Catchment Action Plan 2013 – 2023

Southern Rivers Catchment Management Authority

NSW GOVERNMENT | Catchment Management Authority Southern Rivers

Acknowledgements:

Southern Rivers CMA recognises that the sustainable use and care of the region's natural resources is everyone's responsibility. We acknowledge the many land owners, land and water managers, individuals, community groups and other organisations who have taken up this responsibility. We particularly acknowledge the Aboriginal people of the region who have been the custodians of the land and sea for thousands of years. Together we are working towards a more resilient future for the Southern Rivers landscape and community.

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Front cover images
Left: Members of the Maclaughlin River Landcare group discuss plant identification and pasture management at "Sherwood", Bridgewater.
Centre: Bobundra landscape
Right: Pelicans (Pelecanus onocrotalus)

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Minister's Foreword

Catchment Action Plans are developed in partnership with local communities and present a vision for healthy natural landscapes across New South Wales to help support regional prosperity.

As Minister for Primary Industries, I am pleased that through implementation of these regional plans we have motivated, supported, encouraged and funded local communities to deliver more than 13,000 important projects, both large and small to NSW.

Against the backdrop of many serious natural events, including drought, flood and bushfire, the achievements in natural resource management across NSW have continued to be both impressive and ground-breaking.

Catchment Action Plans benefit from regular review in order to incorporate the growing knowledge of the catchment's natural, social and cultural resources.

This second iteration of Catchment Action Plans has provided an opportunity to cast a critical eye over the objectives, investment priorities and targets outlined, as well as an opportunity to outline new approaches to setting priorities for investment in natural resources.

The Catchment Action Plans have been developed in close consultation with local communities, shire councils and government agencies, using the latest scientific knowledge.

This is a plan that outlines the shared vision for the sustainable management of the catchment's natural resources. The successful implementation of the Catchment Action Plan will be driven by continued good relations between government agencies at all levels, industry and the wider community.

From January 2014, Local Land Services will deliver functions currently provided by Catchment Management Authorities (CMAs), Livestock Health & Pest Authorities (LHPAs) and advisory services of Agriculture NSW (part of the Department of Primary Industries).

The Hon Katrina Hodgkinson MP

This upgraded Catchment Action Plan will play a critical role in planning natural resource management so that Local Land Services can continue with the building of healthy and resilient regional communities.

We all have a role to play in the sustainable and productive management of the region's resources and this Catchment Action Plan will ensure positive and practical outcomes for the years ahead.

The Hon Katrina Hodgkinson MP
Minister for Primary Industries
Minister for Small Business

Chair's Foreword

Southern Rivers Catchment Action Plan 2023 (CAP 2023) represents a new era in planning for sustainable communities, profitable natural resource dependent industries and resilient landscapes.

Based on an understanding of the interaction between people and natural resources, CAP 2023 is a plan for coordinated and targeted action in which the whole of community and whole of government can participate across the Southern Rivers region.

CAP 2023:

- reinforces the clear link between natural resource management and primary production systems
- recognises the importance of natural resources to economic prosperity and community wellbeing
- values and supports the sustainable use and care of natural resources by land owners, land managers and custodians
- provides a unifying vision for the ongoing use and care of natural resources.

The Southern Rivers community has achieved much since the introduction of the first Catchment Action Plan in 2006 including:

- supporting 7,500 farmers and individual landholders to implement priority actions at the property scale
- improving soil health, grazing, fertiliser and nutrient management across almost 10,000 ha of agricultural land
- undertaking pest plant control across 195,000 ha of land
- undertaking pest animal control across more than 180,000 ha of land
- addressing 185 km of waterway degradation and stabilising 28 km of gully erosion
- improving 7,300 ha of priority vegetation communities.

CAP 2023 builds on this work and more importantly, the partnerships that have enabled these achievements.

The development of CAP 2023 has involved consultation and engagement with stakeholders and partners across the region, including farming groups, oyster growers, Aboriginal communities, Landcare groups and local, NSW State and Australian Government agencies.

Pam Green Chairperson

The Board of Southern Rivers CMA both directly and through Southern Rivers CMA staff, participated in the foundational analysis and strategic direction setting of CAP 2023 and has provided governance throughout its development.

CAP 2023 is a strategy for the sustainable use and care of the region's natural resources to achieve the vision of *sustainable communities, profitable industries, resilient landscapes* for current and future generations.

I share and support the vision for the Southern Rivers region and invite you to be an active participant in achieving these outcomes.

Pamela Green
Chair

Contents

CAP 2023 Executive Summary

Context and content

CAP 2023 is a strategy to focus government and community effort on three key outcomes for the Southern Rivers region:

- sustainable communities
- profitable industries
- resilient landscapes.

Each of these outcomes is linked by many complex relationships and dependencies. CAP 2023 is based on the analysis of this complexity, identification of the key drivers that affect change in the region and the development of strategies, targets and activities that will have the greatest effect in achieving the outcomes described above.

CAP 2023 recognises the importance of profitable industries such as agriculture, aquaculture and tourism which are dependent upon natural resources and provide employment and income to support individual and community livelihoods and wellbeing. CAP 2023 includes strategies to improve the natural resource base on which these industries depend and to ensure that land and water managers are able to effectively adapt to change.

CAP 2023 also recognises the importance of supporting communities and individuals to contribute to landscape resilience. Landscape resilience underpins the viability of many of the region's enterprises, providing scenic beauty valued by community and visitors alike, cultural connection and economic opportunity for Aboriginal people.

The plan is defined by three pillars – people, governance and natural resources – each with a goal, objectives and targets that set strategic direction and key performance measures for each pillar. Also included are the strategies, priorities and actions required to affect the greatest change.

Pillar 1 focuses on people, with the goal of achieving sustainable economies and community wellbeing. Priorities are – to support profitable, diverse and sustainable enterprises and economies, to support land and water managers in their decision making, and to increase the capacity of the community to contribute to natural resource management (NRM).

Pillar 2 focuses on governance, with the goal of achieving adaptive management and devolved decision making. Priorities are – to ensure the coordinated delivery of services to clients, to provide relevant and timely information to decision makers, and to build capacity to adapt and respond to change.

Pillar 3 focuses on natural resources, with the goal of achieving diverse, healthy, connected and productive natural environments. Priorities are – to protect soil condition, to maintain or improve key habitat, and to support key fresh water, estuarine and marine assets for people and the environment.

The figure opposite (Figure 1) provides a summary of the strategic directions of CAP 2023.

Purpose of CAP 2023

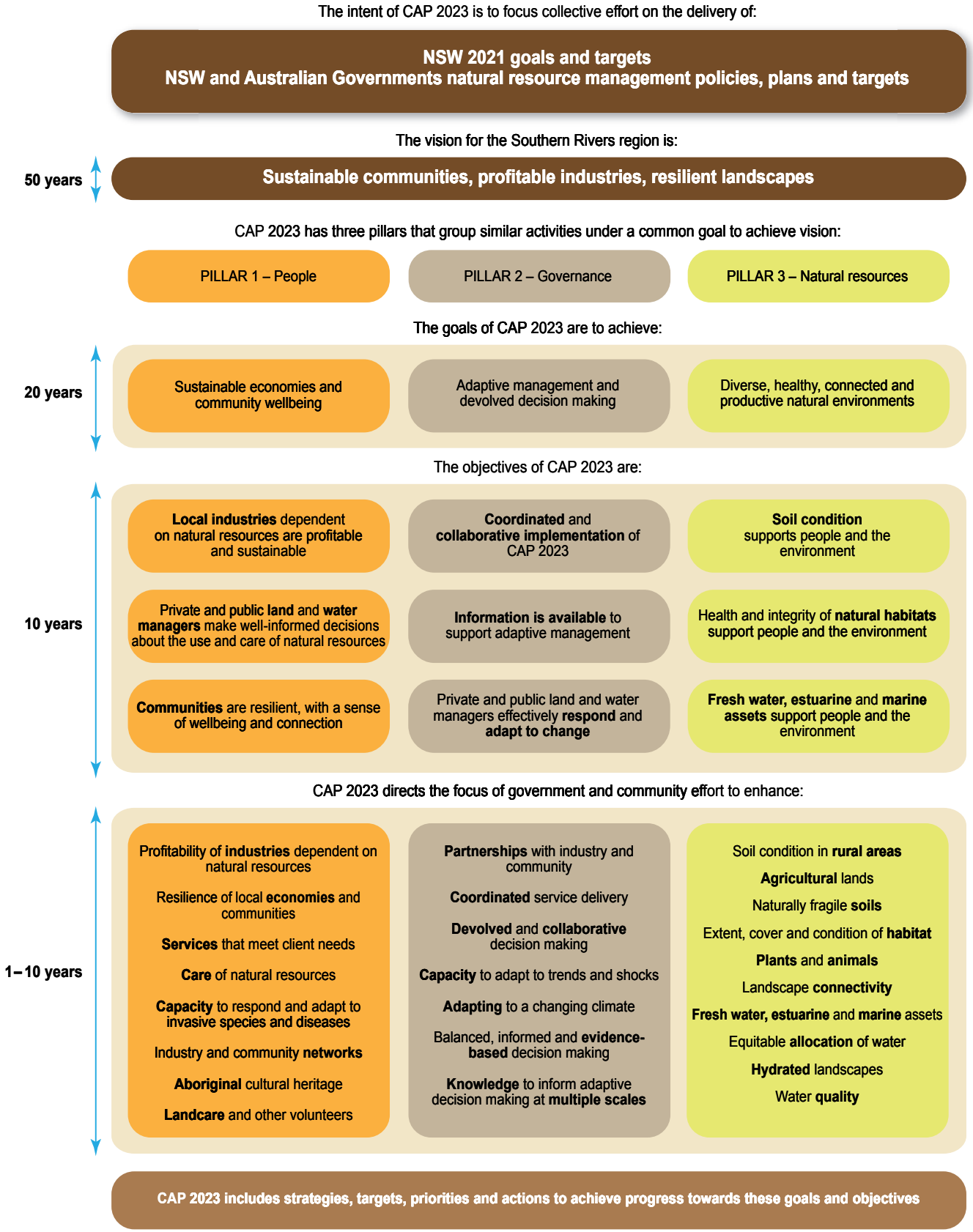
Catchment Action Plans are statutory, non-regulatory plans under the *Catchment Management Authorities Act 2003*.

The Southern Rivers CAP 2023 is a 10-year strategic plan that identifies the priorities and actions for NRM in the region. It provides direction for collaborative action and investment by government, community and industry partners.

CAP 2023 does not describe detailed implementation or project activities which will be defined in implementation and investment plans. These plans will set out quantified targets, budgets and partnerships for projects that will achieve the objectives defined in CAP 2023.

CAP 2023 is a document for everyone with an interest in the future of the Southern Rivers region. Its framework for action can be used by any organisation, group or individual to prioritise and implement NRM decisions, whether it is at a paddock, farm, or landscape scale.

Figure 1. CAP 2023 strategic directions



PART 1 – The Strategy

The Southern Rivers region

The Southern Rivers region, located in south-east NSW, covers an area of 32,000 km^2 from Stanwell Park in the north to the Victorian border in the south. The region extends westward to include the catchments of the Snowy, Genoa and Shoalhaven Rivers and extends three nautical miles out to sea to the east, including 698 km of coastline (40% of the NSW coast) – refer Figure 2.

Figure 2. Southern Rivers region

The region is home to approximately 460,000 people including almost 14,000 Indigenous Australians (ABS 2011). The majority of people reside in regional towns and centres along the coast, with Wollongong, Shellharbour, Kiama, Nowra, Bomaderry and Ulladulla being the largest. The tablelands tend to be more sparsely populated with a declining population base in some areas.

The current economic prosperity of the Southern Rivers region is dependent on natural resources, which support agriculture, aquaculture, fishing and tourism. On the coast, land use is dominated by large tracts of public land, including national parks, State forests and crown lands that underpin nature-based tourism. The coastal plains support a range of profitable agricultural enterprises, particularly oysters, fishing, dairy and beef. By contrast, the tablelands are dominated by grazing enterprises that support wool, prime lambs and beef. Again, nature-based tourism is a significant contributor to the region's economy, especially in the Snowy Mountains and associated ski fields.

For Aboriginal people, the social, economic, biophysical, cultural and spiritual aspects of the Southern Rivers region are inextricably linked. Aboriginal people of the region have a unique and long-standing relationship to their Country. 'Country' is everything related to the land and water, including access and use, spiritual and cultural heritage. There are many Aboriginal groups within the region with four language groups and several dialects.

Implementing NSW 2021

NSW 2021 is the State Plan for the NSW Government, detailing a set of priorities to make NSW number one. CAP 2023 will deliver outcomes that contribute to multiple goals of NSW 2021, including:

- Goal 3 – Drive economic growth in regional NSW
- Goal 22 – Protect our natural environment
- Goal 23 – Increase opportunities for people to look after their own neighbourhoods and environments
- Goal 24 – Make it easier for people to be involved in their communities
- Goal 26 – Fostering opportunity and partnership with Aboriginal people
- Goal 27 – Enhance cultural, creative, sporting and recreation opportunities
- Goal 28 – Ensure NSW is ready to deal with major emergencies and natural disasters
- Goal 30 – Restore trust in State and local government as a service provider
- Goal 31 – Improve government transparency by increasing access to government information
- Goal 32 – Involve the community in decision making on government policy, services, and projects.

Principles underpinning CAP 2023

CAP 2023 is a strategy for the sustainable use and care of the region's natural resources, developed using best practice NRM strategic planning.

As a fundamental principle, CAP 2023 recognises that the economic prosperity (including profitability of primary production), community wellbeing and the natural resources of the region are linked. This requires integrated planning and management to deliver the multiple outcomes needed by community and government. This is well understood by people who live and work on the land. Aboriginal people have applied this approach as custodians of the land and sea for thousands of years.

CAP 2023 is an integrated plan to achieve social, economic and natural resource outcomes.

A second fundamental principle in the development of CAP 2023 has been planning for change within the region. It is recognised that in the next decade, regional communities will experience significant changes; some that can be planned for and others that will be unexpected. The extent of the changes will vary across the region, as will the impacts on natural resources and different sectors of the community.

The impact of these changes will increasingly be felt by people, farms, industries, households and communities.

CAP 2023 is based on the best available understanding of change and the likely impacts in the Southern Rivers region. Actions that build the capacity of local communities and managers of natural resources to effectively respond and adapt to change are a priority of CAP 2023.

CAP 2023 has been 'built from the ground up' in consultation with partners, stakeholders, technical experts, community and industry groups and the Southern Rivers CMA Board.

In developing the plan, the rights and obligations of all land owners, land managers and custodians are recognised, as is the importance of intergenerational equity.

The development of CAP 2023 was governed by the following:

1. CAP 2023 will express a vision and plan for the natural resources of the Southern Rivers region that has been developed collaboratively with communities and partners.
2. CAP 2023 will recognise and protect the natural resource assets that underpin the region's economic sustainability and community wellbeing.
3. CAP 2023 will set strategies and targets that aim to build resilient landscapes and communities.
4. CAP 2023 will apply a transparent and consistent approach to prioritisation.
5. CAP 2023 will set a clear framework for implementation and achievement of strategies and targets.
6. CAP 2023 will recognise that communities have a strong connection to and closely identify with their landscapes.
7. CAP 2023 will include a framework for devolved decision making and adaptive management.

CAP 2023 framework

As a strategic NRM plan, CAP 2023 sets the direction for the sustainable use and care of the natural resources of the Southern Rivers region. It includes those activities that will affect the greatest change towards a vision of *sustainable communities, profitable industries, resilient landscapes*.

CAP 2023 is structured into three pillars – people, governance and natural resources. This structure explicitly recognises the relationships and interdependencies between people and natural resources (refer to Figure 3).

People receive a range of benefits and services from using natural resources that support social and economic outcomes for individuals, communities and industries. CAP 2023 includes strategies for the sustainable use of natural resources.

The health and productivity of the region's natural resources is dependent on how they are cared for by landowners, land managers, communities and custodians. CAP 2023 includes strategies for the effective care or stewardship of natural resources for current and future generations.

Natural resource decisions by individuals, communities, industries and institutions directly influence in the sustainable use and care of natural resources. CAP 2023 includes strategies to support effective decision making and capacity to adapt to change.

Each of the three pillars has a goal, objectives and targets that set the strategic direction and key performance measures for CAP 2023. Also included are the specific strategies, actions and priorities required to affect the greatest change.

In recognition of the wide diversity of social, economic and natural resource characteristics across the Southern Rivers region, CAP 2023 divides the region into three landscapes – the South Coast, the Far South Coast and the Tablelands. Adopting a landscape approach allows for a better understanding of the natural resource and community issues in each landscape and for actions and priorities to be better targeted across the region.

Figures 4, 5 and 6 define the strategies and priorities for each of the three pillars. Figures 8, 10 and 12 summarise the key functions and challenges in each of the three landscapes.

Figure 3. CAP 2023 framework

This figure demonstrates how the three pillars work towards the achievement of the vision and the interrelationships between them.

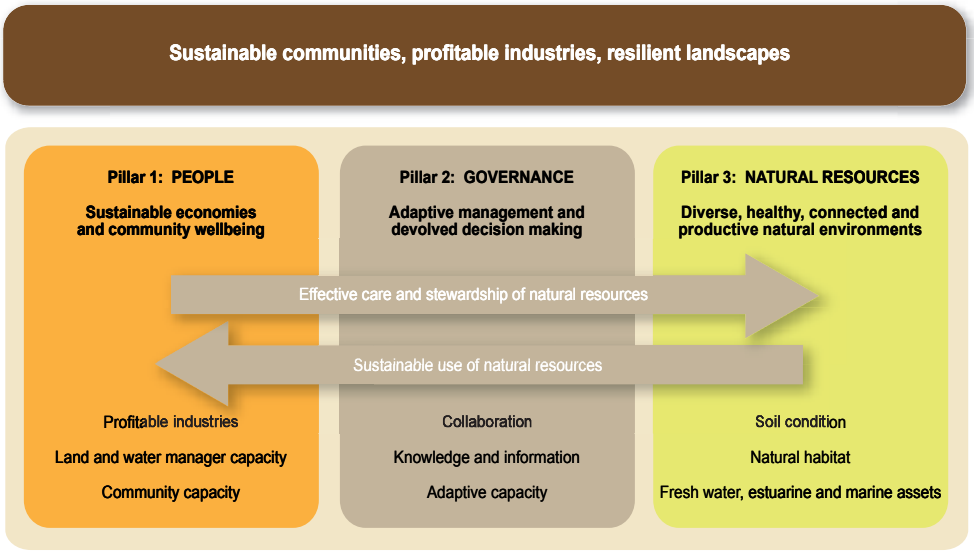
Prioritising effort and investment

CAP 2023 recognises that it is not possible to meet the full list of community and government aspirations within existing timeframes and resources. Priorities must be set to guide effort and investment. Each strategy in CAP 2023 has a specific set of priorities. These have been developed following rigorous analysis of community, economic and landscape systems and integrating this with community and government values.

The key variable that influences the condition of natural resources is the management of land and water within its capability. The management of land and water resources is bound by natural variables, and when the resource is used beyond its capabilities, there are a range of undesired outcomes on site and off site. When land and water is managed within its capability, economic and social outcomes are maximised, and the resource condition is maintained or improved.

The primary driver that defines how land and water is managed is the capacity of managers to make effective decisions to ensure that natural resources are managed within their capability. When capacity to make decisions is increased, natural resources are improved, the productive capacity of agricultural lands is improved, the tourism industry's economic opportunities are increased and individual lifestyle and community wellbeing is improved.

The highest priority of CAP 2023 is to deliver services that increase the capacity of land and water managers to make effective decisions on the sustainable use and care of natural resources.



CAP 2023 strategies and priorities

Figure 4. Pillar 1: People – strategies and priorities

Goal: Sustainable economies and community wellbeing

Objective: Local industries dependent on natural resources are profitable and sustainable

Target: By 2023, natural resource dependent enterprises are supported to adopt practices that improve profitability

Strategies to implement:	Priorities for action and investment:
Support business performance within natural resource dependent industries	Grazing, dairy, aquaculture, fishing and horticulture industries Aboriginal enterprises
Maintain and improve the natural resource assets that support local industries	Grazing, dairy, aquaculture, fishing, horticulture and tourism industries
Support a broader industry base in local economies and communities	Food production and distribution systems Nature-based tourism Industries that reduce dependency on external resources, particularly fossil fuels Carbon sequestration industries

Objective: Private and public land and water managers make well-informed decisions about the use and care of natural resources

Target: By 2023, land and water managers are supported to increase their capacity to manage natural resources

Strategies to implement:	Priorities for action and investment:
Deliver information and extension services that meet land and water manager needs	Primary producers Small-scale enterprises Managers of priority public land assets Resource use consistent with land capability Stewardship of the land and sea
Support land and water managers to respond and adapt to the threat of invasive species and diseases	Invasive species and diseases that threaten existing lifestyles and livelihoods New and emerging invasive species and diseases Land and water manager capacity
Support land and water managers to respond and adapt to natural resource shocks	Land and water manager capacity to adapt Government capacity to adapt Information systems to support decision making

Objective: Communities are resilient, with a sense of wellbeing and connection

Target: By 2023, communities are supported to increase their capacity to contribute to natural resource management and social wellbeing

Strategies to implement:	Priorities for action and investment:
Build and support industry and community networks	Primary producer, Landcare, Aboriginal, small farm and recreation groups Youth in agriculture and NRM Nature-based tourism
Support a greater contribution by individuals to NRM	Landcare volunteers, primary producers, nature-based tourism, recreational users, Aboriginal people, youth and corporations
Celebrate and promote the cultural and natural identity of the Southern Rivers region	People's connection to the land and sea Aboriginal cultural heritage Diversity of values and aspirations

Figure 5. Pillar 2: Governance – strategies and priorities

Goal: Adaptive management and devolved decision making

Objective: Coordinated and collaborative implementation of CAP 2023

Target: From 2015, partnerships are implemented to coordinate, and collaboratively deliver CAP 2023

Strategies to implement:	Priorities for action and investment:
Build on existing partnerships with industry, community, government and non-government organisations	Primary producer, Landcare, Aboriginal and local government groups Regional organisations with overlapping or adjacent boundaries
Develop an implementation planning and investment framework to deliver CAP 2023 strategies	Localised implementation of CAP 2023 Commitment of resources to priority actions Clear benefits for local industries and communities Increased investment in agriculture, aquaculture and NRM
Deliver integrated services in a coordinated and collaborative way	Delivery of services without duplication Utilising the strengths of each service provider

Objective: Information is available to support adaptive management

Target: From 2015, information is available to support adaptive and evidence-based decision making by land and water managers

Strategies to implement:	Priorities for action and investment:
Monitor, evaluate and report on the performance of CAP 2023 implementation	Monitoring performance of implementation Reporting on performance to industry, community and government Using multiple lines of evidence Learning from implementation
Monitor, analyse and adapt to risks, trends and shocks	Climate, financial, industry and wellbeing trends and shocks
Facilitate access to information and knowledge for decision making at a range of scales	Key knowledge gaps Encourage innovation Partnerships with research institutions and universities Reliable, timely and accessible information Collaborating across regions Information systems to support decision making

Objective: Private and public land and water managers effectively respond and adapt to change

Target: From 2015, frameworks and protocols are implemented for devolved, adaptive and evidence-based decision making

Strategies to implement:	Priorities for action and investment:
Establish devolved and collaborative decision making structures at the appropriate scale	Devolving decision making to appropriate scale Industry and community participation in decision making Working with existing structures
Ensure that decisions at all scales are balanced, transparent and evidence-based	Land use plans, land use decisions and development controls Land use practices are consistent with capability of the land Water and estuary planning and management
Support the continuous improvement of national, State and regional policies, plans and priorities	Policies, plans and priorities adapt to new evidence and knowledge Lessons from regional service delivery inform improvements at the State scale

Figure 6. Pillar 3: Natural resources – strategies and priorities

Goal: Diverse, healthy, connected and productive natural environments

Objective: Soil condition supports people and the environment

Target: By 2023, land managers are supported to increase the adoption of practices that:
- improve soil condition of productive lands
- manage naturally fragile soils within their capability

Strategies to implement:	Priorities for action and investment:
Improve soil condition in rural lands (Land and Soil Capability Classes 3–5)	Productive capacity of agricultural lands Soil carbon Capacity of landscape to absorb and retain water
Manage naturally fragile soils	Land and Soil Capability Classes 6–8 Sodic, acid sulfate, saline and shallow soils Dune systems
Protect priority aquatic assets from land degradation	Water supplies Good condition wetlands, estuaries, marine and marine protected areas High value fish habitat

Objective: Health and integrity of natural habitats supports people and the environment

Target: By 2023, land and water managers are supported to increase the adoption of practices that maintain or improve the:
- extent and condition of priority habitats
- connectivity of habitat

Strategies to implement:	Priorities for action and investment:
Maintain and improve the extent and condition of priority habitats	Under reserved and threatened vegetation communities Habitat that supports threatened species High value fish habitat High carbon capture ecosystems
Maintain and improve habitat that supports connectivity priorities	State, regional and locally significant corridors Significant barriers to fish passage
Integrate production and conservation goals into primary production systems	Grazing landscapes Aquaculture

Objective: Fresh water, estuarine and marine assets support people and the environment

Target: By 2023, land and water managers are supported to increase the adoption of practices that maintain or improve the condition of priority fresh water, estuarine and marine assets

Strategies to implement:	Priorities for action and investment:
Maintain and improve the condition of priority fresh water, estuarine and marine assets	Good condition, high recovery potential and strategic river reaches Good condition estuaries, marine and marine protected areas, wetlands and groundwater resources
Implement practices that contribute to the maintenance or improvement of water quality and river health	Priority aquatic assets that support local industries Impacts from urban environments
Equitable sharing of water between people and the environment	Water is available to meet the needs of people and the environment

South Coast landscape at a glance

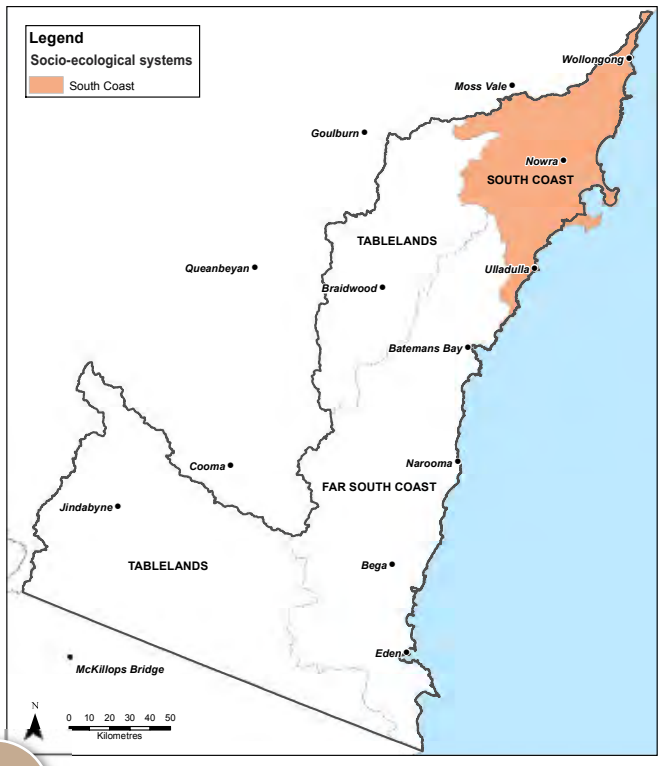
The South Coast landscape covers a narrow strip of land on the NSW coast immediately south of Sydney (as shown in Figure 7). It extends from Stanwell Park in the north to Durras in the south and is bordered by the escarpment to the west and the Tasman Sea to the east.

A key difference between the South Coast and the Far South Coast landscapes is the density of urban development to the north and the increasing pressure this brings to bear on prime agricultural land, remnant vegetation and waterways.

Figure 8 identifies the key natural resources for the South Coast landscape. It defines the key functions provided to both people and the environment as well as the main resilience challenges that CAP 2023 aims to address.

Local vision: A community that has the knowledge, skills and a sense of common purpose to sustain a healthy landscape and ecosystem services

Figure 7. Map of the South Coast landscape



South Coast key statistics

Total area	4,268 km^2
Land management (% total area)	National parks and reserved State forest (34%) State forest (unreserved) (4%) Grazing (15%) Crown land, urban and other private land (47%) (OEH 2011)
Local government areas	Wollongong, Shellharbour, Kiama, Shoalhaven and Wingecarribee (in part)
Major urban centres	Wollongong (Australia's 9th largest city), Nowra, Dapto, Shellharbour, Kiama, Gerringong, Berry, Shoalhaven Heads, Huskisson, Sussex Inlet, Milton and Ulladulla
Human assets	
Population	368,818
Aboriginal population	10,760 (2.9%) (Range: 1.8% Wollongong – 7% Shoalhaven C – Part A)
Average age	41 years (Range: 37 years Shellharbour – 50 years Shoalhaven C – Part B)
Social assets	
Rate of volunteerism	18.75% (Range: 13% Shellharbour – 26.1% Kiama)
Number of volunteer 'care groups'	178
Internet connection	81% (above national average)
Economic assets	
Median weekly household income	$1,043 (Range: $785 Shoalhaven C – Part B – $1,235 Kiama)
Unemployment	6.7% (Range: 4.3% Kiama – 7.8% Shoalhaven C – Part A)
Industry of employment by sector (top five responses)	Education and training Retail trade Public administration and safety Manufacturing Construction (Note: Agriculture, forestry and fisheries ranked 19th)
Occupied private dwellings	137,545
Number of agri-businesses	388 (ABS 2006)
Total area occupied by agriculture	41,233 ha (ABS 2006) Agriculture includes livestock products, slaughterings, pasture and hay, nurseries, cut flowers and turf, vegetables and fruit
Land area per holding	106 ha (ABS 2006)
Value of agriculture	$48,171,530 per annum (ABS 2006)
Value of agriculture per hectare of agricultural land	$1,168 (ABS 2006)
Value of aquaculture	> $400,000 per annum (Trenaman 2011)
Natural assets	
Predominant landform	Undulating rolling hills and flatter coastal alluvial plains with escarpment and foothills to the west and coastal dune fields and rocky headlands to the east
Length of coastline	363 km
Total stream length	2,417 km
Listed wetlands	17 (including 1 Ramsar site)
Estuaries	47
Threatened species	22 endangered ecological communities 252 rare or threatened species
Major river catchments	Lake Illawarra, Lower Shoalhaven, Minnamurra

Source: ABS (2011) unless noted otherwise

Figure 8. South Coast landscape key natural resources

Image: Minnamurra

Far South Coast landscape at a glance

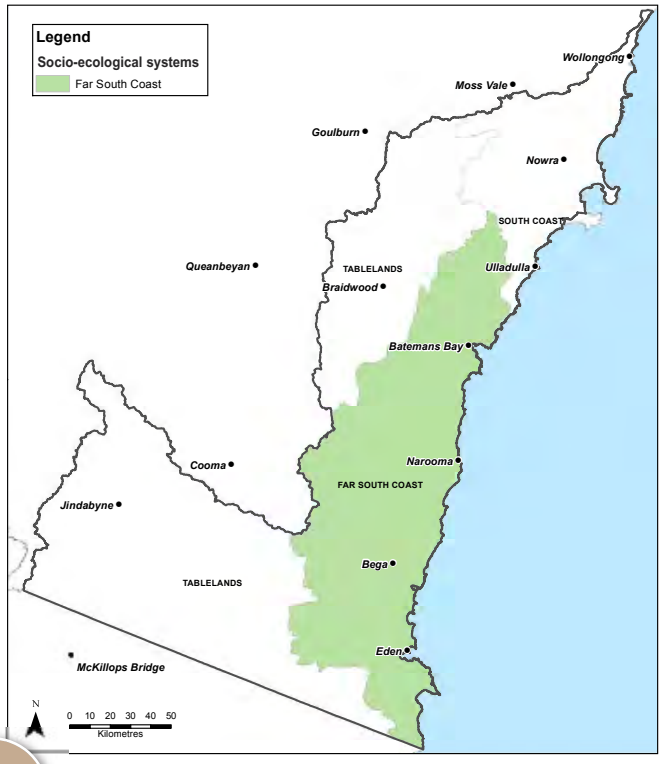
The Far South Coast landscape strongly aligns with the local government administrative boundaries of Eurobodalla and Bega Valley Shires. To the north, Eurobodalla Shire encompasses a 110 km coastal strip between South Durras and Wallaga Lake, extending westwards to the Clyde Mountain and Belowra in the south-west. To the south, Bega Valley Shire's coastal fringe extends for 225 km from Wallaga Lake in the north to Cape Howe and the Victorian border in the south. Inland, the Bega Valley Shire extends into the Great Dividing Range (as shown in Figure 9).

There is an increasing sense of remoteness and distance between communities travelling further south through this landscape.

Figure 10 identifies the key natural resources for the Far South Coast landscape. It defines the key functions provided to both people and the environment as well as the main resilience challenges that CAP 2023 aims to address.

Local vision: Diverse natural systems and productive agricultural systems operating together

Figure 9. Map of the Far South Coast landscape



Far South Coast key statistics

Total area	9,700 km^2
Land management (% total area)	National parks and reserved State forest (45%) State forest (unreserved) (21%) Grazing (11%) Crown land, urban and other private land (23%) (OEH 2011)
Local government areas	Eurobodalla, Bega Valley, Shoalhaven (in part)
Major urban centres	Batemans Bay, Moruya, Narooma, Bermagui, Bega, Merimbula, Eden
Human assets	
Population	67,691
Aboriginal population	2,719 (Range: 2.8 % Bega Valley – 5.1% Eurobodalla)
Average age	49 years
Social assets	
Rate of volunteerism	24.1% (6% higher than national average)
Number of volunteer 'care groups'	Bega Valley – 21 Eurobodalla – 25
Internet connection	74.6% (below national average)
Economic assets	
Median weekly household income	$816 (Range: $784 Eurobodalla – $847 Bega Valley)
Unemployment	6.7% (Range: 5.9% Bega Valley – 7.5% Eurobodalla)
Industry of employment by sector (top five responses)	Retail trade Education and training Accommodation and food services Construction Public administration and safety (Note: Agriculture, forestry and fisheries ranked 8th, however, dairy processing employs 1:50 people in the Bega Valley)
Occupied private dwellings	27,012
Number of agri-businesses	632 (ABS 2006)
Total area occupied by agriculture	132,759 ha (ABS 2006) Agriculture includes livestock products, slaughterings, pasture and hay, nurseries, cut flowers and turf, vegetables and fruit
Value of agriculture	$75 million per annum (ABS 2006)
Value of agriculture per hectare of agricultural land	$571 (ABS 2006)
Value of aquaculture	> $10 million per annum (Trenaman 2011)
Natural assets	
Predominant landform	Beaches and rocky headlands, estuaries and coastal lakes Coastal floodplains rising to undulating slopes and ranges
Length of coastline	335 km
Total stream length	3,236 km
Listed wetlands	7
Estuaries	57
Threatened species	17 endangered ecological communities 128 rare or threatened species
Major river catchments	Clyde, Deua/Moruya, Tuross, Bega, Towamba

Source: ABS (2011) unless noted otherwise

Figure 10. Far South Coast landscape key natural resources

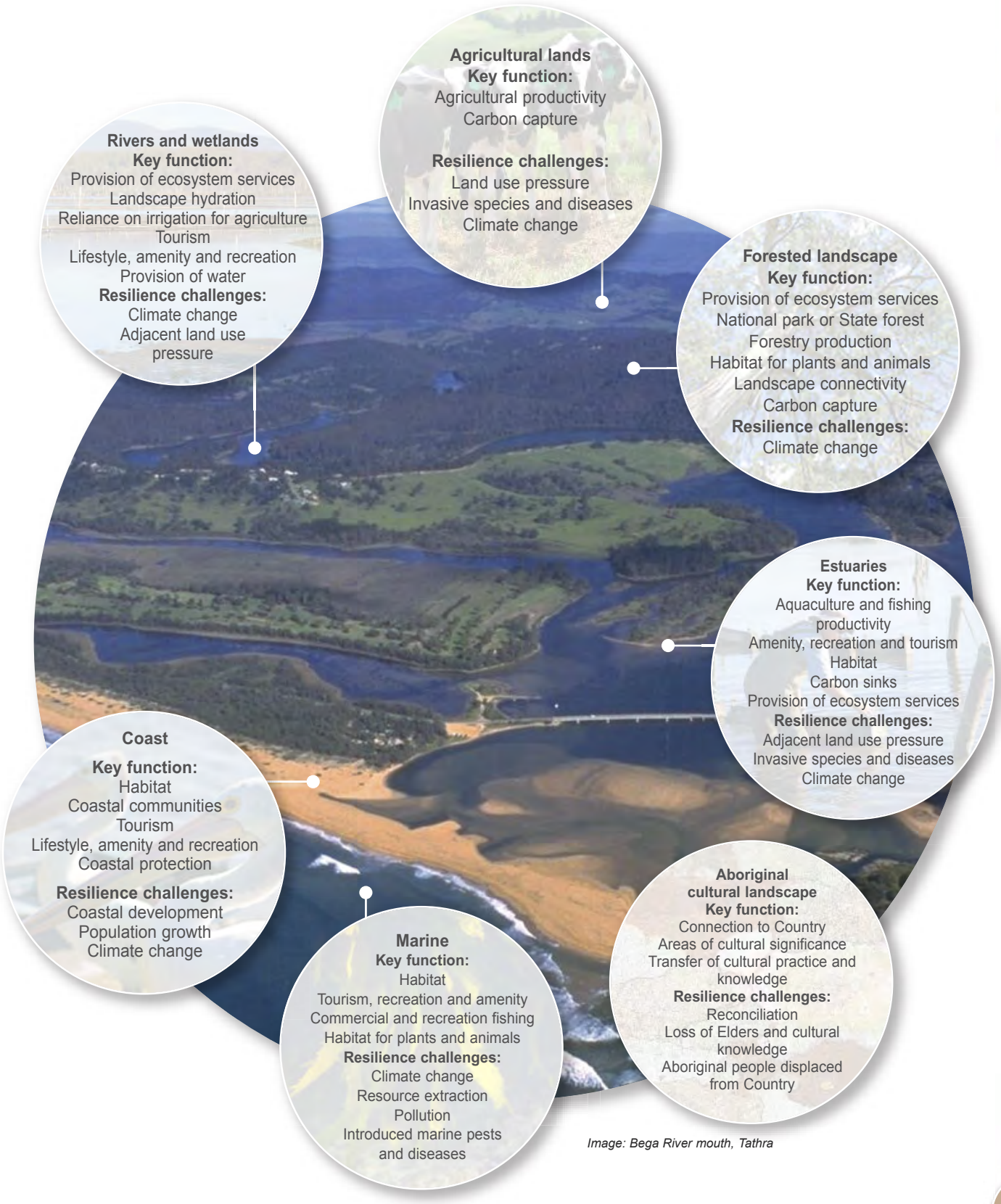


Image: Bega River mouth, Tathra

Tablelands landscape at a glance

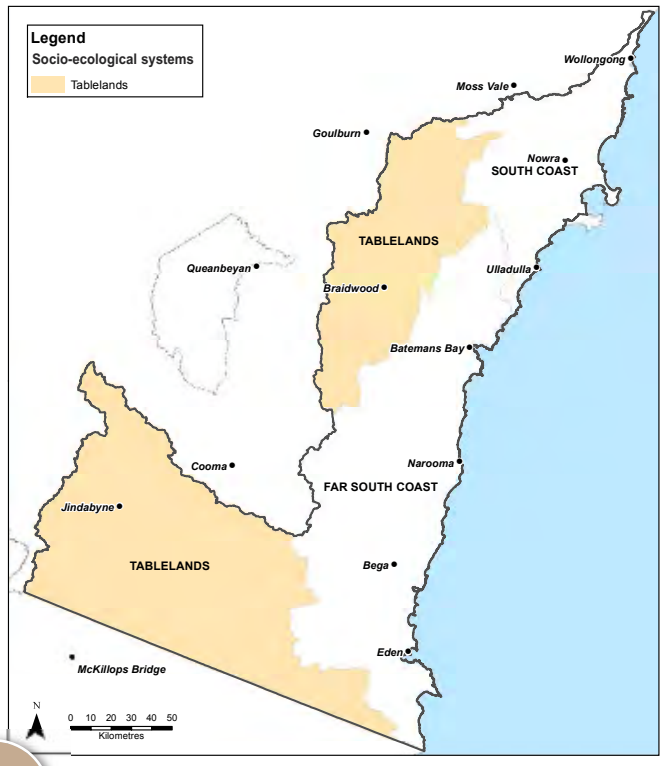
The Tablelands landscape is located to the west, at an elevation generally ranging from 550 to 2,228 m, with the highest peaks located in alpine areas of Kosciuszko National Park.

The Tablelands landscape covers a total area of 15,185 km², spanning from Marulan in the north to the NSW–Victorian border in the south (as shown in Figure 11). On the Monaro the eastern boundary is largely defined by the edge of the Great Dividing Range with the western boundary delineated by catchment boundaries with Murrumbidgee CMA. Around Braidwood the coastal escarpment defines the eastern boundary with the western boundary following the Great Dividing Range and catchment boundaries with Murrumbidgee and Hawkesbury Nepean CMAs (refer to Figure 11). The Tablelands landscape is in close proximity to the Australian Capital Territory.

Figure 12 identifies the key natural resources for the Tablelands landscape. It defines the key functions provided to both people and the environment as well as the main resilience challenges that CAP 2023 aims to address.

Local vision: Responsible landscape management which ensures natural assets are passed on to future generations in an improved state

Figure 11. Map of the Tablelands landscape



Tablelands key statistics

Total area	15,185 km²
Land management (% total area)	National parks and reserved State forest (28%) State forest (unreserved) (7%) Grazing (28%) Crown land, urban and other private land (37%) (OEH 2011)
Local government areas	Bombala, Snowy River (80%), Cooma-Monaro (15%), Palerang (65%), Goulburn Mulwaree (44%), Wingecarribee (16%)
Major urban centres	Braidwood, Jindabyne, Bombala
Human assets	
Population	19,892
Aboriginal population	309 (1.5%)
Average age	43.5 years
Social assets	
Rate of volunteerism	28% (10% higher than national average)
Number of volunteer 'care groups'	30
Internet connection	75.9% (below national average)
Economic assets	
Median weekly household income	$1,011 (Range: $803 Bombala – $1,152 Snowy River)
Unemployment	3.5% (Range: 2% Snowy River – 4.5% Goulburn, Mulwaree)
Industry of employment by sector	Agriculture, forestry and fisheries Accommodation and food services Construction Administration and support services Retail trade
Occupied private dwellings	7,087
Number of agri-businesses	836 (ABS 2006)
Total area occupied by agriculture	627,931 ha (ABS 2006) Agriculture includes livestock products, slaughterings, pasture and hay, nurseries, cut flowers and turf, vegetables and fruit
Value of agriculture	$60,360,000 per annum (ABS 2006)
Value of agriculture per hectare of agricultural land	$96 (ABS 2006)
Natural assets	
Predominant landform	Flat, elevated plateaus, with elevation ranging from 550 to 2,228 m
Length of coastline	N/A
Total stream length	1,681 km
Listed wetlands	1 Ramsar site 2 endangered ecological communities
Estuaries	N/A
Threatened species	10 endangered ecological communities 130 rare or threatened species
Major river catchments	Upper Shoalhaven, Snowy and Genoa

Source: ABS (2011) unless noted otherwise

Figure 12. Tablelands landscape key natural resources

Image: Mulloon Creek, Braidwood

PART 2 – Concepts and tools underpinning CAP 2023

Conceptual framework

CAP 2023 introduces a new conceptual framework for NRM.

Over the last five years there has been a significant shift in NRM thinking. Rather than thinking about restoring landscapes to a prior condition, there is a growing recognition that landscapes are made up of human communities and biophysical processes that interact and shape each other and are constantly changing.

CAP 2023 has been guided and developed using the following concepts:

1. adopting a resilience approach
2. identifying drivers of change
3. analysing socio-ecological systems
4. recognising the importance of natural resources to economic prosperity and community wellbeing
5. using models to understand different states of the landscape and the key drivers of change.

Each of these concepts has been explored in detail, to underpin the analysis of landscape systems and to set strategic direction. CAP 2023 background analysis has included the evaluation of the first Southern Rivers CAP, gathering of available knowledge, landholder and community surveys, analysis of the plans, policies and priorities of all levels of government and workshops with stakeholders and other experts.

The background analysis for CAP 2023 is presented in the supporting documentation and is available on the website:

www.southern.cma.nsw.gov.au

Dairy cows, Jamberoo Valley

Farm store, Monaro

Cattle grazing

Adoption of a resilience approach

CAP 2023 seeks to understand and set strategies in the context of the entire landscape system, including its people, economies and natural resources.

A key concept underpinning this approach is 'resilience'. At its simplest level, resilience describes the ability of a system to cope with disturbance and still retain its basic character and function.

Figure 13 demonstrates system resilience and has been adapted from Chapin et al. (2009) and Walker and Salt (2012). State A is the desired state, the system is robust in nature and has a degree of resilience or stability which enables it to recover or maintain its character and function even if exposed to shocks and threats – state B. If shocks and threats continue to operate on a system it starts to show signs that it is changing state – state C. This is referred to as the transitional state. If these forces continue to operate on the system, it may be pushed across a threshold – state D, and settle into an undesired state – state E, from which return to the desired state is difficult or impossible.

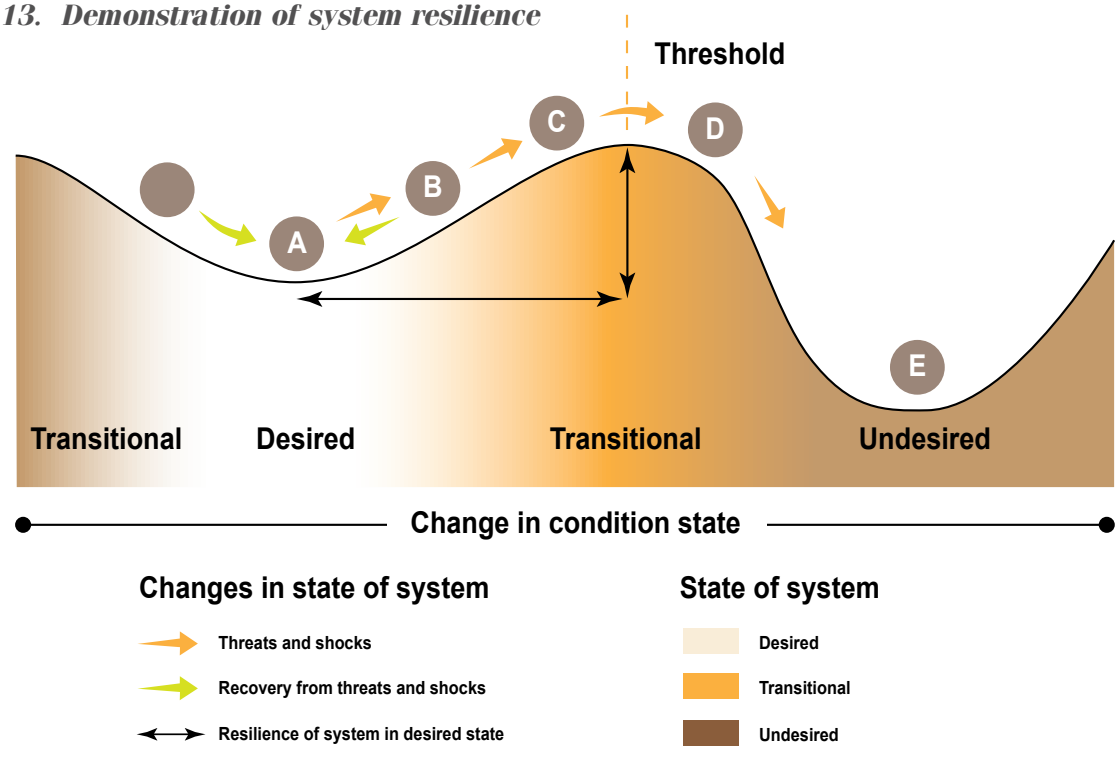
Resilience can be specific to a particular function, or general in relation to the entire system. The concept of resilience can be applied to many different types of systems. For example, a natural system can have resilience, an economy can have resilience or a local community may have resilience.

Forces or conditions that change a system's character and function are referred to within CAP 2023 as threats and shocks. Shocks can be social, economic or ecological (e.g. global financial crisis, wildfire or other natural disasters and change of government policies) and are generally fast, large-scale and come from outside the system, rather than being controlled from within. Threats are referred to within CAP 2023 as the immediate, generally biophysical, forces that can act on a system and change its state, such as loss of ground cover or gully erosion.

Importantly, there are limits to how much a system (a farm business, a town, a region, a landscape and an ecosystem) can change and still recover. Beyond these limits the system will function differently, usually in an undesired way. Resilience thinking is about identifying those limits and planning to stay within them.

CAP 2023 uses resilience thinking to understand the region's landscape systems and importantly what it is that drives change within the system.

Figure 13. Demonstration of system resilience



Drivers of change

Drivers have been defined within CAP 2023 as the underlying forces that cause threats or positive processes to operate. Threats are easier for us to identify and manage; however, in order to address the core problem, actions need to recognise the drivers of change, rather than just the symptoms.

A selection of recurring issues, identified for the Southern Rivers region by community and government stakeholders during the CAP 2023 consultation process, have been analysed and grouped under 'primary drivers of change' in Table 1.

Drivers of change are significant in that they can push a system beyond the point of return, from which recovery to the original state is difficult or impossible. Such limits are referred to as thresholds and are useful, where they exist, to support the prioritisation and timing of action. Primary drivers are not independent and can overlap (both in space and time) as demonstrated conceptually by Figure 14. The complex interactions that occur between each of these drivers means that we need to address all of them in order to adapt to change. CAP 2023 identifies that each of these drivers impacts on the quality of decisions in relation to the use and care of natural resources.

The targeting of actions on these drivers of change, by supporting land and water managers to increase their capacity to make well-informed decisions, will deliver multiple outcomes within the landscape.

Figure 14. Overlap between primary drivers of change

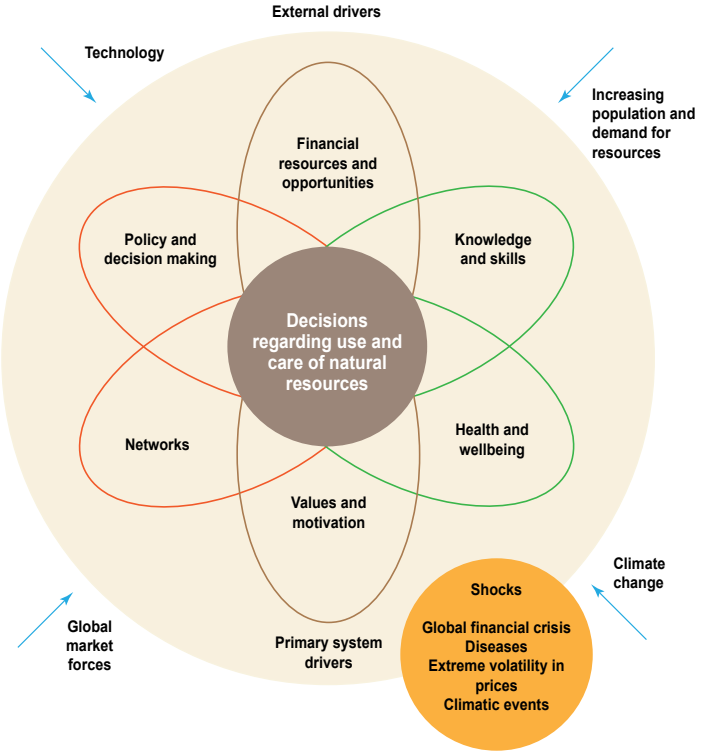


Table 1. Primary drivers of change influencing the Southern Rivers region

Primary driver	Example of related issues raised during community consultation	
Financial resources and opportunities	• Declining terms of trade • Debt to income ratios • Increasing land prices	• Conflict between prime agricultural lands, priority aquaculture areas, natural environments and urban development • Farm profitability
Knowledge and skills	• Managing land and water within its capability • Land and water management practices	• Knowledge and skills gaps
Health and wellbeing	• Ageing farmers • Farm succession issues	• Available time
Values and motivation	• Impact of historic land use • Community demand to live in certain locations	• Mixed demographics and value sets
Networks	• High turnover in land ownership • High rates of absentee landholders	• Disconnect between land managers and waterway users
Policy and decision making	• Misalignment of plans and policies • Changing priorities for investment • Poor implementation of planning frameworks • Absence or decline in extension support	• Pressure from population growth • Pressure on natural resources • Over allocation of water
Climate change	• Changes to rainfall patterns/temperature • Sea level rise	• Increased frequency of climatic events

Recognising the distinct landscapes (socio-ecological systems)

Whilst CAP 2023 sets goals, strategies and targets at a regional level, it recognises that the size and scale of different social, economic and natural resource characteristics of the region can make it difficult to develop strategies to cater for diversity.

To cater for this, CAP 2023 has adopted the concept of 'socio-ecological systems' (referred to as landscapes) to better understand the region. The landscape approach allows for a more appropriate setting of strategies and priorities across the region, and allows the community and stakeholders to identify what is important in their area.

Socio-ecological systems are systems that can be defined by their unique and consistent combination of social, economic and ecological characteristics (e.g. landform, land use and social structures).

Whilst these systems generally have no hard and fast boundaries, they tend to share more key characteristics compared with adjacent areas, and are therefore a useful basis for planning, engagement, decision making and delivery of on-ground action in partnership with communities.

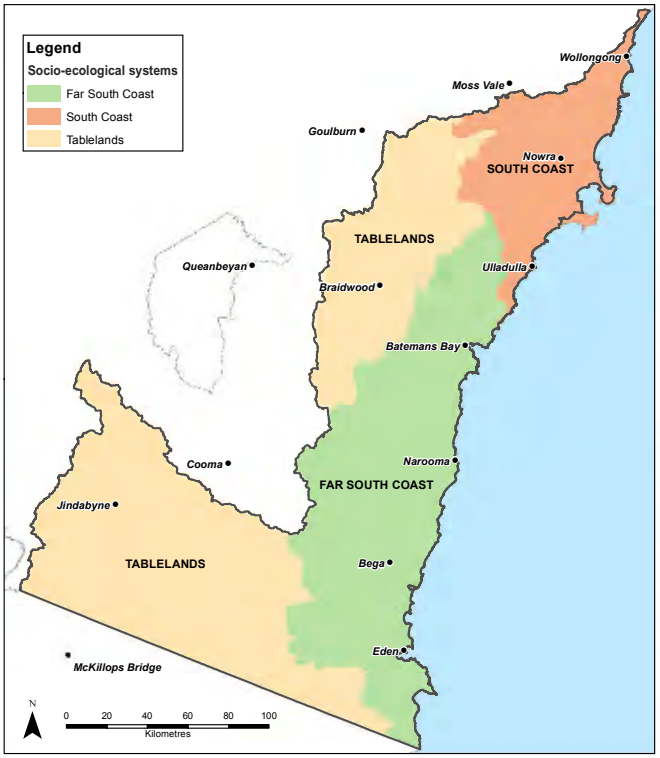
Three landscapes have been identified across the Southern Rivers region (refer Figure 15). These are:

- South Coast, encompassing the broader Shoalhaven and Illawarra areas
- Far South Coast, encompassing the broader Eurobodalla and Bega areas
- Tablelands, encompassing the broader Monaro and Upper Shoalhaven areas.

It is acknowledged that whilst there are commonalities across these landscapes, there are also distinct differences between each landscape.

Below the landscape scale, there are smaller units or localities that are finer scale socio-ecological systems. These localities are not used for setting CAP 2023 priorities and targets, but will be used at a later stage in the development of implementation and investment plans (the main mechanism for translating CAP 2023 targets to specific action at a local scale).

Figure 15.
Southern Rivers socio-ecological systems



The importance of natural resources to economic prosperity and community wellbeing

Whilst the Southern Rivers region is characterised by a great diversity of industries, communities, lifestyles and natural features, there are two things that are common across the region.

Firstly – feedback from consultations and landholder surveys indicates that people value and love the places in which they live, work and play. People from across the Southern Rivers region have strong connections with their environments; natural, built, productive and aesthetic.

Research into NRM and wellbeing has shown that improving the amenity of the natural environment and the functionality of the landscape in turn supports the wellbeing of landholders and the community (refer to Figure 16).

It is recognised that many of the factors that support wellbeing are also the primary drivers of change that influence the quality of natural resource decisions (Figure 14).

Importantly, both of these models demonstrate a key interrelationship between people and the environment. Wellbeing contributes to quality natural resource decisions and the health of natural resources contributes to people's wellbeing.

Secondly – the current economic prosperity of the region is driven to a large extent by the health and productivity of the natural environment, with many enterprises, small businesses and jobs dependent on natural resources.

This includes agriculture, aquaculture and commercial fishing enterprises that use natural resources. It also includes industries that are not directly using natural resources, but their viability is influenced by the health and productivity of the natural environment, including for example, fishing tackle stores, food and wine-based tourism, agricultural service providers and nature-based tourism. Many of these enterprises are reliant on clean, healthy and productive oceans, estuaries, beaches, rivers, forests and alpine areas.

Importantly, this highlights a second key interrelationship between people and the environment. Financial resources are a key driver of quality natural resource decisions (Figure 14) and the health and productivity of natural resources contributes to the economic prosperity of enterprises and regions.

Investment in natural resources has a much greater benefit than its monetary value because of the underlying services and values natural resources provide to individuals and the community.

CAP 2023 identifies that healthy and productive natural resources need to be a key factor when planning to improve economic prosperity and personal wellbeing in communities.

CAP 2023 aims to contribute to these outcomes by building the resilience of the landscapes within which people live.

CAP 2023 provides a framework for decision makers from all levels of government to explicitly recognise, value and effectively manage the natural resources that underpin the economies of the region.

It aims to build the capacity of communities and industries to improve and thrive from the natural resources that they rely on.

Figure 16. Wellbeing model

Wellbeing model that indicates pathways through which NRM can support wellbeing of landholders and community (Source: Schirmer 2012).

Social capital: building social networks, social cohesion and social learning

Self-sufficiency: building skills, knowledge access to resources and empowerment

Health: fostering optimistic, positive outlook for land management

Natural environment: improving amenity and landscape function, and reducing public health risks

Standard of living: improving land profitability and reducing management costs

Safety and security: ongoing support to address environmental problems

‘State and Transition’ models

‘State and Transition’ models have been used to describe and communicate the analysis and understanding of the region’s landscape systems.

They describe the different states that can exist in the landscape and the threats and shocks that can drive a system from a desired state to an undesired state, and are useful for describing the current state of the Southern Rivers region.

Importantly, they identify the priorities on which to focus effort and investment as well as the management actions that can keep the system in the desired state or drive it from an undesired to a desired state.

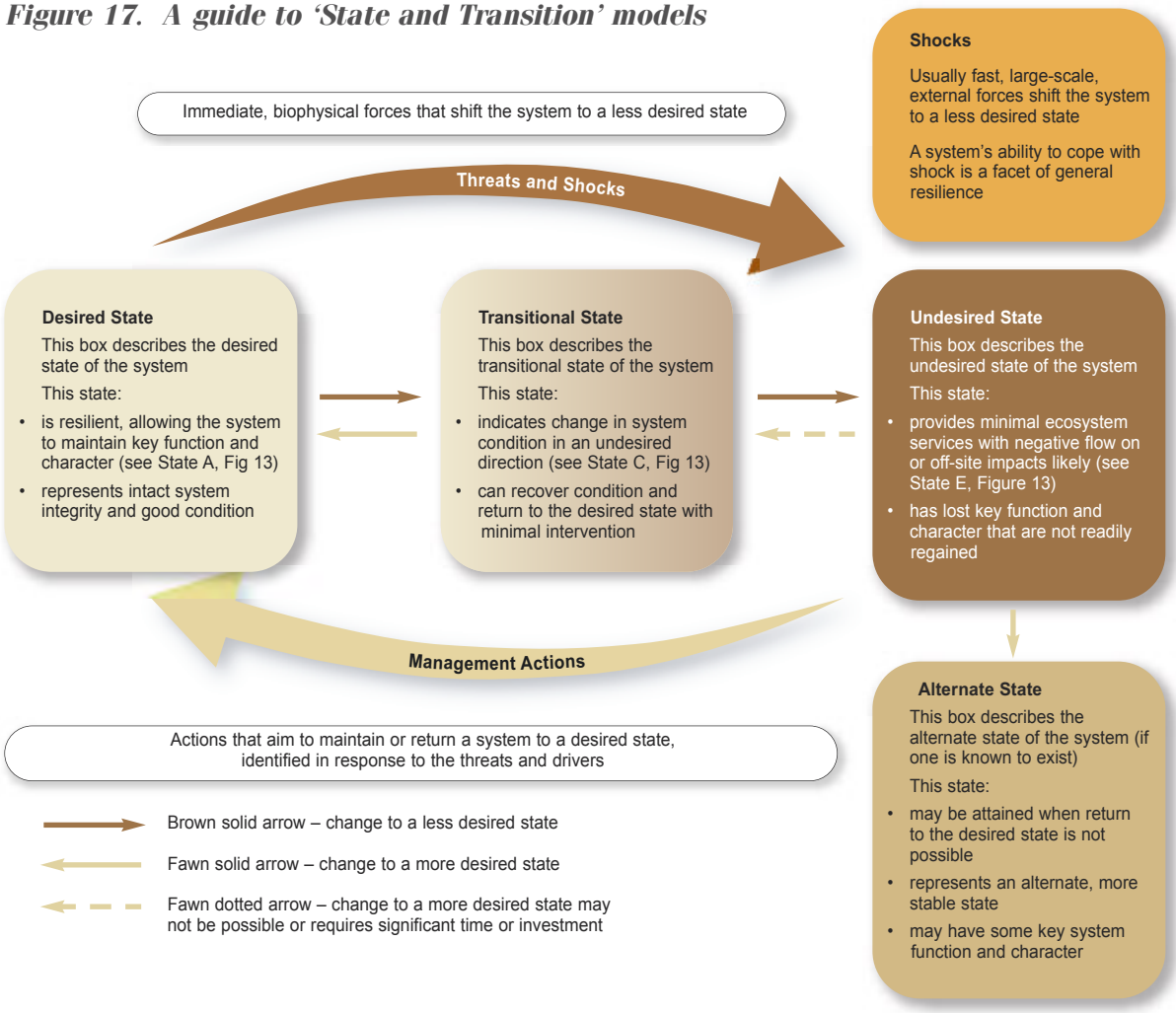
These models have directly informed the strategies, priorities and actions of CAP 2023.

‘State and Transition’ models have been developed in consultation with the community and technical experts to describe many of the attributes that are important to economic sustainability, community wellbeing, and the natural environment.

The detailed analysis and thinking that supports these models is presented in the supporting documentation.

A guide to interpreting ‘State and Transition’ models is presented in Figure 17.

Figure 17. A guide to ‘State and Transition’ models



PART 3 – Bringing it all together

This part provides additional detail on the analysis and logic that has informed the development of CAP 2023. Spatial mapping has been used to assist in understanding and communicating the health of the region's natural resources. Maps have been used to display where priorities are located across the region. State and Transition models have been used to describe the understanding of the region's landscape systems.

Using this knowledge, CAP 2023 aims to strike the right balance of how natural resources are used and cared for by private and public land managers. Practices to maximise the productive capacity of natural resources within their capability are identified alongside practices to promote effective care of natural resources.

The three pillars explicitly recognise that CAP 2023 requires an integrated and coordinated approach between people, governance and natural resources.

Figure 18 provides a representation of the most significant functions and relationships that affect change towards the vision of *sustainable communities, profitable industries, resilient landscapes* in the Southern Rivers region. It demonstrates that sustainable economies provide functions that support community wellbeing and that both sustainable economies and community wellbeing are directly supported by healthy and productive natural environments.

Natural resources provide a range of services and benefits to industries, individuals and communities. These include land, water and vegetation for primary production, recreation and lifestyle opportunities, a sense of identity and connection to the land, and individual health benefits. To ensure the ongoing provision of these or similar services for current and future generations, natural resources need to be managed within their capability or natural limits.

CAP 2023 sets a strategy for the sustainable use and care of natural resources by private and public land and water managers, individuals and communities. The highest priority action is to deliver services that increase the capacity of land and water managers to make effective natural resource decisions.

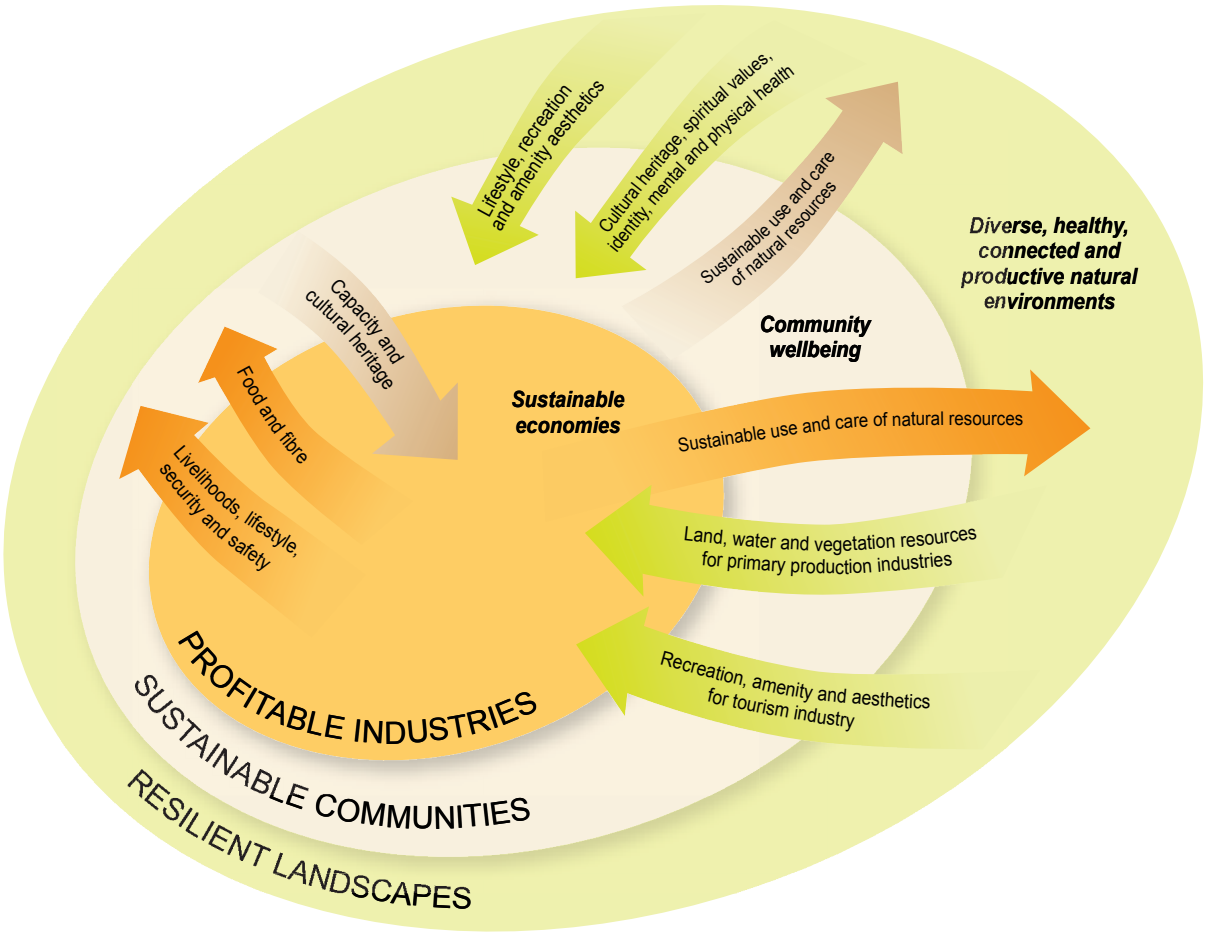
Please refer to Figures 19, 25 and 26 for descriptions of the goals, objectives, targets, strategies and priorities for each pillar and Table 4 for the actions, landscape priorities and implementation partners.


Farmland, Tilba


Bobundra landscape

Figure 18. Southern Rivers landscape system model

This figure describes the most significant functions and relationships that affect change towards the vision of *sustainable communities, profitable industries, resilient landscapes* in the Southern Rivers region.



CAP 2023 recognises:

- the relationship and functions between sustainable economies, community wellbeing and natural resources
- the management of land and water resources is bound by natural variables and limits
- that when land and water is managed within it's capability, social and economic outcomes can be maximised and sustained for current and future generations, and the condition of the resource can be maintained or improved
- the primary driver that defines how land and water is managed is the capacity of managers to make effective decisions on the use and care of natural resources

CAP 2023 strategic priority:

To deliver services that increase the capacity of land and water managers, individuals and communities to make effective natural resource management decisions.

Priority actions to achieve this include:

- delivering extension services
- adopting sustainable practices
- providing network support
- providing information to managers
- collaborating between industry, community and government
- adapting to change
- devolving decision making

Pillar 1: Sustainable economies and community wellbeing

What is meant by sustainable economies and community wellbeing?

Sustainable economies are considered in CAP 2023 as economies that provide a range of financial, material and social benefits to individuals and communities without reducing options for future generations.

For the purpose of CAP 2023, wellbeing is considered as the extent to which someone feels satisfied or fulfilled with their life (Costanza et al. 2007). There are five key capital assets or stocks that underpin sustainable economies and community wellbeing. Each of these capitals influences the livelihoods and lifestyles of individuals and communities and their capacity to engage in NRM (refer to Table 2).

For the purposes of CAP 2023, sustainable economies and community wellbeing are considered under the one pillar due to the strong links between social and economic wellbeing and management of the region's natural resources.

Characteristics of sustainable economies and community wellbeing across the Southern Rivers region

The Southern Rivers region supports a high level of industry and community activity that is dependent upon the region's natural resources. A diverse range of partnerships and networks have been established and nurtured to implement NRM.

The capacity of many individuals, groups and organisations to undertake NRM has increased over the last 20 years.

There has been a focus on developing 'enabling relationships' that have supported groups and organisations to contribute to NRM and assisted individual landholders to manage land to protect natural resources and for productivity. The work of Southern Rivers CMA has sought to empower local people and build resilience through social networking, groups and leadership support.

Key threats

Threats to sustainable economies that have been identified through CAP 2023 development include:

- widely spaced communities and dependence on fossil fuels
- dependence on a narrow range of industries in some landscapes
- capacity of enterprises to adapt to changing circumstances
- limited market opportunities
- climate variability and trends
- natural disasters.

Major issues to community wellbeing were identified via landholder surveys, face to face discussions and online forums. These included:

- time constraints
- declining membership of NRM or Landcare groups
- increasing proportion of absentee landholders
- poor land and water manager/government relationships
- financial capital constraints
- lack of knowledge regarding Aboriginal culture, practices and history
- invasive species and diseases
- disconnect between land managers and waterway users
- conflict between prime agricultural lands, priority aquaculture areas, natural environments and urban development.

Members of the Maclaughlin River Landcare group, "Sherwood", Bridgewater

How will CAP 2023 contribute to economic sustainability and community wellbeing?

Implementation of CAP 2023 will support the wellbeing of land and water managers, individuals and communities across the Southern Rivers region by:

- building social capital: building social networks, social cohesion and social learning
- supporting self-sufficiency: building skills, knowledge, access to resources and empowerment
- supporting health: fostering an optimistic, positive outlook for land and water management
- supporting stewardship of the natural environment: improving amenity and landscape function, reducing public health risks
- supporting an improved standard of living: improving profitability and reducing management costs
- contributing to certainty and security: ongoing support to address environmental problems.

(Source: Schirmer 2012)

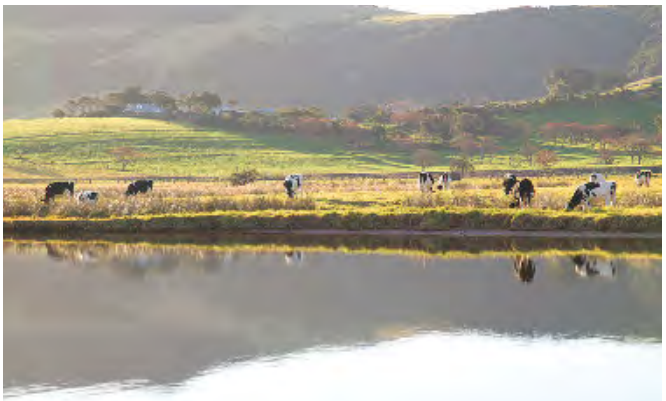
Desired future state of the Southern Rivers region

With a greater understanding of sustainable economies and community wellbeing and the factors that contribute to them, priorities can be identified (refer Table 2 for the desired state for sustainable economies and community wellbeing) and more effectively targeted actions (as shown in Figure 19) designed to respond to priority NRM issues and to local community needs and aspirations. In this way CAP 2023 is a plan that supports local people and communities to transform in the face of change.

The strategic directions for Pillar 1 – sustainable economies and community wellbeing – are shown in Figure 19. State and Transition models have been developed to describe attributes of sustainable economies and community wellbeing in the Southern Rivers region, and are shown in Figures 20–22.

Table 2. The five capital assets that underpin capacity to manage natural resources (Jacobs et al. 2010) and the desired state for these assets to support community in the face of change

Five capitals	Desired state
Human	Healthy, engaged and skilled people
Social and cultural	Connected, inclusive, positive relationships and culture
Financial	A sufficient and enabling economy
Natural	Healthy soil, adequate water resources and intact natural systems
Physical	Accessible resources and infrastructure



Dairy cattle grazing, Werri Lagoon

Figure 19. Pillar 1: People – strategies and priorities

Goal: Sustainable economies and community wellbeing

Objective: Local industries dependent on natural resources are profitable and sustainable

Target: By 2023, natural resource dependent enterprises are supported to adopt practices that improve profitability

Strategies to implement:	Priorities for action and investment:
Support business performance within natural resource dependent industries	Grazing, dairy, aquaculture, fishing and horticulture industries Aboriginal enterprises
Maintain and improve the natural resource assets that support local industries	Grazing, dairy, aquaculture, fishing, horticulture and tourism industries
Support a broader industry base in local economies and communities	Food production and distribution systems Nature-based tourism Industries that reduce dependency on external resources, particularly fossil fuels Carbon sequestration industries

Objective: Private and public land and water managers make well-informed decisions about the use and care of natural resources

Target: By 2023, land and water managers are supported to increase their capacity to manage natural resources

Strategies to implement:	Priorities for action and investment:
Deliver information and extension services that meet land and water manager needs	Primary producers Small-scale enterprises Managers of priority public land assets Resource use consistent with land capability Stewardship of the land and sea
Support land and water managers to respond and adapt to the threat of invasive species and diseases	Invasive species and diseases that threaten existing lifestyles and livelihoods New and emerging invasive species and diseases Land and water manager capacity
Support land and water managers to respond and adapt to natural resource shocks	Land and water manager capacity to adapt Government capacity to adapt Information systems to support decision making

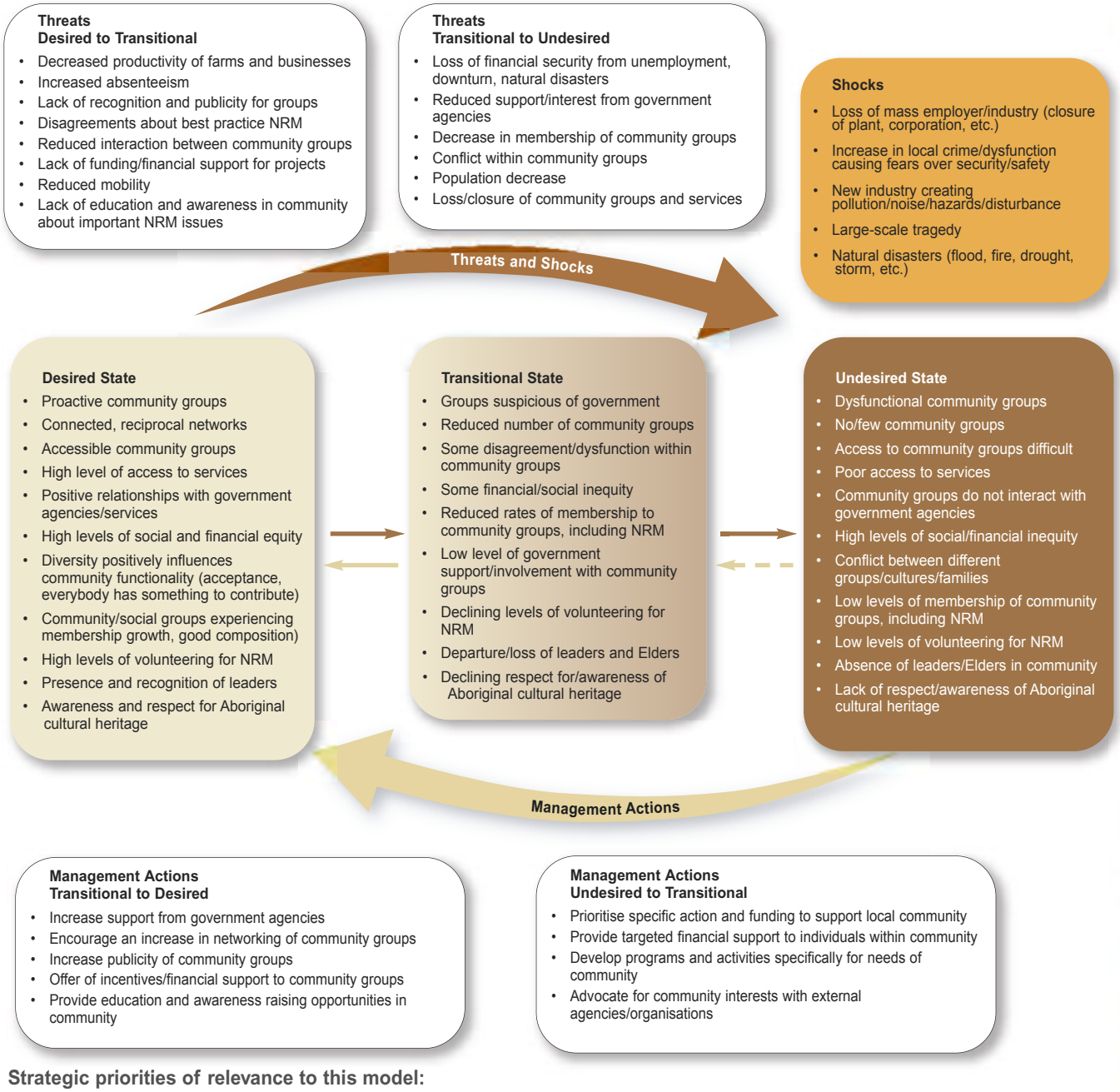
Objective: Communities are resilient, with a sense of wellbeing and connection

Target: By 2023, communities are supported to increase their capacity to contribute to natural resource management and social wellbeing

Strategies to implement:	Priorities for action and investment:
Build and support industry and community networks	Primary producer, Landcare, Aboriginal, small farm and recreation groups Youth in agriculture and NRM Nature-based tourism
Support a greater contribution by individuals to NRM	Landcare volunteers, primary producers, nature-based tourism, recreational users, Aboriginal people, youth and corporations
Celebrate and promote the cultural and natural identity of the Southern Rivers region	People's connection to the land and sea Aboriginal cultural heritage Diversity of values and aspirations

Figure 20. Community (social capital) State and Transition model

This model describes the different condition states for social capital within the Southern Rivers region. Social capital is one of the five recognised capital assets that contribute to community capacity and influence the ability to adapt to change. For further detail, refer to the CAP 2023 Paper – Understanding community, partners and landholders of the Southern Rivers region. For further explanation on State and Transition models refer to Figure 17.



Strategic priorities of relevance to this model:

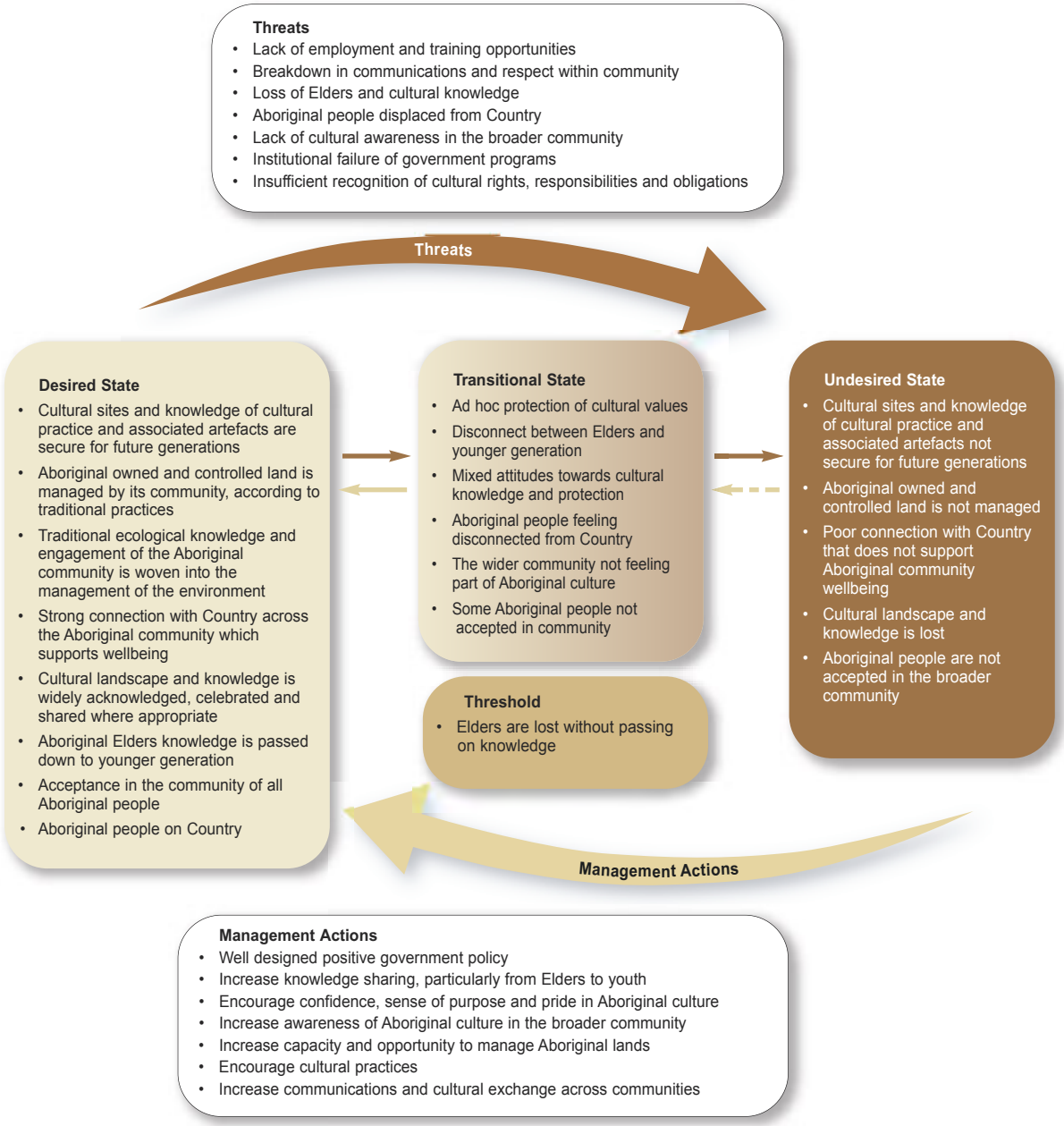
- Facilitate access to information and knowledge for decision making at a range of scales
- Establish devolved and collaborative decision making structures at the appropriate scale
- Deliver information and extension services that meet land and water manager needs
- Support land and water managers to respond and adapt to the threat of invasive species and diseases
- Support land and water managers to respond and adapt to natural resource shocks.

Management actions are most effectively applied to the:

- Transitional and undesired state.

Figure 21. Aboriginal community cultural landscape State and Transition model

This model describes the different condition states for the Aboriginal community cultural landscape of the Southern Rivers region. Figure 22 provides a spatial representation of some of the key elements of this cultural landscape. There is a threshold of particular note in the state of the Aboriginal community cultural landscape from which a return to a more desired state is very difficult. Once Elders are lost from the community and their knowledge has not been passed on, it becomes more difficult to recover this knowledge. Strategies such as cultural exchange across communities may assist in these circumstances. For further details refer to the CAP 2023 paper – The Aboriginal community cultural landscape. For further explanation on State and Transition models refer to Figure 17.



Strategic priorities of relevance to this model:

- Build and support industry and community networks
- Support a greater contribution by individuals to NRM
- Celebrate and promote the cultural and natural identity of the Southern Rivers region
- Build on existing partnerships with industry, community, government and non-government organisations.

Management actions are most effectively applied to the:

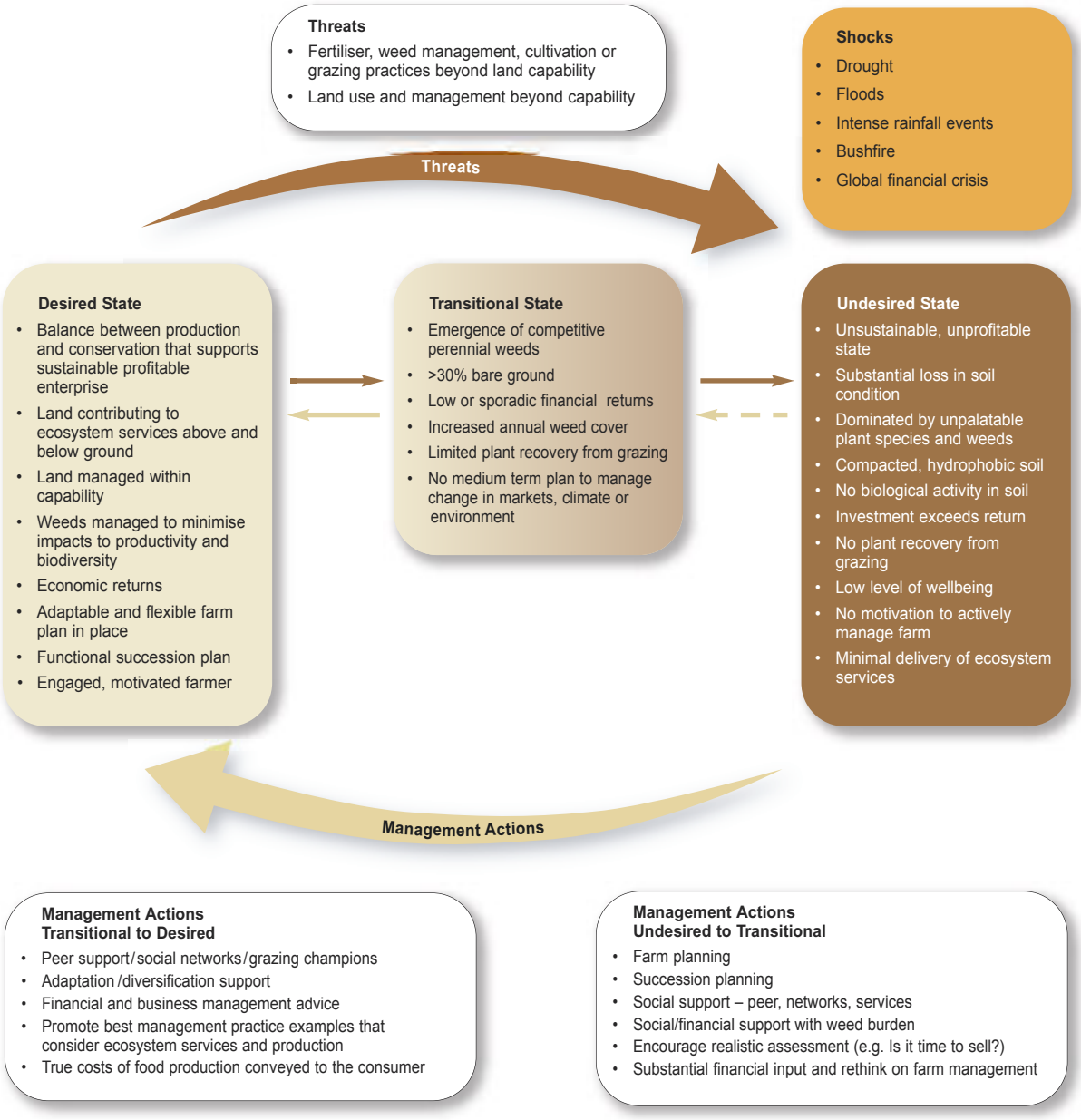
- Transitional state, particularly where there is a risk that the knowledge threshold will be crossed.

Figure 22. Aboriginal community cultural landscape map

This map shares Aboriginal peoples' perspective on their cultural landscape. It shows a small number of examples of important places which are significant and important to Aboriginal people across the Southern Rivers region. Language boundaries were drawn from Eades (1976).

Figure 23. Grazing landscapes State and Transition model

This model describes the different condition states for grazing landscapes, which are a strategic priority for the Southern Rivers region. Resilience of grazing landscapes is presented here through the inclusion of biophysical, social and economic elements. Through ecosystem service delivery, grazing landscapes can realise their full potential to sequester carbon in the desired state. Smith et al. (in press) pose a property scale framework for achieving a balance between production and conservation as part of the desired state for this system. For further details on grazing landscapes refer to CAP 2023 Paper – Land. Refer to Figure 17 for further explanation on State and Transition models.



Strategic priorities of relevance to this model:

- Support business performance within natural resource dependent industries
- Protect and enhance the natural resource assets that support local industries
- Support a broader industry base in local economies and communities
- Improve soil condition on rural lands.

Management actions are most effectively applied to the:

- Transitional state.

Pillar 2: Adaptive management and devolved decision making

What is meant by adaptive management and devolved decision making?

Adaptive management in its simplest form is defined as a three step continuous improvement cycle: 'plan – do – learn', which is achieved through strategic planning, implementation, knowledge management and then adapting plans based on key learnings (refer to Figure 24).

Each step in the adaptive management cycle is linked, with the aim of continuing to improve management decisions over time. The key to achieving this is to incorporate new knowledge into the way services are delivered, ensuring they are responsive to changing circumstances.

Devolved decision making aims to ensure that management decisions are made at the appropriate scale and with the appropriate stakeholders participating in those decisions.

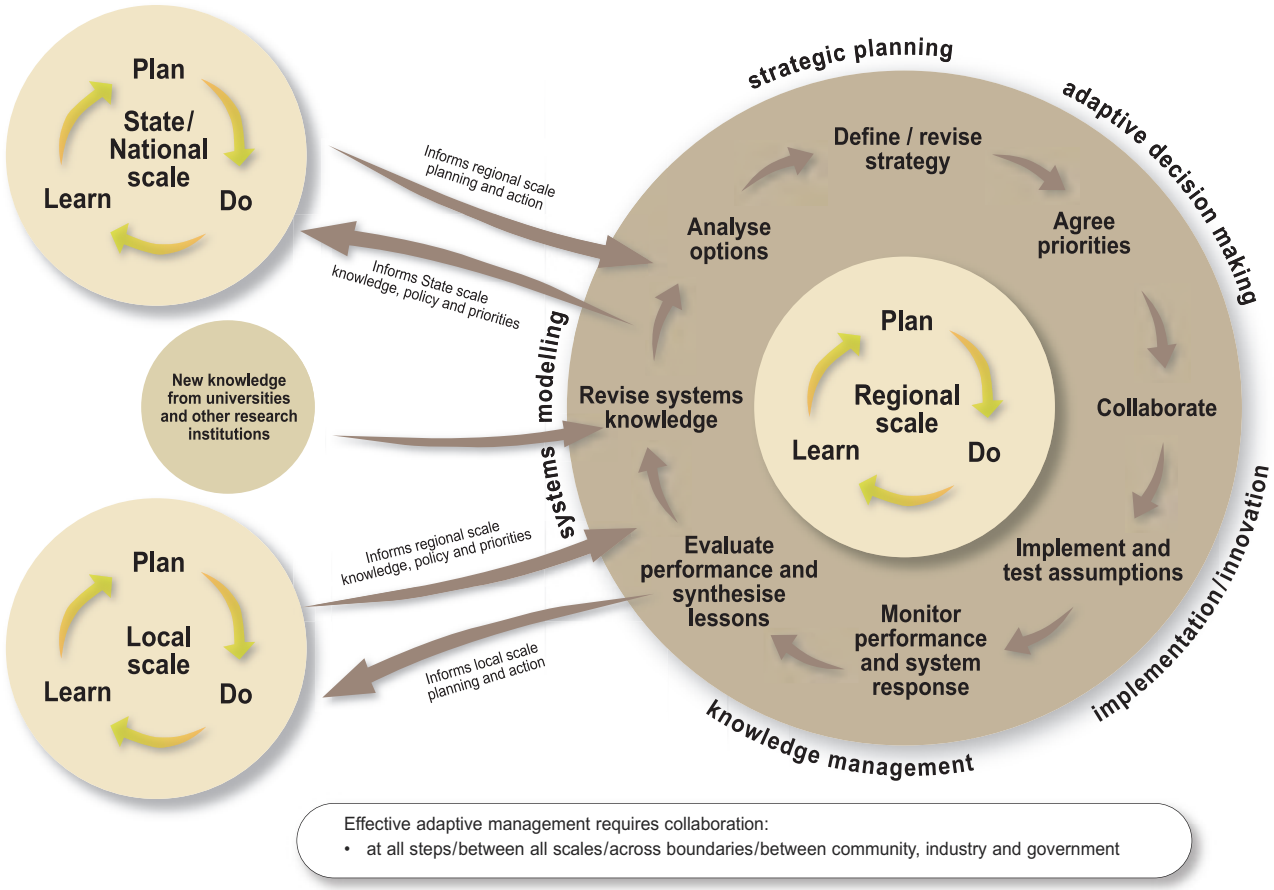
How will CAP 2023 contribute to adaptive management and devolved decision making?

CAP 2023 recognises that the landscapes in which we live, work and play are continuously changing and affected by change. Adaptive management is therefore critical at all scales, from local to national, to ensure that decision makers are able to adapt and respond to these changes.

Effective decision making in respect to the sustainable use of natural resources, was one of the main issues raised by the community during the CAP consultation process. Poor land use planning and conflicts arising as a result of competing land and water uses were commonly cited as examples.

CAP 2023 aims to establish adaptive management practices and governance structures that will enable effective decision making on the use and care of the region's natural resources at a variety of scales.

Figure 24. Adaptive management cycle



Characteristics of adaptive management and devolved decision making across the Southern Rivers region

The key characteristics of the CAP 2023 adaptive management approach include:

- ensuring best available information is provided to decision makers
- continuous testing and refinement of assumptions underpinning landscape system models and knowledge
- regular reference to community values and priorities, including changes over time
- increasing capacity of land and water managers, community and government to adapt to change
- regular monitoring of internal and external drivers
- communicating lessons learned at the regional scale into State scale policy and planning processes.

Key threats

Key threats to adaptive management are:

- lack of community, industry and government ownership of CAP 2023
- ineffective partnerships with industry and community groups
- poor implementation and investment planning
- poor engagement of industry, community and government in finer scale planning
- poor coordination of service delivery between government and non-government organisations
- no capacity to report on whole of government and whole of community implementation of CAP 2023.

Key threats to ensuring that new knowledge informs adaptive decision making are:

- lack of collaboration on knowledge management within the region, across regions and with State government
- lessons learnt from regional scale delivery not informing improvements to State and national scale policies, plans and priorities
- decision makers being unable to access reliable and timely information
- lack of information about external trends, drivers and shocks available to support decision makers, including land managers
- decision making structures not established at the appropriate scale, nor with the appropriate level of stakeholder participation.

Desired future state of the Southern Rivers region

CAP 2023 aims to have adaptive management practices working effectively at a range of scales, with clear linkages and feedbacks between scales.

At the enterprise scale, land and water managers will be supported to make decisions based on best available knowledge and information.

Governments at all scales will be adapting their service delivery in response to new knowledge, information and community expectations.

Industry and community will have access to a full range of information to support decision making and will understand how well government is performing in the delivery of services to the region.

The strategic directions for Pillar 2 – adaptive management and devolved decision making – are shown in Figure 25.

Werri Beach, Gerringong

Figure 25. Pillar 2: Governance – strategies and priorities

Goal: Adaptive management and devolved decision making

Objective: Coordinated and collaborative implementation of CAP 2023

Target: From 2015, partnerships are implemented to coordinate, and collaboratively deliver CAP 2023

Strategies to implement:	Priorities for action and investment:
Build on existing partnerships with industry, community, government and non-government organisations	Primary producer, Landcare, Aboriginal and local government groups Regional organisations with overlapping or adjacent boundaries
Develop an implementation planning and investment framework to deliver CAP 2023 strategies	Localised implementation of CAP 2023 Commitment of resources to priority actions Clear benefits for local industries and communities Increased investment in agriculture, aquaculture and NRM
Deliver integrated services in a coordinated and collaborative way	Delivery of services without duplication Utilising the strengths of each service provider

Objective: Information is available to support adaptive management

Target: From 2015, information is available to support adaptive and evidence-based decision making by land and water managers

Strategies to implement:	Priorities for action and investment:
Monitor, evaluate and report on the performance of CAP 2023 implementation	Monitoring performance of implementation Reporting on performance to industry, community and government Using multiple lines of evidence Learning from implementation
Monitor, analyse and adapt to risks, trends and shocks	Climate, financial, industry and wellbeing trends and shocks
Facilitate access to information and knowledge for decision making at a range of scales	Key knowledge gaps Encourage innovation Partnerships with research institutions and universities Reliable, timely and accessible information Collaborating across regions Information systems to support decision making

Objective: Private and public land and water managers effectively respond and adapt to change

Target: From 2015, frameworks and protocols are implemented for devolved, adaptive and evidence-based decision making

Strategies to implement:	Priorities for action and investment:
Establish devolved and collaborative decision making structures at the appropriate scale	Devolving decision making to appropriate scale Industry and community participation in decision making Working with existing structures
Ensure that decisions at all scales are balanced, transparent and evidence-based	Land use plans, land use decisions and development controls Land use practices are consistent with capability of the land Water and estuary planning and management
Support the continuous improvement of national, State and regional policies, plans and priorities	Policies, plans and priorities adapt to new evidence and knowledge Lessons from regional service delivery inform improvements at the State scale

Pillar 3: Diverse, healthy, connected and productive natural environments

What is meant by diverse, healthy, connected and productive natural environments?

Diverse natural environments are considered in CAP 2023 as those that contain a wide range of different habitats, supporting a range of different functions for people, plants and animals.

Healthy natural environments are considered in CAP 2023 as those that maintain their character and function when exposed to external shocks and provide a range of ecosystem and production services.

Connected natural environments are considered in CAP 2023 as those where different habitats are joined across the landscape and enable plants and animals to persist over time.

Productive natural environments are considered in CAP 2023 as those that are supporting economic values, for example, directly for grazing or aquaculture enterprises or indirectly for tourism enterprises.

The Southern Rivers region supports a diverse range of natural systems that underpin economic sustainability, community wellbeing and environmental health.

The types of services provided by the natural environment include provision of fresh water, habitat, mineral resources, food and fibre, renewable energy, carbon sinks, recreation and tourism, cultural diversity and heritage, pollination, air quality, nutrient and water cycling and soil formation.

These important ecosystem and production services are ultimately dependent upon the maintenance of a diverse, healthy, connected and productive environment.

Characteristics of diverse, healthy and connected natural environments across the Southern Rivers region

The key natural resource assets of the Southern Rivers region are land, vegetation, rivers, estuaries, marine, wetlands and groundwater.

Land

Over centuries, geological processes have shaped the landforms and landscapes that characterise the Southern Rivers region. As a result, the soils of the coastal plains and tablelands are highly variable.

Notwithstanding this variability, the condition of soil across the Southern Rivers CMA region is generally fair to good. Key factors affecting soil condition are maintenance of ground cover and using land within its capability.

Land and soil capability ultimately determines the carrying capacity of all land across the region, and is especially important to the agricultural sector which utilises almost 30% of all Southern Rivers private lands. CAP 2023 recognises that with effective stewardship, the capability of the soil can be increased.

Plants and animals

The Southern Rivers region supports a diverse range of vegetation communities, ranging from montane peatlands and swamps, grasslands, grassy woodlands, tall wet sclerophyll forests, cool temperate rainforest, heathlands, seagrass, mangroves and saltmarsh.

Over a third of the region is designated reserve with extensive, well-connected native vegetation along the coastal escarpment, Great Dividing Range and through Kosciuszko National Park. Not all vegetation types are well represented within these reserves, particularly grassy woodlands, grasslands and forested wetlands. Several threatened grassy woodland communities are represented, predominantly as small patches scattered across the rural landscape. Coastal dunes and associated vegetation are highly valued community assets supporting public recreation, tourism and buffering the coastline from likely climate change impacts.

There are well over 250 plants and animals listed as threatened and 22 endangered ecological communities listed under the *NSW Threatened Species Conservation Act 1995* in the Southern Rivers region. Iconic threatened species of note are the Green and Golden Bell Frog, Bush Stone Curlew and Brush-tailed Rock Wallaby.

A majority of listed species are widely distributed and/or highly mobile and considered best protected through addressing threats that operate at the landscape scale. Key factors affecting vegetation condition, extent and connectivity are fragmentation and degradation of native vegetation associated with land use pressure, invasive species, recreational use and land management activities.

Rivers, estuaries, marine, wetlands and groundwater

The Southern Rivers region contains a large number of unique and varied river, estuary, marine, wetlands and groundwater systems. These range from pristine natural river systems that support diverse aquatic flora and fauna and productive estuaries, to highly modified systems in developed urban and industrialised areas.

The region has highly variable and, at times, scarce water resources that support economic, social and environmental values. The region's rivers, estuaries, marine environment, wetlands and groundwater support unique and complex biodiversity and a range of agricultural, aquaculture and recreational activities.

For example, the Southern Rivers region contributes to the NSW fishing and oyster industries which make a significant economic contribution to regional coastal communities. The natural, healthy and scenic qualities of rivers, estuaries and wetlands are also directly linked to the economic prosperity of the recreation and tourism sectors.

Key threats and associated drivers

The key threats to natural resources in the Southern Rivers region are shown in Table 3.

Table 3. Key threats and associated drivers

Natural resource asset	Key threats	Drivers of change that underpin these threats have been identified as:	Some specific examples of these drivers are:
Land and soil	• loss of ground cover • inappropriate use of chemicals, cultivation and fire	• knowledge and skills • financial resources and opportunities • policy and decision making • social capital • values and motivation • climate change	• land being managed beyond capability • land prices and debt servicing • low economic return and increasing cost of production • gaps in landholder knowledge and skills • high turnover in land ownership • high rates of absentee land holders • intensification of land use • population growth via subdivision • more extreme weather events
Plants and animals	• loss of native vegetation (both remnant and regrowth) • degradation and condition decline of native vegetation • chemical use • climate variability impacts • impact of invasive species and diseases • inappropriate fire regimes	• knowledge and skills • financial resources and opportunities • policy and decision making • values and motivation • climate change	• fear of bushfire • increasing population growth • land use planning decisions • sea level rise • insufficient funds, time or knowledge to manage vegetation • commercial development potential

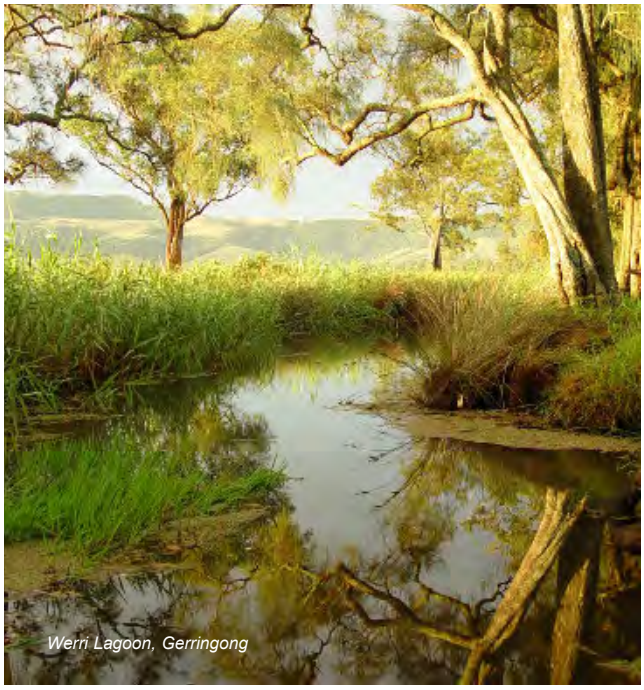
Natural resource asset	Key threats	Drivers of change that underpin these threats have been identified as:	Some specific examples of these drivers are:
Rivers	• land that is managed beyond its capability • invasive species and aquatic diseases • loss of native riparian vegetation • localised streambank or streambed erosion • reduction in large woody debris (rivers) • sedimentation and reduced water quality • reduction in water quantity and habitat • climate variability impacts • barriers to water flow and/or fish passage	• knowledge and skills • financial resources and opportunities • policy and decision making • values and motivation • climate change	• pressure from population growth • over allocation or over extraction of water • inappropriate recreational activities • intensification of land use or land managed beyond capability • ageing farmers
Estuaries	• loss and degradation of riparian, aquatic and catchment vegetation • declining water quality (including sedimentation, nutrients, and pollutants) • exposure to acid sulfate soils • barriers and changes to fresh water and tidal flows • over allocation of resources • climate variability impacts • terrestrial and aquatic invasive species and diseases	• knowledge and skills • financial resources and opportunities • policy and decision making • values and motivation • climate change	• land use planning decisions • over allocation of resources • inadequate protection of assets • conflicting policy objectives • land managed beyond capability • limited knowledge on estuary systems and their values • demand for coastal lifestyle • inappropriate recreational activities • variable and extreme climatic events
Marine environment	• land-based impacts (e.g. reduced water quality, point and non-point source pollution, removal of aquatic and catchment vegetation) • unsustainable levels of resource use (e.g. illegal fishing practices, mining, dredging) • introduced marine pests and aquatic diseases • marine pollution (e.g. oil, sewage, ballast and marine debris) • climate variability • habitat modification (e.g. destructive fishing methods, dredging, mining and poor water quality)	• knowledge and skills • policy and decision making • financial resources and opportunities • values and motivation • climate change	• land use planning decisions • land use change • inadequate protection of marine resources • competing government priorities • inappropriate land management practices • research, resource user, resource manager and community knowledge gaps • declining profit margins
Wetlands	• loss of native vegetation cover • invasive species • declining water quality (including sedimentation, nutrients, and pollutants) • barriers to water flow and/or fish passage • climate variability impacts • over allocation of water resources	• knowledge and skills • financial resources and opportunities • policy and decision making • values and motivation • climate change	• limited understanding of values of ecosystem services wetlands provide • intensification of land use • sea level rise • over allocation and extraction of water • declining profit margins
Groundwater	• resource use (water extraction) • drainage of swamps • declining water quality (nutrients, salinity, turbidity) • land use pressures • loss and degradation of catchment vegetation	• knowledge and skills • financial resources and opportunities • policy and decision making • values and motivation • climate change	• over extraction of water • intensification of land use • increasing population growth • lack of knowledge on how groundwater dependent ecosystems function

How will CAP 2023 contribute to diverse, healthy, connected and productive natural environments?

CAP 2023 seeks to address many of the key issues affecting land, vegetation and water resources that support the economic sustainability and community wellbeing of the Southern Rivers community.

CAP 2023 includes specific strategies to:

- improve soil condition in rural lands
- manage naturally fragile soils
- protect priority assets from land degradation
- maintain and improve the extent and condition of priority habitats
- maintain and improve habitats that support connectivity priorities
- integrate production and conservation goals into primary production systems
- maintain and improve the condition of priority marine, estuary and freshwater assets
- implement practices that contribute to the maintenance or improvement of water quality
- implement equitable sharing of water between people and the environment.



Werri Lagoon, Gerringong

Desired future state of the Southern Rivers region

Land

Maintaining natural capital, especially soils, is important for long-term agricultural profitability. Investment in retaining soils in good condition insures against long-term risks to production and long-term global food demand. CAP 2023 seeks to improve or maintain soil condition across the region, especially on prime agricultural lands.

Key factors contributing to good soil condition are use of land within its capability and practices that contribute to increased soil condition.

Vegetation

Vegetation in a desired state is characterised by:

- ecological communities and populations able to persist in the medium to long term, with sufficient population size, genetic diversity and distribution to recover from shock events such as disease and wildfire
- richness in plant species and variability in vegetation structure appropriate to the vegetation community
- provision of a range of ecosystem services
- minimal impact from invasive species and diseases
- a diversity of fauna species supported
- the provision of key habitats such as hollows, fallen logs and bush rocks
- occurs within a landscape with sufficient connectivity across the landscape to enable species to move between areas of habitat and a shift in species distribution
- the expression of full diversity of ecological communities across the landscape
- Aboriginal cultural connection with plants and animals is widely acknowledged and celebrated.

Water

CAP 2023 seeks to maintain the function and condition of fresh water, estuary and marine assets to enhance the natural resilience of these systems to recover from shock (e.g. floods) and improve the viability of adjacent landholders and industries dependent upon clean, available water.

Rivers in good condition are characterised by:

- no general bed incision or degradation
- functional connectivity within stream, adjacent floodplains and between surface and groundwater
- presence of native vegetation with near natural diversity, suitable for supporting native fauna
- sufficient riparian buffers to protect water quality
- minimal impact from invasive species and aquatic diseases
- self-adjusting form and processes that allow for fast recovery after disturbance.

Estuaries in good condition are characterised by:

- water quality (turbidity and nutrients) that is within natural limits
- peak and base flow variability that is within natural limits
- salinity levels within natural limits (due to unaltered tidal processes)
- diverse and abundant aquatic and fringing ecosystems that operate across the natural tidal range
- native riparian vegetation associations that are intact with near natural diversity
- high aquatic species diversity and intact trophic interactions
- connectivity of flow between the estuary, its floodplain and wetlands
- minimal terrestrial and aquatic invasive species
- minimal impact from aquatic diseases.

A marine environment in good condition is characterised by:

- a range of diverse and connected habitats that support complex food webs
- water quality that is within its natural variability
- minimal impact from introduced marine pests and aquatic diseases
- well-vegetated, healthy terrestrial environments.

Wetlands in good condition are characterised by:

- presence of native vegetation with appropriate levels of plant and animal diversity
- functional connectivity
- sufficient buffers
- intact hydrological systems
- minimal impacts from invasive species and diseases.

Groundwater in good condition is characterised by:

- connectivity with groundwater supply
- near natural hydrological regime
- sufficient buffers
- healthy and diverse aquatic flora and fauna.

The strategic directions for Pillar 3 – diverse, healthy, connected and productive environments – are shown in Figure 26. State and Transition models have been developed to describe attributes of diverse, healthy and connected environments in the Southern Rivers region; these are shown with relevant maps detailing priorities across the landscape in Figures 27–42.

Oyster growing, Wapengo Lake

Figure 26. Pillar 3: Natural resources – strategies and priorities

Goal: Diverse, healthy, connected and productive natural environments

Objective: Soil condition supports people and the environment

Target: By 2023, land managers are supported to increase the adoption of practices that:
- improve soil condition of productive lands
- manage naturally fragile soils within their capability

Strategies to implement:	Priorities for action and investment:
Improve soil condition in rural lands (Land and Soil Capability Classes 3–5)	Productive capacity of agricultural lands Soil carbon Capacity of landscape to absorb and retain water
Manage naturally fragile soils	Land and Soil Capability Classes 6–8 Sodic, acid sulfate, saline and shallow soils Dune systems
Protect priority aquatic assets from land degradation	Water supplies Good condition wetlands, estuaries, marine and marine protected areas High value fish habitat

Objective: Health and integrity of natural habitats supports people and the environment

Target: By 2023, land and water managers are supported to increase the adoption of practices that maintain or improve the:
- extent and condition of priority habitats
- connectivity of habitat

Strategies to implement:	Priorities for action and investment:
Maintain and improve the extent and condition of priority habitats	Under reserved and threatened vegetation communities Habitat that supports threatened species High value fish habitat High carbon capture ecosystems
Maintain and improve habitat that supports connectivity priorities	State, regional and locally significant corridors Significant barriers to fish passage
Integrate production and conservation goals into primary production systems	Grazing landscapes Aquaculture

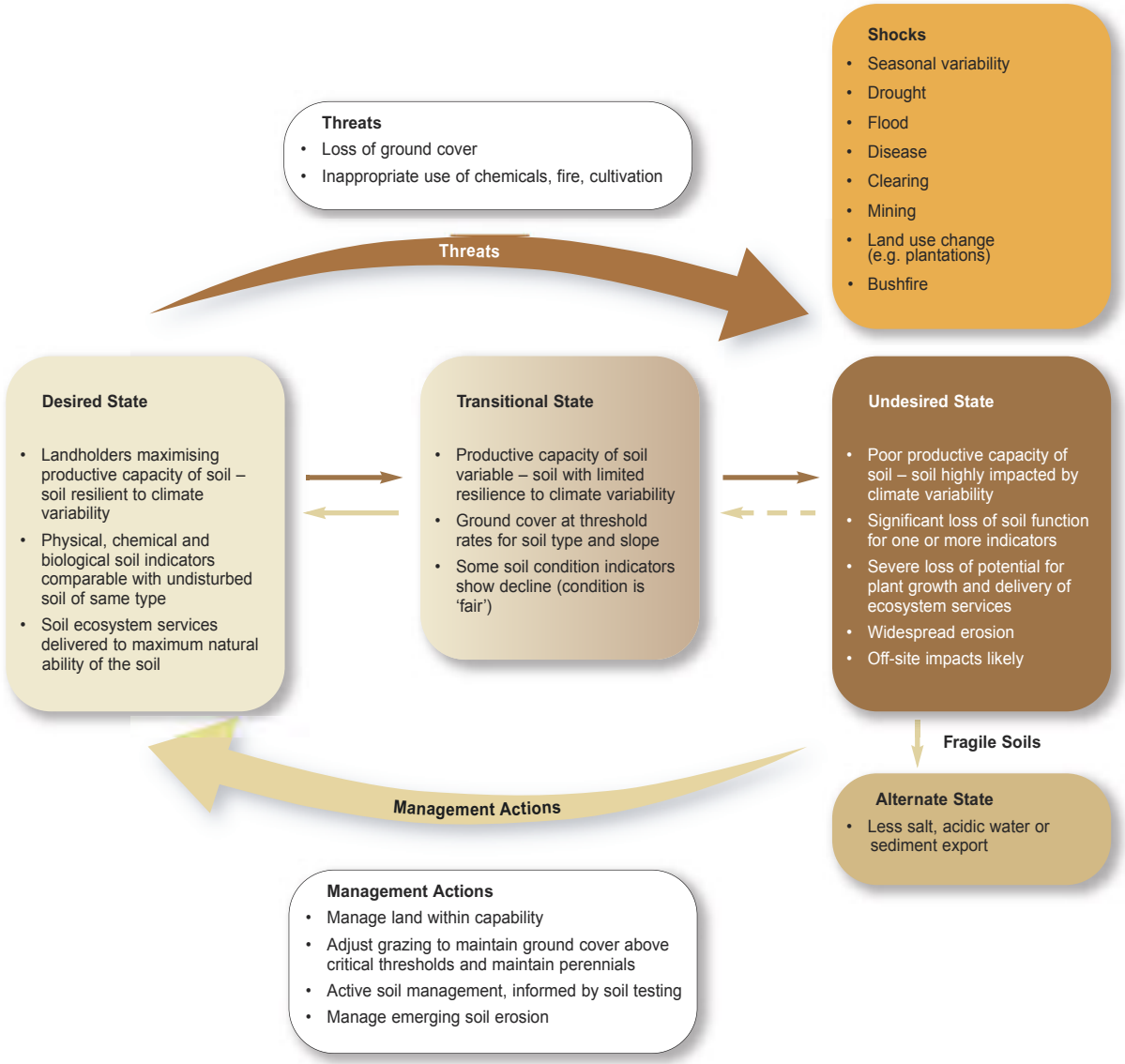
Objective: Fresh water, estuarine and marine assets support people and the environment

Target: By 2023, land and water managers are supported to increase the adoption of practices that maintain or improve the condition of priority fresh water, estuarine and marine assets

Strategies to implement:	Priorities for action and investment:
Maintain and improve the condition of priority fresh water, estuarine and marine assets	Good condition, high recovery potential and strategic river reaches Good condition estuaries, marine and marine protected areas, wetlands and groundwater resources
Implement practices that contribute to the maintenance or improvement of water quality and river health	Priority aquatic assets that support local industries Impacts from urban environments
Equitable sharing of water between people and the environment	Water is available to meet the needs of people and the environment

Figure 27. Soil condition State and Transition model

This model describes the different condition states for soil within the Southern Rivers region. An indicator of soil condition of particular note is organic carbon which is vital to reduce erosion potential, maintain biological soil health and maximise water holding capacity and water availability. Capacity to retain water in the landscape is an ecosystem service of importance to buffer against expected climate change impacts. Ground cover thresholds provide an indication of where soil condition may be shifting towards an undesired state. Southern Rivers CMA has adopted thresholds for percentage ground cover required to reduce excessive runoff and erosion and sustain productivity based on soil type and land slope. For further details on soil condition refer to CAP 2023 Paper – Land. Figure 17 explains State and Transition models.



Strategic priorities of relevance to this model:

- Improve soil condition on rural lands (Land Capability Class 3–5 – refer to Figure 28)
- Manage naturally fragile soils (Land Capability Class 6–8 – refer to Figure 28, sodic, acid sulfate, saline, shallow soils and dune systems)
- Protect priority aquatic assets at risk from land degradation.

Management actions are most effectively applied to:

- Ground cover approaching the transitional state
- Maintenance of the desired state for fragile soils
- The undesired state where it can be shifted to a more appropriate alternative state, particularly where priority aquatic assets are at risk.

Figure 28: Soil and land capability map

This map displays the inherent physical capacity of the land and its soils to sustain a range of land uses and management practices in the long term. It can be defined as the ability of the land and soil to absorb disturbance and still retain its basic function and structure. This soil and land data and the associated descriptions for each class are drawn from OEH (2012b).

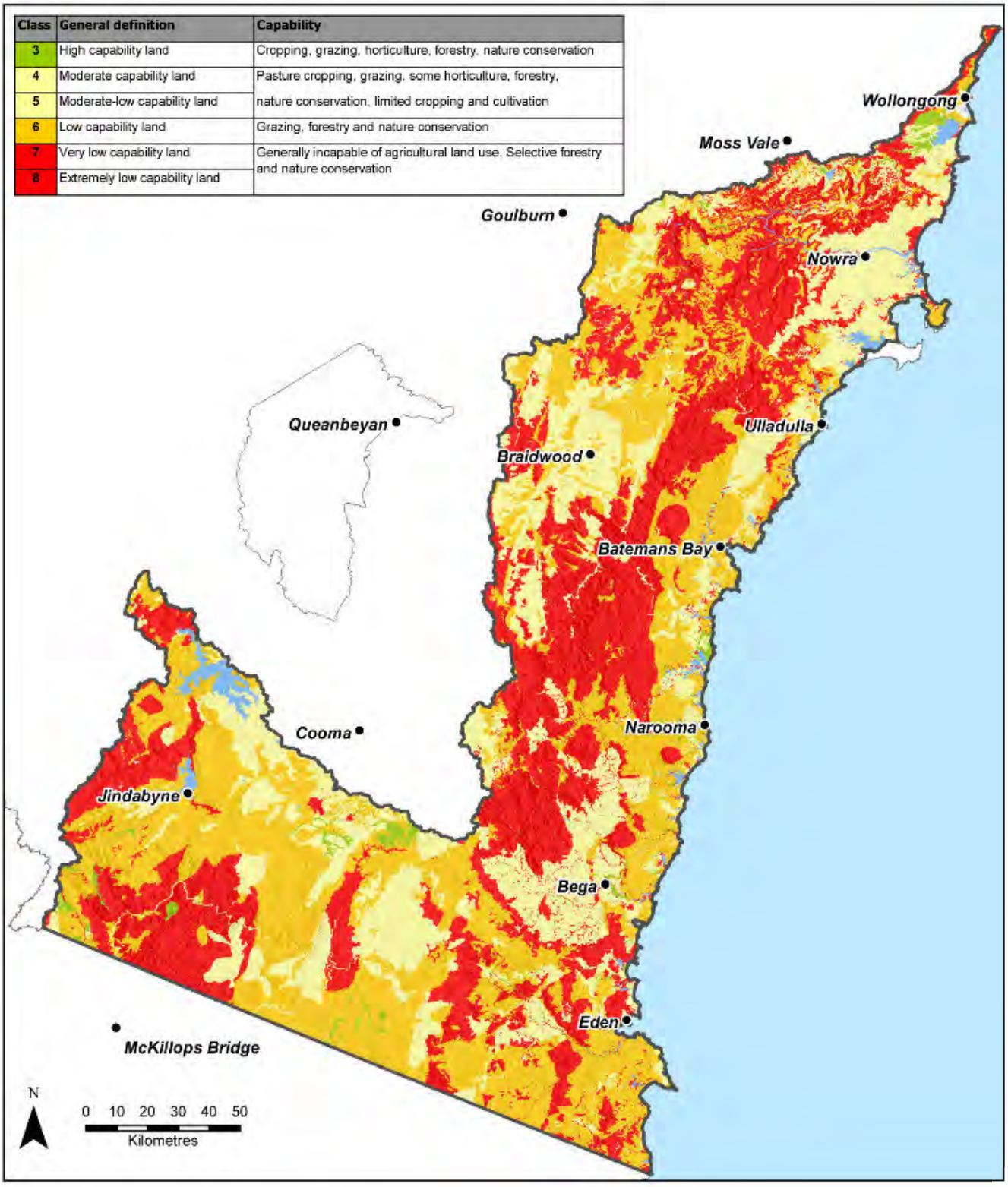
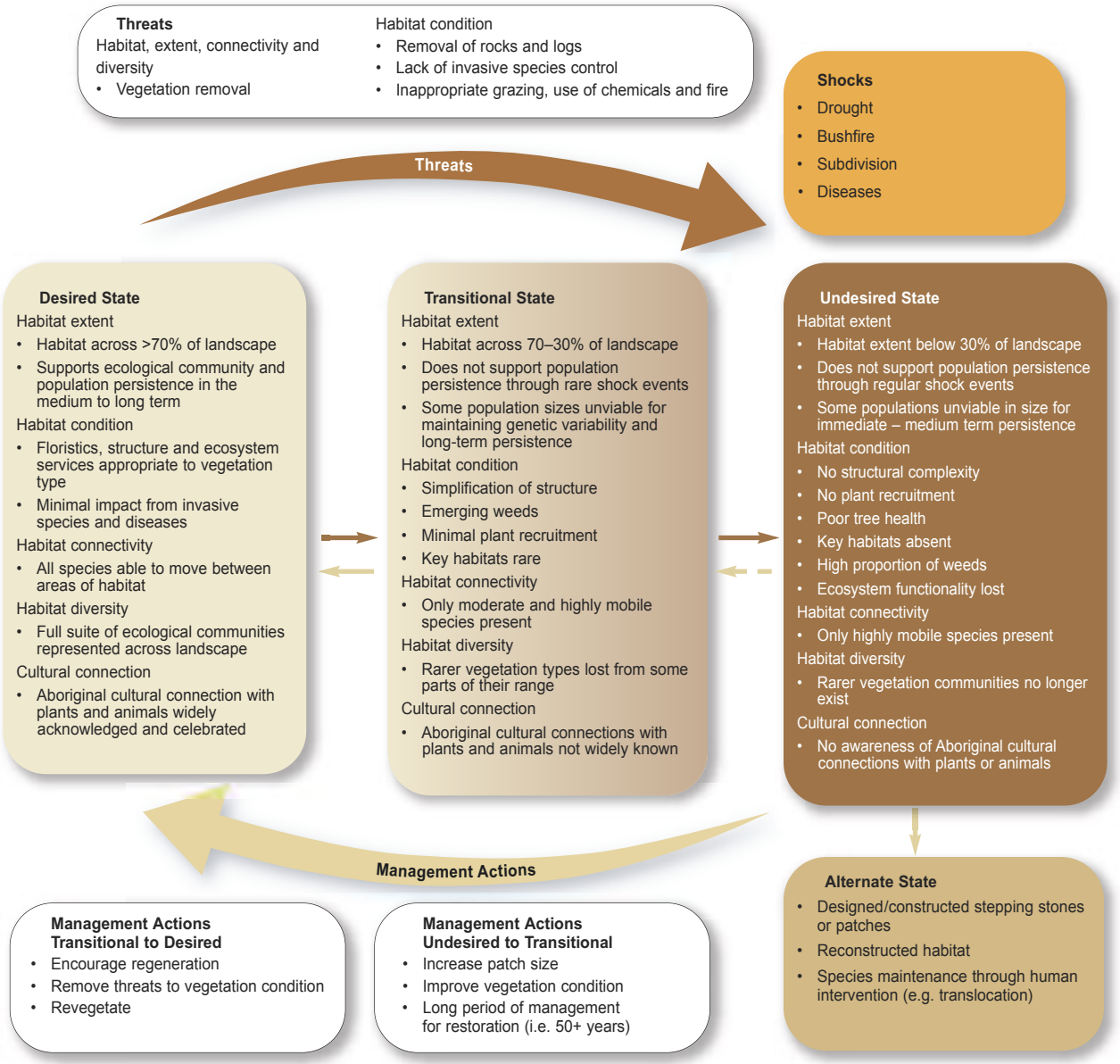


Figure 29. Landscape habitat State and Transition model

This model describes the different condition states of plant and animal habitat. It considers the key elements of habitat dynamics which are, extent, condition, connectivity, diversity and cultural connection. While these concepts are just as relevant to plants and animals in aquatic habitats, this model specifically focuses on land-based habitats. Of importance to note is the difficulty involved in improving condition of habitat once it is in an undesired state. The dashed arrow indicates there may be a high level of uncertainty around potential for restoration success and that it may not be possible to return the full suite of ecosystem services. Restoration efforts from the undesired state may actually create an alternative state, rather than a return to the original state of the system. For further details on plant and animal habitat refer to CAP 2023 Paper – Plants and animals. For further information on State and Transition models, refer to Figure 17.



Strategic priorities of relevance to this model:

- Maintain and improve the extent and condition of priority habitats
- Maintain and improve habitat and supports connectivity priorities
- Integrate production and conservation goals into primary production systems.

Management actions are most effectively applied to the:

- Desired state where threats to vegetation are expected/evident
- Transition state where further loss of extent or condition is likely, rarer vegetation types have been retained in good condition or connectivity may be improved to support local, regional or State priorities
- Alternative state where connectivity may be improved to support local, regional or State priorities.

Figure 30. Connectivity map

This map displays priority areas for action to improve native vegetation connectivity, compiled from a number of sources, including national, State, regional and local level corridor planning documents (e.g. OEH 2012a; Wollongong City Council et al. 2011). Further investigation is required to map and categorise areas for corridor management in the Tablelands.

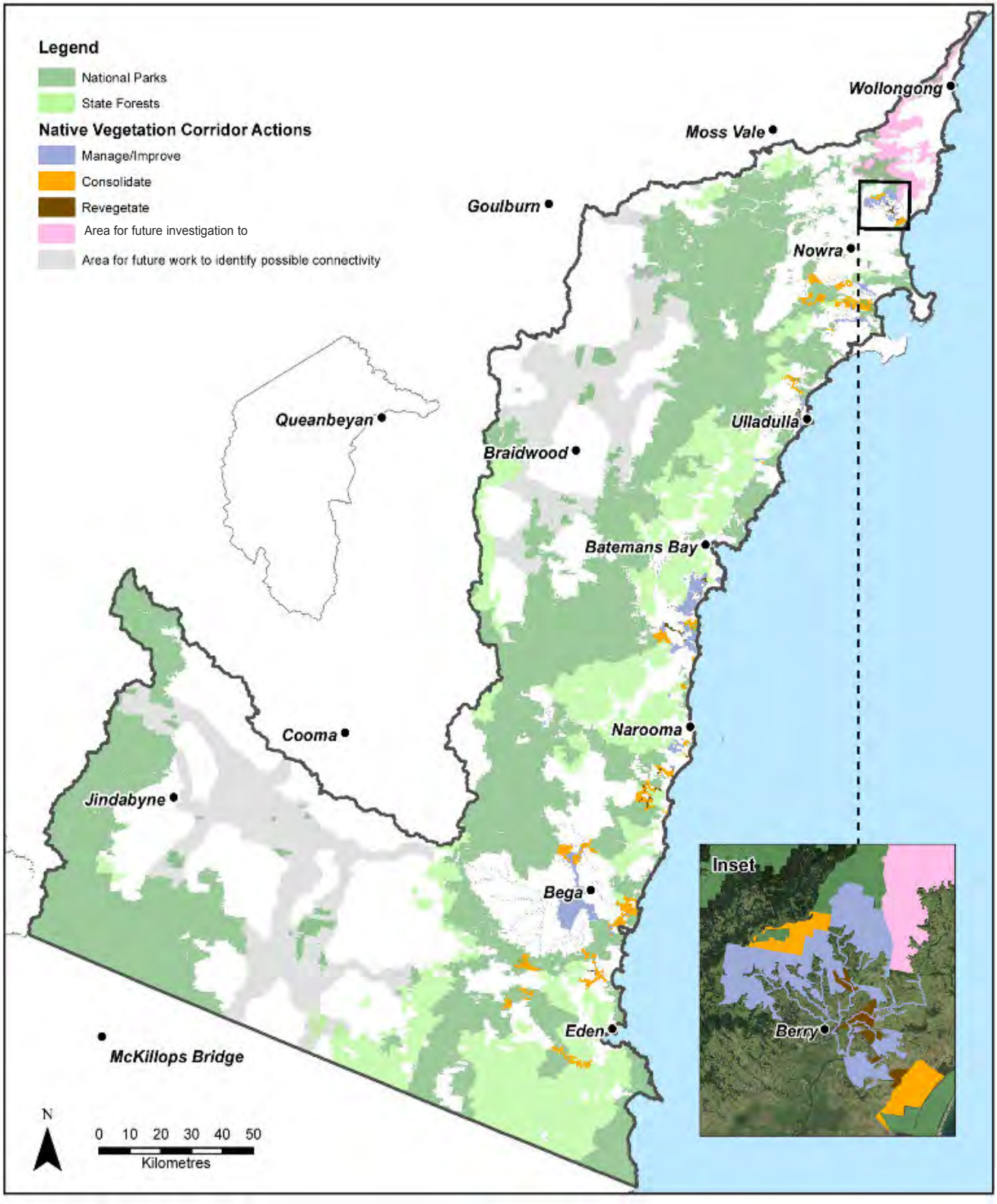
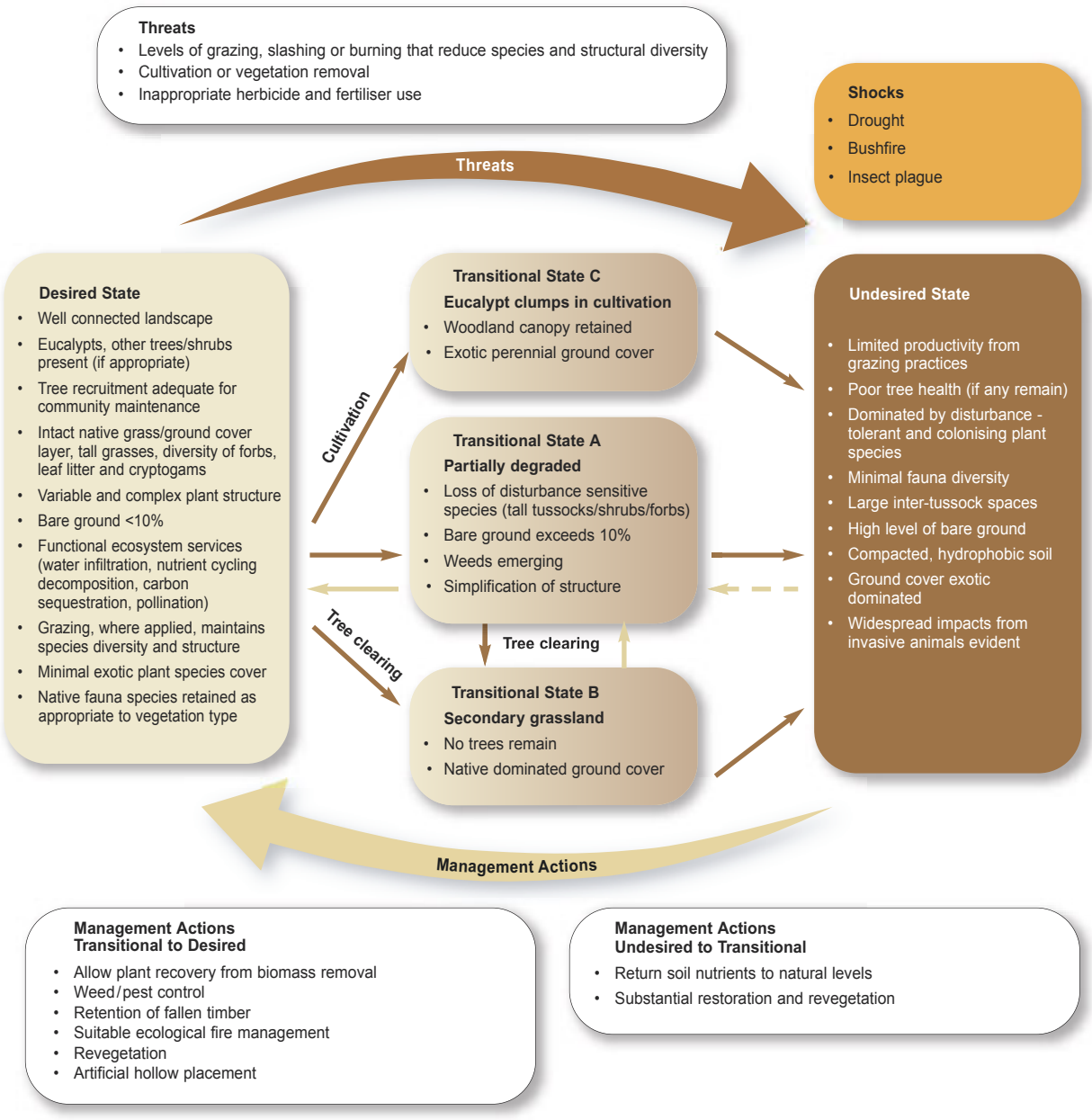


Figure 31. Grassy ecosystems State and Transition model

This model describes the different condition states for grassy ecosystems of the Southern Rivers region. This includes a diversity of grasslands and grassy woodlands, many of which are either poorly represented in our reserve system and/or listed under State or federal legislation as threatened. Grassy ecosystems are a priority for the Southern Rivers region, with many occurring within agricultural, grazing landscapes. In this context Smith et al. (in press) suggest that a balance between production and conservation may be achieved with a minimum of 10% of the property managed as a 'core conservation' area. This model relates to this 'core conservation' area. For further details on grassy ecosystems refer to the CAP 2023 Paper – Land. For further explanation on State and Transition models refer to Figure 17.



Strategic priorities of relevance to this model:

- Maintain and improve the extent and condition of priority habitats
- Integrate production and conservation goals into primary production systems.

Management actions are most effectively applied to the:

- Desired state where threats are expected
- Transition state A and B.

Figure 32: Threatened vegetation community probability map

This map displays the probability of threatened vegetation communities across the region. The map has been compiled from a number of mapped vegetation data sources including remote sensing and ground-truthed data. Threatened vegetation communities include federally listed ecological communities under the *Environment Protection and Biodiversity Conservation Act 1999* and listed ecological communities under the *NSW Threatened Species Conservation Act 1995*.

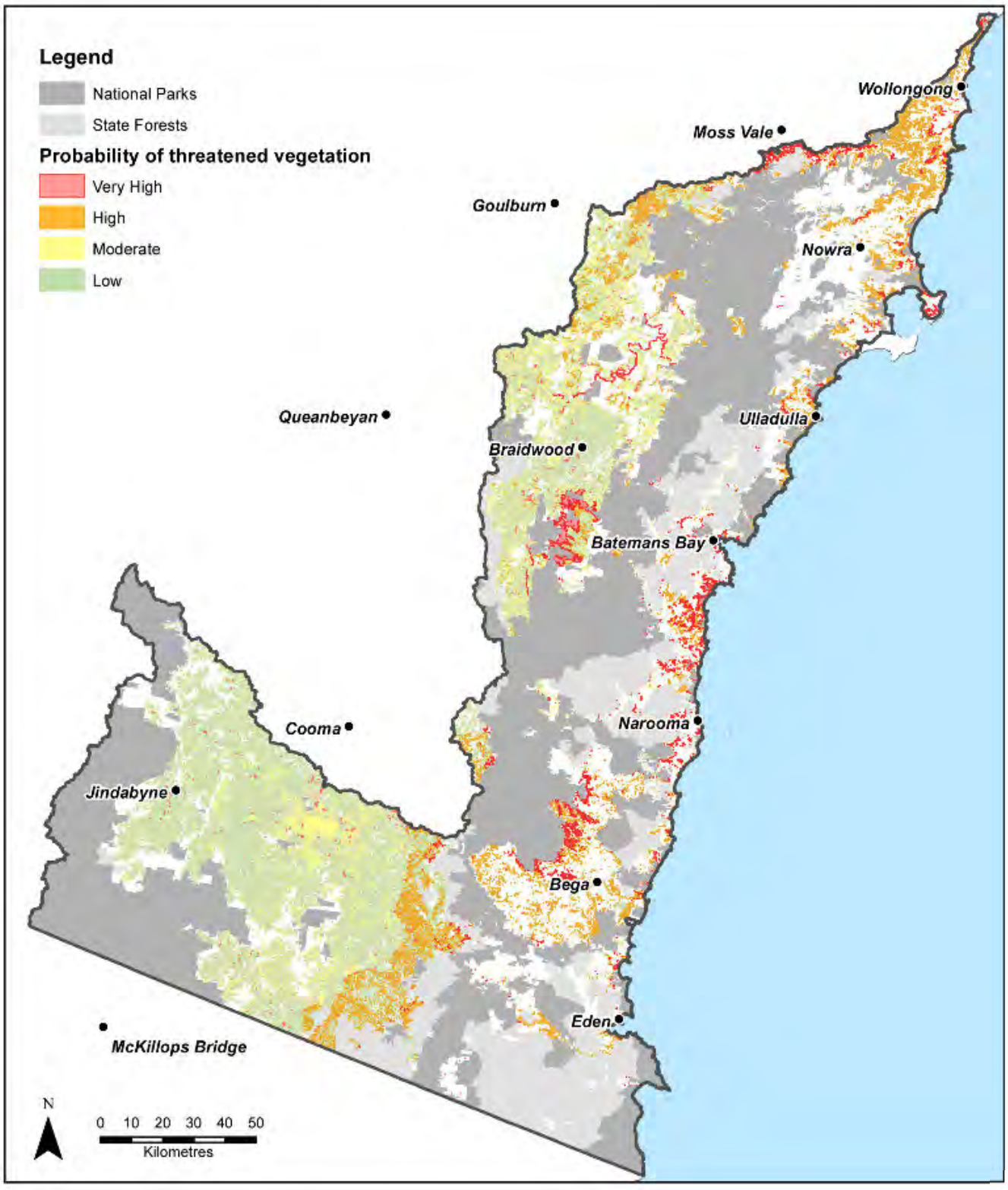
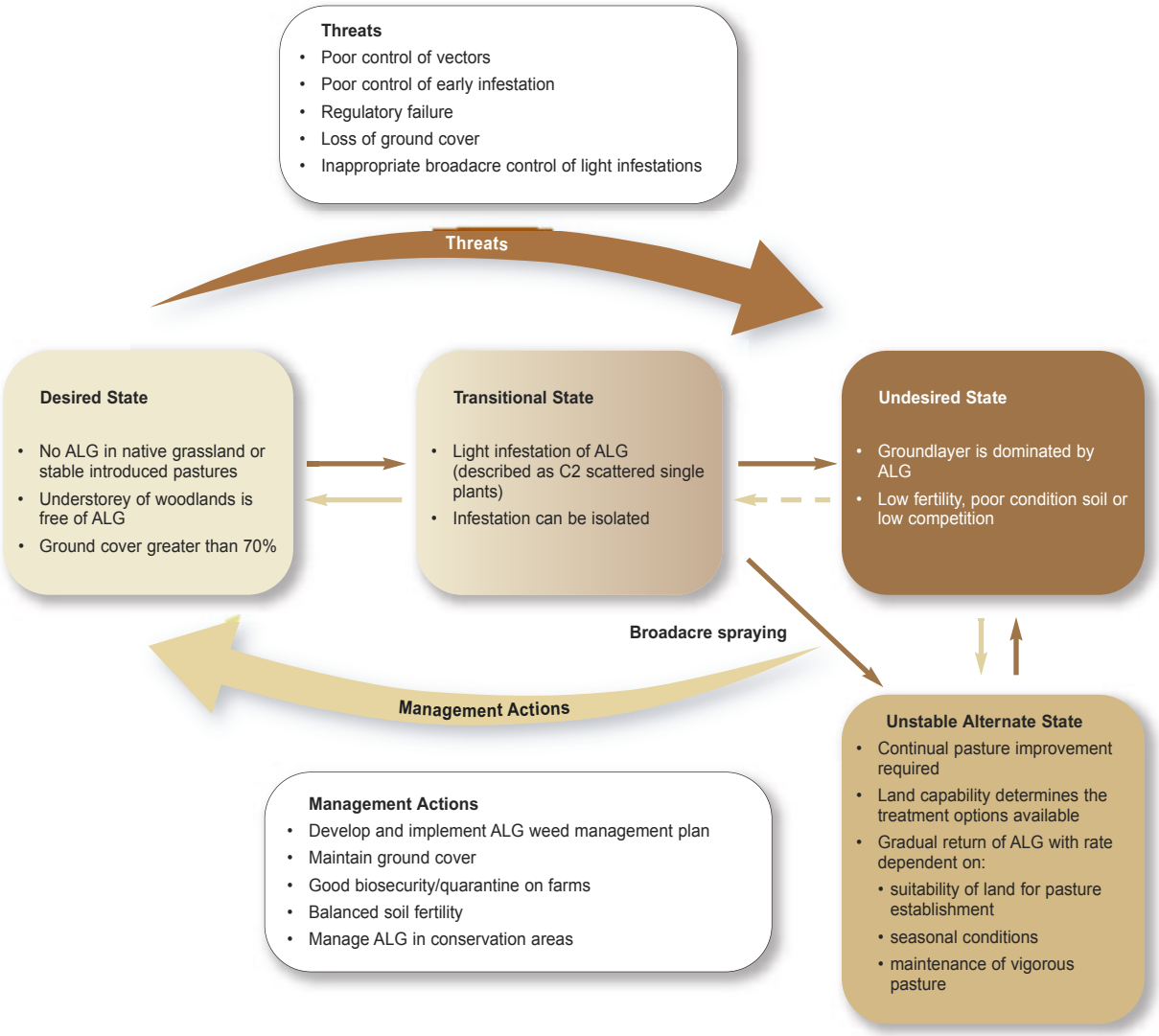


Figure 33. African lovegrass (ALG) State and Transition model – weed affected land example

This model describes the different condition states of land affected by African lovegrass *(Eragrostis curvula)*. African lovegrass is a widespread weed of particular concern to landholders of the Southern Rivers region. The species is challenging to manage as it is difficult to identify, and is able to germinate and set seed multiple times within a season. For further information on African lovegrass refer to the CAP 2023 Paper – Land. For further explanation on State and Transition models refer to Figure 17.



Strategic priorities of relevance to this model:

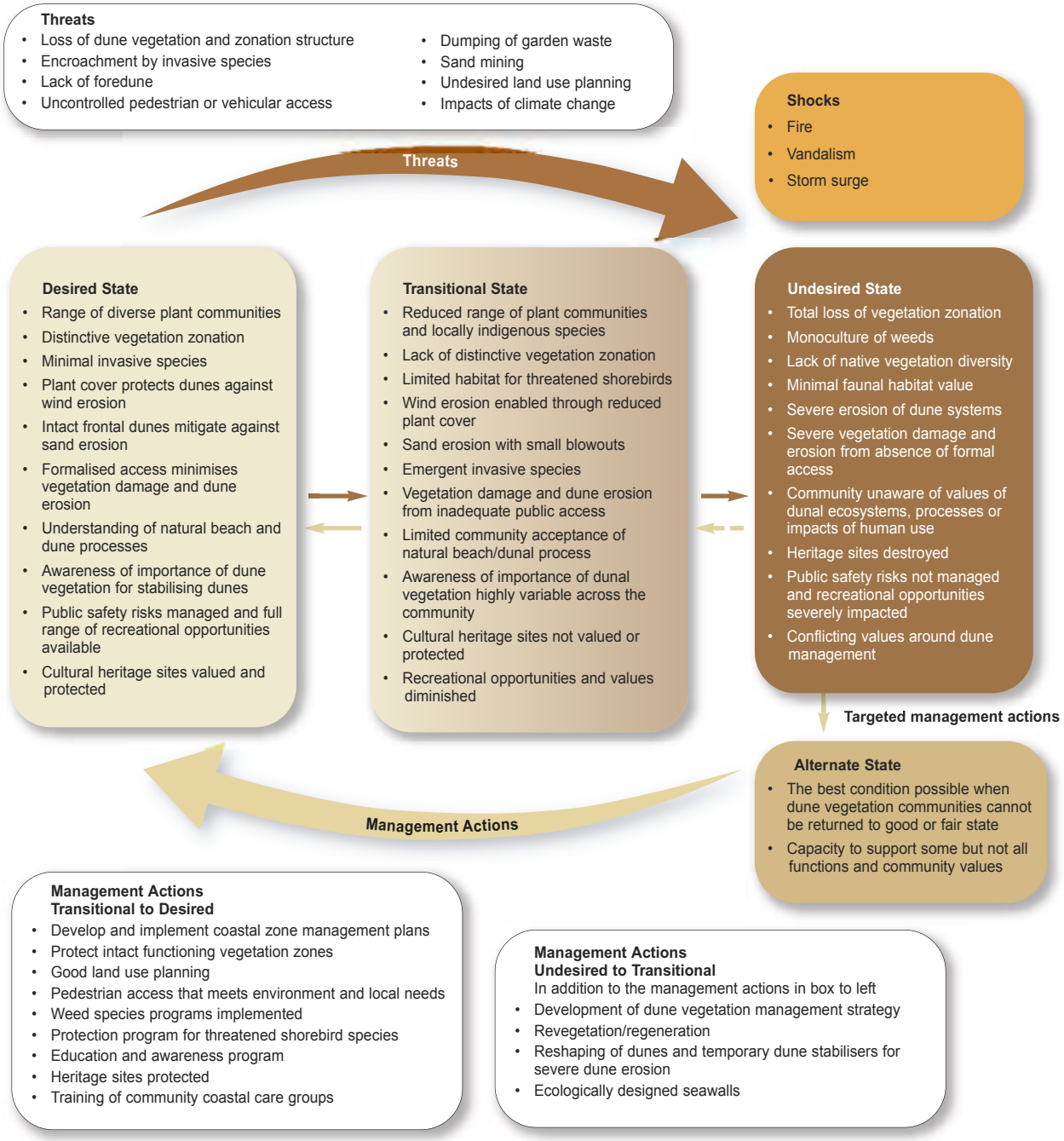
- Improve soil condition in rural lands
- Support land and water managers to respond and adapt to the threat of invasive species and diseases.

Management actions are most effectively applied to the:

- Transitional state, where early management of light infestations will avoid the need for expensive, long-term control techniques
- Desired state, particularly during extended dry periods when land management may extend beyond land capability.

Figure 34. Dunal vegetation State and Transition model

This model describes the different condition states for dunal vegetation within the Southern Rivers region. Threats to these environments and the underlying drivers are relatively unique as compared to other land-based habitats. Dune and associated beach environments are highly valued and utilised public assets. For this reason resilience of dunal vegetation is presented through the inclusion of both biophysical and social elements. For further details on dunal vegetation refer to the CAP 2023 Paper – Plants and animals. For further explanation on State and Transition models refer to Figure 17.



Strategic priorities of relevance to this model:

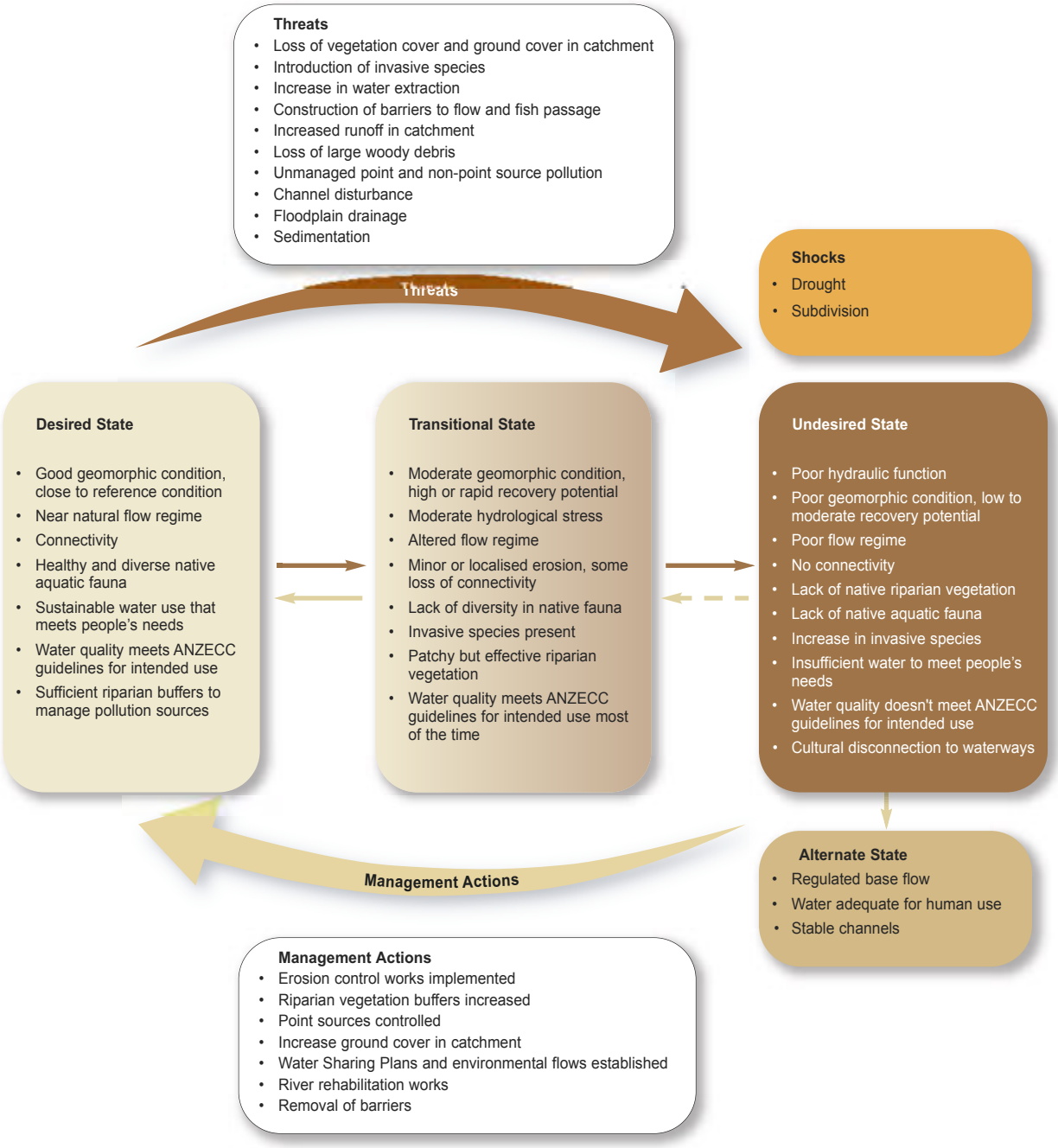
- Maintain and improve the condition of priority habitats
- Manage naturally fragile soils
- Improve habitat that supports connectivity priorities
- Protect and enhance the natural resource assets that support local industries.

Management actions are most effectively applied to the:

- Desired state where threats are emerging
- Transitional state where threats are continuing to operate
- Undesired state where an alternate, less erosive, state can be achieved.

Figure 35. Water quality, quantity and movement State and Transition model

This model describes the different condition states for water quality, quantity and movement within the Southern Rivers region. The water needs of people and the environment have both been considered. For further details on water refer to the CAP 2023 Paper – Water. For further explanation on State and Transition models refer to Figure 17.



Strategic priorities of relevance to this model:

- Protect priority aquatic assets from land degradation
- Maintain and improve habitats that support connectivity priorities (refer to Figure 36)
- Implement practices that contribute to the maintenance or improvement of water quality
- Equitable sharing of water between people and the environment.

Management actions are most effectively applied to the:

- Undesired state where there is potential for poor water quality or quantity to impact on priority aquatic assets
- Transitional state where threats are continuing to operate.

Figure 36: Fish biodiversity hotspots and priority barriers to fish passage map

This map displays sites where Fisheries NSW (2012) has recorded fish biodiversity hotspots within the Southern Rivers region and where they have identified barriers to fish passage as a priority for removal.

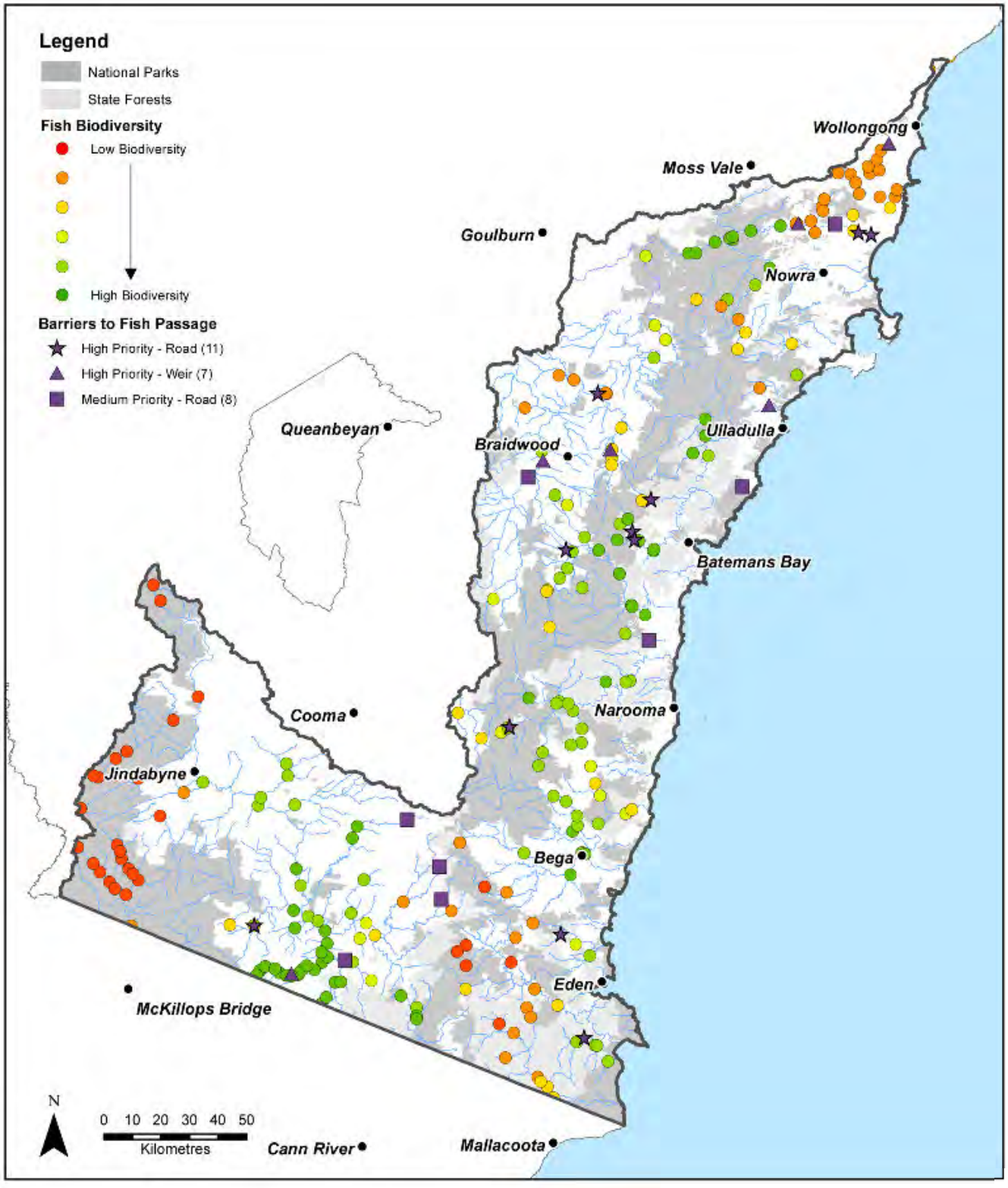
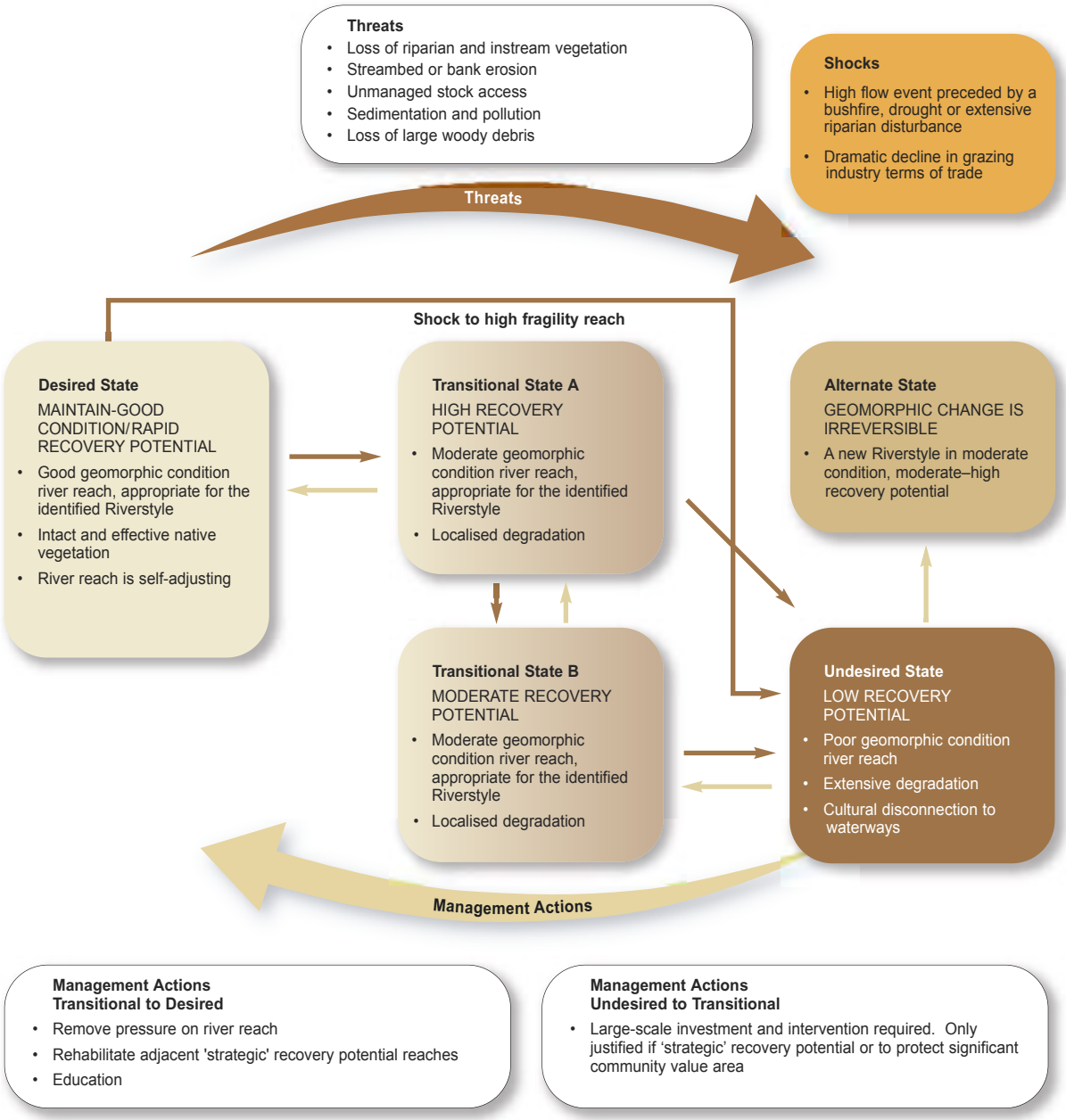


Figure 37. River reach State and Transition model

This model describes the different condition states for river reaches within the Southern Rivers region. It is based on Riverstyles and associated river reach recovery potential mapped for the Southern Rivers region (refer to Figure 38). The two transitional states shown vary in the management actions required to improve their condition. State A only requires small-scale, low cost intervention whereas State B requires medium-scale. For further details on river reach recovery potential and priorities refer to the CAP 2023 Paper – Water. For further explanation on State and Transition models refer to Figure 17.



Strategic priorities of relevance to this model:

- Maintain and improve the condition of priority fresh water, estuarine and marine assets
- Maintain and improve the extent and condition of priority habitats
- Implement practices that contribute to the maintenance or improvement of water quality.

Management actions are most effectively applied to the:

- Desired state where threats are emerging, particularly for fragile river reaches and strategic reaches
- Transitional state for strategic reaches or those with high recovery potential
- Undesired state where it is a strategic river reach.

Figure 38. River priorities map

This map displays the recovery potential of river reaches across the region (NSW Office of Water 2012,Southern Rivers CMA 2007, 2009, 2010a, 2010b, 2011, 2012). Recovery potential is the assessed potential of the river reach to return to good or rehabilitated condition. The priority for river works in the Southern Rivers region are river reaches which have been classified as 'strategic', 'high', 'rapid', or 'maintain - good condition'. Local data sets on recovery potential have been used for the Bega, Bombala, Clyde, Tuross, Pambula and Snowy catchments. State wide data sets have been used in other catchments where detailed plans have not been completed.

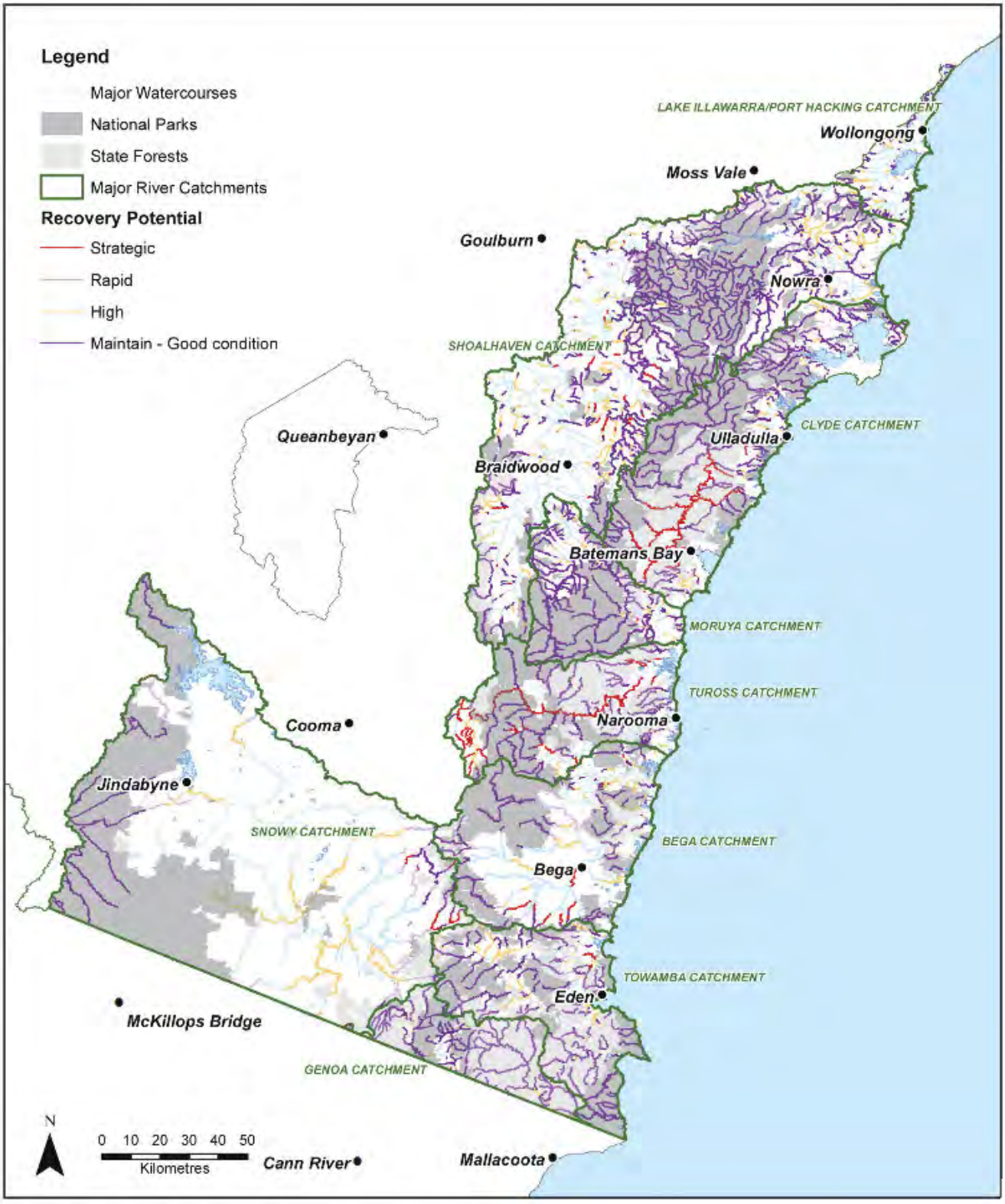
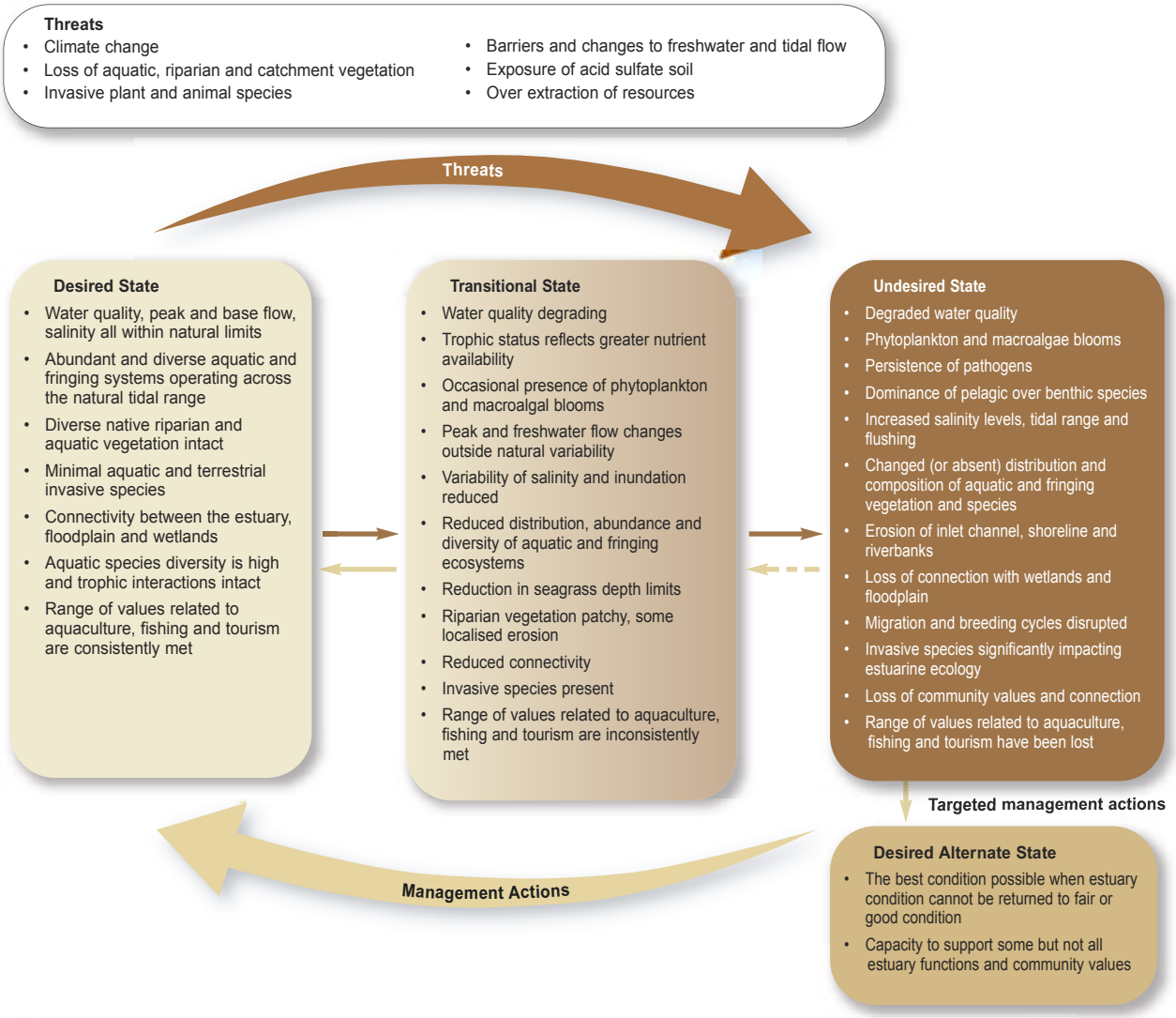


Figure 39. Estuary State and Transition model

This model provides a 'generalised' description of the different condition states for the region's estuaries, acknowledging that there are a wide variety of estuary types present. Two estuarine environments of particular note are mangroves and tidal marshes that are recognised as potential high carbon capture ecosystems (Herr et al. 2012). This model acknowledges the important connection between the biophysical condition of estuaries and the need to support community and industry. For further details on estuary environments refer to the CAP 2023 Paper – Water. For further explanation on State and Transition models refer to Figure 17.



Strategic priorities of relevance to this model:

- Maintain and improve the condition of priority fresh water, estuarine and marine assets
- Maintain and improve the extent and condition of priority habitats
- Maintain and improve the natural resource assets that support local industries.

Management actions are most effectively applied to the:

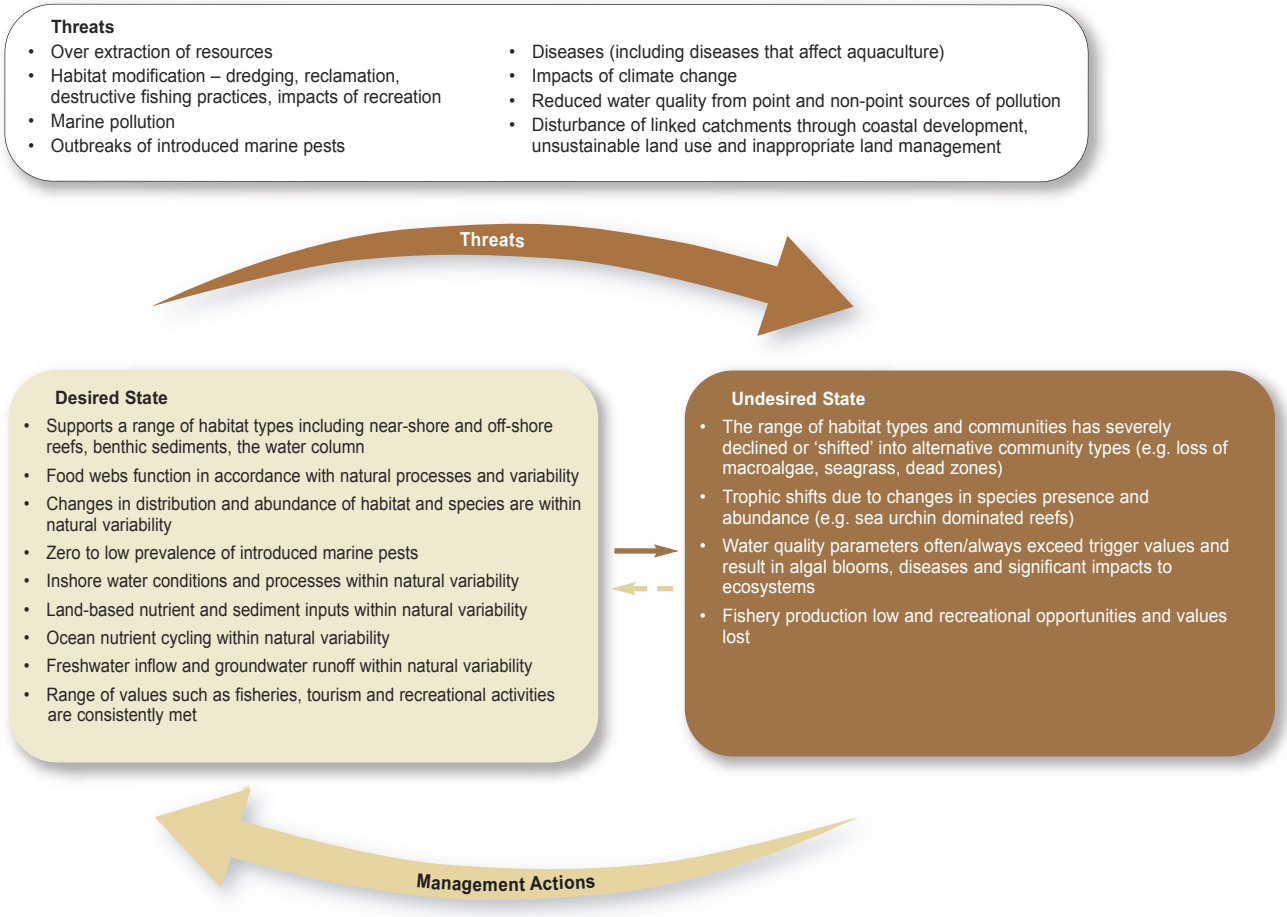
- Desired state where threats may emerge (refer to 'Protection to maintain condition' category in Figure 40)
- Desired state where threats are affecting estuary condition (refer to 'Targeted management of threats' category in Figure 40)
- Undesired state where a desired alternate state can be achieved (refer to 'Targeted protection of key ecosystem elements' category in Figure 40).

Figure 40. Estuary management priorities map

This map displays the estuary management priorities of the region, based on an analysis of information about the health of each estuary and the threats to its condition (Roper et al. 2011). Using this analysis, estuaries have been grouped into four categories that determine the focus of priority management actions. For further details on these categories refer to CAP 2023 Paper – Water.

Figure 41. Marine State and Transition model

This model provides a 'generalised' description of the different condition states for marine environments within the Southern Rivers region, acknowledging that there are a wide variety of marine environments present. One environment of particular note is seagrass meadows that are recognised as potential high carbon capture ecosystems (Herr et al. 2012). This model acknowledges the important role of marine environments in supporting plants and animals, as well as community and industry. For further details on marine environments refer to the CAP 2023 Paper – Water. For further explanation on State and Transition models refer to Figure 17.



Strategic priorities of relevance to this model:

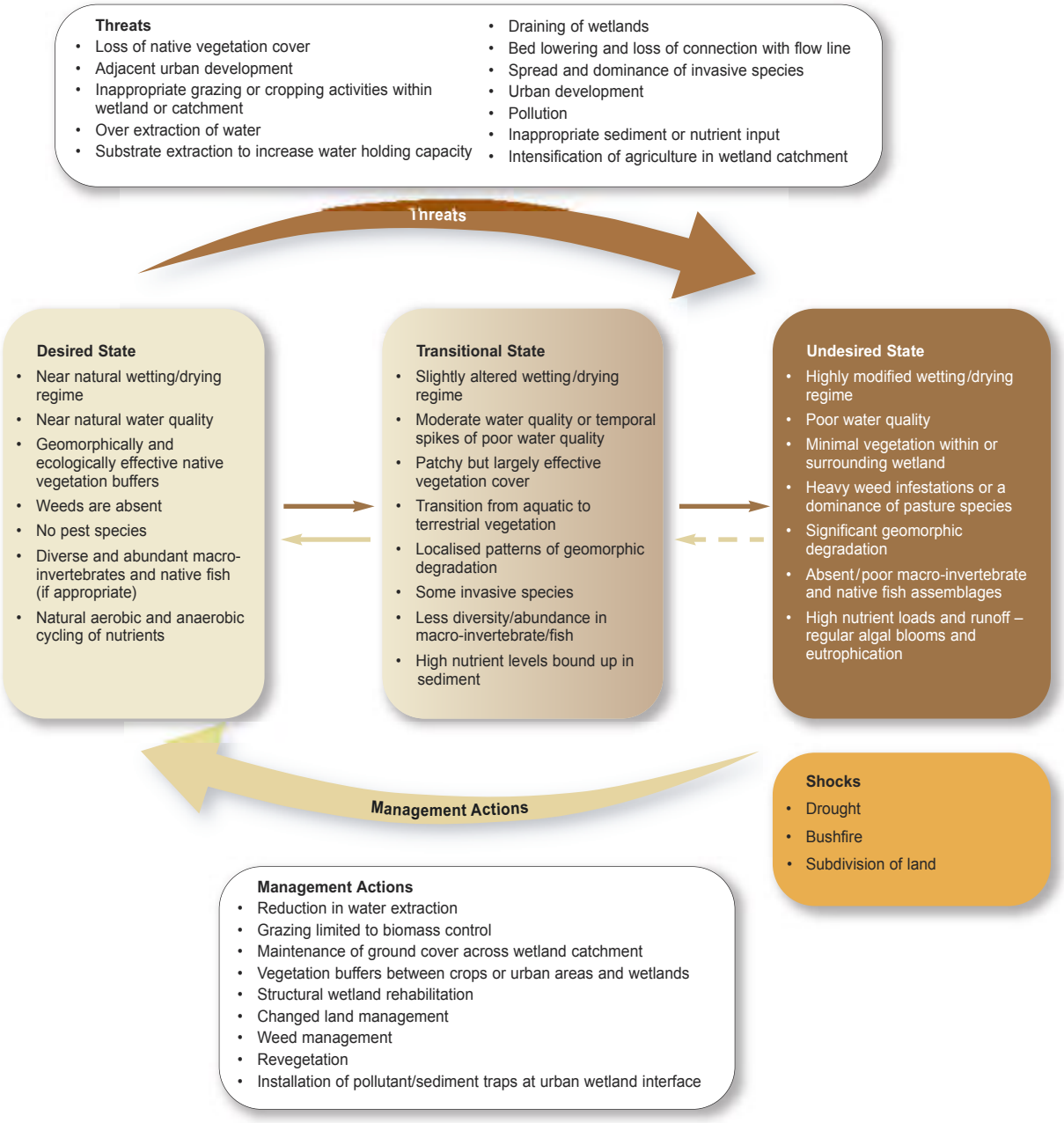
- Maintain and improve the condition of priority fresh water, estuarine and marine assets
- Maintain and improve the extent and condition of priority habitats
- Implement practices that contribute to the maintenance or improvement of water quality and river health
- Maintain and improve resource assets that support local industry.

Management actions are most effectively applied to:

- Desired state where threats are emerging.

Figure 42. Wetlands State and Transition model

This model describes the different condition states for wetlands within the Southern Rivers region. This includes a wide variety of wetlands from permanent glacial lakes, ephemeral wet meadows through to coastal lagoons on sand plains. Major knowledge gaps exist in terms of wetland condition across the region as well as distribution and types of wetlands across the Tablelands landscape. For further information on wetlands refer to the CAP 2023 Paper – Water. For further explanation on State and Transition models refer to Figure 17.



Strategic priorities of relevance to this model:

- Protect priority aquatic assets from land degradation
- Maintain and improve the extent and condition of priority habitats
- Integrate production and conservation goals into primary production systems
- Maintain and improve the condition of priority fresh water, estuarine and marine habitats.

Management actions are most effectively applied to the:

- Desired state where wetlands are under pressure or threats are likely to emerge.

Part 4 – Making it happen – Implementation of CAP 2023

A new approach

CAP 2023 applies a new approach to NRM planning, based on an improved understanding of the interactions between people and natural resources.

CAP 2023 provides direction for improved implementation and service delivery in the region. To achieve the right set of outcomes that maximise community, economic and environmental benefits, community and government will need to change the way they work together.

Part 4 describes the key tasks that need to be completed, the priority management actions and the main partners that need to collaborate to implement strategies (refer to Table 4).

Bobundra landscape

Monitoring, evaluating and reporting and knowledge management

Effective monitoring, evaluating and reporting (MER) is a critical part of knowledge management and the adaptive management cycle (refer to Figure 24). MER provides two key functions; firstly, to assess performance of CAP 2023 implementation and secondly, to test the assumptions that underpin the knowledge of the landscape systems.

A well designed MER system that focuses on testing and building on existing knowledge will provide significant long-term gains at a range of scales.

At the site scale, management practices will be more targeted and appropriate to site conditions. At the landscape scale, service delivery and collaborations will be focused on the outcomes that will have best effect, efficiently allocating scarce resources. At the State and national scale, policies and plans will enable the delivery of services that meet the needs of local and regional communities.

Kangaroo grass (Themeda australis)

Additional to MER, knowledge management needs to focus on building new knowledge with research partners such as universities and other organisations. CAP 2023 has identified a number of key knowledge gaps, evaluation questions and research requirements that need to be addressed.

During the first year of CAP 2023 implementation, a detailed and rigorous knowledge strategy that includes monitoring, evaluating, reporting, innovations and research components will be developed.

Implementation planning and investment prioritisation

Implementation and investment planning will translate the targets and strategies of CAP 2023 into specific projects and services to be delivered with local communities.

It is intended that these plans will take on a four-year planning cycle that is aligned to the business planning cycle of local government.

A key part of these plans is to translate the priorities expressed in CAP 2023 to a local scale. CAP 2023 has prioritised where effort and investment is needed, and considered how priorities vary between landscapes. The next step is to map this out in more detail.

This will involve a more detailed analysis of natural resource priorities, particularly using spatial modelling tools to help identify the highest priority areas to focus investment, being those areas that will deliver multiple outcomes during implementation.

The development of CAP 2023 has defined local scale socio-ecological systems, including an initial analysis of community capacity.

Combining the detailed analysis of natural resource priorities with more detailed understanding of community capacity at the local scale, implementation arrangements will be focused on the areas that will have the most impact, delivering services that cater to the specific needs of that community.

It is also intended to use this analysis to quantify CAP 2023 targets for each planning cycle, to support improved auditing of implementation performance.

During the first year of CAP 2023 implementation, plans that include detailed prioritisation and quantification of targets will be completed.

Availability of information

A key CAP 2023 strategy is to make information available to individuals or organisations who make decisions on the sustainable use and care of natural resources.

The information and analysis used to develop CAP 2023 is available for local government, industry groups, government agencies or community groups involved in natural resource decision making and planning.

Adaptive management triggers

Adaptive management is one of the foundational pillars of CAP 2023. A key part of adaptive management is to define the circumstances when a review of the strategy is required.

Using a resilience approach, the circumstances that would trigger a review of the strategy are best defined by the major potential shocks to the landscape systems. Shocks can be social, environmental or economic and include events such as a major change in policy, institutional change, sustained period of changed climate, natural resource disasters, disease outbreaks and global financial pressures.

During the first year of CAP 2023 implementation, the circumstances that will trigger a review of the plan will be defined. Additionally, monitoring of potential shocks will be established to support the assessment of risk to these triggers.

The first trigger to review CAP 2023 is the impending establishment of Local Land Services. At the commencement of Local Land Services, CAP 2023 will be reviewed to align the strategy to the final regional boundaries, to ensure the full range of services are included in CAP 2023 and to review implementation partners.

A whole of government commitment to CAP 2023

CAP 2023 is the principal guiding document for NRM activity and service provision by the NSW Government in the Southern Rivers region. To this end, it documents the commitments and intent of:

- Southern Rivers CMA
- Department of Primary Industries
- Office of Environment and Heritage
- Department of Planning and Infrastructure
- Office of Communities, Aboriginal Affairs.

Southern Rivers CMA is the key coordination and delivery body for NRM services at the regional scale. It will work closely with other agencies to collaboratively deliver services to the communities and landholders of the region.

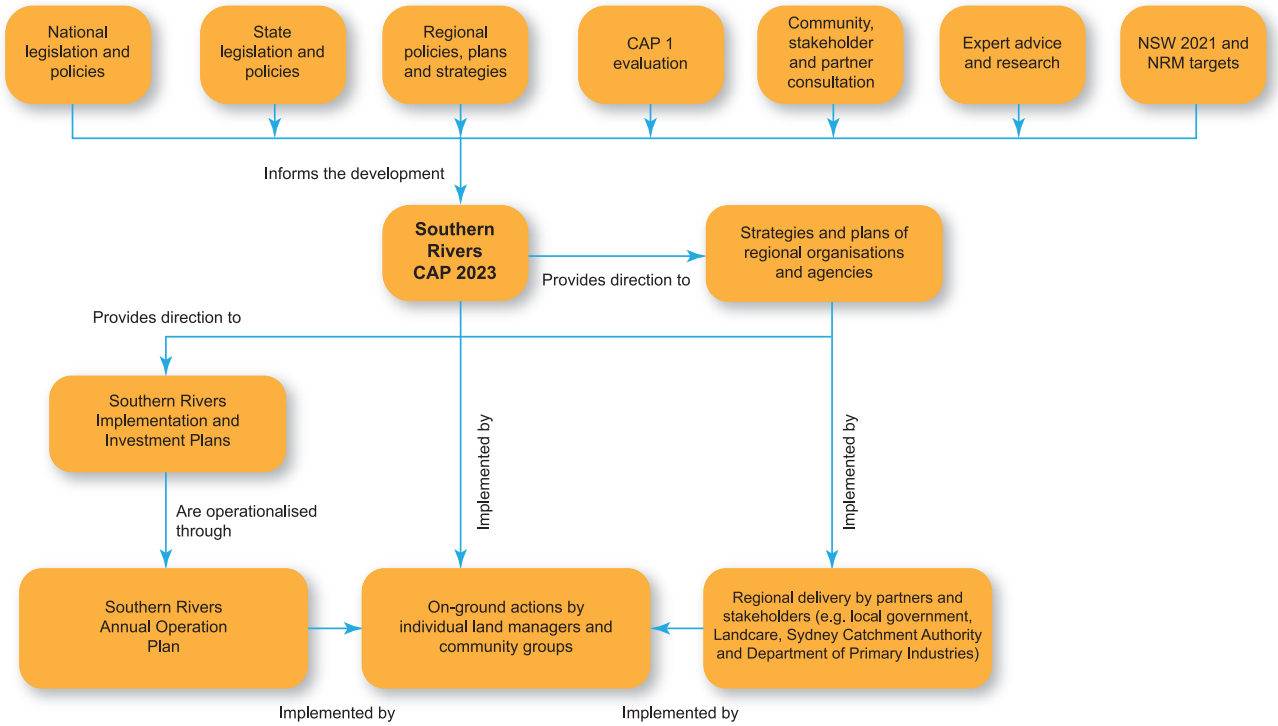
CAP 2023 recognises that some services need to be delivered consistently to communities across regional boundaries. A clear example of this is in the Monaro, where government services are directed by both the Southern Rivers CAP and the Murrumbidgee CAP.

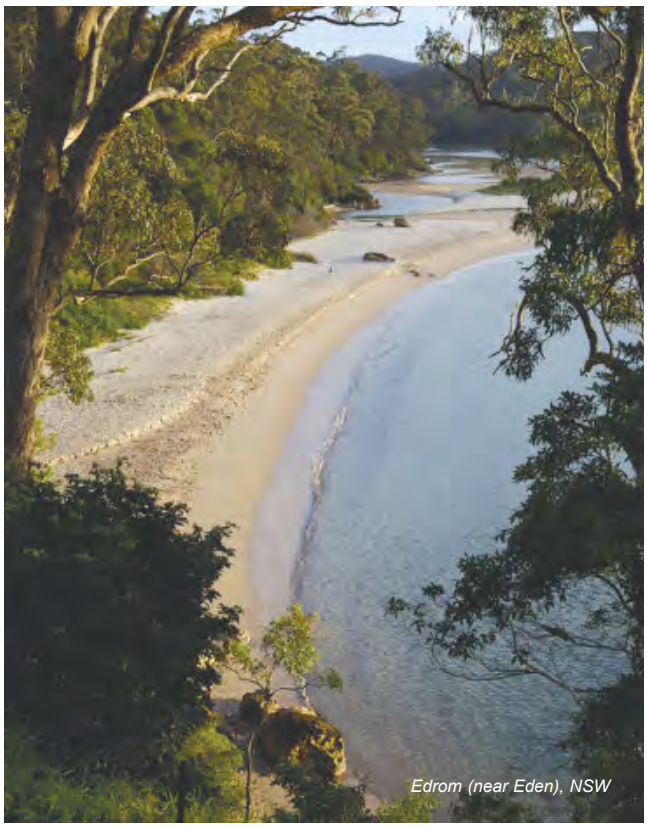
CAP 2023 seeks to ensure that services to communities that are delivered by multiple service providers across regional boundaries are coordinated and collaborative.

CAP 2023 also seeks to work with the State level policy sections of NSW Government agencies to ensure that State policies, plans and priorities enable effective delivery of services at a regional scale.

Most importantly, CAP 2023 seeks to ensure that the NSW Government effectively partners with local government, non-government organisations, community and industry groups in the implementation of CAP 2023 (refer to Figure 43).

Figure 43. CAP 2023 framework for action





Edrom (near Eden), NSW

Cattle, Monaro

Pigeon House Mountain, Morton National Park

Snow gum (Eucalyptus pauciflora)

Table 4. Implementation arrangements

This table lists the priority management actions for each strategy. Each of these actions is based on the analysis of landscape systems integrated with community and government aspirations, the rationale of which is available in CAP 2023 supporting documentation. All actions are a priority. This table also lists the relative priorities between actions and across the three landscapes. These management actions:

- are identified for each landscape (SC – South Coast, FSC – Far South Coast and T – Tablelands)
- outline expected community and organisational involvement (implementation partners)
- are shown as an (•) or emphasised by an (●), depending on the relevance of the priority action in each landscape.

CAP 2023 goal, objective, target, strategy and priority action	Landscape			Implementation partners
	SC	FSC	T	
Goal: Sustainable economies and community wellbeing				
Objective: Local industries dependent on natural resources are profitable and sustainable **Target: By 2023, natural resource dependent enterprises are supported to adopt practices that improve profitability**				
Support business performance within natural resource dependent industries				
Priorities:				
• Grazing industry	●	●	●	Aboriginal groups, CMA, DPI (Agriculture NSW, Fisheries NSW), economic development organisations, LHPA, local government, major accounting firms, primary producer groups, RDA
• Dairy industry	●	●	•	
• Aquaculture and fishing industry	●	●	•	
• Horticulture industry	•	•	•	
• Aboriginal enterprise development	●	●	●	
Management Actions:				
• Investigate issues impacting on the profitability and sustainability of existing primary production enterprises	●	●	●	
• Facilitate access to enterprise development opportunities, including business planning, succession planning, environmental management systems and property planning training	•	●	●	
• Facilitate the establishment of new market opportunities	•	●	●	
• Facilitate enterprise diversification and innovation	•	•	●	
Maintain and improve the natural resource assets that support local industries				
Priorities:				
• Grazing industry	●	●	●	Aboriginal groups, CMA, DP&I, DPI (Agriculture NSW, Crown Land, Fisheries NSW, Forests NSW), economic development organisations, local government, primary producer groups, RDA, SCA, tourism industry groups
• Dairy industry	●	●		
• Aquaculture and fishing industry	●	●		
• Horticulture industry	•	•	•	
• Tourism industry	●	●	•	
Management Actions:				
• Identify and map the natural resource assets that support industry in each landscape	●	●	•	
• Practices that maintain and improve the natural resource assets that support industry, including soil, terrestrial ecosystems and marine, estuarine and freshwater ecosystems	●	●	•	
• Secure additional investment in the natural resource assets that support local industries	●	●	•	
Support a broader industry base in local economies and communities				
Priorities:				
• Food production and distribution systems	•	•	•	Aboriginal groups, CMA, DP&I, DPI (Agriculture NSW, Fisheries NSW), economic development organisations, Landcare, local government, primary producer groups, RDA, sustainability groups, tourism industry groups
• Nature-based tourism	•	•	•	
• Industries that reduce dependency on external resources, particularly fossil fuels	•	•	•	
• Carbon sequestration industries	•	•	•	
Management Actions:				
• Facilitate the establishment of new, alternative and emerging industries	●	●	●	
• Investigate business models that address barriers to the establishment of new primary production enterprises	•	•	•	

CAP 2023 goal, objective, target, strategy and priority action	Landscape			Implementation partners
	SC	FSC	T	
Objective: Private and public land and water managers make well-informed decisions about use and care of natural resources **Target: By 2023, land and water managers are supported to increase their capacity to manage natural resources**				
Deliver information and extension services that meet land and water manager needs				
Priorities:				Aboriginal groups, CMA, DPI (all divisions), economic development organisations, Landcare, LHPA, local government, non-government organisations, primary producer groups, RDA, SCA
• Primary producers	●	●	●	
• Small-scale and peri-urban enterprises	●	●	●	
• Managers of priority public land assets	●	●	●	
• Resource use consistent with land capability	•	•	•	
• Stewardship of land and sea	●	●	●	
Management Actions:				
• Deliver extension services that support farm profitability and land and water stewardship practices	●	●	●	
• Provide ongoing information and extension services to support continuous improvement	●	●	●	
• Develop tools to provide reliable, timely and accessible information to support land manager decision making	●	●	●	
Support land and water managers to respond and adapt to the threat of invasive species and diseases				
Priorities:				Aboriginal groups, Australian Government, CMA, DPI (all divisions), economic development organisations, Landcare, LHPA, local government, non-government organisations, primary producer groups, RDA, research institutions, SCA
• Invasive species and diseases that threaten existing lifestyles and livelihoods	●	●	●	
• New and emerging invasive species and diseases	●	●	●	
• Land manager capacity to adapt	●	●	●	
• Government capacity to adapt	•	•	•	
Management Actions:				
• Implement the Southern Rivers regional weed strategy	●	●	●	
• Facilitate effective cross tenure collaboration on management of invasive species and diseases	●	●	●	
• Investigate alternative lifestyle and livelihood options for those regions that are at risk of significant change from invasive species and diseases	•	•	●	
Support land and water managers to respond and adapt to natural resource shocks				
Priorities:				Aboriginal groups, Australian Government, CMA, DPI (all divisions), economic development organisations, Landcare, LHPA, local government, non-government organisations, OEH (NPWS, Regional Operations, Science) primary producer groups, RDA, research institutions, SCA
• Land manager capacity to adapt	●	●	●	
• Government capacity to adapt	•	•	•	
• Information systems to support land manager decision making	●	●	●	
Management Actions:				
• Deliver programs that increase land manager capacity to adapt	●	●	●	
• Ensure government services are responsive to shocks and able to meet land manager needs	●	●	●	
• Develop tools to provide reliable, timely and accessible information to support land manager decision making	•	•	•	

CAP 2023 goal, objective, target, strategy and priority action	Landscape			Implementation partners
	SC	FSC	T	
Objective: Communities are resilient, with a sense of wellbeing and connection **Target: By 2023, communities are supported to increase their capacity to contribute to natural resource management and wellbeing**				
Build and support industry and community networks				
Priorities:				AA, Aboriginal groups, Australian Government CMA, DPI (Agriculture NSW, Fisheries NSW), health networks, Landcare, LHPA, local government, non-government organisations, primary producer groups, RDA, RFS, SCA
• Primary producer groups	●	●	●	
• Landcare groups	●	●	●	
• Aboriginal groups	●	●	●	
• Small farm groups	●	●	●	
• Youth in agriculture and NRM	•	•	•	
• Nature-based tourism	•	•	•	
• Recreation groups	•	•	•	
Management Actions:				
• Build the strength of existing networks, government and non-government	●	●	●	
• Investigate alternative models to connect people	●	●	●	
• Encourage greater collaboration between networks	•	•	•	
Support a greater contribution by individuals to NRM				
Priorities:				AA, Aboriginal groups, Australian Government, CMA, DPI (Agriculture NSW, Fisheries NSW), Landcare, LHPA, local government, non-government organisations, primary producer groups
• Landcare volunteers	●	●	●	
• Primary producers	●	●	●	
• Nature-based tourism	•	•	•	
• Recreational users	•	•	•	
• Aboriginal people	●	●	●	
• Youth	•	•	•	
• Corporations	•	•	•	
Management Actions:				
• Provide resources and technical advice to support volunteer effort	●	●	●	
• Build capacity of and foster local leaders	●	●	●	
• Enable greater corporate social responsibility investment in agriculture, aquaculture and NRM	●	•	•	
Celebrate and promote the cultural and natural identity of the Southern Rivers region				AA, Aboriginal groups, arts organisations, Australian Government, CMA, Landcare, local government, non-government organisations, RDA
Priorities:				
• People's connection to the land and sea	●	●	●	
• Aboriginal cultural heritage	●	●	●	
• Diversity of values and aspirations	•	•	•	
Management Actions:				
• Develop community visions for the natural resources of local areas	•	•	•	
• Support events that promote the region's identity	•	•	•	
• Recognise and value Aboriginal cultural heritage	●	●	●	

CAP 2023 goal, objective, target, strategy and priority action	Landscape			Implementation partners
	SC	FSC	T	
Goal: Adaptive management and devolved decision making				
Objective: Coordinated and collaborative implementation of CAP 2023				
Target: From 2015, partnerships are implemented to coordinate and collaboratively deliver CAP 2023				
Build on existing partnerships with industry, community, government and non-government organisations				Aboriginal groups, Australian Government, CMA, DP&I, DPI (all divisions), economic development organisations, Landcare, LHPA, local government, non-government organisations, NOW, OEH (NPWS, Regional Operations), primary producer groups, RDA, research institutions, SCA
Priorities:				
• Primary producer groups	●	●	●	
• Landcare groups	●	●	●	
• Aboriginal groups	●	●	●	
• Local government	●	●	●	
• Regional organisations with overlapping or adjacent boundaries	•	•	•	
Management Actions:				
• Negotiate agreements for cooperative and collaborative delivery of CAP 2023	●	●	●	
• Facilitate greater collaboration across service providers	●	●	●	
• Facilitate co-investment in agriculture and NRM	●	●	●	
Develop an implementation planning and investment framework to deliver CAP 2023 strategies				Aboriginal groups, Australian Government, CMA, DPI (all divisions), economic development organisations, Landcare, LHPA, local government, non-government organisations, OEH (NPWS, Regional Operations), primary producer groups, RDA, research institutions, SCA
Priorities:				
• Localised implementation of CAP 2023	●	●	●	
• Commitment of resources to priority actions	●	●	●	
• Clear benefits for local industries and communities	●	●	●	
• Increased investment in agriculture, aquaculture and NRM	●	●	●	
Management Actions:				
• Negotiate priorities with local industries and communities	●	●	●	
• Develop implementation plans	●	●	●	
• Secure investment to implement priority actions	●	●	●	
Deliver integrated services in a coordinated and collaborative way				AA, CMA, DPI (all divisions), Landcare, LHPA, economic development organisations, local government agencies, OEH (all divisions), non-government agencies, SCA
Priorities:				
• Delivery of services without duplication	●	●	●	
• Utilising the strengths of each service provider	•	•	•	
Management Actions:				
• Coordinate State government service delivery	●	●	●	
• Align State and local government service delivery	•	•	•	
• Align government and non-government service delivery	•	•	•	

CAP 2023 goal, objective, target, strategy and priority action	Landscape			Implementation partners
	SC	FSC	T	
Objective: Information is available to support adaptive management **Target: From 2015, information is available to support adaptive and evidence-based decision making by land and water managers**				
Monitor, evaluate and report on the performance of CAP 2023 implementation				
Priorities:				
• Monitoring performance of implementation	●	●	●	CMA, DPI (all divisions), Landcare, LHPA, local government, OEH (all divisions), SCA
• Reporting on performance to industry, community and government	●	●	●	
• Using multiple lines of evidence	•	•	•	
• Learning from implementation	●	●	●	
Management Actions:				
• Establish a performance monitoring framework, linked to State wide monitoring programs	•	•	•	
• Evaluate programs to inform future implementation	●	●	●	
Monitor, analyse and adapt to risks, trends and shocks				
Priorities:				
• Climate trends and shocks	●	●	●	AA, Australian Government, CMA, DP&I, DPI (all divisions), LHPA, local government, OEH (all divisions), RDA, research institutions, SCA
• Financial trends and shocks	●	●	●	
• Industry trends and shocks	●	●	●	
• Wellbeing trends and shocks	•	•	•	
Management Actions:				
• Establish a risk monitoring framework	●	●	●	
• Communicate risk information to industry and community	•	•	•	
• Ensure information and analysis is available to support adaptive decision making	●	●	●	
Facilitate access to information and knowledge for decision making at a range of scales				
Priorities:				
• Key knowledge gaps	●	●	●	AA, Australian Government, CMA, DP&I, DPI (all divisions), LHPA, local government, OEH (all divisions), RDA, research institutions, SCA
• Innovation	●	●	●	
• Partnerships with research institutions and universities	●	●	●	
• Reliable, timely and accessible information	●	●	●	
• Collaborating across regions	•	•	•	
Management Actions:				
• Identify key knowledge gaps	●	●	●	
• Establish collaborations with other regions, research institutions, universities and community	●	●	●	
• Develop tools to provide reliable, timely and accessible information to decision makers	●	●	●	

CAP 2023 goal, objective, target, strategy and priority action	Landscape			Implementation partners
	SC	FSC	T	
Objective: Private and public land and water managers effectively respond and adapt to change **Target: From 2015, frameworks and protocols are implemented for devolved, adaptive and evidence-based decision making**				
Establish devolved and collaborative decision making structures at the appropriate scale				Aboriginal groups, CMA, DP&I, DPI (all divisions), economic development organisations, Landcare, LHPA, local government, non-government organisations, OEH (all divisions), primary producer groups, RDA, research institutions, SCA
Priorities:				
• Devolving decision making to appropriate scale	●	●	●	
• Industry and community participation in decision making	●	●	●	
• Working with existing structures	●	●	●	
Management Actions:				
• Build on existing decision making structures	●	●	●	
• Investigate alternative models for devolved and collaborative decision making	•	•	•	
Ensure that decisions at all scales are balanced, transparent and evidence-based				AA, Aboriginal groups, Australian Government, CMA, DP&I, DPI (all divisions), economic development organisations, Landcare, LHPA, local government, non-government organisations, OEH (all divisions), primary producer groups, RDA, research institutions, SCA
Priorities:				
• Land use plans	●	●	●	
• Land use decisions	●	●	●	
• Development controls	●	●	●	
• Land use practices are consistent with capability of the land	•	•	•	
• Water and estuary planning and management	●	●	●	
Management Actions:				
• Develop tools to provide reliable, timely and accessible information to land use decision makers	●	●	●	
• Facilitate land use plans and decisions to be consistent with regional planning strategies, to maintain strategic natural resource assets including agricultural lands	●	●	•	
• Facilitate development controls in existing and greenfield developments to minimise impact on strategic natural resource assets	●	●	•	
• Review existing regulatory arrangements to assess alignment to CAP 2023	●	●	●	
• Provide land capability and best management practice information to land managers	●	●	●	
Support the continuous improvement of national, State and regional policies, plans and priorities				Australian Government, CMA, DP&I, DPI (all divisions), LHPA, OEH (all divisions), SCA
Priorities:				
• Policies, plans and priorities adapt to new evidence and knowledge	●	●	●	
• Lessons from regional service delivery inform improvements at the State scale	●	●	●	
Management Actions:				
• Collaborate with other regions with similar landscapes	•	•	●	
• Gather evidence to inform improvements	●	●	●	
• Develop frameworks to ensure consideration of regional issues	●	●	●	

CAP 2023 goal, objective, target, strategy and priority action	Landscape			Implementation partners
	SC	FSC	T	
Goal: Diverse, healthy, connected and productive natural environments				
Objective: Soil condition supports people and the environment				
Target: By 2023, support land managers to increase the adoption of practices to: • **improve soil condition of productive lands** • **manage naturally fragile soils within their capability**				
Improve soil condition in rural lands (Land and Soil Capability Classes 3–5)				
Priorities:				Australian Government, CMA, DPI (Agriculture NSW, Crown Land, NOW), Landcare, LHPA, non-government organisations, OEH (Regional Operations), primary producer groups, SCA
• Productive capacity of agricultural lands	●	●	●	
• Soil carbon	•	●	●	
• Capacity of landscape to absorb and retain water	•	•	●	
Management Actions:				
• Practices that increase productive capacity of agricultural lands	•	•	●	
• Practices that maintain ground cover	•	•	●	
• Practices that increase soil carbon	•	●	●	
• Practices that retain water in the landscape	•	●	●	
Manage naturally fragile soils (Land and Soil Capability Classes 6–8)				
Priorities:				Australian Government, CMA, DPI (Agriculture NSW), Landcare, LHPA, OEH (Regional Operations), primary producer groups, RFS, SCA
• Land and soil capability Classes 6–8	●	●	●	
• Sodic soils	•	•	●	
• Acid sulfate soils	●	●		
• Saline soils	•	•	●	
• Shallow soils	•	•	●	
• Dune systems	●	●		
Management Actions:				
• Practices that maintain ground cover	•	•	●	
• Practices that are consistent with capability of the land	●	●	●	
Protect priority aquatic assets from land degradation				
Priorities:				Australian Government, CMA, DPI (Agriculture NSW, Fisheries NSW, Crown Land, NOW), Landcare, non-government organisations, primary producer groups, RFS, SCA
• Water supplies	●	●	●	
• Good condition wetlands	●	●	●	
• Good condition estuaries	●	●	●	
• Good condition marine areas and marine protected areas	●	●		
• High value fish habitat	●	●	●	
Management Actions:				
• Identify and map priority sites for treatment of land degradation in each landscape	●	●	●	
• Practices to mitigate impact of active erosion	•	•	●	
• Practices to mitigate impact of acid sulfate soils	●	•		
• Practices to mitigate impact of saline soils			•	

CAP 2023 goal, objective, target, strategy and priority action	Landscape			Implementation partners
	SC	FSC	T	
Objective: Health and integrity of natural habitat supports people and the environment **Target: By 2023, land and water managers are supported to increase the adoption of practices that maintain or improve the:** **• extent and condition of priority habitats • connectivity of habitat**				
Maintain and improve the extent and condition of priority habitats				
Priorities:				
• Under reserved and threatened vegetation types	●	●	●	Aboriginal groups, Australian Government, CMA, DPI (all divisions), Landcare, LHPA, local government, non-government organisations, OEH (Regional Operations, Science), primary producer groups, SCA
• Habitat that supports threatened species	•	•	•	
• High value fish habitat	●	●	●	
• High carbon capture ecosystems	•	•	•	
Management Actions:				
• Identify and map priority habitat for conservation in each landscape	●	●	●	
• Practices that maintain or improve habitat condition	●	●	●	
• Practices that improve size and shape of remnant vegetation patches	●	●	●	
• Practices that retain key habitat features	•	•	•	
• Practices that reduce the impact of invasive species and diseases on habitat condition and extent	●	●	●	
• Practices that maintain and improve fish habitat	●	●	•	
Maintain and improve habitat that supports connectivity priorities				
Priorities:				Aboriginal groups, Australian Government, CMA, DP&I, DPI (all divisions), Landcare, local government, non-government organisations, OEH (all divisions), primary producer groups
• State, regional and locally significant corridors	●	●	●	
• Fish passage	●	●	●	
Management Actions:				
• Complete mapping of priority corridors for each landscape	●	•	•	
• Practices that maintain connectivity	●	●	●	
• Practices that maintain or improve condition and extent, including revegetation, regeneration, invasive species and diseases management	●	•	●	
• Remove high priority in-stream barriers to fish passage	●	●	•	
Integrate production and conservation goals into primary production systems				
Priorities:				Australian Government, CMA, DPI (Agriculture NSW, Fisheries NSW), Landcare, LHPA, primary producer groups
• Grazing landscapes	●	●	●	
• Aquaculture	●	●	●	
Management Actions:				
• Develop models to support adoption of practices	•	●	●	

CAP 2023 goal, objective, target, strategy and priority action	Landscape			Implementation partners
	SC	FSC	T	
Objective: Fresh water, estuarine and marine assets support people and the environment **Target: By 2023, land and water managers are supported to increase the adoption of practices that maintain or improve the condition of priority fresh water, estuarine and marine assets**				
Maintain and improve the condition of priority fresh water, estuarine and marine assets				
Priorities:				
• Good condition, high recovery potential and strategic river reaches	●	●	●	
• Good condition estuaries	●	●		
• Good condition marine areas and marine protected areas	●	●		
• Good condition wetlands	●	●	●	
• Good condition groundwater resources	•	•	•	Australian Government, Aboriginal groups, CMA, DP&I, DPI (Fisheries NSW, NOW), Landcare, local government, non-government organisations, OEH (Regional Operations, Science), primary producer groups, SCA
Management Actions:				
• Practices that maintain or improve rivers, including managing riparian and in-stream habitat, rehabilitating degraded habitat, invasive species and diseases management and ecosystems based fisheries management	●	●	●	
• Identify and map good condition marine, estuary and wetland assets	●	●	●	
• Practices that maintain or improve estuaries including, reconnection with adjacent ecosystems, seagrass and foreshore habitat management, rehabilitation of degraded habitat, invasive species and diseases management	●	●		
• Practices that maintain and improve marine areas, including ecosystem based fisheries management, habitat protection, marine pest and aquatic disease management	●	●		
• Practices that maintain or improve wetlands	●	●	●	
• Practices that maintain or improve groundwater	•	•	•	
Implement practices that contribute to the maintenance or improvement of water quality and river health				
Priorities:				
• Priority aquatic assets that support local industries	●	●	●	Australian Government, Aboriginal groups, CMA, DP&I, DPI (Agriculture NSW, NOW), EPA, Landcare, local government, non-government organisations, OEH, primary producer groups, SCA
• Impacts from urban environments	●	•	•	
Management Actions:				
• Practices that deliver water sensitive urban design	●	●	•	
• Practices that deliver best practice urban water cycle management	●	●	•	
• Practices that mitigate impacts from point source pollution	●	●	●	
• Practices that minimise impacts from non-point source pollution	●	●	●	
• Protection of existing good condition riparian vegetation	●	●	●	
Equitable sharing of water between people and the environment				
Priorities:				
• Water is available to meet the needs of people and the environment	●	●	●	Aboriginal groups, Australian Government, CMA, DPI (Fisheries NSW, NOW), Landcare, local government, non-government organisations, OEH (Regional Operations, Science), SCA
Management Actions:				
• Implementation of existing and future water sharing plans	●	●	●	
• Practices that retain water in the landscape	•	●	●	
• Practices that provide sustainable security of water supply for the community	●	●	●	

Part 5 – Background information

Acronyms

AA	Office of Communities, Aboriginal Affairs
ANZECC	Australian and New Zealand Environment Conservation Council
ABS	Australia Bureau of Statistics
ALG	African Lovegrass *(Eragrostis curvula)*
CAP	Catchment Action Plan
CAP 1	Southern Rivers Catchment Action Plan 2006–2016
CAP 2023	Southern Rivers Catchment Action Plan 2013–2023
CMA	Catchment Management Authority
DP&I	Department of Planning and Infrastructure
DPI	Department of Primary Industries (comprising Agriculture NSW, Fisheries NSW, Forests NSW, NSW Food Authority, Biosecurity NSW, NSW Office of Water, Catchments & Lands [including Crown Land] and Business Services)
EEC	Endangered Ecological Community
EPA	Environment Protection Authority
FSC	Far South Coast landscape
LHPA	Livestock Health and Pest Authority
MER	Monitoring, Evaluation and Reporting
MPA	Marine Parks Authority
NOW	NSW Office of Water
NPWS	NSW National Parks and Wildlife Service
NRM	Natural Resource Management
NSW	New South Wales
OEH	Office of Environment and Heritage (including NSW National Parks and Wildlife Service, Regional Operations and Science divisions)
RDA	Regional Development Australia
RFS	Rural Fire Service
SC	South Coast landscape
SCA	Sydney Catchment Authority
SES	Socio-ecological System
T	Tablelands landscape
TEC	Threatened Ecological Community

Glossary

Aboriginal: For the purposes of CAP 2023 this includes Aboriginal and Torres Strait Islander people.

Adaptive management: A resource management approach based on the science of learning by doing. It involves testing the response of a system then applying this understanding to future decisions.

Community wellbeing: Wellbeing is related to concepts such as 'quality of life' (Vernon et al. 2009) and has been described as the stable state of being well, feeling satisfied and contented (Australian Unity 2012). Wellbeing is linked to personal and community health, social justice, security, interpersonal relationships, social networks and connectedness, education, housing and health of the surrounding environment (Vernon et al. 2009).

Connectivity: The degree to which land or water allows movement of plants and animals and the operation of ecological processes between different areas of habitat.

Corridor: A landscape element that connects two or more areas of habitat.

Drivers: Underlying forces that cause threats or positive processes to operate on the environment. Drivers may be internal to a system, such as knowledge or skills, or external, such as global market forces.

Fragmentation: The breaking up of natural areas into isolated patches. Habitat connectivity is lost through this process.

Goals: The CAP 2023 goals express an end point that has an observable and measurable element. The CAP 2023 vision is delivered in the medium term (20 years) by the following three goals:

1. Sustainable economies and community wellbeing
2. Adaptive management and devolved decision making
3. Diverse, healthy and connected natural environments.

Habitat: A place suitable for survival and/or reproduction of a particular plant or animal.

High carbon capture ecosystems: Forests, peatlands and blue carbon ecosystems (mangroves, tidal marshes and sea grass) are recognised as ecosystems with a high capacity to capture and store carbon. Degradation of these systems is of particular concern as the resulting carbon dioxide emissions contribute to climate change (Herr et al. 2012).

Key natural resource assets: The key natural resource assets of the Southern Rivers region are land, vegetation, rivers, estuaries, marine, wetlands and groundwater.

Land and water manager: An individual or a collective who manages natural resources. They may be the land owner, leasee or an employee. They may be a private or public entity. Local government, NSW State Government and the Australian Government are all land and water managers.

Management actions: The key activities required to implement the strategy. Many of the actions deliver multiple outcomes, within or across pillars. Implementation and investment planning will identify where actions deliver multiple outcomes.

Objectives: The set of more specific achievements that will jointly contribute to the CAP 2023 goals and are intended to direct the catchment community's efforts over the next 10 years.

Organic carbon: The amount of carbon bound in organic compounds in the soil. It is a prime biological determinant of soil health.

Pillars: The three pillars, 'people', 'governance' and 'natural resources' provide a framework for the set of objectives, targets, strategies, priorities and actions that are required to achieve progress towards the CAP 2023 vision.

Priorities: CAP 2023 priorities describe where to focus effort and investment to affect maximum change. Priorities are defined for each strategy and, where relevant, are differentiated spatially across the region.

Priority habitats: Identified through CAP 2023 consultation as under reserved and threatened vegetation types, threatened species habitat, high value fish habitat and high carbon capture ecosystems.

Resilience: The capacity of a system to absorb disturbance and still retain its basic structure and function.

River priorities:

- Maintain - good condition recovery potential: Where a section of river has relatively intact native vegetation that resists erosion, and river shape and behaviour is consistent with an undisturbed river, allowing fast, complete recovery from disturbance.
- High fragility river reach: A section of river that is highly susceptible to degradation due to the geology and shape of the surrounding landscape.
- High recovery potential: Where a section of river is in moderate condition. Recovery of good condition is occurring at a moderate rate but has potential to recover quickly if existing threats are removed.
- Rapid recovery potential: Where natural recovery of vegetation, river shape and/or behaviour that is consistent with an undisturbed river, is occurring rapidly.
- Strategic recovery potential: Where a degraded section of river poses imminent threat to an adjacent good condition section of river or a section of river is a significant feature of the catchment and is under threat of further degradation, such as a rare riparian vegetation type or fragile type of stream. Strategic recovery reaches may be in any condition state.

Socio-ecological system: An area with broadly consistent social, economic and environmental characteristics (e.g. landform, land use, climate and social structures) and therefore is a useful unit for planning and decision making.

Soil condition: The ability of soil to deliver a range of essential ecosystem services such as habitat, decomposition, nutrient and water cycling, climate regulation and support of primary production. Also referred to as soil health.

Stewardship: Within CAP 2023 stewardship refers to taking care of natural resources through responsible use and protection. It incorporates consideration of intergenerational responsibility for natural resource condition.

Strategies: CAP 2023 strategies describe what broad actions need to be undertaken to meet the objectives.

Sustainable community: A community of people that is economically, environmentally, and socially healthy and resilient while ensuring that adequate resources are equitably available for future generations. For further details go to: www.iscvt.org/what_we_do/sustainable_community/

Sustainable economy: An economy that operates within safe environmental limits and enriches people's lives with ongoing access for future generations to the resources and opportunities to live well.

System: A connected set of elements organised in such a way that they achieve a purpose or function. A system is more than the sum of its parts. Systems can exhibit adaptive, dynamic, goal-seeking, self-preserving and evolutionary behaviour (Meadows 2008).

Targets: Targets describe the specific results that will be evident if the CAP 2023 objectives have been achieved. They are key measures against which the performance of CAP 2023 implementation can be audited. More quantified targets, based on available resources, will be defined in implementation and investment plans.

Thresholds: The critical tipping point before a system changes into a different state, either desired or undesired.

Vision: The vision 'sustainable communities, profitable industries, resilient landscapes' describes the long-term 50 year view of the future and is presented as an aspiration for the region.

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Supporting documentation

CAP 2023 is informed by a number of papers which are listed below and form the supporting documentation for the plan. Refer to the Southern Rivers CMA website: www.southern.cma.nsw.gov.au

CAP 2023 Papers:

- Adopting a resilience thinking approach – Future Makers or Future Takers?
- Alignment of CAP 2023 with existing state government policies, plans and strategies
- CAP 1 evaluation
- Description of the Far South Coast landscape
- Description of the South Coast landscape
- Description of the Tablelands landscape
- Embracing community wellbeing and livelihood
- Getting the scale right (spatial, temporal and institutional)
- Land
- Plants and animals
- Strategic decision making
- The Aboriginal community cultural landscape
- Understanding community, partners and landholders of the Southern Rivers region
- Water

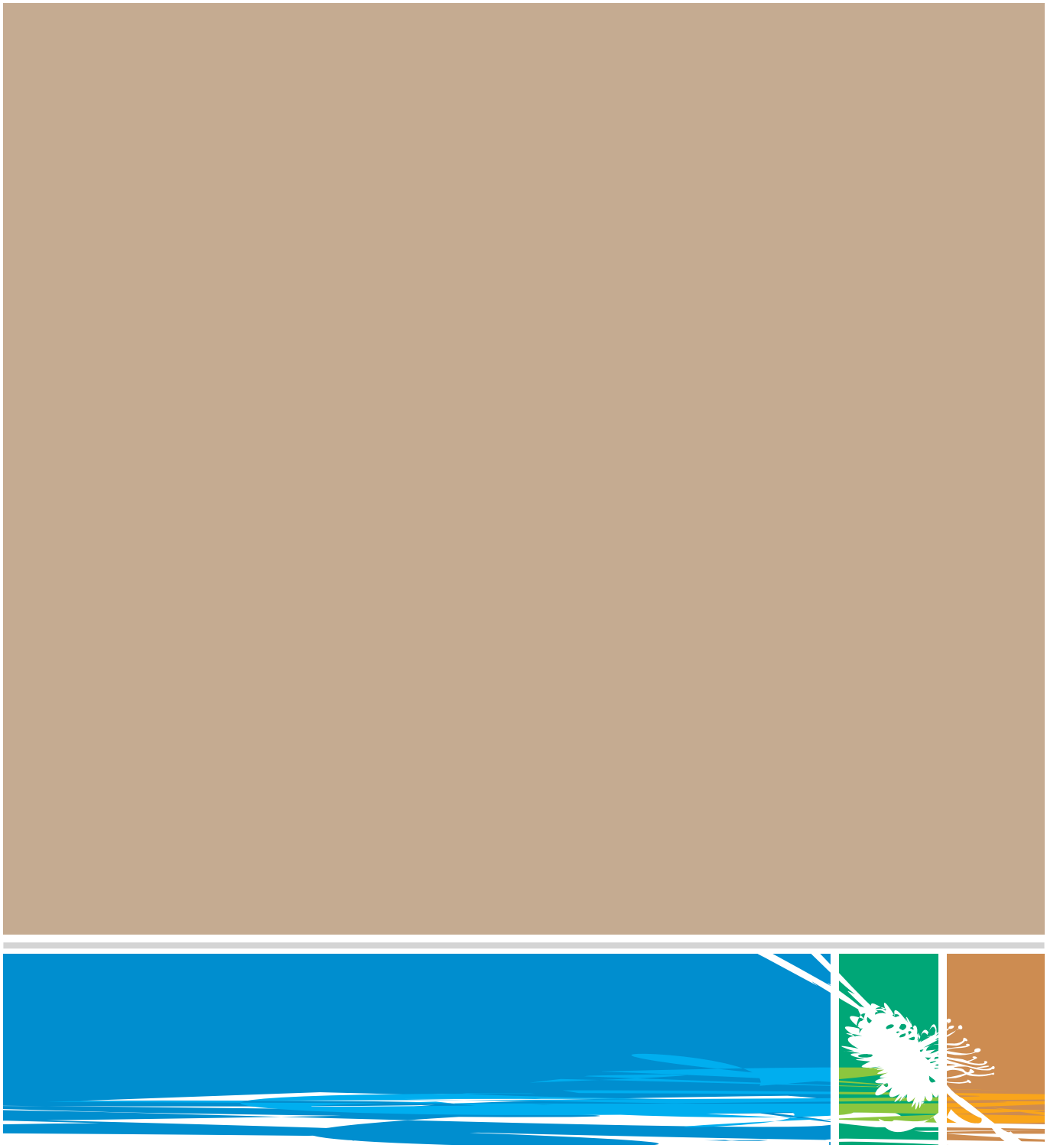
Pastor Ossie Cruse, Edrom (near Eden), NSW

Monaro landscape

Rock swirl

Dairy cattle, Jellat Jellat

Short beaked echidna (Tachyglossus aculeatus)



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