising campaign for pest prevention • targeting travelling public (e.g. road signs).³	SQ Region	<u>Best placed:</u> Local Government, Industry, Biosecurity Qld, SQ Landscapes.	Local Government provide information on priority new pest outbreaks. SQ Landscapes support knowledge sharing events focussing on new pest outbreaks.
		Promote machinery hygiene standards. ³	SQ Transition zones between areas of current infestations and unaffected areas particularly in regional priority grazing areas.	<u>Best placed:</u> Local Government, Industry, Biosecurity Qld, SQ Landscapes.	Local and State Governments have programs promoting machinery hygiene and operate washdown facilities at: • Chinchilla • Roma • Dalby • Miles
		As per Fire Ant Response Plan 2023–24. ⁸⁰	SQ Region	<u>Best placed:</u> National Fire Ant Eradication Program, Qld Government. <u>Others who could do it:</u> SQ Landscapes could coordinate investment proposals as well as provide early detection,	The full Fire Ant Response Plan 2023–24 is unable to be published as it is currently cabinet-in-confidence as of 14 May 2024.

⁸⁰ <https://www.fireants.org.au/> accessed 14 May 2024.

Asset	Emergency scenario	Actions	Where	Who	Is action currently underway?
				landholder support and field days.	

¹ Darling Downs Regional Drought Resilience Plan 2022–2030

² South West Regional Drought Resilience Plan 2022–2030

³ Western Downs Regional Council Biosecurity Plan

Intensive animal

Asset	Emergency scenario	Actions	Where	Who	Is action currently underway?
Intensive animal	Bushfire	Controlled burns	Adjacent to buffer zones around facilities	<u>Best placed</u> : RFS, Facility managers	As part of facility management programs.
		Fire breaks		<u>Best placed</u> : RFS, Facility managers	
		Vegetation management		<u>Best placed</u> : RFS, Facility managers	
	Heat Wave	Develop and implement an Excessive Heat Load (EHL) management plan	Livestock facilities Buffer areas	<u>Best placed</u> : Facility managers <u>Others who could do it</u> : Industry	As part of facility management programs.
		Provide shade including the creation of local microclimates	Livestock facilities Buffer areas	<u>Best placed</u> : Facility managers	
		Provide artificial cooling (misting etc.)	Livestock facilities	<u>Best placed</u> : Facility managers	
		Provide air movement	Livestock facilities	<u>Best placed</u> : Facility managers	

Forestry

Asset	Emergency scenario	Actions	Where	Who	Is action currently underway?
Forestry	Bushfire	Collaborative fire management planning and program delivery with DAF-FP is critical for good outcomes.	Within forestry areas and buffer zones.	<u>Best placed</u> : QPWS&P, DAF, HQ Plantations	Management of fires within mixed forests are detailed in the Brigalow Belt Planned Burn Guidelines (2013).
		Increased use of firebreaks and access trails.	Within forestry areas and buffer zones.	<u>Best placed</u> : RFS, land managers	As part of forestry management.
		Fuel reduction practices (e.g. fuel reduction burns). Include cool ecological burning principles where possible. Reduce fire risk through residue management, and vigour through fertilising, weed control and pest management.	Within forestry areas and buffer zones.	<u>Best placed</u> : Land managers, First Nations <u>Others who could do it</u> : SQ Landscapes can support demonstration field days.	SQ Landscapes work with First Nations to support and promote cool ecological burns.
		Establish and maintain an adequate level of firefighting equipment and trained personnel.	Within forestry areas and buffer zones.	<u>Best placed</u> : RFS, land managers	Unknown

Asset	Emergency scenario	Actions	Where	Who	Is action currently underway?
		Increase the capacity and regional support for Traditional Owner engagement, relationship development and partnership opportunities.	Within State Forests.	<u>Best placed</u> : QPWS&P, First Nations	Unknown
	Pest outbreak	Enhanced weed management will be required particularly if wider tree spacings are used which will take longer for trees to outcompete and suppress weeds.	Within forestry areas	<u>Best placed</u> : Land managers	Unknown
		Prevent spread into areas that are currently largely free of weed or pest animals.	Within forestry areas and buffer zones.	<u>Best placed</u> : Land managers <u>Others who could do it</u> : SQ Landscapes can support early detection and coordinate programs for investment to support awareness raising and on ground action.	Unknown
	Disease outbreak	Selection of more resistant trees in future planting.	Within forestry areas	<u>Best placed</u> : Industry, State Government.	Unknown
	Drought	Planting trees at wider spacings or thinning existing stands.	Within forestry areas	<u>Best placed</u> : Land managers	Unknown
		Investigate the potential for the wider use of watering and/or effluent irrigation as a direct response to reduced water availability but will depend on the cost of water.	Within forestry areas	<u>Best placed</u> : Land managers, Industry, State and Local Government.	Unknown

7.0 ASSET RESPONSE

Response actions for protecting Biodiversity assets

Response actions for protecting biodiversity assets have been addressed in response to the high priority threats identified in Table 8.

The full list of species of national environmental significance appears in **Appendix I**.

Table 8: Priority for actions to address threats to landscape areas

		Priority for actions to address threats							
		Bushfire	Drought	New pest outbreak	Disease	Flood	Heat - wave	Severe Storms	Dust Storm
Landscapes	Currawinya National Park and Ramsar Wetlands			Aquatic weeds Pest fish	Bird flu	Water quality		Erosion from heavy rainfall	
	Gondwana Rainforests of Australia (WHA)								
	Mt Moffat Section of Carnarvon NP	Impacts on SEVT and other fire sensitive TECs							
	Bunya Mountains				Phytophthora			Wind damage and erosion/ landslide from heavy rainfall.	
	South West Corner – Bulloo River Floodplains				Bird flu				
	Great Artesian Basin Springs								
	Balonne Junction (incl. Brigalow)								
	Traprock								
Species	Species of National Environmental Significance (SNES)								

Bushfire

Currawinya National Park and Ramsar Wetlands

Asset	Emergency scenario	Actions	Where	Who
While event is occurring				
Currawinya National Park and Ramsar Wetlands	Bushfire	Fire suppression	Within park Buffer to park	<u>Best placed:</u> QPWS&P, RFS, Land managers
		Protecting most sensitive areas	Mapped areas of fire sensitive species.	<u>Best placed:</u> QPWS&P, RFS <u>Others who could do it:</u> State and Local Governments
		Monitor / assess impacts	Within park Buffer to park	<u>Best placed:</u> QPWS&P, RFS <u>Others who could do it:</u> State and Local Governments
After event has occurred				
Currawinya National Park and Ramsar Wetlands	Post event, there could be an increased threat of weeds and invasive species, increased erosion and overall loss of biodiversity.	Immediate cleanup	Within park Buffer to park	<u>Best placed:</u> QPWS&P, First Nation, SQ Landscapes <u>Others who could do it:</u> State Government
		Rapid assessment of impact	Within park Buffer to park and ashfall impacts on upstream waterways.	<u>Best placed:</u> QPWS&P, First Nation, SQ Landscapes <u>Others who could do it:</u> State Government
		Plan for restoration	Within park	<u>Best placed:</u> QPWS&P, First Nation, SQ Landscapes <u>Others who could do it:</u> State Government

Species of National Environmental Significance (SNES)

Asset	Emergency scenario	Actions	Where	Who
While event is occurring				
Species of National Environmental Significance (SNES)	Bushfire	Fire suppression	Buffering most sensitive species.	<u>Best placed:</u> RFS, land managers <u>Others who could do it:</u> First Nations
		Protecting most sensitive areas	Identify sensitive species across the region.	<u>Best placed:</u> RFS, landholders. <u>Others who could do it:</u> First Nations
		Monitor / assess impacts	In areas of sensitive species and buffer zones particularly forage and water sources.	<u>Best placed:</u> RFS <u>Others who could do it:</u> First Nations, SQ Landscapes, Community Groups
		Firefighters receive basic wildlife rescue training.	In areas of high SNES concentration including koala.	<u>Best placed:</u> QPWS&P, RFS Similar to Recommendation 53 of the NSW Bushfire Inquiry, which proposes that the government develop and implement a policy for injured wildlife response, including guidance for firefighters on handling injured wildlife. The NSW National Parks and Wildlife Service is leading the implementation of this recommendation.
After event has occurred				
Species of National Environmental Significance (SNES)	Bushfire	Immediate cleanup	In fire sensitive areas and buffer zones particularly forage and water sources.	<u>Best placed:</u> Landholders <u>Others who could do it:</u> State and Local Governments

Asset	Emergency scenario	Actions	Where	Who
		Rapid assessment of impact	On park	<u>Best placed:</u> SQ Landscapes <u>Others who could do it:</u> State and Local Governments
		Plan for restoration	Based on impact assessments.	<u>Best placed:</u> SQ Landscapes <u>Others who could do it:</u> State and Local Governments

Gondwana Landscapes - World Heritage Area

Asset	Emergency scenario	Actions	Where	Who
While event is occurring				
Gondwana Landscapes	Bushfire	Fire suppression	In park and buffer areas	<u>Best placed:</u> QPWS&P, RFS, land managers
		Protecting most sensitive areas	Fires sensitive species particularly TEC	<u>Best placed:</u> QPWS&P, RFS, land managers <u>Others who could do it:</u> SQ Landscapes could provide advice on priority natural assets to emergency services and land managers while the event is occurring.
		Monitor / assess impacts	In park and buffer areas	<u>Best placed:</u> QPWS&P, RFS, land managers <u>Others who could do it:</u> SQ Landscapes
After event has occurred				
Gondwana Landscapes	Bushfire	Immediate cleanup	In park and buffer areas	<u>Best placed:</u> QPWS&P, SQ Landscapes, land managers <u>Others who could do it:</u> State and Local Governments

Asset	Emergency scenario	Actions	Where	Who
		Rapid assessment of impact	In park and buffer areas and ashfall impacts on waterways.	<u>Best placed:</u> QPWS&P, SQ Landscapes, land managers <u>Others who could do it:</u> State and Local Governments
		Plan for restoration	Based on impact assessments.	<u>Best placed:</u> QPWS&P (on park), landholders, SQ Landscapes (private lands) <u>Others who could do it:</u> State and Local Governments

Mt Moffat Section of Carnarvon National Park

Asset	Emergency scenario	Actions	Where	Who
While event is occurring				
Mt Moffat Section of Carnarvon National Park	Bushfire	Fire suppression	In park and buffer areas	<u>Best placed:</u> QPWS&P, RFS, landholders
		Protecting most sensitive areas	Fires sensitive species	<u>Best placed:</u> QPWS&P, RFS
		Monitor / assess impacts	In park and buffer areas	<u>Best placed:</u> QPWS&P, RFS
After event has occurred				
Mt Moffat Section of Carnarvon National Park	Bushfire	Immediate cleanup	In park and buffer areas	<u>Best placed:</u> QPWS&P, SQ Landscapes <u>Others who could do it:</u> State and Local Governments
		Rapid assessment of impact	In park and buffer areas and ashfall impacts on waterways,	<u>Best placed:</u> QPWS&P, SQ Landscape, landholders <u>Others who could do it:</u> State and Local Governments

Asset	Emergency scenario	Actions	Where	Who
		Plan for restoration	Based on impact assessments.	<u>Best placed:</u> QPWS&P (on park), landholders, SQ Landscapes (private lands) <u>Others who could do it:</u> State and Local Governments

South West Corner – Bulloo River Floodplains

Asset	Emergency scenario	Actions	Where	Who
While event is occurring				
South West Corner – Bulloo River Floodplains	Bushfire	Fire suppression	Fire sensitive TECs	<u>Best placed:</u> Land managers, RFS
		Protecting most sensitive areas	Fire sensitive TECs	<u>Best placed:</u> Land managers, RFS <u>Others who could do it:</u> SQ Landscapes could provide advice during the event.
		Monitor / assess impacts	Impacted areas	<u>Best placed:</u> Land managers, SQ Landscapes, First Nations. <u>Others who could do it:</u> State and Local Government.
After event has occurred				
South West Corner – Bulloo River Floodplains	Bushfire	Immediate cleanup	Impacted areas	<u>Best placed:</u> Land managers <u>Others who could do it:</u> State and Local Government.
		Rapid assessment of impact	Impacted areas	<u>Best placed:</u> SQ Landscapes.
		Plan for restoration	Impacted landscapes	<u>Best placed:</u> SQ Landscapes, Local and State Governments.

Traprock

Asset	Emergency scenario	Actions	Where	Who
While event is occurring				
Traprock	Bushfire	Fire suppression	Fire sensitive TECs	<u>Best placed:</u> Land managers, RFS
		Protecting most sensitive areas	Fire sensitive TECs	<u>Best placed:</u> Land managers, RFS <u>Others who could do it:</u> SQ Landscapes could provide advice during the event.
		Monitor / assess impacts	Impacted areas	<u>Best placed:</u> Land managers, SQ Landscapes, First Nations. <u>Others who could do it:</u> State and Local Government.
After event has occurred				
Traprock	Bushfire	Immediate cleanup	Impacted areas	<u>Best placed:</u> Land managers <u>Others who could do it:</u> State and Local Government.
		Rapid assessment of impact	Impacted areas	<u>Best placed:</u> SQ Landscapes.
		Plan for restoration	Impacted landscapes	<u>Best placed:</u> SQ Landscapes, Local and State Governments.

Balonne Junction

Asset	Emergency scenario	Actions	Where	Who
While event is occurring				
Balonne Junction	Bushfire	Fire suppression	Within and in buffer areas of most sensitive areas.	<u>Best placed:</u> RFS, land managers
		Protecting most sensitive areas	Fire sensitive TECs	<u>Best placed:</u> RFS, land managers
		Monitor / assess impacts	Natural asset landscapes	<u>Best placed:</u> RFS, land managers
After event has occurred				
Balonne Junction	Bushfire	Immediate cleanup	Impacted areas	<u>Best placed:</u> Land managers, Emergency Services, Local and State Government.
		Rapid assessment of impact	Impacted areas	<u>Best placed:</u> SQ Landscapes <u>Others who could do it:</u> State and Local Governments
		Plan for restoration	Priority natural assets	<u>Best placed:</u> SQ Landscapes could coordinate investment proposals and planning responses. <u>Others who could do it:</u> State and Local Governments

Drought- response actions for protecting biodiversity assets

Currawinya National Park and Ramsar Wetlands

Asset	Emergency scenario	Actions	Where	Who
While event is occurring				
Currawinya National Park and Ramsar Wetlands	Drought	Restore floodplains in upstream catchments targeting persistent bare ground rehabilitation and other “slow the flow” measures to enhance soil water storage once the drought breaks thus accelerating the rate of wetland/landscape recovery.	Upstream catchments including Bindegolly NP.	<u>Best placed:</u> Land managers, SQ Landscapes <u>Others who could do it:</u> Funded by Federal and State Governments.
After event has occurred				
Currawinya National Park and Ramsar Wetlands	Drought	Assessment of impact	On park and buffer areas	<u>Best placed:</u> QPWS&P, SQ Landscapes <u>Others who could do it:</u> State and Local Governments
		Plan for restoration	Based on assessments.	<u>Best placed:</u> QPWS&P, SQ Landscapes, Land managers

GAB discharge spring wetlands

Asset	Emergency scenario	Actions	Where	Who
While event is occurring				
GAB discharge spring wetlands	Drought	Protect and restore intake bores in upstream catchments.	Upstream including Paroo and Warrego River catchments and in recharge areas (including north of Adavale).	<u>Best placed:</u> Land managers SQ Landscapes can coordinate investment proposals and implementation programs.
		Fence springs to avoid damage from livestock and pest animals accessing water during drought.	Priority springs, Currawinya National Park, Culgoa NP.	<u>Best placed:</u> First Nations, QPWS&P, land managers <u>Others who could do it:</u> SQ Landscapes can coordinate

				investment proposals and implementation programs.
After event has occurred				
GAB discharge spring wetlands	Drought	Assessment of impacts and priority for restoration.	Drought impacted springs	<u>Best placed:</u> Land managers, QPWS&P, SQ Landscapes.
		Plan for restoration	Priority springs	<u>Best placed:</u> QPWS&P, land managers <u>Others who could do it:</u> SQ Landscapes can coordinate investment proposals and implementation programs.

South West Corner – Bulloo River Floodplains

Asset	Emergency scenario	Actions	Where	Who
While event is occurring				
South West Corner – Bulloo River Floodplains	Drought	Restore floodplains in upstream catchments targeting persistent bare ground rehabilitation and other “slow the flow” measures to enhance soil water storage once drought breaks thus accelerating the rate of wetland/landscape recovery.	South West Corner and upstream floodplains of the Bulloo River.	<u>Best placed:</u> Land managers, SQ Landscapes <u>Others who could do it:</u> State Government, Bulloo Shire Council has a Rural Extension Service that could support land managers. SQ Landscapes can coordinate investment proposals and implementation programs.
		Control New pest outbreak including rabbits.	Priority areas	<u>Best placed:</u> Current land manager does not have sufficient capacity/resources.
		Monitor / assess impacts	South West Corner – Bulloo River Floodplains	<u>Best placed:</u> SQ Landscapes <u>Others who could do it:</u> State and Local governments.
After event has occurred				

South West Corner – Bulloo River Floodplains	Drought	Assessment of impact	South West Corner – Bulloo River Floodplains	<u>Best placed:</u> SQ Landscapes <u>Others who could do it:</u> State and Local government.
		Plan for restoration	Priority areas	<u>Best placed:</u> SQ Landscapes can coordinate investment proposals and implementation programs. <u>Others who could do it:</u> State and Local government.

Gondwana Landscapes - World Heritage Area

Asset	Emergency scenario	Actions	Where	Who
While event is occurring				
Gondwana Landscapes	Drought	Protect most sensitive areas from associated wildfire risk.	Fire sensitive TECs.	<u>Best placed:</u> Land managers, RFS. <u>Others who could do it:</u> SQ Landscapes can provide information on fire sensitive species and management.
		Monitor / assess impacts	World Heritage Area Buffer	<u>Best placed:</u> Land managers, SQ Landscapes. <u>Others who could do it:</u> State and Local government.
After event has occurred				

Gondwana Landscapes	Drought	Assessment of impact	World Heritage Area Buffer	<u>Best placed:</u> Land managers, SQ Landscapes. <u>Others who could do it:</u> State and Local government.
		Plan for restoration	Priority impacted areas	<u>Best placed:</u> Land managers, SQ Landscapes can coordinate investment proposals and implementation programs. <u>Others who could do it:</u> State and Local government.

Balonne Junction

Asset	Emergency scenario	Actions	Where	Who
While event is occurring				
Balonne Junction	Drought	Protect most sensitive areas from associated wildfire risk.	Fire sensitive TECs.	<u>Best placed</u> : Land managers, RFS. <u>Others who could do it</u> : SQ Landscapes can provide information on fire sensitive species and management.
		Monitor / assess impacts	Balonne Junction	<u>Best placed</u> : Land managers, SQ Landscapes. <u>Others who could do it</u> : State and Local government.
After event has occurred				
Balonne Junction	Drought	Assessment of impact	Balonne Junction	<u>Best placed</u> : Land managers, SQ Landscapes. <u>Others who could do it</u> : State and Local government.

Asset	Emergency scenario	Actions	Where	Who
		Plan for restoration	Priority impacted areas	<u>Best placed:</u> Land managers, SQ Landscapes can coordinate investment proposals and implementation programs. <u>Others who could do it:</u> State and Local government.

Animal/plant diseases- response actions for protecting biodiversity assets

Currawinya National Park and Ramsar Wetlands

Asset	Emergency scenario	Actions	Where	Who
While event is occurring				
Currawinya National Park and Ramsar Wetlands	Animal/plant disease outbreak	Implement quarantine measures	Impacted areas and buffer zones	<u>Best placed:</u> Biosecurity Qld, land managers, State and Local Governments.
		Implement control measures	Impacted areas and buffer zones	<u>Best placed:</u> Biosecurity Qld, land managers, State and Local Governments
		Monitor / assess impacts	Currawinya National Park and Ramsar Wetlands	<u>Best placed:</u> Biosecurity Qld, land managers, State and Local Governments <u>Others who could do it:</u> SQ Landscapes
Currawinya National Park and Ramsar Wetlands	Animal/plant disease outbreak	Assessment of impact	Currawinya National Park and Ramsar Wetlands	<u>Best placed:</u> Biosecurity Qld, land managers, State and Local Governments <u>Others who could do it:</u> SQ Landscapes
		Plan for restoration	Currawinya National Park and Ramsar Wetlands	<u>Best placed:</u> SQ Landscapes can coordinate investment proposals and implementation programs. <u>Others who could do it:</u> State and Local governments
		Assessment of impact	Currawinya National Park and Ramsar Wetlands	<u>Best placed:</u> Biosecurity Qld, land managers, State and Local Governments <u>Others who could do it:</u> SQ Landscapes

Species of National Environmental Significance (SNES)

Asset	Emergency scenario	Actions	Where	Who
While event is occurring				
Species of National Environmental Significance (SNES)	Animal/plant disease outbreak	Monitor new and emerging risks of disease	Qld and Southern Queensland	<u>Best placed:</u> Local Government, Biosecurity Qld, Landholders. <u>Others who could do it:</u> SQ Landscapes
		Early detection: Report sick or dead birds, to a ranger, biosecurity officer, government vet, or call the Emergency Animal Disease Hotline on 1800 675 888. EPIWATCH - Home	SNES habitats	<u>Best placed:</u> Local Government, Biosecurity Qld, Landholders, National Avian Influenza Wild Bird (NAIWB) Steering Group. ⁸¹ <u>Others who could do it:</u> SQ Landscapes
		Protect most sensitive areas	SNES habitat	<u>Best placed:</u> Landholders <u>Others who could do it:</u> State and Local Governments, SQ Landscapes
After event has occurred				
Species of National Environmental Significance (SNES)	Animal/plant disease outbreak	Monitor/assess impacts of outbreak	SNES habitat	<u>Best placed:</u> Local Government, Biosecurity Qld, SQ Landscapes, Landholders <u>Others who could do it:</u> State and Local Governments

⁸¹ <https://wildlifehealthaustralia.com.au/Our-Work/Surveillance/Wild-Bird-Surveillance>

Asset	Emergency scenario	Actions	Where	Who
		Plan for recovery	SNES habitat	<u>Best placed:</u> Local Government, Biosecurity Qld, SQ Landscapes, Landholders <u>Others who could do it:</u> State and Local Governments

Gondwana Rainforests of Australia World Heritage Area

Asset	Emergency scenario	Actions	Where	Who
While event is occurring				
Gondwana Rainforests of Australia World Heritage Area	Animal/plant diseases	Monitor new and emerging risks of disease	Qld and Southern Queensland	<u>Best placed:</u> QPWS&P, Local Government, Biosecurity Qld, Landholders <u>Others who could do it:</u> SQ Landscapes
		Early detection	Priority habitats on Park, Buffer areas and access points	<u>Best placed:</u> QPWS&P, Local Government, Biosecurity Qld, Landholders <u>Others who could do it:</u> SQ Landscapes
		Protect most sensitive areas	Priority habitats	<u>Best placed:</u> QPWS&P <u>Others who could do it:</u> State and Local Governments, SQ Landscapes
After event has occurred				
Gondwana Rainforests of Australia World Heritage Area	Animal/plant diseases	Monitor/assess impacts of outbreak	On Park Buffer areas and access points	<u>Best placed:</u> QPWS&P, Local Government, Biosecurity Qld, SQ Landscapes, Landholders <u>Others who could do it:</u> State and Local Governments

Asset	Emergency scenario	Actions	Where	Who
		Plan for recovery	On Park	<u>Best placed:</u> Local Government, Biosecurity Qld, SQ Landscapes, Landholders <u>Others who could do it:</u> State and Local Governments
		Monitor/assess impacts of outbreak	On Park Buffer areas and access points	<u>Best placed:</u> Local Government, Biosecurity Qld, SQ Landscapes, Landholders <u>Others who could do it:</u> State and Local Governments

Mt Moffat Section of Carnarvon National Park

Asset	Emergency scenario	Actions	Where	Who
While event is occurring				
Mt Moffat Section of Carnarvon National Park	Animal/plant diseases	Monitor new and emerging risks of disease	Qld and Southern Queensland	<u>Best placed:</u> QPWS&P, Local Government, Biosecurity Qld, Landholders <u>Others who could do it:</u> SQ Landscapes
		Early detection	Priority habitats on Park Buffer areas and access points	<u>Best placed:</u> QPWS&P, Local Government, Biosecurity Qld, Landholders <u>Others who could do it:</u> SQ Landscapes
		Protect most sensitive areas	Priority habitats	<u>Best placed:</u> QPWS&P <u>Others who could do it:</u> State and Local Governments, SQ Landscapes
After event has occurred				

Asset	Emergency scenario	Actions	Where	Who
Mt Moffat Section of Carnarvon National Park	Animal/plant diseases	Monitor/assess impacts of outbreak	On Park Buffer areas and access points	<u>Best placed:</u> Local Government, Biosecurity Qld, SQ Landscapes, Landholders <u>Others who could do it:</u> State and Local Governments
		Plan for recovery	On Park	<u>Best placed:</u> Local Government, Biosecurity Qld, SQ Landscapes, Landholders <u>Others who could do it:</u> State and Local Governments
		Monitor/assess impacts of outbreak	On Park Buffer areas and access points	<u>Best placed:</u> Local Government, Biosecurity Qld, SQ Landscapes, Landholders <u>Others who could do it:</u> State and Local Governments

Gondwana Landscapes (World Heritage Area)

Asset	Emergency scenario	Actions	Where	Who
While event is occurring				
Gondwana Landscapes	Animal/plant disease outbreak	Implement quarantine measures	Impacted areas and buffer zones	<u>Best placed:</u> Biosecurity Qld, land managers, State and Local Governments
		Implement control measures	Impacted areas and buffer zones	<u>Best placed:</u> Biosecurity Qld, land managers, State and Local Governments
		Monitor / assess impacts	World Heritage Area Buffer	<u>Best placed:</u> Biosecurity Qld, land managers, State and Local Governments <u>Others who could do it:</u> SQ Landscapes
After event has occurred				

Asset	Emergency scenario	Actions	Where	Who
Gondwana Landscapes	Animal/plant disease outbreak	Assessment of impact	World Heritage Area Buffer	<u>Best placed:</u> Biosecurity Qld, land managers, State and Local Governments <u>Others who could do it:</u> SQ Landscapes
		Plan for restoration	World Heritage Area Buffer	<u>Best placed:</u> SQ Landscapes can coordinate investment proposals and implementation programs <u>Others who could do it:</u> State and Local governments

South West Corner – Bulloo River Floodplains

Asset	Emergency scenario	Actions	Where	Who
While event is occurring				
South West Corner – Bulloo River Floodplains	Animal/plant disease outbreak	Implement quarantine measures	Impacted areas and buffer zones	Best placed: Biosecurity Qld, land managers, State and Local Governments
		Implement control measures	Impacted areas and buffer zones	Best placed: Biosecurity Qld, land managers, State and Local Governments
		Monitor / assess impacts	South West Corner – Bulloo River Floodplains	Best placed: Biosecurity Qld, land managers, State and Local Governments Others who could do it: SQ Landscapes
After event has occurred				
South West Corner – Bulloo River Floodplains	Animal/plant disease outbreak	Assessment of impact	South West Corner – Bulloo River Floodplains	Best placed: Biosecurity Qld, land managers, State and Local Governments Others who could do it:

Asset	Emergency scenario	Actions	Where	Who
				SQ Landscapes
		Plan for restoration	South West Corner – Bulloo River Floodplains	<u>Best placed:</u> SQ Landscapes can coordinate investment proposals and implementation programs <u>Others who could do it:</u> State and Local governments

Traprock

Asset	Emergency scenario	Actions	Where	Who
While event is occurring				
Traprock	Animal/plant disease outbreak	Implement quarantine measures	Impacted areas and buffer zones	<u>Best placed:</u> Biosecurity Qld, land managers, State and Local Governments
		Implement control measures	Impacted areas and buffer zones	<u>Best placed:</u> Biosecurity Qld, land managers, State and Local Governments
		Monitor / assess impacts	Traprock	<u>Best placed:</u> Biosecurity Qld, land managers, State and Local Governments <u>Others who could do it:</u> SQ Landscapes
After event has occurred				
Traprock	Animal/plant disease outbreak	Assessment of impact	Traprock	<u>Best placed:</u> Biosecurity Qld, land managers, State and Local Governments <u>Others who could do it:</u> SQ Landscapes

	Plan for restoration	Traprock	<u>Best placed:</u> SQ Landscapes can coordinate investment proposals and implementation programs <u>Others who could do it:</u> State and Local governments
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GAB discharge spring wetlands

Asset	Emergency scenario	Actions	Where	Who
While event is occurring				
GAB discharge spring wetlands	Animal/plant disease outbreak	Implement quarantine measures	Impacted areas and buffer zones	<u>Best placed:</u> Biosecurity Qld, land managers, State and Local Governments
		Implement control measures	Impacted areas and buffer zones	<u>Best placed:</u> Biosecurity Qld, land managers, State and Local Governments
		Monitor / assess impacts	GAB discharge spring wetlands	<u>Best placed:</u> Biosecurity Qld, land managers, State and Local Governments <u>Others who could do it:</u> SQ Landscapes
After event has occurred				
GAB discharge spring wetlands	Animal/plant disease outbreak	Assessment of impact	GAB discharge spring wetlands	<u>Best placed:</u> Biosecurity Qld, land managers, State and Local Governments <u>Others who could do it:</u> SQ Landscapes
		Plan for restoration	GAB discharge spring wetlands	<u>Best placed:</u> SQ Landscapes can coordinate investment

			proposals and implementation programs <u>Others who could do it:</u> State and Local governments
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Balonne Junction

Asset	Emergency scenario	Actions	Where	Who
While event is occurring				
Balonne Junction	Animal/plant disease outbreak	Implement quarantine measures	Impacted areas and buffer zones	<u>Best placed:</u> Biosecurity Qld, land managers, State and Local Governments
		Implement control measures	Impacted areas and buffer zones	<u>Best placed:</u> Biosecurity Qld, land managers, State and Local Governments
		Monitor / assess impacts	Balonne Junction	<u>Best placed:</u> Biosecurity Qld, land managers, State and Local Governments <u>Others who could do it:</u> SQ Landscapes
After event has occurred				
Balonne Junction	Animal/plant disease outbreak	Assessment of impact	Balonne Junction	<u>Best placed:</u> Biosecurity Qld, land managers, State and Local Governments <u>Others who could do it:</u> SQ Landscapes
		Plan for restoration	Balonne Junction	<u>Best placed:</u> SQ Landscapes can coordinate investment proposals and implementation programs

			Others who could do it: State and Local governments
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New pest outbreak- response actions for protecting biodiversity assets

The negative impacts of new outbreaks of invasive plants and animals on biodiversity and agricultural natural assets as a result of shifts in climate and range include:

- direct predation of native species
- loss of food and shelter for native species
- degradation of native vegetation and habitats
- reduction and possible extinction of native plant and animal species
- spread of disease
- competition with native species for shelter and food
- loss of genetic purity of native species (hybridisation)
- loss of stability of the environment, leading to the inability to support agricultural business.⁸²

⁸² State of Queensland (2019) Queensland invasive plants and animals strategy 2019–2024, Invasive Plants and Animals in Biosecurity Queensland, Department of Agriculture and Fisheries.
https://www.daf.qld.gov.au/data/assets/pdf_file/0008/1441637/qld-invasive-plants-animals-strategy.pdf

Currawinya National Park and Ramsar Wetlands

Asset	Emergency scenario	Actions	Where	Who
While event is occurring				
Currawinya National Park and Ramsar Wetlands	New pest outbreak	Monitor new and emerging risks of new pest outbreaks	Qld and Southern Queensland	<u>Best placed:</u> QPWS&P, Local Government, Biosecurity Qld, Landholders <u>Others who could do it:</u> SQ Landscapes
		Early detection	Priority habitats on Park Buffer and upstream areas	<u>Best placed:</u> QPWS&P, Local Government, Biosecurity Qld, Landholders <u>Others who could do it:</u> SQ Landscapes
		Protect most sensitive areas	Priority habitats	<u>Best placed:</u> QPWS&P <u>Others who could do it:</u> State and Local Governments, SQ Landscapes
After event has occurred				
Currawinya National Park and Ramsar Wetlands	New pest outbreak	Monitor/assess impacts of outbreak	On Park Buffer and upstream areas	<u>Best placed:</u> Local Government, Biosecurity Qld, SQ Landscapes, Landholders <u>Others who could do it:</u> State and Local Governments
		Plan for recovery	On Park	<u>Best placed:</u> Local Government, Biosecurity Qld, SQ Landscapes, Landholders <u>Others who could do it:</u> State and Local Governments

Asset	Emergency scenario	Actions	Where	Who
		Monitor/assess impacts of outbreak	On Park Buffer and upstream areas	<u>Best placed:</u> Local Government, Biosecurity Qld, SQ Landscapes, Landholders <u>Others who could do it:</u> State and Local Governments

Species of National Environmental Significance (SNES)

Asset	Emergency scenario	Actions	Where	Who
While event is occurring				
Species of National Environmental Significance (SNES)	New pest outbreak	Monitor new and emerging risks of new pest outbreaks	Qld and Southern Queensland	<u>Best placed:</u> QPWS&P, Local Government, Biosecurity Qld, Landholders <u>Others who could do it:</u> SQ Landscapes
		Early detection	Priority SNES habitats	<u>Best placed:</u> QPWS&P, Local Government, Biosecurity Qld, Landholders <u>Others who could do it:</u> SQ Landscapes
		Protect most sensitive areas	Priority SNES habitats	<u>Best placed:</u> QPWS&P <u>Others who could do it:</u> State and Local Governments, SQ Landscapes
After event has occurred				
Species of National Environmental Significance (SNES)	New pest outbreak	Monitor/assess impacts of outbreak	SNES habitat	<u>Best placed:</u> Local Government, Biosecurity Qld, SQ Landscapes, Landholders <u>Others who could do it:</u> State and Local Governments
		Plan for recovery	SNES habitat	<u>Best placed:</u> Local Government, Biosecurity Qld, SQ Landscapes, Landholders <u>Others who could do it:</u> State and Local Governments

Asset	Emergency scenario	Actions	Where	Who
		Monitor/assess impacts of outbreak	SNES habitat	<u>Best placed:</u> Local Government, Biosecurity Qld, SQ Landscapes, Landholders <u>Others who could do it:</u> State and Local Governments

Gondwana Landscapes - World Heritage Area

Asset	Emergency scenario	Actions	Where	Who
While event is occurring				
Gondwana Landscapes	New pest outbreak	Monitor new and emerging risks of new pest outbreaks	Qld and Southern Queensland	<u>Best placed:</u> QPWS&P, Local Government, Biosecurity Qld, Landholders <u>Others who could do it:</u> SQ Landscapes
		Early detection	Priority habitats on Park Buffer areas and access points	<u>Best placed:</u> QPWS&P, Local Government, Biosecurity Qld, Landholders <u>Others who could do it:</u> SQ Landscapes
		Protect most sensitive areas	Priority habitats	<u>Best placed:</u> QPWS&P <u>Others who could do it:</u> State and Local Governments, SQ Landscapes
After event has occurred				
Gondwana Landscapes	New pest outbreak	Monitor/assess impacts of outbreak	Priority habitats on Park Buffer areas and access points	<u>Best placed:</u> SQ Landscapes <u>Others who could do it:</u> State and Local Governments

Asset	Emergency scenario	Actions	Where	Who
		Plan for recovery	Based on assessment of impacts	<u>Best placed:</u> SQ Landscapes <u>Others who could do it:</u> State and Local Governments
		Monitor/assess impacts of outbreak	Priority habitats on Park Buffer areas and access points	<u>Best placed:</u> SQ Landscapes <u>Others who could do it:</u> State and Local Governments

Mt Moffat Section of Carnarvon National Park

Asset	Emergency scenario	Actions	Where	Who
While event is occurring				
Mt Moffat Section of Carnarvon National Park	New pest outbreak	Monitor new and emerging risks of new pest outbreaks	Qld and Southern Queensland	<u>Best placed:</u> QPWS&P, Local Government, Biosecurity Qld, Landholders <u>Others who could do it:</u> SQ Landscapes
		Early detection	Priority habitats on Park Buffer areas and access points	<u>Best placed:</u> QPWS&P, Local Government, Biosecurity Qld, Landholders <u>Others who could do it:</u> SQ Landscapes
		Protect most sensitive areas	Priority habitats	<u>Best placed:</u> QPWS&P <u>Others who could do it:</u> State and Local Governments, SQ Landscapes
After event has occurred				
Mt Moffat Section of Carnarvon National Park	New pest outbreak	Monitor/assess impacts of outbreak	Priority habitats on Park Buffer areas and access points	<u>Best placed:</u> SQ Landscapes <u>Others who could do it:</u> State and Local Governments

		Plan for recovery	Based on assessment of impacts	<u>Best placed:</u> SQ Landscapes <u>Others who could do it:</u> State and Local Governments
		Monitor/assess impacts of outbreak	Priority habitats on Park Buffer areas and access points	<u>Best placed:</u> SQ Landscapes <u>Others who could do it:</u> State and Local Governments

GAB discharge spring wetlands

Asset	Emergency scenario	Actions	Where	Who
While event is occurring				
GAB discharge spring wetlands	New pest outbreak	Monitor new and emerging risks of new pest outbreaks	Qld and Southern Queensland	<u>Best placed:</u> QPWS&P, Local Government, Biosecurity Qld, Landholders <u>Others who could do it:</u> SQ Landscapes
		Early detection	Priority habitats on Park Buffer areas and access points	<u>Best placed:</u> QPWS&P, Local Government, Biosecurity Qld, Landholders <u>Others who could do it:</u> SQ Landscapes
		Protect most sensitive areas	Priority habitats	<u>Best placed:</u> QPWS&P <u>Others who could do it:</u> State and Local Governments, SQ Landscapes
After event has occurred				
GAB discharge spring wetlands	New pest outbreak	Monitor/assess impacts of outbreak	Priority habitats on Park Buffer areas and access points	<u>Best placed:</u> SQ Landscapes

				<u>Others who could do it:</u> State and Local Governments
		Plan for recovery	Based on assessment of impacts	<u>Best placed:</u> SQ Landscapes <u>Others who could do it:</u> State and Local Governments
		Monitor/assess impacts of outbreak	Priority habitats on Park Buffer areas and access points	<u>Best placed:</u> SQ Landscapes <u>Others who could do it:</u> State and Local Governments

South West Corner – Bulloo River Floodplains

Asset	Emergency scenario	Actions	Where	Who
While event is occurring				
South West Corner – Bulloo River Floodplains	New pest outbreak	Monitor/assess impacts of outbreak	Buffer areas and access points	<u>Best placed:</u> Land managers, SQ Landscapes <u>Others who could do it:</u> State and Local Governments
		Plan for recovery	Based on assessment of impacts	<u>Best placed:</u> SQ Landscapes <u>Others who could do it:</u> State and Local Governments
		Monitor/assess impacts of outbreak	Buffer areas and access points	<u>Best placed:</u> SQ Landscapes <u>Others who could do it:</u> State and Local Governments
After event has occurred				
South West Corner – Bulloo River Floodplains	New pest outbreak	Monitor/assess impacts of outbreak	Buffer areas and access points	<u>Best placed:</u> SQ Landscapes <u>Others who could do it:</u> State and Local Governments
		Plan for recovery	Based on assessment of impacts	<u>Best placed:</u> SQ Landscapes <u>Others who could do it:</u> State and Local Governments
		Monitor/assess impacts of outbreak	Buffer areas and access points	Best placed: SQ Landscapes

			Others who could do it: State and Local Governments
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Heatwave – response actions for protecting biodiversity assets

Species of National Environmental Significance (SNES)

Asset	Emergency scenario	Actions	Where	Who
While event is occurring				
Species of National Environmental Significance (SNES)	Heatwave	Monitor bushfire prone/sensitive areas	Priority SNES habitats particularly fire sensitive landscapes.	<u>Best placed:</u> RFS, landholders, QPWS&P <u>Others who could do it:</u> QPWS&P, SQ Landscapes, State and Local Governments
		Protect refugia areas, other shade and water sources especially as heat increases risk of wildfire.	Priority SNES habitats	<u>Best placed:</u> SQ Landscapes, QPWS&P, landholders <u>Others who could do it:</u> State and Local Governments
After event has occurred				
Species of National Environmental Significance (SNES)	Heatwave	Assessment of impact	Priority SNES habitats	<u>Best placed:</u> QPWS&P, SQ Landscapes <u>Others who could do it:</u> State and Local Governments
		Enhance resilience	Refugia waterholes, forests, shade and cooler refugia in priority SNES habitats	<u>Best placed:</u> QPWS&P, SQ Landscapes, landholders

Gondwana Landscapes (World Heritage Area)

Asset	Emergency scenario	Actions	Where	Who
While event is occurring				
Gondwana Landscapes	Heatwave	Monitor bushfire prone/sensitive areas	Priority SNES habitats particularly fire sensitive landscapes.	<u>Best placed:</u> QPWS&P, Emergency services
		Protecting most sensitive areas	Priority SNES habitats particularly fire sensitive landscapes.	<u>Best placed:</u> SQ Landscapes <u>Others who could do it:</u> State and Local Governments
		Maintain and enhance refugia	Refugia waterholes, forests, shade and cooler refugia in park and buffer areas	<u>Best placed:</u> QPWS&P, SQ Landscapes, landholders <u>Others who could do it:</u> State and Local Governments
After event has occurred				
Gondwana Landscapes	Heatwave	Monitor / assess impacts	Priority SNES habitats	<u>Best placed:</u> QPWS&P, SQ Landscapes <u>Others who could do it:</u> State Government
		Plan for restoration	Based on assessment of impacts	<u>Best placed:</u> QPWS&P, SQ Landscapes <u>Others who could do it:</u> State Government

Response actions for protecting agricultural natural capital assets

Response actions for protecting identified agricultural natural capital assets have been grouped according to the specific emergency scenarios identified as the highest risk.

		Priority for preparedness actions to address threats							
		Bushfire	Drought	New pest outbreak	Disease	Flood	Heat - wave	Severe Storms	Dust Storm
Agricultural Natural Assets	Cropping Land								
	Grazing								
	Intensive livestock								
	Forestry								

Drought- response actions for protecting agricultural natural capital assets

Cropping lands

Asset	Emergency scenario	Actions	Where	Who
While event is occurring				
Cropping lands	Drought	Maintain soil moisture	Drought affected areas	<u>Best placed</u> : Landholders, Drought Hubs – support for land managers.
		Enhance floodplains, adjacent toe-slopes and riparian areas.	In identified rehydration areas	<u>Best placed</u> : Landholders, SQ Landscapes <u>Others who could do it</u> : State Government
		Switching varieties, increasing water security or changing management practices.	Drought affected areas	<u>Best placed</u> : SQ Landscapes <u>Others who could do it</u> : State and Local Governments
After event has occurred				
Cropping lands	Drought	Assess impacts	Drought affected areas	<u>Best placed</u> : State and Local Governments, Industry, SQ Landscapes
		Enhance resilience	Based on assessment of impacts	<u>Best placed</u> : Industry, SQ Landscapes, Drought Hubs, State Government, QRIDA

Grazing lands

Asset	Emergency scenario	Actions	Where	Who
While event is occurring				
Grazing lands	Drought	Maintain soil moisture and prepare for rainfall through actions to slow the flow and rehydration actions.	Drought impacted areas in priority grazing areas	<u>Best placed:</u> Landholders, SQ Landscapes.

		Maintain ground cover	Drought impacted areas in priority grazing areas	<u>Best placed:</u> Land managers, Industry, SQ Landscapes <u>Others who could do it:</u> State and Local Governments
After event has occurred				
Grazing lands	Drought	Monitor and assess impacts	Drought impacted areas in priority grazing areas	<u>Best placed:</u> SQ Landscapes <u>Others who could do it:</u> State and Local Governments
		Enhance floodplains and adjacent toe slopes to prepare for future events.	Regional priority grazing areas and other affected grazing areas as other funding opportunities arise.	<u>Best placed:</u> SQ Landscapes <u>Others who could do it:</u> State and Local Governments

Forestry

Asset	Emergency scenario	Actions	Where	Who
While event is occurring				
Forestry	Drought	Selective thinning and weed control		<u>Best placed:</u> Industry, QPWS&P
After event has occurred				
Forestry	Drought	Monitor and assess impacts	Drought impacted areas in priority areas for forestry	<u>Best placed:</u> SQ Landscapes <u>Others who could do it:</u> State and Local Governments

Animal/plant diseases- response actions for protecting agricultural natural capital assets

Cropping Lands

Asset	Emergency scenario	Actions	Where	Who
While event is occurring				
Cropping Lands	Animal/plant diseases	Implement quarantine measures	Impacted areas	<u>Best placed:</u> Biosecurity Qld, land managers, Industry, State and Local Governments <u>Others who could do it:</u> SQ Landscapes
		Implement control measures	Impacted areas	<u>Best placed:</u> SQ Landscapes <u>Others who could do it:</u> State and Local Governments
After event has occurred				
Cropping lands	Animal/plant diseases	Assess and monitor impacts	Impacted areas	<u>Best placed:</u> State and Local Governments, SQ Landscapes
		Implement control measures	Based on assessment	<u>Best placed:</u> State and Local Governments, SQ Landscapes
		Maintain quarantine measures	Across SQ Region	<u>Best placed:</u> State and Local Governments

Grazing lands

Asset	Emergency scenario	Actions	Where	Who
While event is occurring				
Grazing lands	Animal/plant diseases	Implement quarantine measures	Impacted areas	<u>Best placed:</u> Biosecurity Qld, landholders, Industry, State and Local Governments <u>Others who could do it:</u> SQ Landscapes
		Implement control measures	Impacted areas	<u>Best placed:</u> Biosecurity Qld, landholders, Industry, State and Local Governments <u>Others who could do it:</u> SQ Landscapes
After event has occurred				
Grazing lands	Animal/plant diseases	Assess and monitor impacts	Impacted areas	<u>Best placed:</u> State and Local Governments, SQ Landscapes
		Implement control measures	Based on assessment	<u>Best placed:</u> State and Local Governments, SQ Landscapes
		Maintain quarantine measures	Across SQ Region	<u>Best placed:</u> State and Local Governments
		Manage for recovery of pasture dieback: - remove competition from weeds and control grazing pressure - Improve the pasture - Sow a break crop - Treat pasture mealybug	Impacted areas	<u>Best placed:</u> Land managers, DAF and Beef Extension Officers can provide information and advice. <u>Others who could do it:</u> SQ Landscapes can support promotion of advice and coordinate field days.

Intensive livestock

Asset	Emergency scenario	Actions	Where	Who
While event is occurring				
Intensive livestock	Animal/plant diseases	Implement quarantine measures	Impacted areas	<u>Best placed:</u> Biosecurity Qld, landholders, Industry, State and Local Governments <u>Others who could do it:</u> SQ Landscapes
		Implement control measures	Impacted areas	<u>Best placed:</u> Biosecurity Qld, landholders, Industry, State and Local Governments <u>Others who could do it:</u> SQ Landscapes
After event has occurred				
Intensive livestock	Animal/plant diseases	Assess and monitor impacts	Impacted areas	<u>Best placed:</u> State and Local Governments, SQ Landscapes
		Implement control measures	Based on assessment	<u>Best placed:</u> State and Local Governments, SQ Landscapes
		Maintain quarantine measures	Across SQ Region	<u>Best placed:</u> State and Local Governments

Forestry

Asset	Emergency scenario	Actions	Where	Who
While event is occurring				
Forestry	Animal/plant disease outbreak	Implement quarantine measures	Impacted areas	<u>Best placed:</u> Biosecurity Qld, landholders, Industry, State and Local Governments <u>Others who could do it:</u> SQ Landscapes

		Implement control measures	Impacted areas	<u>Best placed:</u> Biosecurity Qld, landholders, Industry, State and Local Governments <u>Others who could do it:</u> SQ Landscapes
After event has occurred				
Forestry	Animal/plant disease outbreak	Assess and monitor impacts	Impacted areas	<u>Best placed:</u> State and Local Governments, SQ Landscapes
		Implement control measures	Based on assessment	<u>Best placed:</u> State and Local Governments, SQ Landscapes
		Maintain quarantine measures	Across SQ Region	<u>Best placed:</u> State and Local Governments

New pest outbreaks - response actions for protecting agricultural natural capital assets

Cropping Lands

Asset	Emergency scenario	Actions	Where	Who
While event is occurring				
Cropping Lands	New pest outbreak	Implement quarantine measures	Impacted areas	<u>Best placed:</u> State and Local Governments
		Implement control measures	Impacted areas	<u>Best placed:</u> State and Local Governments, landholders <u>Others who could do it:</u> SQ Landscapes
After event has occurred				
Cropping lands	New pest outbreak	Assess and monitor impacts	Impacted areas	<u>Best placed:</u> State and Local Governments, SQ Landscapes
		Implement control measures	Impacted areas	<u>Best placed:</u> State and Local Governments, SQ Landscapes
		Maintain quarantine measures	Impacted areas	<u>Best placed:</u> State and Local Governments

Grazing lands

Asset	Emergency scenario	Actions	Where	Who
While event is occurring				
Grazing lands	New pest outbreak	Implement quarantine measures	Impacted areas	<u>Best placed:</u> State and Local Governments
		Implement control measures	Impacted areas	<u>Best placed:</u> State and Local Governments, landholders <u>Others who could do it:</u> SQ Landscapes
After event has occurred				

Grazing lands	New pest outbreak	Assess and monitor impacts	Impacted areas	<u>Best placed:</u> State and Local Governments, SQ Landscapes
		Implement control measures	Impacted areas	<u>Best placed:</u> State and Local Governments, SQ Landscapes
		Maintain quarantine measures	Impacted areas	<u>Best placed:</u> State and Local Governments

Bushfire - response actions for protecting agricultural natural capital assets

Grazing lands

Asset	Emergency scenario	Actions	Where	Who
While event is occurring				
Grazing lands	Bushfire	Fire suppression	Impacted area	Best placed: RFS
		Protecting most sensitive areas	As mapped	Best placed: RFS
		Monitor / assess impacts	Impacted area	Best placed: RFS, SQ Landscapes, Industry
After event has occurred				
Grazing lands	Bushfire	Immediate cleanup	Impacted area	Best placed: Landholders Others who could do it: State and Local Governments
		Rapid assessment of impact	Impacted area	Best placed: Industry, SQ Landscapes Others who could do it: State and Local Governments
		Plan for restoration	Impacted area	Best placed: Industry, SQ Landscapes can coordinate investment proposals and implementation programs Others who could do it: State and Local Governments

Forestry

Asset	Emergency scenario	Actions	Where	Who
While event is occurring				
Forestry	Bushfire	Fire suppression	Impacted area	<u>Best placed:</u> Land managers, Industry, SQ Landscapes <u>Others who could do it:</u> State and Local Governments

Heatwave- response actions for protecting agricultural natural assets

Intensive animal production

Asset	Emergency scenario	Actions	Where	Who
While event is occurring				
Intensive animal production	Heatwave	Implement EHL Management Plan	Intensive animal facilities	<u>Best placed:</u> Facility managers <u>Others who could do it:</u> Industry promote EHL Plans
After event has occurred				
Intensive animal production	Heatwave	Assessment of impact	Intensive animal facilities	<u>Best placed:</u> Facility managers, Industry
		Enhance resilience through EHL Plan	Intensive animal facilities	<u>Best placed:</u> Facility managers <u>Others who could do it:</u> Industry promote EHL Plans

8.0 COMMUNITY/STAKEHOLDER ENGAGEMENT

8.1 Engagement, Collaboration and Coordination activities

Stakeholder collaboration for this EPR plan has aimed to grow a network and enhance a coordinated approach to emergency preparedness planning and response for priority biodiversity and agricultural natural assets. The goal for stakeholder engagement is:

Stakeholders with interests in emergency response management and planning for biodiversity and agricultural natural capital assets in Southern Queensland work together to establish and review a multi-jurisdictional inventory (supported by spatial tools) of these assets to include in emergency response, recovery and planning systems.

An audit for this EPR Plan identified stakeholders who are key to the development and implementation of the Plan. SQ Landscapes will continue to access the current and growing community and industry network to ensure the timely and efficient delivery of an EPR Plan.

There was limited time and resources available for extensive public engagement and awareness raising in the preparation of this version of the EPR Plan. Stakeholders and the broader community will continue to be provided the opportunity to share their knowledge and experience in protecting identified assets through a program of strategic engagement activities including the use of electronic media.

8.2 Raising Public Awareness

SQ Landscapes will continue to raise awareness of the EPR Plan through its extensive membership network employing the services of its social media network. Social media will be harnessed to raise awareness of the value of biodiversity and agricultural natural assets and options to enhance planning, preparedness and response to current and future threats.

8.3 Education and Training

The strategic program detailed in the approach to engagement with stakeholders and end users has aimed to build capacity for the adoption and use of the EPR Plan and the data inventory. The project will further ascertain the capacity of end users and suggest options to fill strategic gaps to ensure the optimal employment of the EPR Plan in planning, preparedness and response measures.

A product designed in collaboration with and matched to the capacity of end users is important for uptake of the EPR Plan. There is a wide range of stakeholders/users with different levels of capacity and learning styles, available time and resources. SQ Landscapes has a good understanding of the broad demographics of the end users and the need for training. A program for further training will be developed if required.

8.4 Key gaps

Research and engagement for Stronger Landscapes has identified gaps in knowledge pertinent to the stewardship of biodiversity and agricultural natural assets in general. Ongoing engagement through citizen, government, industry and academic networks will help to fill some of these gaps. SQ Landscapes continues to learn from knowledge and science held by Traditional Owners under appropriate intellectual rights and cultural protocols.

Key gaps will also be filled through the use of social media to promote an awareness and appreciation of the identified assets, their importance to the local and regional economy and community wellbeing.

Table 9: Gaps in knowledge and data for Stronger Landscapes

Knowledge or data gap	Comments and Mitigation
Location of SNES and TECs	A landscape approach was adopted which focused on areas of high SNES and TEC concentration according to available data. A concerted monitoring effort would require careful consideration given the time and cost involved. A precautionary approach has been implemented at a landscape scale to take into the impact hazards have on socio ecological landscape systems.
Who is doing what and where?	An exhaustive list of stakeholder action across all EPR activities is a major undertaking in the time made available for this project. SQ Landscapes has activated extensive community, government and industry networks to establish a list of high-level actions recently completed or underway.
Knowledge of local water cycles	Understanding of how groundwater systems function especially GAB springs is limited. Identification of known springs and recharge areas has been included as a precautionary management action.
Impact of cluster fences on biodiversity and landscape health – positive or negative.	Universities are conducting research around particular species at the moment, but not sure that overall fauna studies have been undertaken, or whether this has even been done regarding getting data on the actual impact on feral animal populations in these areas. SQL could play a role in this research through current cluster fence projects etc.
Basic knowledge on the behaviour and movement of pest species including pigs and wild dogs to provide a more targeted, effective and economic approach to the avoidance of new incursions into priority areas.	New incursions into priority areas have been addressed in the EPR Plan.
Data on the distribution of weeds as a basis for prediction and control of new outbreaks in priority areas.	New outbreaks of weeds into priority areas have been addressed in the EPR Plan. A concerted monitoring effort would require careful consideration given the time and cost involved.
Data on pests and diseases.	New outbreaks of pests and diseases into priority areas have been addressed in the EPR Plan however only hazards with spatial data were able to be mapped in the intersects that informed some of the analysis.
Data on climactic threats to identified assets.	Impacts from events such as severe storms and heatwaves on identified assets have been recorded with a low to medium level of confidence.

9.0 LEGAL FRAMEWORK

The *Disaster Management Act 2003* (the Act) provides the legislative basis for disaster management arrangements in Queensland. The Act defines a disaster as a serious disruption in a community caused by the impact of an event that requires a significant, coordinated response by the State and other entities to help the community recover from the disruption.

A serious disruption is defined as:

- Loss of human life, or illness or injury; or
- Widespread or severe property loss or damage; or
- Widespread or severe damage to the environment.

The event may be natural or caused by human acts or omissions. Such events include a pandemic or terrorist attack. The Act requires the establishment of disaster management groups and committees for state, disaster districts and local government areas, and the writing and periodic review of plans and guidelines at state, disaster district, and local government levels.

A local Disaster Management Plan (LDMP) complies with Section 53(1) of the Act. LDMPs address these serious disruptions in a local context.

SQ Landscapes has recently coordinated the review of 30 pieces of environmental legislation on behalf of the NRM organisations in Queensland. The review included a verdict on the potential impact of each piece of legislation on the business of an NRM organisation. This experience and information have enabled key legal/regulatory considerations, that could arise from the delivery of this Plan and associated actions, to be acknowledged and addressed.

In support of the legislative framework, the Queensland Strategy for Disaster Resilience 2022–2027 lists the following actions of direct interest to this EPR Plan:

- A2.2.3 Continue environmental stewardship programs that protect and enhance Country, including natural resource management, land restoration and biosecurity programs, the Indigenous Land and Sea Ranger Program, and other initiatives that incorporate First Nations knowledge, and ongoing proper management of State and private lands that conserves their significant natural and cultural values.
- C3.3 Protect and enhance the natural environment through effective land use planning.
- A3.3.1 Develop, preserve and enhance green and blue infrastructure to mitigate the effects of climate change.
- C3.6 Further the understanding and management of natural landscapes to reduce the impacts and effects of natural disasters.
- A3.6.1 Explore opportunities to invest in the sustainable stewardship of natural assets (whether in public or private ownership) including increasing the capacity and capability of landowners to sustainably manage healthy historical heritage places, land and waterways.
- A3.6.2 Collaborate with fire authorities, State land management agencies, First Nations groups, neighbours and lessees on a landscape-scale approach to protective fire management and risk mitigation that builds resilience within the landscape to help reduce adverse impacts of large-scale, severe bushfires.

SQ Landscapes will maintain and instigate relationships with relevant regulatory and planning entities to ensure consideration and compliance with these intents and key legal and regulatory requirements.

The EPR Plan provides the opportunity to remind people of the frameworks that might come into play when preparing and responding to emergency events. The engagement process has promoted the need for land managers to carry out due diligence related to these matters. Raising awareness of the legal framework for emergency preparedness and response has been built into communications

related to the EPR Plan project. QFES makes available a range of resources for land managers to acquit their responsibilities under the Act.⁸³

In addition, under the *Biosecurity Act 2014*, all Queenslanders have a general biosecurity obligation to manage biosecurity risks and threats on property they own, manage, or work on and must report an incident within 24 hours of sighting them. This EPR Plan will raise awareness of the general public to this obligation in support of the Act.

10.0 RISK MANAGEMENT INCLUDING MITIGATION STRATEGIES

Risk and mitigation related to the development and implementation of the EPR Plan has been established using the risk matrix in Appendix A. The risk register (Appendix B) details mitigation activities that stakeholders should undertake to ensure their safety and the value of the asset is not compromised when carrying out management and response activities.

Workplace Health and Safety (WHS) and risk audits will also be conducted as standard organisational practice including in relation to the delivery of the EPR Plan and/or actions identified within it.

⁸³ <https://www.qfes.qld.gov.au/compliance-and-planning/bushfire-planning>

11.0 MONITORING AND DATA

Monitoring

The objectives of this plan are to add to the preparedness for, and responses to, emergency events where they occur through better integration of biodiversity and agricultural natural capital asset data and information in emergency planning and response. This includes efforts to enhance the resilience of biodiversity and agricultural assets by recognising the risks and threats posed by natural disasters and undertaking planning to improve outcomes through actions and management before, during (to the extent possible) and after to support recovery.

Monitoring and evaluation of progress towards achieving these objectives will be conducted as resources allow.

A major outcome would be the inclusion and use of the EPR Plan as a complementary resource to existing LDMPs and Biosecurity Plans. Other plans and strategies might also be identified as having complementary objectives and therefore benefit from the EPR Plan. These criteria could all be measured as the Plan is reviewed in the future, potentially at the same time as Flourishing Landscapes Healthy Communities.⁸⁴

The ultimate outcome would see the relevant contents of the EPR Plan included as standard content in LDMPs and other plans as they are reviewed in the near future. This will be noted where possible. Current mention of the identified assets in this Plan in LDMPs is minimal and it is hoped that this Project will provide welcome additions to current LDMPs.

Quantifying the effectiveness of the EPR Plan in enhancing the preparedness and recovery of identified assets requires further deliberation and resourcing. Anecdotal evidence will be gathered during the recovery and review phase of future emergency events, resources allowing.

A case study of how the EPR Plan was developed and used by a stakeholder will be considered as part of raising community awareness of threats to identified assets and as evidence of the usefulness of this Plan.

Data

SQ Landscapes has a small team of GIS analysts with over 20 years' experience in natural resource management.

All data has been stored in a Geographic Information System (GIS) and associated tables. The data used forms part of the Natural Resource Atlas compiled by SQ Landscapes and is regularly updated as new versions of datasets become available. The data is stored online and in multiple backups by SQ Landscapes. An ArcGIS Online (AGOL) version is also available for viewing and project planning.

Data can be provided to stakeholders as zipped shapefile, Geodatabases, uploaded into AGOL and provided as paper and electronic maps including georeferenced PDFs.

Some input and local knowledge from stakeholders has also been digitised and stored with other spatial data. Another series of datasets attributed by hazard (e.g. fire, flood, heatwave etc.) characterises the level of risk of damage or loss (priority) to each mapped asset and options for immediate mitigation during an emergency incident (as per outcomes of 6.1 above).

These datasets and their online versions will allow emergency responders to interrogate a digital map in real time if they have the capacity to do so. The datasets will also provide planners the information to guide the integration of emergency preparedness in planning frameworks and strategic documents. A full list of datasets used in this Plan appears in Appendix C.

⁸⁴ The NRM Plan for the Southern Queensland Region available at [Flourishing Landscapes Healthy Communities](#)

12.0 KEY CONTACTS

The associated engagement plan that drove the design of this EPR Plan lists key contacts necessary to deliver the Plan including organisations and key individual/s. This information including contact details remains an important internal document for SQ Landscapes to activate as appropriate.

Glossary

Term	Definition
Cultural heritage	The <i>Aboriginal Cultural Heritage Act 2003</i> (Qld) (ACHA), describes Aboriginal cultural heritage as anything that is: a) a significant Aboriginal area in Queensland; or b) a significant Aboriginal object; or c) evidence, of archaeological or historic significance, of Aboriginal occupation of an area of Queensland.⁸⁵
Heatwave	A heatwave occurs when the maximum and minimum temperatures are unusually hot over 3 days. ⁸⁶ This is compared to the local climate and past weather.
Energetically extreme fires	Energetically extreme fires are defined as the top 0.01% for fire radiative power.
Severe weather event	A severe weather event is defined by Bureau of Meteorology as associated with one or more of the following phenomena: • ‘Damaging’ wind gusts of 90 km/h (48 knots) or destructive wind gusts of 125 km/h (67 knots) or more at 10 metres above the ground. • Heavy rain which may lead to flash flooding generally defined as the rainfall amount which has a 10% probability of being exceeded in a year over a given duration (1 to 6 hours). This is often referred to as the rainfall with a 10-year Average Recurrence Interval (ARI). • ‘Very large’ hail greater than 4cm in diameter (corresponding to greater than golf ball size).

⁸⁵ *Aboriginal Cultural Heritage Act 2003* (Qld) s 4 and *Torres Strait Islander Cultural Heritage Act 2003* (Qld) s 4.

⁸⁶ www.bom.gov.au/australia/heatwave/knowledge-centre/understanding.shtml accessed 7 May, 2024.

Key Abbreviations

AGOL	ArcGIS Online
AUST	Australia
CAPAD	Collaborative Australian Protected Areas Database
Cwlth	Commonwealth Government
DAF	Department of Agriculture and Fisheries
DESI	Department of Environment, Science and Innovation
DoR	Department of Resources
DSDATSIP	Department of Seniors, Disability Services, Aboriginal and Torres Strait Islander Partnerships
EECs or TECs	Endangered Ecological Communities or Threatened Ecological Communities
EHL Management Plan	Elevated Heat Load Management Plan
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999 (Cmwh)
EHL	Excessive Heat Load
EPR Plan	Emergency Preparedness and Response Plan
GAB	Great Artesian Basin
LDMP	Local Disaster Management Plan
LGAs	Local Government Authorities (Councils)
LTCC	Long Term Carrying Capacity
MLES	Matters of Local Environmental Significance (Local Government)
MNES	Matters of National Environmental Significance
NCA Act	Nature Conservation Act 1992 (QLD)
NHT	Natural Heritage Trust
NERAG	National Emergency Risk Assessment Guidelines
NP	National Park
NRM	Natural Resource Management
QDOG	Queensland Dog Offensive Group
QLD	State of Queensland
QPWS&P	Queensland Parks and Wildlife Service and Partnerships
Ramsar	International Convention on Wetlands of International importance
RFS	Rural Fire Service
RLP	Regional Land Partnerships Program
RNE	Heritage Register of the National Estate

SEVT	Semi Evergreen Vine Thicket
SNES	Species of National Environmental Significance
SQ Landscapes	Southern Queensland Landscapes
SQNNWS Hub	Southern Queensland and Northern New South Wales Drought Hub
USQ	University of Southern Queensland

Appendix A: Priority of Mapped Hazards to Asset and percentage of area at risk

Asset	Hazard Priority by Area	% of Asset potentially at risk from hazard
Species of National Environmental Significance (public grids) - Habitat Likely	Drought ($\geq 30\%$ occ)	37%
	Floods (ha)	36%
	Fire Frequency 2010-19	29%
Heritage Register of the National Estate (RNE)	Drought ($\geq 30\%$ occ)	89%
	Floods (ha)	26%
World Heritage Area (Gondwana Landscapes)	Drought ($\geq 30\%$ occ)	57%
	Bushfire PA (High-Very High)	31%
Collaborative Australian Protected Areas Database (CAPAD) 2022 – Terrestrial	Floods (ha)	49%
	Wind 70m (≥ 6.3 m/s)	31%
	Fire Frequency 2010-19	16%
Ecological Communities of National Environmental Significance	Floods (ha)	33%
	Drought ($\geq 30\%$ occ)	32%
	Fire Frequency 2010-19	28%
Ramsar Wetland	Drought ($\geq 30\%$ occ)	100%
	Floods (ha)	72%
Directory of Important Wetlands	Floods (ha)	88%
	Drought ($\geq 30\%$ occ)	64%

Asset	Hazard Priority by Area	% of Asset potentially at risk from hazard
	Drought ($\geq 30\%$ occ)	29%
Biodiversity Status of Remnant Regional Ecosystems (v13)	Floods (ha)	34%
	Wind 70m (≥ 6.3 m/s)	26%
	Bare Ground (Top 20)	22%
	Fire Frequency 2010-19	16%
Combined BPA Layers (SQNRM_BPA_Merged)	Drought ($\geq 30\%$ occ)	66%
	Floods (ha)	33%
	Wind 70m (≥ 6.3 m/s)	25%
	Bare Ground (Top 20)	23%
Protected Areas and Nature Refuges (2023)	Drought ($\geq 30\%$ occ)	50%
	Floods (ha)	37%
	Fire Frequency 2010-19	29%
Strategic Cropping Land	Floods (ha)	37%
	Drought ($\geq 30\%$ occ)	37%
	Fire Frequency 2010-19	21%
SQL Endangered Ecological Communities (Combined and Myall)	Floods (ha)	55%
	Drought ($\geq 30\%$ occ)	27%
	Fire Frequency 2010-19	25%
SQL Nature Conservation Confluence Priority Clusters	Drought ($\geq 30\%$ occ)	46%

Asset	Hazard Priority by Area	% of Asset potentially at risk from hazard
	Floods (ha)	37%
	Fire Frequency 2010-19	25%
SQL Cropping Confluence Priority Landscapes	Floods (ha)	60%
	Drought ($\geq 30\%$ occ)	38%
SQL Grazing Confluence Priority Landscapes	Floods (ha)	62%
	Drought ($\geq 30\%$ occ)	38%
	Bare Ground (Top 20)	21%
SQL Project Investments	Drought ($\geq 30\%$ occ)	85%
	Floods (ha)	50%
	Wind 70m (≥ 6.3 m/s)	35%
	Bare Ground (Top 20)	33%

Appendix B: Priority to address threats to EPR Landscapes

These priorities will direct future actions and investment to enhance the preparedness of EPR Landscapes. Strengthening these landscapes will provide an important foundation framework for regional resilience in Southern Queensland.

Landscape Area	Disaster Hazard	Risk	Priority	Rank	Scale
Gondwana	5. Animal / plant diseases	EXTREME	1	1	A
Ramsar	6. Pests	EXTREME	1	1	B
Mt Moffat	5. Animal / plant diseases	HIGH	1	2	C
Mt Moffat	6. New pest outbreak	HIGH	1	2	C
Ramsar	4. Severe storms	EXTREME	1	3	B
Ramsar	5. Animal / plant diseases	HIGH	1	4	B
SW Corner	5. Animal / plant diseases	HIGH	1	4	D
Cropping	6. Pests	EXTREME	2	5	D
Grazing	2. Drought	EXTREME	2	5	E
Grazing	6. Pests	EXTREME	2	5	E
Cropping	2. Drought	HIGH	2	6	D
Grazing	5. Animal / plant diseases	HIGH	2	6	E
Grazing	1. Bushfire	HIGH	2	6	E
Cropping	5. Animal / plant diseases	HIGH	2	9	D
Gondwana	1. Bushfire	EXTREME	2	5	A
Mt Moffat	1. Bushfire	EXTREME	2	5	C
Traprock	1. Bushfire	EXTREME	2	5	C
Traprock	5. Animal / plant diseases	EXTREME	2	5	C
SW Corner	1. Bushfire	EXTREME	2	5	D
GAB springs	2. Drought	HIGH	2	6	B
GAB springs	5. Animal / plant diseases	HIGH	2	6	B
GAB springs	6. New pest outbreak	HIGH	2	6	B
Balonne Junction	1. Bushfire	HIGH	2	6	B
Balonne Junction	2. Drought	HIGH	2	6	B
Balonne Junction	5. Animal / plant diseases	HIGH	2	6	B
SW Corner	2. Drought	HIGH	2	6	D
Gondwana	2. Drought	HIGH	2	9	A
Balonne Junction	3. Floods	HIGH	2	9	B
Gondwana	7. Heatwave	MEDIUM	2	10	A
GAB springs	8. Dust Storm	MEDIUM	2	10	B
Balonne Junction	7. Heatwave	MEDIUM	2	10	B
SW Corner	6. New pest outbreak	MEDIUM	2	10	D

Scale:

- A -International
- B - International
- C - National
- D – State
- E - Regional

APPENDIX C: RISK MATRIX

		Consequences				
		Insignificant (1)	Minor (2)	Moderate (3)	Major (4)	Catastrophic (5)
Likelihood	Almost Certain (5) Often occurs / once a week	Moderate (5)	High (10)	High (15)	Catastrophic (20)	Catastrophic (25)
	Likely (4) Could easily happen / once a month	Low (4)	Moderate (8)	High (12)	Catastrophic (16)	Catastrophic (20)
	Possible (3) Could happen or known it to happen / once a year	Low (3)	Moderate (6)	Moderate (9)	High (12)	High (15)
	Unlikely (2) Hasn't happened yet but could / once every 10 years	Low (2)	Low (4)	Moderate (6)	Moderate (8)	High (10)
	Rare (1) Conceivable but only on extreme circumstances / once in 100 years	Low (1)	Low (2)	Low (3)	Low (4)	Moderate (5)

APPENDIX D: PROJECT RISK REGISTER

Risk/Threat Description	Likelihood*	Consequence*	Rating	Currently Controls/Contingency
Describe the threat/risk, its sources and impacts	RARE, UNLIKELY, POSSIBLE, LIKELY, ALMOST CERTAIN	INSIGNIFICANT, MINOR, MODERATE, MAJOR, CRITICAL	BASED ON RISK RATING TABLE BELOW	Describe what you will do to mitigate the threat/risk, source or impact to an acceptable level
Further ecosystem destruction (brought on by the response actions)	POSSIBLE	MAJOR	HIGH	Work in collaboration with stakeholders to enhance ownership of and a clear understanding of proposed actions. Information systems to be co designed to enhance ease of use.
Resource availability	LIKELY	MODERATE	HIGH	Integrate EPR into existing plans and resource capacity as a value add. Focus engagement in existing networks in time available.
Maintaining channels of communication with emergency services	LIKELY	MODERATE	HIGH	Understand modes and methods of communication between emergency services. Work in collaboration with stakeholders to enhance ownership of and a clear understanding of actions. Information systems to be co designed to enhance ease of use.
Limited public participation	LIKELY	MINOR	MODERATE	There is limited time and resources available for extensive public engagement. Provide opportunities for the public to be involved in the identification and management of key assets.
Knowledge gaps	LIKELY	MINOR	MODERATE	Use best available data. Note level of confidence as part of risk assessments. Seek assistance from academia and research sector. Value citizen science and local knowledge.

Risk/Threat Description	Likelihood*	Consequence*	Rating	Currently Controls/Contingency
				Note and record gaps for future investigation.
Natural disasters (severe drought, flood, bushfire, storms etc.) may disrupt planned delivery of project activities. Participants constrained ability to engage with project activities.	POSSIBLE	MODERATE	MODERATE	Ongoing communication with project participants, monitoring the operating environment for conditions and emerging risks, adaptation of project schedule to ensure project outcomes can still be achieved. Communication with funders regarding disrupted delivery and adaptive management strategies.
Lack or loss of corporate knowledge	POSSIBLE	MINOR	LOW	Participation of multiple staff members in the design and implementation project plans to ensure continuity of project activities, utilisation of centralised project information management systems and tasking to enable visibility of project activity status, delegation processes to ensure a single point of contact within SQL is always maintained. Implementation of SQL project management procedures to ensure consistency in the application of project management tools and techniques. Regular communications between project team and funders to identify and mitigate emerging risks.
Non participation of identified EPR stakeholders.	POSSIBLE	MINOR	LOW	Clear communication with all project participants from first engagement to ensure project outcomes, timeframes and terms and conditions are clear and agreed by all parties.

Risk/Threat Description	Likelihood*	Consequence*	Rating	Currently Controls/Contingency
				Regular communication with project participants to ensure early identification and mitigation of risks, or to identify alternative project activities where agreed activities are no longer viable. Develop key messages for a variety of audiences. Regular communication with funders to raise emerging risks and identify mutually agreeable solutions.
Project staff, project participant or contractor injury or death.	UNLIKELY	MODERATE	LOW	Compliance with SQL WHS policies and procedures, all staff suitably trained and equipped to carry out duties relative to their roles.
Project fails to deliver all activities within schedule and budget.	UNLIKELY	MODERATE	LOW	Clear agreements with project participants and contractors to ensure schedule and budget are realistic, understood and agreed. Regular communication with project participants and assurance of on-ground works to ensure continued adherence with schedule and budget. Monthly review of project schedules and budget vs actuals to ensure schedule and budget remains on track, and to allow for adjustments where required. Regular communication with project participants to ensure schedule and budget remain on track. Regular communication with funders to raise and emerging risks and identify mutually agreeable solutions where required.

Risk/Threat Description	Likelihood*	Consequence*	Rating	Currently Controls/Contingency
SQL and/or funder reputation damaged due to poor project outcomes.	RARE	MODERATE	LOW	Proactive and regular communication with funders and project participants to ensure project activities are executed in full, on time and to the required standards. Adaptive management implemented where emerging risks are identified to ensure project outcomes are still realised.

Appendix E: Data used for Asset Threat identification

Data	Location / Source	Currency	File type
Assets			
Species of National Environmental Significance (public grids)	https://fed.dcceew.gov.au/datasets/da09bd08909f4a5b8260bb6845df4369/about	06/02/2024	1 km grids, File Geodatabase
Register of the National Estate (RNE)	https://fed.dcceew.gov.au/maps/7574e6dbb96f429cbddb9f1c5bdf906	08/01/2024	Polygon, File Geodatabase
World Heritage Areas	https://fed.dcceew.gov.au/datasets/bd46da1431cc4250b6be4017958fc1c6_0/explore?location=-24.220145%2C-44.863998%2C4.64	25/10/2023	Polygon, shapefile
Collaborative Australian Protected Areas Database (CAPAD)– Terrestrial	https://fed.dcceew.gov.au/datasets/ec356a872d8048459fe78fc80213dc70_0/explore?location=-26.424258%2C146.893103%2C7.00	30/06/2022	Polygon, File Geodatabase
Natural areas of Australia	https://fed.dcceew.gov.au/documents/76ff4a384e044d6c9832d0556c3a18fd/about	04/09/2023	100 m grids
Ecological Communities of National Environmental Significance	https://fed.dcceew.gov.au/datasets/5176b7b76396486785f0a66b2e9cac41_0/explore?location=-26.416445%2C146.517972%2C7.33	25/02/2024	1 km grids, File Geodatabase
Classification of aquatic ecosystems in the Murray-Darling Basin v3.0	https://fed.dcceew.gov.au/datasets/18b88e0aac1b48d28fa226b9eb6834f3/about	24/03/2021	Polygon, File Geodatabase
Ramsar Wetland of Australia	https://fed.dcceew.gov.au/datasets/70f25570514d44bf9246ac7fa9c4c200_0/explore?location=-27.655881%2C147.216877%2C7.42	31/08/2023	Polygon, shapefile
Matters of state environmental significance – Queensland series	https://qldspatial.information.qld.gov.au/catalogue/custom/detail.page?fid={11DB2AEA-1247-4DC7-8A34-3F7B219B6947}	08/09/2021	
Biodiversity Status of Remnant Regional Ecosystems (v13)	https://qldspatial.information.qld.gov.au/catalogue/custom/detail.page?fid={8FDF54D2-654C-4822-8295-1D8E8E772373}	18/05/2023	Polygon, File Geodatabase
Combined Biodiversity Planning Assessment Layers (SQNRM_BPA_Merged)	https://www.qld.gov.au/environment/plants-animals/biodiversity/planning	14/05/2019	Polygon, shapefile
Protected Areas of Queensland	https://qldspatial.information.qld.gov.au/catalogue/custom/detail.page?fid={07E360E3-A191-4C24-9671-1471362F0B1B}	1/02/2023	Polygon, File Geodatabase
Nature refuges - Queensland	https://qldspatial.information.qld.gov.au/catalogue/custom/detail.page?fid={D72D1EA0-DEB2-4E9F-8F6B-0A8D605F5DD3}	1/09/2023	Polygon, File Geodatabase
Strategic Cropping Land	https://qldspatial.information.qld.gov.au/catalogue/custom/detail.page?fid={72D1DD11-F6F4-40A2-A625-D7F00819FE09}	24/01/2022	
SQ Endangered Ecological Communities (Combined and Myall)	eec_combined_rev11_V4.shp	22/02/2023	Polygon, shapefile
SQ Nature Conservation Confluence (high	sqnrm_NC_Confluence_v1c	9/10/2019	30 m grid

Data	Location / Source	Currency	File type
ecological significance area)			
SQ Regional Nature Conservation Confluence Priority Clusters	sqnm_NC_Confluence_v1c_top20cluster_draftV2	11/05/2020	Polygon, File Geodatabase
SQ Cropping Confluence (high priority production area)	SQL_Cropping_ConfluenceV1a	28/07/2020	30 m grid
SQ Cropping Confluence Priority Landscapes	SQL_Cropping_ConfluenceV1a_fs1800mTop20gte1600ha2kbuff	10/08/2020	Polygon, File Geodatabase
SQ Grazing Confluence (high priority production area)	sqnm_Grazing_Confluence_v1d	11/12/2019	30 m grid
SQ Grazing Confluence Priority Landscapes	Grazing_Confluence_v2a_clusters_draft4	4/12/2019	Polygon, File Geodatabase
SQL Project Investments			
Agroforestry & Environmental Plantings (Carbon Credits, Offsets)			
Hazards			
Wind Model (Modelled Wind Speed 10m, 70m)	https://qldspatial.information.qld.gov.au/catalogue/custom/detail.page?fid={C40A35FF-1F0E-46C6-B85A-FBD528B7E96C}	01/01/2009	TIFF Grid
Temperature Liveability Projections	https://qldspatial.information.qld.gov.au/catalogue/custom/detail.page?fid={45D0967B-3678-4CCC-8331-031644DF33DF}	01/02/2023	Polygon, File Geodatabase
Queensland Floodplain Assessment Overlay	https://qldspatial.information.qld.gov.au/catalogue/custom/detail.page?fid={0944E8CD-8618-4100-B7DC-8C87CC74736C}	17/10/2013	Polygon, File Geodatabase
Probable maximum flood extent - referable dams – Queensland series	https://qldspatial.information.qld.gov.au/catalogue/custom/detail.page?fid={4B2AB364-40AE-4E43-BFD4-700188D38D57}	30/06/2022	
SQ Flood Potential	SQL_Draft_Flood_Potential_02	15/11/2021	Polygon, shapefile
SQ Drought Declarations (historical drought affected landscapes)	SQL_AG_DROUGHT_DECS_HIST.tif	31/08/2020	TIFF Grid
Bushfire prone area – Vegetation hazard class	https://qldspatial.information.qld.gov.au/catalogue/custom/detail.page?fid={676500B2-5468-4626-B1C2-02A92501ACC4}	15/07/2015	
Fire history – Queensland Parks and Wildlife Service	https://qldspatial.information.qld.gov.au/catalogue/custom/detail.page?fid={607736AE-8F4C-4058-B97F-CF617413EC3E}	17/11/2021	
SQL Wildfire Footprint 2023		17/11/2023	Polygon, shapefile
GSEQ Wildfire Extent 2019		31/03/2023	Polygon, shapefile
Bare Ground	SQL_Bare_Sep_Nov2021_lessmean.img		Raster IMG File
Bare Ground Clusters	SQL_AbvAvgBareGrazing_2021_top10		Polygon/ShapeFile

Data	Location / Source	Currency	File type
Fire Frequency 2010-2019 (Sentinel)	https://www.csiro.au/en/research/disasters/bushfires/sentinel-hotspots	5/11/2020	Polygon, shapefile
Fire Scar Mapping			
Weeds and New pest outbreak (WONS) and Pest Info (State)	https://data.agriculture.gov.au/geonetwork/srv/eng/catalog.search#/metadata/799eeb8d-c369-457d-a15a-38582dc439ab	24/11/2000	
Pest Central			

Appendix F: Climate-Smart Agriculture Program

The Natural Heritage Trust (NHT) is the Australian Government's key investment platform for achieving its natural resource management, sustainable agriculture and environmental protection outcomes.

Through the NHT the Australian Government has established the \$302.1 million Climate-Smart Agriculture Program over five years from 2023-24. This program will drive agricultural sustainability, productivity, and competitiveness. It supports the following program outcomes:

- The agriculture sector is adopting practices to reduce emissions and build resilience to climate change.
- The agriculture sector is supported to harness carbon and biodiversity incentives and implement industry sustainability frameworks.
- Farmers are supported to drive agricultural growth, while adopting sustainable natural resource management practices that protect and conserve natural capital and biodiversity.

Appendix G: Elevate Heat Load Management Plan

There are three main components to an effective EHL management plan:

1. A pre-summer review of the feedlot's preparedness for an EHL event.

This should include:

- An examination of the feedlot environment including the site characteristics, infrastructure and condition (upgrades to key elements such as shade and water can be implemented as needed).
- A management review of the feedlot's preparedness for an EHL event.
- The preparation of a summer nutrition program that considers the risk of EHL.
- The preparation of an EHL event strategy.

2. The development of a summer management program to reduce the risk of an EHL event and allow early detection of an event.

3. The preparation and implementation of an EHL event strategy when an EHL event is forecast or occurs. A proactive approach to the management of EHL is more effective than a reactive response once an EHL event has occurred.⁸⁷

⁸⁷ <https://www.mla.com.au/research-and-development/feeding-finishing-nutrition/Lotfeeding-intensive-finishing/heat-stress/> accessed 10 May 2024

Appendix H: Emergency Management Agencies Qld

The Queensland Police Service (QPS) is the agency responsible for coordination of disaster and emergency services response in Queensland. SES recently moved from Queensland Fire and Emergency Services (QFES) to QPS under the Disaster and Emergency Management portfolio.

The State Emergency Service (SES) has its own legislation, the *State Emergency Service Act 2024*, its own operating budget, staff and volunteers. The State Emergency Service (SES) is a volunteer emergency and rescue service operating within the department of Queensland Fire and Emergency Services.

Role of the SES

The SES helps communities prepare for, respond to and recover from natural disasters, including:

- cyclones and severe storms
- floods
- earthquakes
- landslides

SES volunteers also conduct:

- search and rescue operations
- crime scene/forensics searches
- provide community preparedness and safety education
- support other emergency service agencies.
- provide support to the Rural Fire Service Queensland in times of bushfire activity.

Appendix I: Likely Habitat Species of National Significance in SQL Region

THREATENED_STATUS by Species	Total
Critically Endangered	14
Anthochaera phrygia-Regent Honeyeater	
Bidyanus bidyanus-Silver Perch, Bidyan	
Calidris ferruginea-Curlew Sandpiper	
Cyclopsitta diophthalma coxeni-Coxen's Fig-Parrot	
Euastacus jagara-Jagara Hairy Crayfish	
Eucalyptus dalveenica-Dalveen Blue Box	
Grevillea scortechinii subsp. scortechinii-Black Grevillea	
Hypochrysops piceatus-Bulloak Jewel Butterfly	
Lasiornis krefftii-Northern Hairy-nosed Wombat, Yaminon	
Lathamus discolor-Swift Parrot	
Lenwebbia sp. Main Range (P.R.Sharpe+ 4877)-	
Pedionomus torquatus-Plains-wanderer	
Rhodamnia rubescens-Scrub Turpentine, Brown Malletwood	
Rhodomyrtus psidioides-Native Guava	
Endangered	49
Acacia ruppii-Rupp's Wattle	
Adclarkia cameroni-Brigalow Woodland Snail	
Adclarkia dulacca-Dulacca Woodland Snail	
Almaleea cambagei-Torrington Pea	
Amytornis barbatus barbatus-Bulloo Grey Grasswren, Grey Grasswren (Bulloo)	
Astrotricha roddii-	
Atrichornis rufescens-Rufous Scrub-bird	
Boronia granitica-Granite Boronia	
Boronia repanda-Repand Boronia, Border Boronia	
Botaurus poiciloptilus-Australasian Bittern	
Caladenia atroclavia-Black-clubbed Spider-orchid	
Chalinolobus dwyeri-Large-eared Pied Bat, Large Pied Bat	
Dasyornis brachypterus-Eastern Bristlebird	
Dasyurus hallucatus-Northern Quoll, Digul [Gogo-Yimidir], Wijingadda [Dambimangari], Wiminji [Martu]	
Dasyurus maculatus maculatus (SE mainland population)-Spot-tailed Quoll, Spotted-tail Quoll	

Dichanthium queenslandicum-King Blue-grass
Eriocaulon carsonii-Salt Pipewort, Button Grass
Erythrotriorchis radiatus-Red Goshawk
Euastacus suttoni-Sutton's Crayfish
Frankenia plicata-
Hakea macrorrhyncha-
Hemiaspis damelii-Grey Snake
Homoranthus decumbens-a shrub
Lepidium monoplacoides-Winged Pepper-cress
Lepidium peregrinum-Wandering Pepper-cress
Leucopogon confertus-Torrington Beard-heath
Leucopogon sp. Coolmunda (D.Halford Q1635)-
Limosa limosa-Black-tailed Godwit
Lophochroa leadbeateri *leadbeateri*-Major Mitchell's Cockatoo (eastern)
Macrozamia cranei-
Melanodryas cucullata *cucullata*-South-eastern Hooded Robin, Hooded Robin (south-eastern)
Microcarpaea agonis-
Mixophyes fleayi-Fleay's Frog
Myuchelys bellii-Western Sawshelled Turtle
Neochmia ruficauda *ruficauda*-Star Finch (eastern), Star Finch (southern)
Onychogalea fraenata-Bridled Nail-tail Wallaby, Bridled Nailtail Wallaby
Petauroides volans-Greater Glider (southern and central)
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT)
Phebalium distans-Mt Berryman Phebalium
Philoria kundagungan-Mountain Frog
Plectranthus nitidus-Nightcap Plectranthus, Silver Plectranthus
Pseudomys oralis-Hastings River Mouse, Koontoo
Rostratula australis-Australian Painted Snipe
Sporobolus pamela-a grass
Tringa nebularia-Common Greenshank, Greenshank
Tylophora linearis-
Tylophora woollsii-
Tympanocryptis condaminensis-Condamine Earless Dragon
Xerothamnella herbacea-

Acacia ammophila-
Acacia curranii-Curly-bark Wattle
Acacia grandifolia-
Acacia handonis-Hando's Wattle, Percy Grant Wattle
Acacia lauta-Tara Wattle
Acacia macnuttiana-McNutt's Wattle
Acacia pubifolia-Velvet Wattle
Androcalva procumbens-
Anomalopus mackayi-Five-clawed Worm-skink, Long-legged Worm-skink
Aphelocephala leucopsis-Southern Whiteface
Arthraxon hispidus-Hairy-joint Grass
Bertya calycina-a shrub
Bertya oppositifolia-
Bothriochloa bunyensis-Satin-top Grass
Bulbophyllum globuliforme-Miniature Moss-orchid, Hoop Pine Orchid
Cadellia pentastylis-Ooline
Calidris acuminata-Sharp-tailed Sandpiper
Callistemon pungens-
Calyptorhynchus lathami lathami-South-eastern Glossy Black-Cockatoo
Calytrix gurlumundensis-
Clematis fawcettii-Stream Clematis
Climacteris picumnus victoriae-Brown Treecreeper (south-eastern)
Coeranoscincus reticulatus-Three-toed Snake-tooth Skink
Daviesia discolor-
Delma torquata-Adorned Delma, Collared Delma
Denhamia parvifolia-Small-leaved Denhamia
Dichanthium setosum-bluegrass
Egernia rugosa-Yakka Skink
Eucalyptus argophloia-Queensland White Gum, Queensland Western White Gum, Lapunyah
Eucalyptus caleyi subsp. *ovendenii*-Ovenden's Ironbark
Eucalyptus glaucina-Slaty Red Gum
Eucalyptus infera-Durikai Mallee
Eucalyptus mckieana-McKie's Stringybark

Eucalyptus nicholii-Narrow-leaved Peppermint, Narrow-leaved Black Peppermint
Eucalyptus scoparia-Wallangarra White Gum, Willow Gum
Eucalyptus virens-
Falco hypoleucos-Grey Falcon
Furina dunmalli-Dunmall's Snake
Gallinago hardwickii-Latham's Snipe, Japanese Snipe
Geophaps scripta scripta-Squatter Pigeon (southern)
Grantiella picta-Painted Honeyeater
Grevillea kennedyana-Flame Spider-flower
Grevillea quadricauda-
Hakea maconochieana-
Haloragis exalata subsp. *velutina*-Tall Velvet Sea-berry
Harrisoniascincus zia-Rainforest Cool-skink
Hirundapus caudacutus-White-throated Needletail
Homopholis belsonii-Belson's Panic
Homoranthus lunatus-
Homoranthus montanus-
Kardomia granitica-a shrub
Litoria subglandulosa-New England Tree Frog, Glandular Frog
Maccullochella peelii-Murray Cod
Macrootis lagotis-Greater Bilby
Macrozamia conferta-
Macrozamia machinii-
Macrozamia occidua-
Maireana cheelii-Chariot Wheels
Marsdenia longiloba-Clear Milkvine
Melaleuca kunzeoides-
Mixophyes balbus-Stuttering Frog, Southern Barred Frog (in Victoria)
Neophema chrysostoma-Blue-winged Parrot
Notamacropus parma-Parma Wallaby
Nyctophilus corbeni-Corben's Long-eared Bat, South-eastern Long-eared Bat
Pericaria elatior-Knotweed, Tall Knotweed
Petaurus australis australis-Yellow-bellied Glider (south-eastern)

Petrogale penicillata-Brush-tailed Rock-wallaby
Petrogale xanthopus celeris-Yellow-footed Rock-wallaby (central-western Queensland)
Phebalium glandulosum subsp. *eglandulosum*-Rusty Desert Phebalium
Phebalium whitei-
Picris evae-Hawkweed
Polianthion minutiflorum-
Potorous tridactylus tridactylus-Long-nosed Potoroo (northern)
Prostanthera sp. Dunmore (D.M.Gordon 8A)-
Pseudomys novaehollandiae-New Holland Mouse, Pookila
Pteropus poliocephalus-Grey-headed Flying-fox
Rhaphidospora bonneyana-
Rhaponticum australe-Austral Cornflower, Native Thistle
Rheodytes leukops-Fitzroy River Turtle, Fitzroy Tortoise, Fitzroy Turtle, White-eyed River Diver
Sarcochilus hartmannii-Waxy Sarcochilus, Blue Knob Orchid
Sarcochilus weinthalii-Blotched Sarcochilus, Weinthals Sarcanth
Sclerolaena walkeri-
Sophora fraseri-
Stagonopleura guttata-Diamond Firetail
Swainsona murrayana-Slender Darling-pea, Slender Swainson, Murray Swainson-pea
Thesium australe-Austral Toadflax, Toadflax
Turnix melanogaster-Black-breasted Button-quail
Uvidicolus sphyrurus-Border Thick-tailed Gecko, Granite Belt Thick-tailed Gecko
Westringia parvifolia-
Xerothamnella parvifolia-
Zieria verrucosa-

Other Status

17

Actitis hypoleucos-Common Sandpiper
Apus pacificus-Fork-tailed Swift
Ardea ibis-Cattle Egret
Calidris melanotos-Pectoral Sandpiper
Chrysococcyx osculans-Black-eared Cuckoo
Cuculus optatus-Oriental Cuckoo, Horsfield's Cuckoo
Haliaeetus leucogaster-White-bellied Sea-Eagle
Himantopus himantopus-Pied Stilt, Black-winged Stilt
Monarcha melanopsis-Black-faced Monarch

Monarcha trivirgatus-Spectacled Monarch

Myiagra cyanoleuca-Satin Flycatcher

Pandion haliaetus-Osprey

Recurvirostra novaehollandiae-Red-necked Avocet

Rhipidura rufifrons-Rufous Fantail

Rostratula benghalensis (sensu lato)-Painted Snipe

Tringa glareola-Wood Sandpiper

Tringa stagnatilis-Marsh Sandpiper, Little Greenshank

Grand Total	171
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