New South Wales State of the Environment





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Foreword

It is my great pleasure to present *New South Wales State of the Environment 2009.* This report has been prepared by the Department of Environment, Climate Change and Water with information provided from across government and guidance from the State of the Environment Advisory Council and independent experts.

NSW State of the Environment 2009 is a comprehensive report that details the condition of major environmental issues across the state and assesses environmental trends, including implications for the environment and human health. SoE 2009 considers the pressures that can have an impact on the environment and outlines the key responses that have been implemented to address them. It also gives us a unique overview from which we can better identify areas for continued or further work. SoE 2009 is a valuable resource for the community and policymakers alike.

Since the last SoE Report in 2006, there have been a number of significant environmental outcomes, including:

- ongoing improvements in the management of native vegetation across NSW which has reduced approved clearing rates to less than 4000 hectares per year
- a continued holding of the line on air quality levels despite increases in our population
- further protection of our diverse ecosystems, with an additional 3.5% of reserve added to our worldclass national park system in the last three years
- finalisation of the zoning plans for two new marine parks, Port Stephens–Great Lakes and Batemans, to further protect and enhance our marine environment
- a significant increase in land protected for Aboriginal cultural values.

These positive outcomes and more are detailed throughout the seven chapters of the report.

Although the continuing drought poses challenges for managing our precious water supplies, the State Government and the people of NSW are rising to meet these demands through implementation of a number of water efficiency and recycling measures. These measures have seen water savings of approximately 76 gigalitres a year since 1999– 2000, with a continued reduction in urban water consumption per person per day from 343 litres in 2004–05 to 306 L in 2007–08. The active participation of the general community in watching its water use and Government measures to secure water supplies have helped deliver these valuable savings. The Government's commitment to the allocation of water for the environment has also been demonstrated through the purchase of numerous water licences to enable water releases to some of our most stressed inland rivers and wetlands.

Since the last SoE Report, the real threats associated with climate change have become key issues of concern across the globe. There is an urgent need to reduce our carbon emissions to help ease the impact of climate change on our environment into the future. While NSW has taken a leadership role in many issues associated with climate change, including the design and implementation of a number of programs to help communities and the environment adapt to climate change, there is still more work to do. This undoubtedly remains one of our most significant challenges. Continued development and implementation of renewable and sustainable technologies for energy use and transport will help to reduce our carbon footprint in the future.

Finally, this report demonstrates the real need for all of us to achieve a balance between sustainability and consumption, and so reduce the growth of our ecological footprint and the impacts on the state's natural resources and environment. With the population of NSW expected to reach 9.1 million by 2036, ensuring continued positive community attitudes and actions towards recycling and conserving resources will play a vital role in the health of our environment.

In collaboration with the community, industry, landholders and other stakeholders, the Government is committed to tackling these and other emerging pressures, while continuing the good work in maintaining our ongoing commitments to the environment.

I wish to thank all those involved in the preparation of the report and all those who contribute to maintaining a healthy environment in NSW.

Frank Sartor

Minister for Climate Change and the Environment

Preface

The New South Wales State of the Environment Report is prepared every three years by the Department of Environment, Climate Change and Water, in accordance with the requirements of the *Protection of the Environment Administration Act 1991*. This report provides an overview of the condition of the NSW environment using the latest and most credible scientific information available.

It is a challenge to assemble the breadth of information used in preparing the report and combining it into a consistent overview of the state of the NSW environment, while balancing the presentation of the information to achieve both clarity for the general community as well as scientific detail and rigour.

Preparation of the SoE Report relies on extensive support and cooperation from numerous sources of information and expertise, both within DECCW and across many other NSW departments and agencies. I would like to thank all of those concerned in providing information or advice for this report. In particular, I would like to express my appreciation for the efforts of the State of the Environment Advisory Council and a number of independent experts who have made an invaluable contribution to improving the quality of this report by providing a range of different perspectives and much helpful advice.

Over a period of 15 years I have been involved in the preparation of seven SoE Reports. Each time a report is compiled there has been an improvement in the quality and extent of information that is available. Each report has reflected a process of continual refinement in the use and presentation of this information. Future developments should make use of existing information technologies to streamline the delivery of data and enhance the connectivity of information sources to better reflect the complex relationships and dynamics that exist within the environment of NSW. SoE Reports address three main streams of information:

- the status or condition of the NSW environment
- the pressures that affect the environment of NSW
- the responses across NSW to the condition and pressures described.

Many of the indicators used in SoE 2009 have been revised and updated to enhance their efficacy and ensure their relevance, while maintaining continuity with past processes. In particular, we have worked to link the indicators to State Plan priorities. Priorities and targets from the recently released State Plan 2009 will be taken into account where appropriate in future SoE Reports.

This report will be a valuable resource to guide managers and decision-makers in determining future priorities and objectives and adjusting programs and actions to produce the best possible outcomes for the environment. As always, we welcome feedback on the format and content of this report to help us to continue to improve our environmental reporting processes and products.

Lisa Corbyn

Director General Department of Environment, Climate Change and Water

Letter from the SoE Advisory Council

Dear Minister

The State of the Environment Advisory Council provided governance of the process of preparing *New South Wales State of the Environment 2009.* As the report has now been finalised, we are pleased to be able to provide you with our views on the preparation of SoE 2009 and the key messages.

We have found that the Department of Environment, Climate Change and Water has again been thorough in the collation of data and information to prepare a report that is both objective and sincere on the current state of the environment in NSW. A number of structural and process changes were made to the SoE for this report. We wholeheartedly support the approach taken to align the indicators in the SoE Report with those from NSW State Plan 2006. This approach has helped to improve consistency in Government reporting where common data and interpretation has been used.

In particular we would like to acknowledge the improvement of data and information in the Land, Water and Biodiversity chapters as an outcome of the implementation of the Monitoring, Evaluation and Reporting Strategy for the 13 natural resource management targets in Priority E4 of State Plan 2006. While some information gaps still exist for reporting on these indicators, the alignment provides a solid foundation that will enable these gaps to be filled in future years.

We also note that this is the first NSW SoE Report to include a specific chapter on climate change. With projected effects of global warming to include changing rainfall patterns, increased evaporation and rising sea levels, this chapter stresses the importance of NSW continuing to be part of the collaborative effort of reducing greenhouse gas emissions, while also preparing to adapt to the impacts of climate change.

It is pleasing to note the improvements of a number of environmental areas over the SoE reporting period. Those of particular significance include maintaining a high level of air quality in metropolitan areas, further increases in kerbside waste recycling, and the continued decrease in per capita urban water consumption. Increased use of recycled water has further reduced pressure on fresh water demand, conserving precious supplies already depleted due to the ongoing drought. We also note that despite the drought, progress has been made in providing water for the environment in rural NSW through water licence purchases. We acknowledge the improvements in the management of native vegetation, including a reduction in approved native vegetation clearing as a result of the *Native Vegetation Act 2003* coming into effect in 2005. As an issue of some concern in SoE 2006, we applaud the progress made in this area. The increase in land protected for Aboriginal cultural values is also a welcome improvement since the last report.

There are, however, some areas still in need of improvement. Invasive species, such as foxes and weeds, continue to have an impact on native flora and fauna across NSW and in particular threatened species. Corresponding with this risk, there has also been an increase in the listing of both populations and communities under the threatened species legislation.

The advisory council would like to highlight as an area requiring attention the continued growth of the ecological footprint for NSW and the risks of this continued growth on the environment. Improved energy efficiency is a key to controlling ecological footprint growth and reducing greenhouse gas emissions.

Responding to environmental issues and pressures clearly requires cooperative endeavour by the government and business sectors and the community. We note the important role of NSW Catchment Management Authorities in natural resource management and their evident contribution to the state of the environment through effective collaboration and monitoring of environment condition.

The advisory council wishes to thank you for the opportunity to participate and add value to the preparation of SoE 2009 and we commend the NSW Government for continuing to undertake state of the environment reporting of a high quality in NSW.

Yours sincerely

Tony Wright *Chairman*

NSW State of the Environment Advisory Council

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Department of Health

Department of Industry and Investment

Department of Planning

Department of Premier and Cabinet

Department of Transport and Infrastructure

Energy Australia

Hunter Water Corporation

Land and Property Management Authority

NSW Rural Fire Service

NSW Treasury

Sydney Catchment Authority

Sydney Water Corporation

About SoE 2009

Purpose

New South Wales State of the Environment 2009 (SoE 2009) reports on the status of the main environmental issues facing the state. It has been prepared in accordance with the requirements of section 10 of the Protection of the Environment Administration Act 1991. This is the seventh report prepared by the Department of Environment, Climate Change and Water (DECCW) and its predecessors with reports published in 1993, 1995, 1997, 2000, 2003 and 2006.

SoE 2009 aims to provide credible, scientifically based, statewide environmental information to assist those involved in environmental policyand decision-making and managing the state's natural resources.

Preparation

SoE 2009 is structured around seven major themes: People and the Environment, Climate Change, Human Settlement, Atmosphere, Land, Water and Biodiversity. Thirty environmental issues are reported on within these themes with data and information addressing 86 environmental indicators. The majority of these indicators are consistent with those covered in previous reports, and they align closely with the core environmental indicators approved by the Australian and New Zealand Environment and Conservation Council in March 2000. Some of the indicators have been further refined since SoE 2006 to ensure clearer definitions and to be consistent with those developed for reporting against the statewide natural resource targets.

SoE 2009 is prepared following the Pressure – State (or condition) – Response (PSR) framework originally developed by the Organisation for Economic Cooperation and Development for state of the environment reporting. 'Pressure' refers to activities that can affect the environment and are not limited to those that result from human influences. 'State' (or condition) refers to the quality of the environment and the functioning of important environmental processes. 'Responses' are actions or initiatives that have been implemented to address the environmental condition or pressure that is having an impact on an environmental issue.

Although SoE 2009 has been prepared by the Department of Environment, Climate Change and Water (DECCW), much of the material it contains comes from extensive input from a wide range of government agencies, other organisations and individual specialists who have provided data, information, analysis and interpretation, and have reviewed the content of the report. DECCW relies heavily on support from contributing agencies.

The specialist input also includes the advice and support of independent experts as well as members of the NSW State of the Environment Advisory Council, which in 2007 was formed as a subcommittee of the Environment Protection Authority Board. As in previous reports, the Minister for Climate Change and the Environment has invited the advisory council to prepare an open letter on the preparation of SoE 2006 and this is included.

Indicator ratings and summaries

SoE 2009 assesses each environmental indicator's current status, its trend since SoE 2006 and the availability of information used to make an assessment against the indicator. The status and trend ratings depend on the extent and appropriateness of available information, both qualitative and quantitative, and the information availability rating signifies the level of information used to make the assessment.

Indicator status

Indicator status refers to the environmental condition of the indicator:



Green is used if the data for the indicator is considered to show a generally positive or healthy environmental condition.

Yellow indicates that the condition is neither positive nor negative. This could be that the data demonstrates a moderate overall status or that the results are mixed across different areas of the state.

Red is used if the available data shows that there is generally a poor environmental condition or if the condition is under significant stress.

Grey is used where there is insufficient information to make an assessment.

Indicator trend

The indicator trend describes the direction of significant change in environmental condition, and is generally judged over the reporting period between SoE 2006 and SoE 2009. In the future changes in the indicator trend may have an impact on the overall status of the indicator. The following descriptors have been used in SoE 2009:

Improving – the trend in the condition of the indicator is good and getting better.

No change – there has been no significant change in the condition of the indicator.

Stabilising – a declining trend in the condition of the indicator has slowed.

Recovering – the condition of the indicator is poor or fair, but improving.

Deteriorating – the condition of the indicator is getting worse from whatever status.

Unknown – there is not enough information to show a trend for the indicator.

Information availability

Information availability describes the statewide extent, condition and 'fitness for use' of the data used for the indicator. Information availability is represented by the following symbols:

JJJ good – meaning that there is sufficient data and information on a statewide basis and is of a high standard

✓✓ reasonable – there is some data and information on a statewide basis of a reasonable standard

✓ limited – there is little data or information on a statewide basis.

Where there is insufficient suitable data or information to make a judgement, the status or trend may be considered not assessable.

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Summary

Preparation and release of a State of the Environment (SoE) Report for New South Wales every three years is a statutory requirement under the *Protection of the Environment Administration Act 1991*. SoE 2009 reports on the state of the environment across all of NSW for the three-year reporting period 2006–2009. It does this using 86 environmental indicators within 30 environmental issues across seven broad themes. SoE 2009 provides credible, scientifically based, statewide environmental information to inform and assist the community, government and private sector involved or interested in environmental policy- and decision-making and management of the state's natural resources.

In November 2006, the NSW Government released *State Plan 2006: A new direction for NSW*. State Plan 2006 sets clear priorities and targets across five areas of Government activity including 'Environment for living' and 'Delivering better services'. The plan identifies measurable priorities for Government action to guide outcomes in the priority areas to 2016. SoE 2009 has aligned issues and indicators with relevant State Plan measures and targets where appropriate to ensure consistency of purpose and efficiency in government monitoring and reporting.

State Plan 2006 recognises that healthy and resilient natural resources are the foundation of our primary industries, tourism and recreational activities, as well as providing habitat for unique native fauna and flora. The plan's Priority E4 addresses natural resource management (NRM) and incorporates the 13 natural resource management targets presented in SoE 2006 for themes including native vegetation, biodiversity, land, rivers, wetlands, groundwater and coastal waterways. The NRM Monitoring, Evaluation and Reporting Strategy has been used to provide the baseline information to measure the 13 targets in SoE 2009.

An update of State Plan 2006 was released in October 2009 and future SoE Reports will take into account the revised plan's priorities and targets where appropriate.

Although SoE 2009 has been prepared by the Department of Environment, Climate Change and Water (DECCW), much its content is the result of extensive input by a wide range of state and local government agencies, other organisations and individual specialists, who provided data, information, analysis and interpretation, and reviewed the assembled content of the report. DECCW relies heavily on receiving such support from contributing agencies. The specialist input also includes the advice and support of independent experts as well as members of the NSW State of the Environment Advisory Council, which in 2007 was formed as a subcommittee of the Environment Protection Authority Board.

1. People and the Environment

This chapter provides some broad context for environmental issues in NSW and, along with the Climate Change chapter, discusses some of the key drivers that can affect the state of the environment in NSW.

In June 2008, the resident population of NSW was estimated to be 6.97 million people and this is projected to increase to 9.1 million people by 2036. Seventy-five per cent of the population lives in the Greater Metropolitan Region, while coastal regions outside this area are growing the fastest. Population growth, as well as changes in age and household structure, will place increased pressure on the environment and natural resources into the future. Management and planning that balances the needs of both the environment and population growth into the future is essential. The NSW Government is planning for this growth through the 25-year *Metropolitan Strategy: City of Cities – A plan for Sydney's future*, along with regional strategies across the state.

Intrinsically linked with a growing population is an increasing ecological footprint. The 'ecological footprint' is a measure of the environmental impacts of populations: it uses an input-output approach based on national population and expenditure data. Effectively, the ecological footprint measures changes in consumption over a period of time. The ecological footprint of NSW increased from 6.35 hectares per capita in 1998–99 to 7.02 ha in 2003–04. Per capita household consumption expenditure independent of inflation has increased 17% over the past 10 years. NSW faces the challenge of ensuring that increasing consumption of energy, water and land does not negatively impact on our environment and natural resources.

The NSW State of the Environment Report has a unique requirement to consider the trends in economic analysis and the costs and benefits of environment protection. Development of marketbased instruments in areas such as air and water quality, salinity, waste and more recently biodiversity has helped to improve the relationship between economics and the environment.

Positive community attitudes and actions are instrumental to achieving improved environmental and natural resource outcomes. Increased concern by the public in recent years, particularly about issues



























such as climate change and water availability, has seen communities and households take affirmative action by both direct and indirect means. Education continues to play a pivotal role in empowering communities.

Increased knowledge and information gathering will continue to improve the protection of our valuable cultural and heritage assets and values through a range of tools, such as regulation, programs and non-statutory agreements and partnerships. Land protected for Aboriginal cultural values has significantly increased over the last three years and heritage listing continues to be the main mechanism for managing heritage across NSW.

2. Climate Change

Since SoE 2006, climate change has become a key area of policy development with increased public awareness and scientific certainty regarding the potential impacts of climate change.

Over the last century Australia has experienced an average warming of about 0.9°C. CSIRO projections indicate that by 2030, average temperatures in Australia will rise by about 1°C from the current average. In NSW, higher temperatures are likely to shift rainfall patterns, and increase evaporation and sea levels. Over the last 100 years global sea levels rose by 195 millimetres, with the rate accelerating over the 20th century. Based on a NSW-specific study, the State Government has adopted sea level rise benchmarks of 0.4 metres by 2050 and 0.9 m by 2100, relative to 1990 levels. Climate change will have further impacts on NSW, including increased coastal erosion and inundation, a decline in water resources, and impacts on health, biodiversity and agriculture.

The Intergovernmental Panel on Climate Change has stated that it is now more than 90% certain that most of the observed increases in global temperatures are caused by increases in atmospheric greenhouse gas concentrations. Since 1750, the global atmospheric concentration of carbon dioxide has increased from 280 parts per million to 379 ppm in 2005. Much of this increase was in the second half of the last century, with measurements from Cape Grim, Tasmania, showing that atmospheric concentrations of carbon dioxide have increased there from 328 ppm in 1976 to 383 ppm in 2009.

The increase in atmospheric carbon dioxide is markedly influenced by a growth in greenhouse gas emissions. Global greenhouse gas emissions have increased by more than 70% since 1970. NSW greenhouse gas emissions, however, have remained relatively steady since 1990 while NSW per capita emissions have decreased. Recent growth in energy and transport emissions in NSW will mean overall emissions will rise in the near future if no cap or reduction measures are in place.

NSW Government responses to climate change focus on two broad areas:

- minimising the severity of climate change through emissions reduction, renewable energy, energy efficiency and sustainability
- preparing NSW to adapt to those changes that are unavoidable.

The proposed federal emissions trading scheme will be the primary mechanism for emission reduction in NSW and Australia. Through its Climate Change Action Plan, however, the NSW Government will continue to address climate change by providing leadership and education, reducing greenhouse gas emissions, preparing to adapt to the impacts of climate change and maximising prosperity in a low carbon economy.

3. Human Settlement

Urban water issues include water quality, recycling and water consumption. Drinking water quality standards are being met in regional and metropolitan areas. New strategies designed to secure water supply for the future have seen water consumption per capita decrease since 2006. Mandatory water restrictions, water efficiency programs and water reuse from recycling have significantly contributed to this reduction. Continued population growth and the ongoing drought will need to be considered when managing water supply. Strategies implemented through the Metropolitan Water Plan and State Plan 2006 will aim to secure a sustainable supply of urban water into the future.

While there have been improvements in reducing demand for water, energy use has continued to increase with energy from both fossil fuels and renewable sources maintaining their share of supply. Fossil fuels currently provide the majority of NSW energy demand with one guarter of the total production being used to generate electricity. The transport sector has the strongest growth in energy demand and is the largest consumer of energy. Demand for electricity has continued to rise with an increase in the number of households. Both energy production and energy use can have significant implications for the environment, with demand for energy being managed through tools such as the implementation of renewable energy targets, the NSW Energy Efficiency Strategy and diversification of electricity production to include a greater share of renewable sources.

There are increases in the use of public transport for travel to and from work, in the diversity of transport modes and in transport energy consumption. Over

2

the longer term, vehicle kilometres travelled, the number of trips and the length of trips have increased in line with population growth. The NSW Government is continuing to integrate land-use with transport planning in addition to other programs targeting the use of bus and rail services, and walking and cycling.

Recycling across NSW has increased, in particular kerbside household recycling. Waste disposal rates per capita in the Sydney Metropolitan Area have been stable for the five years to 2007–08 and remain below 2000 levels even as population and the economy have grown. While still marginally lower than disposal rates across Sydney, the waste disposal rate per capita and total waste disposed of in the Hunter, Central Coast and Illawarra regions both continue to rise. Avoiding the creation of waste remains the best strategy for dealing with the problems of resource consumption and waste generation. Major objectives of the Government's waste strategy include waste minimisation as well as recycling.

Noise pollution is an ongoing issue and, while it is difficult to assess the total impact of noise pollution, amendments to policies and regulation help to manage this sensitive issue.

4. Atmosphere

Air quality in NSW meets four out of six national air quality standards, with exceedences in the standards for ground level ozone and particles. The National Environment Protection Measure (NEPM) for Ambient Air Quality sets the air quality standards and goals for six pollutants: ozone, particles, carbon monoxide, nitrogen dioxide, sulfur dioxide and lead. Emissions of air toxics remain at levels in accord with those set under the Air Toxics NEPM.

Ground level ozone (or photochemical smog) is particularly problematic in high density metropolitan areas such as the Sydney and Illawarra regions and there can be several exceedences during the year, although this number decreased over the reporting period. Particle pollution generally meets standards in the Sydney metropolitan area, but parts of regional NSW face considerable challenges in meeting the particle standards. Bushfires, dust storms, burning of agricultural stubble, and domestic woodheaters are the major emission sources for particles in these areas.

The major sources of air pollution and air toxics are being addressed through a range of policies and programs such as Action for Air, the Cleaner Vehicles and Fuels Strategy and the Woodsmoke Reduction Program. The Protection of the Environment Operations (Clean Air) Regulation 2002 provides the framework for managing air pollution from industry.

The status and impacts of indoor air quality are not well known and this is considered to be an emerging issue.

5. Land

Healthy soils are necessary for landscape health and provide the basis for the productive capacity of the land. NSW soils continue to be under pressure from changes in land use compounded by years of drought. However while degradation is continuing, improved land management practices over the years have helped slow this decline. Across NSW, gully and sheet erosion continue to be the least problematic of the soil health indicators, but an overall deterioration of organic carbon and soil structure continues. Potential acid sulfate soils are of significant concern in some coastal and drying inland riverine areas.

While current land management across NSW is, on average, within capability limits, continued pressures on soil condition through management practices or natural processes, such as drought, are likely to have an impact on capability limits in the future.

Contamination of land and food and produce can occur through the use of chemicals either directly or as a by-product of manufacture. Over the past three years, the pace of remediation of industrially contaminated land has increased and fewer sites are being listed. Changes to current legislation implemented in 2009 aim to streamline and strengthen the management framework for contaminated sites.

There is a strong framework of intergovernmental and industry cooperation on reducing the risk of environmental harm from chemicals, including setting maximum residue limits, conducting regular compliance testing, and controlling the use of pesticides and fertilisers.

6. Water

Over the reporting period drought has significantly affected all water users as well as the environment, severely limiting the availability of water and having a major impact on inland river health and the condition and extent of wetlands.

Water storages dropped to historic lows and, coupled with limited flows in most inland rivers, this required the temporary suspension of some water sharing plans in NSW. Only limited releases of water for environmental purposes have been possible during this time, but additional water entitlement for the environment has been obtained over the last few years through water saving efficiencies and the purchase of water licences. Limited surface water availability has increased the demand on some groundwater resources, but water sharing plans for these subterranean resources are also being implemented to better manage extractions.



























Most inland river systems and wetlands are presently in poor ecosystem health due to the historic impacts of water extraction, flow regulation and catchment disturbance, as well as the effects of drought. Coastal rivers are in better health overall. Major waterbird breeding events in the Paroo and Narran Lakes systems following significant floods in 2008, highlight the resilience of inland wetland systems where their underlying integrity remains sound. However, the overall extent and condition of wetlands continues to decline due to ongoing disturbances and prolonged drought. In addition to the benefits of increased environmental flows from water sharing plans, a range of programs is being implemented to assist in the restoration of various aspects of river and wetland health, including revegetation of riverbanks and catchments, fish passages and improved water quality and catchment management practices.

Population growth and coastal development continue to put pressure on estuaries and coastal lakes, the condition of which varies widely, from nearpristine to highly disturbed. As more people move to settle along the coast, managing population growth while maintaining the health of estuaries requires a delicate balance. To achieve these outcomes, improvements in catchment management practices, integrated planning and sensitive urban design are ongoing, but more effective management of diffuse runoff and urban stormwater is still needed.

The pressures in the coastal zone, coupled with the potential impacts of climate change, also have the potential to affect the status of the NSW marine environment, which is currently good. Recreational water quality in coastal waters has improved and algal blooms are becoming less frequent. Continued management of marine habitats and fisheries resources, together with pollution discharges from point sources, will ensure that NSW marine waters and ecosystems remain in good condition into the future.

7. Biodiversity

The current condition and extent of native vegetation is considered to be fair. New native vegetation legislation implemented in 2005 has helped improve the management of native vegetation, including marked reductions in approved clearing and substantial amounts of restoration and revegetation through the implementation of property vegetation plans. The total extent of woody vegetation appears to have remained stable since 2003. Ongoing pressures on vegetation condition, such as the impacts of climate change and invasive species, need to be carefully monitored to ensure that the current status is improved or maintained.

The diversity and richness of native species remains under threat, particularly vertebrate fauna that are vulnerable to invasive species and habitat loss. Since 2006 one species has been listed as presumed extinct (green sawfish) and, although the number of threatened species has increased only slightly, the number of listed populations and communities has increased. Birds, which have been the most resilient vertebrate group, have suffered declines in distribution since 2000. Significant legislative and policy reforms have been introduced since 2004 to enhance the protection of biodiversity, largely focused on addressing threats and improving habitats. Practical outcomes for the protection of biodiversity are being achieved by directly addressing the main threats through better targeting of the management of invasive species, the maintenance and improvement of native vegetation, and conservation in reserves.

There has been an increase in the area of the reserve system with significant additions to previously underrepresented terrestrial areas. A greater focus on conservation on private and public lands is helping to provide improved connectivity across landscapes and complements the public reserve system. The finalisation of zoning plans for the Port Stephens–Great Lakes and Batemans marine parks means that all marine protected areas, covering 34% of NSW waters, are now subject to management. Marine protected areas, in addition to existing aquatic reserves, cover areas in the six bioregions in NSW waters.

Over half of all listed key threatening processes relate to invasive species, and pests and weeds have been identified as a threat to over 70% of all threatened species in NSW. Widespread invasive species, such as foxes, feral cats, rabbits and goats, and an increasing number of weeds, are difficult to eradicate once they are established. Control is most effective when targeted towards the protection of environmental assets, such as native species, regional ecosystems and ecological communities, where the benefits will be greatest.

The incidence of fire varies from year to year and continues to be a significant threat to ecosystems. Altered fire regimes can have major detrimental effects on ecosystems and the populations of many endangered species. Fire is a natural part of the landscape, and an understanding of its role in ecosystems is increasingly being factored into decision-making.

Fisheries management addresses impacts of fishing on target fish stocks as well as environmental impacts such as effects on bycatch species. The refinement of harvesting controls, including licensing and amendments to bag and size limits for recreational fishing, and implementation of share management for commercial fishing, has stabilised commercial wild fish catches and the overall number of recreational anglers.