



Australian Government
National Emergency Management Agency

Australian Institute for
Disaster Resilience



WEBINAR SERIES

Resilience Matters



Acknowledgement of Country

AIDR acknowledges the Traditional Custodians of the various lands on which you all join us from today and the Aboriginal and Torres Strait Islander people participating in this event.

We pay our respects to Elders past and present and celebrate the diversity of Aboriginal peoples and their ongoing cultures and connections to the lands and waters across Australia.





Welcome

John Richardson

Executive Director

Australian Institute for Disaster Resilience (AIDR)



Australian Government
National Emergency Management Agency



Housekeeping

- You will remain muted and your camera will not be activated for the duration of today's event.
- Today's event will be recorded and made available after the event.
- Please enter questions for our speakers in the Q&A function, not the chat box.
- Please use the chat box to share any thoughts or reflections during the presentation
- Please be respectful to each other when posting your comments or questions.



Webinar Introduction

Dr Mayeda Rashid

Manager Capability Development and Engagement

Australian Institute for Disaster Resilience (AIDR)



Australian Government
National Emergency Management Agency



Speaker Introduction

Dr Bek Christensen

Knowledge Broker

NRM Regions Australia



Australian Government
National Emergency Management Agency

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Disaster Resilience



Nature-led Resilience

Dr Bek Christensen

Knowledge Broker, NRM Regions Australia

E: bek@nrmregionsaustralia.com.au





Overview

- Value of nature, and using nature for disaster risk reduction
- Including nature protection in the disaster management cycle
- Onground examples of nature integrated with disaster management
- Questions and discussion

Acknowledgement

NRM Regions Australia respects the enduring spiritual and physical connection of Traditional Owners as Custodians of Country.

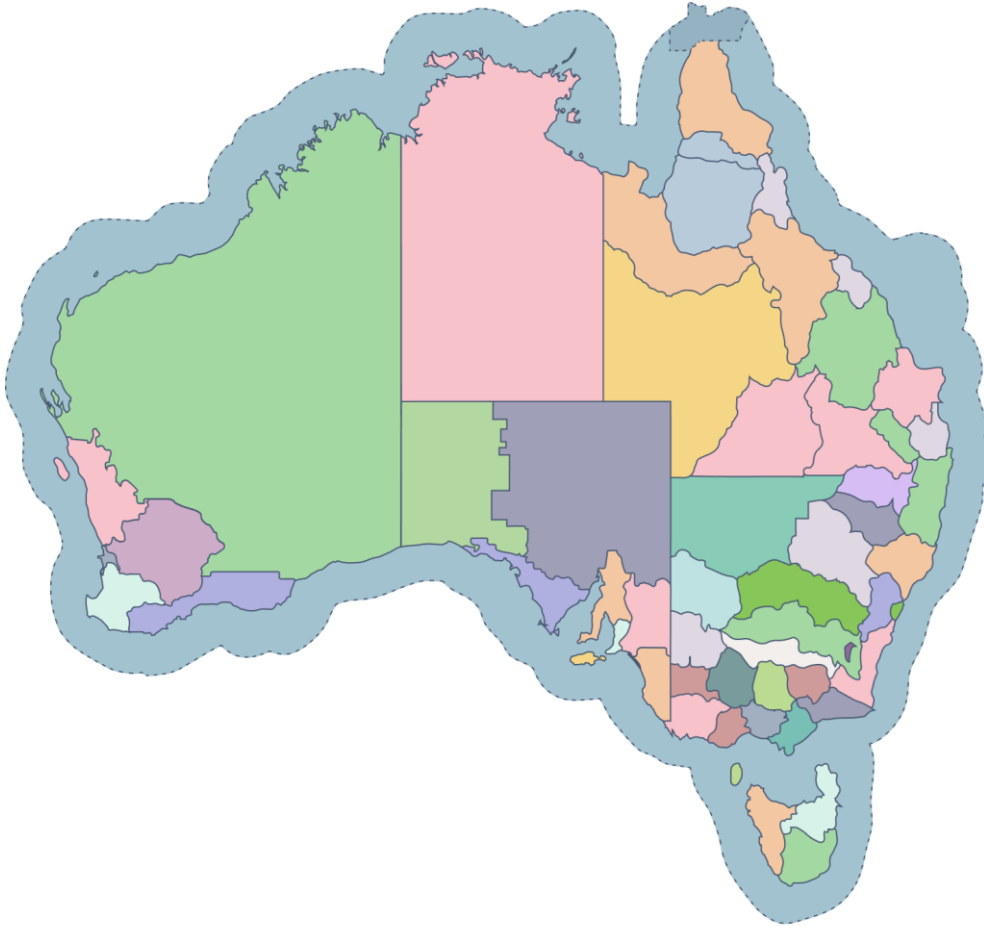
We value the importance and diversity of the knowledge and understanding of Traditional Owners, which is based on a history of adapting to shifting climatic conditions, and balancing nature and society.

We respect and recognise them as the first natural resource managers of Australia who have practised nature-based solutions for more than 60,000 years and recognises their Elders, both past and present. We commit to working together to care for Country.



Cultural fire management workshop, NQ Dry Tropics.
Photo: Scott Radford-Chisolm

Who and what is NRM?



- **NRM = Natural Resource Management**
- Integrated management of the natural resources that make up our landscapes
- Place-based, landscape-scale
- Driven by collaboration & partnerships
- 54 regional organisations, with Australia-wide coverage, 20+ years
- NRM sector is essential national infrastructure

Value of nature



Nature in Australia:

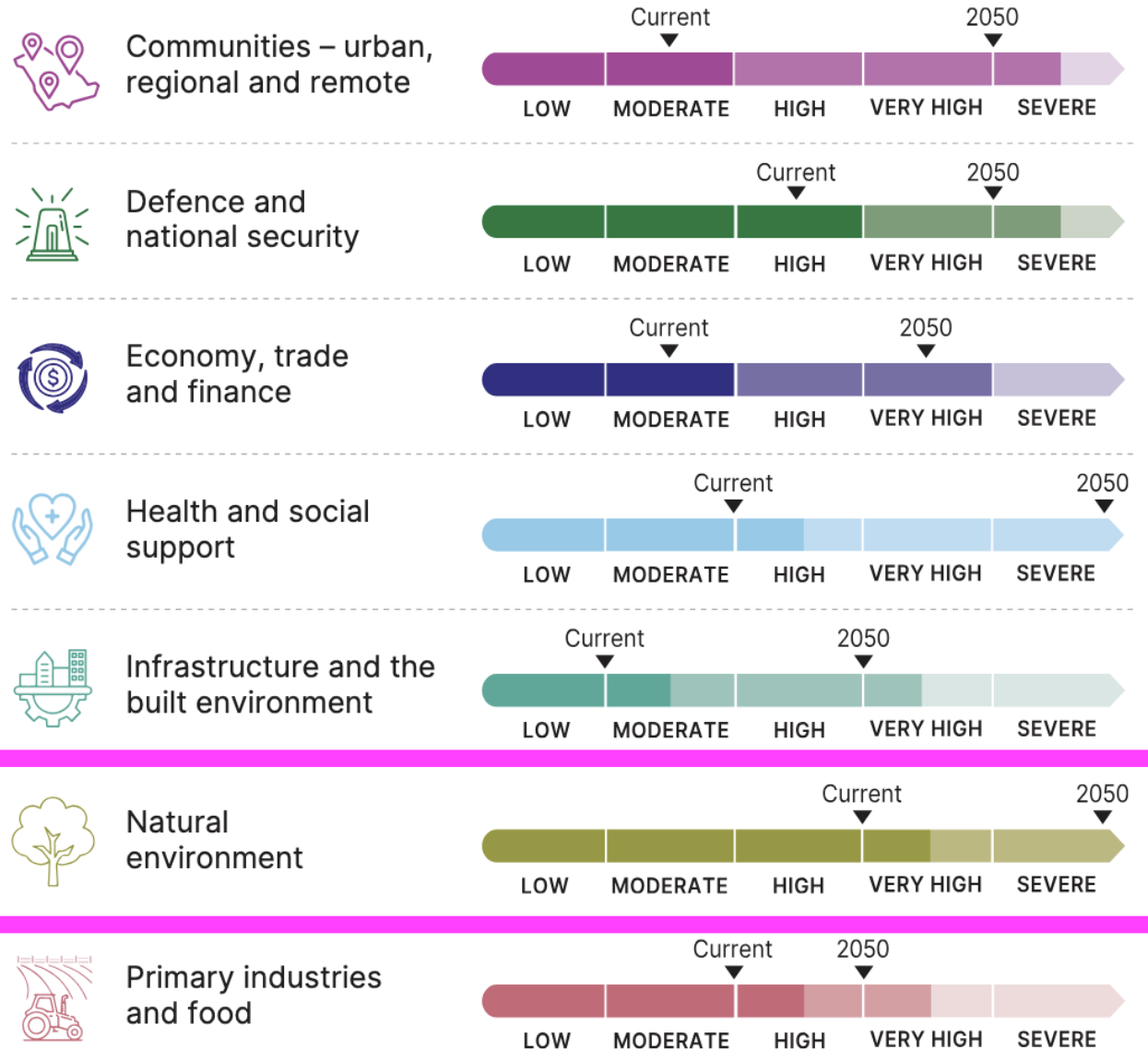
- Underpins industries that contribute *at least* \$138bill/yr to economy
- \$511bill/yr value to the economy including non-market services
- Supports at least 20% of GDP (equal to combined output of finance + mining sectors)

(Thompson F, Chau S, Nguyen M (2025). Nature Economics: Analysis of the case for Australian Government investment in nature. Cyan Ventures and 30 by 30.)

Nature is at risk

National Climate Risk Assessment 2025:

- Natural environment underpins all other societal systems
- Natural environment already at high/very high risk, and severe by 2050



Changing hazards and increasing impact

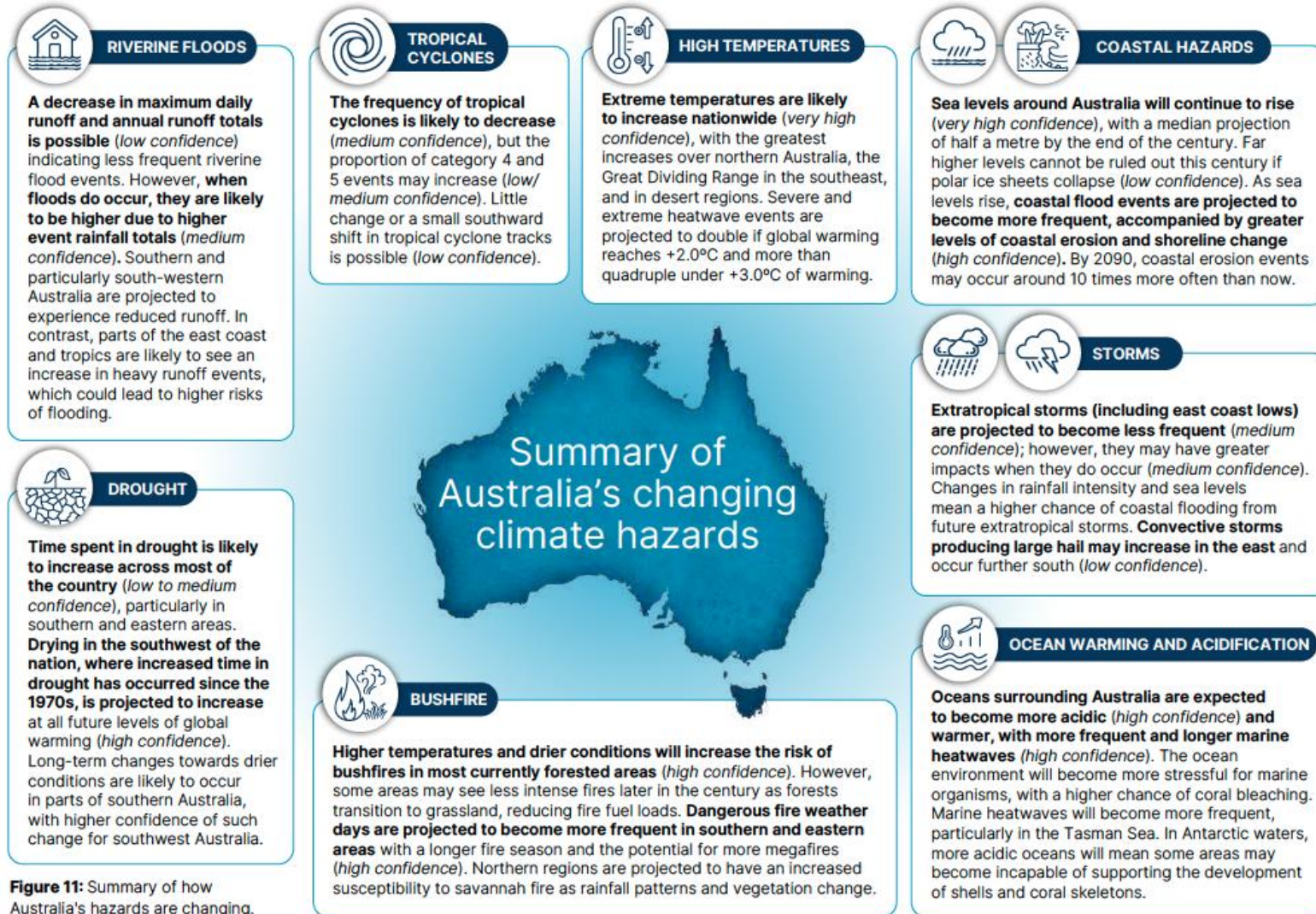
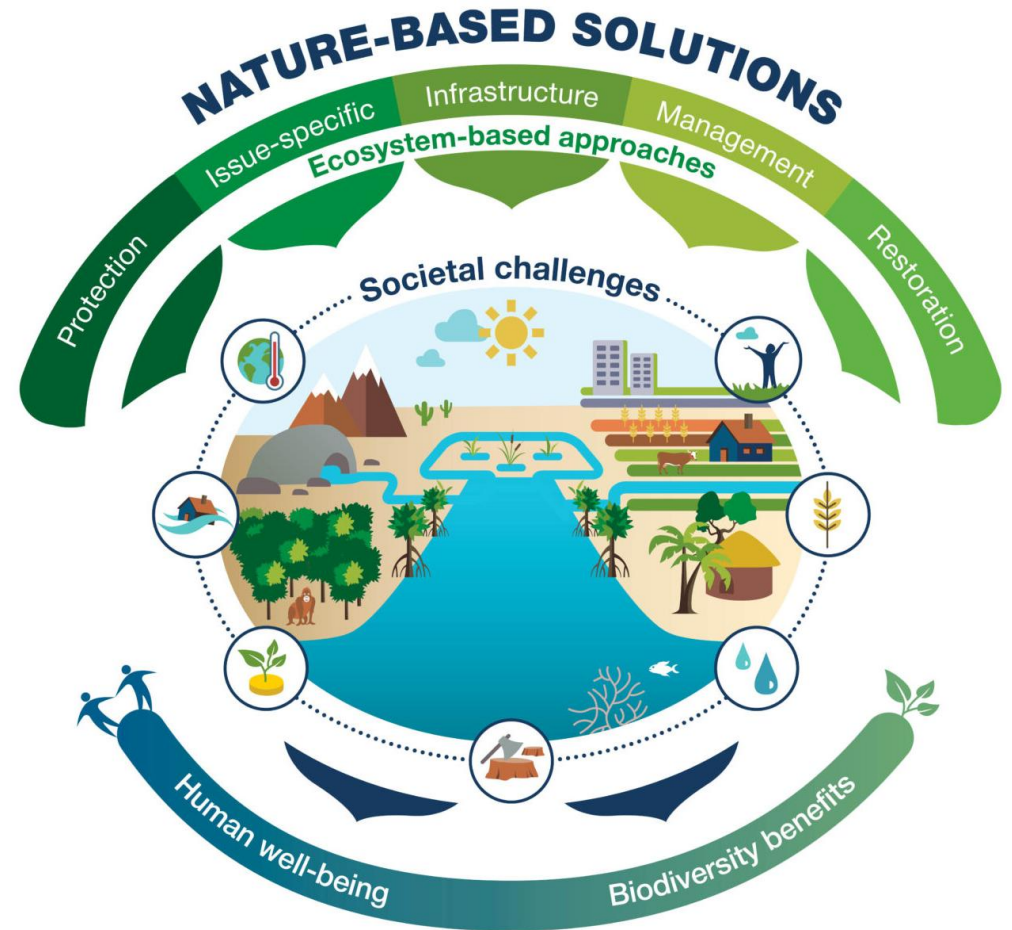


Figure 11: Summary of how Australia's hazards are changing.

Source:
National Climate Risk
Assessment, 2025

What's the (Nature-based) Solution?

Actions to protect, sustainably manage, and restore ecosystems to address major societal challenges including: climate challenges, adaptation to changing climate regimes and providing resilience to extreme events.



Nature-based Solutions (NbS) for Disaster Risk Reduction (DRR)



Mangroves, saltmarsh, and seagrasses:

- Dampen wave energy and prevent erosion
- Coastal wetlands absorb excess flows
- Protecting coastal wetlands could save US\$52billion/yr on insurance (WEF 2020)
- Protect property valued at about AU\$2.6b

For example:

<https://nrmregionsaustralia.com.au/articles/restoring-salt-marsh-for-coastal-protection-and-blue-carbon/>

Nature-based Solutions (NbS) for Disaster Risk Reduction (DRR)



Photo: NRM North, Tasmania

Catchment and river restoration:

- Improve infiltration, reduce runoff, slows floodwaters, dissipates instream energy, prevents erosion
- Increasing forest cover by 29% in Bremer catchment reduced flood levels by 0.7m
- Leaky weirs in Pomona catchment reduced downstream flood depths by 30% (National NbS for Flood Guidelines, 2025)

For example:

<https://nrmregionsaustralia.com.au/articles/scaling-nbs-for-flood-resilience-and-recovery/>

Nature-based Solutions (NbS) for Disaster Risk Reduction (DRR)



Photo: Burnett Mary Regional Group

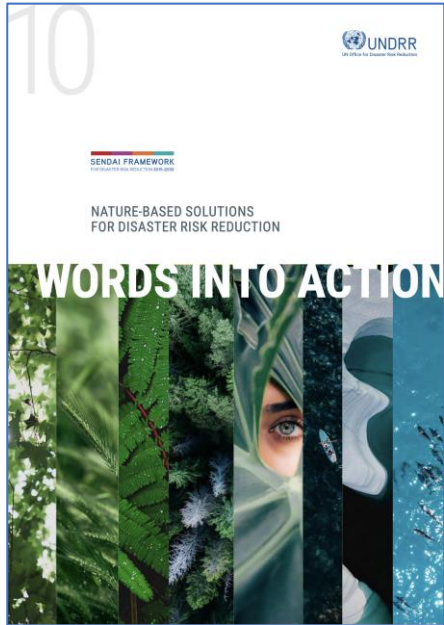
Cultural fire:

- Healthy Country and People
- Mitigate risk of destructive fire

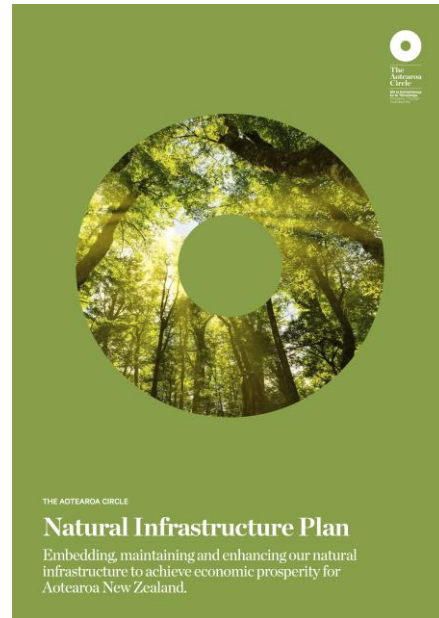
For example:

<https://nrmregionsaustralia.com.au/articles/cultural-fire-management-safeguarding-communities-in-the-grazing-landscape/>

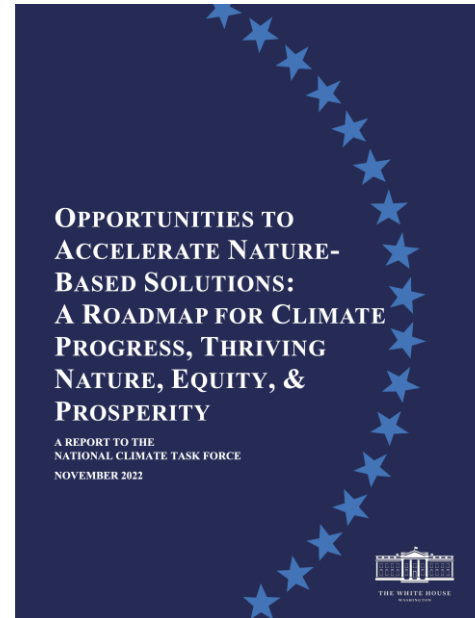
International context



UN NbS for DRR



NZ Natural
Infrastructure Plan



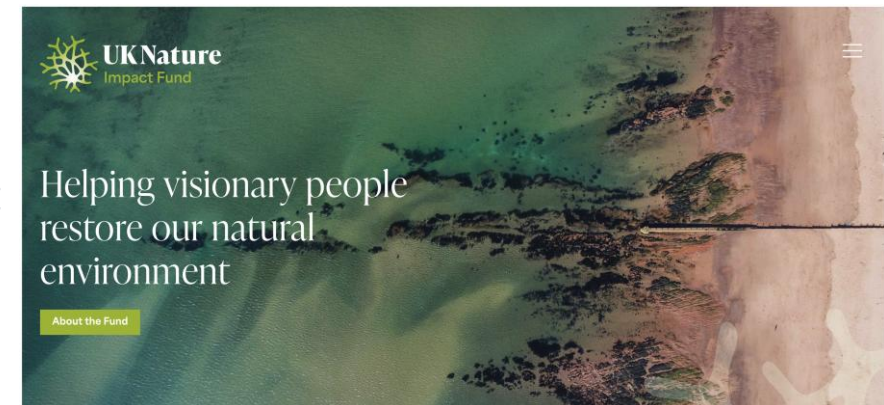
US Roadmap for NbS



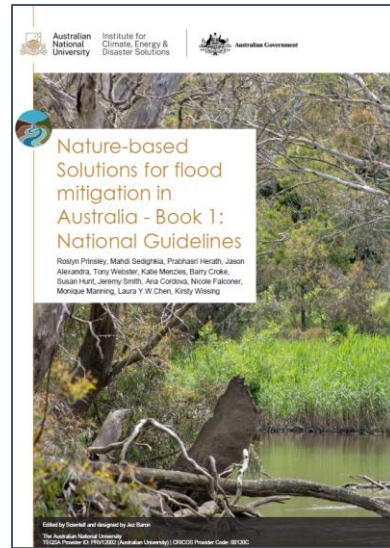
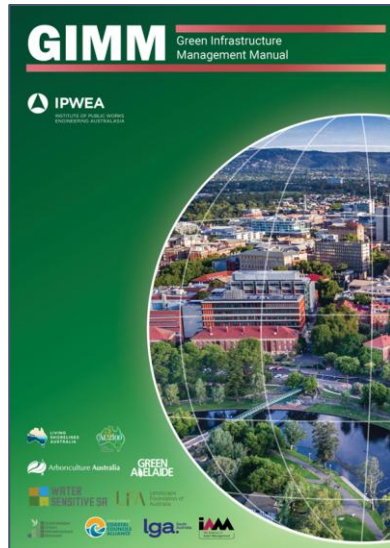
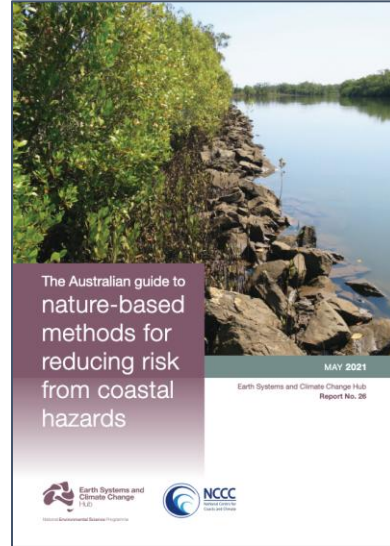
Canada Natural Climate
Solutions Fund

Widespread adoption globally

UK Nature Impact
Fund



Australian NbS Context



- Mindset and policy shifts to embed as core strategy
- More resources needed
- Growing availability of definitions, guidelines, and methodologies for Australian conditions

National Nature-led Resilience Program

- Build the evidence base
- Advocate for an enabling policy, regulatory, and funding environment for NbS
- Build local knowledge, capacity and networks to deliver NbS at scale
- More information: <https://nrmregionsaustralia.com.au/project/nature-led-resilience-project/>



Photo: NQ Dry Tropics



Photo: Terrain NRM



Photo: South West NRM, WA

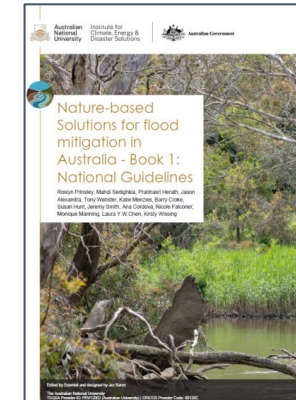
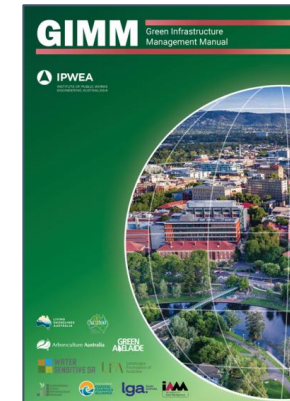
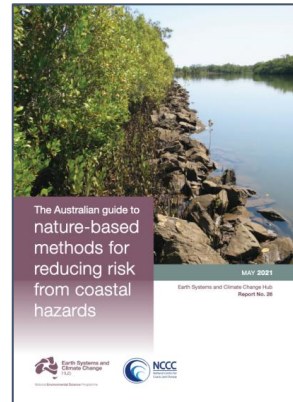
The Nature-led Resilience Program is delivered with support from the Minderoo Foundation.

Resources

- IUCN NbS Global Standard: <https://inbs.iucn.org/>
- NRM Knowledge Hub: <https://nrmregionsaustralia.com.au/knowledge-hub/nature-based-solutions/>

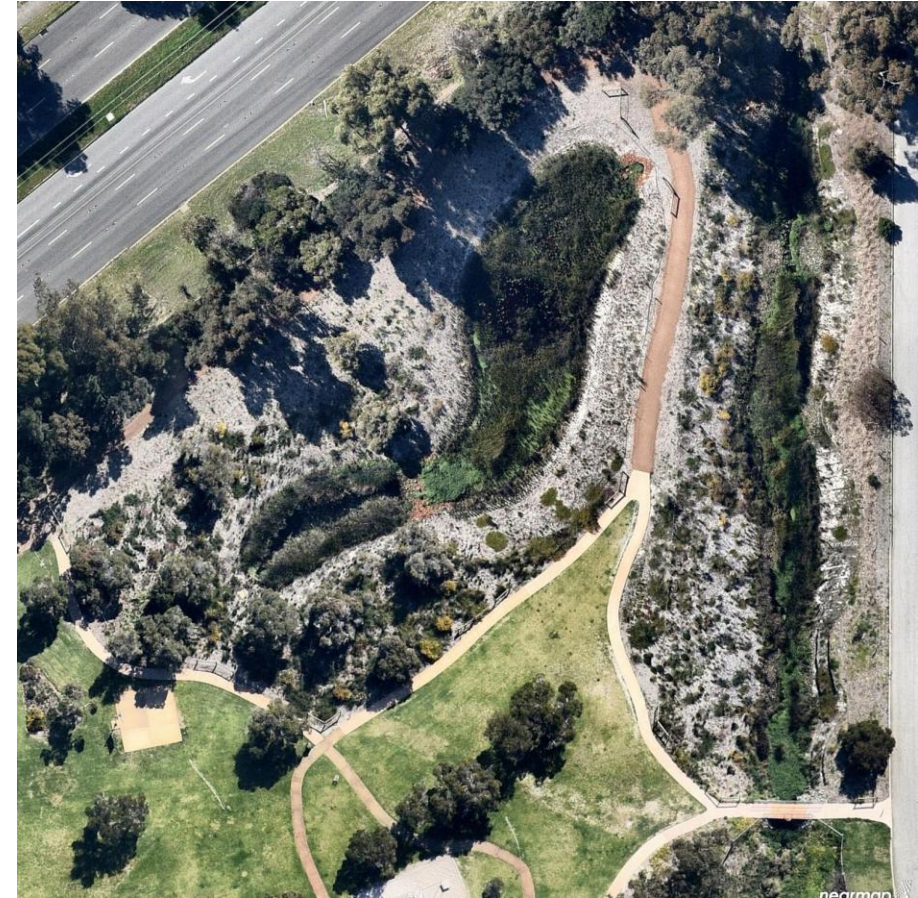
Including:

- Australian Guide to nature-based methods for reducing risk from coastal hazards (2021), NESP
- Nature-led Community Resilience Toolkit (2024), Arthur Rylah Institute
- NbS for Flood Mitigation in Australia Guidelines (2025), ANU
- Green Infrastructure Management Manual (2025), Institute for Public Works and Engineering



We need nature for disaster resilience

- Nature can deliver effective disaster risk reduction at landscape scales.
- Barriers remain, and we're working on them: policy, resourcing, knowledge, capacity.
- NRM sector is partnering to enable the shift towards NbS in Australia. We'd love to work with you!



Thanks

Regional NRM Organisations

Key Collaborators: University of Melbourne, CSIRO, Climate-KIC, AIDR





Speaker Introduction

Sarah Hoyal

Nature-based Solutions Lead

NRM Regions Australia



Australian Government
National Emergency Management Agency

Nature as critical infrastructure

Sarah Hoyal, Program Lead
sarah@nrmregionsaustralia.com.au



NRM Regions Australia acknowledges Traditional Owners and Custodians of Country throughout Australia where we live and work. We pay our respect to First Nations cultures, and to Elders past and present. We commit to working together to care for Country.

NRM
REGIONS
AUSTRALIA

Coastal Protection Impact of Black Summer Fires



- Largest fire event in Australia's recorded history
- Over 5.6 million hectares of land burnt in New South Wales alone, including extensive damage to mangroves and saltmarsh.
- Mangrove monitoring has shown almost little **significant signs of recovery** to date.
- **Represents a massive loss of coastal protection - \$2.6b**



Protecting threatened species and ecological communities before and during bushfire: Learning from the 2019–20 fires

Kelly de Bie, Kaye Currey, John Woinarski, Brendan Wintle,
Stephen Garnett and Libby Rumpff

July 2021



Empowering Indigenous leadership and participation in bushfire recovery, cultural burning and land management

Robinson, C.J., Costello, O., Lockwood, M., Pert, P.L., Garnett, S.T.

July 2021

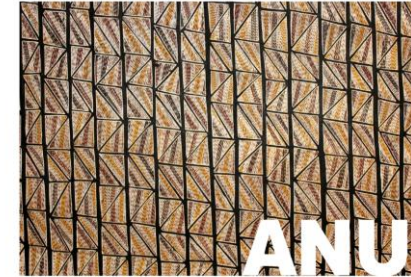


AUSTRALIA'S MEGAFIRES

Biodiversity Impacts and Lessons
from 2019–2020



Editors: Libby Rumpff, Sarah Legge, Stephen van Leeuwen,
Brendan Wintle and John Woinarski



ABORIGINAL COMMUNITY GOVERNANCE ON THE FRONTLINES AND FAULTLINES IN THE BLACK SUMMER BUSHFIRES

B. WILLIAMSON

Centre for
Aboriginal Economic
Policy Research
ANU College of
Arts & Social
Sciences

CAEPR DISCUSSION PAPER 300/2022

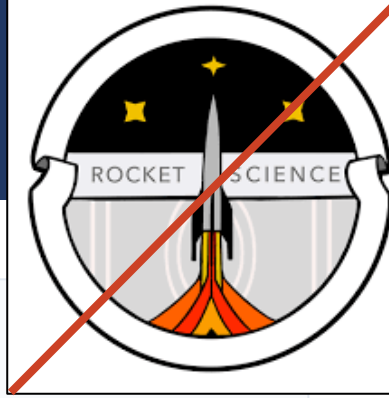
Regional Natural Resource Management Emergency Preparedness Response Planning 2023-2024

An overview of the experience of regional Natural Resource
Management (NRM) organisations in implementing this Australian
Government investment opportunity.

NRM Regions Australia
17 February 2025

NRM
REGIONS
AUSTRALIA

The fundamentals...



What, where & how

- What and where are the key natural areas/ values
- Which of these are priorities for protection
- What can be done

Systems & processes

- Who needs to be involved, when
- What needs to be put in place
- What knowledge or capacity gaps need filling

Planning/ Prevention

- Integrated planning
- Knowledge and risk modelling capability
- Long term monitoring programs
- Responsibility for planning and coordination
- Environmental and First Nations expertise



PLANNING



MONITORING

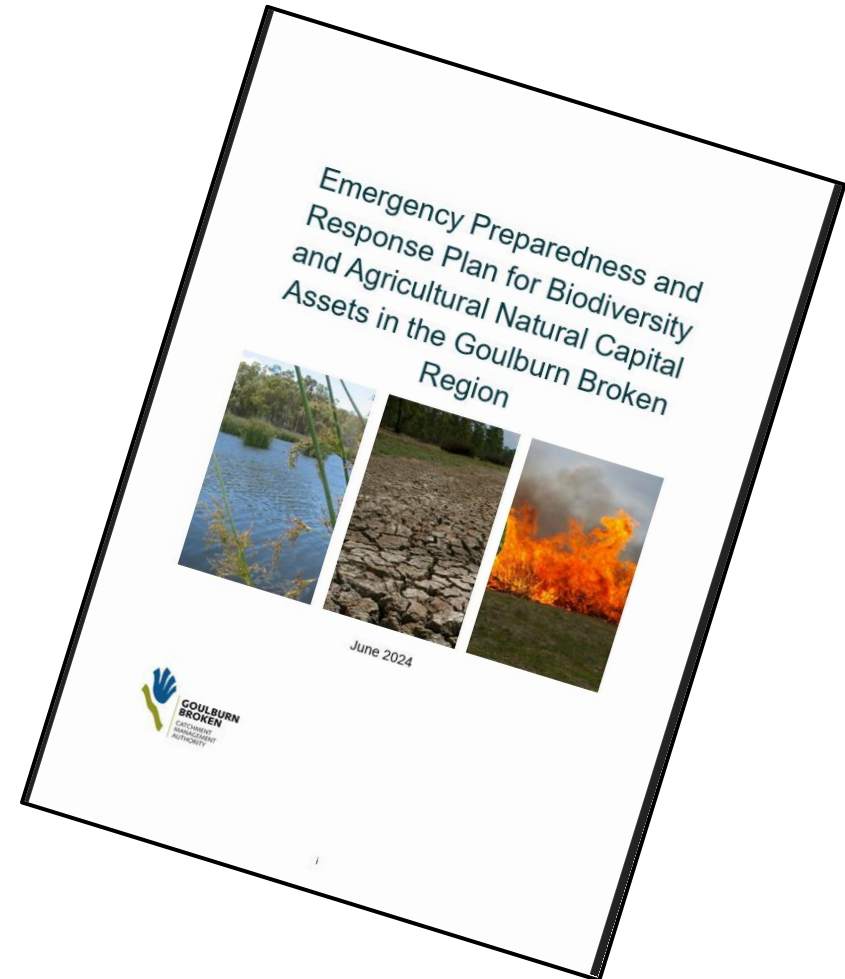


**ENVIRONMENTAL AND
FIRST NATIONS EXPERTISE**



Environmental Emergency Preparedness and Disaster Response Plans

- **Funded by federal govt**
- **Australia-wide resource**
- **Focus - matters of national environmental significance and key agricultural assets**



Priorities identified through this process:



Dynamic Spatial Data

High-quality, real-time data for informed decision making.



Indigenous Engagement

Deeper involvement and collaboration with Indigenous communities.



Management Systems

Greater inclusion in national and local emergency management frameworks.



Environmental Protection

Established protocols for the protection of critical environmental assets.



Planning Flexibility

Adaptive strategies that allow for responsive planning changes.

Preparedness

Network and capability preparedness

- Coordination of local networks
- Training and capacity building

Operational preparedness

- Pre-approved flexible funding pools
- Regulatory provisions (e.g. permits for emergency wildlife collection)
- Holding facilities for emergency wildlife rescue



Response

- **Implement plans: Protect, avoid, take action**
- **Use bio-cultural expertise in incident management**
- **Distribute flexible funding for rapid response**
- **Coordinate responses and actions from national to local scales**
- **Communicate impacts, responses and results to communities**





Photo from Fern Hames

Recovery

- ❖ Rapidly deploy recovery funding
- ❖ Invest in First Nations leadership in recovery activities
- ❖ Communicate with, involve and empower local communities



Resilience

Protect, repair and restore landscapes and waterways

Support cultural land management and First Nations leadership (in practice, policy & legislation)

Engage communities



Speaker Introduction

Dr Wendy Telfer

Nature Partnerships and Finance Lead

The Hills and Fleurieu Landscape Board



Australian Government
National Emergency Management Agency

Australian Institute for
Disaster Resilience





A regional example – Hills & Fleurieu, South Australia

Dr Wendy Telfer

Hills and Fleurieu region, South Australia

Diverse land uses and biodiversity hotspot



Key disaster hazards in the region



Bushfire



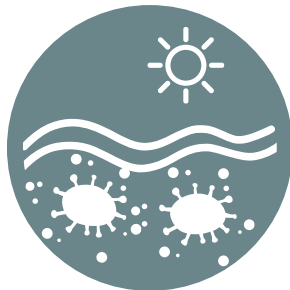
Drought



Flooding



Coastal storm surge



Harmful algal bloom



Cudlee Creek Bushfire Black Summer 2019/20

No plan or preparedness work. Limited involvement in response.

Extent of damage and loss

- 1 death
- Approx. 2000 properties impacted
 - 140 houses
 - 500 structures
 - 300 vehicles
 - 800 ha vineyards destroyed or damaged

Delivered \$5.8m of recovery funding:

- 498 properties participated in revegetation
- 312 properties joined rabbit control and 135 in woody weed control
- 243 km roadside weed control
- 99 properties improved watercourses: fencing, troughs and revegetation
- 44 events and training
- >700 people involved

RECOVERY



Recovery work built landscape + community resilience

- Reduced future risk of fire (less woody weeds)
- More resilient ecosystems (biodiversity habitat, healthier and protected watercourses)
- More resilient farms (stock shelter, improved soils and pastures, better pest control)
- More connected, capable and prepared community
 - 80%+ reported improved risk awareness, decision-making and preparedness
 - 70%+ reported stronger community connection and resilience
 - Networks and Property Plans support long-term land management

RECOVERY

RESILIENCE



What about preparedness and response?

→ New plans in 2024

PLANNING /
PREVENTION

Clarified governance,
roles & responsibilities

Improved data on
natural assets for use in
response

Set out key actions for
each phase to enable
faster recovery activation

Strengthened
partnerships with
emergency management
agencies

Hills and Fleurieu region

Land, water and nature emergency preparedness, response and recovery plan



LANDSCAPE
SOUTH AUSTRALIA
HILLS AND FLEURIEU

Feb 2026 Bushfires

Fires on private land in Nangkita and Tooperang, and Deep Creek National Park. Home to some of last populations of endangered species - Mount Lofty Ranges Southern Emu-wren and the Western Beautiful Firetail

Did the planning and preparation help?



RESPONSE

RECOVERY

Yes!

Cross-agency Natural Assets Team worked closely with Country Fire Service ground and aerial suppression crews.

Saved critical habitat of endangered species and revegetation areas.

- ✓ Shift to protecting **life, property and environmental assets together.**
- ✓ Recovery grants for landholders rolled out within weeks



Deep Creek National Park backburn
Photo: SA CFS

RESILIENCE

PLANNING /
PREVENTION

Drought

Working with farmers to improve resilience:

- restoring vegetation for livestock shelter and improved productivity
- improving soil health to retain water and productivity
- Improving water security

Drought conditions on the Fleurieu Peninsula 2024. Photo: ABC News



RESILIENCE

PLANNING /
PREVENTION

Coastal storm surges

- Coastal action planning with Local Government, First Nations and partners
- Actions to retain and improve nature as a buffer through dune weed control, revegetation and stabilisation
- Supporting Local Government to assess coastal hazards and develop adaptation plans



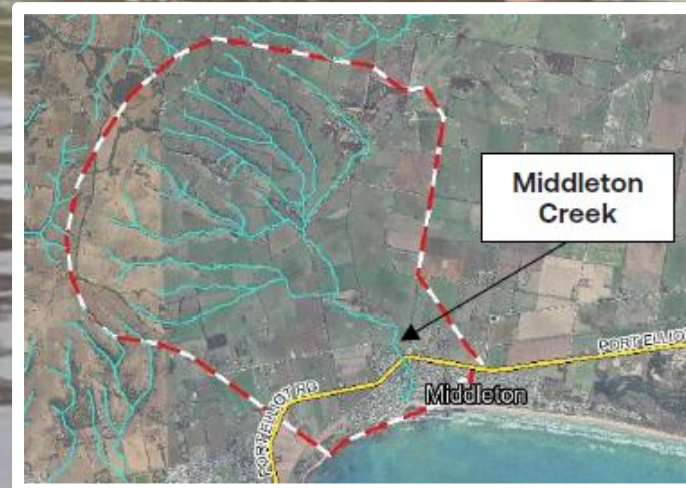
RESILIENCE

PLANNING /
PREVENTION

Floods

- Local Government focused on early warning system and engineering to widen channel.
- Commissioned study that showed a nature-based solution (revegetation of upstream catchment) increases infiltration and reduces and slows flooding.
- Developed project and seeking funding with Council for revegetation of catchment.

*Middleton Creek flash flood November 2022.
Photo: The Advertiser*



RESILIENCE

PLANNING /
PREVENTION

Harmful Algal Bloom (ocean temp + nutrients)

Nature-based solutions are critical for reducing nutrients and sediments:

- Restoring rivers and waterways and managing stormwater to reduce nutrient and sediment run-off from land
- Restoring oyster reefs and seagrass to filter water in near-shore marine





In the Adelaide Hills and Fleurieu, and many other natural resource management regions across Australia, we are shifting from a focus on recovery alone to proactively building resilience through nature-based solutions that protect communities, industries and ecosystems.

RESILIENCE

PLANNING /
PREVENTION

PREPAREDNESS

RESPONSE

RECOVERY

RESILIENCE



Q&A

Moderated by:

Dr Mayeda Rashid

Manager Capability Development and Engagement

Australian Institute for Disaster Resilience (AIDR)



Event concludes

Thank you for attending today's webinar.

Next webinar:

Register now for Spotlight Webinar Series:

Food security and disaster risk reduction

24 June 2026, 1.00-2.00pm AEST



Register now.



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