

Smoky mouse

Pseudomys fumeus

Critically endangered



Target: to increase the occupancy of monitoring sites through feral predator control and the establishment of captive breeding

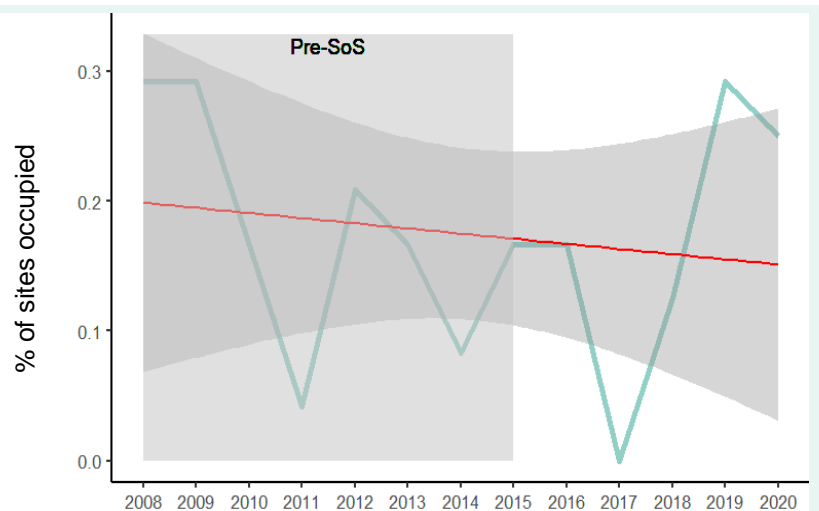
This *Saving our species* (SoS) project aims to secure the smoky mouse (*Pseudomys fumeus*) at the Nullica site through annual monitoring, increased feral predator control, and the establishment of a captive breeding program to supplement the wild population. A member of the little-known group of Australian native rodents referred to as ‘beautiful furred mice’ which have declined catastrophically in range since European settlement, the smoky mouse was first detected in New South Wales from a hair sample in 1993 and as a live animal in 1994. This small mammal is currently limited to only a small number of sites in the State’s south-east; with an estimated population of less than 100 at Nullica, and a currently little-known population in and adjacent to Kosciuszko National Park.

This gorgeous native mouse is vulnerable to a range of threats including habitat loss, predation from feral cats and foxes, dieback of habitat caused by cinnamon fungus (*Phytophthora cinnamomi*) and inappropriate fire regimes. Research, monitoring and predator control have been conducted at the Nullica site since 1994 with an Integrated Forestry Operations Approval Species Management Plan formalised in 2008. Some notable outcomes of the project to date include:

- monitoring **30 sites** at Nullica with **60 cameras** each year from 2015 to 2020
- trapping **67 cats** and **eight foxes** between 2015 and 2020.

Trajectory: declining

Annual monitoring at the Nullica site in spring indicates the species’ presence (green line) at 30 monitoring sites from 2008 to 2020. A declining trend (red straight line, with grey shading indicating 95% confidence interval) is indicated due to the low number of sites occupied between 2010 and 2018. However, the number of sites occupied in 2020 (7) was the same as in 2008 and we hope this indicates the beginning of an upward trend.



Partners

This project is led by the SoS program, in partnership with NSW National Parks and Wildlife Service and Forestry Corporation of NSW. Captive breeding is being conducted by Priam Australia, with additional captive breeding PhD research at the University of Canberra and genetics analysis through University of Sydney. The NSW Department of Primary Industries (DPI) is undertaking research on feral cat control at Nullica. Close contact is maintained with the Victorian smoky mouse recovery program through the Commonwealth Government's *National Recovery Plan for the Smoky Mouse*. Cross-border collaborations include analysis of whole-population genetics. Funding for post-fire recovery and genetics analysis was provided in 2020 and 2021 by the Commonwealth Department of Agriculture, Water and the Environment.

What did we find?

Feral cats are a principal threat to smoky mice at the Nullica site, while fox numbers are low and relatively easily controlled. Although 121 cats have been trapped since 2012, cats continue to persist in the area, and it is hoped that additional control by DPI will assist in further reducing their numbers.

The first founder smoky mice for captive breeding were secured in 2016. Husbandry protocols have been established and the breeding program is currently being expanded. To date, 56 smoky mice have been bred and successfully raised in captivity, with the first reintroductions planned for spring 2021.

A significant population of smoky mice was found by contractor ecologists north of Cabramurra during Snowy 2 assessment surveys from 2017 to 2019. SoS placed 704 cameras in the northern section of Kosciuszko National Park between 2017 and 2021, resulting in only four additional smoky mouse detections. A catastrophic bushfire severely burnt much of this habitat in January 2020, but miraculously at least some of these smoky mice survived and

the understorey vegetation is recovering after rain.

Comprehensive surveys are still being carried out to establish the size and geographic extent of the population in Kosciuszko National Park.



Typical smoky mouse habitat. Photo: Stuart Cohen/DPIE

How captive breeding and reintroduction could save the smoky mouse

- Only one of 10 previously occupied sites on national park, and six of 16 on state forest at Nullica are currently occupied.
- We aim to re-establish populations on several long-unused sites and bolster numbers on existing sites to help populate surrounding areas.
- The first experimental releases are planned for spring 2021.



A litter of smoky mice pups in the breeding facility. Photo: Stuart Cohen/DPIE

Saving our Species is a NSW Government flagship program delivered by the Environment, Energy and Science Group in the Department of Planning, Industry and Environment. To find out more about threatened species in New South Wales and the *Saving our Species* program, visit the [Saving our Species Program webpage](#).