

**Ontario Species at Risk Evaluation Report for  
Butler's Gartersnake  
(*Thamnophis butleri*)**

Committee on the Status of Species at Risk in Ontario  
(COSSARO)

Assessed by COSSARO as Threatened

January 2026

Final

## Executive summary

Butler's Gartersnake (*Thamnophis butleri*) is a small gartersnake, approximately 40 cm long, with three distinct and vibrant yellow stripes along the length of its dark brown back, two of which are centered on the 3<sup>rd</sup> scale row. Its habitat primarily includes meadows, old fields and tallgrass prairie with nearby permanent or ephemeral wetlands or drainage features. Essential habitat components include dense cover of grasses or forbs with a thick layer of thatch and an abundance of earthworms as prey. It is found in three geographic regions in Ontario: Windsor-Essex, Sarnia-Lambton and Luther Marsh, all of which are in the Carolinian faunal province.

Across its broader biologically relevant geographic range, populations vary in status from secure to critically imperiled. The species is concentrated within the Mixed Wood Plains ecoregion and occurs from southwestern Ontario through southeastern Wisconsin, northwestern Ohio, and the Lower Peninsula of Michigan. Butler's Gartersnake was previously classified as Endangered by COSSARO and is listed as such on the Species at Risk in Ontario List.

Agricultural practices, forest succession, and urbanization have historically contributed to the loss and fragmentation of Butler's Gartersnake habitat. Today, the main threats to this species are transportation and service corridors, residential and commercial development and natural systems modifications that contribute to the reduction in available open canopy habitat. Active management is required to maintain vegetation communities suitable for this species.

Butler's Gartersnake shows very limited movement, with an activity range typically under 1 ha and an average movement distance of about 300 m. It can also persist in urbanized settings such as rail corridors, provided that habitat remains open, earthworms are available as prey, and suitable hibernacula exist. As a result, viable populations can persist within small, isolated habitat patches. Even so, there has been evidence of decline since 2010 with a current index area of occupancy of 288 km<sup>2</sup>.

Butler's Gartersnake is classified as Threatened in Ontario based on the definition of Threatened under the *Endangered Species Act, 2007* ("not endangered, but is likely to become endangered if steps are not taken to address factors threatening to lead to its extinction or extirpation"). This classification is consistent with the most recent federal COSEWIC assessment. Although the species did not meet COSSARO's quantitative assessment criteria for Threatened, it met the criteria for Special Concern as a vulnerable species that nearly met the criteria for Threatened under criterion B (small distribution range and decline or fluctuation). The option of assigning a Special Concern status was considered, but the species was deemed to meet the definition of Threatened given its sensitivity to human activities and natural events, combined with the lack of a demonstrated rescue effect and continued evidence of decline.

# 1. Eligibility for Ontario status assessment

## 1.1. Eligibility conditions

### 1.1.1. Taxonomic distinctness

Butler's Gartersnake (*Thamnophis butleri*) is closely related to two other North American *Thamnophis* spp., the Plains Gartersnake (*Thamnophis radix*) and the Short-headed Gartersnake (*Thamnophis brachystoma*), but is considered taxonomically distinct (Conant, 1950). There are no recognized subspecies of Butler's Gartersnake (COSEWIC 2024, IN PRESS).

### 1.1.2. Designatable units

The extant populations of Butler's Gartersnake meet the criteria under COSEWIC guidance for one designatable unit. Butler's Gartersnake occurs in three distinct geographic areas within southwestern Ontario with evidence of genetic distinctness due to their isolation from each other (Noble *et al.*, 2013). This genetic distinctness is not considered significant because there is no direct evidence, or strong inference that there has been an evolutionary trajectory long enough to generate a separate evolutionary history. As well, there is no direct evidence, or strong inference that there are separate adaptive traits (COSEWIC, 2023). Further, there is no natural geographic disjunction between the areas it is known to occur.

### 1.1.3. Native status

Butler's Garternake is native to Ontario. The earliest documented record is within a study conducted by E.B.S. Logier, titled, "Butler's Garter-Snake, *Thamnophis butleri*, in Ontario" published in March 1939 (COSEWIC 2024, IN PRESS).

### 1.1.4. Occurrence

Butler's Gartersnake occurs in Ontario.

## 1.2. Eligibility results

Butler's Gartersnake (*Thamnophis butleri*) is eligible for status assessment in Ontario.

## 2. Background information

### 2.1. Current designations

- GRANK: G4 (NatureServe 2026)
- IUCN: Least Concern (2007)
- NRANK Canada: N2 (NatureServe 2026)
- COSEWIC: Threatened (COSEWIC 2024, IN PRESS)
- SARA: Endangered (Schedule 1)
- MBCA protection: No
- Aquatic species under SARA: No
- COSSARO: Endangered (February, 2011)
- ESA 2007: Endangered (2008)
- SRANK: S2 (ranked in 1988, reviewed in 2015)

### 2.2. Distribution in Ontario

Butler's Gartersnake occurs within three different geographic regions in southwestern Ontario: Windsor-Essex, Sarnia-Lambton, and Luther Marsh, all of which are in the Carolinian faunal province. The species is considered extirpated from Chatham-Kent and Middlesex County and its ongoing presence at Walpole Island First Nation (WIFN) in Lambton County is uncertain (COSEWIC 2024, IN PRESS).

The extent of occurrence is 7,025 km<sup>2</sup> based on a minimum convex polygon that encompasses all verified records from 2002-2021. The current index area of occupancy is 288 km<sup>2</sup> (COSEWIC 2024, IN PRESS).

### 2.3. Distribution, status and the broader biologically relevant geographic range outside Ontario

Butler's Gartersnake is restricted globally to one bioregion in North America, with most of its range concentrated within a single ecoregion occurring within southwestern Ontario, southeastern Wisconsin, northwestern Ohio and the Lower Peninsula of Michigan. The global range of this species is estimated at 20,000-200,000 km<sup>2</sup> and comprises of 21-300 occurrences. Throughout its range, Butler's Gartersnake has a very patchy area of occupancy, but is sometimes locally abundant (COSEWIC 2024, IN PRESS). Considering that the global range for Butler's Gartersnake is within a similar ecoregion and adjacent to those found in Ontario, the broader biologically relevant geographic range is the same as its global range as outlined by IUCN and NatureServe (IUCN 2025; NatureServe, 2026).

Table 1. Condition of the Species in Adjacent Jurisdictions and Broader Biologically Relevant Geographic Range

Adjacent Jurisdictions	Biologically Relevant to Ontario (n/a, yes, no)	Condition	Notes & Sources
Quebec	No	n/a	n/a
Manitoba	No	n/a	n/a
Michigan	Yes	S4	NatureServe, 2026
Minnesota	No	n/a	n/a
Nunavut	No	n/a	n/a
New York	No	n/a	n/a
Ohio	Yes	SNR	NatureServe, 2026
Pennsylvania	No	n/a	n/a
Wisconsin	Yes	S3	NatureServe, 2026
Indiana	Yes	S1	NatureServe, 2026

## 2.4. Ontario conservation responsibility

Ontario’s conservation responsibility is low as it is estimated that 16% of the global population of Butler’s Gartersnake occurs in Ontario.

## 2.5. Direct threats

Agricultural practices, forest succession, and urbanization have historically contributed to the loss and fragmentation of Butler’s Gartersnake habitat. The main threats to this species are transportation and service corridors, residential and commercial development and natural systems modifications that contribute to the reduction in available open canopy habitat. Active management is required to maintain vegetation communities suitable for this species (Kamstra pers. comms. 2026). The overall threat impact is considered medium (COSEWIC 2024, IN PRESS).

## 2.6. Specialized life history or habitat use characteristics

Butler’s Gartersnake is a small gartersnake approximately 40 cm long with three distinct and vibrant yellow stripes along the length of its dark brown back. Compared to other gartersnakes (i.e., Eastern Gartersnake, *T. sirtalis*, and Eastern Ribbonsnake, *T. sauritus*) it has a smaller head and has side stripes centered on the 3<sup>rd</sup> scale row. Its habitat primarily includes meadows, old fields and tallgrass prairie, with nearby permanent or ephemeral wetlands or drainage features. Essential habitat components include dense cover of grasses or forbs with a thick layer of thatch and an abundance of earthworms as prey (COSEWIC 2024, IN PRESS). Overwintering sites include small mammal burrows, ant mounds, loose fill, foundations, and crayfish burrows. Gravid females gestate in open-canopy habitat and move to low lying areas with moist soils to give birth (COSEWIC 2024, IN PRESS). At study sites, most individuals exhibited limited movements, with maximum activity range of less than 1 ha and a mean movement distance of 300m (COSEWIC 2024, IN PRESS).

This species can persist in urbanized environments (e.g., rail right-of-ways) as long as the habitat is open and there are earthworms as prey and available hibernacula (pers. Comm Jonathan Choquette and James Kamstra).

## 3. Ontario status assessment

### 3.1. Application of endangered/threatened status in Ontario

#### 3.1.1. Criterion A – Decline in total number of mature individuals

Does not apply. Sites have been too poorly studied to provide reliable trend estimates of abundance. Inferred and projected average declines based on reduction of EOO and IAO do not meet the thresholds for Threatened as the average of them are below 30%.

#### 3.1.2. Criterion B – Small distribution range and decline or fluctuation

Almost meets criterion B for Threatened, but does not apply. The extent of occurrence is 7,025 km<sup>2</sup> encompasses all verified records from 2002-2021. The current index area of occupancy is 288 km<sup>2</sup>. Butler's Gartersnake is known to exist at likely greater than 10 locations (COSEWIC 2024, IN PRESS). Does not meet the definition of "severely fragmented" (see below) because studies suggest that habitat patches are large enough to support a viable subpopulation (COSEWIC 2024, IN PRESS). There are no extreme fluctuations in EOO, IAO, number of locations or subpopulations or number of mature individuals.

Definitions:

COSEWIC Severely fragmented – the population is 50% of individuals or >50% of the total area occupied (as a proxy for number of individuals) in habitat patches that are both (a) smaller than required to support a viable subpopulation, and (b) separated from other habitat patches by a large distance. (*refers to IUCN definition for further guidance*).

IUCN guidance of severely fragmented – fragmentation must be assessed at a scale that is appropriate to biological isolation in the taxon under consideration. In general, taxa with highly mobile adult life stages or with a large production of small mobile diaspores are considered more widely dispersed, and hence not so vulnerable to isolation through fragmentation of their habitats.

#### 3.1.3. Criterion C – Small and declining number of mature individuals

Does not apply. There are no viable estimate of mature individuals over a period of time to calculate decline.

#### 3.1.4. Criterion D – Very small or restricted total population

Does not apply. Counts at one site in Windsor-Essex resulted in 822 individuals over 9.3ha of area. It is likely that should there be counts at other sites, the total number of mature individuals would be above the threshold for Threatened (1,000) (COSEWIC 2024, IN PRESS).

### 3.1.5. Criterion E – Quantitative analysis

Does not apply. A quantitative analysis has not been undertaken.

## 3.2. Application of Special Concern in Ontario

Butler's Gartersnake is sensitive to human activities and natural events and is near to qualifying under criterion B.

### 3.3. Status category modifiers

#### 3.3.1. Ontario's conservation responsibility

Does not apply. Ontario's conservation responsibility is low where less than 25% of the species' global range is found within Ontario (COSEWIC 2024, IN PRESS).

#### 3.3.2. Status modification based on level of risk in broader biologically relevant geographic range

Does not apply as species does not meet the definition of "Not at Risk". Although it is considered apparently secure in Michigan, Butler's Gartersnake has an equally limited and patchy range within its broader biologically relevant geographic range where state statuses range from secure to at-risk.

#### 3.3.3. Rescue Effect

Does not apply. Rescue from outside Ontario is unlikely; populations in US are severely fragmented, declining, and beyond the natural dispersal abilities of the species.

## 3.4. Other status categories

#### 3.4.1. Data deficient

Does not apply.

#### 3.4.2. Extinct or extirpated

Does not apply.

#### 3.4.3. Not at risk

Does not apply.

## 4. Summary of Ontario status

Butler's Gartersnake is classified as Threatened in Ontario based on the definition of Threatened under the *Endangered Species Act, 2007* ("not endangered, but is likely to become endangered if steps are not taken to address factors threatening to lead to its extinction or extirpation"). This classification is consistent with the most recent federal COSEWIC assessment. Although the species did not meet COSSARO's quantitative assessment criteria for Threatened, it met the criteria for Special Concern as a vulnerable species that nearly met the criteria for Threatened under criterion B (small distribution range and decline or fluctuation). The option of assigning a Special Concern status was considered, but the species was deemed to meet the definition of Threatened given its sensitivity to human activities and natural events, combined with the lack of a demonstrated rescue effect and continued evidence of decline.

The change in status of this species from the last assessment is considered a non-genuine<sup>1</sup> change based on changes in the assessment criteria used by COSSARO.

<sup>1</sup> A change in the classification of a species during reassessment by COSSARO may be for genuine or non-genuine reasons. Genuine reasons may include a reduction in threats to a species such that status of the species has improved, or the continuation of threats to the species such that the status of the species has further deteriorated. Non-genuine reasons may include new information on population size or threats that was not available during a previous assessment, the use of previous COSSARO criteria that may have yielded a different result or, taxonomic revisions that result in changes in range, population sizes or designatable units.

## 5. Information sources

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IUCN. 2025. The IUCN Red List of Threatened Species. Version 2025-2. Available at: <https://www.iucnredlist.org>.

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NatureServe. 2026. NatureServe Explorer: An online encyclopedia of life [web application]. *Thamnophis butleri*. Web site: <http://www.natureserve.org/explorer> [accessed January 2026].

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## Appendix 1: Technical summary for Ontario

Species: Butler's Gartersnake (*Thamnophis butleri*)

### Demographic information

Demographic attribute	Value
Generation time. Based on average age of breeding adult: age at first breeding = X year; average life span = Y years.	4 years
Is there an observed, inferred, or projected continuing decline in number of mature individuals?	There are no reliable estimates of number of individuals.
Estimated percent of continuing decline in total number of mature individuals within 5 years or 2 generations.	There are no reliable estimates of number of individuals.
Observed, estimated, inferred, or suspected percent reduction or increase in total number of mature individuals over the last 10 years or 3 generations.	There are no reliable estimates of number of individuals.
Projected or suspected percent reduction or increase in total number of mature individuals over the next 10 years or 3 generations.	There are no reliable estimates of number of individuals.
Observed, estimated, inferred, or suspected percent reduction or increase in total number of mature individuals over any 10 years, or 3 generations, over a time period including both the past and the future.	There are no reliable estimates of number of individuals.
Are the causes of the decline (a) clearly reversible, and (b) understood, and (c) ceased?	a. Partially b. Yes c. No
Are there extreme fluctuations in number of mature individuals?	No

### Extent and occupancy information in Ontario

Extent and occupancy attributes	Value
Estimated extent of occurrence (EOO).	7,025 km <sup>2</sup>
Index of area of occupancy (IAO).	288 km <sup>2</sup>
Is the total population severely fragmented? i.e., is >50% of its total area of occupancy in habitat patches that are: (a) smaller than would be required to support a viable population, and	a. No b. No

<b>Extent and occupancy attributes</b>	<b>Value</b>
(b) separated from other habitat patches by a distance larger than the species can be expected to disperse?	
Number of locations.	>10
Number of NHIC Element Occurrences	67
Is there an observed, inferred, or projected continuing decline in extent of occurrence?	Yes
Is there an observed, inferred, or projected continuing decline in index of area of occupancy?	Yes
Is there an observed, inferred, or projected continuing decline in number of sub-populations or EOs?	Yes
Is there an observed, inferred, or projected continuing decline in number of locations?	Yes
Is there an observed, inferred, or projected continuing decline in [area, extent and/or quality] of habitat?	Yes
Are there extreme fluctuations in number of populations?	No
Are there extreme fluctuations in number of locations?	No
Are there extreme fluctuations in extent of occurrence?	No
Are there extreme fluctuations in index of area of occupancy?	No

## Number of mature individuals in each sub-population or total population (if known)

There are no reliable estimates of number of individuals. The following is an estimate of individuals based on a calculated density.

<b>Sub-population (or total population)</b>	<b>Number of mature individuals</b>
Windsor-Essex	7,544
Sarnia-Lambton	5,618
Luther Marsh	1,926
<b>Total</b>	<b>15,084</b>

## Quantitative analysis (population viability analysis conducted)

Probability of extinction in the wild is unknown.

## Threats

A threats calculator was completed by COSEWIC. Key threats were:

- Transportation & service corridors: Roads & railroads (Medium)
- Residential and Commercial development: Housing & urban areas (Low)
- Natural system modifications: Fire & fire suppression and Other ecosystem modifications (Low)

## Rescue effect

<b>Rescue effect attribute</b>	<b>Value</b>
Does the broader biologically relevant geographic range for this species extend beyond Ontario?	Yes
Status of outside population(s) most likely to provide immigrants to Ontario	S4 (Michigan)
Is immigration of individuals and/or propagules between Ontario and outside populations known or possible?	Unknown, but unlikely
Would immigrants be adapted to survive in Ontario?	Yes
Is there sufficient suitable habitat for immigrants in Ontario?	Yes
Are conditions deteriorating in Ontario?	Possibly
Is the species of conservation concern in bordering jurisdictions?	Yes
Is the Ontario population considered to be a sink?	No
Is rescue from outside populations likely?	No

## Sensitive species

Not considered a data sensitive species.

## Acronyms

BBRGR: Broader Biological Relevant Geographic Range  
COSEWIC: Committee on the Status of Endangered Wildlife in Canada  
COSSARO: Committee on the Status of Species at Risk in Ontario  
ESA: Endangered Species Act  
EO: Element occurrence (as defined by NHIC)  
EOO: extent of occurrence  
GRANK: global conservation status assessments  
IAO: index of area of occupancy  
IUCN: International Union for Conservation of Nature and Natural Resources  
MBCA: Migratory Birds Convention Act  
MNR: Ministry of Natural Resources  
NHIC: Natural Heritage Information Centre  
NNR: Unranked  
NRANK: National conservation status assessment  
SARA: Species at Risk Act  
SNR: unranked  
SRANK: subnational conservation status assessment  
S1: Critically Imperiled  
S2: Imperiled  
S3: Vulnerable  
S4: Apparently Secure  
S5: Secure  
IUCN: International Union for Conservation of Nature and Natural Resources  
CDSEPO: Le Comité de détermination du statut des espèces en péril en Ontario