

NOT JUST A MOUSE – THE NEW HOLLAND MOUSE

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The New Holland mouse, *Pseudomys novaehollandiae*, is an endangered native rodent known for its historical and ecological significance. It was first described by renowned naturalist George Robert Waterhouse, a close collaborator of Charles Darwin, in 1843, before being 'lost' from records and then rediscovered in New South Wales, more than a century later.



New Holland Mouse bred in captivity at Deakin University (Mandy Lock)

The New Holland mouse looks very similar to the common house mouse, but the native species can be differentiated by its slightly larger ears and eyes, and also lacks a distinctive mousy odour. It lives in coastal heathy woodland and sand dunes. Populations have been recorded in Tasmania, Victoria, New South Wales and Queensland.

The ecology and reproduction of the species across Victoria has been investigated by researchers at Deakin University since 1981. A total of eight populations were studied in the Anglesea Heath, up until 2003. While most populations were small and localised, some high density populations were recorded after high rainfall, but then declined severely following decreased rainfall. Over the past six years (2013 to 2018) the Deakin researchers, supported by Parks Victoria, have monitored 42 sites across the eastern Otways. Trapping and camera trapping resulted in the

recording of a number of native mammal species: however, they failed to record any New Holland mice.

In Victoria many populations of New Holland mouse have become extinct over the last 30 years with remnants remaining at Wilsons Promontory, Dutson Downs and Providence Ponds. Further, the species has not been recorded in Tasmania since 2006. These declines mean it is likely that the species will now be reclassified under federal legislation from Threatened to Endangered, requiring a national recovery plan. Threats to the New Holland mouse in addition to rainfall decline, include historic clearing of land and habitat fragmentation, inappropriate fire regimes, introduced predators and human impacts (e.g. off-leash dogs).

It is critical the New Holland mouse is recovered and protected due to its significant biodiversity and ecosystem function values. Of Australia's 49 conilurine rodent species—the group to which the New Holland mouse belongs—eight are extinct and 35 are in decline. The species is a burrower and its diet comprises invertebrates, plants, seeds and fungi. Such attributes contribute to ecosystem processes such as soil turnover, water infiltration, seed and fungi dispersal and consequently vegetation health.

It appears unlikely that the New Holland mouse is still present in the eastern Otways. Even if it is located, to re-establish the species across the eastern Otway landscape there will be a need to focus on captive breeding and reintroductions. Fortunately, we have previously successfully bred the species in captivity and trialled reintroductions, thus is provided a solid foundation upon which to base such a program. Restoring the New Holland mouse to the new expanded Great Otway National Park, where it belongs, would be a great achievement.

Reference

Barbara A. Wilson, Mandy Lock and Mark J. Garkaklis (2018). Long-term fluctuations in distribution and populations of a threatened rodent (*Pseudomys novaehollandiae*) in coastal woodlands of the Otway Ranges, Victoria: a regional decline or extinction? *Australian Mammalogy*, 40, 281–293 <https://doi.org/10.1071/AM17036>



New Holland Mouse habitat, eastern Otways (Barbara Wilson)

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