State of the catchments 2010

Threatened species

Hunter–Central Rivers region

State Plan target

By 2015 there is an increase in the recovery of threatened species, populations and ecological communities.

Background

The *Threatened Species Conservation Act 1995* and *Fisheries Management Act 1994* list species, populations and ecological communities that are at high risk of extinction. A total of 278 threatened species occur or did occur within the Hunter–Central Rivers region (Table 1).

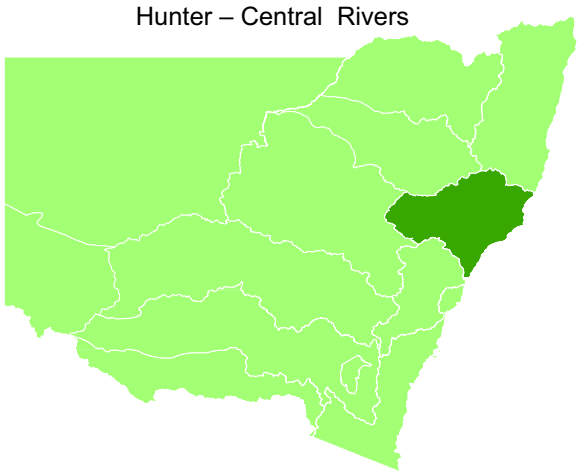
A detailed technical report describes the methods used to derive the information contained in this report. At the time of publication of the *State of the catchments (SOC) 2010* reports, the technical reports were being prepared for public release. When complete, they will be available on the DECCW website: www.environment.nsw.gov.au/publications/reporting.htm.

Note: All data on natural resource condition, pressures and management activity included in this SOC report, as well as the technical report, was collected up to January 2009.

Table 1 **The number of species listed under the *Threatened Species Conservation Act 1995* or *Fisheries Management Act 1994* that occur or did occur in the Hunter–Central Rivers region. The categories reflect different levels of extinction risk ('critically endangered' indicates the highest risk, and 'vulnerable' the lowest).**

	Presumed extinct	Critically endangered	Endangered	Vulnerable	Total
Fauna					
Mammals	0	0	5	30	**35**
Birds	0	0	21	68	**89**
Amphibians	0	0	5	9	**14**
Reptiles	0	0	2	8	**10**
Fish	0	0	1	1	**2**
Invertebrates	0	0	2	0	**2**
Flora					
Plants	2	4	45	75	126
Algae	0	0	0	0	**0**
Fungi	0	0	0	0	**0**
Regional total	**2**	**4**	**81**	**191**	**278**
State total	**76**	**21**	**549**	**409**	**1055**

Map of the catchment



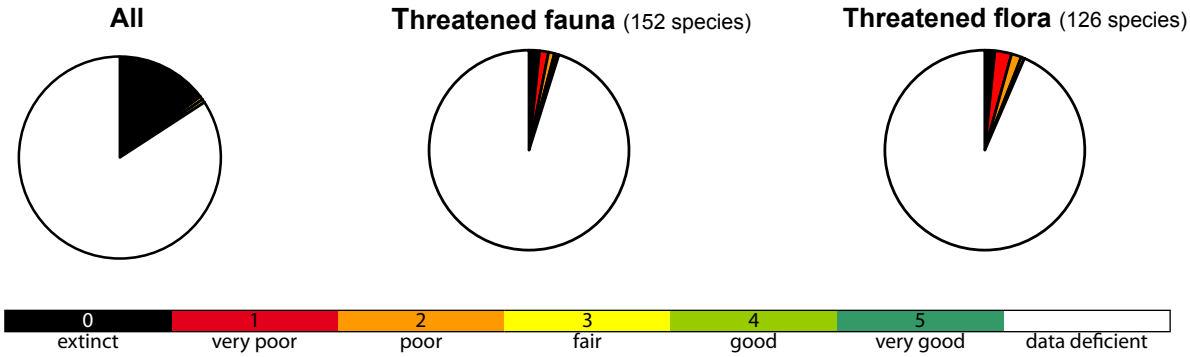
Assessment

Condition

Indicator: sustainability of threatened fauna and flora

Consistent with the intent of threatened species legislation, recovery is defined here as a decline in the risk of extinction. This is equivalent to an increase in the likelihood of a species being sustained. The sustainability of threatened fauna and flora species within the region was assessed using modified IUCN Red-List Criteria (IUCN 2001). In particular, estimates of total population size and distribution, trends in population size and distribution over time, and direct estimates of extinction risk from population modelling were used to score sustainability for each species at the regional scale. Species were assessed only if they were being actively monitored at a regional or larger scale. Endangered populations were not assessed.

Excluding species listed as presumed extinct, the sustainability of only 10 threatened fauna species could be assessed in the Hunter–Central Rivers region, of which two scored good or very good. In comparison, the sustainability of 31 threatened fauna species was assessed at the state scale, of which two (six per cent) scored good or very good. The sustainability of only one threatened flora species could be assessed in the Hunter–Central Rivers region. This species scored poor. In comparison, the sustainability of 11 threatened flora species was assessed at the state scale, of which two (18 per cent) scored good or very good.



Confidence	medium to high (in species assessed)
Trend	? (this is baseline data – no trend is available until assessment is repeated)

Figure 1 Sustainability of threatened fauna and flora within the Hunter–Central Rivers region, assessed using modified IUCN Red-List Criteria (numbers are the scores used in the threatened species recovery assessment)

Index of threatened species' recovery

An index of threatened species' recovery was calculated as the mean of sustainability scores for all threatened entities that were able to be assessed. However, given that sustainability scores were available for only 10 of 276 threatened species within the region (excluding the two species presumed extinct), the index is inadequate without an increase in the number of threatened species being monitored.

Threatened species' recovery	2.3
Confidence	low
Trend	?

Pressures

Major pressures on threatened species in New South Wales include:

- the introduction of exotic animals and plants (see the invasive species report)
- the clearing and disturbance of native vegetation (see the native vegetation report)
- changes to fire regimes
- changes to water flows (see the riverine ecosystems, groundwater dependent ecosystems, and wetlands reports)
- the introduction of exotic diseases
- overfishing and fishing by-catch (see the marine waters and ecosystems report).

The interaction between these pressures and their relationship with trends in the status of threatened species are complex and cannot easily be summarised.

Pressure case study: Gould's petrel (Pterodroma leucoptera leucoptera)

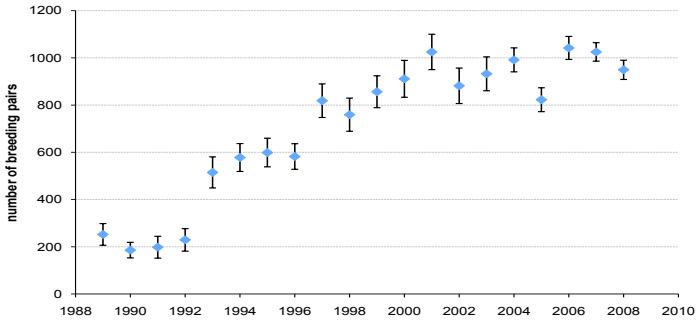


Figure 2 Estimated number of breeding pairs of Gould's petrel over time on Cabbage Tree Island

Introduced species have many direct and indirect impacts on native fauna. For example, grazing by the European rabbit on Cabbage Tree Island, off the entrance to Port Stephens, contributed to a decline in the resident population of the endangered Gould's petrel. Gould's petrel is a secretive seabird that breeds predominantly on Cabbage Tree Island. Rabbit grazing on the island altered the structure of the plant community, leading to both increased predation of the petrel by predatory birds and the entanglement of petrels in the sticky fruits of the birdlime tree. Actions to recover petrel numbers began in 1992 with the control of predatory birds and birdlime trees, and in 1997 rabbits were eradicated. As a result, the Gould's petrel population has increased from an estimated 252 breeding pairs in 1991–92, to approximately 823 breeding pairs in 2005–06 (Figure 2).

Management activity

State level

There are a number of critical actions to improve the condition of threatened species, especially relating to the management of exotic animals and plants (pests), the condition and extent of native vegetation, water use and fire. Some of these actions are described briefly in the fauna report. Targeted actions to recover threatened species, populations and endangered ecological communities, and to manage key threatening processes, are described in the threatened species priorities action statement (PAS) for each species. This includes surveys to clarify the distribution

of a species, weed and pest management programs, guidelines for threatened species issues in development assessments, research into factors influencing the survival of threatened species, and community education programs. Funding all PAS actions remains a challenge for government agencies; while there are numerous species listed as threatened, only a few are managed under recovery plans. Some threats, most notably those posed by cats and chytrid fungus, remain largely unaddressed due to the lack of effective control techniques.

Other actions include:

- protection and rehabilitation, through:
  - preparing nominations for threatened ecological communities for the Scientific Committee and preparing identification guidelines (eg for the brown barrel ecological community). This work will help landholders implement native forestry on private land
  - preparing and finalising recovery plans for endangered flora species and communities (eg *Persoonia pauciflora*, *Eucalyptus parramattensis* subsp *decadens*, and *Acacia bynoeana*, as well as the endangered ecological communities [EECs] Kurri Sand Swamp Woodland and Weeping Myall Woodland)
  - implementing recovery actions for flora and fauna species and communities in association with the Hunter–Central Rivers Catchment Management Authority (CMA) (eg for *Diurius flavescens*, *Persoonia pauciflora*, Weeping Myall Woodland and River Red Gum Forest)
  - preparing a restoration and rehabilitation management plan for the Umina Coastal Sandplain Woodland EEC
  - coordinating a DECCW-run project to build capacity to effectively rehabilitate and revegetate EECs in the region, through identifying priority sites, experimental rehabilitation and revegetation trials, and dissemination of outcomes
  - finalising the Central Coast (Wyong, Lake Macquarie and Gosford Shires) Biodiversity Management Plan. This is extremely significant as it will improve the identification of priorities for areas of conservation and remedial works. Ensuring the work done for the management plan is adopted in biodiversity conservation will be an important component. There is also the potential to expand the area to include all the Hunter catchments if vegetation information is available
- education, through:
  - Industry & Investment NSW (I&I) courses on subjects including property management planning for natural resources management and vertebrate pest management. More information on I&I courses is available at www.dpi.nsw.gov.au/agriculture/profarm/courses
- monitoring, evaluation and reporting, including:
  - conducting a survey, classification and mapping of the vegetation of the Cessnock–Kurri region. This is an important reference source for planning
- research, including:
  - collecting, storing and researching the seeds of NSW flora, through the NSW Seedbank's SeedQuest program. To date, 35 per cent of NSW species, including 30 per cent of the state's threatened species, are represented in the seedbank. Seed-related information (eg germination and viability information) is available on most species collected. Where possible, representative populations of threatened species are held in the seedbank and may be available for translocation or research
  - an ongoing program of botanical research into the plants of NSW, run by the National Herbarium of NSW at the Botanic Gardens Trust. This research includes the identification and

description of threatened plant, algal and fungal species. The identification and naming of threatened species is the first key step in understanding these species

- a research program to test the potential for the restoration of two threatened ecological communities within the Hunter Valley. It is proposed that this program will continue for several years, and may involve partnerships with the University of Newcastle and mining companies. The outcomes will improve information related to mining restoration, particularly on whether endangered ecological communities can be effectively restored.

Regional level

At the regional level, the Hunter–Central Rivers CMA is undertaking the following activities in relation to the threatened species target:

- a range of projects aimed at reducing the threats to threatened species. Key actions are identified in threat abatement plans for a range of key threatening processes
- fox control for two brush-tailed rock-wallaby populations at two sites in the region (Watagans and Broke-Millbrodale)
- fox control for little tern and beach stone-curlew populations on the Manning estuary
- a flagship project, the Kooragang wetland rehabilitation project, which is protecting and rehabilitating key saltmarsh and mangrove habitats in the lower Hunter Estuary for a range of threatened species, with 27 threatened species recorded on the project site.

Local level

There are a number of other groups undertaking significant work in the region that is contributing to better outcomes for threatened species. These groups include:

- Hunter Wetlands Centre Australia, which is developing and protecting Ramsar wetland habitat for a range of threatened migratory wader and shorebird species.

Further reading

Carlile N & Priddel D 2007, 'Population size and breeding success of Gould's Petrel *Pterodroma leucoptera leucoptera* on Cabbage Tree Island, New South Wales: 1996–1997 to 2005–2006', *Corella*, vol 31 (3/4), pp. 79–82.

IUCN 2001, *IUCN Red List Categories and Criteria: Version 3.1,* IUCN Species Survival Commission, IUCN, Gland, Switzerland and Cambridge, UK.

Published by: Department of Environment, Climate Change and Water NSW, 59–61 Goulburn Street. PO Box A290, Sydney South 1232.
Ph: (02) 9995 5000 (switchboard). Ph: 131 555 (environment information and publications requests).
Ph: 1300 361 967 (national parks, climate change and energy efficiency information and publications requests).
Fax: (02) 9995 5999. TTY: (02) 9211 4723.
Email: info@environment.nsw.gov.au Website: www.environment.nsw.gov.au
DECCW 2010/447 ISBN 978 1 74232 760 0 November 2010
Cover photo: Ken Stepnell/DECCW – 'quoll'