# STATE OF THE ENVIRONMENT REPORT 2007
Western Australia

# Overview

Environmental Protection Authority
Government of Western Australia

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# FOREWORD

I am pleased to present the *State of the Environment Report: Western Australia 2007*. The report identifies the most important environmental issues facing Western Australia. It also identifies the current condition of the State's environment and what we are doing, or should be doing, to improve our environment.

This overview provides a high level summary of the main report. The Environmental Protection Authority (EPA) has interpreted the detailed information in the main report, and presented their synopsis of WA's environment in an easy to understand format.

While it is crucial that the State Government takes a lead role in providing direction for environmental management and protection, it is equally important for the whole community to recognise that, collectively and individually, we all have a role to play. We must all take responsibility for the environment that we live in and for the environment that future generations will one day inherit.

I encourage government, business and industry, peak bodies, academic and research institutions, community groups and individuals to consider and develop actions addressing the findings and suggested responses in the main report. Through collaborative efforts we can generate positive change for a healthier environment and an improved quality of life for all Western Australians.

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Chairman
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State of the Environment Report:
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This Overview is a summary of the main report - the State of the Environment Report: Western Australia 2007


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# WESTERN AUSTRALIA'S ENVIRONMENT REPORT CARD

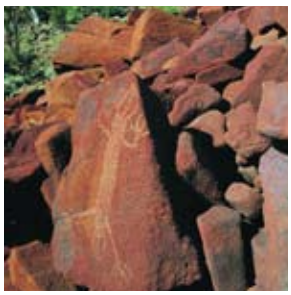
The following report card presents the Environmental Protection Authority's (EPA) synopsis for WA's environment in 2007. The EPA has considered a number of indicators relating to the condition of the natural resources or assets, the pressures or threats present, and the adequacy of current responses. 'Status' refers to the current overall condition of the natural resources or assets, while 'trend' refers to the likely change in natural resources or asset condition over the past decade.

| Theme | Status & trend | Comment |
|---|---|---|
| Fundamental Pressures | | Increasing pressures on the environment from WA's economic boom, consumption of natural resources, and climate change require new approaches to environmental management. |
| Atmosphere | | Atmospheric pollution issues across WA are generally within guideline limits and appear to be under control. Some issues appear to be worsening. |
| Land | | Many land problems in the South West are getting worse. There are fewer problems in other parts of WA. |
| Inland Waters | | Many waterways and wetlands in WA are degrading, especially in the South West. Better management and protection of inland waters is required. |
| Biodiversity | | There is insufficient knowledge about biodiversity in WA. Most biodiversity issues are serious and appear to be getting worse. |
| Marine | | A few marine areas in WA have recognised problems. Improved knowledge of the marine environment is required. |
| Human Settlements | | Some WA settlements are growing at an unsustainable pace with increasing demand for land, water and energy and increasing waste generation. |
| Heritage | | Many heritage places in WA are being lost or degraded. Better management, protection and recognition of heritage values are required. |

**Legend:**

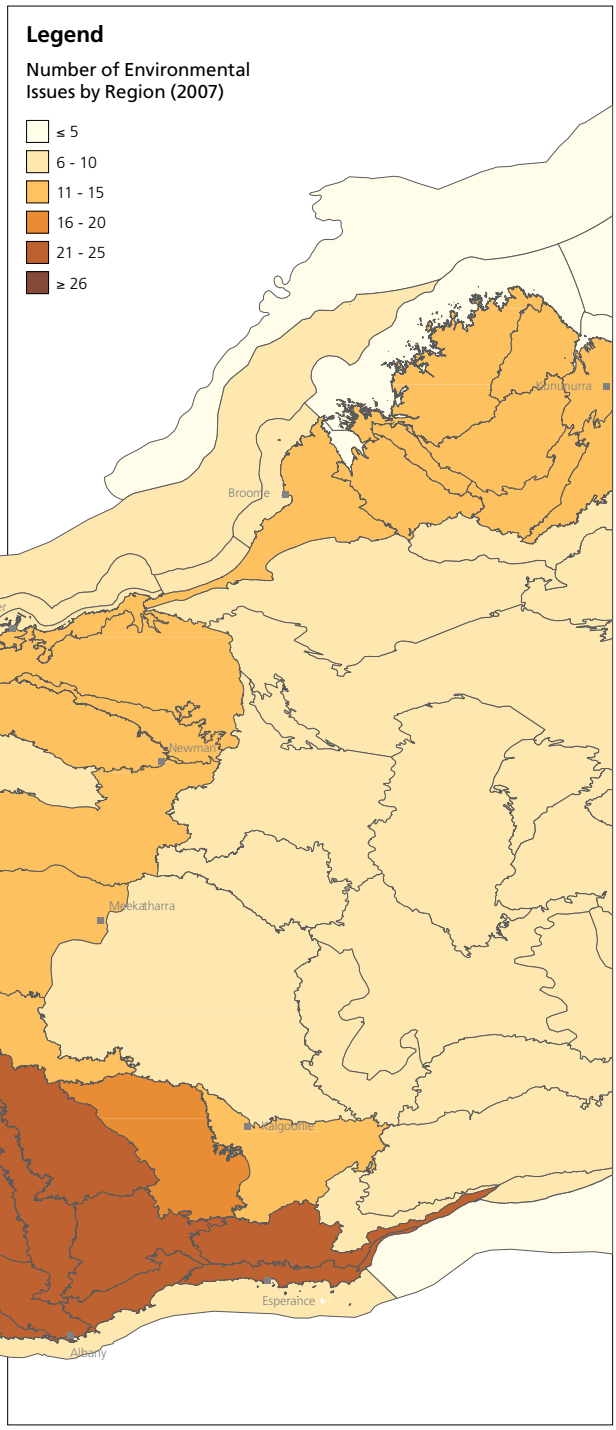
| Current status | Trend direction |
|---|---|
| Good | Likely improvement |
| Average | Steady |
| Of concern | Likely deterioration |

Everlasting wildflowers in the Goldfields (K.Strepnell).



Aboriginal rock art, Burrup Pennisula (Tourism WA).

# WESTERN AUSTRALIA'S ENVIRONMENT 'HOTSPOTS'




Environment hotspots are parts of WA where the most environmental issues occur and the environment is under the most stress. This map has been generated using bioregions (both terrestrial and marine) through summing each of the 'indicative extent of issue' maps presented in the *State of the Environment Report: Western Australia 2007*. The map reflects the presence of multiple environmental issues rather than the level of impact.

The Swan Coastal Plain (the coastal strip of land between Dunsborough and Jurien, including the capital city of Perth) has the most environmental issues in WA. Many problems can be attributed to a large population, growing settlements and use of land for productive purposes, such as industry and agriculture. The South West corner of WA has a considerable number of environmental issues due mainly to widespread modification of the environment since European settlement. Much of the Goldfields, Mid West, Pilbara and Kimberley have fewer environmental issues. The central inland deserts have the least number of environmental issues, mainly because they are remote, sparsely populated areas and the land is not utilised for productive purposes. Marine environmental issues are fewer in number and are mostly related to coastal settlements, shipping and fishing operations.



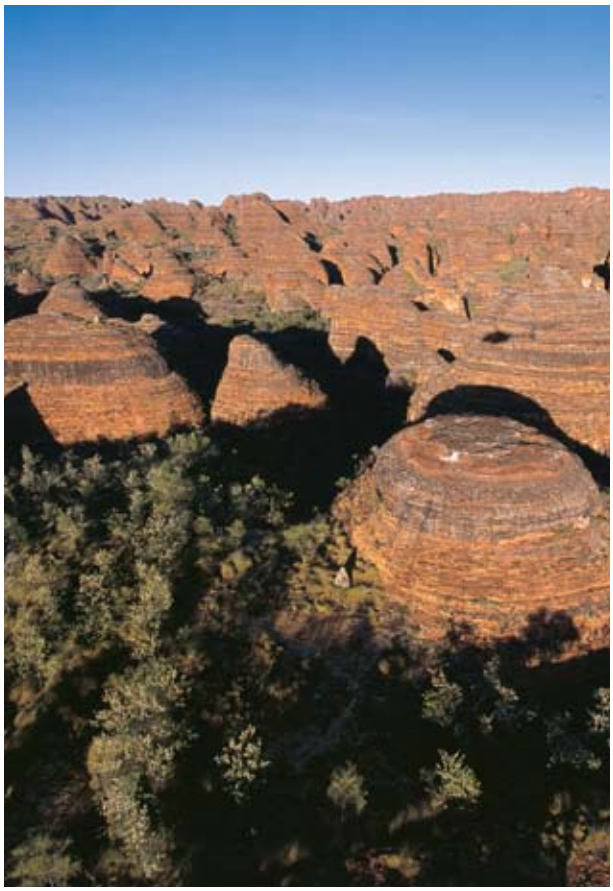


Ningaloo Reef (Tourism WA).

Western ground parrot (Department of Environment and Conservation).

Karri forest (Tourism WA).

# WESTERN AUSTRALIA'S ENVIRONMENTAL PRIORITIES



Purnululu National Park (Tourism WA).

Each environmental issue identified in the *State of the Environment Report: Western Australia 2007* was given a priority rating. The priority rating table uses five levels to indicate the relative priority to WA, ranging from Priority 1 (highest priority) to Priority 5 (lowest priority). The environmental issues appearing within each priority rating are in no particular order. It should be noted that while all the environmental issues identified in the *State of the Environment Report: Western Australia 2007* are important, the priority ratings will help to prioritise policy development, management focus and allocation of resources.

A number of factors were considered in determining the priority rating for each environmental issue including the extent of its impact across WA; the reversibility of the impact; the rate at which its worsening; the impact on the environment, society and the economy; and the potential consequences for future generations. Community input and advice from technical experts helped the EPA to decide the priority ratings.

| PRIORITY RATING: 1 | PRIORITY RATING: 2 | PRIORITY RATING: 3 | PRIORITY RATING: 4 | PRIORITY RATING: 5 |
|---|---|---|---|---|
| **Top priority** | | | | **Lowest priority** |
| Climate change | Particulates | Photochemical smog | Land contamination | Stratospheric ozone depletion |
| Population and consumption | Changed fire regimes | Soil acidification | Marine contamination | Sulfur dioxide |
| Greenhouse gas emissions | Loss or degradation of native vegetation | Acidification of inland waters | Loss or degradation of natural heritage | |
| Introduced animals | Soil erosion | Erosion and sedimentation of inland waters | | |
| Weeds | Altered water regimes | Eutrophication | | |
| Phytophthora dieback | Loss or degradation of wetlands | Introduced marine species | | |
| Land salinisation | Loss or degradation of fringing and instream vegetation | Transport | | |
| Salinisation of inland waters | Degradation of marine environments | Water use in settlements | | |
| | Settlement patterns | Energy use in settlements | | |
| | Loss or degradation of Aboriginal heritage | Waste generation and disposal | | |
| | | Loss or degradation of historic heritage | | |

# ENVIRONMENTAL ISSUES

In the *State of the Environment Report: Western Australia 2007*, 'environmental issues' refers to problems or threats and are reported under common themes. The EPA determined environmental issues using community input from a discussion paper and advice from technical experts. 'Priority rating' is shown for each issue and 'trend' represents the likely trend direction over the past decade. For some issues that appeared in the *State of the Environment Report: Western Australia 1998* a direct comparison could be made for trend direction.

Controlled burn at Caraban State Forest (L.Sage).



| Theme/Issue | Priority rating & trend | Comment |
|---|---|---|
| **Fundamental Pressures** | | |
| Climate change | ↓ | WA is getting warmer. Rainfall is decreasing in the South West. Ocean levels are rising. Implications are severe. |
| Population and consumption | ↓ | Western Australians have amongst the largest ecological footprints in the world. |
| **Atmosphere** | | |
| Stratospheric ozone depletion | – | Ozone depleting chemicals are under control. Ozone depletion is still a problem at the moment, but is predicted to gradually improve. |
| Greenhouse gas emissions | ↓ | WA has amongst the highest emissions per capita in the world. Total emissions are relatively small on a global scale, but increasing rapidly. |
| Particulates | ↓ | Problem areas are largely confined to some Perth suburbs, and some towns in the South West, Pilbara and Kimberley. |
| Photochemical smog | ↑ | Noticeable improvements have occurred in Perth – the main problem area. |
| Sulfur dioxide | ↑ | Improvements are generally occurring, including in Kalgoorlie – historically a problem area. |
| **Land** | | |
| Land salinisation | ↓ | The area of South West land affected is increasing. Active management is underway, but significant land use changes are still required. |
| Soil erosion | – | Much of the State is affected to some extent. Awareness of the problem is generally improving. |
| Soil acidification | ↓ | The area of South West land affected is increasing. Currently there is dependence on lime as a treatment. |
| Land contamination | ↑ | More contaminated sites continue to be identified, but improved regulations are now in place. |
| **Inland Waters** | | |
| Salinisation of inland waters | ↓ | Many South West waterways and wetlands are severely affected. Some improvements have occurred in the Denmark and Collie rivers due to intensive management efforts. |
| Altered water regimes | – | Many inland waters have been significantly modified due to land use change and increased demand for water supplies. |
| Loss or degradation of wetlands | ↓ | Severe loss of wetlands has occurred on the Swan Coastal Plain and in the Wheatbelt. Unknown in other areas. |
| Loss or degradation of fringing and instream vegetation | ↓ | Continued loss has occurred across the South West, with some localised areas of improvement. Largely unknown in the rangelands. |
| Acidification of inland waters | ↓ | This is an increasing problem in developed coastal areas and the Wheatbelt. |
| Erosion and sedimentation of inland waters | ↓ | Affects most inland waters where catchments and / or inland waters have been significantly modified from its natural state. |
| Eutrophication | ↓ | An increasing number of wetlands and waterways in South West are affected. Limited progress has been made in reducing nutrient export from problem areas. |

| Theme/Issue | Priority rating & trend | Comment |
|---|---|---|
| **Biodiversity** | | |
| Changed fire regimes | | A major problem in the Kimberley and the South West, but is receiving increased management attention. |
| Loss or degradation of native vegetation | | Improved regulations are now in place, but clearing is still occurring with population growth and economic development. |
| Introduced animals | | Large numbers of introduced animals and threats are present in WA. There has been limited success in preventing incursions and eradication. |
| Weeds | | A large number of weeds are present across WA. Management action is currently inadequate. |
| Phytophthora dieback | | This disease is affecting large areas of South West bushland and is increasing in extent. No cure is available yet. |
| **Marine** | | |
| Degradation of marine environments | | High impact in developed coastal areas. The condition of most marine environments remains largely unknown. |
| Marine contamination | | Mostly limited to Cockburn Sound and some highly developed coastal areas around WA. |
| Introduced marine species | | Some introduced marine species and threats have been identified, but limited information is available. |
| **Human Settlements** | | |
| Settlement patterns | | Growing settlements, particularly in Perth and the coastal South West, are putting more pressure on the environment. |
| Transport | | Western Australians are very dependent on car transport which has high energy use and emissions. |
| Water use | | There is increasing demand for water, but some evidence of improved water use efficiency and conservation. |
| Energy use | | There is increasing demand for energy, with little evidence of improved energy use efficiency. |
| Waste generation | | Waste levels are increasing, but some improvement has occurred with household recycling. |
| **Heritage** | | |
| Loss or degradation of natural heritage | | There have been increased additions to the conservation estate, but some important heritage places remain unprotected. |
| Loss or degradation of Aboriginal heritage | | Aboriginal heritage places are not being valued enough and some have been lost. Protection is being complicated by cultural differences. |
| Loss or degradation of historic heritage | | Historic heritage places are not being valued enough and some have been lost. |

**Legend:**

| Priority rating | |
|---|---|
| 1 | Top priority |
| 2 | |
| 3 | |
| 4 | |
| 5 | Lowest priority |

| Likely trend direction since 1998 | |
|---|---|
| ↑ | Likely to have improved |
| – | Steady, or trend is not clear. |
| ↓ | Likely to have deteriorated. |





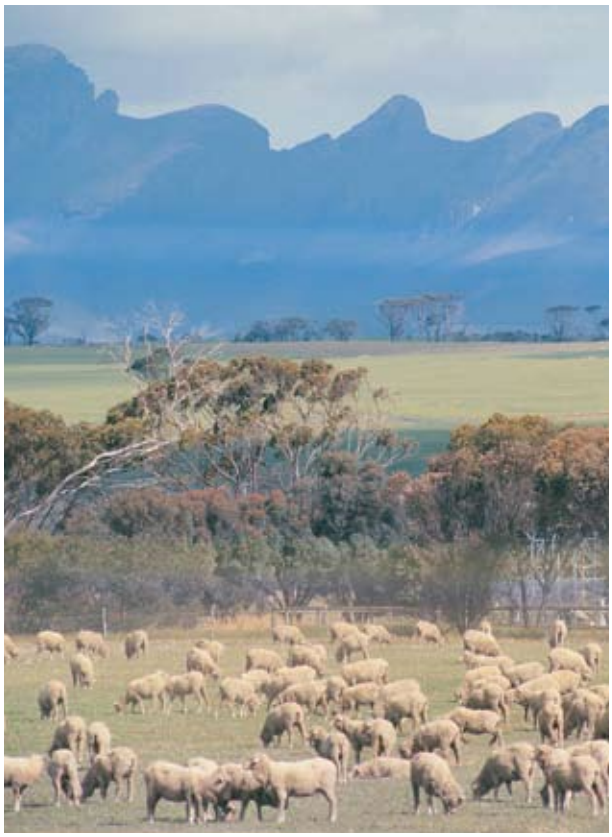
Industrial emissions (B.Jakowyna).

Feral goats (Department of Agriculture and Food).

Salt affected wetland in the Wheatbelt (Department of Agriculture and Food).

Arum lily weed (Department of Agriculture and Food).

# TOWARDS SUSTAINABILITY



Sheep grazing near the Stirling Ranges (Tourism WA).

In the words of the *Western Australian State Sustainability Strategy*, sustainability is an aspirational goal of "*meeting the needs of current and future generations through an integration of environmental protection, social advancement and economic prosperity*". This concept requires us to challenge the normal way of doing things and to look for opportunities that improve the environment, society and economy without accepting trade-offs.

The 'Towards Sustainability' theme of the main report focuses primarily on the environmental component of sustainability. It assesses WA's major economic sectors by assessing whether our State's natural resources are being conserved, managed, protected and used sustainably for the common good. The EPA has reviewed each of the sector reports, and summarised the progress of each sector in relation to implementing an environmental management systems (EMS) approach, developing sustainability indicators and targets, and their performance in meeting targets.

| Natural resource sector | Progress towards sustainability | EMS approach used / promoted | Sustainability indicators in use | Sustainable yields / targets / limits set. | Comments |
|---|---|---|---|---|---|
| Agriculture | 🟡 | ✓ | ✗ | ✗ | The sector is developing an EMS approach and promoting sustainability tools such as Life Cycle Analysis, but requires further effort to implement across the sector. |
| Conservation | 🟢 | ✓ | ✓ | ✓ | The sector has improved reservation levels in recent years, but there has been limited achievement against national reservation targets. |
| Energy | 🔴 | ✗ | ✗ | ✗ | The sector has made progress in improving renewable energy supplies, but requires further progress in developing sustainability tools and targets. |
| Fisheries | 🟢 | ✓ | ✓ | ✓ | The sector is progressing well in terms of implementing sustainability, but some fisheries appear to be unsustainable. |
| Mining & petroleum | 🔴 | ✓ | ✗ | ✗ | There has been significant progress at the individual business level, but a uniform sector approach to sustainability is lacking. |
| Pastoralism | 🟡 | ✓ | ✓ | ✗ | The sector has improved ecological management and conservation practices considerably in recent years, but requires further progress to implement tools and targets. |
| Tourism | 🔴 | ✗ | ✗ | ✗ | The sector is promoting eco-accreditation, but requires further progress in developing sustainability tools and targets. |
| Water supply | 🔴 | ✗ | ✓ | ✓ | The sector has considerably improved water efficiency and conservation, but there is widespread exceedence of sustainable yield limits and no EMS approach. |
| Wood production | 🟢 | ✓ | ✓ | ✓ | The sector has made considerable advances towards a sustainable approach in recent years, including an EMS, and is meeting sustainable yield limits. |

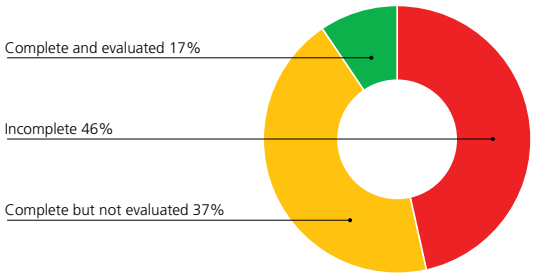
**Legend:**

| Progress towards sustainability | | | | | |
|---|---|---|---|---|---|
| 🟢 | Well progressed | 🟡 | Making progress | 🔴 | Limited progress |

## GOVERNMENT'S RESPONSE TO THE *STATE OF THE ENVIRONMENT REPORT: WESTERN AUSTRALIA 1998*

*Environmental Action* was an action plan produced by the State Government in response to the *State of the Environment Report: Western Australia 1998*. It outlined over 180 specific actions to be implemented in response to the suggested responses within the 1998 SoE Report. In 2005, government agencies were asked to provide a review of their progress towards implementing these actions. Over half of the actions had been implemented, but 46% remained incomplete, were of an ongoing nature, or had not been initiated. These results reflect a range of circumstances across government from changing priorities and funding arrangements to ongoing programs.

More significant is a distinct lack of evaluation of environmental projects and programs within government agencies. Of the 54% of completed actions, only one-third (or 17% of all actions) had been formally evaluated to determine effectiveness of the actions. In many cases, agencies were not able to ascertain whether or not their completed actions were effective, whether they had produced a positive environmental outcome, or even if they were making positive progress.




Progress of actions (as at 2005) arising from the *State of the Environment Report: Western Australia 1998*

## EPA'S ACTION AGENDA

As a consequence of the findings of the main report the EPA has identified a number of strategic actions that it will take to assist in delivering improved environmental outcomes for the State.

The EPA commits to the following:

- Encourage the State and local governments, peak industry and business bodies, and peak environmental groups to respond to the *State of the Environment Report: Western Australia 2007* in an appropriate manner.
- Improve the quality of environmental data collation and access to existing data for project proposals in the Environmental Impact Assessment process. This information will enhance the quality and efficacy of decision-making.
- Undertake a policy gap analysis for all the Priority 1 and 2 environmental issues highlighted in the main report, with a view to ensuring that policy gaps are addressed.
- Undertake a review of native vegetation clearing data. Despite new regulations, there are still inadequate mechanisms for determining total rates of clearing across WA.
- Undertake a review of progress of the recommendations of the *State of the Environment Report: Western Australia 2007* in 2010.
- Improve linkages with Regional Natural Resource Management Groups and ensure that future State of the Environment reports include progress made by regional groups.
- Encourage natural resource agencies and sectors to work to an approved EMS framework with clear environmental objectives and outcomes.





Galvans Gorge (Tourism WA).

Thorny Devil (Tourism WA).

# THE NEED FOR CHANGE

While Western Australians enjoy a high standard of living, there is a growing need for a shared understanding that our economic and social wellbeing is strongly linked to the health of the environment. The state of the environment will ultimately impact on our own wellbeing. It is our collective responsibility to look after our environment, and our collective and individual behaviours will determine how well we do this.

The EPA has identified the following areas requiring attention:

- Strategic leadership for environmental matters in WA needs to be strengthened. Priorities for the environment often appear to shift in relation to media attention, with little regard for a long term strategic approach to environmental management. This approach inevitably leads to inefficient and ineffective allocation of resources and reduced environmental outcomes in the long term.
- Significant environmental improvements can be achieved when many individuals and communities modify their behaviours and attitudes to become more environmentally aware. Environmental education and community participation are important components of such change and need to be strengthened in WA.
- Improve the monitoring of community behaviour and attitudes over time. CSIRO has developed a methodology for the EPA to monitor and report this. If implemented, this new information should greatly assist decision-makers in the future.
- Knowledge of many aspects of the WA environment is lacking. This impedes scientific understanding and prevents good decision-making, leading to ineffective environmental outcomes. In some areas, there is a need for more baseline environmental monitoring and information across WA. More research effort is needed in areas under significant pressures and for many of the Priority 1 and 2 environmental issues.
- Continuous improvement in managing the environment is essential for good outcomes. It is contingent on learning from doing and making adjustments to practices when necessary – sometimes called adaptive management. There is currently a gap in our ability to determine how environmentally effective management actions are. A greater level of evaluation and accountability for environmental outcomes needs to be incorporated into environmental programs and plans.
- Full recognition of the total economic value of environmental assets and services needs to be incorporated into development decisions. Often, the value of the environment is dismissed through a standard business approach to development and this is leading to gradual and cumulative impacts on the environment.
- Ensure that the State of the Environment Report is an ongoing publication, and that an environmental action plan is developed that clearly influences policy decisions and priorities for budget expenditure on the environment.

While our understanding of the environment and responsibility toward it has improved over time, and we have made significant progress in dealing with some environmental issues, the need to do more is now urgent. The health, prosperity and sense of place of this and future generations depend on our ability to stabilise and even reverse major environmental problems. In some instances, we have proved that this is possible, and as a society we have the resources and capacity to retain a healthy environment into the future.

Kimberley sunset (Tourism WA).

Perth city in 2006 (Tourism WA).

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