

Australian Capital Territory

Nature Conservation (Smoky Mouse) Conservation Advice 2020

Notifiable instrument NI2020–787

made under the

Nature Conservation Act 2014, s 90C (Conservation advice)

1 Name of instrument

This instrument is the *Nature Conservation (Smoky Mouse) Conservation Advice 2020*.

2 Commencement

This instrument commences on the day after its notification day.

3 Conservation advice for Smoky Mouse

Schedule 1 sets out the conservation advice for Smoky Mouse (*Pseudomys fumeus*).

Arthur Georges
Chair, Scientific Committee
8 December 2020

Schedule 1

(see s 3)



ACT
Government

Environment, Planning and
Sustainable Development



ACT Scientific
Committee

CONSERVATION ADVICE

SMOKY MOUSE

Pseudomys fumeus

CONSERVATION STATUS

The Smoky Mouse *Pseudomys fumeus* Brazenor, 1934 is recognised as threatened in the following jurisdictions:

International	Vulnerable , International Union of Conservation of Nature (IUCN) Red List
National	Endangered , <i>Environment Protection and Biodiversity Conservation Act 1999</i> Vulnerable , The Action Plan for Australian Mammals 2012
ACT	Endangered , <i>Nature Conservation Act 2014</i>
NSW	Critically Endangered , <i>Biodiversity Conservation Act 2016</i>
VIC	Threatened , <i>Flora and Fauna Guarantee Act 1988</i> Endangered , Advisory List of Threatened Vertebrate Fauna in Victoria

ELIGIBILITY

The Smoky Mouse is eligible to be included in the Endangered category of the ACT Threatened Native Species List under the *Nature Conservation Act 2014* (NC Act) under the IUCN Criterion B – B2ab(iii,v)c(iv) (Threatened Species Scientific Committee ((TSSC) 2020). The factors that make it eligible include: the area of occupancy is likely to be restricted; the number of locations is limited; there is an inferred continuing decline in the area/quality of habitat and the number of mature individuals; and there are extreme fluctuations in the number of individuals (TSSC 2020).

DESCRIPTION AND ECOLOGY

The Smoky Mouse is a large native mouse. It is pale grey to blue-grey/black above, with a pale grey to white belly (Cockburn 1995) and a ring of dark hairs around each of its large, bulging eyes. The feet are pink with white fur (Cockburn 1995). The species is distinguished by its bicoloured tail, which is blue-grey dorsally, white ventrally and lightly furred (Cockburn 1995). It has a head and body length of 85–100 mm, a tail length of



Smoky Mouse (Gary Mayo – ANU)

110–145 mm and weighs between 45–90g (Cockburn 1995).

Breeding is seasonal, with females producing one or two litters (of 3–4 young) per year, between October and January (Cockburn 1981; Menkhorst 1995). Breeding may be communal, with several females cohabiting in burrows (Woods & Ford 2000; Ford et al. 2003). Males and females breed in their first year, and many survive to breed in a second year (Cockburn 1981). Generation length is, therefore, estimated at 1–2 years (Woinarski et al. 2014).

The population undergoes large annual fluctuations in abundance, with a rapid decline in numbers occurring just before the breeding season due to the death or dispersal of young being forced to vacate their natal territory during autumn as food resources dwindle (Cockburn 1981). Only those finding high quality food are likely to survive the winter (Cockburn 1981).

The Smoky Mouse has a dietary preference for legume seed, epacrid fruits and Bogong Moths (*Agrotis infusa*) during summer months (Cockburn 1995; Ford 1998a). In winter and early spring, when few seeds are produced from the shrubs, the species switches to hypogeous (underground) truffle-like fungi that are common around the roots of certain shrubs and grasses (Cockburn 1995; Ford 1998; Ford et al. 2003).

DISTRIBUTION AND HABITAT

The Smoky Mouse occurs in Victoria, New South Wales (NSW) and the Australian Capital Territory (ACT), over a wide but disjunct distribution with small and fragmented populations (Menkhorst & Broome 2008). Important areas are The Grampians and South Eastern Highlands in Victoria, and the Eden Hinterland (NSW) which are the designated protection zones for the species, as well as, the discovery of a substantial and significant new population found north of Cabramurra in Kosciuszko National Park (NSW) in 2018-19 (L Broome pers comm 2019 in TSSC 2020). Almost 30 percent of the species' modelled, likely and known, distribution was within fire affected areas of the 2019-20 bushfire season (DAWE 2020).

In the ACT, two males were trapped in the Brindabella Ranges in Namadgi National Park, one from near Bulls Head in 1985 (Osborne and Preece 1986) and one from Mt Kelly in 1987 (Mayo 1987). The Smoky Mouse was recorded from a moist gully within wet montane forest, and from heath vegetation on rocky mountain tops. Since the initial discovery in the ACT all surveys for the species and other small mammals have failed to detect the Smoky Mouse in Namadgi National Park (Evans 2018).

A captive breeding colony is being established at the University of Canberra in collaboration with NSW NPWS as an insurance population under the National Recovery Plan conservation priorities (TSSC 2020).

THREATS

Threats to the Smoky Mouse are detailed in the Commonwealth Conservation Advice (TSSC 2020) which are drawn from those in the Mammal Action Plan (Woinarski et al. 2014), and include:

- predation by foxes, feral cats and wild dogs.
- habitat loss, fragmentation and degradation due to clearing and Cinnamon Fungus (*Phytophthora cinnamomi*)
- too frequent burning impacting habitat suitability and diversity of fungi
- climate change exacerbating changing fire impacts of increasing frequency and intensity.

Currently, the main threats to the species in the ACT are likely to be inappropriate fire regimes and predation by the European Red Fox and cat. Climate change can be speculated to have some future impact on the Smoky Mouse in terms of altered fire regimes and possibly reduced habitat area (ACT Government 2013). Bushfire smoke in combination with rising summer temperatures may also impact

populations. These will increasingly occur together under climate change predictions and may have caused the death of nine animals during the 2019-20 summer bushfires.

MAJOR CONSERVATION OBJECTIVE

The objective of the Action Plan (ACT Government 2013) is to maintain in the long term, viable, wild populations of the Smoky Mouse as a component of the indigenous biodiversity of the ACT and region. However, the species has not been found in the ACT for over three decades, therefore the focus should be to maintain and protect habitat and mitigate threats.

CONSERVATION PRIORITIES

Recommended management actions are provided and prioritised in the Commonwealth Conservation Advice (TSSC 2020) and Mammal Action Plan (Woinarski et al. 2014) as well as detailed in the ACT Action Plan (ACT Government 2013). In the ACT, all known habitat for the species is formally protected within Namadgi National Park. The main priorities applicable to Smoky Mouse habitat in the ACT include to:

- protect habitat (particularly unburnt areas) and improve understanding of the species ecology, including threats
- develop and implement long-term strategies to reduce impacts of exotic predators
- undertake predator control following burns where required
- undertake research to better understand optimal ecological burning regimes
- reduce the incidence and spread of Cinnamon Fungus infection
- periodically monitor for extant populations.

Captive Colony

An aim in the National Recovery Plan (Menkhorst and Broome 2008 and TSSC 2020) is to establish a captive breeding colony as an insurance population (TSSC 2020) as well as for nutritional studies and potential re-introduction (Menkhorst and Broome 2008). The captive colony established at the University of Canberra contributes to meeting this aim.

Reintroduction to the Wild

The Scientific Committee does not currently support releases of the Smoky Mouse to the wild in the ACT, until:

- (a) a better understanding of the relative importance of habitat suitability, fire history and predation in the contribution to the decline of the species is established
- (b) the status of other wild populations is established given the recent fire extent.

OTHER RELEVANT ADVICE, PLANS OR PRESCRIPTIONS

- [ACT Action Plan — Smoky Mouse](#) (ACT Government 2013)
- [Commonwealth Conservation Advice — Smoky Mouse](#) (TSSC 2020)
- [National Recovery Plan – Smoky Mouse](#) (Menkhorst and Broome 2008)
- [Management Interventions for 119 Priority Animal Species](#) (DAWE 2020)
- The Action Plan for Australian Mammals (Woinarski et al. 2014)

LISTING BACKGROUND

The Smoky Mouse was listed in the ACT as an Endangered species on 12 January 1998 in accordance with section 21 of the *Nature Conservation Act 1980*. At that time, the Flora and Fauna Committee (now the Scientific Committee) concluded that the assessment satisfied the following criteria:

- 1.2 Species is observed, estimated, inferred or suspected to be at risk of premature extinction in the ACT region in the near future, as demonstrated by:
- 1.2.6 Extremely small population.

The Smoky Mouse is eligible for listing as Endangered under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) as, prior to the commencement of the EPBC Act, it was listed as Endangered under the *Endangered Species Protection Act 1992* (Cwlth). The outcome of a reassessment under the EPBC Act in 2019, to take account of new information, confirmed it is still eligible to be listed in the Endangered category.

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FURTHER INFORMATION

Further information on this species or other threatened species and ecological communities can be obtained from Environment, Planning and Sustainable Development Directorate (EPSDD).
Phone: (02) 132281, EPSDD Website: <http://www.environment.act.gov.au/cpr>