

# Action statement

*Flora & Fauna Guarantee Act 1988*

## Malleefowl (*Leipoa ocellata*)

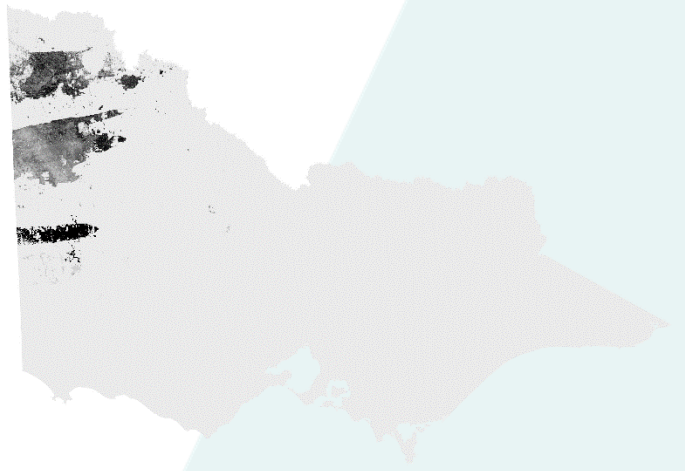
Taxon ID: 10007

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



Malleefowl. Image by Marcia Riederer.



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

### Conservation Status

#### Vulnerable

**Listing criteria:** 5.1.2(a),(b)(ii,iii,iv,v); 5.1.3(b)(i) of the Flora and Fauna Guarantee Regulations 2020.

This means that:

- The Malleefowl’s 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 area of occupancy; and
  - the area, extent or quality of habitat; and
  - the number of locations or subpopulations; and
  - the number of mature individuals; and
- The total number of mature individuals is moderately low, the number is likely to continue to decline and each subpopulation is small.

**Corresponding International Union for the Conservation of Nature (IUCN) criteria:** B2ab(ii,iii,iv,v); C2a(i).

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 [Malleefowl Species Forecast Report](#).

## Threats

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

Threat	Description
<b>Fire</b>	
Altered fire regimes	<ul style="list-style-type: none"> <li>A hotter, drier climate may increase the likelihood or frequency of fire impacting habitat, with the potential to reduce habitat extent and/or condition.</li> <li>Malleefowl prefer old growth (i.e., long unburnt) mallee habitat with availability of leaf litter and debris, which the birds use as composting material in their mounds. This specific habitat requirement makes the species particularly vulnerable to the predicted change in fire regime.</li> </ul>
Bushfire	<ul style="list-style-type: none"> <li>Bushfires can result in habitat degradation, mortality and reduce availability of food sources and nesting materials for extended periods of time.</li> <li>Large scale fires are the most serious threat to the Malleefowl and its habitat.</li> </ul>
Fire management activities	<ul style="list-style-type: none"> <li>Fire management operations such as creation of fuel breaks (soil disturbance, slashing) may remove habitat, cause mortality of individuals, and reduce regeneration.</li> </ul>
<b>Introduced Species</b>	
Introduced herbivores	<ul style="list-style-type: none"> <li>In Malleefowl habitat, introduced herbivores of concern include feral goats (<i>Capra hircus</i>), Fallow Deer (<i>Dama dama</i>) and European Hare (<i>Lepus europaeus</i>).</li> <li>Introduced herbivores degrade habitat and reduce food availability through herbivory, trampling, increasing nutrient loads and increasing the accessibility of habitat to introduced predators and introduced plants.</li> <li>The degree to which deer threaten Malleefowl is unclear but as selective feeders, deer can modify the composition and dynamics of plant communities, and trample Malleefowl nesting mounds, even at low levels of abundance.</li> </ul>
Introduced plants	<ul style="list-style-type: none"> <li>Introduced plants change the structure and composition of native habitats, resulting in changes to habitat extent and/or condition.</li> <li>Introduced plants, such as Buffel Grass (<i>Cenchrus ciliaris</i>) can alter vegetation structure, increase fire risk and decreases food availability in Malleefowl habitat. Isolated Buffel Grass infestations have been detected on some roadsides in Victoria.</li> </ul>
Introduced predators	<ul style="list-style-type: none"> <li>Predation by foxes (<i>Vulpes vulpes</i>) and feral cats (<i>Felis catus</i>) contributes to mortality of native species, and may contribute to mortality of Malleefowl, with eggs and young birds likely to be the most susceptible age class.</li> </ul>

Threat	Description
<b>Climate change</b>	
Altered rainfall and temperature regimes	<ul style="list-style-type: none"> <li>Climate change, increasing temperature and altered rainfall are likely to magnify existing threats and may reduce the stability, extent, and condition of habitat.</li> <li>Winter rainfalls are positively associated with Malleefowl breeding, so the predicted decline in winter rainfall is likely to impact on breeding success of Malleefowl.</li> </ul>
Increased frequency and/or length of droughts	<ul style="list-style-type: none"> <li>Drying and warming of the environment, including droughts, may lead to habitat changes, affecting recruitment and mortality rates.</li> <li>Malleefowl breed annually but depend on winter rainfall for breeding. Without winter rains and during periods of drought, breeding attempts and success are diminished. Mortality of adults may also increase during severe droughts.</li> </ul>
<b>Habitat loss, degradation or modification</b>	
Land use change	<ul style="list-style-type: none"> <li>Land use change alters vegetation extent and condition, and may impact water regimes, contributing to habitat loss and degradation.</li> </ul>
Livestock	<ul style="list-style-type: none"> <li>Livestock can cause habitat degradation through the combined effects of herbivory, trampling, soil compaction, and excess nutrient loads.</li> </ul>
Loss of key habitat features	<ul style="list-style-type: none"> <li>Loss of ecologically important habitat features results in reduced habitat condition and/or extent, potentially impacting persistence.</li> <li>Malleefowl require sufficient cover of Mallee canopy species, and understory shrubs, along with sandy substrate and leaf litter for successful breeding. Changes in these habitat attributes may render potential habitat areas less suitable for Malleefowl.</li> </ul>
Reduced habitat connectivity	<ul style="list-style-type: none"> <li>Loss of habitat connectivity reduces access to habitat and opportunity for genetic exchange between populations. This is a particular threat for the populations occupying isolated remnant habitat at Wychitella Nature Conservation Reserve and in the Wimmera region.</li> </ul>
Vegetation clearing or damage	<ul style="list-style-type: none"> <li>Removal or damage to vegetation contributes to habitat loss.</li> <li>Harvesting of Mallee eucalypts for charcoal or oil, and the harvesting of broombush for fencing materials, can contribute to habitat loss.</li> </ul>
<b>Population dynamics</b>	
Loss of genetic diversity	<ul style="list-style-type: none"> <li>Small, greatly reduced, and/or isolated populations are at increased risk of loss of genetic diversity, which leads to a heightened risk of reduced recruitment and/or increased mortality rates.</li> </ul>
Population fragmentation	<ul style="list-style-type: none"> <li>Fragmentation of once connected populations into smaller, isolated populations increases the risk of genetic decline and associated changes to recruitment and/or mortality rates.</li> </ul>
<b>Native species</b>	
Over-abundant native invertebrates	<ul style="list-style-type: none"> <li>Over-abundance of defoliating invertebrates at a large spatial scale can result in canopy loss, death of trees and/or shrubs, and habitat degradation.</li> </ul>

Threat	Description
	<ul style="list-style-type: none"> <li>Infestation of Looper caterpillars (<i>Arhodia</i> sp.) is an emerging risk to Malleefowl. The impact is poorly understood but potentially severe as infestations can result in decreased amounts of leaf litter. Malleefowl rely on decomposing leaf litter to regulate the temperature of their nests.</li> </ul>
Over-abundant native mammals	<ul style="list-style-type: none"> <li>Herbivory by over-abundant native herbivores (e.g., Western Grey Kangaroos (<i>Macropus fuliginosus</i>)) can damage native habitats, change floristic composition, and may compete for food sources including seeds, flowers and fruits of shrubs with Malleefowl via grazing pressure.</li> </ul>
<b>Human disturbance</b>	
Road traffic	<ul style="list-style-type: none"> <li>Individuals may suffer injury or direct mortality through collisions with road traffic. The risk is heightened when spilt grain from harvesting activities attracts Malleefowl to feed on roadsides.</li> </ul>

## 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 Malleefowl range and/or extent, by providing opportunities for natural movement.
- Increase knowledge of biology, ecology, distribution, demography, emerging threats, and conservation requirements.
- Support community participation and improve awareness of the Malleefowl 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"> <li>Ensure that species distribution data and ecological information is available and considered in fire management activities.</li> <li>Undertake biodiversity values check prior to fuel management in areas of the species habitat, to confirm treatment suitability and timing.</li> </ul>
Community engagement and awareness	<ul style="list-style-type: none"> <li>Continue to identify, promote and support opportunities for community involvement in conservation efforts.</li> <li>Continue to raise landholder and broader community awareness of the importance of protecting habitat and managing threats.</li> <li>Increase landholder awareness of the species presence and ecological needs, and the impacts of livestock grazing to the Malleefowl and its habitat. Provide</li> </ul>

Action	Description
	<p>guidance on the changes to grazing that may be required, such as exclusion, to support the recovery of the species.</p> <ul style="list-style-type: none"> <li>Investigate options to reduce grain spillage and implement effective options to reduce spillage on roadsides in the Malleefowl range, when identified.</li> <li>Work with key stakeholders to reduce threats and encourage adherence to behaviours that support a healthy environment.</li> </ul>
Control introduced herbivores *	<ul style="list-style-type: none"> <li>Implement and maintain effective control of introduced herbivores in priority areas.</li> <li>Priority species for control are feral goats, fallow deer and rabbits.</li> </ul>
Control introduced plants *	<ul style="list-style-type: none"> <li>Implement and maintain effective control of introduced plants in priority areas and undertake revegetation with appropriate native species.</li> <li>Implement measures to identify and control infestations of Buffel Grass and prevent it from establishing within conservation reserves.</li> </ul>
Control introduced predators *	<ul style="list-style-type: none"> <li>Implement and maintain effective control of foxes and feral cats.</li> </ul>
Ecological fire regime *	<ul style="list-style-type: none"> <li>Implement fire management actions that promote an appropriate fire regime for the species.</li> </ul>
Improve habitat connectivity	<ul style="list-style-type: none"> <li>Restore habitat to improve connectivity between habitat patches.</li> </ul>
Manage over-abundant native species	<ul style="list-style-type: none"> <li>Develop and apply management techniques to maintain appropriate abundance and diversity of native species where required.</li> </ul>
Permanent protection	<ul style="list-style-type: none"> <li>Investigate incentives, voluntary agreements, covenants and other permanent protection measures to protect and restore habitat.</li> </ul>
Prevent road mortality	<ul style="list-style-type: none"> <li>Investigate options to reduce grain spillage on roadsides. When effective management options are identified, implement these in the Malleefowl's range to reduce the risk of mortality.</li> </ul>
Protect key habitat	<ul style="list-style-type: none"> <li>Identify opportunities to manage threats of land use change and development, including programs to encourage protection and management of remaining habitat areas.</li> </ul>
Research	<ul style="list-style-type: none"> <li>Improve understanding of the Malleefowl's movements and/or dispersal and habitat requirements.</li> <li>Improve understanding of population dynamics (e.g., sex ratios, recruitment, causes of mortality) to inform management priorities.</li> <li>Increase understanding of the potential impact of Looper caterpillar infestation in Mallee habitat of the Malleefowl. Also identify the causes and possible control measures for the infestation.</li> <li>Investigate and determine a suitable fire regime that meets the species' ecological requirements and promotes its recovery.</li> <li>Investigate the causes of infertility and low mound productivity in isolated reserves to inform decisions as to whether translocation is required.</li> </ul>

Action	Description
	<ul style="list-style-type: none"> <li>Investigate options to increase gene flow into isolated reserves where required under the genetic management plan.</li> <li>Investigate the impacts of known threats and potential management actions.</li> </ul>
Restoration and/or revegetation *	<ul style="list-style-type: none"> <li>Undertake restoration and/or revegetation to increase habitat suitability, create new habitat areas and connect fragmented habitats.</li> </ul>
Survey and monitoring	<ul style="list-style-type: none"> <li>Monitor populations at known sites and other suitable locations to assess distribution, population trends and habitat condition.</li> <li>Monitor the impact of threats to inform management interventions.</li> </ul>
Translocation	<ul style="list-style-type: none"> <li>Design and implement a translocation program to meet the objectives of the action statement and genetic management requirements.</li> </ul>

\*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
Apply decision support tools for population management	<ul style="list-style-type: none"> <li>Malleefowl monitoring paired with targeted predator control was applied across 40 sites to understand the effect of introduced predator management on the species. This project now informs adaptive predator management programs.</li> </ul>
Community engagement and awareness	<ul style="list-style-type: none"> <li>Malleefowl information boards installed in national parks and rural communities across Victoria.</li> <li>The National Malleefowl Forum is held every two to four years. The event is designed to provide opportunity for community groups, conservation agencies, research institutions, industry and interested individuals to share the latest updates on research, technologies and conservation activities, as well as discuss strategies and actions to further progress conservation.</li> <li>The Victorian Malleefowl Recovery Group (VMRG) has been coordinating annual community events and volunteer training, habitat and mound monitoring, and producing reports on Malleefowl populations to inform the species and its habitat management. The group also established and maintains the National Malleefowl Monitoring Database.</li> </ul>
Control introduced herbivores	<ul style="list-style-type: none"> <li>A regular feral goat control program has been in place within the Mallee Parks. In recent years the program included aerial shooting to reduce numbers further and improve control in remote areas.</li> </ul>
Control introduced predators	<ul style="list-style-type: none"> <li>Fox baiting programs have been implemented across the Malleefowl habitat at varying levels of intensity and locations.</li> </ul>
Develop, update and apply forestry protections	<ul style="list-style-type: none"> <li>The species has a current species-specific prescription in the <i>Code of Practice for Timber Production 2014 (as amended in 2022)</i> (the Code): <ul style="list-style-type: none"> <li>In the Portland-Horsham Forest Management Area: Apply a protection area of 3 ha and a management area of 250-300 m radius over each active nesting mound.</li> </ul> </li> </ul>

Past action	Description
	<ul style="list-style-type: none"> <li>The risk of forestry operations was considered for this species in 2020 under the Victorian Government Threatened Species and Communities Risk Assessment. Additional permanent protections were not found to be required.</li> </ul>
Ecological fire regime	<ul style="list-style-type: none"> <li>Annual strategic planned burning to mitigate the risk of landscape scale bushfires and support some continuous supply of middle-aged vegetation (i.e., <i>Triodia</i>).</li> <li>Long term monitoring grids/sites are protected from mechanical disturbance during fire management programs for preparedness and suppression.</li> <li>Two Strategic Bushfire Management Plans have been completed for Victoria's mallee in 2015 and 2020.</li> </ul>
Establish/maintain recovery team	<ul style="list-style-type: none"> <li>The National Malleefowl Recovery Team has been operating since 1989 and has representatives from Australian Capital Territory, New South Wales, South Australia, Victoria and Western Australia.</li> </ul>
Research	<ul style="list-style-type: none"> <li>Research programs have improved knowledge and management options, and include investigating landscape linkages, population and threat monitoring with camera trapping, investigating population genetics, analysis of Malleefowl monitoring data, assessing predation through fox scat analysis.</li> </ul>
Restoration and/or revegetation	<ul style="list-style-type: none"> <li>Malleefowl habitat linkage projects have created corridors across previously grazed and cleared cropping public and private land. Key outcomes have been linking Murray Sunset National Park to Berrook State Forest; and linking Wyperfeld National Park with the Baring/Bronzewing State Forest and Paradise Flora and Fauna Reserve.</li> </ul>
Surveys and monitoring	<ul style="list-style-type: none"> <li>Long term (since 1987) population and nest activity monitoring uses a nationally standardised method.</li> <li>Mound monitoring and mapping using LiDAR (Light Detection and Ranging) was used to identify and protect nesting mounds in public and private land adjacent. The project has assisted land managers to understand habitats inhabited by Malleefowl in this large landscape, and particularly the response of Malleefowl to different stages of vegetation succession after fire.</li> <li>Release of a revised edition of the National Malleefowl Monitoring Manual (2020), adapted from previous version to include changes in technology and the introduction and operation of the National Malleefowl Monitoring Database.</li> </ul>

## 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

- [Malleefowl Species Forecast Report](#)
- [Threatened Species Assessment report – Malleefowl \(\*Leipoa ocellata\*\)](#)
- [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](mailto: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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