

Action statement

Flora & Fauna Guarantee Act 1988

Broad-toothed Rat (*Mastacomys fuscus mordicus*)

Taxon ID: 11438

Action statements are developed under the *Flora and Fauna Guarantee Act 1988* (FFG Act). Their preparation and implementation complement the FFG Act strategy *Protecting Victoria's Environment – Biodiversity 2037* and its vision that “Victoria’s biodiversity is healthy, valued and actively cared for”.

Species and Distribution



Broad-toothed Rat. Image by D. Gilmore.



This habitat distribution model displays the indicative range of the Broad-toothed Rat based on occurrence records and likely habitat. See [NatureKit](#) for an interactive map. The Broad-toothed Rat also occurs outside of Victoria.

Conservation Status

Vulnerable

Listing criteria: 5.1.1; 5.1.2(a), (b)(i,ii,iii,iv,v) of the Flora and Fauna Guarantee Regulations 2020.

This means that:

- the Broad-toothed Rat has undergone, is suspected to have undergone, or is likely to undergo in the immediate future, a substantial reduction in population size.
- Its geographic distribution is restricted; and
- the distribution of the population or habitat of the taxon is severely fragmented; and
- there is a continuing decline or reduction in:
 - its extent of occurrence; and
 - its area of occupancy; and
 - the area, extent or quality of habitat; and
 - the number of locations or subpopulations; and
 - the number of mature individuals.

Corresponding International Union for the Conservation of Nature (IUCN) criteria: A2bce+3bce+4bce; B2(a),(b)(i,ii,iii,iv,v).

More information on IUCN listing criteria can be found here: [IUCN Red List criteria](#).

Species Information

Species information such as its description, distribution, ecology and references are provided in the [Broad-toothed Rat Conservation Advice](#).

Threats

Threats listed below have been identified through expert consultation, published literature and spatial analysis.

Threat	Description
Fire	
Altered fire regimes	<ul style="list-style-type: none"> Frequent or intense fire can result in habitat degradation, mortality, reduce availability of habitat features and food sources and increase predation risks. A hotter, drier climate may increase the likelihood, intensity, or frequency of fire impacting habitat, with the potential to reduce habitat extent and/or condition.
Fire management activities	<ul style="list-style-type: none"> Fire management operations such as creation of fuel breaks (soil disturbance, slashing) may remove habitat, cause mortality of individuals, and reduce regeneration.
Climate change	
Altered rainfall and temperature regimes	<ul style="list-style-type: none"> Climate change, particularly increasing temperature and altered rainfall patterns, is likely to magnify existing threats and may reduce the stability, extent and condition of habitat and lead to local extinctions.
Extreme weather events	<ul style="list-style-type: none"> Climate change may increase the frequency and intensity of storms and flooding, increasing erosion and impacting habitat condition, and potentially causing mortality events.
Introduced species	
Introduced herbivores	<ul style="list-style-type: none"> Introduced herbivores degrade habitat through herbivory, trampling, pugging of wet soils, increasing nutrient loads, erosion of waterway edges, and increasing the accessibility of habitat to introduced predators and introduced plants. Introduced herbivores of particular concern in the Broad-toothed Rat's habitat are feral horses (<i>Equus caballus</i>), feral Pigs (<i>Sus scrofa</i>) and deer species including Sambar Deer (<i>Cervus unicolor</i>).
Introduced plants	<ul style="list-style-type: none"> Introduced plants change the structure and composition of native habitats, resulting in changes to habitat extent and/or condition. Blackberry (<i>Rubus fruticosus</i> spp. agg) may overshadow habitat and outcompete native grasses and sedges that are food plants of Broad-toothed Rat.
Introduced predators	<ul style="list-style-type: none"> Predation by foxes (<i>Vulpes vulpes</i>) and feral cats (<i>Felis catus</i>) contributes to mortality of the Broad-toothed Rat.

Threat	Description
Introduced rodents	<ul style="list-style-type: none"> Introduced rodent species including Black rats (<i>Rattus rattus</i>) and house mice (<i>Mus musculus</i>) can cause direct mortality through predation and disease transmission.
Habitat loss, degradation or modification	
Forestry operations	<ul style="list-style-type: none"> Forestry operations have the potential to remove or degrade habitat, compact soils, contribute to erosion and sedimentation, exacerbate the spread of introduced species, pathogens and parasites, and cause mortality of individuals.
Land use change	<ul style="list-style-type: none"> Land use change alters vegetation extent and condition, and may impact water regimes, contributing to habitat loss, degradation and fragmentation.
Human disturbance	
Road and track construction or maintenance	<ul style="list-style-type: none"> Roadside populations are vulnerable to loss or damage to individuals and habitat, as a result of direct impacts of road construction and maintenance works (e.g., grading/mowing/slashing/lopping) and indirect impacts from associated run-off, soil erosion, and potential weed and pathogen introduction.
Population dynamics	
Loss of genetic diversity	<ul style="list-style-type: none"> Small, greatly reduced, and/or isolated populations are at increased risk of loss of genetic diversity, which leads to a heightened risk of reduced health, recruitment and/or increased mortality rates.
Pathogens and disease	
<i>Phytophthora cinnamomi</i>	<ul style="list-style-type: none"> Infection by <i>Phytophthora cinnamomi</i> leads to plant mortality, reduced fitness, reduced recruitment/reproduction, and local population declines of many plant species, and can cause dieback of heath and other vegetation that provides important Broad-toothed Rat habitat. Construction and maintenance of roads is a risk for spreading <i>P. cinnamomi</i>.
Native species	
Over-abundant native mammals	<ul style="list-style-type: none"> Grazing by overabundant native mammals, including Common Wombats (<i>Vombatus ursinus</i>) and macropods, can lead to loss of or damage to habitat and may impact Broad-toothed Rat recruitment and/or mortality. This threat may be exacerbated by the additional impacts of non-native herbivores.
Problematic native plants	<ul style="list-style-type: none"> Native species such as Common Reed (<i>Phragmites australis</i>) can encroach on and reduce the extent of suitable habitat for Broad-toothed Rat.

Conservation Objectives

Conservation objectives are informed by the conservation status and criteria under which the species was listed under the FFG Act. This provides a framework to understand how we can work towards recovery and improve the species' conservation status over time as per the objectives of the FFG Act.

The key objectives of this action statement are:

- Mitigate threats to populations and habitat to increase resilience, improve genetic fitness and minimise future population decline.

- Increase the Broad-toothed Rat range and/or extent, by providing opportunities for natural movement.
- Increase knowledge of biology, ecology, distribution, demography, current and emerging threats, and conservation requirements.
- Support community participation and improve awareness of the Broad-toothed Rat and conservation of its habitat.

Conservation Actions

The actions below have been identified through expert consultation, published literature and spatial analysis. Actions are listed in alphabetical order to allow all interested parties to prioritise based on their context, capacity and capability. Landscape scale actions may mitigate threats for other species. For more information on where to undertake actions that benefit multiple species and identify the most beneficial locations to undertake actions for this species, please refer to [NatureKit](#).

Action	Description
Avoid and/or mitigate impacts associated with fire management	<ul style="list-style-type: none"> • Ensure that species distribution data and ecological information is available and considered in fire management activities. • Undertake biodiversity values check prior to fuel management in areas of the species habitat, to confirm treatment suitability and timing.
Community engagement and awareness	<ul style="list-style-type: none"> • Continue to identify, promote and support opportunities for community involvement in Broad-toothed Rat conservation efforts.
Control introduced herbivores *	<ul style="list-style-type: none"> • Implement and maintain effective control of introduced herbivores in priority areas.
Control introduced plants*	<ul style="list-style-type: none"> • Implement and maintain effective control of introduced plants in priority areas and undertake revegetation with appropriate native species.
Control introduced predators *	<ul style="list-style-type: none"> • Implement and maintain effective control of feral cats and foxes in priority areas.
Control introduced rodents	<ul style="list-style-type: none"> • Implement and maintain effective control of introduced rodents in priority areas.
Develop, update and apply forestry protections	<ul style="list-style-type: none"> • Where relevant, incorporate species-specific protection measures into plans and permits relating to timber harvesting operations in native forest on private land.
Establish and maintain fencing	<ul style="list-style-type: none"> • Consider the feasibility of establishing and maintaining fencing to exclude introduced herbivores or predators in areas of key habitat (e.g., bushfire refuges).
Genetic rescue	<ul style="list-style-type: none"> • Investigate the need and options for improving resilience through enhancing genetic exchange, via physically linking populations with enhanced habitat, translocation, or genetic management in an ex-situ setting.
Identify and protect refuges	<ul style="list-style-type: none"> • Identify and protect habitat areas that provide important refugia from disturbance events (e.g., fire, flood) or significant weather events (e.g., drought).
Improve habitat connectivity	<ul style="list-style-type: none"> • Restore habitat and/or provide appropriate engineering solutions to improve connectivity between habitat patches.
Manage impacts from natural disaster events	<ul style="list-style-type: none"> • Following significant drought and bushfire events, manage the impact of increased predation pressure on the Broad-toothed Rat until vegetation cover regenerates and habitat becomes less fragmented.

Action	Description
	<ul style="list-style-type: none"> Identify and implement recovery actions for vulnerable Broad-toothed Rat populations impacted by natural disaster events (e.g., significant bushfire or flood events). If research deems that wildlife detection dogs prove to be a useful survey method, consider their use following natural disaster events if rescue capture is required.
Manage over-abundant native species	<ul style="list-style-type: none"> Develop and apply management techniques to maintain appropriate abundance and diversity of native species where required.
Minimise the spread of <i>Phytophthora cinnamomi</i>	<ul style="list-style-type: none"> Implement vehicle, tool, and footwear hygiene to minimise risk of <i>Phytophthora cinnamomi</i> introduction or spread.
Protect key habitat	<ul style="list-style-type: none"> Identify opportunities to manage threats of land use change and development, including programs to encourage protection and management of remaining habitat areas.
Research	<ul style="list-style-type: none"> Improve understanding of population dynamics (e.g., sex ratios, recruitment, causes of mortality) to inform management priorities. Increase understanding of genetic risks and management options. Investigate and determine a suitable fire regime that meets the Broad-toothed Rat's ecological requirements and promotes its recovery. Investigate the impacts of known threats and potential management actions. Investigate diet, nutrition and potential ex-situ requirements for Broad-toothed Rat. Continue to investigate the use of wildlife detection dogs to find Broad-toothed Rats and determine their movements across the landscape.
Restoration and/or revegetation *	<ul style="list-style-type: none"> Undertake restoration and/or revegetation to increase habitat suitability and/or create new habitat areas.
Survey and monitoring	<ul style="list-style-type: none"> Monitor Broad-toothed Rat populations at known sites and other suitable locations to assess distribution, population trends and habitat condition. This includes collaboration and adaptive management across jurisdictions.

*Indicates landscape-scale actions that may deliver benefits to multiple species

Past Actions

The key conservation management actions listed below have been delivered in the past 10 years.

Past action	Description
Community engagement and awareness	<ul style="list-style-type: none"> Awareness raising and community conservation for the Broad-toothed Rat is underway by Zoos Victoria. Discussion with land managers regarding flood threats and roadside remnant habitat protection has occurred.
Control introduced herbivores	<ul style="list-style-type: none"> Feral Horse Management undertaken as part of the Bushfire Biodiversity Response and Recovery Program.

Past action	Description
	<ul style="list-style-type: none"> Large herbivore control undertaken in Eastern Alps as part of the Bushfire Biodiversity Response and Recovery Program.
Control introduced predators	<ul style="list-style-type: none"> Cat trapping undertaken at Mt Buller Alpine Resort annually. Implemented and maintained control of foxes within the Yarra Ranges National Park from 2013 to 2016. Predator monitoring and control program in operation at Mount Hotham Alpine Resort to reduce the threat of predation by cats and foxes. Predator control undertaken in Eastern Alps as part of Bushfire Recovery Program.
Develop, update and apply forestry protections	<ul style="list-style-type: none"> The risk of forestry operations was assessed for this species in 2020 under the Victorian Government Threatened Species and Communities Risk Assessment. Additional permanent protections were not found to be required.
Research	<ul style="list-style-type: none"> Camera analysis of Broad-toothed Rat habitat flooding was undertaken in the Yarra Ranges in 2021-23. Investigated the impacts of known threats and potential management actions annually, including the impacts of introduced predators such as foxes and cats from 2012 to 2016 and in 2021 at Mount Buller Alpine Resort. Investigations have been undertaken into supplementary food for Broad-toothed Rats, along with preparation of ex-situ facilities in case rescue capture and ex-situ management is required after natural disaster events (e.g., fire/floods). Investigations of the use of wildlife detection dogs to assist in finding the species and its habitat are underway. Taxonomy and genetic analysis of the species is underway.
Survey and monitoring	<ul style="list-style-type: none"> An analysis of previous known Victorian populations was published in 2020 which found a >50% decline in populations. Conducted trapping to determine the presence/absence of Broad-toothed Rat within the Yarra Ranges National Park in 2014/2015 and 2021/2023. Post-fire surveys and habitat assessments undertaken in 2021 in the Mount Hotham area and Eastern Alps areas. Scat, camera and habitat surveys have been conducted at locations including the Victorian Alps, Yarra Ranges, Central Highlands, Otway Ranges, Wilsons Promontory and other locations from 2018-present. Species is included under the Victorian Government's Forest Protection Survey Program with specific survey methods for Broad-toothed Rat.

Decision Support Tools

Decision making for conservation actions is supported through the following Victorian Government tools which may be of assistance in choosing the most appropriate or beneficial actions for biodiversity:

- [Choosing actions for nature: NatureKit](#)
- [Biodiversity Knowledge Framework](#)

Further Information

- [Broad-toothed Rat Species Forecast Report](#)
- [Conservation Advice – Broad-toothed Rat \(*Mastacomys fuscus mordicus*\)](#)
- [Threatened Species and Communities Risk Assessment](#)
- [Commonwealth Species Profile and Threats database](#)
- [Victoria's changing climate – understanding the impacts of climate change in Victoria](#)
- [Commonwealth Threat Abatement Plans](#)
- [Genetic Risk Index](#)
- [Flora and Fauna Guarantee Regulations 2020](#)
- [IUCN Red List criteria descriptions](#)

Get Involved and Take Action

If you are interested in supporting this species' recovery, there are some important things you need to consider.

The Department of Energy, Environment and Climate Action (DEECA) is committed to engaging and partnering with Traditional Owners on how they wish to be involved in the planning and implementation of actions for this species. Steps must be taken to avoid harm and where appropriate ensure actions can deliver cultural benefits.

You can find advice about required approvals, land manager and/or owner permissions, options and incentives for private land conservation, and engagement with Traditional Owners and public land managers here: [Action statements \(environment.vic.gov.au\)](#)

To identify the relevant Traditional Owners, use the [Aboriginal Cultural Heritage Register and Information System \(ACHRIS\) Welcome to Country and Acknowledgements Map](#).

You can also register your interest in taking action so we can connect you to other people or organisations working to help us secure the future for this species at threatened.species@deeca.vic.gov.au

Reporting Actions

Activity data is critical to monitoring the implementation and progress of actions and evaluating action statements. These data are also used to:

- Determine progress towards achieving the contributing targets for [Protecting Victoria's Environment – Biodiversity 2037](#).
- Inform the five-yearly State of the Environment Report.

For guidance on reporting actions undertaken on this species, refer to [Activity Data](#).

Submitting Monitoring Data

The Victorian Biodiversity Atlas (VBA) provides a foundational dataset showing where biodiversity occurs across the Victorian landscape and how it may have changed over time. As a core input for decision support tools that inform conservation action, public land management, research activities and reporting, we encourage all participants in the delivery of on-ground actions to submit species records and observations, including for introduced plants and animals, as they carry out their projects.

For further information see: [Victorian Biodiversity Atlas \(environment.vic.gov.au\)](#)

Sign up and begin submitting your data today at: <https://vba.biodiversity.vic.gov.au/>

Acknowledgment

We acknowledge and respect Victorian Traditional Owners as the original custodians of Victoria's land and waters, their unique ability to care for Country and deep spiritual connection to it. We honour Elders past and present whose knowledge and wisdom has ensured the continuation of culture and traditional practices.

We are committed to genuinely partner, and meaningfully engage, with Victoria's Traditional Owners and Aboriginal communities to support the protection of Country, the maintenance of spiritual and cultural practices and their broader aspirations in the 21st century and beyond.



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