

Turtle Road Crossing Monitor Protocol Document

IMPORTANT DISCLAIMER: *The data you are collecting relates to Species at Risk, and therefore should not be shared with any third party (including any photos on social media) without expressed permission from The Land Between charity. This information is highly sensitive and needs to remain private to ensure the safety of these vulnerable species from the pet trade, poaching and deliberate persecution. Even the location of nest protectors is highly sensitive and should not be shared with any third party - there have been many instances of "nest-robbing" where nests that have been protected with cages are subsequently dug up by third parties to obtain the hatchlings. By signing up to become a volunteer with The Land Between and Turtle Guardians, you agree to help protect Ontario turtle species by keeping all turtle sighting data and nest location information private.*

Your Role

This summer 2021, Turtle Guardians has partnered with the Peterborough and Haliburton Road Departments to monitor and mitigate turtle road mortality at key hotspots. We will be installing temporary silt fencing at some of the sites to deter turtles from reaching the road and to help reduce the numbers of turtles being hit and injured or killed. Your role will be to monitor these predetermined high turtle mortality/road-crossing areas to assist turtles in danger of being struck by vehicles, and depending on the site you choose/get assigned, you will also inspect and/or repair temporary silt fencing. In addition, you will help collect data on turtle species and numbers, ensure that nesting turtles get the protection they need, and that injured turtles get the medical care they require.

Time Commitment

At minimum, each volunteer should monitor their selected/assigned hotspot site at least once a week for a 2-hour period; however, you can sign up to monitor for longer periods and/or multiple days and times if you wish. Most volunteer shifts will be aimed for the morning (between 6 and 11 am) and evening (between 3 and 10 pm), because this is when you are most likely to see turtles on roads. Ideally, the Turtle Road Crossing Monitor season extends from May (when turtles are on roads seeking warm basking areas or heading to feeding sites, followed by nesting in June-July), and then again from late August to mid-October (when hatchlings are emerging from nests). However, if you are only able to commit to part of this time period, we would still appreciate the help.

Helping Turtles

An important part of your role is the help you will provide to the turtles you find when you survey your site. During any given Turtle Road Crossing Monitor shift, you might help a turtle cross the road, bring an injured turtle to the nearest authorized wildlife rehabilitation custodian, help protect a nesting turtle and her eggs, and/or inspect/repair temporary silt fencing.

Recording and Submitting data

The valuable data you collect will help us identify which species and how many individuals of each species occur at each hotspot, and how roads are affecting these populations. This will help us focus further mitigation efforts and fight for the protection of turtles in these areas! For areas with silt fencing, data related to these temporary barricades will allow us to better understand and design mitigation options. Each volunteer should submit their data at the time of monitoring or within 48 hours. If you do not want to bring a smart device into the field, or if you do not have internet access in the field, you can record your data on the paper copies of the field sheets and later transcribe the data onto your online Google Sheet that was assigned to you when you signed up. Alternatively, if you have access to the internet in the field, you can record your data directly onto your online Google Sheet.

The data you will be collecting includes the following three data sheets:

- **Turtle Sighting Data** (*Turtle Road Crossing Monitor Field Sheet - Turtle Sighting Data*)
 - Picture
 - Species
 - Age class
 - Location (coordinates, and relative to the road)
 - Behaviour
 - Status (dead, injured, alive)

- **Nest Sighting Data** (*Turtle Road Crossing Monitor Field Sheet - Nest Sighting Data*)
 - Picture
 - Location (coordinates, and relation to the road)
 - Substrate type
 - If nest is predated
 - Species (if known)
 - Egg shape (if identifiable)
 - If there are any viable eggs left and how many
 - If a nest protector was installed

- **Silt Fencing Inspection Data** (*Turtle Road Crossing Monitor Field Sheet - Silt Fencing Inspection Data*)

This data sheet is only for those who's sites feature temporary silt fencing

- Photos of any issues encountered
- The condition of fence joints, tent pegs, and tent fabric (rips or tears)
- Notes related to the cause of issue(s) (i.e. if you notice turtle tracks leading to a ripped part in the fence, you can assume a turtle likely ripped it to attempt at crossing the road)
- What methods, if any, you took to repair the fence or resolve the issue

What to Bring With You

- A. We recommend you bring the following personal safety items:
 - High visibility vest or jacket (provided to you by Turtle Guardians staff)
 - Sunscreen and sunhat
 - Water and/or snacks
 - Bug jacket
 - First Aid kit
 - Hand sanitizer
 - Closed toe shoes
 - Gloves (to use to pick up turtles to prevent scratches if you are not comfortable using your bare hands)
 - 2 pylons and/or sandwich boards (provided by Turtle Guardian staff onsite)
- B. We recommend you have the following monitoring supplies (some may be supplied by us onsite):
 - Turtle ID sheets
 - Protocol package (this document)
 - Decision tree
 - Clipboard and pencil with data sheets
 - Hard copy of the *Turtle Road Crossing Monitor Field Sheet - Turtle Sighting Data Sheet* (if not using the online Google Sheet in field)
 - Hard copy of the *Turtle Road Crossing Monitor Field Sheet - Nest Sighting Data Sheet* (if not using the online Google Sheet in field)
 - Hard copy of the *Turtle Road Crossing Monitor Field Sheet - Silt Fencing Inspection Data Sheet* (if not using the online Google Sheet in field)
 - Zip-ties
 - Tent pegs

- Mallet
- Binoculars (if you wish to scan the adjacent wetland(s) for turtles)
- Rubbermaid tote with clasping lid to put all the supplies in, and which can be emptied and used for an injured turtle
- Old towel (to place at the bottom of the bin for injured turtles)
- Nest protector cage (only install if you've received special permission, see D.11.)
- Handheld GPS/phone app
- Flashlight or headlamp (bonus if it has a red light option!)
- Lawn chair (if you need to take a break or if you need to nest sit a turtle)
- Umbrella/rain jacket in case it rains

Safety Considerations for Working/Walking Along Roads

IMPORTANT: Please always value human life and safety above that of a turtle's.

In addition, please follow the below safety protocols when walking along roads:

- A. Make sure to wear your high visibility vest/jacket, always look for hazards, and be alert and aware of traffic at all times.
- B. You should walk *against* the direction of traffic and try to make eye contact with drivers as they approach to ensure they see you. If possible, walk along the side of the road completely off the road and road shoulder, but if that isn't possible, walk along the outer edge of the road shoulder, as far as safely possible from the road.
- C. Do not walk along roads in inclement weather such as thunderstorms, heavy rain, and high winds.
- D. When crossing a road, make sure to check both ways. **Never cross a road on a blind corner/hill - always ensure there are at least 30 car lengths (300 m) free and clear of traffic before crossing the road. Do not just rely on sound cues for traffic, always confirm with your eyes first.**

Turtle Road Crossing Survey Protocol and Safety

Arrival and Setup:

- A. Upon arriving to your site, search for a safe place to park your vehicle that is somewhere completely off the road so that you are not impeding traffic. If possible, park in a nearby public parking lot. If that is not possible, park your car on the road shoulder by putting on your signal and pulling over slowly. Ensure that you are not parking near or on a blind corner/hill. Once on the road shoulder, put on your 4-way hazards and ensure that no part of your car is on the road. Make sure to obey all signs pertaining to parking restrictions.
- B. Before exiting the car, make sure to check your mirrors and blindspots first for traffic and ensure you are wearing your high visibility vest/jacket.
- C. When it is safe to do so, exit your car and close all your doors. Leave your hazards on if not parked in a parking lot. If your car is on the side of the road, place a pylon behind your car 10-15 meters away and on the road shoulder as a further precaution to alert drivers of your parked car.
- D. Ensure that whichever way you will be walking is *facing* oncoming traffic. If you need to cross the road to do so, check both ways and ensure 30 car lengths (300 m) are free from traffic before crossing.
- E. Record your start time on your field data sheet or online Google Sheet when you first begin looking for turtles or inspecting silt fencing.
- F. Walk 100 m past the end points of your survey site/area and place a reflective sandwich board or pylon at each end and on the side towards the oncoming traffic (if there isn't one there already from a previous volunteer). These signs/pylons should be placed at least 100 m (or further if on a blind corner/hill) before each end of the survey site/turtle crossing area (refer to diagram below as an example).



Turtle Survey:

- G. Walk on the road shoulder towards oncoming traffic (you will backtrack in the other direction once you cross the road to survey the other side).
- H. As you walk, scan for turtles crossing the road, approaching the road, in adjacent wetlands, nesting along the road shoulder, hiding in adjacent long grasses along the road, any turtle nests, and any injured or dead turtles on the road/road shoulder/ditch. Note that even though a site may have silt fencing, this can only stall turtles from reaching the road but not necessarily stop them. Turtles can still potentially rip through the fencing, knock down the fencing, and/or cross the road at the ends of the fence - this last trend is more common and therefore the fence-ends should be monitored more thoroughly than the middle of fencing.

To scan for turtles look for:

- moving rocks or rocks in obscure places
- shiny, round rocks
- movement of vegetation without wind
- dig marks where test digs for nests were made
- nesting turtles along the side of the road (rocking or lying in the dirt with a mound behind or around her). See decision description D.5. for more information.

*** Remember if a turtle is nesting, remain at least two car lengths away so she doesn't get spooked and abandon her nest while laying. Try to stay quiet and also avoid shining flashlights on her for long periods of time, although redlight is okay because turtles can not see red light.

To scan for hatchlings, look for:

- Small, flat rocks on the road or nearby with tails (spring and fall)
- Tiny clementine-sized holes in the ground (in the autumn) with small earth-coloured snapping turtle hatchlings within or around the hole

To scan for Snapping Turtle nests look for:

- Two mounds of sand side by side, sometimes called "sand boobs" (see decision description D.8.) * Nests from other species will not be detectable *

To scan for predated nests look for:

- Egg shell remnants in the sand/dirt along road shoulders (see decision description D.9.)

If you come upon a turtle or predated nest in any of these situations, use the decision tree to guide you through the process of recording/reporting data, and helping the animal if necessary.

- I. Once you reach the end of your site, cross the road when it is safe to do so and follow the same protocol along the other side of the road.
- J. You should survey both sides of the road as many times as possible during your volunteer shift so that you can best monitor turtles on the road and promptly and safely provide them the assistance they need. If you need a break, you can set up a lawn chair as far off the shoulder of the road as possible and use your binoculars to scan the road for turtles along your site.
- K. At the end of your volunteer shift, record your finish time immediately after you finish scanning for observations on your online Google Sheet or on a paper field sheet.
- L. **If you *did not* use the online Google Sheet to record your data on site** (i.e. you used paper copies of the field sheets), upload your pictures and transcribe your data onto your online Google Sheet once you have internet access.

Fence Survey:

M. *If your site has silt fencing*, the fence survey should be completed after your initial turtle sweep.

N. To scan fence condition look for :

- Evidence of turtle activity (turtle trails, remaining turtles potentially caught in fence or behind it, suspicious tears, areas of movement under the bottom edge of the fence)
- Stable ends, joints and wooden stakes along the length of the fence
- Rips or holes along the fence fabric
- Secure pegs along the bottom of the fabric between stakes

Make sure you complete the silt fencing inspection checklist that is found on your field data sheet for each portion of fence at least once each site visit. When completing the checklist, if you spot any issues with the fencing, record the data in your Silt Fencing Inspection Data Sheet and text a picture of the issue to Turtle Guardian staff at 705-854-2888 so we/you can repair it. Refer to the decision tree for specific action you should take to repair the fencing, if possible.

O. **If you *did not* use the online Google Sheet to record your data on site** (i.e. you used paper copies of the field sheets), upload your pictures and transcribe your data onto your online Google Sheet once you have internet access.

Decision Descriptions (corresponds to Decision Tree provided)

Important Safety Note: Always ensure there are 30 car lengths (300 m) free and clear of traffic before helping a turtle across the road. If you are on a blind corner/hill, walk with the turtle along the side of the road until you come across a safe place to cross. If a turtle is on the road and there are vehicles within this safety zone (300 metres) or if you cannot see more than 300 metres in either direction, **DO NOT GO ONTO THE ROAD**. Alternative options are to alert oncoming drivers of the turtle's presence by signalling to them, and also to encourage the turtle to move by blowing a whistle found in your safety kit or by honking your horn if you are parked nearby.

D.1. Helping Turtles (except Snapping and Musk Turtles) Across the Road

To help a turtle across the road (excluding Snapping and Eastern Musk Turtles), pick up the turtle like you would a hamburger, as low to the ground as you can. Place your thumbs on top of the upper shell (carapace) and your fingers underneath their belly shell (plastron). Your hands should be between the front and back legs of the turtle on either side and your palms should be against its shell to ensure a secure grip.



Hold the turtle firmly and tightly, this will not hurt them and will prevent you from dropping them when they squirm while being handled. Angle the turtle's belly away from you, because when they are scared they sometimes pee. When it is safe, carry the turtle across the road in the direction they were originally travelling/facing, and as low to the ground as possible. Make sure to pay special attention to which direction the turtle is facing before you start to approach it, often it will change directions once you approach it because it is scared of you. Make sure to move it in the ORIGINAL direction it was facing. If the turtle was facing the middle of the road, make a best guess and move the turtle to that side of the road (where wetland habitat is available) and watch to see if the turtle retreats or ventures back towards the road. If needed, help the turtle cross the road again to the other side.

D.2. Helping Snapping Turtles Across the Road

There are multiple ways to safely help a Snapping Turtle across the road. The main rule is to give their front end a wide berth. Here are the approaches we recommend:

- A. The first method is to approach the turtle from behind and grab onto their top shell at their back with one hand on either side (between their tail and their back leg). You can stick your fingers into these areas (squishy leg holes) beneath the carapace - it won't hurt the turtle. Then, when you have a firm grip, carry the turtle across the road in the direction they were travelling/facing as low to the ground as possible. Note that this method is not ideal for large, heavy Snapping Turtles.



- B. For heavy turtles, there is the “wheelbarrow” method. Using the same grip as A, pick up the back end of the turtle holding them between back legs and tail. Keep their front feet on ground, and walk forward with them. Sometimes they may snap at you, but that helps them hop forward!
- C. Another method is to use a car mat to drag the Snapping Turtle across the road. Put a car mat behind the Snapping Turtle and use the same grip from option A to drag them onto the car mat. Then grab the car mat and use it to pull them across the road, or use your car mat as a “shovel” to push them off.
- D. If you have brought a shovel, this will work in many situations if the shovel is large enough (snow shovels are a good size) to carry or push/plow them off the road. Alternatively, you can cover the turtle and their head with a towel securely and carry them off. In all cases or otherwise a good pair of thick gloves will give you more confidence.
- E. As a last resort, you can also pull a Snapping Turtle across the road using the same grip from A and B to lift their back legs off the ground while keeping their front legs on the ground - effectively dragging them off the road by the back of their carapace. This may result in some road rash but the turtle will recover and this is better than a potentially injured or dead turtle. If you do not want to touch the turtle, you can try getting them to bite onto a big stick and pull them off this way, but again, this may result in road rash and sometimes Snapping Turtles have a hard time letting go of something once they bite onto it.

*NEVER PICK UP A TURTLE BY THE TAIL. A turtle's tail is part of their spine, and picking one up by the tail can seriously injure them.

*If time allows, you can book an appointment at the Turtle Guardian HQ and have training in Snapping Turtle handling.

D.3. Helping Musk Turtles Off the Road

Eastern Musk turtles will act defensive when handled and may try to bite you. Although they are small, their bite can still hurt! To avoid being bitten, hold Musk Turtles from the rear with both thumbs on top of their shell and your fingers on their belly shell between their back legs (as shown below). Because they do not like to be handled, Musk Turtles will try to wiggle out of your grasp so make sure to hold them tightly as this will keep them safe and will not hurt them. As with the other turtles, take the Musk Turtle across the road in the direction they were facing or travelling when you found them on the road.



D.4. How to Help an Injured Turtle Across the Road

To move an injured turtle from the road, carry/hold them in the way that best supports their body and keeps its carapace and limbs together. When off the road, place it in a bin with a dry towel at the bottom. Do not give the turtle food or water. If there is no traffic and it is safe to do so, you can put the injured turtle directly in the bin and then take it off the road. As the decision tree states, if you are in the Peterborough area or it is a serious injury, call the Ontario Turtle Conservation Centre (Turtle Hospital) at **(705) 741-5000** to see if they can have one of their volunteers come and pick up the turtle. If that is not possible and you must drive to the center to deliver the injured turtle, call us at 705-854-2888 when you leave so we can have a volunteer replace you. If the injury is minor and you are in the Haliburton area, call the Woodlands Wildlife Sanctuary at **(705) 286-1133** to arrange to bring the turtle there. Again, call us at 705-854-2888 when you leave so we can have a volunteer replace

you. If you need help determining the severity of the injury, text us a picture at 705-854-2888.

D.5. How to Tell if a Turtle is Nesting

If a turtle is nesting, it will look like it's lying on the ground and it may be slowly rocking from side to side or back and forth. If you can see her legs, she might be slowly scraping away dirt/sand alternating between legs (digging her nest), or similarly moving sand/dirt back over the nest after she is done (covering the nest). There will likely be a pile of disturbed soil behind her.

Nesting turtles are skittish and spook easily (especially Blanding's and Painted), so it is important not to get too close or make too much noise. Remain at least two car lengths away and stay quiet so she doesn't get spooked and abandon her nest while laying. If it is night time, avoid shining your headlamp or flashlight on a nesting turtle for too long as this can also spook a nesting turtle. Instead, shine the light beside the turtle or use red light as this will not bother the turtle.



D.6. How to Tell the Approximate Age of a Turtle

You will be able to determine the approximate age of a turtle (hatchling vs. juvenile vs. sub-adult vs. adult) by using visual cues and the plastron length for each species. Below are some examples of size comparisons for the most common species (Snapping, Painted, Blanding's and Musk Turtles):

Age Class Guide	
Snapping Turtles	
Hatchling	Toonie
Juvenile	Clementine to the length of your hand

Sub-adult	Length of your hand to a large foot/mini pizza
Adult	Family-sized/large pizza
Blanding's and Painted Turtles *Note: Typically, Blanding's are a bit larger than Painted Turtles	
Hatchling	Loonie
Juvenile	Clementine to orange
Sub-adult	Orange to grapefruit
Adult	Larger than a grapefruit
Musk Turtle/ Spotted Turtle *Note: Typically, a Spotted Turtle is a bit larger than a Musk Turtle	
Hatchling	Thumbnail
Juvenile	Ping Pong ball
Sub-adult	Clementine to orange
Adult	Orange or larger

D.7. What do Turtle Tracks Look Like?

In order to determine if a turtle did indeed create a rip in the silt fencing, or knock down a portion of fencing, you will need to investigate the surrounding soil for turtle tracks. This will look like claw marks on either side, with a slithering tail mark in the middle. Shown below is a Snapping Turtle track in sand. If you can spot turtle tracks near a fencing issue, take a picture of the tracks and the issue and note that it was likely caused by a turtle.



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D.8. What does a Snapping Turtle Nest Look Like?

Snapping Turtles are the only species that lay nests that can be identified after the fact. Their nests have two large mounds of dirt/sand beside each other that are separated by a line in the dirt made by their large tail, hence the nickname “sand boobs.”



Close up of Snapping turtle nest (“Sand boobs”)



Snapping turtle nest (“sand boobs”) along roadside. Red keychain is on the left of the nest to show scale.

D.9. How to Identify a Predated Nest

Remnants of egg shells in the dirt mean that a nest has been predated. When the nest hatches successfully, the hatchlings emerge from their shells within the nest cavity, and egg shells do not end up outside the nest.



D.10. How to Tell if a Dead Turtle is Gravid

Look around the turtle's body for evidence of eggs or egg shells. If the turtle's body is badly damaged, without touching the turtle, carefully look and see if you can see any eggs inside of her (if you have a view into her insides). If you see eggs outside her body, or see eggs inside her body, use gloves to put her in a bin. If you are in the Peterborough area, call the Ontario Turtle Conservation Centre (Turtle Hospital) at **(705) 741-5000** to see if they can have one of their volunteers come and pick up the turtle and eggs. If you must leave the site, call us at 705-854-2888 when you leave so we can have a volunteer replace you. If you are in the Haliburton area, call the Woodlands Wildlife Sanctuary at **(705) 286-1133**. Again, if you must leave the site, call us at 705-854-2888 when you leave so we can have a volunteer replace you.

D.11. Is a Nest in a Safe Spot to Cage?

If the nest is on the side of the road or on the shoulder where a car could pull over or drive on, it is not in a safe place to put a cage. If it is in a ditch, or outside a guard rail where it is clear vehicles will not be driving, then it is safe to put a cage here. Keep in mind that if the nest is on someone's property we need to ask permission before caging the nest. If in doubt, call the Land Between (705-854-2888) for assistance in determining if the nest is safe to cage.*

***DO NOT PROCEED TO CAGE A NEST UNTIL YOU CALL THE LAND BETWEEN (705-854-2888) TO RECEIVE PERMISSION.** We will need to determine if you or another volunteer can conduct regular monitoring of the nest cage once it has been installed. We also need to notify the appropriate partner agencies, including Municipal Road Departments of the nest cage. *If you have received permission from us, please proceed to decision description D.12. below.*

D.12. How to Install a Nest Cage

Place the pre-assembled nest cage over top of the nest, using the marker object you placed on the nest as the centre of where the nest cage should go. Make sure to remove the nest marker object before securing the cage. To secure the cage, use tent pegs to secure the corners tightly to the ground so predators can not get underneath.



*For information and a video on how to build/ assemble a nest cage, please see the [Nest Protector online workshop video](#).