

Snakes: Road Survey Guidelines



**The Land
Between**

Cottage Country's
Conservation Organization

Dear Snake Supervisor,

Hello, and thank you for participating in the Snakes: Road Surveying program with The Land Between Charity. The data you collect will not only help you determine the best times and locations to see snakes, it will also provide a valuable contribution to the field of conservation.

Please ensure that you have registered as a Snake Supervisor prior to beginning your surveys. To register, go to the Citizen Science Center page of The Land Between website.

Road Surveying for snakes will involve pulling over for (when it is safe to do so) and reporting any snakes you come across while you are out driving, biking, or walking on a roadway. If you come across a snake that is in danger of being injured by a vehicle or other road activity, we also ask that you take the time to help move it to a safe location by gently nudging it with a stick, or picking it up with a stick.

We are very excited to have you as a member of our Road Surveying Team! The information you gather will go a long way to better understanding and conserving snake populations across The Land Between. If you have questions regarding any aspect of this program, or if you would like to share some of your findings, please do not hesitate to contact us. We can be reached by email at **CitizenScienceTLB@gmail.com** or by phone at 705-457-1222.

Good luck with your surveying and have a great snake season,

The Land Between Charity

Special Thanks

Special thanks to Scales Nature Park for their help in developing this protocol and for providing expert knowledge on snake appearance and behavior. Thank you also to Joe Crowley, Scott Gillingwater, Jessica Ferguson, Matty Smith and the US Fish and Wildlife Service for the use of their fantastic photos.



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A. Safety

1. General:

- Wear proper clothing when conducting surveys including closed-toed shoes, gloves, and long pants.
- Wear clothing that is easily visible (bright coloured shirts, safety vests, etc.).

2. Eastern Massasauga Rattlesnake:

- There is only one venomous snake found in Ontario, the eastern massasauga rattlesnake. It is a shy, timid snake that may shake its rattle if it feels threatened. The snake will only strike as a last resort.
- If you live near or are in eastern massasauga rattlesnake habitat, take the necessary precautions: pay attention to where you are walking to avoid accidentally stepping on it or any other wildlife, wear closed-toed shoes and long pants, and do not put your hands under or in anything that you cannot see into or underneath.
- If you encounter an eastern massasauga rattlesnake, keep a respectful distance and do not attempt to touch it or pick it up.
- If you are bitten by an eastern massasauga rattlesnake, do not panic or engage in strenuous activity. Call 911, and seek immediate medical attention.
- Only two people have ever died as a result of an eastern massasauga rattlesnake bite in Ontario, both of which occurred over 50 years ago, and both deaths were the result of not seeking proper medical attention.

3. Snakes General:

- All snakes are shy creatures with poor eyesight and will only strike or bite in defense. If you don't bother them, they won't bother you.
- Some snakes do their best to intimidate humans, but that is only because they are scared and know how small they are compared to us.
- The eastern hog-nosed snake, or as we like to call it, The Drama Queen of The Land Between, will put on an elaborate show to attempt to scare you away. they will puff out the sides of her head and neck to look like a cobra (which we do not have in Ontario), and pretend to strike at you. These actions are simply an attempt to act tough, and the snake poses no real harm.
- The eastern foxsnake, eastern hog-nosed snake, eastern milk snake and northern watersnake can sometimes resemble the eastern massasauga rattlesnake. However, all of these snakes are non-venomous and pose no harm to humans. Use the Snake ID Decision Tree and the Snake ID Sheet to ensure a proper identification.
- The eastern foxsnake and eastern milk snake will sometimes rattle their tails in an effort to trick predators into thinking they are a venomous rattlesnake, but they are not. Use the Snake ID Decision Tree and the Snake ID Sheet to ensure a proper identification.



4. For the Animals:

- Do not attempt to catch or harm any snakes, skinks, or other animals found on or near the sides of the road.
- If the snake is in the road or in danger, attempt to move it across the road or out of danger by gently nudging it with a stick or picking it up with a stick.

5. Road:

- If you are driving and you see a snake on the road, carefully slow down, put your four-ways on, and pull over to the side of the road. Make sure that your car is as far off the road as possible.
- Only pull over if and when it is safe to do so. Do not stop in an active lane of traffic.
- If you are walking or biking along the road, be vigilant and alert at all times. Pay attention to oncoming traffic.

B. Timing

Road surveys for snakes are typically carried out in the evenings, but they can be done at any time of day when you are out walking, driving, or biking on the road.

The best time to find a snake on the road is between 9 am and 11 pm when the air temperature is between 20 and 30 °C.

C. What you will need

- Copy of this protocol
- Snake ID Decision Tree
- Snake ID Sheet
- Camera/phone with camera
- A phone with the iNaturalist App downloaded and ready to use
- Phone with GPS/hand-held GPS
- Proper clothing: gloves, closed-toed shoes, long pants, orange safety vest
- Snake Supervisor badge

D. Contact Number

START Hotline: 705-955-4284

E. Species at Risk Snakes

If you come across any of the following snakes throughout your survey, please call/text the START Hotline at 705-955-4284.

- Eastern Foxsnake
- Eastern Hog-nosed Snake
- Massasauga Rattlesnake
- Eastern Ribbonsnake



F. iNaturalist

In addition to the steps outlined in Section G - Procedure, please report all snake sightings using the iNaturalist app under the “Biodiversity of The Land Between Ecotone” project.

Download and register with iNaturalist

1. Download the app from the App Store or the Google Play Store and create an account.
2. Join The Land Between project called “**Biodiversity of The Land Between Ecotone**”. To do so, click “**more**” on the bottom right of the screen, then click “**projects**”. Search for “**Biodiversity of The Land Between Ecotone**” and select “**join**”.
3. You are now ready to use iNaturalist.

Reporting a snake

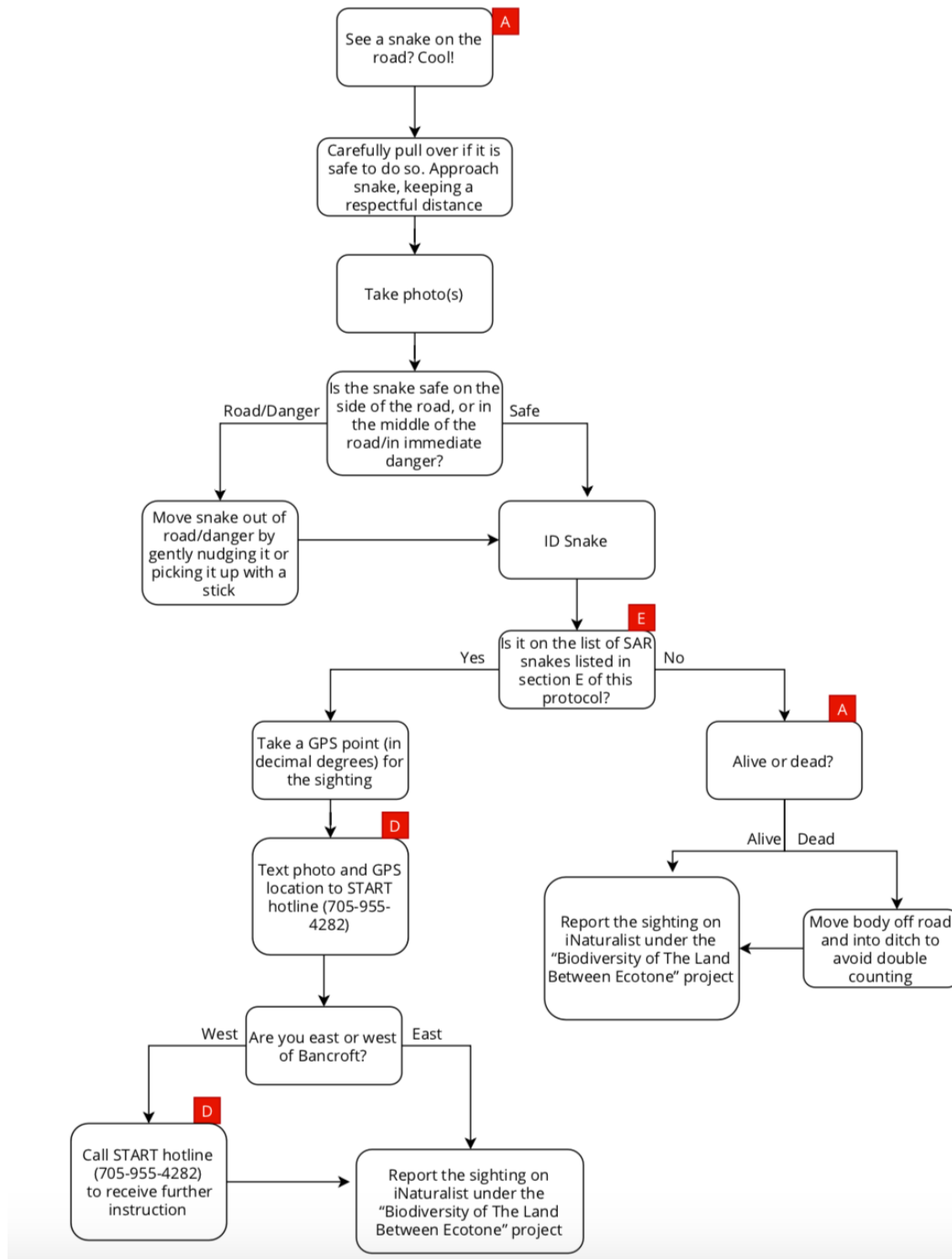
1. To report a snake sighting, from the app home screen, select “**observe**”.
2. Take a photo(s).
3. To input the name of the snake species, in the “**what did you see**” section, search the name of the species. The app will also make suggestions to you on what it might be.
4. Add in any other relevant information about your sighting in the “**Notes**” section (i.e. what the animal was doing when you saw it, was it dead or injured, etc.)
5. To add your sighting to the “Biodiversity of The Land Between Ecotone” project, under **projects** (at the bottom of the observation screen), select “**Biodiversity of The Land Between Ecotone**” before clicking “**share**”.
6. **NOTE!** If you are reporting a species at risk please obscure the location of your sighting to help keep poachers from finding at risk snake species.

Please note that you do not need to know what species of snake you have found. If you like, you can make an initial guess by using the Snake ID Decision Tree and the Snake ID Sheet. You can also leave the section blank, and someone in the iNaturalist community will identify it. Check back on your observation at a later date to see what it was identified as, or to see if your identification was correct.



G. Procedure

***Please Note:** The flags in the protocol flow chart are to refer you to related sections of this protocol.



After completion of the steps outlined in the flow chart, return to your vehicle and continue your dive when it is safe to do so.

If you come across another snake, repeat the steps outlined in the flowchart.

If you come across a turtle in your travels, please consider pulling over.

- If you see a **Spotted Turtle, Blanding's Turtle, or any species of turtle that is injured or nesting**, take a picture of the turtle, GPS coordinates (in decimal degrees) of the turtle's location, and call the **START Hotline** at **705-955-4284** to report the sighting.
- If you see any species of turtle, please report it using the **Turtle Guardians App**. The App is free to download from the App Store or Google Play Store.
- If you do not have the Turtle Guardians app, please consider reporting all turtles in iNaturalist.



I. Snake Identification – Variations and Common Mistakes

1. The common eastern garter snake can easily be confused with the northern ribbon snake. The easiest way to tell them apart is by the presence or absence of a white scale in front of the snake's eye: common garter snakes will likely have some white or yellow on this scale but it is not fully white like the ribbon snake. Take a picture of the snake and zoom in as close to the head as possible so you can see if there is a white dot. Ribbon snakes also tend to be more slender, and often have better stripe definition, with the lower half of their body being a lighter brown colour than the black on top. They also have a white chin and "lips".



Eastern Ribbonsnake (left) and Common Gartersnake (right)

2. Juvenile and adult northern water snakes are quite different in appearance. Younger watersnakes have distinct horizontal brown or grey bands along their grayish bodies. As the snake ages, its body colour darkens, making the banding pattern more difficult to see. Juveniles will also often have more orange colouration around their belly and blotches.



Juvenile (left) and adult (right) Northern Watersnake



3. Juvenile and adult grey rat snakes are quite different in appearance. Young snakes have dark blotches along a grey body. As the snake ages, its body colour darkens, making the blotched pattern more difficult to see, and giving the snake a more solid black appearance occasionally with white speckling or faded white blotches.



Juvenile (left) and adult (right) grey rat snake

4. Eastern hog-nosed snakes are highly variable in appearance. They can be a solid olive, grey, brown, or black in colour, or they may have three rows of darker coloured blotches running along their backs and sides. Sometimes they will have flecks of colours different from the dominant body colour scattered throughout as well, sometimes this flecking can be orange or red. One way to aid in the identification of eastern hog-nosed snakes is by their unique defense behavior. They will put on an elaborate show to attempt to scare you away by puffing out the sides of their head and neck to look like a cobra (which we do not have in Ontario), hiss, and pretending to strike at you. If continually harassed they may even roll over and play dead. We ask that you do not provoke this behavior as it is not good for the snake. Rather, identify them by their upturned snout, thick body, and the two black ovals on their neck that are a silly visible when they flatten out.



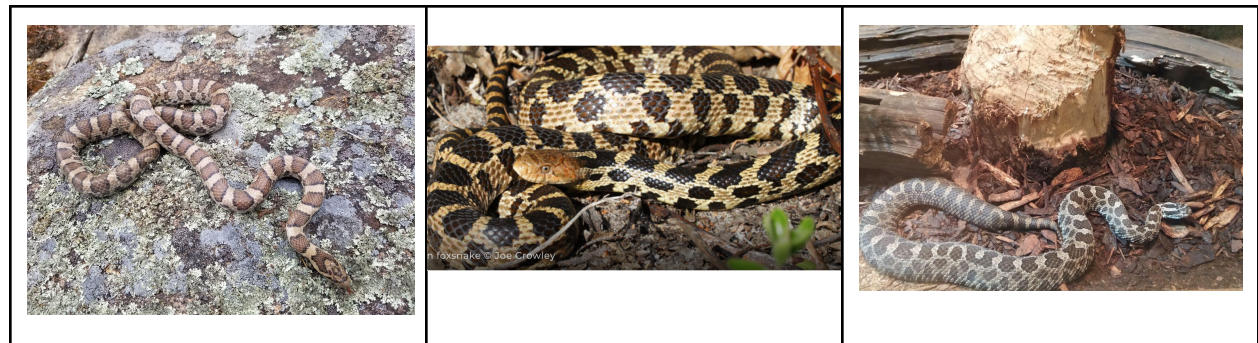
Some examples of the variable appearance of eastern hog-nosed Snakes



5.



Massasauga rattlesnakes do not always have a rattle. If a snake doesn't have a rattle, that does not automatically mean it is not a rattlesnake. Massasauga rattlesnakes can be identified by their triangular shaped head, stout body, and grey-brown background colour with dark bowtie or butterfly-shaped blotches on their back. Your location can also aid in their identification. In The Land Between, they are only found in the eastern Georgian Bay Area and occasionally further into the Muskokas. The eastern foxsnake and milksnake will sometimes rattle their tails in an effort to trick predators into thinking they are a venomous rattlesnake, but they are not.



Left to right: Milk snake, Eastern Foxsnake, and Massasauga Rattlesnake

Note some of the distinguishing features of the Massasauga Rattlesnake - triangular shaped head, stout body, grey-brown background colour, dark bowtie or butterfly-shaped blotches on the back



6. Red-bellied snakes have a diamond shaped spot on the back of its head and neck, potentially resulting in it being confused with a ring-necked snake. However, the ring around a ring-necked Snake will go all the way around its neck and be a similar colour to its belly. The diamond on the neck of a red-bellied snake may appear connected, but they will not form a complete circle around the neck and it is not the same red colour as the belly. Ring-necked snakes also are only found in with a solid slate grey to black body colour that is very smooth and iridescent. Red bellied snakes can be brown, tan, or grey, have two dorsal stripes that are darker in colour and have rough keeled scales.



Red-bellied Snake (left) compared to a ring-necked snake (right).

7. A dead smooth green snake will appear completely blue. This can lead to it being confused with another snake, the blue racer. However, blue racers in Ontario are only found on Pelee Island, where smooth green snakes are not found.



A dead smooth green snake



9. Grey Ratsnakes and Northern water Snakes can be confused because of their colours and size. Remember that Grey Ratsnakes in The Land Between are only found east of Frontenac County. Further, grey rat snakes have a blotched pattern on their back, while northern water snakes have a banded pattern. These patterns do fade with age however and may be difficult to see. The bellies of the snakes can also be used to differentiate between the two: the bellies of grey rat snakes have a checkerboard pattern, while those of Northern water snakes have dark, crescent-shaped spots.



Grey rat snake (left) and Northern Watersnake (right). The faint banding pattern can be seen on the back of the Northern Watersnake

J. “Other Wildlife” to Look Out For

Chances are you will come across a great deal of wildlife (and signs of wildlife) while you are surveying for snakes and skinks. Feel free to record and report anything and everything that you see, from animal scat and skins to snails and slugs. However, in addition to snakes and skinks, we would especially like to know if you find any of the animals or items listed below:

K. Sources

OMNRF. 2016. Survey Protocol for Ontario’s Species at Risk Snakes. Ontario Ministry of Natural Resources and Forestry, Species Conservation Policy Branch. Peterborough, Ontario. ii + 17 pp.

