

# Butler's Gartersnake

## Ontario Government Response Statement



Photo: Joe Crowley

### Protecting and Recovering Species at Risk in Ontario

Species at risk recovery is a key part of protecting Ontario's biodiversity. The *Endangered Species Act, 2007* (ESA) is the Government of Ontario's legislative commitment to protecting and recovering species at risk and their habitats.

Under the ESA, the Government of Ontario must ensure that a recovery strategy is prepared for each species that is listed as endangered or threatened. A recovery strategy provides science-based advice to government on what is required to achieve recovery of a species.

Generally, within nine months after a recovery strategy is prepared, the ESA requires the government to publish a statement summarizing the government's intended actions and priorities in response to the recovery strategy. The response statement is the government's policy response to the scientific advice provided in the recovery strategy. In addition to the strategy, the government response statement considered (where available) input from Indigenous communities and organizations, stakeholders, other jurisdictions, and members of the public. It reflects the best available local and scientific knowledge, including Traditional Ecological Knowledge where it has been shared by communities and Knowledge Holders, as appropriate and may be adapted if new information becomes available. In implementing the actions in the response statement, the ESA allows the government to determine what is feasible, taking into account social, cultural and economic factors.

The Recovery Strategy for the Butler's Gartersnake (*Thamnophis butleri*) in Ontario was completed on July 22, 2019.

Butler's Gartersnake is a small snake, with adults ranging from 38 to 51 cm in length. It is brown with a yellowish chin and belly, a yellow stripe running down the back and one down each side. The species is found in prairie habitats, fields, wetland edges and grassy areas in urban areas.

## Protecting and Recovering Butler's Gartersnake

Butler's Gartersnake is listed as an endangered species under the ESA, which protects both the animal and its habitat. The ESA prohibits harm or harassment of the species and damage or destruction of its habitat without authorization. Such authorization would require that conditions established by the Ontario government be met. In addition to protection under the ESA, Butler's Gartersnake is prescribed as a specially protected reptile under the *Fish and Wildlife Conservation Act, 1997* (FWCA).

The global distribution of Butler's Gartersnake is patchy and restricted to southwestern Ontario in Canada and parts of four U.S. states in the Great Lakes region (Wisconsin, Ohio, Indiana and Michigan).

In Canada, 48 sub-populations of Butler's Gartersnake have been documented in four geographically isolated regions in southwestern Ontario: Windsor-Sarnia (Essex, Chatham-Kent, and Lambton counties), Luther Marsh (Dufferin and Wellington counties), Skunk's Misery and Parkhill (Middlesex County). The Windsor-Sarnia region is thought to contain between 27 and 38 extant sub-populations; however, the species' presence at several of these sites has not been re-confirmed in the last 10 years. Recent targeted surveys in an area near the Ojibway Prairie location (Windsor) indicate the species may now be extirpated from this site. The last verified record in the Luther Marsh region was also in 2009. The status of Butler's Gartersnake in the remaining two regions (Skunk's Misery, Parkhill) is unknown, as the species has not been confirmed at these sites in over 20 years. The species is considered extirpated from a fifth region near Rondeau Provincial Park. Given the unknown status of Butler's Gartersnakes in Skunk's Misery, Parkhill and several sub-populations last observed in 2009, further surveys and monitoring are required to refine our knowledge of the distribution of the species in Ontario.

While total population abundance is not fully understood, reliable population estimates were obtained for a few of the Windsor sub-populations during the Herb Gray Parkway (HGP) construction project in both natural and restored sites. Monitoring associated with this project suggests that populations can be locally abundant in the Windsor region, but that most local sub-populations exist in small and/or isolated habitat fragments.

Butler's Gartersnakes use a diversity of early successional habitats across their range including open areas with dense grasses, typically in close proximity to wet areas, such as cultural meadows, grasslands, old fields, and tallgrass prairie communities. The species is also found along treed edges in vacant lots, small parks and abandoned sites in urban areas. The species gives birth to live young and uses lowland areas or wet depressions

as live-birthing habitat. Crayfish burrows, mammal burrows, drains, log piles and other underground sites are used for hibernation. The species has become dependent on earthworms as its preferred food source, restricting its distribution to grassland habitats associated with wet or moist areas. Open spaces in vegetation, edges of water, logs, coverboards, and brush piles provide important thermoregulation features (i.e., areas that aid in temperature regulation). Individuals have a relatively small home range and tend to remain in the same area, but some make large seasonal migrations, particularly females migrating to live-birthing areas. Given the small sub-population sizes in Ontario, the small home ranges and low dispersal capacity of the species may limit its ability to adapt to environmental change and could make populations susceptible to higher extinction risk.

The most significant threat to Butler's Gartersnake is ongoing habitat loss, degradation and fragmentation from urban, industrial and agricultural development. As the species is found in a highly urban landscape, it is also threatened by frequent mowing and management of lawns which may harm the species and eliminate habitat. Other threats to the species' habitat include altered disturbance regimes (e.g., succession), as the species relies on grassland or open habitat, and invasive species (e.g., *Phragmites* (European Common Reed) (*Phragmites australis ssp australis*)), which may shade basking sites and eliminate live-birthing areas. Butler's Gartersnakes are also affected by several other threats including road mortality subsidized predation (e.g., dogs, cats, raccoons, skunks), direct persecution and collection for pets. Harmful pesticides and herbicides in nearby areas may affect earthworms, their main source of prey. Snake fungal disease (SFD) is a potential threat to this species but has not yet been confirmed in Butler's Gartersnake in Ontario. The fungus is now known to occur within the Ontario range of this species, and at least one Butler's Gartersnake has been observed with clinical signs that are consistent with SFD.

Many of the Butler's Gartersnake sub-populations are isolated from each other, particularly the local sub-populations found in a highly urban landscape in the Windsor-Sarnia region. Recent surveys have not detected the species at several sites where they were formerly known to occur, and ongoing habitat loss and fragmentation continues to threaten the species. As such, recovery efforts will focus on maintaining habitat, improving habitat connectivity between occupied habitats, mitigating threats and filling knowledge gaps related to the distribution, spatial ecology and habitat use of Butler's Gartersnake in both natural and restored sites.

## Government's Recovery Goal

The government's goal for the recovery of Butler's Gartersnake is to maintain the current abundance and distribution of all extant sub-populations. Where biologically and technically feasible, natural increases in the distribution and abundance of extant sub-populations should be enabled by managing and restoring the species' habitat, improving habitat connectivity between local sub-populations, and reducing threats.

## Actions

Protecting and recovering species at risk is a shared responsibility. No single agency or organization has the knowledge, authority or financial resources to protect and recover all of Ontario's species at risk. Successful recovery requires inter-governmental co-operation and the involvement of many individuals, organizations and communities. In developing the government response statement, the government considered what actions are feasible for the government to lead directly and what actions are feasible for the government to support its conservation partners to undertake.

## Government-led Actions

To help protect and recover Butler's Gartersnake, the government will directly undertake the following actions:

- Continue to protect Butler's Gartersnake and its habitat through the ESA.
- Undertake communications and outreach to increase public awareness of species at risk in Ontario.
- Continue to monitor populations and mitigate threats to Butler's Gartersnake and its habitat in provincially protected areas, where feasible and appropriate.
- Educate other agencies and authorities involved in planning and environmental assessment processes on the protection requirements under the ESA.
- Encourage the submission of Butler's Gartersnake data to Ontario's central repository through the NHIC (Rare species of Ontario) project in iNaturalist or directly through the Natural Heritage Information Centre.
- Continue to support conservation, agency, municipal and industry partners, and Indigenous communities and organizations to undertake activities to protect and recover Butler's Gartersnake. Support will be provided where appropriate through funding, agreements, permits (including conditions) and/or advisory services.
- Continue to implement the Ontario Invasive Species Strategic Plan (2012) to address the invasive species (e.g., Reed Canary Grass (*Phalaris arundinacea*)) that threaten Butler's Gartersnake.
- Continue to implement Ontario's *Invasive Species Act* to control the spread of invasive species (e.g., Phragmites) that threaten Butler's Gartersnake by restricting the importation, deposition, release, breeding/growing, buying, selling, leasing or trading of Phragmites.

- Conduct a review of progress toward the protection and recovery of Butler’s Gartersnake within five years of the publication of this document.

### Government-supported Actions

The government endorses the following actions as being necessary for the protection and recovery of Butler’s Gartersnake. Actions identified as “high” may be given priority consideration for funding under the Species at Risk Stewardship Program. Where reasonable, the government will also consider the priority assigned to these actions when reviewing and issuing authorizations under the ESA. Other organizations are encouraged to consider these priorities when developing projects or mitigation plans related to species at risk.

#### Focus Area: Habitat Management and Protection

**Objective:** Maintain, protect and improve the quality of existing habitat and increase habitat area and connectivity.

The majority of Butler’s Gartersnake populations are found in a heavily urbanized landscape where development pressure continues to increase. As such, improving habitat connectivity (including reducing further fragmentation) is a key component of landscape-level, habitat-focussed recovery actions for this species. At the site scale, habitat management actions to improve the quantity and quality of habitat for the species will support the recovery of each sub-population. As land ownership varies across the species’ distribution and it is largely found in urban areas, a collaborative approach to habitat management and protection is critical to the protection and recovery of this species. Whenever possible, habitat management techniques should adhere to best science advice (e.g., *Best Management Practices for Identifying, Managing and Creating Habitat for Ontario’s Species at Risk Snakes*).

#### Actions:

1. **(High)** Work collaboratively with local landowners, land managers, industry stakeholders, organizations, government agencies, and Indigenous communities and organizations to develop and implement habitat management and restoration techniques and monitor their effectiveness. This may include:
  - developing and implementing coordinated habitat management plans to increase habitat suitability and connectivity, and to create, enhance and restore habitat at priority sites;
  - creating live-birthing, hibernation and shelter habitat in appropriate areas, recognizing the need to improve knowledge of the design and construction of these features;

- implementing techniques to maintain open, early successional habitat using methods such as mechanical removal of woody vegetation, prescribed burns and low-density livestock grazing, as appropriate; and,
  - where possible, encouraging alternatives to chemical use (e.g., pesticides, herbicides) that may impact Butler’s Gartersnake food supply.
2. **(High)** Work with local landowners, municipalities and community partners to strategically secure Butler’s Gartersnake habitat and encourage long term protection through existing land securement and stewardship programs and/or land-securement agencies, including land that would support improved habitat connectivity.

**Focus Area: Research and Monitoring**

**Objective:** Increase knowledge of species biology, abundance, distribution, threats and effectiveness of recovery actions.

Many knowledge gaps exist related to habitat use at various life stages, emerging and landscape-level threats, and species’ biology and ecology. Continued efforts to conduct inventory and monitoring and encourage collaboration amongst citizen science programs and Indigenous communities and organizations will support a greater understanding of population trends and the impact of threats. A standardized monitoring, inventory and reporting program is important to improve our knowledge of the abundance and distribution of this species. Targeted surveys will also help to confirm local habitat use, as well as the effectiveness of habitat creation and restoration efforts. Wherever possible, surveys should follow a standardized, science-based approach for field surveys using the “Survey protocol for Ontario’s species at risk snakes”. Filling knowledge gaps related to species’ biology, ecology and threats will provide information to determine the species’ ability to persist, inform the design and creation of habitat features at restored sites, and will help determine where recovery efforts are best focused.

**Actions:**

3. **(High)** Work collaboratively with local landowners, land managers, industry stakeholders, organizations, government agencies, and Indigenous communities and organizations to develop and implement a standardized survey, monitoring, inventory and reporting program that includes:
- monitoring distribution and abundance of the species at representative sites across its range in Ontario to identify and track changes in population abundance over time;
  - assessing species’ presence at sites lacking recent observations and refine knowledge of the local and regional distribution of Butler’s Gartersnake in Ontario;



- monitoring emerging and existing threats to the species; and,
  - encouraging participation in citizen science data collection programs (e.g., iNaturalist).
4. Investigate the scale and potential impacts of threats such as snake fungal disease, road mortality, pollution, invasive species, predation from native species and feral pets (e.g., cats), persecution, and collection.
  5. Conduct research to determine the effectiveness of threat mitigation techniques, recovery approaches and best management practices, including:
    - techniques to mitigate road mortality;
    - approaches for habitat creation, restoration and improvement; and,
    - techniques for salvage and translocation.
  6. Conduct research on species' biology, ecology, habitat use and genetics where knowledge gaps persist, such as:
    - spatial ecology of the species, (e.g., the impact of road networks on movement patterns);
    - genetic diversity and whether inbreeding depression or hybridization is occurring;
    - habitat needs and use for various life stages (e.g., live-birthing, hibernation, foraging) in both natural and restored areas; and,
    - population viability analysis to determine extinction risk.
  7. As appropriate, encourage the recording, sharing and transfer of Traditional Ecological Knowledge on Butler's Gartersnake, where it has been shared by communities, to increase knowledge of the species and support future recovery efforts.

**Focus Area: Threat Management and Stewardship**

**Objective:** Reduce threats to Butler's Gartersnake by implementing threat mitigation techniques and promoting stewardship of the species and its habitat.

Landowners, land managers, industry stakeholders, conservation organizations, government agencies, and Indigenous communities and organizations all have an important role to play in the protection and recovery of Butler's Gartersnake. A collaborative approach to implementing best management practices and targeted threat mitigation techniques is essential to effectively reducing threats to the species, such as habitat loss and road mortality. Increasing public awareness of Butler's Gartersnake and promoting local stewardship through tools such as targeted social media campaigns also plays an important role in species recovery.

**Actions:**

8. **(High)** Work collaboratively with landowners, land managers, municipalities and other stakeholders, as well as with Indigenous communities and organizations, to develop and implement techniques and approaches to reduce threats to the species. Techniques and approaches should be adapted based on the results of effectiveness research (see Action 5). This may include:
  - developing and implementing best management practices for minimizing the impact of roads and road construction on the species, including avoidance of sensitive habitat areas, temporary or permanent closures of existing roads, use of wildlife bridges and ecopassages, installation of fencing, and improving driver awareness;
  - developing training programs and tools for those conducting activities that may impact the species (e.g., construction workers), including providing guidance on the identification and ecological importance of snakes and activity-specific best management practices to minimize threats to the species;
  - developing and implementing best management practices for the maintenance of natural vegetation and woody debris, and minimizing the impact of mowing on the species; and,
  - developing and/or refining best management practices, based on effectiveness monitoring and research, to inform implementation of salvage and translocation techniques where it is required to mitigate the impact of activities.
9. Promote public awareness of Butler's Gartersnake, including its status and protection under the ESA, and engage the public in Butler's Gartersnake stewardship. This may include:
  - Developing and evaluating effectiveness of interactive social media and social marketing campaigns to promote Butler's Gartersnake stewardship and reduce the threat of persecution, subsidized predation and illegal collection. Coordinate with other species at risk snake initiatives where appropriate;
  - installing permanent signage at park trailheads to educate local trail users about Butler's Gartersnake that may be basking on the trail; and,
  - working collaboratively with landowners, land managers, municipalities and other stakeholders to increase their awareness of Butler's Gartersnake, and how to minimize



impacts of activities that threaten the species (e.g., timing of prescribed burns, wetland drainage, mowing activities).

## Implementing Actions

Financial support for the implementation of actions may be available through the Species at Risk Stewardship Program. Conservation partners are encouraged to discuss project proposals related to the actions in this response statement with Ministry of the Environment, Conservation and Parks staff. The Ontario government can also advise if any authorizations under the ESA or other legislation may be required to undertake the project.

Implementation of the actions may be subject to changing priorities across the multitude of species at risk, available resources and the capacity of partners to undertake recovery activities. Where appropriate, the implementation of actions for multiple species will be co-ordinated across government response statements.

## Reviewing Progress

The ESA requires the Ontario government to conduct a review of progress towards protecting and recovering a species no later than the time specified in the species' government response statement, or not later than five years after the government response statement. The review will help identify if adjustments are needed to achieve the protection and recovery of Butler's Gartersnake.

## Acknowledgement

We would like to thank all those who participated in the development of the Recovery Strategy and Government Response Statement for the Butler's Gartersnake (*Thamnophis butleri*) in Ontario for their dedication to protecting and recovering species at risk.

### For additional information:

Visit the species at risk website at [ontario.ca/speciesatrisk](http://ontario.ca/speciesatrisk)  
Contact the Ministry of the Environment, Conservation and Parks  
1-800-565-4923  
TTY 1-855-515-2759  
[www.ontario.ca/environment](http://www.ontario.ca/environment)