NATURAL RESOURCE MANAGEMENT

Adelaide and Mount Lofty Ranges State and Condition reporting South Australia 2014

Department of Environment, Water and Natural Resources

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Government of South Australia
Department of Environment,
Water and Natural Resources

Department of Environment, Water and Natural Resources

GPO Box 1047, Adelaide SA 5001

Telephone National (08) 8463 6946

International +61 8 8463 6946

Fax National (08) 8463 6999

International +61 8 8463 6999

Website www.environment.sa.gov.au

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Photo on front cover
Subtidal reefs in South Australia, credit: DEWNR

Contacts

Team Leader; Evaluation and Reporting, Glen Scholz, e: glen.scholz@sa.gov.au

Principal Advisor, Evaluation and Reporting, Brad Page, e: Bradley.Page@sa.gov.au

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Summary

In South Australia, natural resources are central to our way of life, and to the success and productivity of our tourism and primary industries.

Land managers, with support from government agencies, NRM boards, industry bodies and conservation groups, are always looking to adopt more sustainable resource management practices.

To help guide future management, the report cards in this document summarise the trends in condition of our natural resources following the methods outlined in the NRM Reporting Framework. Each report card focusses on a single "representative measure" from the State NRM Plan and is generated using the best available information.

Report cards are presented at statewide and NRM regional scales. The report cards use a consistent format, which includes an introduction, a section on trends, a description of the current condition of the resource or management issue, and a score of information reliability.

The trend is typically categorised as either "getting better", "getting worse" or "stable" based on information collected over the last 5 years. The current condition of the resource or the management issue is categorised as "good", "fair" or "poor" based on the most recent information collected. The score for the reliability of the information is based on the applicability of the information presented, the duration since it was collected, and the spatial coverage of the information.

For more details on the sources of information, indicators and information processing methods, please read the additional information linked at the bottom of each report card.

1 Ensure people are better informed and improve capacity in NRM decision making

We all have a stake in the health and sustainability of our natural environment.

Each NRM Board has a role to plan, provide leadership and involve the community in sustainable management of natural resources; to engage the community and help to provide the knowledge and skills for everyone to take part in managing our natural and cultural assets.

The following 2 snapshots address Guiding Target 1 from the State NRM Plan: Ensure people are better informed and improve capacity in NRM decision making. Snapshots are based on regional information.

1.1 How are we engaging people to improve awareness of natural resource management issues and priorities?

1.2 How many stakeholders are contributing to NRM projects?

2014 Regional Snapshot

How are we engaging people to improve awareness of natural resource management issues and priorities?

We all have a stake in maintaining the health and sustainability of our natural resources – our plants, animals, soil and water.

Participation in learning activities improves the practices, skills and knowledge of landholders, volunteers and community members, and leads to improved land management and environmental awareness.

We engage land holders and the community through activities such as field days and workshops, and by distributing educational materials, such as factsheets and guides. Topics covered include pest plant and animal control, threatened species and habitat protection, bushfire prevention, re-vegetation, farming improvement practices, and water and land management.

For more information on regional programs to improve awareness of natural resource management issues and priorities, please refer to the NRM Board website.

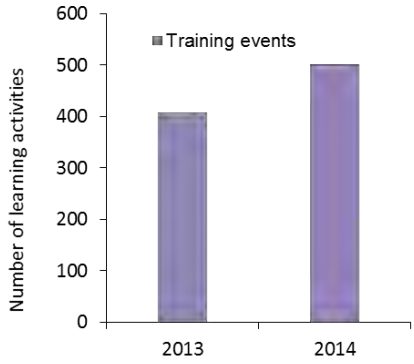
Trends in the number of NRM training events

State target

Ensure people are better informed and improve capacity in NRM decision making

Trends (2013-14)	Getting better	The number of training events is increasing

Between 2013-14, the number of natural resource management training events increased in the Adelaide and Mount Lofty Ranges NRM region. Trends in the number of educational materials produced are not known.



Where we are at (2013)	Fair	More than 407 training events, which engaged over 7,000 people, were conducted in 2012-13. More information on awareness is required.

In 2013, the Adelaide and Mount Lofty Ranges NRM region conducted more than 407 training events, which engaged more than 7,000 people. More information on awareness and participation is required.

Primary producers manage 60 per cent of the land in South Australia, so they play a critical role in managing our natural resources. The Australian Bureau of Agriculture and Resource Economics and Sciences found that South Australian land holders improved their land management practices when they participated in learning activities, but awareness of these activities varied widely. Landholders were most familiar with the National Landcare Program (91 per cent awareness), but only 13 per cent were aware of Caring for our Country.

The Government of South Australia is collaborating with Primary Producers SA, NRM boards, and NRM agencies to raise awareness of, and tailor natural resources management services and activities to the needs of farming communities.

Reliability of information	★★★☆☆	Information is not standardised, nor collected across all NRM regions

Further information: Technical information for this report, Agriculture and NRM Action plan

Government of South Australia

2014 Regional Snapshot

How many stakeholders are contributing to NRM projects?

Many organisations and individuals work and invest in managing our natural resources. To coordinate these efforts, all partners work towards a shared vision, which is outlined in each regional NRM plan. NRM boards develop these plans for the use and protection of natural resources in partnership with land holders, community groups, industries, government agencies, non-government organisations, researchers and Aboriginal people.

These partnerships bring together people, networks and resources to deliver projects and maximise the pools of knowledge, skills, and technical and financial capacity.

Most of these projects are funded by the Australian Government, but diverse stakeholder contributions and participation are integral to the project delivery. This report summarises the number of stakeholders, and the number and types of groups involved in NRM projects.

State target

Ensure people are better informed and improve capacity in NRM decision making

Trend	Unknown	Trends in the numbers of stakeholders and group types contributing to NRM projects will be available in the future

No information is available on the trends in the numbers of stakeholders and group types contributing to NRM projects.

Where we are at (2013)	Unknown	More information on the numbers of stakeholders and group types is required

Each NRM region has a different strategy to increase and report about its stakeholder base. In 2013, there were 442 projects in the Adelaide and Mount Lofty Ranges NRM region and these engaged a large number of stakeholders from 9 different group types (government agencies, landholders, industry groups, non-government organisations, researchers, community groups, schools and TAFE, Aboriginal groups, and NRM groups).

Not all stakeholders nor their contribution to the delivery of projects are captured in the available data. Methods to standardise the collection of stakeholder information are being developed. The numbers of different stakeholders contributing to each project will be available in the future.

Reliability of information	★★☆☆☆	Information is not standardised, nor collected across all NRM regions

Further information:
Technical information for this report, Partnerships in regional NRM, Stakeholder identification and segmentation

This report is a work in progress. As resource monitoring improves, so too will our ability to describe trends in condition.

Government of South Australia

2 Involve more people in the sustainable management of natural resources

We all have a stake in the health and sustainability of our natural environment.

Each NRM Board has a role to plan, provide leadership and involve the community in sustainable management of natural resources. In particular, NRM boards emgage with local Aboriginal communities, who are the traditional managers of our natural resources. Training events and volunteer opportunities engage the community and help to provide the knowledge and skills for everyone to take part in managing our natural and cultural assets.

The following 3 snapshots address Guiding Target 2 from the State NRM Plan: Improve more people in the sustainable management of natural resources. Snapshots are based on regional information.

2.1 How many volunteers are involved in natural resource management?

2.2 How many Aboriginal people are involved in NRM?

2.3 How many people are involved in NRM training activities?

2014 Regional Snapshot

How many volunteers are involved in natural resource management?

We all have a stake in maintaining the health and sustainability of our natural resources – our plants, animals, soil and water.

One way of engaging and educating people about our natural resources is to provide opportunities for to volunteer on natural resource management projects. Volunteer projects improve the sustainability of our natural resources and provide opportunities for people to network, learn new skills and improve their physical, mental and social wellbeing.

In the Adelaide and Mount Lofty Ranges NRM region, volunteers are involved in projects on both private and public land, including national parks, conservation parks and reserves. Volunteers assist with re-vegetation, soil and land management, native animal and plant surveys, fire management, trail maintenance, weed and pest animal control, heritage site restoration, public education, fundraising and assisting in project administration.

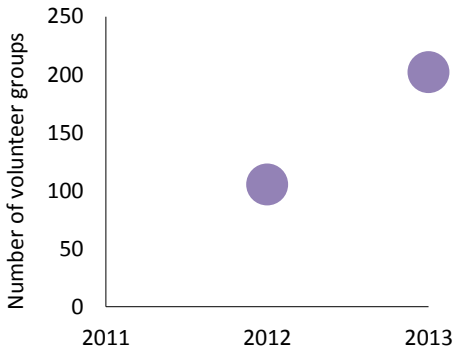
State target

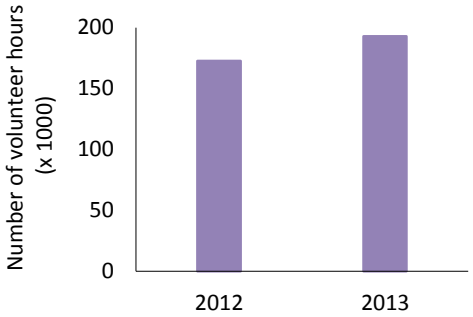
Involve more people in the sustainable management of natural resources

Trend	Unknown	Trends in volunteer conservation activities will be available in the future

Between 2012-13, there was an increase in the number of volunteer groups and volunteer hours (see graph on right).

Future reporting will track trends in volunteer effort in natural resource management projects inside and outside parks (see graphs on right).





Where we are at (2013)	Fair	A total of 202 volunteer groups spent nearly 200,000 hours volunteering on natural resource management projects

A survey undertaken by Australian Bureau of Statistics found that more than 60,000 South Australians (about 2.2 per cent) volunteered on natural resource management projects in 2012. These projects included those coordinated or undertaken by private landholders, non-government organisations and government agencies.

In the Adelaide and Mount Lofty Ranges NRM region in 2013, around 10,000 people from about 202 volunteer groups spent close to 200,000 hours volunteering on natural resource management projects coordinated or funded by the Government of South Australia and NRM Boards. Most of this volunteer effort was spent on activities outside of parks.

Reliability of information	★★★☆☆	Good

Further information:
Technical information for this report, SA Volunteer Strategy

This report is a work in progress. As resource monitoring improves, so too will our ability to describe trends in condition.

Government of South Australia

2014 Regional Snapshot

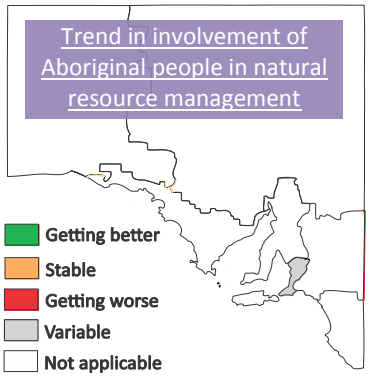
How many Aboriginal people are involved in NRM?

The protection and management of natural resources have been traditional responsibilities of Aboriginal people for tens of thousands of years. Despite widespread changes to Australia over the last 200 years, healthy natural resources remain critical to the spiritual, social, cultural and economic wellbeing of Aboriginal people.

This report tracks Aboriginal involvement in natural resource management through participation in projects, boards, committees, workshops and employment with the Department of Environment, Water and Natural Resources (DEWNR).

The 2011 Australian Bureau of Statistics census indicates that 16,000 Aboriginal people and Torres Strait Islander people (jointly referred to as Aboriginal people in this report) live in the Adelaide and Mount Lofty Ranges NRM region – about 1.2 per cent of the population.

In South Australia the unemployment rate of Aboriginal people was about three times higher than for non-Aboriginal people, between 2005-11. The Government of South Australia aims to increase Aboriginal employment in all public sector agencies to at least 2 per cent across all levels. DEWNR has an additional target of at least 3 per cent.



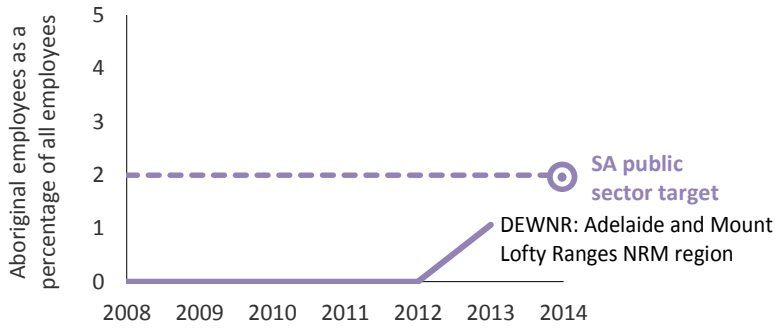
State target

Involve more people in the sustainable management of natural resources

Trend (2008-13)	Variable	In this NRM region, Aboriginal employment is increasing within DEWNR. More information is needed to report trends in Aboriginal participation in NRM.

From 2008-12, DEWNR did not meet the Aboriginal employment targets of 2 per cent (public sector target, graph on right) or 3 per cent (DEWNR target) in the Adelaide and Mount Lofty Ranges NRM region.

In 2013, 2 Aboriginal people were employed by DEWNR (1 per cent of staff) in partnership with the Adelaide and Mount Lofty Ranges NRM Board.



Where we are at (2013)	Poor	Aboriginal employment in DEWNR needs to increase to reach the 2 per cent target in the Adelaide and Mount Lofty Ranges NRM region. More information is needed to report Aboriginal participation rates in NRM

The knowledge of Aboriginal people guides natural resource management through their participation in boards, committees and workshops. The Adelaide and Mount Lofty Ranges NRM board has 1 Aboriginal member.

The collection of information on Aboriginal participation in natural resource management is not standardised in this NRM region, so it is not reported.

The Australian Government's 2009 Invest Action Plan highlights that increasing Aboriginal employment and broader participation in the natural resource management sector requires long-term funding and support, particularly for career-path opportunities.

Reliability of information	★★★☆☆	Excellent for Aboriginal employment but participation data are not standardised

Further information: Technical information for this report, The National agreement to close the gap in Aboriginal disadvantage, and a report on the benefits of Aboriginal engagement in the natural resource management sector

This report is a work in progress. As monitoring improves, so too will our ability to describe trends.

Government of South Australia

2014 Regional Snapshot

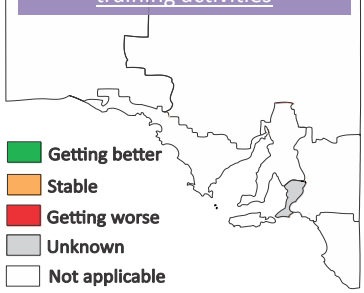
How many people are involved in NRM training activities?

An involved and informed community is essential to care for our natural and cultural resources. Training in natural resource management aims to improve the knowledge and skills of landholders, volunteers and community members to improve environmental awareness and resource management.

Volunteers and staff from government and non-government organisations run a range of training courses, workshops and field days to help landholders, volunteers and community members improve their knowledge of sustainable management practices, and to promote awareness of environmental issues.

Training typically focuses on the needs of landholders and the community, with courses often covering pest plant and animal control, threatened species and habitat protection, re-vegetation, bushfire prevention, farming improvement practices, and other water and land management practices. Other training events focus on improving environmental awareness of the broader community, students and teachers.

Trend in involvement in NRM training activities



State target

Involve more people in the sustainable management of natural resources

Trend	Unknown	Trends in participation in NRM training will be available in the future

Trends in participation in NRM training are not known. Information on the level of participation in events such as seminars, field days and workshops in NRM will be available in the future.

Where we are at (2012)	Fair	At least 7,382 people participated in NRM training events such as seminars, field days and workshops in 2012. More information about participation in training is being collected.

The Government of South Australia and NRM Board members regularly consult with the community to assess their needs and provide natural resource management information, research and practices.

Each region has different strategies to address natural resource management training needs, and the collection of information on training participation is not standardised across the state.

Information from the Adelaide and Mount Lofty Ranges NRM region indicates that in 2012 at least 7,382 people participated in training events such as seminars, field days and workshops. A survey undertaken in 2012 to assess progress against South Australia's Strategic Plan showed that training events in nature conservation were attended by about 13 per cent of people in the NRM region.

It is clear that the available information underestimates training participation rates across the region.

Reliability of information	★★★☆☆	Good. Training information is not standardised across NRM regions.

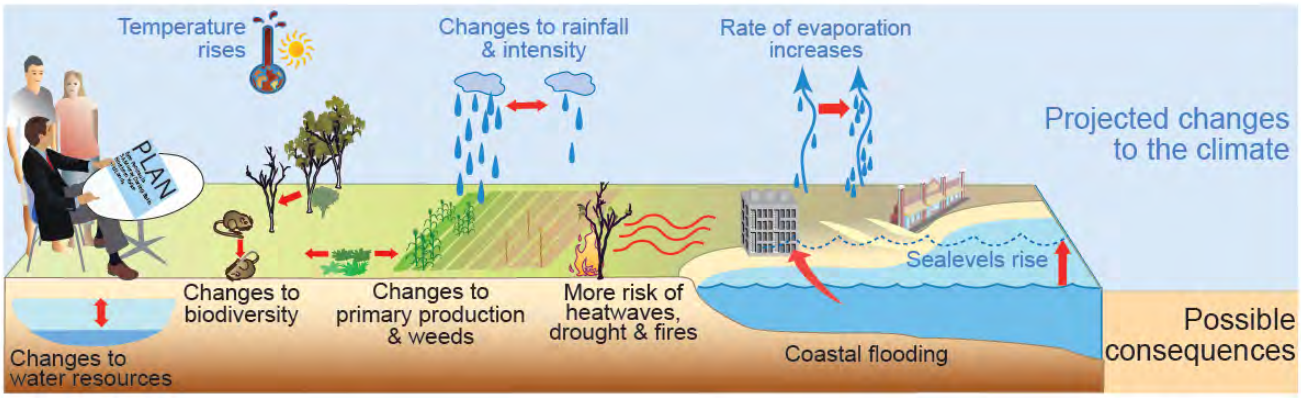
Further information:

Technical information for this report, South Australia's Strategic Plan, South Australia's Strategic Plan survey 2012

This report is a work in progress. As monitoring improves, so too will our ability to describe trends.

Government of South Australia

4 Improve capacity of individuals and community to respond to climate change



Over the last century in South Australia average temperatures have increased by nearly one degree Celsius, autumn rainfall has declined, and globally the sea level has risen by 17 centimetres. These trends are expected to continue and to increasingly impact the infrastructure, industries and natural resources that support our economy, health and wellbeing.

Research is focused on improving our understanding of the consequences of climate change, to help plan for potential impacts and help us adapt.

The next 3 snapshots address Guiding Target 4 from our State NRM Plan: Improve capacity of individuals and community to respond to climate change. Snapshots are based on statewide and regional information.

4.1 How many South Australians understand the causes and consequences of climate change? (statewide information)

4.2 How many climate change adaptation plans have been completed?

4.3 How good is the scientific understanding of the causes and consequences of climate change?

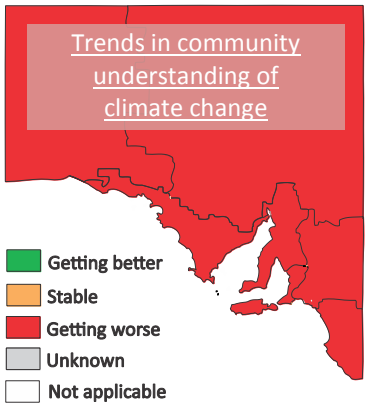
2013 State Report Card

How many South Australians understand the causes and consequences of climate change?

The heat wave that occurred in South Australia in 2013 was a record breaker. At times, temperatures in parts of the state were close to 50 degrees Celsius. Extreme events like this are predicted to occur more often.

Understanding the impacts of climate change will help the community be better prepared for more frequent and severe weather events, which are consequences of climate change.

The Government of South Australia, local Councils and industries are already developing policies and investing significantly to address the impacts of climate change. People's perceptions about climate change can influence their support for climate change policies. Improved understanding of the causes and consequences of climate change could lead to better acceptance of climate change adaptation plans.



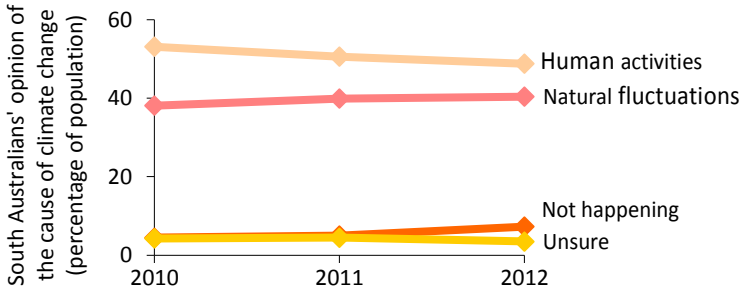
State target

Improve capacity of individuals and community to respond to climate change

Trend (2010-12)	Getting worse	Ongoing effort is needed to improve people's understanding of climate change, its causes and its consequences

CSIRO surveys indicate that 89 per cent of South Australians think that the climate is changing. Although almost all experts believe humans are causing the current climate change, the perceptions of the broader community are split between human and natural causes.

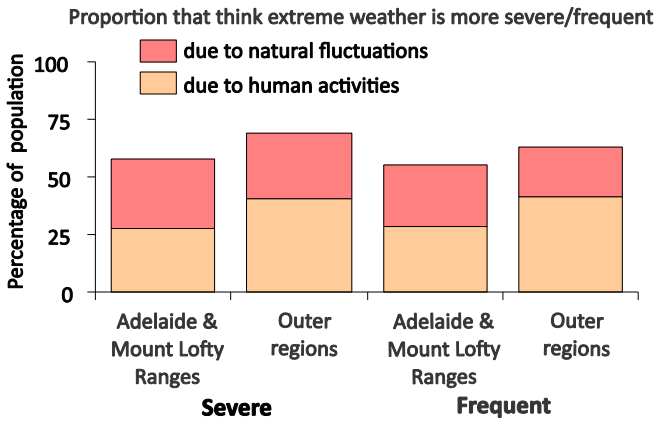
Just under half of the people in South Australia think climate change is mainly caused by human activities; a slight decrease since 2010 (graph to right).



Where we are at (2012)	Fair	89 per cent of South Australians think the climate is changing, only 49 per cent believe it is mostly due to human activities

CSIRO surveys show that about 60 per cent of South Australians think the severity and frequency of record breaking weather events have increased.

The survey allows comparison of the opinions of people in Adelaide and Mount Lofty Ranges NRM region with people in regional South Australia. Relatively more people from regional South Australia think extreme weather events are becoming more frequent and severe. Regional South Australians are also more likely to think that these extreme weather events are a consequence of human activities, rather than natural fluctuations (graph on right).



Reliability of information	★★★★★	Excellent

Further information :
Technical information for this report card, Australian attitudes to Climate Change

This report is a work in progress. As resource monitoring improves, so too will our ability to describe trends in condition.

Government of South Australia

2014 Regional Snapshot

Have the climate change adaption plans have been completed?

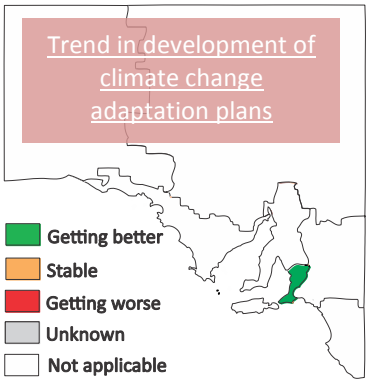
Scientists project that climate change will cause more heatwaves and droughts, more intense bush fires, floods and storms, and a rise in sea levels.

These changes will affect infrastructure, industries and natural resources that are key to Adelaide and Mount Lofty Ranges NRM region's economy, as well as community health and wellbeing.

Careful planning to minimise negative impacts and identify emerging opportunities will improve the resilience of the environment and economy in the region. Many industry groups and land managers, such as our wine industry, are already taking steps to improve energy efficiency and use recycled water to help adapt.

The Climate Change Adaptation Framework was established by the Government of South Australia in 2012 to provide guidance on the development of adaptation plans. The framework emphasises the importance of leadership and strategic direction, evidence-based policies, sustainable landscapes and healthy, prosperous communities.

Trend in development of climate change adaptation plans



State target

Improve capacity of individuals and community to respond to climate change

Trend (2012-14)	Getting better	There has been progress made in the Climate Change Adaptation Plan

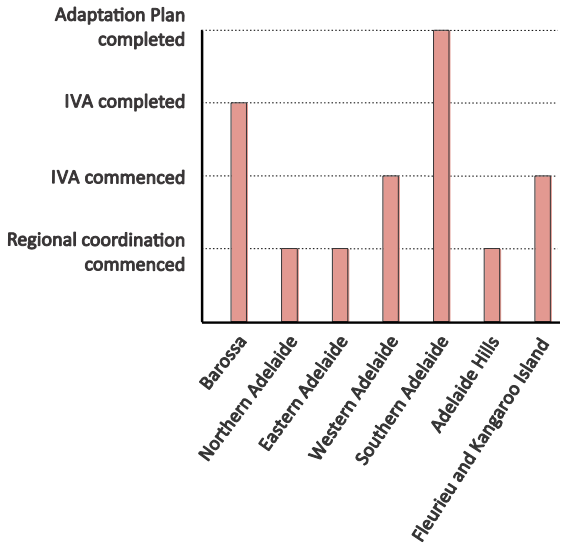
Since the Climate Change Adaptation Framework was established in 2012, there has been progress in developing the Climate Change Adaptation Plans associated with this NRM region (map above).

There are seven Climate Change Adaptation Plans being developed for different areas within the Adelaide and Mount Lofty Ranges NRM region. The development of each Adaptation Plan requires going through four steps, which are outlined in the Climate Change Adaptation Framework. First is to engage stakeholders, then to undertake a risk assessment of climate impacts on natural resources and assets, known as an integrated vulnerability assessment (IVA). This assessment forms the foundation of the Adaptation Plan.

Where we are at (2014)	Good	Climate Change Adaptation Plans are on track for completion by 2016

The Southern Adelaide Climate Change Adaptation Plan has been completed.

Other Climate Change Adaptation Plans are at various stages of progress (IVA, graph on right).



Reliability of information	★★★★★	Excellent

Further information :
Technical information for this report, Adapting to climate change in South Australia

Government of South Australia

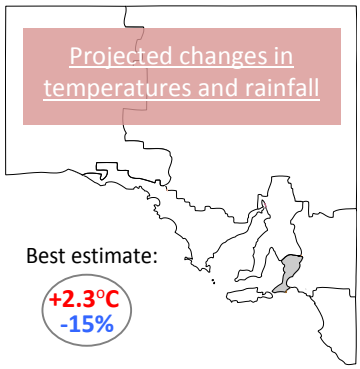
2014 Regional Snapshot

How good is the scientific understanding of the causes and consequences of climate change?

In 2012–13, Australia experienced its hottest summer, hottest month, hottest day and longest heatwave. In the same year, atmospheric carbon approached 400 parts per million – 40 per cent higher than 100 years ago and a level not seen for millions of years.

In the Adelaide and Mount Lofty Ranges NRM region, average temperatures are projected to increase by 1.3–2.8 degrees Celsius by 2070 (map on right). We can also expect longer and hotter heat-waves, which will result in increased heat-related illness, hospital admittance and mortality rates.

Projected changes in temperatures and rainfall



Rainfall is projected to decrease in the region by 0–30 per cent by 2070 (map on right). Without careful planning this will affect our drinking water supplies and our primary industries. Increasing temperatures and decreasing rainfall are likely to degrade the habitats of some native plants and animals and improve conditions for some pest animals and weeds.

Sea levels around the Adelaide and Mount Lofty Ranges NRM region have been rising by almost 5 millimetres each year. By 2100, sea levels could be 1.1 metres higher than in 1990. Port Adelaide Enfield and Charles Sturt area alone estimates that 14,000–24,000 residential buildings, 550–1300 commercial and industrial buildings and over 300km of roads would be at risk of inundation.

This report summarises research by the Australian Bureau of Meteorology, the Government of South Australia, the Australian Government and the Intergovernmental Panel on Climate Change. The views of the South Australian public are addressed in a separate report.

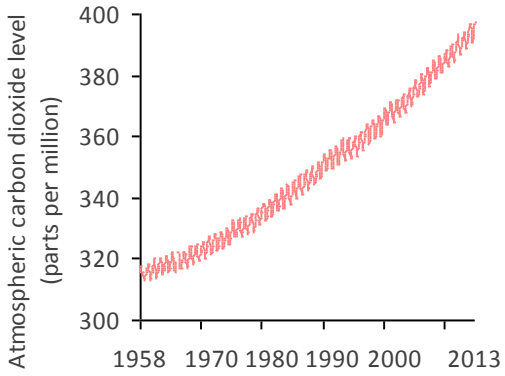
State target

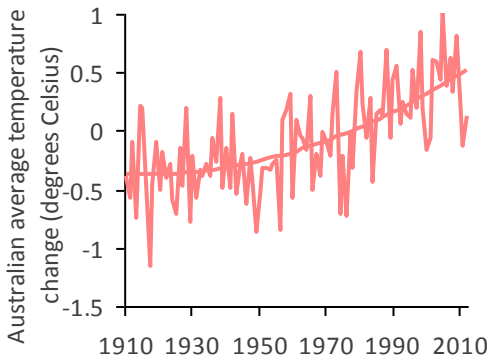
Improve capacity of individuals and community to respond to climate change

Trend (1990–2013)	Getting better	Scientific understanding of the causes and the projected impacts of climate change is improving

Scientific understanding of climate change is improving, and increased data is resulting in increased certainty in projections of changes and impacts.

Observations of rising atmospheric carbon and temperatures contribute to improving the understanding climate change (graphs on right).





Where we are at (2013)	Good	Research is focused on understanding the consequences of climate change to help us plan and adapt

The warming of the climate is unequivocal and human influence on the climate system is clear. Research is currently focused on improving our understanding of the consequences of climate change to help plan for potential impacts and help us adapt.

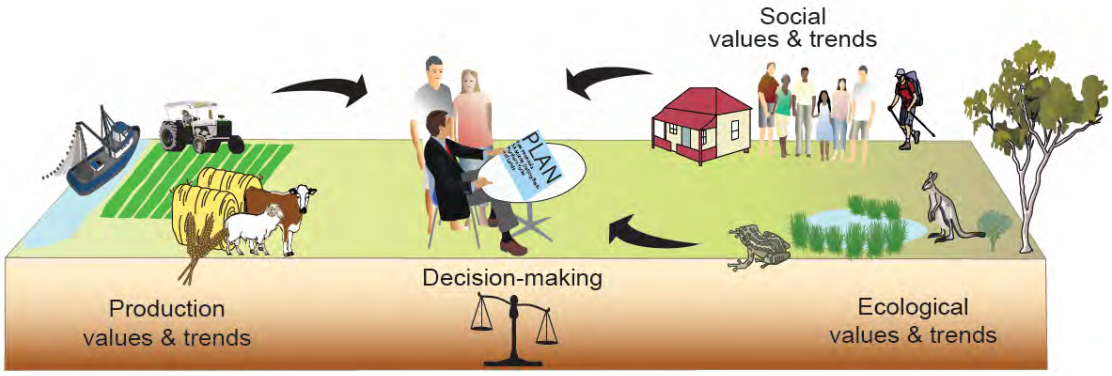
Policies, such as those under the Climate Change Adaptation Framework, are being developed to help South Australians prepare for the projected changes to our climate.

Reliability of information	★★★★★	Excellent

Further information: Technical information for this report, Bureau of Meteorology data and information on Climate Change

Government of South Australia

5 All NRM planning and investment decisions take into account ecological, social and production considerations



South Australia's economic prosperity and community well-being are underpinned by policies that support environmental sustainability and resilience to climate change. An effective and integrated natural resources management and land use planning system is required to respond to current and future challenges.

The Planning Strategy for South Australia sets out long-term visions for land use and development across the state. The Strategy links broad, statewide planning to the needs of local councils. It also describes planning initiatives that align with, or strengthen other natural resource management legislation and policies.

Through partnership with communities, industries, government agencies, non-government organisations and Aboriginal people, NRM boards develop a vision for the use and protection of natural resources. This vision is outlined in regional NRM plans. Most NRM boards are adopting a broad, 'ecosystems approach' to natural resource management. By evaluating and reporting on the effectiveness of their natural resources management programs and policies, NRM boards are able to refine their goals and focus their investments to improve conservation outcomes. Review of the Planning Strategy for South Australia will improve alignment of NRM priorities and long-term challenges of climate change.

The following 3 snapshots address Guiding Target 5 from our State NRM Plan: All NRM planning and investment decisions take into account ecological, social and production considerations. Snapshots are based on statewide information.

5.1 How many NRM boards have conservation goals in their regional NRM plans?

5.2 How many of our Structure Plans include native vegetation maps?

5.3 Are the Planning Strategy for South Australia and regional NRM Board priorities well aligned?

2014 State Report Card

How many NRM boards have conservation goals in their regional NRM plans?

Many organisations and individuals work and invest in the management of our natural resources. To coordinate these efforts, Natural Resource Management (NRM) boards develop a vision for the use and protection of natural resources. These are outlined in regional NRM plans, which NRM boards develop in partnership with communities, industries, government agencies, non-government organisations, and Aboriginal communities.

Each NRM Board regularly evaluates how their plan was implemented and whether it achieved its goals. By evaluating and reporting on the effectiveness of their natural resources management programs and policies, NRM boards are able to refine their goals and focus their investments to improve conservation outcomes.

This report card summarises the improvements that have been made to the conservation goals in regional NRM plans.

Regional trends in the number of NRM boards with conservation goals in their regional plans

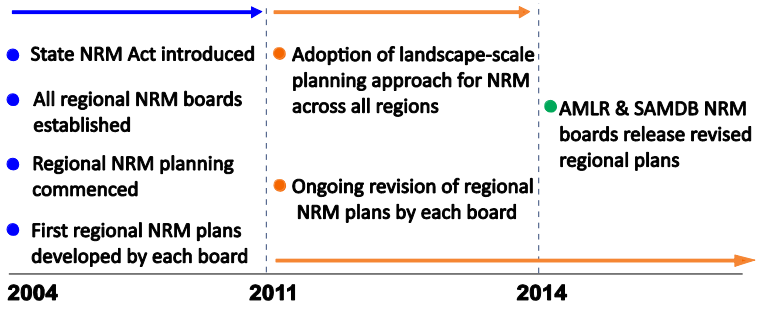
State target

All NRM planning and investment decisions take into account ecological, social and production considerations

Trend (2004-14)	Getting better	Since 2004, NRM boards have developed regional NRM plans that contain goals for improving the condition of natural resources. These plans are now being evaluated and updated to refine the goals.

Regional NRM plans were first developed by NRM boards in 2004 (figure on right). Each plan includes goals for the conservation of natural resources. The progress toward these goals is evaluated and reported on a regular basis.

Most NRM boards are adopting a broad, 'ecosystems approach' to natural resource management. Conservation goals are set by considering the NRM region as a landscape of linked ecosystems, rather than by evaluating the condition of individual natural resources.

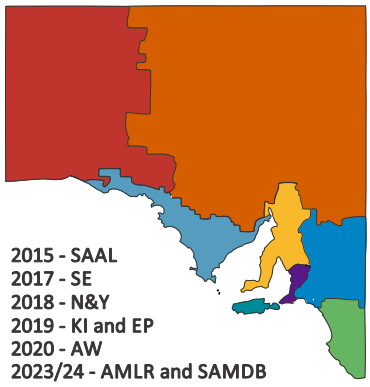


Where we are at (2014)	Good	Two regional NRM boards have updated their plans and six NRM boards are revising their plans

In 2014, the Adelaide and Mount Lofty Ranges and SA Murray-Darling Basin NRM boards revised their regional NRM plans. The revised plans include information on the trends in the condition of natural resources. They also highlight issues that require management, and set specific conservation goals at both regional and more local scales.

The six other NRM regions are in the early stages of revising their NRM plans (map on right). All NRM regions will have updated their plans by 2020.

The next round of reviews commences in 2023/24.



Reliability of information	★★★★★	Excellent

Further information: Technical information for this report card, Managing South Australia's natural resources

This report is a work in progress. As resource monitoring improves, so too will our ability to describe trends in condition.

Government of South Australia

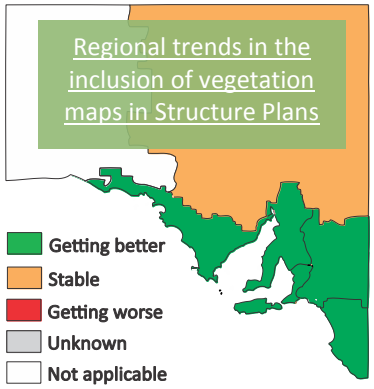
2014 State Report Card

How many of our Structure Plans include native vegetation maps?

South Australia's native vegetation - from small ground covers and native grasses to large trees and water plants - is fundamental to the health of our environment and the prosperity of our primary industries. Native vegetation protects our land and water from erosion and dry-land salinity, while improving our agricultural productivity and storing carbon. Native vegetation provides habitat for our native animals, places for recreation, gives our landscape its identity and is culturally important for Aboriginal communities.

In areas where populations are expected to grow, the Department of Planning, Transport and Infrastructure develops Structure Plans in partnership with government agencies, local councils and communities. Structure Plans guide the planning of services and infrastructure needed by the community and identify what land is available for industrial, commercial and residential development.

Structure planning improves our ability to identify important areas of native vegetation early in the planning process and ensures that our growth has a minimal impact on our natural resources.



State target

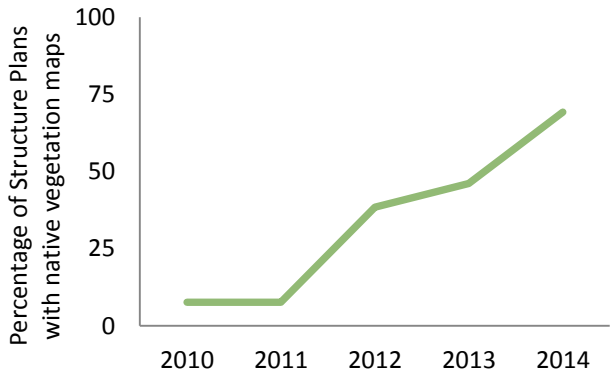
All NRM planning and investment decisions take into account ecological, social and production considerations

Trend (2010-14)	Getting better	Native vegetation maps have been included in Structure Plans since 2010

The percentage of Structure Plans that include vegetation maps is increasing (graph on right).

Since the Planning Strategy for South Australia was developed in 2010, 70 per cent of Structure Plans have included native vegetation maps.

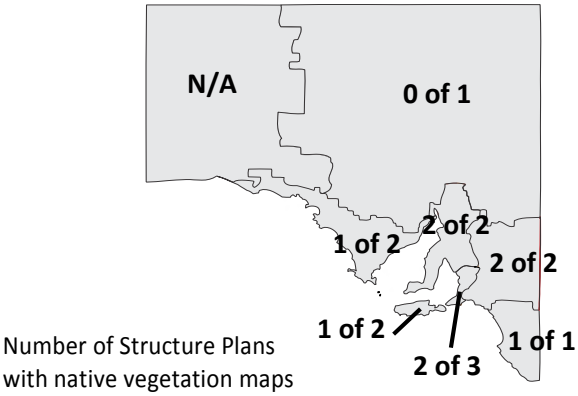
Native vegetation maps include areas of high value environmental significance, such as national parks and conservation reserves, vegetation heritage agreements and land containing high value native vegetation.



Where we are at (2014)	Good	There are native vegetation maps are in 9 of our 13 Structure Plans

Native vegetation maps have been included in 9 of the 13 Structure Plans that have been developed since 2010 (map on right).

Most of the areas that are designated for future population and economic growth are located in the Adelaide and Mount Lofty Ranges NRM region.



Reliability of information	★★★★★	Excellent

Further information:
Technical information for this report card, Structure planning information

Government of South Australia

2014 State Report Card

Are the Planning Strategy for South Australia and regional NRM Board priorities well aligned?

South Australia's economic prosperity and community well-being are underpinned by policies that support environmental sustainability and resilience to climate change. An effective and integrated natural resources management and land use planning system is required to respond to current and future challenges.

The Planning Strategy for South Australia sets out long-term visions for land use and development across the state. The Planning Strategy provides the broad, statewide planning aims for interpretation by Councils into local planning policy documents.

The Planning Strategy is made up of 8 volumes defined by geographical regions; a volume for metropolitan Adelaide and 7 volumes for regional South Australia. The Planning Strategy has been progressively developed since 2007 in consultation with regional NRM boards. It addresses environmental assets and systems, hazards and climate change through planning initiatives aimed to align with, or strengthen other natural resource management legislation and policies.

State target

All NRM planning and investment decisions take into account ecological, social and production considerations

Trend (2012-14)	Getting better	Since 2012, there has been an increased focus on integrating NRM priorities into the land use planning system

Since the State NRM Plan for South Australia was adopted in 2012, the review and implementation of the Planning Strategy has focussed on the management of water quality and supply, and the adoption of climate change adaptation and mitigation policies, including disaster resilience measures to improve bushfire and flood management.

The Planning Strategy also implemented land use policies that strengthen the protection of biodiversity and coastal assets.

Where we are at (2014)	Good	In 2015, the review of the Planning Strategy for South Australia will improve alignment with regional natural resource management priorities

The volumes of the Planning Strategy for South Australia will be reviewed in 2015. The review will be undertaken in consultation with NRM boards, and the Planning Strategy will be updated to reflect regional priorities. The review will improve alignment with natural resource management priorities, including more detailed consideration of long-term challenges such as climate change.

The revised Planning Strategy will improve public participation in the planning process and provide opportunities for members of the community to give informed and considered input.

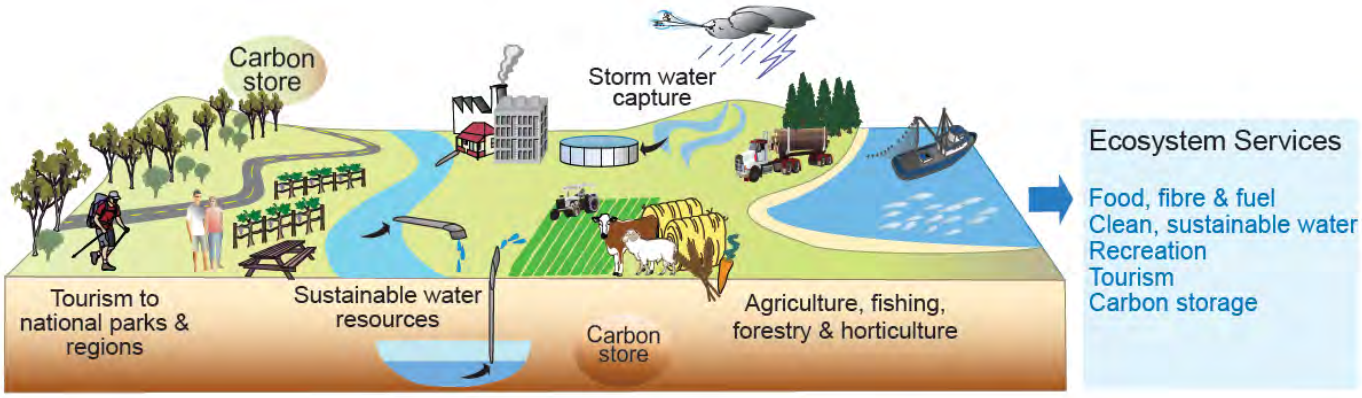
Reliability of information	★★★★★	Excellent

Further information:
Technical information for this report card, Planning Strategy for South Australia

This report is a work in progress. As resource monitoring improves, so too will our ability to describe trends in condition.

Government of South Australia

6 Maintain the productive capacity of our resources



The State NRM plan highlights the need for us to protect and manage natural resources while at the same time supporting industries and a healthy environment.

Helping to build sustainable communities is the cornerstone of effective natural resources management, which relies on the involvement of the entire community.

The success of our agriculture, fisheries and forest industries depend upon the land, water and sea resources. Our natural resource management programs are a major underpinning of the productivity of those industries

The following 12 snapshots address Guiding Target 6 from our State NRM Plan: Maintain the productive capacity of our resources. Snapshots are based on statewide and regional information.

6.1 Are our groundwater resources being sustainably used?

6.2 Are surface water resources being used within their allocated limits?

6.3 Is irrigation efficiency improving in agricultural areas?

6.4 How much of our wastewater and stormwater is recycled? (statewide)

6.5 Are the water levels and salinity of our prescribed groundwater resources improving?

6.6 Is the quality of the water from the River Murray that we drink, swim in and irrigate with improving? (statewide)

6.7 Is the productivity of our primary industries improving?

6.8 Are our recreational and commercial marine fish stocks being used sustainably? (statewide)

6.9 Are practices that lead to improved management of natural resources being adopted? (statewide)

6.10 How many people visit regional South Australia?

6.11 How many people visit parks?

6.12 How much carbon is stored in our trees?

6.13 How much carbon is stored in our soils?

2014 Regional Snapshot

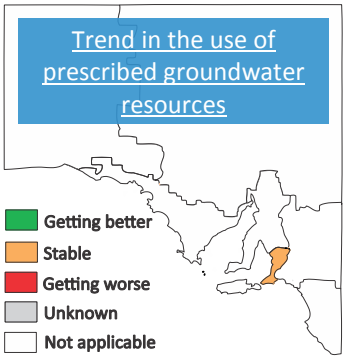
Are our groundwater resources being sustainably used?

The Adelaide and Mount Lofty Ranges NRM region relies on groundwater for agricultural production and domestic use. Groundwater also sustains a range of ecosystems.

Excessive use of groundwater can cause water levels to drop and salinity to increase, which can impact industries and degrade water-dependent ecosystems, particularly if climate change impacts on rainfall patterns and reduces the rainfall needed to refresh groundwater aquifers in the future.

The groundwater resources we rely on the most and those that were at the greatest risk of degradation are now prescribed with sustainable use limits defined in water allocation plans. These plans ensure water resources will be able to provide for us in the future. There are 5 prescribed groundwater management areas in the Adelaide and Mount Lofty Ranges NRM region (map below), which are made up of 6 separate groundwater resources (aquifers) that have sustainable limits determined for water use.

This report card assesses if groundwater resources are used within their sustainable limits, based on groundwater status reports and water allocation plans. The water levels and salinity of groundwater are reported here.



State target

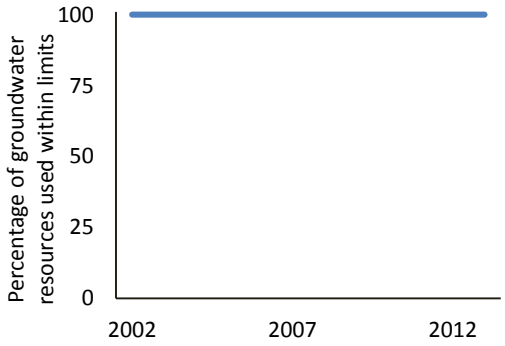
Maintain the productive capacity of our natural resources

Trend (2009-13)	Stable	Groundwater resources have been used within sustainable limits since 2002

In the Adelaide and Mount Lofty Ranges NRM region, there are 5 prescribed groundwater resource areas: the Northern Adelaide Plains, the Central Adelaide and the McLaren Vale Prescribed Wells Areas, and the Barossa Prescribed Water Resource Area, which each have 1 aquifer, and the Western Mount Lofty Ranges Prescribed Water Resource Area, which has 2 aquifers. The sustainable limit for Northern Adelaide Plains, McLaren Vale, and Western Mount Lofty Ranges areas is determined every year by the amount of rainfall received.

Trends in the sustainable use of groundwater resources are stable.

Since 2002, all prescribed groundwater resources have been used within sustainable limits (graph on right).

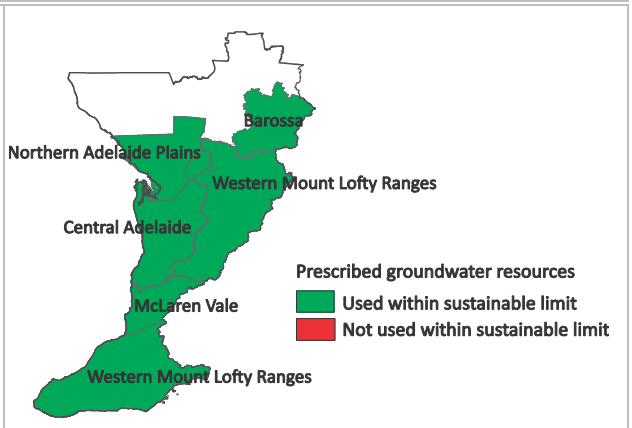


Where we are at (2013)	Good	Prescribed groundwater resources were all used within sustainable limits

In 2013, all of our groundwater resources in the Adelaide and Mount Lofty Ranges NRM region were used within their sustainable limit (map on right). Licensed use of water in these areas ranged from about 52 per cent of the limit in Northern Adelaide Plains, to about 67 per cent in the McLaren Vale Prescribed Wells Area.

Sustainable use limits are being revised for the Barossa Prescribed Water Resource Area. Use of groundwater from this resource was considered sustainable in 2013.

Managing our prescribed groundwater resources within their sustainable limits relies on consistent and timely measurements of rainfall, water levels and water use.



Reliability of information	★★★★☆	Very Good

Further information: Technical information for this report and reports on the status of South Australian water resources

This report is a work in progress. As resource monitoring improves, so too will our ability to describe trends in condition.

Government of South Australia

2014 Regional Snapshot

Are surface water resources being used within their allocated limits?

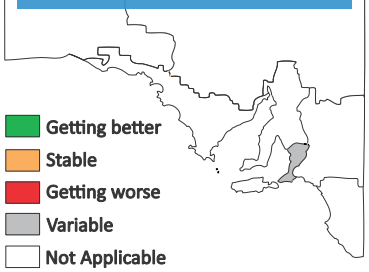
Water is fundamental for our industries, our health and way of life, and our environment. Pressure on surface water resources is likely to increase due to projections of reduced rainfall and increased temperature associated with climate change, increased irrigation needs and population growth.

The surface water resources we rely on the most and those at the greatest risk of over use and ecosystem degradation have been prescribed with water allocation limits, which are defined in water allocation plans. There are 2 prescribed surface water resources in the Adelaide and Mount Lofty Ranges NRM region, the Western Mount Lofty Ranges and the Barossa (shown on the map at the bottom).

This report card is based on surface water status reports and assesses whether the use of prescribed surface water resources is within the limits defined in water allocation plans.

This report does not assess the water requirements of aquatic ecosystems. A separate report summarises the ecological condition of rivers, streams and drains.

Trends in the use of prescribed surface water resources



State target

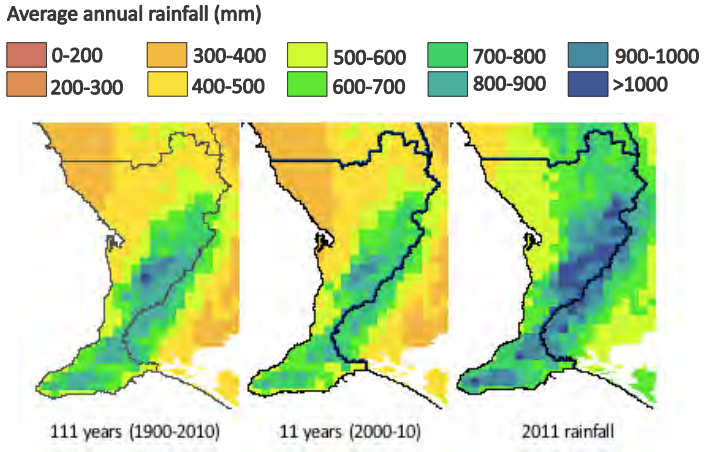
Maintain the productive capacity of our natural resources

Trend (2009–13)	Variable	Water use varies each year depending on the climate, but has been within limits in the Barossa resource

Managing water use at sustainable levels is important to maintain the productive capacity of surface water resources.

Water use varies in line with climate. For example, when we received above average rainfall, such as when the drought broke in 2010-11 (see maps on right) surface water use was lower.

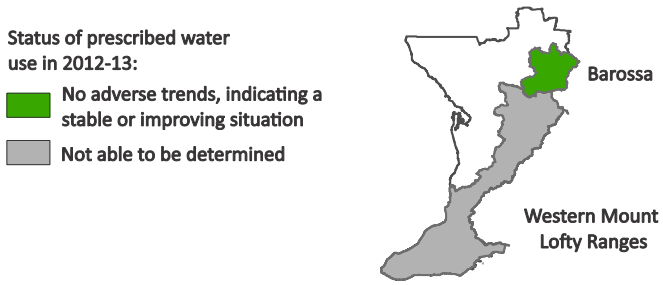
In contrast, surface water use was higher when rainfall was below average. In the dry year of 2012-13 about 68 per cent of the allocation limit was used from the Barossa resource (see map below).



Where we are at (2013)	Good	The Barossa prescribed surface water resource was used within the allocated limit. Water use information is not available for the Western Mount Lofty Ranges resource.

The Barossa prescribed water resource area was used within the water allocation limit in 2012-13 (map on right). Surface water use was about 68 per cent of the water allocation limit for the Barossa resource.

No surface water use information (estimated or metered) is available for the Western Mount Lofty Ranges prescribed resource.



Reliability of information	★★★☆☆	Good. Surface water use data are not available for 1 prescribed resource.

Further information: Technical information for this report, the status of South Australian water resources

This report is a work in progress. As resource monitoring improves, so too will our ability to describe trends in condition.

Government of South Australia

2014 Regional Snapshot

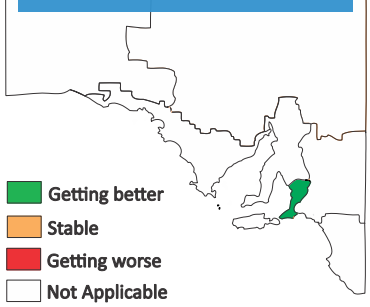
Is irrigation efficiency improving in agricultural areas?

South Australia's irrigated crops and livestock products, worth about $1.4 billion in 2012, use about 60 per cent of the water we use in the state. About 57 per cent of the farmers in the Adelaide and Mount Lofty Ranges NRM region rely on irrigation to grow pastures for livestock, grapes, fruit or vegetables. Efficient irrigation reduces fertiliser and sediment runoff, soil salinity impacts, production costs and provides more flexibility to rotate crops.

The amount of water applied to crops is influenced by soil type, irrigation method, and the timing of irrigation. By matching these to the needs of each crop, farmers maximise production and apply less water. For example, upgrading from sprinkler to drip irrigation can save about 2.5 million litres per hectare of grapevines or citrus trees. Our State NRM Act and water allocation plans allow farmers to sell their water; this market based system helps to ensure that the most efficient farmers use more water.

This report tracks the amount of water applied per hectare, and trends in methods of irrigation.

Trends in water application rates in irrigation areas



State target

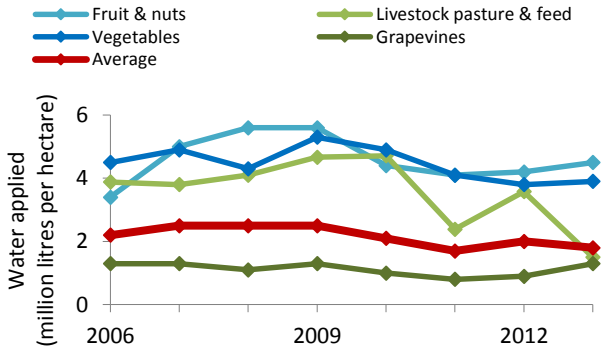
Maintain the productive capacity of our natural resources

Trend (2006-13)	Getting better	Water applied per hectare decreased by 4 per cent each year

Different crop types have different water needs and these vary depending on the soil type and rainfall (see graph on right).

In 2013, over 29,600 hectares were irrigated in the Adelaide and Mount Lofty Ranges NRM region. The average irrigation rate was about 1.8 million litres per hectare (see graph on right, red line). The amount of water applied per hectare decreased by over 4 per cent each year between 2006-13.

The greatest improvement has been for irrigated livestock pasture – water applied per hectare decreased by about 10 per cent each year since 2006. Over the same period, water applied per hectare to fruit and nut crops was stable.



Where we are at (2013)	Good	Irrigation efficiency improved in 2013

Energy, labour and set up costs influence the irrigation options available to farmers, but irrigation efficiency continues to improve.

Trends in irrigation methods show how our farmers are improving the efficiency of water application. A breakdown of irrigation methods is not available for the Adelaide and Mount Lofty Ranges NRM region, but statewide information shows that drip irrigation, which is typically the most water efficient, is the most common method and its use has been increasing.

Governments and NRM boards work with farmers to improve irrigation efficiency by demonstrating land management benefits and providing financial incentives to make it increasingly attractive.

Reliability of information	★★★★☆	Very Good

Further information:
Technical information for this report
Water use in the Adelaide and Mount Lofty Ranges NRM region

This report is a work in progress. As resource monitoring improves, so too will our ability to describe trends in condition.

Government of South Australia

2014 State Report Card

How much of our wastewater and stormwater is recycled?

Water is one of our most precious natural resources. It is fundamental to life and supports our economy, lifestyle and environment. With population expected to increase and rainfall projected to decrease across southern Australia due to climate change, it is critical we use our water wisely.

Recycling water reduces pressure on our traditional freshwater resources such as reservoirs, the River Murray and groundwater. Wastewater and stormwater can treated – fit for purpose – for use in industry, watering parks and gardens, and agriculture – the biggest consumer of water in South Australia. Recycling water also provides a number of environmental benefits. It decreases the amount of sediment, nutrients and pollutants going into waterways, leaves more water for our native plants and animals and provides wetland habitats in urban areas.

This report card summarises most of the water that is recycled around the state. This report card covers the amount of wastewater recycled from treatment plants managed by SA Water and Trility Pty Ltd and the amount of stormwater recycled in the greater Adelaide region. Some local councils and private businesses recycle additional water, but these are relatively small amounts and are not be included in this report card.

Regional trends in the amount of water recycled

State target

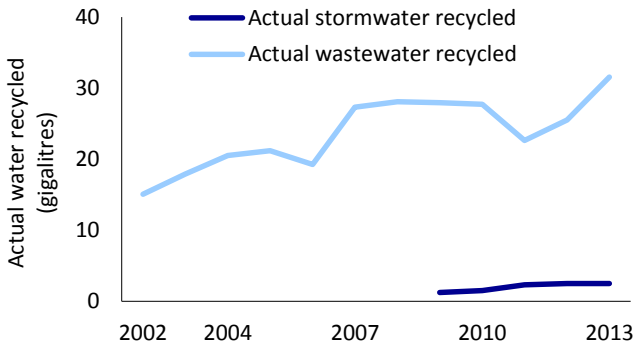
Maintain the productive capacity of our natural resources

Trend (2009-13)	Getting better	The recycling of wastewater and stormwater is increasing

The amounts of wastewater and stormwater recycled are increasing. In 2013, we recycled more water than ever before (graph on right).

The amount of wastewater recycled each year is influenced by rainfall patterns and the demand for recycled water. For example, in a wet year farmers may not use as much recycled water because their needs are met from the rain and their water allocations. For example, when the drought broke in 2011 the amount of wastewater recycled declined (graph on right).

The amount of stormwater that can be recycled is also related to rainfall. Stormwater is only available following rainfall events, but if the rainfall is too intense our capacity to store it limits the amount that can be recycled.



Where we are at (2013)	Good	In total, over 34 gigalitres of wastewater and stormwater were recycled

In 2013, a total of 31.6 gigalitres (or billion litres) of wastewater was recycled across the state by SA Water and Trility Pty Ltd, and a total of 2.5 gigalitres of stormwater was recycled in greater Adelaide.

The amount of water recycled is influenced by demand and rainfall, but it is also limited by the capacity. The Government of South Australia has set targets to increase our recycling capacity to 50 gigalitres of wastewater and 35 gigalitres of stormwater by 2025.

The Government of South Australia, NRM boards, local councils and private businesses have met and exceeded the wastewater recycling capacity target by updating treatment plants and installing pipes to deliver recycled water to users. We are also making progress to meeting our stormwater recycling capacity targets by developing stormwater harvesting wetlands to pump stormwater into underground aquifers when it rains. Some of these schemes are not at full capacity.

Reliability of information	★★★★☆	Very good

Further information:
Technical information for this report card, Information on stormwater and wastewater recycling in South Australia

This report is a work in progress. As resource monitoring improves, so too will our ability to describe trends in condition.

Government of South Australia

2014 Regional Snapshot

Are the water levels and salinity of our prescribed groundwater resources improving?

The Adelaide and Mount Lofty Ranges NRM region relies on groundwater for agricultural production and domestic use. Groundwater also sustains a range of ecosystems.

Groundwater is mostly recharged when rainfall percolates down through the soil to the watertable. Groundwater levels naturally change in response to seasonal rainfall, droughts and climate change. Excessive use can cause levels to fall and salinity to increase, which can impact the communities, industries and ecosystems that are dependent on groundwater, particularly if climate change impacts rainfall patterns and reduces the rainfall needed to recharge groundwater.

This report summarises whether changes in groundwater levels and salinity of prescribed groundwater resources are within acceptable limits. This report should be read alongside reports on the sustainable use of groundwater and surface water.

Trends in salinity and water levels for prescribed groundwater resources

State target

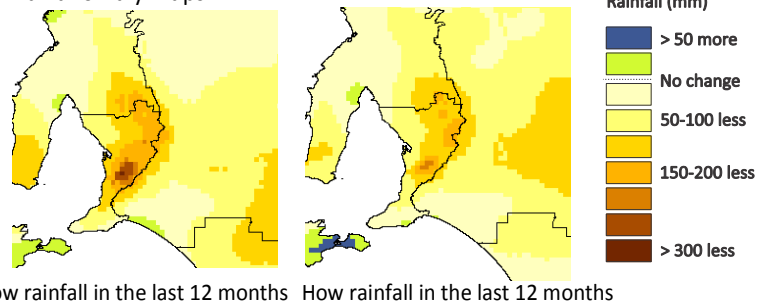
Maintain the productive capacity of our natural resources

Trend (2010–13)	Stable	Salinity and groundwater levels are within acceptable limits in most prescribed groundwater resources

Groundwater levels and salinity are largely driven by rainfall and are therefore naturally variable. Rainfall in 2013 was less than long term averages (maps on right). Water use in 2013 was therefore expected to be higher.

Since 2010, our prescribed groundwater resources have stable or improving water levels and salinity (map above), according to groundwater level and salinity reports.

Rainfall anomaly maps:



How rainfall in the last 12 months compares to the last 113 years

How rainfall in the last 12 months compares to the last 10 years

Where we are at (2013)	Good	Twelve groundwater resources are within acceptable limits

In the Adelaide and Mount Lofty Ranges NRM region there are 13 groundwater resources (aquifers) within 4 prescribed areas. Based on changes in salinity and water levels between 2012 and 2013, the status of 12 groundwater resources is good. There have been gradual declines in water levels or increases in salinity in some of these resources, but values are still within acceptable limits.

The 2013 status of the Kangaroo Flat groundwater resource is considered fair and it is being monitored closely because it has elevated salinity. If this trend continues, the groundwater may not be suitable for its current purpose within 10 years.

Managing our groundwater resources relies on consistent and timely measurements of groundwater levels, salinity and water use.

Reliability of information	★★★★☆	Very Good

Further information:
Technical information for this report and reports on the status of South Australian water resources

This report is a work in progress. As resource monitoring improves, so too will our ability to describe trends in condition.

Government of South Australia

6.6 Is the quality of the water from the River Murray that we drink, swim in and irrigate with improving?

Snapshot under construction. Will be released shortly.

2014 State Report Card

Is the productivity of our primary industries improving?

The success and productivity of our agriculture, fisheries and forestry industries depend upon the health and sustainable management of our natural resources.

This report card uses Total Factor Productivity (TFP, calculated by ABARES) as a measure of the efficiency of our cropping ($2.9 billion Gross Value of Production in 2011) and livestock ($2.0 billion GVP) industries in South Australia. TFP measures the values of the total goods that industries produce relative to inputs they use (e.g. labour, land and capital).

Total factor productivity information is not currently available for Alinytjara Wilurara, Adelaide and Mount Lofty Ranges, or Kangaroo Island NRM regions nor for some of our large industries: horticulture (worth $1.3 billion GVP in 2011), fisheries ($0.4 billion GVP in 2010) or forestry ($0.2 billion GVP in 2010). The management of our fish stocks is summarised in a separate report card.

State target :

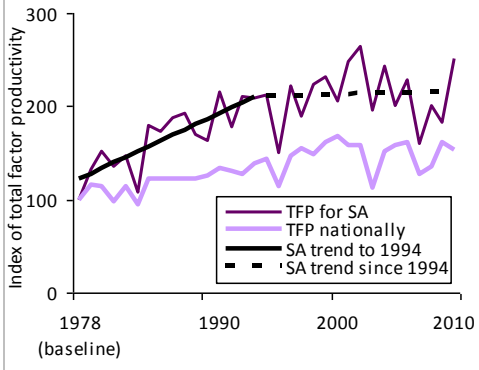
Maintain the productive capacity of our natural resources

Trend (1994–2010)	Stable	Cropping and livestock productivity was almost stable between 1994 and 2010

TFP is influenced by rainfall and demand for commodities, but investment in agricultural research and development drives long term trends. TFP increases (1978–2010) resulted from advances in technology in plant and animal breeding, improved crop rotations, advances in machinery, the introduction of no till techniques and improved irrigation. These changes have improved the condition of our land and water resources.

From 1978 to 2010, the TFP growth of our cropping and livestock industries averaged 1.7 per cent each year, exceeding the national average of 1.2 per cent (graph on right). Consistent with national trends, the rate of TFP growth in South Australia was almost stable between 1994 and 2010 (graph on right).

Long term (1978–2010) TFP growth rates differ between NRM regions: 2.0 per cent each year in SA Murray-Darling Basin, 1.6 per cent in Eyre Peninsula, 1.3 per cent in both Northern and Yorke and South East and 0.8 per cent in SA Arid Lands.

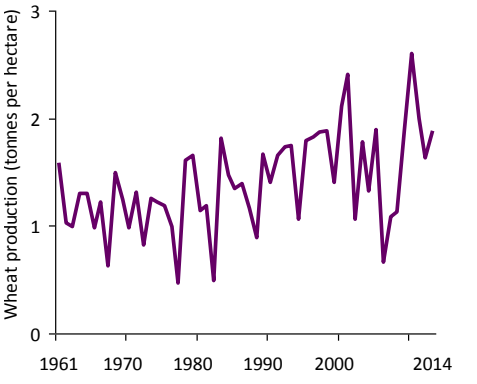


Where we are at (2014)	Good	The value of cropping and livestock production is at or near record highs

To aid the interpretation of TFP, the graph on the right shows the output per hectare of the South Australian wheat industry – our most valuable agricultural industry. Our wheat industry has increased its productivity since the 1970s, reaching record levels in recent years.

Climate change is increasing pressure on our land managers to maintain productivity and increase moisture efficiency.

It is not clear what will provide the next boost to productivity, but management of our natural resources remains important. In particular, the impacts of land use planning, competition for land between conservation and production, maintenance of soil fertility, supply of irrigation water and fisheries management will be critical.



Reliability of information	★★★★★	Excellent for our cropping and livestock industries

Further information:
Technical information for this report card, Why has productivity slowed since 1994?, How does climate affect productivity?, What drives productivity?

This report is a work in progress. As monitoring improves, so too will our ability to describe trends.

Government of South Australia

2014 State Report Card

Are our recreational and commercial marine fish stocks being used sustainably?

Our fisheries produce premium seafood for local and export markets and feed for our aquaculture industries. Fishing supports employment in the commercial, charter and recreational industries and related businesses and we value fishing for the social, cultural and health benefits it provides.

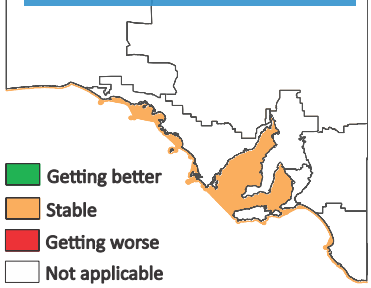
Commercial and recreational fisheries depend on healthy ecosystems. To ensure that wild fish stocks are used sustainably the Government controls the number of fish that can be caught and manages the impacts of fishing on marine ecosystems. Maintaining our wild fish stocks also relies on management of developments, water quality within catchments and marine pests.

This report card summarises the sustainability of our fish stocks based on whether they have adequate abundance, recruitment (number of new young fish that enter a stock in a given year) and control of fishing pressure. It should be read alongside other reports on marine ecosystems.

State target

Maintain the productive capacity of our natural resources

Trends in the sustainability of marine fish stocks

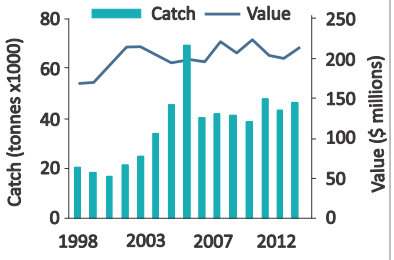


Trend (2012–14)	Stable	The status of fish stocks between 2012–14 was stable. However the number of *transitional-depleting* stocks has increased.

The Australian fish stocks reports, PIRSA and SARDI classify stocks as *sustainable*, *overfished*, or *transitional*. Fish stocks in South Australia, have remained stable since 2012, despite an increase in number of *transitional-depleting* stocks, for which fishing pressure is too high. *Transitional-depleting* stocks can still be commercially exploited, but they require management, such as reducing fishing pressure and changing recreational size and bag limits, until the stock recovers.

In 2012, commercial fishers caught 47,000 tonnes of seafood, valued at $211 million (graph on right, which excludes the charter industry). Ninety per cent of both the total catch and value was from rock lobster, greenlip and blacklip abalone, king prawn, sardine and blue swimmer crab.

Over 90 per cent of South Australians live within 50 kilometres of the coast. A recreational fishing survey conducted by PIRSA indicates that about 1 in 6 South Australians went fishing in 2007. Collectively, they fished for about 1 million days and targeted King George whiting, garfish, snapper, Australian herring, Australian salmon, southern calamari and blue swimmer crab. For these species, the recreational catch accounted for 19-50 per cent of the total annual catch.



Where we are at (2014)	Fair	Out of 36 fish stocks, 15 are *sustainable* and 14 are *transitional*

In 2014, 15 out of the 36 stocks were classified as *sustainable* and 1 as *transitional–recovering* (table on right).

The 13 stocks that were classified as *transitional–depleting* are being managed to promote their recovery. For example, buy-backs of commercial netting licences and spatial netting closures have been used since 2005 to improve garfish stocks.

Seven fish stocks were regarded as *undefined* because there was not enough information for their classification.

Sustainable	Transitional - recovering	Transitional - depleting	Undefined
• Australian salmon (1 stock) • Australian sardine (1 stock) • Blacklip abalone (southern zone) • Greenlip abalone (western zone) • Blue swimmer crab (Spencer Gulf) • Pipi (1 stock) • King George whiting (west coast) • Mulloway (Lakes and Coorong) • King prawn (Spencer Gulf, west coast) • Southern rock lobster (1 stock) • Snapper (northern Gulf St Vincent) • Southern calamari (1 stock) • Yelloweye mullet (2 stocks)	• Blue swimmer crab (Gulf St Vincent)	• Blacklip abalone(western & central zone) • Greenlip abalone (central zone) • Southern garfish (northern Spencer Gulf, northern Gulf St Vincent) • Giant crab (1 stock) • King George whiting (Gulf St Vincent, Spencer Gulf) • King prawn (Gulf St Vincent) • Snapper (southern & northern Spencer Gulf, south east, southern Gulf St Vincent)	• Blue swimmer crab (west coast) • Mulloway (Marine Scalefish Fishery) • Snapper (west coast) • Southern garfish (west coast, southern Spencer Gulf, southern Gulf St Vincent, south-east)

Reliability of information	★★★★★	Excellent for most of our marine fish stocks

Further information: Technical information for this report card, Status of marine fish stocks in 2006, 2012, 2014

This report is a work in progress. As resource monitoring improves, so too will our ability to describe trends in condition.

Government of South Australia

2014 State Report Card

Are practices that lead to improved management of natural resources being adopted?

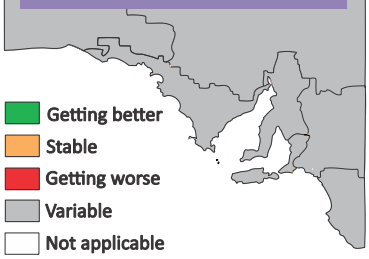
The success and productivity of our agriculture, fisheries and forestry industries depend upon the health and sustainable management of our natural resources. In South Australia, farmers manage 60 million hectares of land for livestock, 8.4 million hectares for agriculture and 2.2 million hectares of land with remnant vegetation.

For more details on regional programs to improve the adoption of land management practices, please refer to our NRM Board websites.

Farming practices that have improved the management of natural resources in our agricultural regions include improved grazing management, no-till sowing techniques, stubble retention, claying of sandy soils, use of deep rooted perennials, use of pastures to protect soils and waterways, incorporation of native plants into farming systems, native vegetation maintenance and fencing, and management of pest plants and animals.

Land managers have improved water quality and efficiency of water use by improving cropping practices and irrigation methods, which reduce nutrients and chemicals entering our waterways.

Regional trends in the adoption of improved management practices



State target

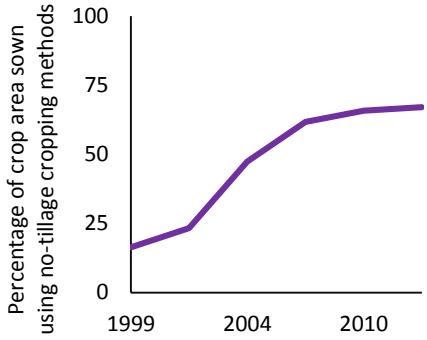
Maintain the productive capacity of our natural resources

Trends	Variable	Trends vary depending on the industry and land management practice

Trends in the adoption of different practices that lead to improved management of natural resources vary. These data are not available at NRM regional scales.

No-till cropping is an example of a cropping practice that leads to improved management of soil moisture. The percentage of cropping land that is sown using no-till methods has increased from 16 per cent in 1999 to 67 per cent in 2013 (graph on right).

According to surveys by the Australian Bureau of Statistics, the number of farmers who protected wetlands, rivers and creeks for conservation purposes increased between 2008-10. These farmers managed native vegetation by controlling or excluding livestock, managing weeds or pest animals, retaining existing vegetation or planting new vegetation.



Where we are at (2013)	Unknown	The adoption of management practices ranged from 85 per cent for no-till methods, to 14 per cent for planting or encouraging native pastures

A national farm survey by the Australian Bureau of Agricultural and Resource Economics and Sciences found that the adoption of different management practices ranged from 85 to 14 per cent of farmers (table on right). There was a greater rate of adoption of improved cropping and grazing practices, compared with management of native vegetation and control of weeds of national significance.

Land management practices are influenced by each farmer's motivation and finances, profitability and income, market drivers, government incentives, participation in landcare groups and networks, and the availability of information.

Percentage of farmers who adopted improved land management practices		
Crop management	No-till	85
	Stubble retention	71
Grazing management	Cell or rotational grazing	56
	Minimum groundcover targets set	47
	Deep rooted perennials	24
Native vegetation management	Native pastures encouraged/planted	14
	Native vegetation maintenance and management	52
	Fencing native vegetation	55
Weed management	Weeds of national significance management	30

Reliability of information	★★★★☆	Very Good for some management practices

Further information: Technical information for this report card, soil management survey, agricultural resource management survey

This report is a work in progress. As resource monitoring improves, so too will our ability to describe trends in condition.

Government of South Australia

2014 Regional Snapshot

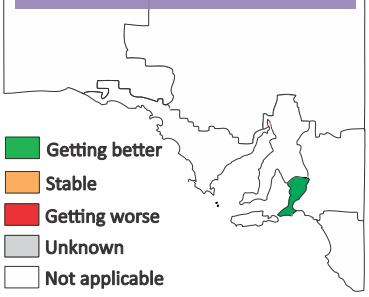
How many people visit regional South Australia?

Visitors spend about $665 million each year in the regional areas of the Adelaide and Mount Lofty Ranges NRM region and almost $3 billion in Adelaide. In 2010, visitor spending in regional areas contributed 0.4 per cent to the economy of the Adelaide and Mount Lofty Ranges NRM region and visitor spending in Adelaide contributed 1.5 per cent.

Our natural resources support tourism in regional areas and are central to the State's plan to increase tourism. For example, South Australian premium food and wine products and experiences attract interstate and international visitors and our national parks and reserves provide a wide range of recreational opportunities for tourists.

The community, the Government of South Australia and the NRM boards manage the health of the natural resources that support regional tourism.

Trends in the number of day and overnight visits



State target

Maintain the productive capacity of our natural resources

Trend (2009-13)	Getting better	The numbers of visits are increasing

The numbers of single-day or overnight visits to the Adelaide and Mount Lofty Ranges NRM region between 2009-13 have been increasing (map above).

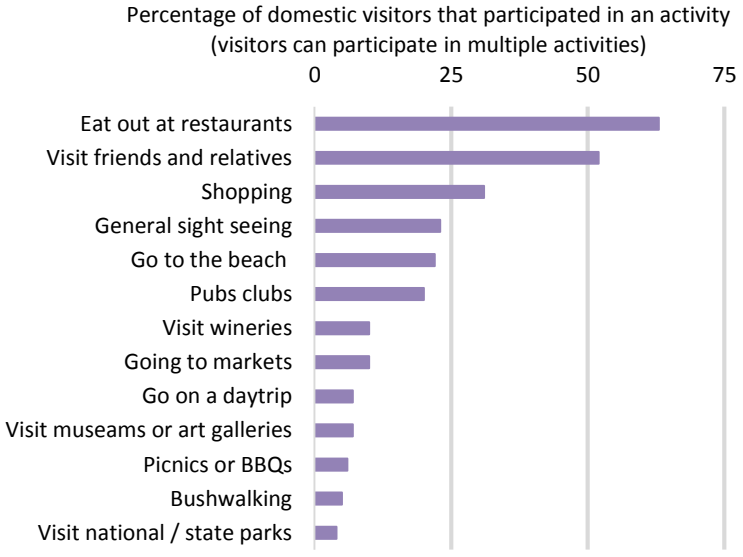
High profile events and festivals increase visits to Adelaide. The Government of South Australia is also working to increase visits to our national parks through conservation programs, volunteer involvement, park management and increasing awareness, which is summarised here.

Where we are at (2013)	Fair	There were 4.7 million visits to regional areas in 2013 (excluding Adelaide). There were 6.3 million visits to Adelaide.

The Adelaide and Mount Lofty Ranges NRM region was the most commonly visited NRM region, receiving almost 5 million single-day or overnight visits to regional areas and over 6 million to visits to Adelaide in 2013.

Beautiful coastlines, fishing, wineries, arts and gourmet food draw tourists to the Adelaide and Mount Lofty Ranges NRM region.

Many visitors enjoy the region's natural resources such as parks, beaches and coastal and marine environments as part of their visit. For example, 22 per cent of domestic visitors go to the beach and 5 per cent go bushwalking (graph on right). International visitors are even more likely to make the outdoors a part of their trip.

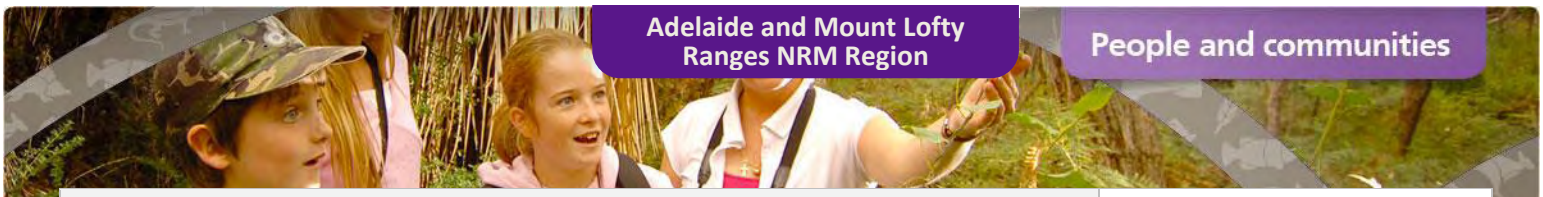


Reliability of information	★★★☆☆	Good

Further information: Technical information for this report and Tourism SA

This report is a work in progress. As resource monitoring improves, so too will our ability to describe trends in condition.

Government of South Australia



2014 Regional Snapshot

How many people visit parks?

There are almost 60 public protected areas in the Adelaide and Mount Lofty Ranges NRM region (see map at bottom), including national parks, marine parks and conservation reserves.

Parks in the Adelaide and Mount Lofty Ranges NRM region protect and showcase natural and cultural heritage, including ancient landscapes and fossils, Aboriginal art, historic European sites, rugged coastlines and mountain ranges, pristine wilderness and unique plants and animals.

These parks and reserves are also important for regional tourism. They are places where we can all enjoy natural surroundings and the physical, social and psychological health benefits they provide. There is increasing community awareness of these benefits. For example, children develop physically and mentally when they are able to explore and play in natural surroundings.

This report summarises information on the percentage of residents who visited at least one land based park or reserve each year. A report on our marine parks is available here.

Trend in the number of residents who visit parks

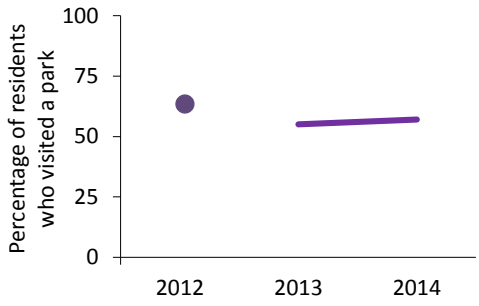
State target

Maintain the productive capacity of our natural resources

Trend (2013-14)	Stable	The number of Adelaide and Mount Lofty Ranges residents visiting parks has been stable

Within the Adelaide and Mount Lofty Ranges NRM region, the percentage of residents who visited a park was between 55-57 per cent between 2013-14 (graph on right). Information was also collected in 2012, but it was combined with a survey of residents from the Kangaroo Island NRM region. This information was not used to calculate the trend, but it is shown as a dot on the graph.

To encourage more people to visit our parks, the Government of South Australia promotes the physical, social and psychological health benefits of visiting parks and participating in nature conservation activities. For example, Nature Play SA encourages parents and communities to promote outdoor learning environments.



Where we are at (2014)	Fair	In 2014, 57 per cent of residents visited at least one park

In 2014, the percentage of residents in the Adelaide and Mount Lofty Ranges NRM region who visited a park was about 57 per cent.

Many of the people who visit the region from elsewhere also visit a park as part of their trip.

Enhancing visitor experiences and conserving natural and cultural heritage requires careful management. Some of our parks are maintained to protect biodiversity and these parks have few facilities for visitors, but in many cases the Government of South Australia partners with the tourism industry to enhance opportunities for visitors.

Reliability of information	★★☆☆☆	Fair, more information is needed on park visitation

Further information: Technical information for this report and SA Parks

Government of South Australia

2014 Regional Snapshot

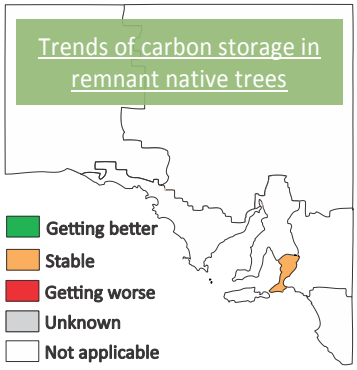
How much carbon is stored in our trees?

As trees grow they convert carbon dioxide from the atmosphere into living vegetation. This reduces greenhouse gases in the atmosphere and slows global warming. Trees also provide habitats for native plants and animals, improve air and water quality, enhance our recreational areas and provide us with wood and other products.

Since European settlement, extensive areas of our native vegetation have been cleared for agriculture and other human activities (reported here). This has reduced the amount of carbon stored in remnant native trees to about 20 per cent of historical stocks in the Adelaide and Mount Lofty Ranges NRM region.

Estimates of our current carbon stocks are limited to the above-ground portion of remnant native trees and larger shrubs.

Carbon is also stored in the soil, as reported here.



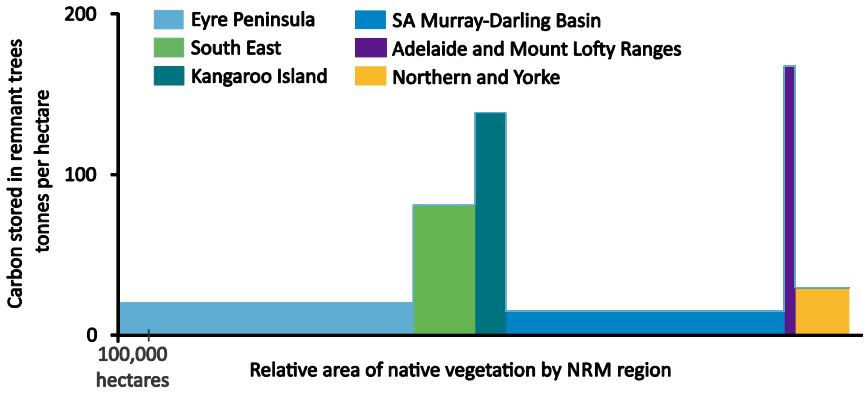
State target

Maintain the productive capacity of our natural resources

Trend (2007–12)	Stable	Since the protection of native vegetation by legislation in 1991, carbon storage has remained fairly stable

Carbon stocks have been relatively stable since remnant native vegetation was protected in 1991. Short term variations are mainly influenced by climate and fires.

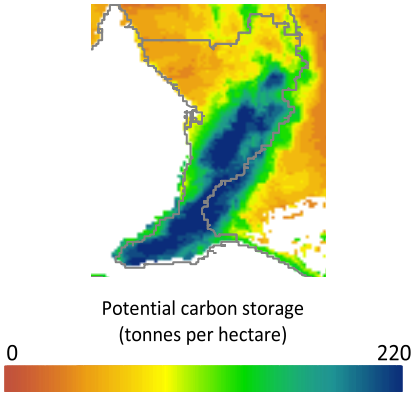
The Adelaide and Mount Lofty Ranges NRM region has on average 168 tonnes of carbon stored in each hectare of remnant native trees – the highest rate among the NRM regions in South Australia (see graph on right).



Where we are at (2012)	Poor	12 million tonnes of carbon are stored in remnant native trees

Restoring native vegetation and growing trees for carbon crops can increase our carbon stocks and offset greenhouse gas emissions. With only 20 per cent of historical carbon stocks remaining, there is scope to increase our carbon stocks.

Areas of higher rainfall and good soil quality have the highest potential for carbon storage (map on right), but they also have the highest agricultural productivity. In choosing between using land for agriculture, revegetation with native plants or carbon cropping, we need to carefully consider the trade-off between the need to increase our carbon stocks with the need to maintain agricultural productivity. However, with improved assessment of land use capability it is possible to identify suitable areas for revegetation within all agricultural areas.



Reliability of information	★★★★☆	Very Good

Further information: Technical information for this report, Carbon in vegetation

This report is a work in progress. As resource monitoring improves, so too will our ability to describe trends in condition.

Government of South Australia

2014 Regional Snapshot

How much carbon is stored in our soils?

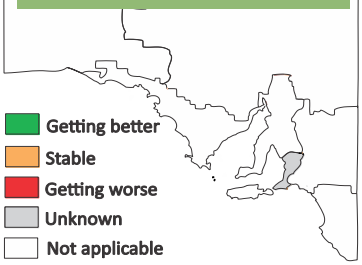
Organic matter in soil, commonly called soil organic matter or SOM by soil scientists, is important for agricultural productivity and the health of native plants due to its role in physical, chemical and biological functions within soil. Organic matter improves the quality of soil by providing more favourable conditions for plant growth and increasing resilience to drought. Soil organic carbon is an important component of the organic matter in soil, and is a recognised indicator of soil quality.

Increasing the amount of organic carbon stored in soils is also receiving attention as a way to reduce carbon dioxide in the atmosphere to help combat global warming.

The amount of organic carbon in soil is influenced by rainfall, soil characteristics and land uses. Expert opinion suggests that historic agricultural practices have caused the general decline of soil organic carbon stocks, and, in many situations, current 'best management practices' may only be able to slow further declines. Hence there is a need for further research and the development of innovative 'carbon farming' approaches that can increase organic carbon in soils.

Carbon is also stored in native vegetation, as reported here.

Trend in soil organic carbon storage



State target

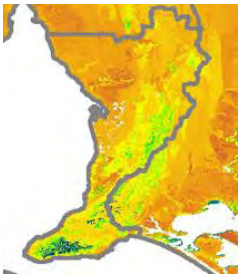
Maintain the productive capacity of our natural resources

Trend	Unknown	The information presented is a baseline estimate of soil organic carbon levels; the trends are unknown

To date, only a baseline estimate of soil organic carbon is available (map on right), so it is not possible to calculate a trend.

Monitoring soil organic carbon is important for tracking carbon storage and assessing soil quality. However, building soil carbon is a slow process and it can take 5–10 years to detect change. Sampling costs are high because of the need to account for high levels of spatial variability.

New predictive methods may be used in the future to provide more cost effective assessments of changes in soil organic carbon.



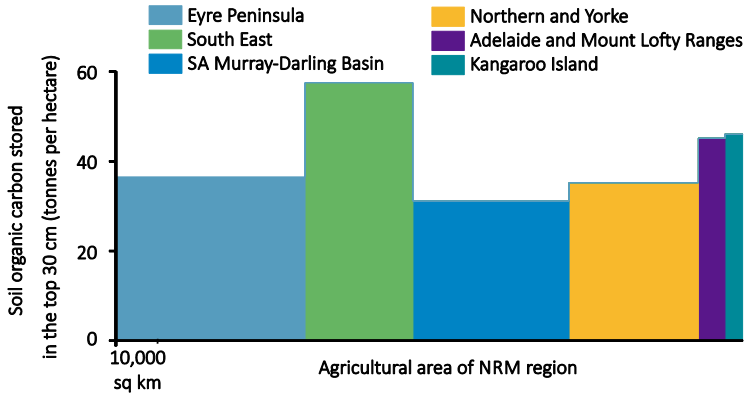
Estimated 0-30 cm soil organic carbon stocks (tonnes per hectare)

10 >120

Where we are at (2014)	Unknown	About 29 million tonnes of organic carbon are stored in the Adelaide and Mount Lofty Ranges NRM region

Estimates of our soil organic carbon stocks are limited to the state's agricultural regions where about 600 million tonnes of soil organic carbon are stored (graph on right). This volume of carbon is equivalent to over 70 years of South Australia's carbon emissions.

The Adelaide and Mount Lofty Ranges NRM region stores on average 45 tonnes of soil organic carbon per hectare (see graph on right).



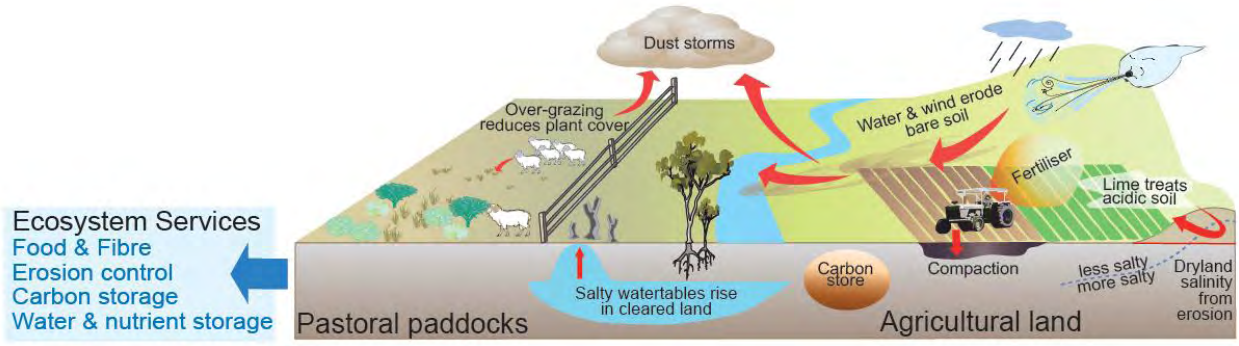
Reliability of information	★★☆☆☆	Fair

Further information: Technical information for this report, Soil carbon in South Australia

This report is a work in progress. As resource monitoring improves, so too will our ability to describe trends in condition.

Government of South Australia

7 Improve soil and land condition



Healthy soil provides us with food and fibre and supports native plants and animals. Healthy soil provides nutrients for crops, pastures and livestock, stores and cycles water and carbon, and resists erosion.

In South Australia, food and fibre are produced in the agricultural land in the southern part of the state, and the pastoral land in the north of the state. These are valuable and productive industries. Each year the gross value of cropping is $2.9 billion, of livestock is $1.8 billion and horticulture is $1.3 billion.

Maintaining the health of our soil is important to sustain long term productivity, and to cope with variability in rainfall and increasing risks of drought in a changing climate.

The next 4 snapshots address Guiding Target 7 from the State NRM Plan: Improve soil and land condition. Snapshots are based on statewide and regional information.

7.1 How much of our agricultural land is protection from erosion?

7.2 Is soil acidity decreasing in our agricultural areas?

7.3 Is water-use efficiency improving in our agricultural areas?

7.4 Is soil fertility improving in our agricultural areas? (statewide)

2013 State Report Card

How much of our agricultural land is protected from erosion?

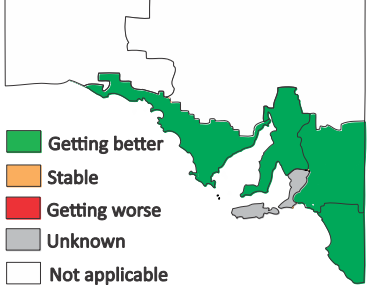
Healthy soil provides us with food and fibre through our crops and livestock. Healthy soil provides nutrients for crops and pastures, stores and cycles water and carbon, and resists erosion.

South Australian agriculture is worth $6 billion each year. Our main agricultural regions are the South East, South Australian Murray-Darling Basin, Northern and Yorke, and Eyre Peninsula, where about two-thirds of the land is used for agriculture.

Some agricultural soils are susceptible to erosion by wind or water. Erosion causes a loss of topsoil and a decline in fertility of agricultural land. It also causes dust storms and increases sediment and nutrients in our waterways.

Sustainable land management practices, such as no-till cropping, reduce the risk of erosion because crops are sown with minimal disturbance. Stubble from previous crops slows the wind at the soil surface and dissipates rain, and the roots bind the soil.

Regional trends in protection from soil erosion



State target

Improve soil and land condition

Trend (2009–13)	Getting better	Ongoing efforts will be needed to continue to protect our soils

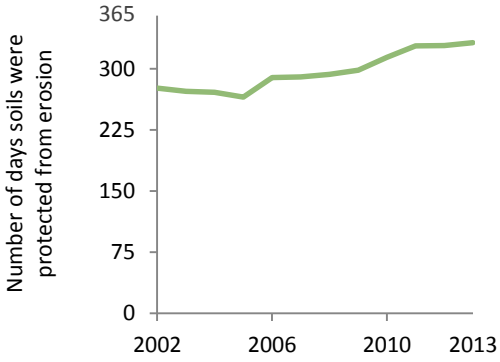
Protection from soil erosion is measured by the number of days each year that vegetation adequately covers the soil to prevent erosion.

Protection of soil from erosion has steadily improved, from 272 days in 2003 to 332 days in 2013 (graph to right and map above).

Information on protection from soil erosion is not available for the Adelaide and Mount Lofty Ranges or Kangaroo Island NRM regions.

Land managers are adopting more sustainable farming practices with support from government agencies, Natural Resource Management boards, agricultural industry groups and private agronomists. About two thirds of our crops are now sown using no-till cropping methods, but the rate of adoption is levelling off, as is the trend in erosion protection (graph to right).

These efforts lead to reduced sediment and nutrient loss into the atmosphere (e.g. dust storms) and waterways.



Where we are at (2013)	Good	Agricultural soils were protected from erosion for 332 out of 365 days

Soil was protected from erosion for 332 out of 365 days in 2013. Improvements since 2003 closely match the increasing adoption of no-till cropping methods.

Ongoing efforts will be needed to maintain or improve erosion protection by land managers through stubble retention, no-till cropping and best practice timing and duration of grazing.

Reliability of information	★★★★★	Excellent

Further information:
Technical information for this report card
Soil and land condition monitoring in South Australia

This report is a work in progress. As resource monitoring improves, so too will our ability to describe trends in condition.

Government of South Australia

2014 Regional Snapshot

Is soil acidity decreasing in our agricultural areas?

Healthy soil provides us with food and fibre through our crops and livestock. Healthy soil provides nutrients for crops and pastures, stores and cycles water and carbon, and resists erosion.

About 60 per cent of Adelaide and Mount Lofty Ranges NRM region's agricultural land has naturally occurring acidic soil. Acidic soil limits the fertility and productivity of agricultural areas.

Agricultural production accelerates soil acidification, particularly where large quantities of produce are harvested, and where fertilisers that contain or form ammonium are used.

Land managers can reduce acidity by applying lime to their soils. Lime sales are monitored to track the management of soil acidity in Adelaide and Mount Lofty Ranges NRM region's agricultural areas.

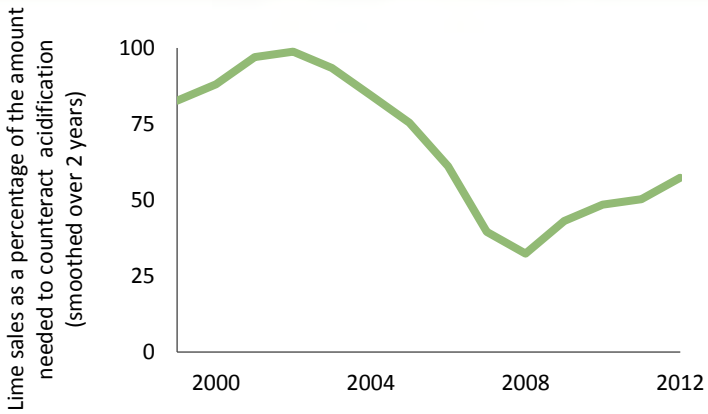
State target

Improve soil and land condition

Trend (2008-12)	Getting Better	Ongoing efforts will be needed to increase the amount of lime applied to our soils

Lime use in Adelaide and Mount Lofty Ranges NRM region has reduced dramatically since 2000, but has increased slightly over the past 5 years. In 2012, lime sales were estimated to be 14,000 tonnes.

Between 2008-12, the amount of lime sold relative to the estimated amount needed to counteract acidification is getting better, after a decline in sales from 99 per cent in 2002 to 32 per cent in 2008 (see graph on right).



Where we are at (2012)	Fair	Land managers applied about 60 per cent of the amount of lime needed to counteract soil acidification

The amount of lime currently applied in Adelaide and Mount Lofty Ranges NRM region about 60 per cent of the amount that is required to counteract soil acidification. Many land managers do not apply lime because they perceive it to be too costly.

Controlling soil acidification is important to maintain long term productivity of agricultural soils.

Reliability of information	★★☆☆☆	Fair

Further information:
Technical information for this report
Soil and land condition monitoring in South Australia

This report is a work in progress. As resource monitoring improves, so too will our ability to describe trends in condition.

Government of South Australia

2014 Regional Snapshot

Is water-use efficiency improving in our agricultural areas?

Water-use efficiency measures the proportion of rain that is used by rain-fed crops. It measures the efficiency of agricultural productivity, which is also influenced by soil type and condition, and land management systems.

Water-use efficiency of our irrigation industries is covered in a separate report.

The main crops grown in Adelaide and Mount Lofty Ranges NRM region are wheat and barley. Higher water-use efficiency means that grain yields are higher for a given amount of rain, and that the amounts of run-off, evaporation and drainage to water tables are lower.

Land managers can increase water-use efficiency by sowing crops earlier in the season, controlling weeds, retaining stubble and by reducing soil disturbance and compaction by machinery. Planting the most suitable varieties of crops, improving plant nutrition and controlling animal pests, weeds and diseases also improve water-use efficiency.

Trend in water-use efficiency

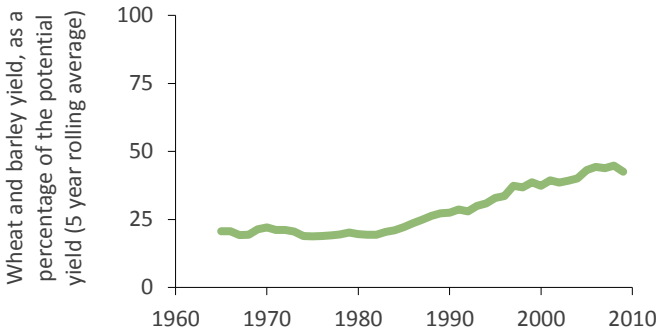
State target

Improve soil and land condition

Trend (2005-09)	Stable	Ongoing efforts will be needed to increase the water-use efficiency of our soils

For the wheat and barley crops in the Adelaide and Mount Lofty Ranges NRM region, water-use efficiency improved from 21 per cent to 43 per cent between 1965 and 2009, and was stable from 2005 to 2009 (map above and graph on right).

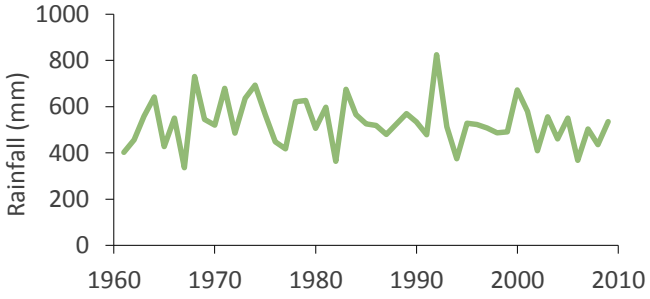
These improvements in water-use efficiency are due to adoption of improved farming practices and not an increase in rain, which was stable over those periods (graph below).



Where we are at (2009)	Fair	The amount of wheat and barley produced was 43 per cent of the potential yield

Land managers can further improve water-use efficiency.

Optimising the use of rain will help to maintain the long term productivity of cropping industries.



Reliability of information	★★☆☆☆	Fair

Further information:
Technical information for this report
Soil and land condition monitoring in South Australia

This report is a work in progress. As resource monitoring improves, so too will our ability to describe trends in condition.

Government of South Australia

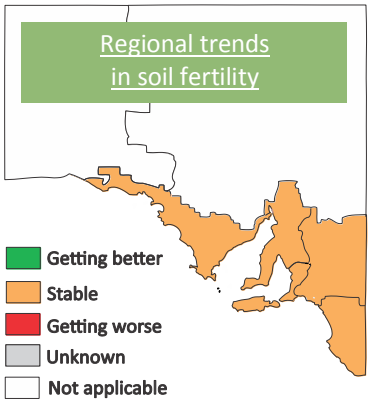
2013 State Report Card

Is soil fertility improving in our agricultural areas?

Healthy soil provides us with food and fibre through our crops and livestock. Healthy soil provides nutrients for crops and pastures, stores and cycles water and carbon, and resists erosion.

Essential nutrients, such as phosphorus and some trace elements, are naturally low in South Australian soils. In agricultural areas, land managers apply fertiliser to replenish the nutrients in their soils and optimise soil fertility.

To inform their fertiliser strategies, about two-thirds of South Australian land managers test the nutrient levels in their soils. This report card presents results from some of these tests.

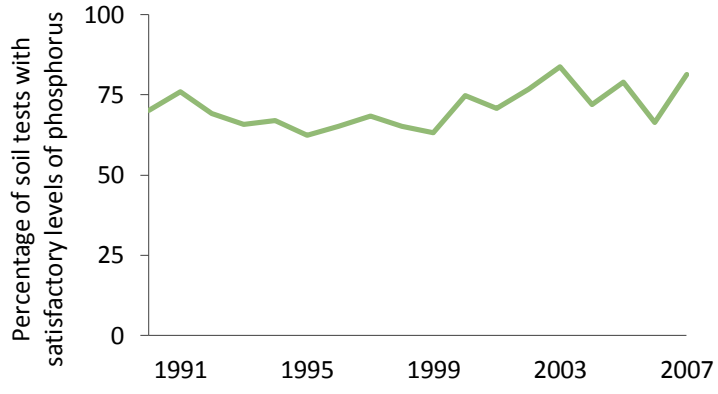


State target

Improve soil and land condition

Trend (2003-07)	Stable	Ongoing efforts will be needed to increase the fertility of our soils

Phosphorus levels were variable over the 5 years to 2007, but both recent and long term trends indicate that phosphorus levels have been stable between 1990 and 2007 (map above and graph on right).



Where we are at (2007)	Good	Satisfactory phosphorus levels were found in 81 per cent of soil tests

Soil tests show that 81 per cent of our agricultural soils had satisfactory levels of phosphorus.

Because fertiliser costs are increasing, land managers are using technology to improve fertiliser application. For example, many land managers now use GPS-guided, variable-rate fertiliser applicators to accurately distribute fertiliser in their paddocks. Using fertiliser efficiently is important to optimise the productivity of agricultural soils.

These management strategies may also improve the health of our waterways and coastal resources by reducing the level of nutrients reaching these systems.

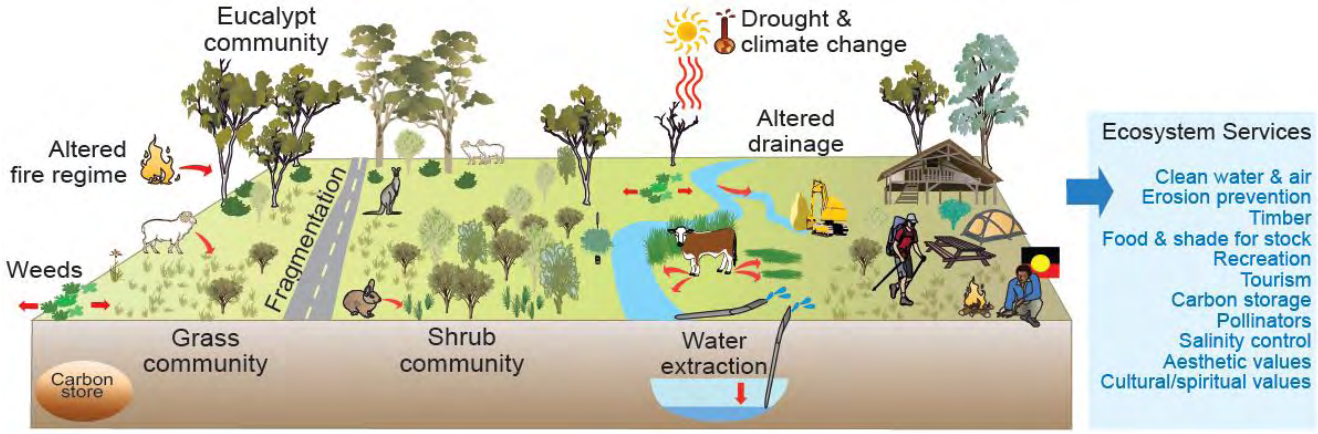
Reliability of information	★★☆☆☆	Fair

Further information:
Technical information for this report card
Soil and land condition monitoring in South Australia

This report is a work in progress. As resource monitoring improves, so too will our ability to describe trends in condition.

Government of South Australia

8 Increase extent & improve condition of native vegetation



South Australia's native vegetation is fundamental to the health of our environment and the prosperity of our primary industries. Native vegetation protects our land from erosion and dry-land salinity, improving our agricultural productivity and storing carbon. It provides habitat for our native animals, places for recreation, gives our landscape its identity and is culturally important for Aboriginal people.

Development has resulted in extensive clearance in agricultural areas (75 per cent cleared), resulting in reduced coverage and increased fragmentation of native vegetation. Remaining native vegetation is under additional pressure from inappropriate grazing and fire regimes, weeds, pests, plant diseases and firewood collection. Altered water flows, increasing soil salinity and climate change are also threats. Several native vegetation communities in the state are now listed as threatened.

Substantial conservation investments are required to establish a network of permanently protect areas, improve the condition of native vegetation, and to link patches through 'corridors' of continuous vegetation. Together the network of protected areas and corridors, will improve the survival of native plants and animals. Monitoring the condition of native vegetation is essential to ensure that management activities are effective.

The 3 snapshots following address Guiding Target 8 from our State NRM Plan: Increase extent and improve condition of native vegetation. Snapshots are based on regional information.

8.1 Is the condition of our native vegetation improving?

8.2 Are the extent and patchiness of our native vegetation improving?

8.3 How much of our native vegetation is protected?

2014 Regional Snapshot

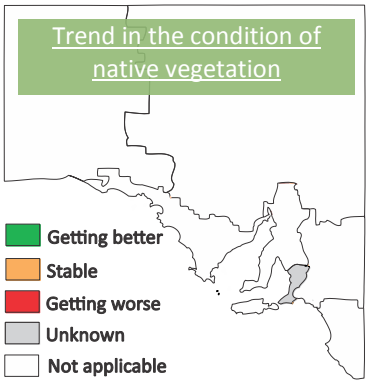
Is the condition of our native vegetation improving?

South Australia's native vegetation - from small ground covers and native grasses to large trees and water plants - is fundamental to the health of our environment and the prosperity of our primary industries.

Native vegetation protects our land and water from erosion and dry-land salinity, while improving our agricultural productivity and storing carbon. It provides habitat for our native animals, places for recreation, gives our landscape its identity and is culturally important for Aboriginal people.

Human development has affected our native vegetation. It has reduced its extent (coverage), and increased its connectivity (fragmentation). Our remaining native vegetation is under pressure from further fragmentation, inappropriate grazing and fire regimes, weeds, pests, plant diseases and firewood collection. Increasing water extraction, altered water flows, increasing soil salinity, rising groundwater, pollution and climate change are also threats. Several native vegetation communities in the NRM region are now listed as threatened.

This report summarises the condition of our native vegetation, and should be read alongside reports on vegetation extent and connectivity, and protection.



State target

Increase extent and improve condition of native vegetation

Trend	Unknown	This is the first time this information has been collated. Trends will be available in the future.

We monitor the condition of native vegetation to ensure that our management activities are effective. Management includes controlling vegetation clearance, pests, weeds and grazing, and improving land-use practices.

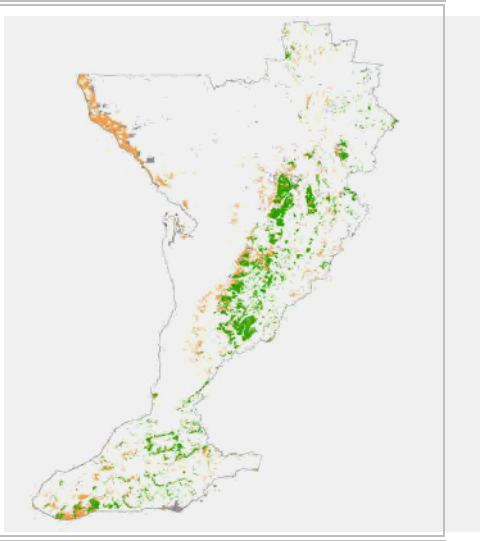
Declines in the condition of our native vegetation since European settlement have largely been a result of agricultural and urban developments. Recent trends in the condition of our native vegetation are not known at regional or state scale (see map above), but its protection in 1991 and ongoing management aim to improve its condition and extent.

Where we are at (2014)	Fair	Our agricultural and urban developments have degraded much of our native vegetation.

Native vegetation clearance has been most intense around Adelaide and areas with extensive agricultural development. Monitoring of the remaining vegetation patches in the Adelaide and Mount Lofty Ranges NRM region indicates that in general it is in fair condition (see map on right).

A study in 2011 by the Australian Government Department of Agriculture highlighted only 1 per cent of the NRM region remains largely unchanged since European settlement.

The Department of Environment, Water and Natural Resources is assessing ways to standardise assessments of native vegetation condition for regional and statewide reporting.



Reliability of information	★★☆☆☆	Fair

Further information: Technical information for this report, DEWNR native vegetation, Nature Conservation Society of South Australia

Government of South Australia

2014 Regional Snapshot

Are the extent and connectivity of our native vegetation improving?

South Australia's native vegetation—from small ground covers and native grasses to large trees and water plants—is fundamental to the health of our environment and the prosperity of our primary industries.

Native vegetation protects our land and water from erosion and dryland salinity, while improving our agricultural productivity and storing carbon. It provides habitat for our native animals, places for recreation and is culturally important for Aboriginal people.

Human developments have degraded the condition of our native vegetation through clearance and fragmentation. Native plants and animals that cannot move between patches become more susceptible to local disturbances that threaten their survival (e.g. fires and pests).

This report summarises the coverage (extent) and fragmentation (connectivity) of our native vegetation, and should be read alongside reports on vegetation condition and protection.

Trend in the extent and connectivity of native vegetation

State target

Increase extent & improve condition of native vegetation

Trend (1999–2014)	Stable	Our remaining native vegetation has been protected by legislation since 1991

Our remaining native vegetation has been protected by legislation since 1991 so both the extent and connectivity have stabilised. Improved land management, re-vegetation, natural regeneration and pest plant and animal control since that time have helped to stabilise native vegetation cover. Government legislation permits the clearance of native vegetation for some developments, but the clearance must be offset by additional investment in re-vegetation. Some illegal clearance also occurs.

Natural resource managers prioritise re-vegetation efforts to expand intact areas of native vegetation and to create corridors to connect isolated patches. Together with our network of protected areas, this improves the survival of native plants and animals.

Where we are at (2014)	Poor	Historic agricultural and urban development has cleared and isolated vegetation patches

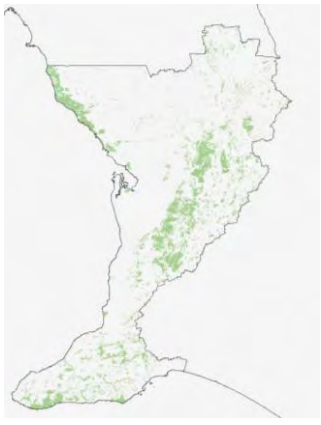
About 13 per cent of our pre-European native vegetation remains in the Adelaide and Mount Lofty Ranges NRM region (see map on right). Historical clearance has isolated two thirds of the remaining patches.

We have degraded much of our native vegetation. Substantial conservation investments are required to improve its condition and to connect patches.

Due to the large scale historical clearance of native vegetation, we do not expect that the extent of native vegetation will change significantly.

Remaining vegetation extent:
13 per cent

Percentage of connected patches:
33 per cent



Reliability of information	★★★★☆	Very good

Further information:
Technical information for this report, DEWNR native vegetation, Nature Conservation Society of South Australia

This report is a work in progress. As resource monitoring improves, so too will our ability to describe trends in condition.

Government of South Australia

2014 Regional Snapshot

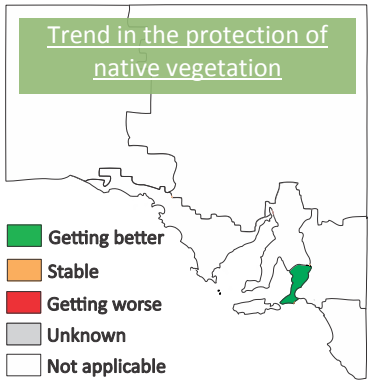
How much of our native vegetation is protected?

South Australia's native vegetation - from small ground covers and native grasses to large trees and water plants - is fundamental to the health of our environment and prosperity of our primary industries.

Development has necessarily impacted our native vegetation. It has been cleared from 14 per cent of South Australia, with extensive clearance in the 6 agricultural NRM regions (75 per cent cleared) and less in the arid NRM regions (SA Arid Lands, Alinytjara Wilurara; 1 per cent cleared).

By permanently protecting some areas we build the capacity of our native plants and animals to adapt to climate change and other pressures. South Australian and Australian governments aim to protect at least 10 per cent of the area of all ecosystems, across all ecosystem scales, including broad (bio-regional), medium (sub-regional) and fine (environmental associations).

This report summarises the coverage of our protected areas in the Adelaide and Mount Lofty Ranges NRM region and the percentage of environmental associations that are *adequately protected* (10 per cent of the area). This report should be read alongside others on vegetation condition, extent and connectivity.



State target

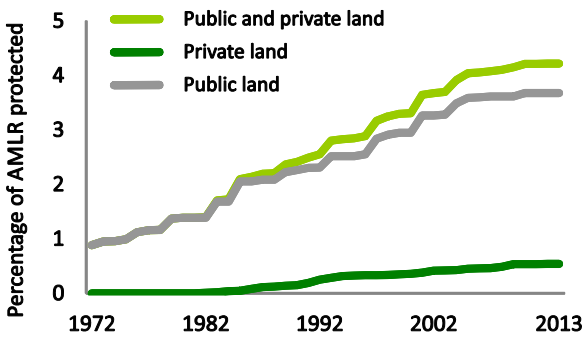
Increase extent and improve condition of native vegetation

Trend (2008–13)	Getting Better	There was an increase in the number of adequately protected ecosystems (environmental associations) in the Adelaide and Mount Lofty Ranges NRM region

Over the last 6 years there was an increase in the number of *adequately protected* (10 per cent of the area) environmental associations in the Adelaide and Mount Lofty Ranges NRM region (map above).

Public protected areas now cover almost 4 per cent of the Adelaide and Mount Lofty Ranges NRM region and private areas cover almost 1 per cent (graph on right).

Public protected areas are National, Conservation and Recreation Parks, Native Forest Reserves and Conservation Areas. Private areas comprise Heritage Agreements.

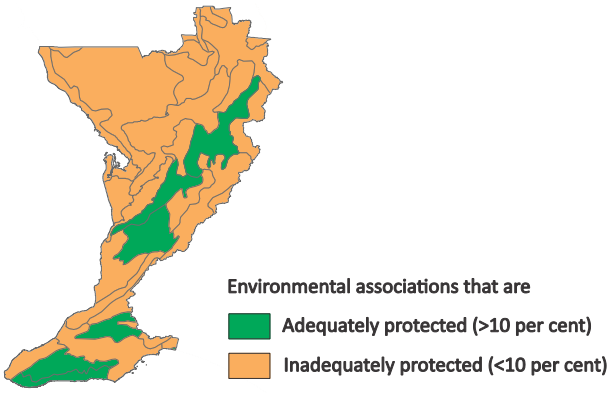


Where we are at (2013)	Poor	This NRM region is dominated by urban and agricultural areas. Almost one quarter of its ecosystems (environmental associations) are adequately protected.

At the end of 2013, 22 per cent of the 32 environmental associations in the Adelaide and Mount Lofty Ranges NRM region were classified as *adequately protected* (map on right).

Across the Adelaide and Mount Lofty Ranges NRM region, 9 per cent of environmental associations did not have any areas that were protected.

This information is used by the South Australian and Australian governments to prioritise investments in ecosystems that require protection.



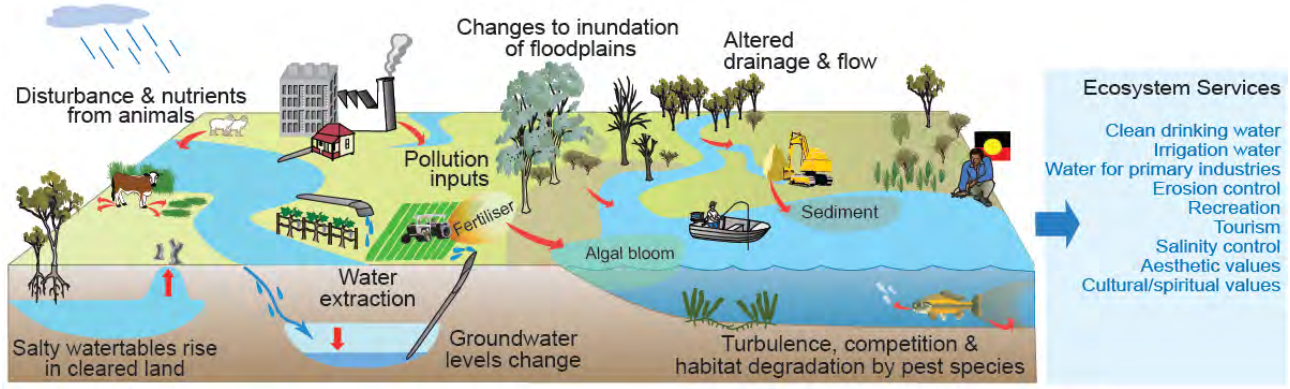
Reliability of information	★★★★☆	Very Good

Further information: Technical information for this report, DEWNR native vegetation, Strategies for establishing protected areas in South Australia and Australia

This report is a work in progress. As resource monitoring improves, so too will our ability to describe trends in condition.

Government of South Australia

9 Improve the condition of terrestrial aquatic ecosystems



Our rivers, creeks, streams and drains provide water for primary production and domestic use, habitats for native plants and animals, places for recreation and are culturally important for Aboriginal people. The River Murray is Australia's largest and most iconic river, and provides South Australia with more than half of our drinking water and underpins regional economies.

Development in catchment areas and our use of aquatic environments has affected the condition of our water ways to an extent that threatens the features that make them so attractive and valuable. Periods of prolonged drought, climate change and associated water pressures have reduced water flows. Clearance of native vegetation and development have impacted their condition through increased nutrients, sediments and pollutants in runoff and wastewater discharges.

Aquatic ecosystems include plants and animals and their habitats in associated river catchments, channels, flood plains and lakes. When these ecosystems are healthy, the plants and animals naturally clean and improve the quality of the water. It is critical that we manage environmental water requirements to maintain the health of aquatic ecosystems.

The following snapshot addressed Guiding Target 9 from our State NRM Plan: Improve the condition of terrestrial aquatic ecosystems. Snapshot is based on regional information.

9.1 What is the ecological condition of creeks, streams and drains?

2014 Regional Snapshot

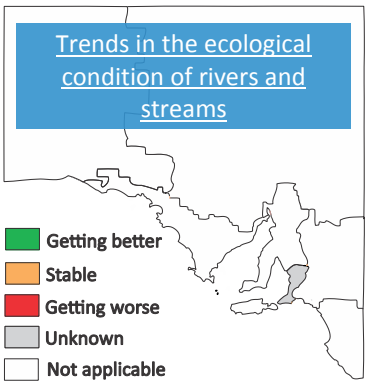
What is the ecological condition of our rivers, streams and drains?

Our rivers and streams provide water for agriculture and domestic use, habitats for native plants and animals, places for recreation and are culturally important for Aboriginal people.

Aquatic plants and animals function together as ecological communities and improve water quality in rivers, streams and drains. These ecosystems are impacted by nutrients, sediments and pollutants in agricultural runoff and wastewater discharges. Feral and domestic animals, which graze and trample vegetation, and reductions in flow, due to dams, weirs, droughts, consumptive use and weeds, also impact rivers, stream and drains.

Between 2008 and 2013, the Environment Protection Authority assessed the condition of rivers and streams in Adelaide and Mount Lofty Ranges NRM region based on water quality and the condition of invertebrate and plant communities. Assessments have been made at 143 sites, across the Fleurieu Peninsula, Gawler River, Onkaparinga River, and Torrens River catchments. This report card summarises the information by catchment basins.

Trends in the ecological condition of rivers and streams



State target

Improve the condition of terrestrial aquatic ecosystems

Trend (2008–13)	Unknown	River and stream condition was assessed between 2008-13. A trend will be available in future versions of this report card.

Because most sites have only been assessed once, recent trends in river and stream condition are not known (map above). Future monitoring will determine trends in condition of our rivers and streams.

The Government of South Australia and the regional NRM board are investing in on ground works to improve the condition of rivers and streams to improve water security and the condition of invertebrate and plant communities. Management efforts focus on controlling feral animals and weeds, fencing stream edges, stormwater harvesting and reuse, working with land holders to reduce nutrient and sediment runoff and, where possible, restoring more natural flows.

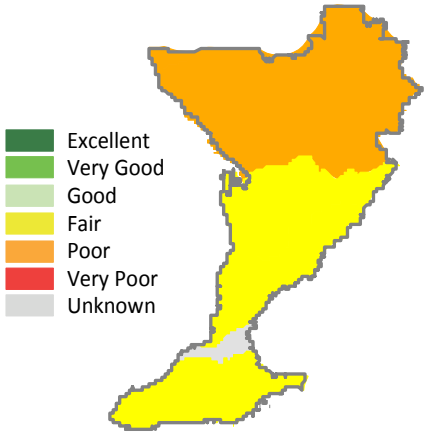
Where we are at (2013)	Poor	Substantial investments are required over many years to improve water quality, and the condition of aquatic invertebrate and plant communities

Across the Adelaide and Mount Lofty Ranges NRM region, our rivers and streams are in fair or poor condition (map on right).

Fleurieu Peninsula, Onkaparinga River and Torrens River catchments are in fair condition. Gawler River catchment, which is a larger area, is in poor condition.

Rivers and streams that are in poor condition typically have elevated levels of nutrients, salt and fine sediment as well as sparse vegetation and abundant weeds along their banks.

Our use of aquatic environments for economic and recreation purposes has affected their condition to an extent that threatens the features that make them so attractive and valuable. Water diversions and other impacts are at critical levels, and are intensified by periods of drought. It is crucial that we take steps to improve the condition of our rivers and streams.



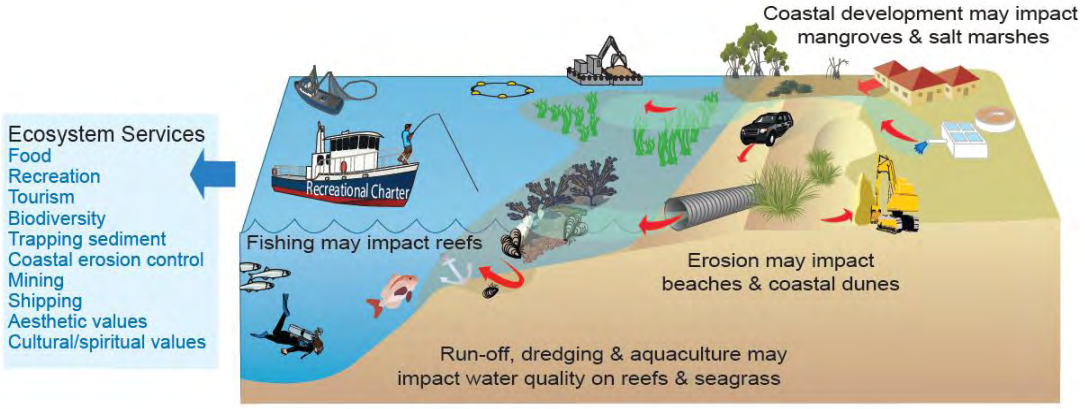
Reliability of information	★★★★☆	Very Good

Further information:
Technical information for this report and EPA Aquatic Ecosystems Water Quality reports

This report is a work in progress. As resource monitoring improves, so too will our ability to describe trends in condition.

Government of South Australia

10 Improve condition of coastal and marine ecosystems



Our coastal and marine ecosystems support regional tourism, commercial and recreational fishing, aquaculture and shipping. We value these ecosystems for their scenic beauty, recreation and their significant cultural importance.

Our coastal and marine ecosystems include rocky reefs, seagrass meadows, mangroves, salt marshes, coastal dunes and estuaries. These habitats protect coastal infrastructure, help maintain the health of our coastal and marine ecosystems, and support numerous marine plants and animals, many of which are unique to southern Australia.

The following 7 snapshots address Guiding Target 10 from our State NRM Plan: Improve condition of coastal and marine ecosystems. Snapshots are based on statewide and regional information.

10.1 Are the extent and condition of our seagrass improving?

10.2 Is the condition of our subtidal reefs improving?

10.3 Are the extent and condition of our mangroves improving?

10.4 Are the extent and condition of our saltmarsh improving?

10.5 Are the extent and condition of our coastal dunes improving?

10.6 Is the condition of our estuaries improving?

10.7 Are South Australia's marine parks effective in protecting marine habitats and species? (statewide)

2014 Regional Snapshot

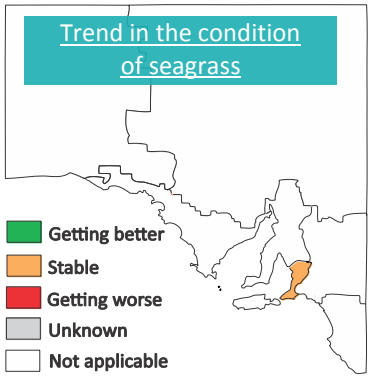
Are the extent and condition of our seagrass improving?

The marine environment provides valuable resources for regional economies, supporting tourism, commercial and recreational fishing, aquaculture, shipping and mining. Most South Australians live near the coast and many coastal and marine systems are under pressure from human impacts.

Seagrass traps sediment, reduces wave energy and prevents coastal erosion, thereby protecting coastal infrastructure and saving millions of dollars in coastal protection strategies. It also cycles nutrients, stores carbon and provides food and shelter for numerous marine animals.

Seagrass in the Adelaide and Mount Lofty Ranges NRM region is threatened by declining water quality due to increases in nutrients, pollutants, sediment loads and turbidity. These are caused by freshwater inputs from stormwater, treated sewage, seepage and agricultural runoff as well as industrial discharges. Disturbance by trawling, boat moorings and dredging are also potential threats.

The health of our seagrass relies on the management of water quality within catchments, and management of activities that cause physical disturbance.



State target

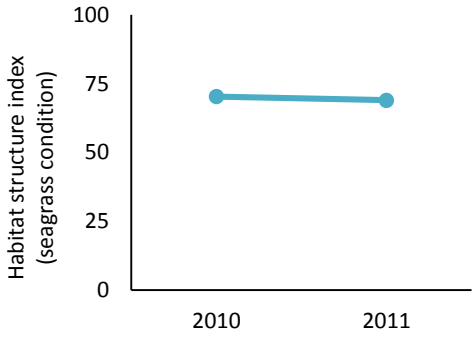
Improve condition of coastal and marine ecosystems

Trend in condition (2010-11)	Stable	The condition of seagrass remained stable in the areas that were studied

The condition of seagrass in the Adelaide and Mount Lofty Ranges was stable between 2010-11 (graph on right) in the areas that were studied.

Long-term losses of seagrass have been confirmed on populated coasts where the impacts of decreased water quality are most intense. Off the Adelaide metropolitan coast, urban-based nutrients entering coastal waters caused over 5000 hectares of seagrass to be lost between 1949 and 2007. Recent mapping studies off Adelaide suggest seagrass extent may have stabilised since 2007.

This trend in seagrass loss matches those recorded worldwide, with seagrass now covering about two thirds of its former area globally.

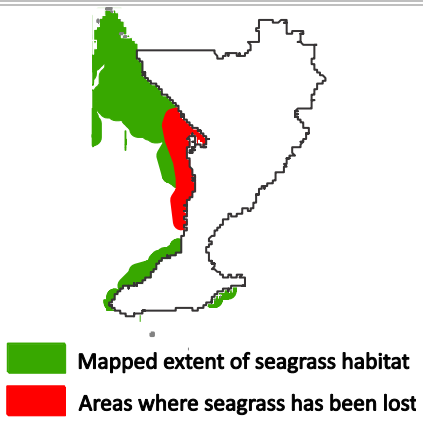


Where we are at (2011)	Good	Seagrass has been lost from much of our metropolitan coast, but may have now stabilised. Remaining seagrass in the NRM region is considered in good condition.

Seagrass loss has been recorded in many areas along metropolitan coasts where impacts from decreased water quality have been most intense. In the locations studied in the Adelaide and Mount Lofty Ranges NRM region, an estimated 40 per cent of seagrass has been lost since 1949.

The Environment Protection Authority is monitoring the condition of existing seagrass in the Adelaide and Mount Lofty Ranges NRM region. Seagrass was in good condition in 2011 with a score of 69 out of 100 (where 100 represents excellent habitat condition). These results were consistent with the 2010 assessment.

An interagency review of seagrass research is underway and government agencies are working with the community to improve the extent and condition of seagrass.



Reliability of information	★★★★☆	Very good

Further information: Technical information for this report, Aquatic ecosystem condition reports

This report is a work in progress. As resource monitoring improves, so too will our ability to describe trends in condition.

Government of South Australia

2014 Regional Snapshot

Is the condition of our subtidal reefs improving?

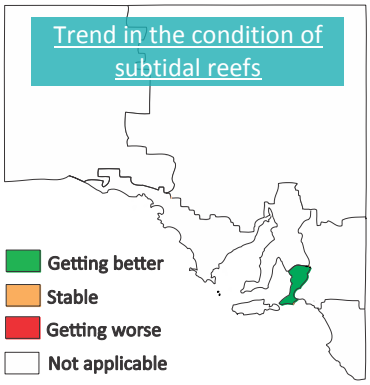
The marine environment provides valuable resources for regional economies, supporting tourism, commercial and recreational fishing, aquaculture, shipping and mining. Most South Australians live near the coast and many coastal and marine systems are under pressure from human impacts.

This report card measures the condition of subtidal reefs in the Adelaide and Mount Lofty Ranges NRM region. Reefs are formed from rocky outcrops and provide habitat for invertebrates, algae and fish. Many of these plants and animals are unique to South Australia.

Reefs are threatened by declining water quality due to increases in nutrients, pollutants, sediment loads and turbidity. These are caused by freshwater inputs from stormwater, treated sewage, seepage and agricultural runoff as well as industrial discharges. Physical disturbance, sedimentation, impacts of dredging, introduced marine pests, anchor damage, illegal harvesting and fishing are also threats.

Improvement of reef condition requires management of water quality within catchments, and management of marine pests and physical disturbance.

Trend in the condition of subtidal reefs

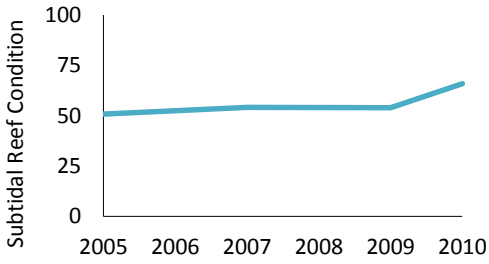


State target

Improve condition of coastal and marine ecosystems

Trend (2006-10)	Getting better	Ongoing efforts will be needed to monitor and protect our subtidal reefs

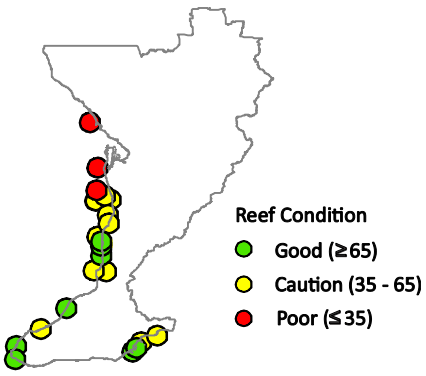
Studies of subtidal reefs in the Adelaide and Mount Lofty Ranges NRM region indicate that the condition of reefs has improved in recent years (graph on right).



Where we are at (2010)	Good	Most of the subtidal reefs in the Adelaide and Mount Lofty Ranges NRM region are in good condition

In the Adelaide and Mount Lofty Ranges NRM region, subtidal reefs were in good condition in 2010, with a condition score of 66 out of 100, despite the relatively degraded condition of some reefs near metropolitan Adelaide (map on right).

Information collected by the Department of Environment, Water and Natural Resources, Reef Watch (coordinated by Conservation Council SA) and ReefLife (University of Tasmania) is being assessed for future reporting across South Australia.



Reliability of information	★★★★★	Excellent

Further information:

Technical information for this report, ReefLife survey information, Reef Watch information

This report is a work in progress. As resource monitoring improves, so too will our ability to describe trends in condition.

Government of South Australia

2014 Regional Snapshot

Are the extent and condition of our mangroves improving?

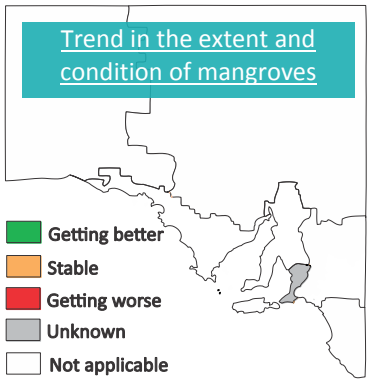
The marine environment provides valuable resources for regional economies, supporting tourism, commercial and recreational fishing, aquaculture, shipping and mining. Most South Australians live near the coast and many coastal and marine systems are under pressure from human impacts.

Mangrove areas, where mangrove trees grow in dense thickets, are located in tidal estuaries, saltmarshes and on muddy coasts, and form a transition zone between land and marine ecosystems.

Mangroves trap sediment and prevent coastal erosion. They also maintain coastal water quality, cycle nutrients, store carbon and provide food and shelter for marine animals, including commercial fish in their juvenile stages.

Mangroves in the Adelaide and Mount Lofty Ranges NRM region are threatened by clearance, coastal development, construction of tidal barriers and drains, and changes in freshwater inputs that decrease salinity and increase nutrients, pollutants and sediments.

The health of mangrove ecosystems relies on the management of coastal development and water quality within catchments.



State target

Improve condition of coastal and marine ecosystems

Trend in extent and condition	Unknown	Ongoing efforts will be needed to monitor and protect our mangroves

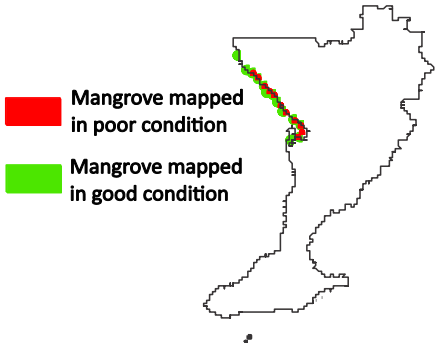
In the Adelaide and Mount Lofty Ranges NRM region, mangroves cover 80 per cent of their former extent.

Trends in the condition of mangroves across South Australia are not known (map above).

Where we are at (2007)	Good	Over 97 per cent of mangroves are in 'good' condition in the Adelaide and Mount Lofty Ranges NRM region

Approximately 20 per cent of the mangroves in South Australia are in the Adelaide and Mount Lofty Ranges NRM region.

Broad-scale mapping across South Australia by the Department of Environment, Water and Natural Resources between 1997 and 2007 classed 97 per cent of mangroves in 'good' condition. Detailed field surveys of mangrove condition have not been undertaken in the Adelaide and Mount Lofty Ranges NRM region.



Reliability of information	★★★☆☆	Good

Further information:
Technical information for this report, Coast Protection Board

This report is a work in progress. As resource monitoring improves, so too will our ability to describe trends in condition.

Government of South Australia

2014 Regional Snapshot

Are the extent and condition of our saltmarshes improving?

The marine environment provides valuable resources for regional economies, supporting tourism, commercial and recreational fishing, aquaculture, shipping and mining. Most South Australians live near the coast and many coastal and marine systems are under pressure from human impacts.

Saltmarshes are low coastal shrublands comprised of salt-tolerant plants that are frequently inundated by tides or storm-induced water surges. Like mangroves, saltmarsh habitats form a transition zone between land and marine ecosystems.

Saltmarshes trap sediment and prevent coastal erosion. They also maintain coastal water quality, cycle nutrients, store carbon and provide food and habitat for coastal and marine animals in South Australia.

Saltmarsh is nationally listed as a threatened ecological community. Threats in the Adelaide and Mount Lofty Ranges NRM region include clearance and fragmentation, coastal development, construction of tidal barriers and drains, off-road vehicles, decreased water quality, pollution, grazing and invasive species.

The health of saltmarsh habitats relies on the management of recreational activities, coastal development, stock grazing and water quality within catchments.

Trends in saltmarsh extent and condition

State target

Improve condition of coastal and marine ecosystems

Trend in extent and condition	Unknown	Ongoing efforts will be needed to monitor and protect our saltmarsh

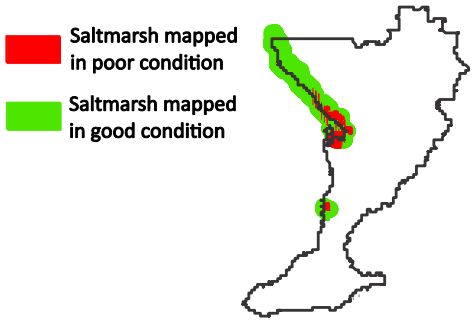
In the Adelaide and Mount Lofty Ranges NRM region, saltmarsh covers 74 per cent of its former extent.

Trends in the extent and condition of saltmarsh across South Australia are not known (map above).

Where we are at (2007)	Good	Over 90 per cent of saltmarsh is in 'good' condition in the Adelaide and Mount Lofty Ranges NRM region

Approximately 9 per cent of the saltmarsh in South Australia is in the Adelaide and Mount Lofty Ranges NRM region.

Broad-scale mapping across South Australia by the Department of Environment, Water and Natural Resources between 1997 and 2007 classed 90 per cent of saltmarsh in 'good' condition (map on right). Detailed field surveys of saltmarsh condition have not been undertaken in any NRM region in South Australia.



Reliability of information	★★☆☆☆	Fair

Further information:

Technical information for this report, Coast Protection Board

This report is a work in progress. As resource monitoring improves, so too will our ability to describe trends in condition.

Government of South Australia

2014 Regional Snapshot

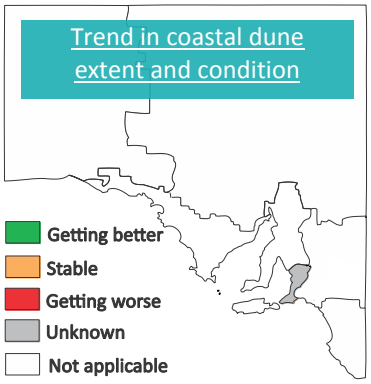
Are the extent and condition of our coastal dunes improving?

The coastal and marine environment provides valuable resources for regional economies, supporting tourism, commercial and recreational fishing, aquaculture, shipping and mining. Most South Australians live near the coast, and many coastal and marine systems are under pressure from human impacts.

Coastal dunes prevent erosion and store sand, which naturally replenishes wave-washed beaches. Vegetation stabilises dunes by trapping sand and acting as a barrier against waves, tides and wind. Without vegetation, dunes may be easily eroded causing the coastline to recede and sand to drift into urban areas. Coastal dunes also provide important habitat for specialised coastal plants and animals in South Australia.

In the Adelaide and Mount Lofty Ranges NRM region, coastal dunes are eroded by human trampling, off-road vehicles and excessive stock grazing. Coastal infrastructure, such as buildings and roads located on dunes, are vulnerable to erosion and can prevent natural processes of sand deposition and erosion within dune systems.

The health of our coastal dunes relies on the management of recreational activities, stock grazing and coastal development.



State target

Improve condition of coastal and marine ecosystems

Trend in extent and condition	Unknown	Ongoing efforts will be needed to monitor and protect our coastal dunes

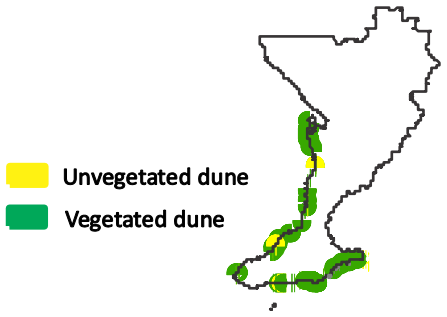
Approximately 1 per cent of the state's coastal dunes are in the Adelaide and Mount Lofty Ranges NRM region.

Trends in the extent and condition of coastal dune habitats across South Australia are not known (map above).

Where we are at (2007)	Unknown	The condition of coastal dunes in the Adelaide and Mount Lofty Ranges NRM region is largely unknown

The condition of coastal dunes throughout the state is largely unknown. Studies of dune condition have not been undertaken in any NRM region.

The percentage of coastal dunes that have vegetation indicates the stability of the dunes. Coastal dunes in the Adelaide and Mount Lofty Ranges NRM region (along with Kangaroo Island) are the most stable, with approximately 97 per cent having vegetation (map on right).



Source: broad-scale mapping, DEWNR 1997-2007.

Reliability of information	★★☆☆☆	Fair

Further information:

Technical information for this report, Coast Protection Board

This report is a work in progress. As resource monitoring improves, so too will our ability to describe trends in condition.

Government of South Australia

2014 Regional Snapshot

Is the condition of our estuaries improving?

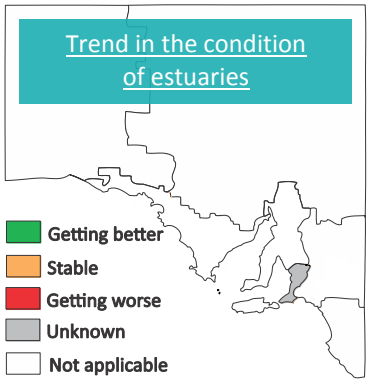
The marine environment provides valuable resources for regional economies, supporting tourism, commercial and recreational fishing, aquaculture, shipping and mining. Most South Australians live near the coast and many coastal and marine systems are under pressure from human impacts.

An estuary is a partly enclosed coastal body of water formed where freshwater water from on or under the land mixes with seawater. Estuaries range in size from a few to hundreds of hectares and can form bays, lagoons, harbours, inlets and gulfs.

We value estuaries for their scenic beauty and as places for recreation, tourism, fisheries, aquaculture and transport. Saltmarsh, mangrove and seagrass habitats are common in estuaries, and help to maintain coastal water quality by filtering sediments, nutrients and pollutants. Estuaries also soften the impact of floods and storms and provide food and shelter for marine animals, including commercial fish in their juvenile stages.

The condition of estuaries depends on activities in their catchments. Estuaries in the Adelaide and Mount Lofty Ranges NRM region are affected by declines in water quantity and quality. Stormwater, industrial and sewage discharges, seepage and agricultural runoff can increase the amount of nutrients, pollutants and sediments going into the water. Estuaries are also affected by removal of riverbank vegetation, over-grazing by stock, coastal developments, construction of tidal barriers, soil erosion, water diversion and fishing.

The health of estuaries relies on management of water quality within catchments, coastal developments, grazing and fishing.



State target

Improve condition of coastal and marine ecosystems

Trend	Unknown	Ongoing efforts will be needed to monitor and protect our estuaries

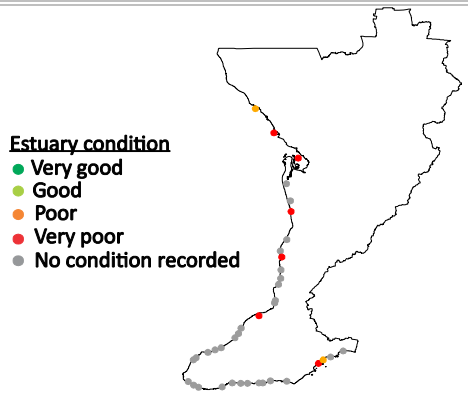
Of the 104 estuaries identified in South Australia, 38 are in the Adelaide and Mount Lofty Ranges NRM region.

Changes in the condition of estuaries in all NRM regions since they were last assessed in 2001 are unknown (map above).

Where we are at (2001)	Poor	South Australia has some of the most extensively modified estuaries of all Australian states

Of the 38 estuaries in Adelaide and Mount Lofty Ranges NRM region, 8 estuaries (approximately 93 per cent of the regions estuarine habitat by area) were assessed for the National Land and Water Resources Audit in 2001 (map on right). Based on these assessments, the condition of estuaries in the Adelaide and Mount Lofty Ranges NRM region was rated as 'poor', with a score of 30 out of 100 (where 100 represents undisturbed condition).

The Murray Mouth estuary, which extends into the Adelaide and Mount Lofty Ranges NRM region, is managed by the SA Murray-Darling Basin NRM Board and the Government of South Australia.



Reliability of information	★★☆☆☆	Fair

Further information:

Technical information for this report, Ozcoasts information (estuary search), Information for the Coorong, Lower Lakes and Murray Mouth

This report is a work in progress. As resource monitoring improves, so too will our ability to describe trends in condition.

Government of South Australia

2013 State Report Card

Are South Australia's marine parks effective in protecting marine habitats and species?

The marine environment regulates our climate, supports regional tourism, commercial and recreational fishing, aquaculture and shipping, and has significant cultural value for Aboriginal people. Marine ecosystems are under increasing pressure from population growth, coastal development, mining exploration, land-based pollution and fishing.

Some of our marine life is found nowhere else on earth. The waters of southern Australia contain more varieties of marine life than the Great Barrier Reef. Our marine parks aim to protect a wide variety of marine species and habitats including:

- Over 720 fish species and 1200 species of marine algae
- 80 per cent of the world's population of Australian sea lions
- The world's smallest live bearing starfish
- The largest known breeding aggregation of giant cuttlefish
- Feeding and breeding grounds for several whale species
- Some of the largest mangrove forests and seagrass meadows in southern Australia
- The Coorong and Murray Mouth estuary, part of an internationally listed wetland of global importance
- Cold water coral assemblages
- Giant kelp forests

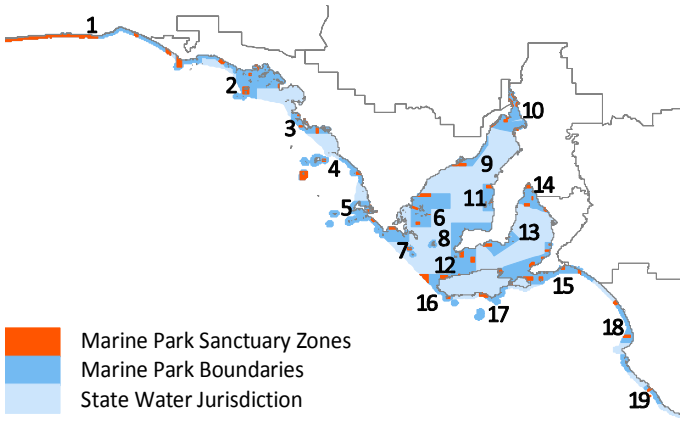
State target

Improve condition of coastal and marine ecosystems

Trend	Unknown	Trends in the condition of species and habitats will be available in the future

The network of 19 marine parks was set up to protect 26,655 square kilometres (44 per cent of the State's waters) and 267 square kilometres of coastal land and islands (map on right).

A Monitoring, Evaluation and Reporting Program has commenced, and will assess trends in the condition of the key ecological, environmental, cultural and socio-economic resources in each marine park. Information from the Monitoring, Evaluation and Reporting Program will be used to assess the effectiveness of the marine park management plans, which aim to protect marine habitats and species.



Where we are at (2013)	Good	The monitoring of our marine parks has commenced

The parks are divided into multiple-use zones, which provide four levels of protection based on the activities permitted within each zone. Zones are designated as: General Managed Use; Habitat Protection; Sanctuary Zones and Restricted Access Zones. Sanctuary Zones and Restricted Access Zones comprise 6 per cent of State waters.

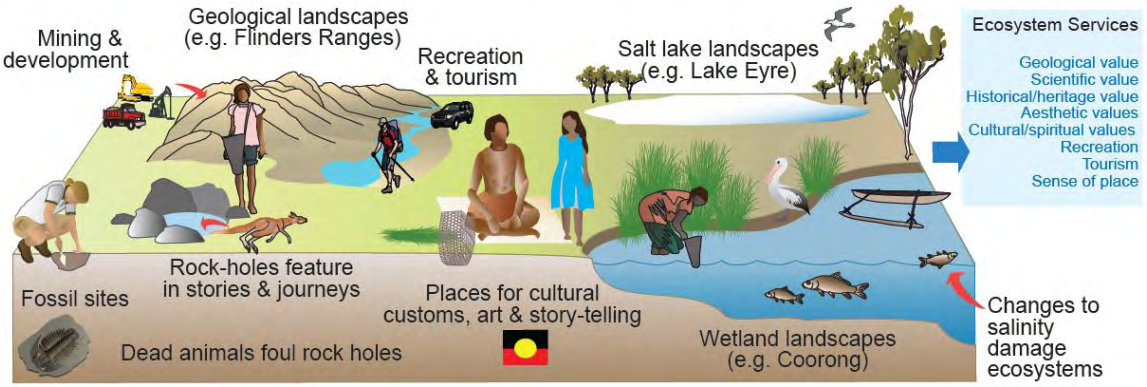
The marine parks were established in November 2012 and restrictions on activities other than fishing began in March 2013. Fishing restrictions within marine parks take effect in October 2014.

Reliability of information	★★★★★	Excellent

Further information: Technical information for this report card, Marine parks information

Government of South Australia

11 Increase understanding of the condition of landscapes (geologically and culturally important features)



Geological features in our landscape reflect the history of our land; the geological processes that formed the Earth, and the animals and plants that have lived on it. As an integral part of the landscape and our natural heritage they have considerable value for tourism and recreation, and enhance the visual appeal. The landscape is culturally important to Aboriginal people and underpins the health and wellbeing of the country and people.

The integrity and condition of geological heritage sites and landscapes may be diminished by inappropriate land use and development, or if access to vulnerable landforms and cultural sites is not regulated. Residential development, coastal developments, mining and exploration can also impact geological and Aboriginal heritage sites.

To protect geological features and landscapes from development and degradation, some sites have been listed as National or geological heritage sites and Aboriginal communities have identified and registered particular sites, objects and burials with the Aboriginal Heritage Committee. The integrity and condition of most heritage sites remains unknown.

The next 2 snapshots address Guiding Target 11 from our State NRM Plan: Increase understanding of the condition of landscapes (geologically and culturally important features). Snapshots are based on regional information.

11.1 Is the condition of our geological heritage sites improving?

11.2 Are landscapes that are culturally important to Aboriginal communities being managed appropriately?

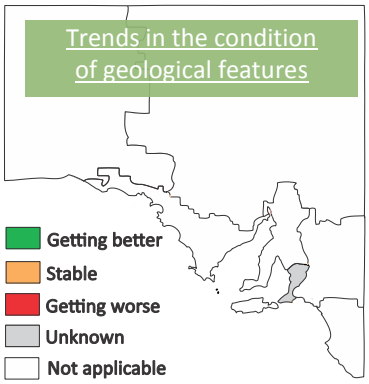
2014 Regional Snapshot

Is the condition of our geological features improving?

Geological features in our landscape reflect the history of our land; the geological processes that formed the Earth, and the animals and plants that have lived on it. Geological features can be rugged ranges, rocky outcrops, caves, plains, riverbanks, coastal cliffs, intertidal platforms, fossil sites, quarries and mines. Some features are described by the Geological Society of Australia because they are part of our natural heritage.

Geological features are the backdrop for our unique and beautiful South Australian landscape. Many geological heritage sites are valued as tourist and recreational attractions, and as places of scientific research and learning. Many are also cultural sites for Aboriginal communities.

The condition of geological heritage sites may be diminished by inappropriate land use and development, or unrestricted access to vulnerable landforms. It is important to note the value of some features can be enhanced by mining excavation or civil constructions as well.



State target

Increase understanding of the condition of landscapes (geologically and culturally important features)

Trend	Unknown	There are no data available to assess condition of geological features

There are 115 geological heritage sites in Adelaide and Mount Lofty Ranges NRM region. The last time a new site was added to the state's record was in 2002, but 1 new sites, Cobbler Creek flood control dam, is currently in the process of being added.

The condition of geological heritage sites is not known. The Geological Society of Australia, SA Geological Heritage Subcommittee have not observed damage in recent years but there is no regular monitoring by the subcommittee or the Government of South Australia.

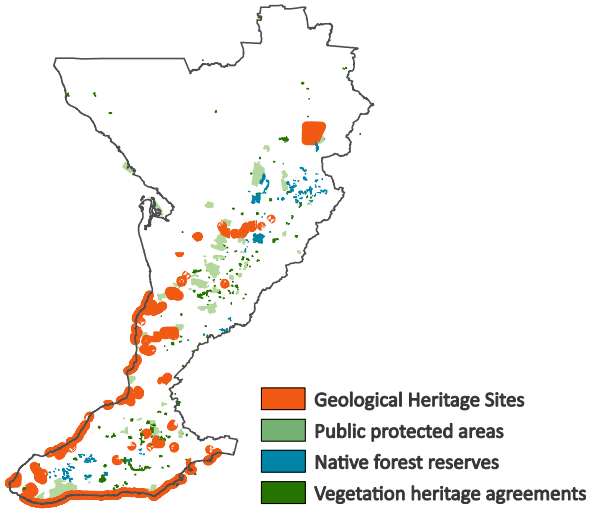
Where we are at (2014)	Unknown	There are 115 geological heritage sites in the Adelaide and Mount Lofty Ranges NRM region. The condition of these sites is unknown.

There is no specific legal protection for geological heritage sites but other legislation may provide protection in certain circumstances.

Nine sites are within protected areas (national parks and conservation reserves, native forest reserves and vegetation heritage agreements) (map on right). Geological heritage sites within national parks, conservation parks and regional reserves are partly protected by the *National Parks and Wildlife Act 1972*, which endeavours to preserve features of natural and scientific interest.

In addition, some sites are protected under the provisions of the State's *Heritage Places Act 1993*, the *Coast Protection Act 1972*, and the *Aboriginal Heritage Act 1988*.

For those geological heritage sites without legal protection, the SA Geological Heritage Subcommittee and the Department of State Development will inform decision makers and developers if a development is likely to negatively impact a geological heritage site.



Reliability of information	☆☆☆☆☆	No data are available to assess the condition of geological features

Further information: Technical information for this report, Department of State Development, SA Geology Field Brochures

This report is a work in progress. As resource monitoring improves, so too will our ability to describe trends in condition.

Government of South Australia

2014 Regional Snapshot

Are landscapes that are culturally important to Aboriginal communities being managed appropriately?

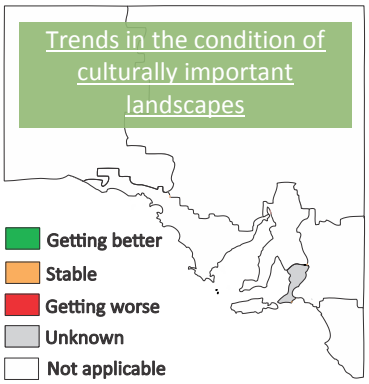
Culturally important landscapes have been shaped by the land, plants, animals, and the Aboriginal heritage, tradition, laws, management and uses of the landscape. Knowledge of these landscapes and their components is passed from generation to generation through story, song and dance. Culturally important landscapes are protected to support Aboriginal culture, stories, connection to country and spiritual wellbeing.

Pressures on culturally important landscapes include industrial and urban development, farming, mining and exploration, water use, tourism and recreational use of sensitive areas.

To protect some culturally important landscapes from development and degradation, specific sites, objects or remains are recorded and by the Department of State Development.

This initial report uses the available information on culturally important landscapes. These landscapes are managed in partnership by Aboriginal communities and NRM boards. For more information on the management of culturally important landscapes, refer to NRM board website.

Trends in the condition of culturally important landscapes



State target

Increase understanding of the condition of landscapes (geologically and culturally important features)

Trend	Unknown	Trends in the condition of landscapes that are important to Aboriginal communities are unknown

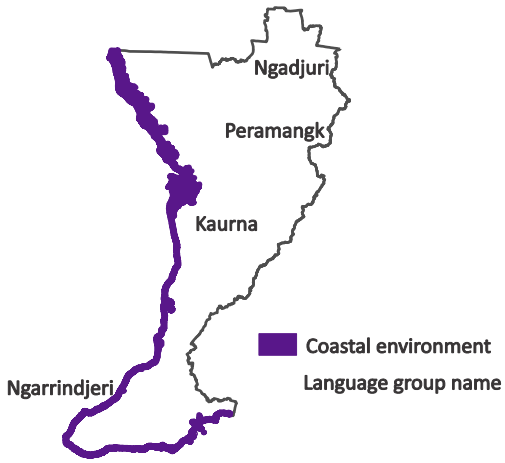
Trends in the condition of sites, objects and remains, and culturally important landscapes and are not known.

Where we are at (2014)	Unknown	In the NRM region, 445 sites, objects and remains have been recorded by the Department of State Development

Aboriginal communities have identified and registered 445 sites, objects and remains in the Adelaide and Mount Lofty Ranges NRM region. On public lands, these are managed by Aboriginal communities, with support from the Department of State Development, SA Native Title Services, local councils, and the Department of Environment, Water and Natural Resources.

Examples of culturally important landscapes include Hindmarsh Island, and the coastal springs at Seacliff, Hallett Cove and Sellicks Beach (map on right).

While management and protection of culturally important landscapes occurs in the NRM region, no information is available to report on their condition.



Language group names as used in The Encyclopaedia of Aboriginal Australia (D.Horton, General editor), published in 1994 by the Australian Institute of Aboriginal and Torres Strait Islander Studies (Aboriginal Studies Press)

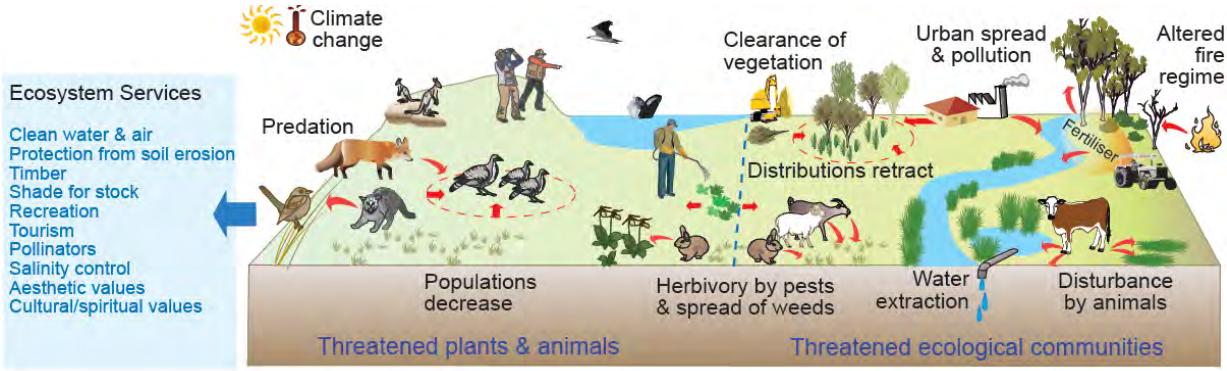
Reliability of information	☆☆☆☆☆	There is no information on the condition of culturally important landscapes

Further information: Technical information for this report card, Co-managed parks

This report is a work in progress. As resource monitoring improves, so too will our ability to describe trends in condition.

Government of South Australia

12 Improve the conservation status of species and ecological communities



The goods and services of state and regional economies are dependent on the maintenance of biodiversity and ecosystem function.

Many of our plants and animals and ecological communities are threatened with extinction (critically endangered, endangered or vulnerable) or extinct.

Our threatened plants, animals and ecological communities face a number of challenges including introduced species, climate change and loss of habitat. Protecting habitat and enacting conservation measures may be critical to the long term survival of threatened species and ecological communities.

Monitoring of the distribution and abundance of priority threatened plant and animal species is important to determine where conservation actions may be most effective and how populations are responding to management.

The next 4 snapshots address Guiding Target 12 from our State NRM Plan: Improve the conservation status of species and ecological communities. Snapshots are based on regional information.

12.1 How many of our species are extinct or threatened with extinction?

12.2 How many of our ecological communities are extinct or threatened with extinction?

12.3 Are activities being undertaken to conserve our threatened plants and animals?

12.4 Are activities being undertaken to conserve our threatened ecological communities?

2014 Regional Snapshot

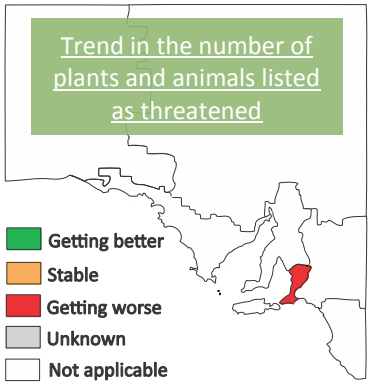
How many of our species are extinct or threatened with extinction?

The goods and services that support state and regional economies are dependent on the maintenance of our biodiversity and ecosystems.

Threatened plants and animals are considered matters of national environmental significance. The number of Australian species that are threatened with extinction (critically endangered, endangered or vulnerable) or extinct under national legislation shows that our biodiversity is declining. Plants and animals that are critically endangered or endangered are most likely to become extinct in the near future.

Our native plants and animals are threatened by land clearance, habitat degradation and fragmentation, changes to water flows and water quality, the introduction of weeds and pest animals, inappropriate fire regimes, poor fishing and farming practices, and pollution.

The survival of our plants and animals relies on the management of these threats.

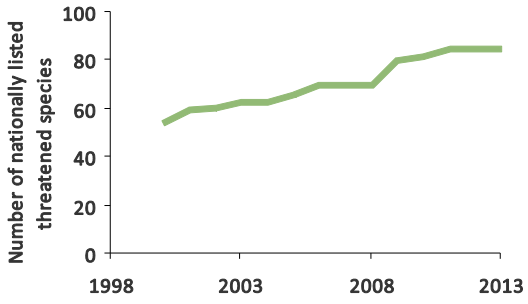


State target

Improve the management of species and ecological communities

Trend (2009–13)	Getting worse	In the last 5 years, 15 plant and animal species in the Adelaide and Mount Lofty Ranges NRM region have been nationally listed as threatened

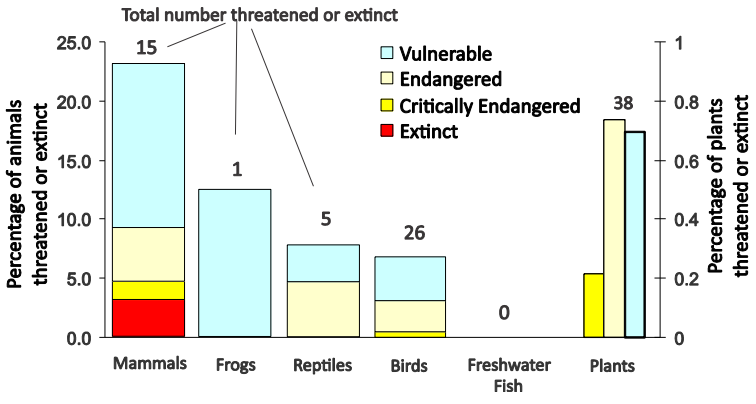
The total number of plants and animals in the Adelaide and Mount Lofty Ranges NRM region that are nationally extinct or listed as threatened has increased from 54 in 2000 to 85 in 2013 – a net increase of more than 2 each year (see graph on right). These rates of increase match global patterns for birds, mammals, amphibians and plants.



Where we are at (2013)	Poor	More and more native plants and animals continue to be under threat. Ongoing efforts must be made to ensure their protection.

A total of 2302 plant and 518 animal species have been recorded in the region. Of these, 38 plants (around 2 per cent) and 45 animals (around 9 per cent) are nationally listed as threatened with extinction. Mammals have the highest percentage of threatened species of all animal groups (see graph on right).

A total of 2 animal species are extinct, both of which are mammals. No plants are nationally listed as extinct.



Reliability of information	★★★★★	Excellent

Further information:
Technical information for this report, Department of the Environment- threatened species and ecological communities

Government of South Australia

2014 Regional Snapshot

How many of our ecological communities are extinct or threatened with extinction?

Ecological communities are groups of plants and animals that interact in a unique habitat. They provide food and shelter for native species, store carbon, and filter the air, water and soil on which we all depend. They support tourism, agriculture and fisheries industries, and they have cultural significance for all Australians.

Some ecological communities are considered threatened under national legislation. The number of ecological communities listed indicates how many communities require urgent conservation.

Land-based ecological communities are threatened by land clearance, habitat degradation and fragmentation, changes to water flows, weeds and pest animals, inappropriate fire regimes, poor grazing and farming practices, and pollution.

The health of our ecological communities relies on the management of these threats.

Trend in the number of ecological communities listed as threatened

State target

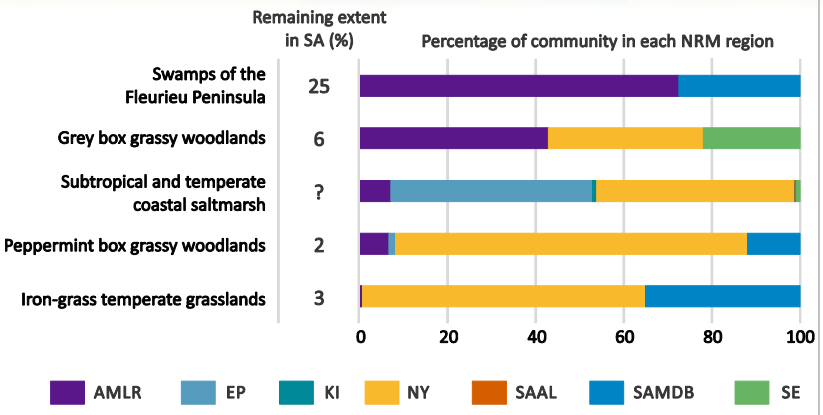
Improve the management of species and ecological communities

Trend (2009–13)	Getting worse	Two ecological communities have been listed as threatened in the last 5 years

Five ecological communities are nationally listed as threatened in the Adelaide and Mount Lofty Ranges NRM region. Two of these have been listed in the last 5 years: grey box grassy woodlands (endangered category) and subtropical and temperate coastal saltmarsh (vulnerable category).

The threatened ecological communities that occur in this NRM region now cover between 2 and 25 per cent of their former extent (see graph on right). About 8 per cent of what is left is in a protected area.

This NRM region contains 80 per cent of the Swamps of the Fleurieu Peninsula community and 40 per cent of the Grey box grassy woodlands (graph on right).

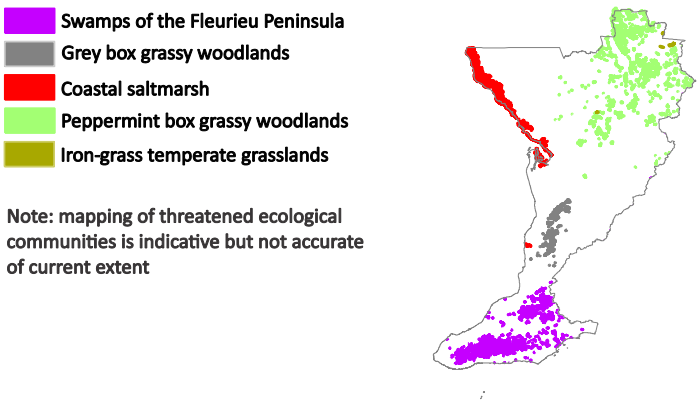


Where we are at (2013)	Poor	Five ecological communities are nationally threatened in the NRM region

Five ecological communities that occur in this NRM region are listed as nationally threatened (see map on right).

Posidonia seagrass meadows are being assessed as a threatened ecological community under national legislation. A further 22 other ecological communities in the NRM region are being assessed to determine their conservation status.

More information about the conservation activities and monitoring occurring for threatened ecological communities can be found here.



Note: mapping of threatened ecological communities is indicative but not accurate of current extent

Reliability of information	★★★★★	Excellent

Further information:
Technical information for this report, Department of the Environment – threatened species and ecological communities

This report is a work in progress. As resource monitoring improves, so too will our ability to describe trends in condition.

Government of South Australia

2014 Regional Snapshot

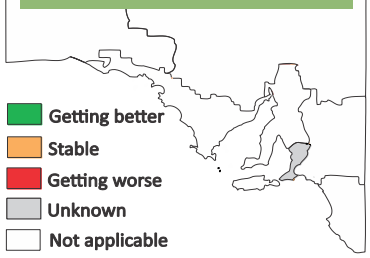
Are activities being undertaken to conserve our threatened plants and animals?

The survival and health of South Australia's native plants, animals and ecosystems are crucial to our economic and social wellbeing.

Unfortunately, some of our plant and animal species are threatened with extinction due to the legacy of past actions combined with new and ongoing threats. In recent years, 15 species that live in the Adelaide and Mount Lofty Ranges NRM region have been nationally listed as threatened with extinction or extinct.

Acting to protect threatened species helps to preserve the ecosystems on which we all rely. Threatened species require targeted conservation activities such as reintroduction programs, habitat restoration and protection, and control of threats such as weeds and pest animals. Monitoring programs help to assess whether the prospects of our threatened species are improving and ensure that our conservation activities are effective.

Trend in conservation and monitoring activities



State target

Improve the management of species and ecological communities

Trend	Unknown	This is the first time this information has been collated; a trend will be available in future versions of this report

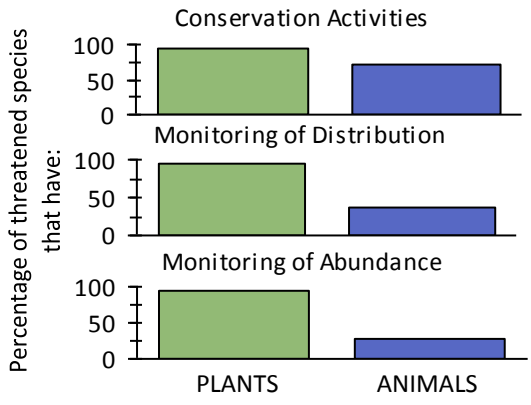
Natural resource managers prioritise a threatened species for conservation and monitoring based on many factors, including its conservation status, vulnerability to threats of extinction and funding availability. To get the best outcomes from our conservation activities, natural resource managers control threats and improve habitats to benefit multiple threatened or declining species.

Improving the prospects of our threatened species is difficult. It will take substantial effort and conservation investments over many years to prevent further extinctions.

Where we are at (2013)	Fair	More conservation activities and monitoring programs are required

Natural resource managers undertake conservation activities for 95 per cent of threatened plants and 71 per cent of threatened animals in the Adelaide and Mount Lofty Ranges NRM region (see graph on right).

Natural resource managers monitor the distribution and abundance of around 95 per cent of the threatened plants and 32 per cent of the threatened animals in the NRM region (see graph on right).



Reliability of information	★★★★★	Excellent

Further information:
Technical information for this report
Department of the Environment - threatened species and ecological communities

This report is a work in progress. As resource monitoring improves, so too will our ability to describe trends in condition.

Government of South Australia

2014 Regional Snapshot

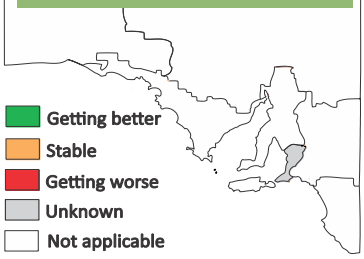
Are activities being undertaken to conserve our threatened ecological communities?

The survival and health of South Australia's native plants, animals and ecosystems are crucial to our social and economic well being. This is particularly the case for our ecological communities, which are groups of plants and animals that interact in unique habitats.

Unfortunately, there are 5 ecological communities in Adelaide and Mount Lofty Ranges NRM region that are nationally threatened with extinction due to the legacy of past actions combined with new and ongoing threats. Two of these communities have been nationally listed as threatened with extinction in recent years.

Acting to conserve threatened ecological communities helps to preserve the ecosystems we all rely on. Threatened ecological communities require targeted conservation activities such as habitat restoration and protection, and the control of threats such as weeds, pests, inappropriate fire regimes and grazing practices. Improvements to land and water-use practices are also required. Monitoring programs are used to ensure our conservation activities are effective.

Trend in conservation and monitoring activities



State target:

Improve the management of species and ecological communities

Trend	Unknown	This is the first time this information has been collated. A trend will be available in future versions of this report.

Natural resource managers prioritise conservation activities for threatened ecological communities based on many factors, including the risk of extinction, the feasibility of preventing extinction and funding availability. To get the best outcomes from our conservation activities, natural resource managers control threats and make improvements that will benefit multiple plants and animals in these unique habitats.

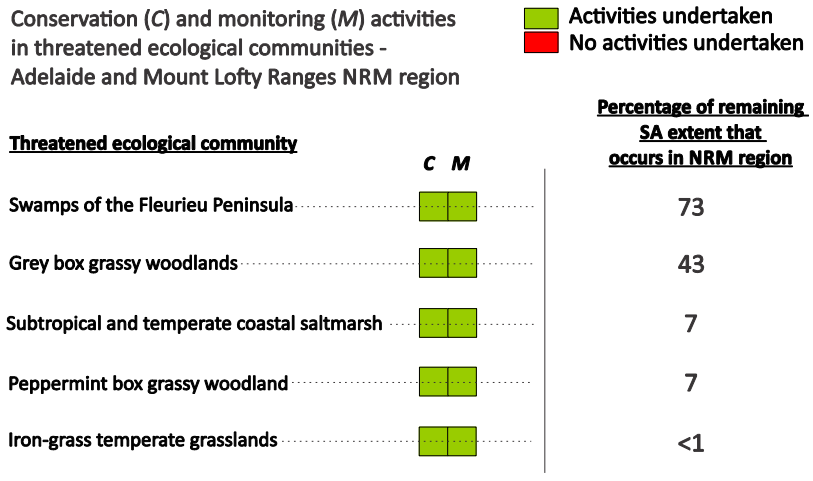
Improving the prospects of our threatened ecological communities is difficult. It will take substantial effort and conservation investments over many years to prevent extinction.

Where we are at (2013)	Fair	More conservation activities and monitoring are required

Natural resource managers undertake conservation activities and monitoring in all 5 threatened communities in the Adelaide and Mount Lofty Ranges NRM region (see graph on right).

Changes in the extent have not been recorded for any of the ecological communities since they were categorised as threatened.

Conservation (*C*) and monitoring (*M*) activities in threatened ecological communities - Adelaide and Mount Lofty Ranges NRM region



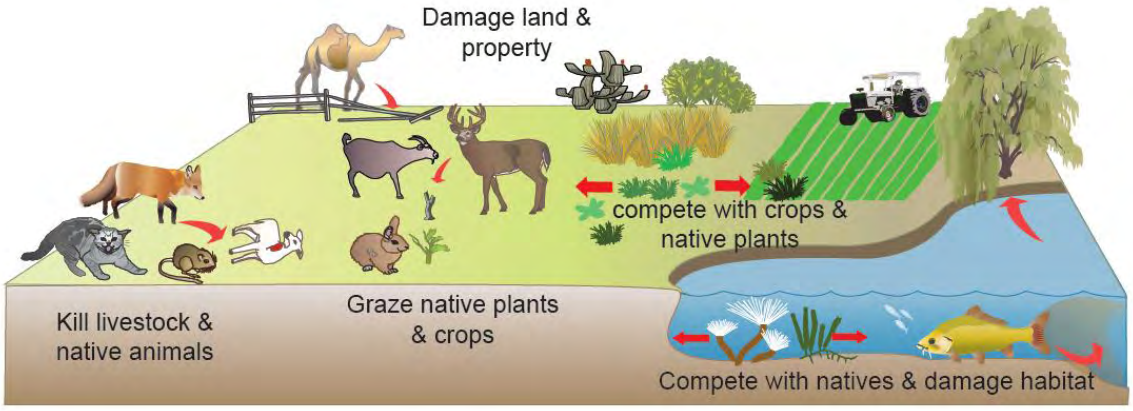
Reliability of information	★★★★★	Excellent

Further information:
Technical information for this report
Department of the Environment - threatened species and ecological communities

This report is a work in progress. As resource monitoring improves, so too will our ability to describe trends in condition.

Government of South Australia

13 Limits the establishment of pests and diseases and reduce the impacts of existing pests



Weeds, pest animals and diseases are key threats to our natural resources due to the harm they cause to native species and habitats, and primary production industries. They are also significant and costly management challenges. Weeds are estimated to cost Australian primary industries over $4 billion each year in lost production and management effort. The impacts of pest animals are estimated to cost about $740 million each year.

It is rarely possible to eradicate pest animals or weeds once they are established. Natural resource managers strategically target weeds and pest animals to maximise the benefits for the economy and the environment.

The most effective management strategy, and a key priority of state and regional natural resource managers, is to prevent additional introduced species from becoming established.

The next 8 report cards address Guiding Target 13 from the State NRM Plan: Limit the establishement of pests and diseases and reduce the impacts of existing pests. The snapshots are based on statewide and regional information.

13.1 What are the distribution and abundance of weeds?

13.2 What are the distribution and abundance of pest animals?

13.3 What are the distribution and abundance of aquatic pests? (statewide)

13.4 How are diseases affecting our aquatic species? (statewide)

13.5 How are diseases and invertebrate pests affecting our crops? (statewide)

13.6 How are diseases affecting our livestock? (statewide)

13.7 How are diseases affecting our native plants and animals? (statewide)

13.8 Are control programs focused on high priority weeds and pest animals?

2014 Regional Snapshot

What are the distribution and abundance of weeds?

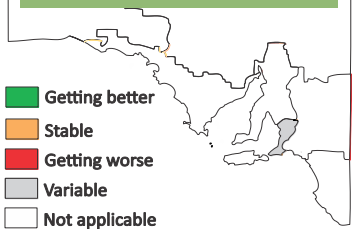
Weeds compete with our native and agricultural plants. They contribute to land degradation, reduce farm and forest productivity, contaminate crops and grains, increase bushfire fuel and can be toxic to people, livestock or native animals. In 2004, weeds were estimated to cost Australian farmers about $4 billion every year.

In 2007, about 90 per cent of agriculture businesses in the Adelaide and Mount Lofty Ranges NRM region reported implementing some weed controls.

There are a number of locally important weeds established in the Adelaide and Mount Lofty Ranges NRM region including 11 Weeds of National Significance. Weeds of National Significance are nationally recognised as the most serious threats to biodiversity and/or the economy.

This information should be read alongside reports on the management of weeds and pest animals.

Trend in the distribution and abundance of Weeds of National Significance



State target

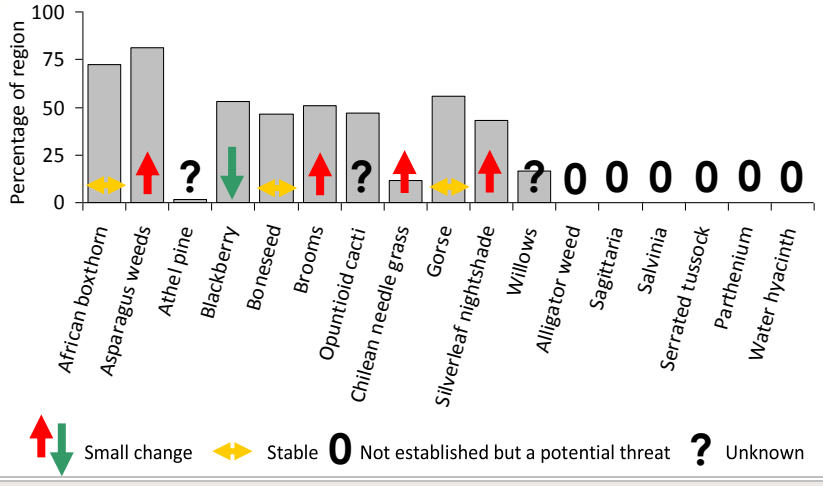
Limit the establishment of pests and diseases and reduce the impact of existing pests

Trend (2008-12)	Variable	The trends for Weeds of National Significance vary between species: 4 species are increasing, 1 is decreasing, and 3 are stable

Trends in the distribution and abundance of Weeds of National Significance in the Adelaide and Mount Lofty Ranges NRM region vary depending on the species (map above).

The distribution and abundance of asparagus weeds, brooms, Chilean needle grass and silverleaf nightshade have increased between 2008-12. Blackberry has decreased. African boxthorn, boneseed and gorse are stable (arrows on graph).

There are 6 Weeds of National Significance that are not established in the NRM region but are considered a potential threat.

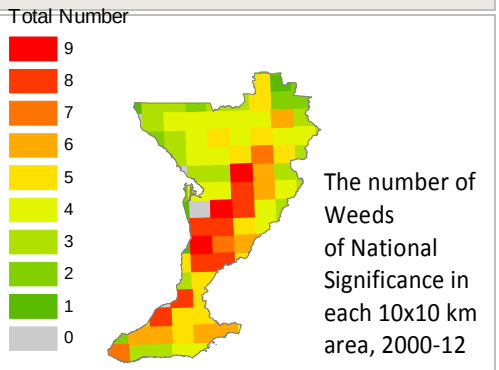


Where we are at (2012)	Poor	Managing weeds continues to be a complex challenge

Based on records from 2000-12, 11 Weeds of National Significance have been recorded throughout the Adelaide and Mount Lofty Ranges NRM region. Asparagus weeds, African boxthorn, gorse, blackberry and brooms have all been recorded in more than half of the region (graph above, map on right).

There are Weeds of National Significance throughout the NRM region, with higher numbers found in metropolitan Adelaide and the Mount lofty Ranges (map on right). Some weeds are recorded in smaller areas because they are restricted by habitat requirements such as climatic or soil conditions, or to waterways.

The areas where Weeds of National Significance have been recorded (map to right) do not reflect the impacts of recent control efforts.



The number of Weeds of National Significance in each 10x10 km area, 2000-12

Reliability of information	★☆☆☆☆	Poor, there are insufficient data on the abundance and trends of weeds

Further information: Technical information for this report, Weeds in South Australia

This report is a work in progress. As resource monitoring improves, so too will our ability to describe trends in condition.

Government of South Australia

2014 Regional Snapshot

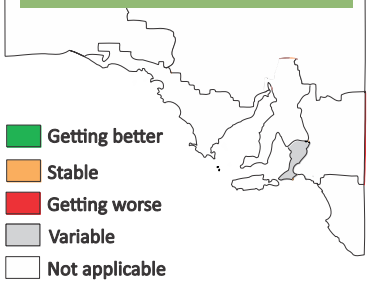
What are the distribution and abundance of pest animals?

Pest animals prey on and compete with our native and agricultural plants and animals. For example, foxes and cats are efficient hunters of native animals, and rabbits damage native animal habitat and reduce agricultural productivity. Foxes, cats and rabbits are nationally listed as *key threatening processes* due to their environmental impacts. In 2009, pest animals were estimated to cost Australia about $740 million every year.

In 2007, about two thirds of agriculture businesses in the Adelaide and Mount Lofty Ranges NRM region reported pest animal problems and implemented some pest animal control activities.

This report summarises information on the distribution and abundance of pest animals and should be read alongside reports on the management of weeds and pest animals.

Trend in the distribution and abundance of key pest animals



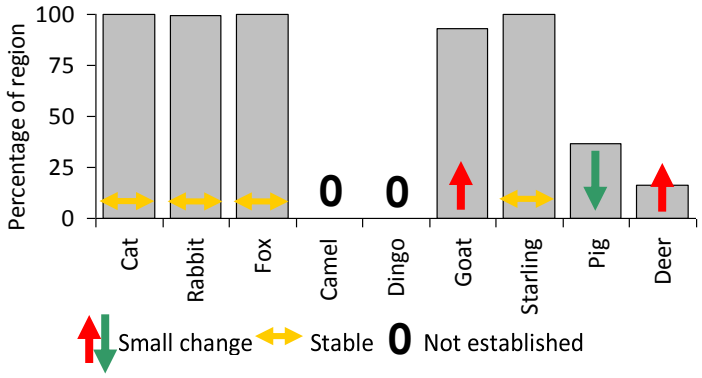
State target

Limit the establishment of pests and diseases and reduce the impact of existing pests.

Trend (2008–12)	Variable	The trend for key pest animals varies between species: 2 species are increasing, 1 is decreasing, 4 are stable

The trends in the distribution and abundance of key pest animals in the Adelaide and Mount Lofty Ranges NRM region vary by species (map above, graph to right).

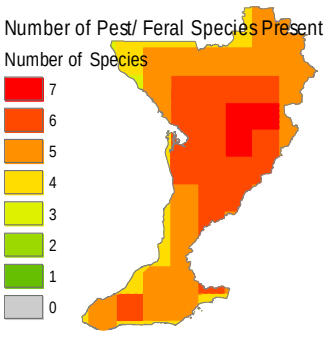
Goat and deer populations are increasing. An infestation of pigs has been managed and pigs are thought to have been eradicated from the NRM region. Other key pest animals are stable (arrows on graph).



Where we are at (2012)	Poor	Managing pest animals continues to be a complex challenge

Key pest animals have been recorded throughout the NRM region. Based on records from 2000-12, cats, foxes, starlings and rabbits have been recorded across the Adelaide and Mount Lofty Ranges NRM region and their populations are considered stable. Goats were also recoded in much of the region though they are generally low in abundance (map to right and graph above).

The areas where key pest animals have been recorded (map to right) do not reflect their abundance and do not reflect the impacts of recent control efforts.



The number of key pest animal species recorded in each 10x13 km area, 2000–12

Reliability of information	★☆☆☆☆	Poor, there are insufficient data on the abundance and trends of pest animals

Further information:
Technical information for this report
Pest animals in South Australia

Government of South Australia

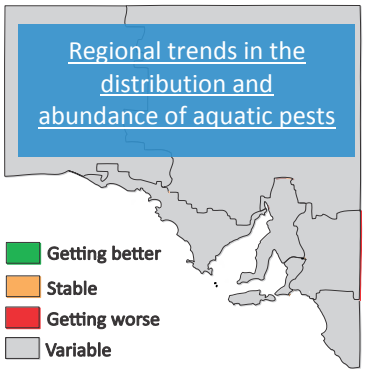
2013 State Report Card

What are the distribution and abundance of aquatic pests?

Marine and freshwater pests, including algae and animals, can compete with native species and cause damage to ecosystems. They can also damage infrastructure that supports our water supplies, fisheries, aquaculture, tourism, maritime industries, and important cultural and recreational areas.

Aquatic pests arrive on boat hulls and in ballast water and through the aquarium trade.

The distribution and abundance of some freshwater plants, such as alligator weed, are shown in a separate report card —What are the distribution and abundance of weeds?



State target

Limit the establishment of pests and diseases and reduce the impact of existing pests.

Trend (2008–12)	Variable	The trend for aquatic pests varies: 2 species are increasing, 2 are decreasing, 1 is stable

Some aquatic pests are increasing and some are decreasing.

Caulerpa taxifolia is an algae that can spread rapidly and exclude native species. Surveys in 2010 indicated it was declining. Increasing reports of European fanworm indicate that it is spreading, but the reports may be due to an increased awareness of the pest. The number and distribution of European carp are remaining steady.

No new marine pests have been recorded in recent years, but two significant new freshwater pests have been recorded.

In 2011, a freshwater fish called the oriental weatherloach was found in the South Australian stretch of the Murray–Darling Basin. Its population is thought to be increasing.

Another freshwater fish, the speckled livebearer, was detected in 2008 in Willunga Creek. The fish has been eradicated from that location but it has since been found at other sites.

Regional trends in the distribution and abundance of aquatic pests are variable or unknown.

↑ European fanworm, Oriental weatherloach

↔ European carp

↓ *Caulerpa taxifolia*, Speckled livebearer

Where we are at (2012)	Unknown	More information is needed on the distribution and abundance of pests in marine and freshwater environments

The distribution and abundance of pests in marine and freshwater environments are largely unknown.

Reliability of information	★☆☆☆☆	Poor. There are insufficient data on the abundance and trends of aquatic pests

Further information:
Technical information for this report card
Aquatic pests in South Australia

This report is a work in progress. As resource monitoring improves, so too will our ability to describe trends in condition.

Government of South Australia

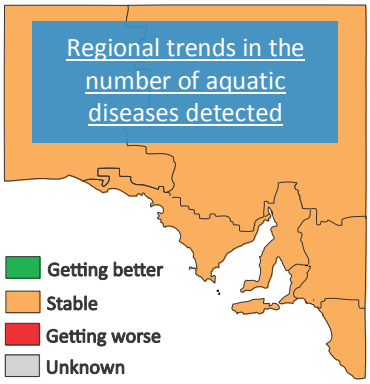
2013 State Report Card

How are diseases affecting our aquatic species?

Aquatic diseases can have devastating impacts on the marine and freshwater ecosystems that underpin our tourism (worth $4.4 billion in 2011), fisheries and aquaculture industries (together worth $1.8 billion in 2011).

Disease outbreaks can result from poor environmental conditions, which can increase susceptibility to existing diseases, or from the introduction of new diseases. Diseases can be introduced by the movement of contaminated boats and equipment or infected animals. The impact of exotic disease introductions can be devastating. For example, in both 1995 and 1998 an introduced virus killed about 70 per cent of the sardines in South Australia.

Preventing the introduction and establishment of new diseases is a high priority. The Department of Primary Industries and Regions South Australia conducts surveillance for high priority diseases, investigates fish kills, enforces quarantine measures and develops management plans to increase the likelihood of containing a disease if one is detected.



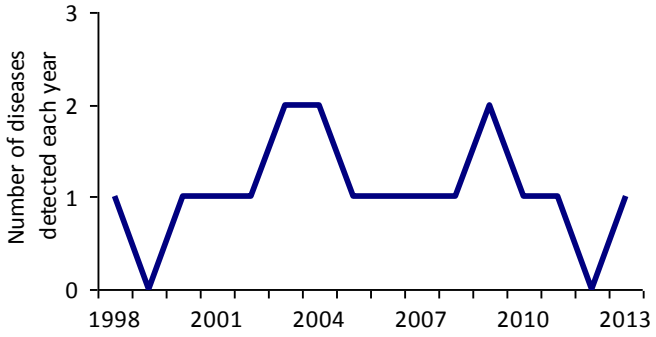
State target

Limit the establishment of pests and diseases and reduce the impact of existing pests

Trend (1998–2013)	Stable	Up to 2 priority aquatic disease outbreaks have been recorded each year

In South Australia, 56 diseases that affect fish and shellfish are regarded as priorities to manage or keep out of our waters. In the past five years there has been up to two of these diseases recorded each year (see graph on right). They were Perkinsus, a parasite of abalone (detected in 2009, 2011 and 2013) and a fish disease, viral encephalopathy and retinopathy (detected in 2009 and 2010).

In most cases, aquatic diseases are only investigated and recorded if they are found and reported by the public or commercial fisheries and aquaculture industries. It is possible that diseases are present which have not been identified.

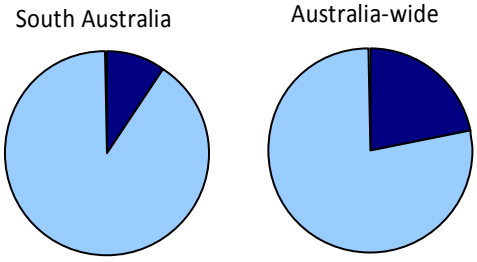


Where we are at (2013)	Good	South Australia is relatively free of aquatic diseases

Of the 56 priority fish and shellfish diseases, only 6 have been recorded in South Australia, compared to 16 for the whole of Australia (see graphs on right). Queensland and New South Wales have each been affected by 10 of these priority diseases, and other states have recorded similar numbers to South Australia (Western Australia at 7, Tasmania at 6, and Victoria at 5).

Amass die-off of fish in South Australia in 2013 was linked to an algal bloom, which was caused by abnormally warm surface waters throughout South Australia.

The South Australian Museum monitors disease outbreaks in marine mammals. In 2013, an outbreak of a viral disease (Morbillivirus) contributed to the deaths of over 30 dolphins. Other diseases affecting marine mammals that have been found include a naturally-occurring hookworm, which kills some Australian sea lion pups, and tuberculosis, which has been found in one seal.



Reliability of information	★★★☆☆	Good

Further information: Technical information for this report card, Aquatic Animal Health in South Australia

Government of South Australia

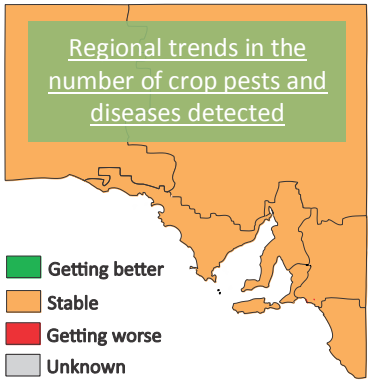
2013 State Report Card

How are diseases and invertebrate pests affecting our crops?

Our cropping and horticulture industries (worth $3.7 billion in 2012–13) are vulnerable to diseases and invertebrate pests that can reduce crop yield and quality, influence agricultural trade and be costly to manage.

Diseases are caused by bacteria, viruses and fungi, and can be introduced and spread by contaminated materials (e.g. shoes, vehicles, equipment, soil or fruit and vegetables). Invertebrate pests such as nematodes, insects, mites and snails can also be spread by contaminated materials and by their own movement.

Because South Australia is relatively free of agricultural diseases and pests, preventing their introduction and establishment is a high priority. Biosecurity SA conducts surveillance to quickly detect diseases and invertebrate pests, and enforces strict quarantine measures to limit, contain or manage their spread.



State target

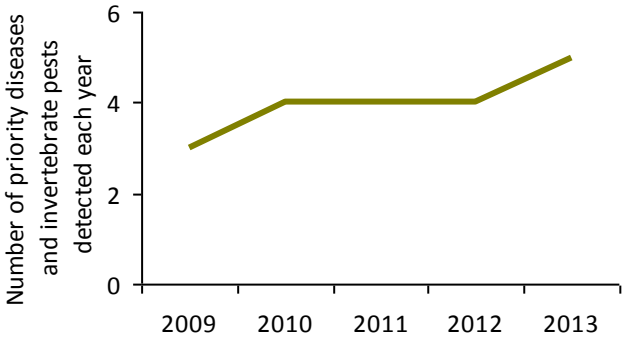
Limit the establishment of pests and diseases and reduce the impacts of existing pests

Trend (2009–13)	Stable	In the last five years, five priority diseases and invertebrate pests have been detected in South Australia

The Government of South Australia prioritises the management of 29 diseases and invertebrate pests, some to reduce their impacts and others to keep them out of our state. In addition, 10 national priorities are monitored as part of a national biosecurity program.

Results indicate that South Australia remains free of 24 of the 29 state priority diseases and invertebrate pests and all 10 of the national priorities. In the last five years, the numbers that have been detected have remained fairly stable (see graph on right).

Detections include fruit flies, which have been eradicated, and native plague locusts and grasshoppers, garlic rust disease and parasitic branched broomrape, which are all managed to reduce their impacts.

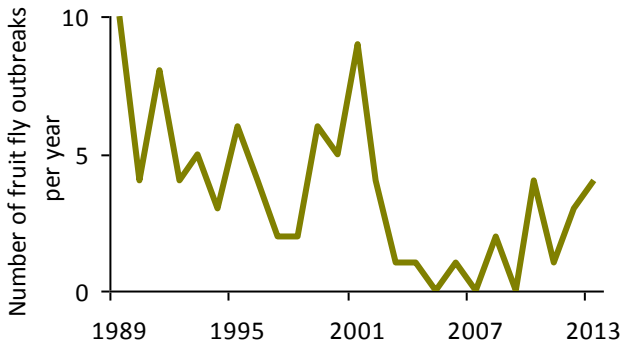


Where we are at (2013)	Good	Most major diseases and plant pests are not present in South Australia

South Australia is free of many globally significant diseases and invertebrate pests such as grape phylloxera— an aphid-like insect that feeds on the roots of grapevines and is regarded as the world's worst grapevine pest.

We are also the only mainland state where fruit flies have not established, so it is an ongoing challenge to keep them out. Despite strict quarantine measures, occasional outbreaks occur. In the last 10 years there have been fewer than five fruit fly outbreaks each year (see graph on right), each of which was eradicated.

Ongoing investments in biosecurity will be required to prevent major crop diseases establishing in South Australia, ensuring our farmers can continue to grow premium produce in our clean environment.



Reliability of information	★★★★★	Excellent

Further information: Technical information for this report card, Plant health in South Australia

This report is a work in progress. As resource monitoring improves, so too will our ability to describe trends in condition.

Government of South Australia

2013 State Report Card

How are diseases affecting our livestock?

Our livestock industries (worth $1.9 billion in 2012–13) are vulnerable to a number of pests and diseases. These can reduce productivity, affect animal welfare, influence livestock trade and markets and threaten human health.

Livestock diseases can be caused by bacteria, viruses, fungi, protozoa, proteins or parasites, and can be introduced by contaminated materials (e.g. footwear, vehicles, plants or animals) or by the movement of infected animals.

Preventing the introduction and establishment of livestock diseases is a high priority in South Australia. Biosecurity SA conducts surveillance and enforces quarantine measures to reduce the number of diseases that enter South Australia and increase the likelihood of control if a disease or pest is detected.

Regional trends in the number of livestock diseases detected

State target

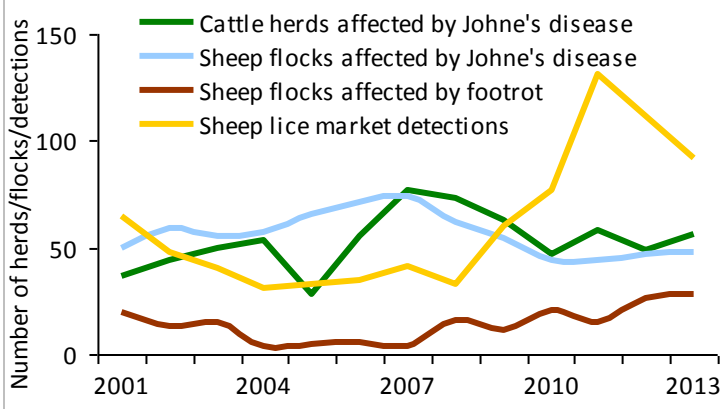
Limit the establishment of pests and diseases and reduce the impacts of existing pests

Trend (2001–13)	Stable	No major outbreaks of diseases have occurred

South Australia remains free of most high priority livestock pests and diseases. This is a major advantage to our livestock industries.

Livestock diseases of economic importance that are established in South Australia include Johne's disease, a bacterial wasting disease of cattle, sheep and goats; sheep footrot, a contagious hoof infection; and sheep lice.

The presence of these has been relatively stable since 2001 (see graph on right). Detections of lice at sheep markets increased between 2008 and 2011, coinciding with increasing lice resistance to some pesticides and the suspension of an effective pesticide due to human health concerns. Since 2011, additional resources have been dedicated to helping farmers manage lice and market detections are now decreasing.



Where we are at (2013)	Good	Most major livestock diseases and pests are not present in South Australia

Australia is free of most globally significant livestock diseases such as foot and mouth disease, mad cow disease and scrapie. South Australia is also free of several diseases that have been recorded in other parts of Australia such as blue tongue, anthrax and Hendra virus (in horses).

The impacts of livestock diseases and pests that do occur in South Australia are relatively low. Johne's disease currently affects about 20 per cent of our dairy herds and less than 1 per cent of beef herds and sheep flocks. Footrot is only found in the wetter areas of South Australia and less than 1 per cent of our sheep flocks are affected.

Ongoing investments in biosecurity will be required to prevent major livestock diseases establishing in South Australia, ensuring our farmers can continue to produce premium livestock in our clean environment.

Reliability of information	★★★★★	Excellent

Further information:
Technical information for this report card
Livestock health in South Australia

Government of South Australia

2013 State Report Card

How are diseases affecting our native plants and animals?

Diseases that affect our native plants and animals can have devastating impacts, and some of these diseases can even affect our own health. Diseases can be caused by bacteria, viruses, fungi, protozoa or parasites.

Some diseases have been listed nationally as *Key Threatening Processes* because they may have contributed to the extinction of some native plants and animals and are a threat to the survival of others. The impact of some diseases can be made worse by habitat fragmentation, pollution, weeds, competition with pest species, droughts and climate change.

Diseases can be introduced on contaminated materials (e.g. footwear, vehicles, plants, soil) and the movement of infected animals or water. To protect our native plants and animals, disease outbreaks must be prevented and established diseases must be contained.

Regional trends in the impacts of native plant and animal diseases

State target:

Limit the establishment of pests and diseases and reduce the impacts of existing pests

Trend	Unknown	There is not enough information to determine trends for most diseases

Tracking diseases that affect our native plants and animals relies mainly on reports of suspicious outbreaks of illnesses or deaths or plant dieback. In most cases, this information is not enough for us to determine whether diseases are becoming more prevalent or not (see summary on right).

However, we do know that *Phytophthora* — a disease that causes dieback of our native plants in higher rainfall areas with neutral or acidic soil — is becoming more widespread.

Trends in diseases

↑ *Phytophthora*

? Chytridiomycosis in amphibians, sarcoptic mange and alkaloid toxicity in wombats (pictured above), psittacine beak and feather disease in parrots, kangaroo blindness, chlamydia in koalas.

Where we are at (2013)	Unknown	There is not enough information available to assess the impact of diseases

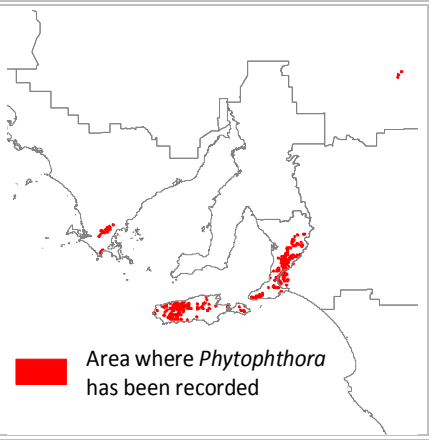
Phytophthora has been recorded in the Adelaide and Mount Lofty Ranges, Eyre Peninsula, Kangaroo Island and SA Arid Lands natural resource management regions (see map on right).

Australian bat lyssavirus (2012) and Hendra virus (2013) were recently recorded for the first time in our native bat populations. This is not a surprising result, but a reminder for the public to avoid contact with bats.

Chlamydia was officially recorded for the first time in our koala population in 2012.

The extent of Chytridiomycosis in South Australia is largely unknown, but studies in 1998 and 2013 confirmed its presence in our native frogs.

The extent of psittacine beak and feather disease is also largely unknown, but it has been recorded in our cockatoos and lorikeets.



Reliability of information	★☆☆☆☆	Poor

Further information:

Technical information for this report card

Australia Wildlife Health Network

Government of South Australia

2014 Regional Snapshot

Are control programs focused on high priority weeds and pest animals?

Weeds compete with native plants and damage native animal habitat and agriculture land. In 2004 it was estimated that weeds cost Australia over $4 billion every year in management and lost agricultural production.

Pest animals prey on and compete with native animals and livestock, and damage native vegetation, landscapes and agricultural businesses. In 2009, it was estimated that pest animals cost Australia over $740 million every year.

It is not feasible to eradicate all weeds or pest animals in the Adelaide and Mount Lofty Ranges NRM region. Risk management is used to minimise their impacts. Risk management helps to coordinate and prioritise control efforts and investments to protect the environment, agricultural production and public health and safety.

This report summarises information on the management of invasive species and should be read alongside reports on distribution and abundance of weeds and pest animals in the NRM region.

State target

Limit the establishment of pests and diseases and reduce the impacts of existing pests

Trend	Getting better	Risk assessments have been completed to help prioritise weeds and pest animals for control

To prioritise pest species for management, staff from the Adelaide and Mount Lofty Ranges NRM region use the SA Weed and Pest Animal Risk Management Guides, which were developed by the Department of Primary Industries and Regions SA. These guides recommend management actions based on assessments of the risks posed by each pest species and the feasibility to contain them.

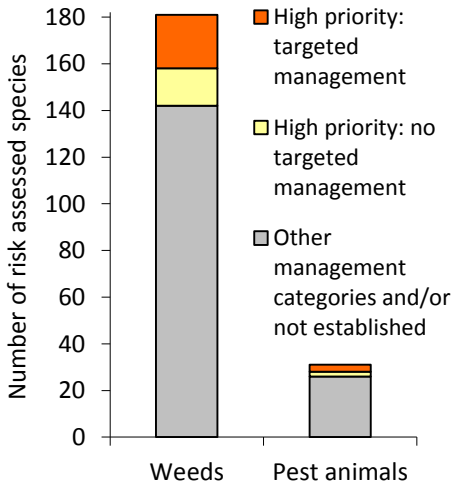
Where we are at (2013)	Good	Risk assessments have been completed for 181 weeds and 31 pest animals

For the purpose of this report, a weed or pest animal is considered a high priority for control if risk assessments conclude that it should be eradicated, destroyed or contained. Of the high-risk weeds and pest animals, the number that are monitored or controlled gives an indication of the extent to which risk management is used.

Staff from the Adelaide and Mount Lofty Ranges NRM region have assessed 181 weeds. Based on those assessments, 39 established weeds rank as high priorities for management (eradicated, destroyed or contained), and 23 of those are monitored and controlled (graph on right).

Staff have also assessed 31 pest animals. Based on those assessments, 5 established pests rank as high priorities for management (eradicated, destroyed or contained), and of those 3 are monitored and controlled.

Some of the other management categories include limited action if a species poses a low risk, and protect sites by managing the weed or pest animal if it poses a high risk but is not feasible to contain (such as false caper or foxes), management of their impacts may still be required to protect high-priority natural resources.



Reliability of information	★★★★★	Excellent

Further information:
Technical information for this report
South Australia Weed Risk Management Guide
South Australia Pest Animal Risk Assessment Guide

This report is a work in progress. As resource monitoring improves, so too will our ability to describe trends in condition.

Government of South Australia