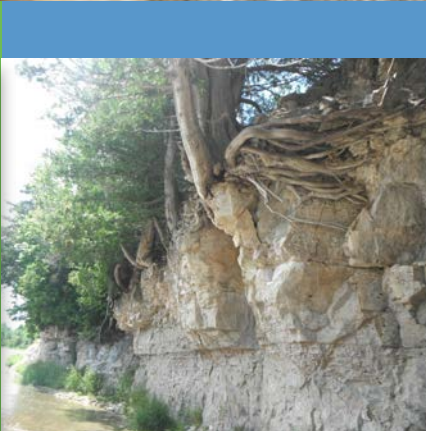
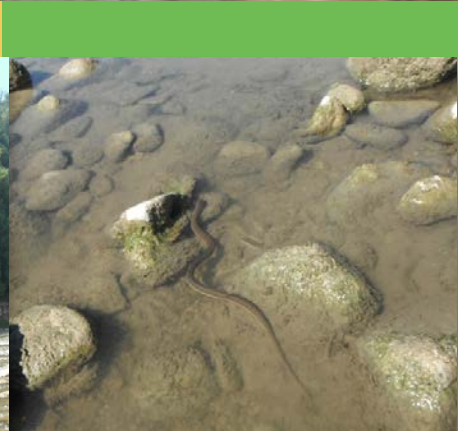


A Stewardship Guide for the Queensnake



Healthy Habitat, Healthy You

Many of Canada's species rely on voluntary stewardship of the land by the public. **What is stewardship?** Stewardship is a term used when private landowners undertake activities to protect the species and habitats that occur on their land. Collective stewardship improves our watersheds by protecting or restoring natural habitats which are important for healthy ecosystems. Healthy ecosystems mean cleaner air, water and soil, good for human, animal and plant health. A set of species in need of stewardship in Ontario are snakes, particularly the harmless and endangered Queensnake. By practising stewardship you are not only helping the Queensnake, but benefiting the community and economy through cleaner water, soil and air.

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Purpose of this Guide

This guide will assist landowners and other community members to :

- Identify a Queensnake
- Become familiar with Queensnake habitat and behaviour
- Prevent negative impacts to the Queensnake and surrounding habitat
- Participate in stewardship and Queensnake recovery
- Report Queensnake observations

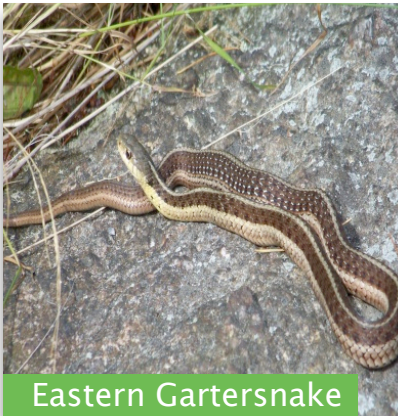
The Regal Serpent

Native to Southern Ontario, the Queensnake is endangered both nationally and provincially. This non-venomous, semi-aquatic snake spends most of its time in the water of its small home range. This habitat includes: creeks, rivers, lakeshores and sometimes marsh habitats. The Queensnake is the least reported snake species in Ontario due to its rarity and cryptic behaviour.

Queensnake



Queensnake belly



Eastern Gartersnake

Who am I?

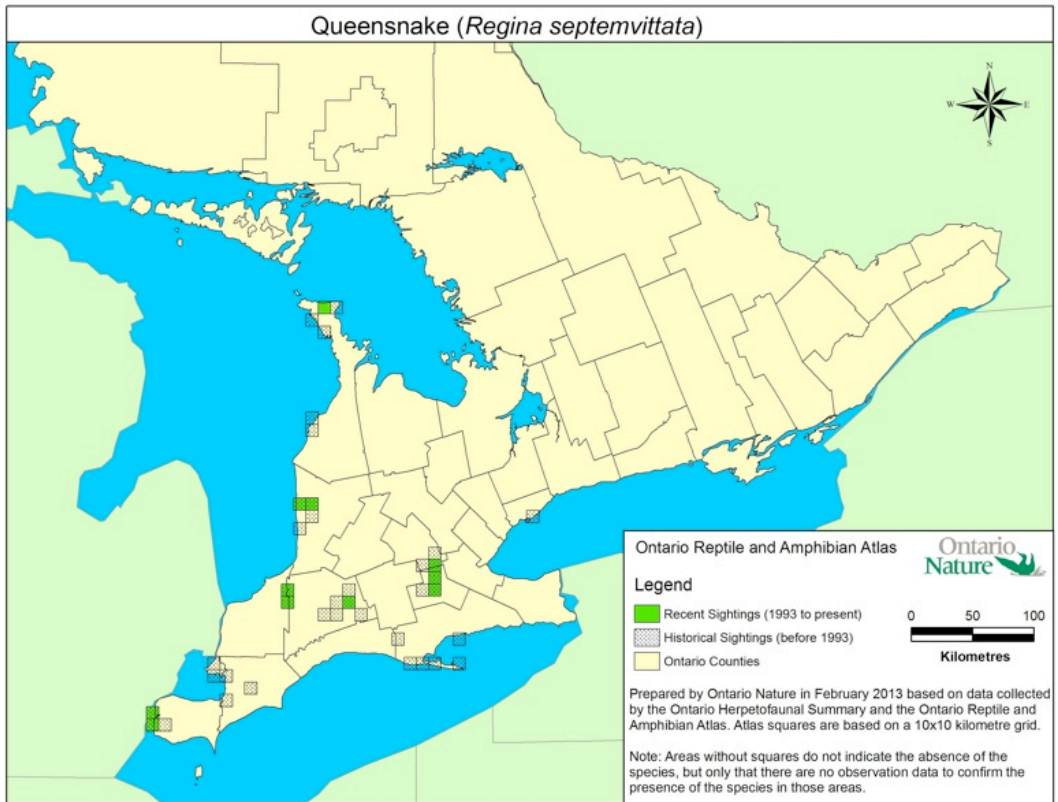
The Queensnake is most commonly mistaken for the Eastern Gartersnake. Shared characteristics include:

- 👁 Slender build and medium size (adults: 40- 60cm)
- 👁 3 Stripes along back
- 👁 Cream coloured belly

Differences include:

- 👁 Queensnakes are olive-brown with 3 dark stripes on their back. Gartersnakes are dark-brown to black with three yellow stripes on their back.
- 👁 The Queensnake is the only snake in Ontario with a striped belly; the Gartersnake has an unpatterned belly
- 👁 Queensnakes are usually found in or within a few meters of water; Gartersnakes are typically terrestrial.

Where Do Queensnakes Live?



The Canadian range for the Queensnake is restricted to Southwestern Ontario. This species occurs in small isolated populations from west of the Niagara Escarpment, to the northern part of the Bruce Peninsula, south to Lake Erie and west to Essex County.

In Ontario, Queensnakes are at the northern limit of their range and it is believed they are genetically distinct from their southern neighbours.

Life in the Kingdom

Queensnakes are usually found within 5 meters of a shoreline. Cobbles, boulders, logs and shoreline vegetation provide shelter for Queensnakes from predators and the elements. Sometimes they are also found in shrubs. Queensnakes are ectotherms, which means they need to use the environment to regulate their body temperature. To warm up, Queensnakes often lie (or 'bask') in the sun amongst shoreline grasses or overhanging shrubs, beneath sun warmed cover items.

QUICK FACT

Queensnakes are not always found in rivers and streams. Occasionally they are also found in marshes or in marshy meadow habitats along inland lakes.

What is a Hibernaculum?

A hibernaculum is a place where Queensnakes go in the winter. It is usually underground and below the frost level. Queensnakes will move up or down within the hibernacula to regulate their body temperature and moisture level.

Queensnakes can hibernate communally, meaning they hibernate in a group.

Basking Female Queensnake





Queensnakes are often seen with their heads sticking up from underneath rocks.

A Year in the Life of a Queensnake

April - October

The active season for the Queensnake begins upon emergence from hibernation in mid-April and ends in mid-October upon return to hibernation sites.

July - September

The Queensnake is 'viviparous', meaning females give birth to live young. Females give birth in late summer, usually between August and September. Newborn Queensnakes spend a lot of time under cobble-sized rocks, making it an especially important time to mind your step when walking along the shore.

October - April

Queensnakes hibernate when conditions cool down through late fall and winter. They often hibernate in groups.

Dining with the Queen

Queensnakes feed mostly on crayfish that have recently moulted (shed their hard outer shell). In fact, these soft crayfish make up approximately 98% of a Queensnake's diet. This specialized diet makes Queensnakes especially vulnerable; if crayfish populations decline, so too might Queensnake populations. Protecting native crayfish populations is essential for the survival of the Queensnake.



Threats to the Queensnake

1. Threat: Habitat Destruction and Degradation

Queensnake habitats are destroyed or degraded through the development of shorelines, removal of shoreline vegetation and dams/bridges used for hibernacula, invasive plants displacing native plants, or a change in water quality due to runoff or pollution. Any of these changes could alter the way Queensnakes use their habitat and could even impact their survival. Queensnakes have been lost from much of their former range in Ontario due to these very changes.

QUICK FACT

Removing all vegetation up to the waters edge (riparian zone) can make it hard for snakes to find suitable cover.



Threats to the Queensnake

2. Intentional human-caused death

Humans may purposely kill snakes out of fear. There is no reason to fear Queensnakes, they are non-venomous and docile.

3. Unintentional human-caused death or disturbance

Sometimes humans accidentally crush Queensnakes when walking on the shoreline rocks they shelter under. Also, walking along shorelines may force rocks into the soft substrate, closing off hiding spots for Queensnakes.



4. Pollution

Queensnakes are thought to have very permeable skin compared to other snakes and may be more sensitive to pollution. Changes in water quality from pollution or sediment runoff could have a negative impact on the Queensnakes' health or survival. Crayfish, a Queensnakes' primary food source, are also sensitive to water pH, so changes in water chemistry can have complex consequences for Queensnakes.

Threats to the Queensnake

5. Invasive Plants and Wildlife

The introduction of non-native species into aquatic environments has the potential to damage Queensnake habitat by changing its structure. A good example is the Common Reed, which is an aggressive tall grass species that has potential to negatively affect Queensnake habitats. A non-native species may also out-compete native species that are important for Queensnakes. Rusty Crayfish are large, aggressive and may out-compete the native crayfish that the Queensnakes eat. So far it is unknown whether Queensnakes will feed on this new invader. Zebra Mussels, another invasive species, encrust rocks and create barriers that prevent Queensnakes from moving between rocks.

Learn about invasive species from Ontario Federation of Anglers and Hunters. www.invasivespecies.com



Thousands of Zebra Mussels (an invasive species) washed up on the shores of Long Point Provincial Park.

What Can You Do?

1. Report it. If you see a Queensnake, report it to local conservation agencies (page 12). Remember it is against the law to handle endangered species without a permit.

2. Know that snakes will not hurt you and there is no reason to harm them. Appreciate snakes from a distance, and encourage others to do the same. It is important not to move snakes from where you found them. It is illegal to harm, harass or kill an endangered species.

3. Watch your step! Queensnakes can be found under rocks, logs, grasses and other shoreline debris throughout the active season (April - October), so be careful where you step when walking along the shoreline. Walk on large boulders that way rocks won't tip or move under your feet.

4. Keep pets away. Dogs can harm or kill snakes if they encounter them.

5. Stick to the trail. If you are hiking or on an All Terrain Vehicles (ATV) along the shoreline, try to stay on the path to create as little disturbance as possible. Use designated crossings wherever possible.

MNR Biologist



6. Be careful when you're driving. Avoid hitting Queensnakes by slowing down near bridges with streams running underneath (ideal snake habitat!). If you do see a snake on the road, gently encourage it towards the side. Also avoid using ATVs along shorelines.



What Can You Do?

- 7. Contain your livestock.** Use fences to create a buffer between livestock and water and provide alternative water sources. Also, make sure manure and milk house wash water is properly contained. Contact your local Conservation Authority for information on potential funding sources.
- 8. Use natural erosion control.** Use trees and plants as natural windbreaks and buffers. Trees help filter air, water and soil.
- 9. Do not remove cover objects.** Removing rocks and wood destroys Queensnakes habitat.
- 10. Clean up.** Participate in your community's next shoreline clean-up project.
- 11. Keep our waterways clean and safe.** If you see garbage, do your part and pick it up. This contributes to a healthier environment.
- 12. Plant riparian (shoreline) vegetation on your property.** Plant native vegetation along waterways to filter runoff and prevent waste from entering water. Removing natural riparian vegetation could have negative impacts on water quality by increasing erosion.
- 13. Prevent the spread of invaders.** Avoid planting invasive plants such as the Common Reed in your gardens. When fishing, use bait that's naturally found in the area.
- 14. Do not your mow lawn to edge of waterways.**



There are still mysteries about the Queensnake that are waiting to be solved...

Are remaining populations healthy?

It is currently unknown how many Queensnakes are left in the wild. However, a multi-year study is taking place in the Lower Maitland River Valley to investigate Queensnake population sizes, demographics, threats and ecology.

Where is prime Queensnake real estate?

We are still unsure of exact habitat needs of Queensnakes. However, shoreline areas with rocks, cobble, grasses and shrubs are typically where Queensnakes are found.

How many locations in Ontario are Queensnakes found?

It is unknown all the exact locations where Queensnakes exist. However, an Ontario-wide study is being conducted to investigate the full range of Queensnakes in Ontario, and provide new information about the habitats where Queensnakes can be found.

Where do Queensnakes go in the winter?

Little is known about where Queensnakes hibernate in the winter. The only clue where a hibernaculum (hibernation site) might be located is the observation of a Queensnake (or several Queensnakes) in a particular area. In the very early spring or late fall they do not stray far from the hibernaculum. Currently we are unsure how far they travel inland to reach their hibernacula. Researchers suspect that hibernacula usually occur within 20 meters of shoreline. Hibernation locations are sensitive habitats.



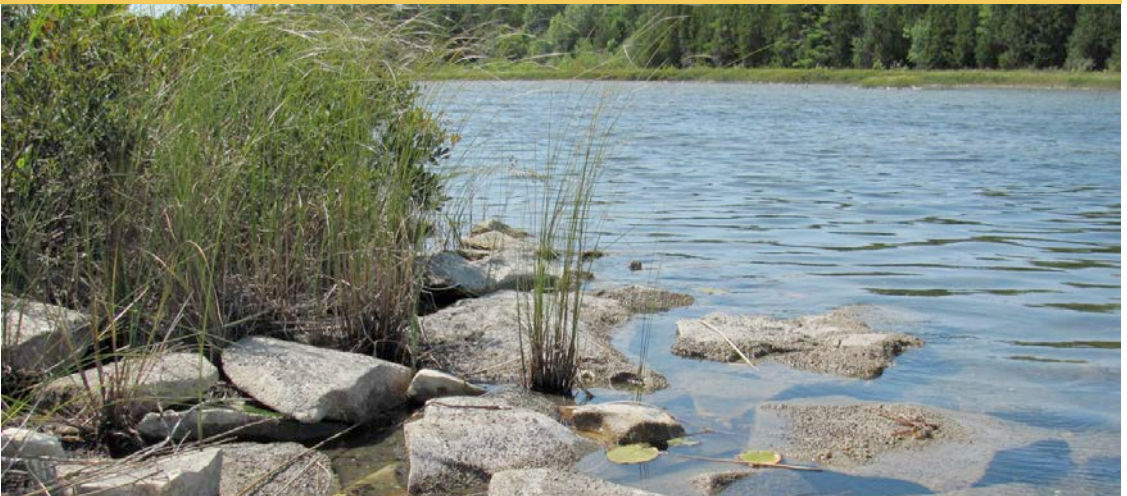
Report What You See

Report Sightings of Queensnakes to:

- Local Ontario Ministry of Natural Resources office
- Natural Heritage Information Centre (NHIC). Record exactly what it looks like, where it was, habitat features and try to take a picture (www.nhic.mnr.gov.on.ca)
- Contribute to Ontario Nature's Reptile & Amphibian Atlas (www.ontarionature.org/atlas)
- Report invasive species to Ontario Federation of Anglers and Hunters (www.invasivespecies.com)

Where can you learn more?

The MNR Queensnake Factsheet (www.mnr.gov.on.ca), the provincial Queensnake Recovery Strategy (www.mnr.gov.on.ca) and COSEWIC Queensnake Status Report (publications.gc.ca) are available online. Search "Queensnakes" at each respective site.



Acknowledgements

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www.ec.gc.ca/hsp-ph/

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www.hsc.huronstewardship.on.ca

Nature Conservancy of Canada
www.natureconservancy.ca

Upper Thames River Conservation Authority
www.thamesriver.on.ca

Ontario Ministry of Natural Resources
www.mnr.gov.on.ca

Ontario Nature
www.ontarionature.org

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www.hffn.huronstewardship.on.ca

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References

Committee on the Status of Endangered Wildlife in Canada
(COSEWIC)

Natural Heritage Information Centre (NHIC)

Ontario Nature's Ontario Reptile & Amphibian Atlas
(Queensnake Range Map)

Ontario Queensnake Recovery Strategy

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DesLauriers, Courtney

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vanderVaart, Susan



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For Further Information Please Contact
Huron Stewardship Council
www.hsc.huronstewardship.on.ca



A note from the Queensnake:
"Thanks for helping us out! All my wild
friends thank you too!"