

Action statement

Flora & Fauna Guarantee Act 1988

Growling Grass Frog (*Litoria raniformis*)

Taxon ID: 13207

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



Growling Grass Frog. Image by Jeremy Tscharke



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

Conservation Status

Vulnerable

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

This means that:

- the Growling Grass Frog’s geographic distribution is restricted; and
- the distribution of the population or habitat 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: B2ab(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 [Growling Grass Frog Species Forecast Report](#).

Threats

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

Threat	Description
Habitat loss, degradation or modification	
Barriers to movement	<ul style="list-style-type: none"> Structures such as fences, roads, crossings with standard box culverts and urbanised areas impede migration between populations, reducing breeding success and genetic diversity.
Development	<ul style="list-style-type: none"> Development leads to the destruction of Growling Grass Frog habitat, particularly breeding areas in off-stream natural wetlands, farm dams and quarry pits. Urbanisation greatly increases the volume and frequency of stormwater flows into creeks, and frequent flash floods scour out stream pools and the submergent/floating vegetation that the species need for breeding.
Groundwater extraction	<ul style="list-style-type: none"> Groundwater extraction (and resulting drawdown) causes loss and degradation of aquatic habitat and is likely to reduce the salinity of both instream and stream-side habitats, making these less viable as chytrid refugia (see below threat 'chytrid fungus').
Land use change	<ul style="list-style-type: none"> Agricultural land use change alters hydrology, degrades habitat, and fragments populations. For example, conversion from grazing to cropping can lead to impacts from fertilisers, rock removal, herbicides, waterway pollution, and draining of wetlands, causing degradation and loss of habitat.
Livestock	<ul style="list-style-type: none"> Livestock grazing can damage the edges of waterbodies used for breeding, reduce water quality, and remove or reduce vegetation. However, some grazing can be beneficial for controlling plant biomass.
Overshading	<ul style="list-style-type: none"> Overshadowing of creek and wetland margins by trees, shrubs and tall reeds and rushes (including native species) reduces basking opportunities and creates colder improved conditions for chytrid fungus to thrive.
Vegetation clearing or damage	<ul style="list-style-type: none"> Most of the species' historic range (aquatic and overwintering grassland habitat) has been cleared for agriculture, urban and industrial development leading to loss of habitat, and habitat fragmentation.
Altered hydrology	
Altered wetland water regime	<ul style="list-style-type: none"> Magnitude, frequency, and timing of inundation of wetlands, and changes in surface flow patterns, degrade important clusters of semi-permanent and permanent waterbodies. This reduces the amount of suitable habitat, particularly breeding habitat. Drainage, loss of water supply or other removal of small wetlands from the landscape impacts mobility by reducing connectivity.

Pathogens and disease

- Chytrid fungus
- Chytridiomycosis is an infectious disease caused by the introduced amphibian chytrid fungal pathogen *Batrachochytrium dendrobatidis* (*Bd*). The Growling Grass Frog is susceptible to Chytridiomycosis, with rapid population declines coinciding with the reported spread of *Bd*. Growling Grass Frog persistence is higher in parts of their geographic range with warmer climates and moderate salinity concentration, or where frogs have greater access to ultra-violet light, as these factors reduce the impacts of *Bd*.

Climate change

- Increased frequency and/or length of droughts
- Droughts degrade and reduce habitat, decrease water quality, impact availability of food resources and increase fragmentation of populations.
 - Reduced rainfall increased average temperatures, and more frequent droughts in the future, will likely contribute to the loss of previously permanent waterbodies or annually inundated areas. Decline in habitat condition or extent will result in decreased recruitment, reduced dispersal, and possible local extinctions.

Introduced species

- Introduced fish
- Several species of introduced fish, including European Carp (*Cyprinus carpio*), prey upon the eggs and tadpoles of the Growling Grass Frog and strip aquatic vegetation. Redfin Perch (*Perca fluviatilis*) invasion is associated with local extinction events around Melbourne. *Gambusia* sp. is known to impact populations around Melbourne, but it is less of a threat than carp or redfin.
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- Introduced predators
- Feral cats (*Felis catus*), domestic housecats, and foxes (*Vulpes vulpes*) are likely to prey on the Growling Grass Frog throughout its distribution.

Pollutants and toxicants

- Nutrient enrichment
- Runoff from agricultural and urban landscapes can cause nutrient enrichment leading to algal blooms and excessive plant growth that alters and degrades habitat.
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- Pesticides
- Various chemicals are also known or likely threats. It is suspected that herbicides used in agricultural and urban landscapes have contributed to declines in populations of Growling Grass Frog.
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- Toxicants
- Due to the proximity of urban stormwater flows to populations, there is a risk of runoff contaminated with hydrocarbons and heavy metals entering areas occupied by the species.
 - In urbanised landscapes, synthetic pyrethroids used during building construction to protect against termites may impact the species.
 - Pollution and sediment in runoff from agricultural activities, input of wastewater from firefighting operations into streams and wetlands and urban development reduces water quality and may negatively impact egg and tadpole development and increase mortality.

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, increase genetic fitness and minimise future population decline.
- Increase the Growling Grass Frog's range and/or extent by providing opportunities for natural movement where possible.
- Increase knowledge of biology, ecology, distribution, demography, emerging threats, and conservation requirements.
- Support community participation and improve awareness of the Growling Grass Frog 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
Biomass management	<ul style="list-style-type: none"> • Manage biomass as required using ecologically and culturally appropriate means.
Build resilience by translocation/ gene mixing	<ul style="list-style-type: none"> • Develop translocation (reintroduction) protocols for the species that can be implemented across the species historic range. Include genetic analyses to inform the approach to improve resilience.
Community engagement and awareness	<ul style="list-style-type: none"> • Increase landholder and land manager awareness of the Growling Grass Frog, threats to the species, and the importance of maintaining riparian and wetland habitat. Provide guidance on the changes to grazing that may be required, such as exclusion or grazing to control plant biomass, to support species recovery. • Engage with community groups to support survey, monitoring and restoration works, where appropriate.
Control introduced fish	<ul style="list-style-type: none"> • Implement and maintain effective control of introduced fish in Growling Grass Frog breeding sites.
Control introduced plants*	<ul style="list-style-type: none"> • Optimise habitat availability by substituting introduced plants with native submergent, floating and emergent vegetation in and around waterbodies where appropriate. Note that sudden vegetation changes may have a negative impact on Growling Grass Frog populations.
Control introduced predators*	<ul style="list-style-type: none"> • Implement and maintain effective control of feral cats and foxes.
Create and restore habitat	<ul style="list-style-type: none"> • Improve habitat availability and connectivity through targeted wetland cluster construction and restoration activities.
Establish wildlife corridors	<ul style="list-style-type: none"> • Maintain and/or create terrestrial habitat corridors between waterbodies, including native tussocks at appropriate distances to support species dispersal.

Action	Description
Manage environmental water	<ul style="list-style-type: none"> Manage appropriate flow regimes where possible to support breeding and refuge habitat where required.
Mitigate pathogens and disease risk	<ul style="list-style-type: none"> Minimise the impacts of chytrid fungus by maintaining, restoring or creating refugia at key sites. Chytrid fungus refugia have minimal shading vegetation, and appropriate water chemistry and basking habitat. This many include managing overgrowth of native aquatic vegetation. Continue to minimise the spread of chytrid by implementing suitable hygiene protocols to protect priority populations.
Modify the design of proposed infrastructure	<ul style="list-style-type: none"> Modify the design of proposed infrastructure such as creek crossings, that threatens key migration routes between populations.
Permanent protection	<ul style="list-style-type: none"> Investigate incentives, voluntary agreements, covenants and other permanent protection measures to protect and restore habitat.
Protect key habitat	<ul style="list-style-type: none"> Protect wetland habitat that supports metapopulations, particularly chytrid free refugia, from fragmentation or degradation. Include buffers around key waterbodies that allow for the creation of additional breeding habitat during flooding and provide sufficient area for foraging and dispersal between sites.
Protect water quality	<ul style="list-style-type: none"> Ensure water quality is protected through reducing stormwater inflows, agricultural run-off, and sedimentation in wetlands.
Research	<ul style="list-style-type: none"> Improve understanding of juvenile and adult dispersal, including comparisons of dispersal between populations. Investigate a standard approach to undertake habitat restoration and reintroduction at different scales, including factors influencing effectiveness. Investigate opportunities for in-situ site management to limit or eliminate chytrid by determining the best combination of favourable characteristics. Investigate mechanisms of frogs' resistance to chytridiomycosis, to support selective breeding disease-resistant individuals for reintroduction. Conduct a comparative genetic, life history and ecological study of the recently described subspecies across different bioregions. Investigate the influence of climate change on the long-term survival prospects of the Growling Grass Frog. Quantify the impact of exotic invasive fish and investigate means of mitigating these impacts. Investigate the potential impact of light pollution on the species.
Restoration and/or revegetation	<ul style="list-style-type: none"> Improve aquatic habitat quality through revegetation with appropriate native wetland plants. Improve terrestrial habitat quality through maintaining an open vegetation mosaic for terrestrial foraging, and, in suitable areas, ensure logs, rocks, and suitable riparian vegetation are plentiful to provide a diversity of overwintering habitat.
Survey and monitoring	<ul style="list-style-type: none"> Track management of populations (including habitat management and restoration activities, threat mitigation, and reintroductions) to assess effectiveness, adapt management actions where necessary, and inform future conservation planning activities.

Action	Description
	<ul style="list-style-type: none"> Monitor the number of extant populations and determine trends in a representative subset of populations. Develop and implement site-specific threat impact monitoring programs and use data to guide future conservation objectives and actions.

**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"> Citizen scientists have participated in survey and monitoring activities.
Construct purpose-built breeding wetlands	<ul style="list-style-type: none"> See the Growling Grass Frog Habitat Design Standards for Melbourne's Growth Corridors
Manage water regimes	<ul style="list-style-type: none"> Partnerships with Catchment Management Authorities, Nature Glenelg Trust and Murray Darling Wetlands Working Group to deliver environmental water or restore natural hydrological regimes to wetlands on Trust for Nature reserves or covenanted land.
Minimise barriers to migration	<ul style="list-style-type: none"> Modify the design of bridges and culverts that would create a barrier along key migration routes.
Monitor populations	<ul style="list-style-type: none"> Detailed monitoring of Growling Grass Frog populations at the Western Treatment Plant, Bendigo Sewage Treatment Plant, Melbourne Strategic Assessment (MSA) program areas, Darebin, Merri and Moonee Ponds Creek catchments, across northern Melbourne and across East Gippsland.
Permanent protection	<ul style="list-style-type: none"> Acquisition of 138 ha at Long Swamp west of Castlemaine and reinstatement of natural hydrological regimes. Permanent protection of wetlands across Victoria through conservation covenants on private land, including around Gippsland Lakes and Grampians. Protect habitat corridors from urban development in Melbourne's Growth Areas.
Research	<ul style="list-style-type: none"> PhD research on population genetics of the species around Melbourne. Trialling eDNA detection of frog species. Applied research to inform and support improved management of amphibian chytrid fungus. Research on Merri Creek metapopulations and their ecology, with a particular focus on threatening processes and mitigation. Two distinct subspecies have been described in a 2023 publication.
Restoration and/or revegetation	<ul style="list-style-type: none"> Habitat management, restoration and creation in the following areas/sites: <ul style="list-style-type: none"> Melbourne's urban growth areas Western Treatment Plant East Gippsland (in sympatry with the Green and Golden Bell Frog) Wirra Lo wetlands area of north-western Victoria

Past action	Description
	<ul style="list-style-type: none">– Farm dams in western and northern Victoria– Swamp habitat throughout south-western Victoria– Ned's Corner Station and adjacent Murray River floodplain.
Translocation	<ul style="list-style-type: none">• Re-introduction program for the species at Winton Wetlands.

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

- [Growling Grass Frog Species Forecast Report](#)
- [Threatened Species Assessment report – Growling Grass Frog \(*Litoria raniformis*\)](#)
- [Commonwealth Species Profile and Threats database](#)
- [Victoria's changing climate – understanding the impacts of climate change on Victoria](#)
- [Genetic Risk Index](#)
- [Commonwealth Threat Abatement Plans](#)
- [Flora and Fauna Guarantee Regulations 2020](#)
- [IUCN criteria summary](#)
- [Growling Grass Frog Masterplan for Melbourne's Growth Corridors](#)
- [Growling Grass Frog Crossing Design Standards](#)
- [Growling Grass Frog Habitat Design Standards for Melbourne's Growth Corridors](#)

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 \(environment.vic.gov.au\)](https://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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