State of the catchments 2010

Threatened species

Hawkesbury–Nepean 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 314 threatened species occur or did occur within the Hawkesbury–Nepean region (Table 1).

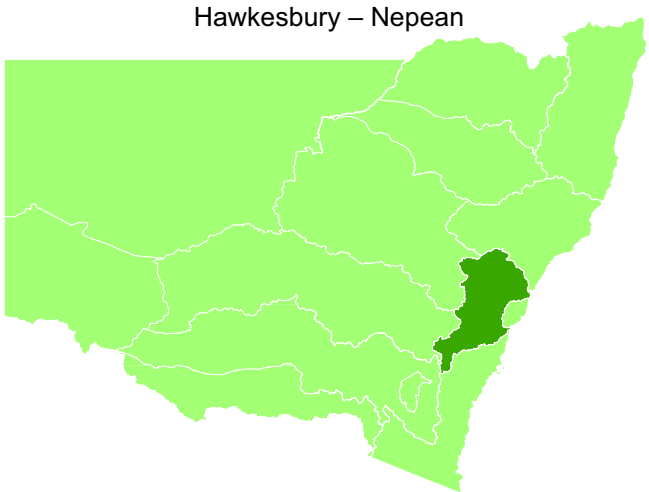
A detailed technical report describes the methods used to derive the information contained in this report. At the time of publication of the *State of the catchments (SOC) 2010* reports, the technical reports were being prepared for public release. When complete, they will be available on the DECCW website: 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 Hawkesbury–Nepean 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	4	0	4	28	**36**
Birds	1	1	22	68	**92**
Amphibians	0	0	7	5	**12**
Reptiles	0	0	4	8	**12**
Fish	0	0	2	1	**3**
Invertebrates	0	0	4	0	**4**
Flora					
Plants	3	3	70	79	**155**
Algae	0	0	0	0	**0**
Fungi	0	0	0	0	**0**
Regional total	**8**	**4**	**113**	**189**	**314**
State total	**76**	**21**	**549**	**409**	**1055**

Map of the catchment



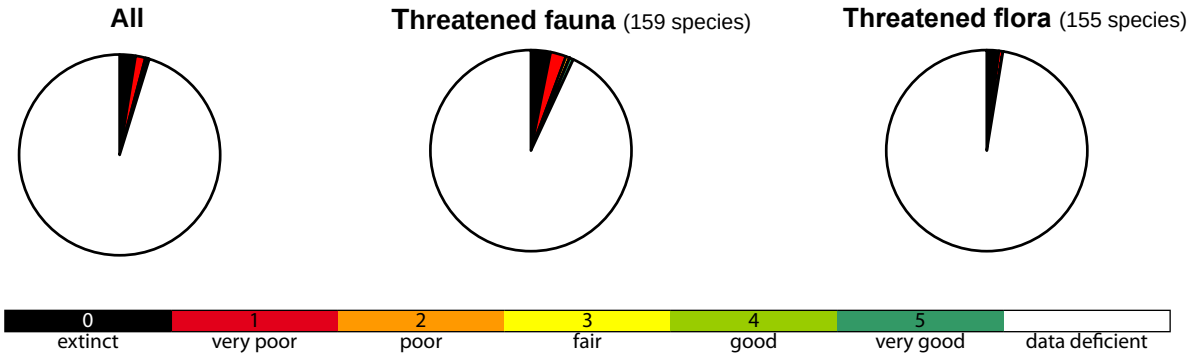
Assessment

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 six threatened fauna species could be assessed in the Hawkesbury–Nepean region. Of these, five scored poor or very poor, and one scored 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 Hawkesbury–Nepean region. This species scored very 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 Hawkesbury–Nepean 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 six of 306 threatened species within the region (excluding the eight species presumed extinct), the index is inadequate without an increase in the number of threatened species being monitored.

Threatened species' recovery	1.7
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.

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:
  - a $1 million landholder incentives program (partly funded by Sydney Metropolitan Catchment Management Authority [CMA]) for investment in threatened species management on private property. This includes landholder capacity-building and community education in targeted landscapes
  - a captive breeding and reintroduction program for critical populations of brush-tailed rock-wallabies; and a program to open the enclosure at Jenolan Caves to expand the distribution of this healthy population (supplemented by increased predator control)
- 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
  - a program of site management planning and community education for key populations of green and golden bell frogs

- monitoring, evaluation and reporting, including:
  - completion of 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 habitat enhancement, research, and community education program for broad-headed snakes, including trials of artificial rock in known habitat; genetic analysis of the northern and southern populations; and electronic monitoring to detect illegal collection.

Regional level

At the regional level, the Hawkesbury–Nepean CMA is undertaking the following activities in relation to the threatened species target:

- strategically targeting endangered ecological communities (EECs) and threatened species' habitat for protection and enhancement, through the provision of incentives to landholders
- partnering with DECCW, non government organisations (Greening Australia and Nature Conservation Trust) and councils to secure areas of EEC, including Cumberland Plain Woodland areas, and known threatened species' habitat on private land in conservation covenants
- partnering with Blue Mountains City Council and the DECCW to implement actions to protect five priority threatened species and EECs in the Blue Mountains
- identifying, developing and implementing new projects in accordance with recovery plans and DECCW priorities action statements, which target the recovery of threatened species and their habitats. These species/habitats include:
  - brush-tailed rock-wallaby (DECCW) – recovery, breeding and release
  - endangered southern brown bandicoot (DECCW) – survey
  - ground parrot and eastern bristlebird (Wollongong University, DECCW and SCA) – establishment of additional populations including capture and release
  - regent honeyeater (DECCW and Birds Australia) – habitat restoration in the Capertee Valley
  - broad-headed snake (DECCW with partners Sydney University and Southern Cross University) – habitat management and rehabilitation
  - green and golden bell frog recovery (DECCW)
  - grey-headed flying-foxes in orchards (I&I in partnership with DECCW) – mapping damage and control
  - seagrass and saltmarsh – survey and protection
  - Grassy Box Woodlands and grassy ecosystems – awareness raising and conservation

- undertaking research and surveys to assist in the management of key threatening processes, including for:
  - phytophthora in major conservation areas (NSW Botanic Gardens Trust) – survey
  - sites used for hill-topping by butterflies (DECCW/Australian Museum).

Further reading

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

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