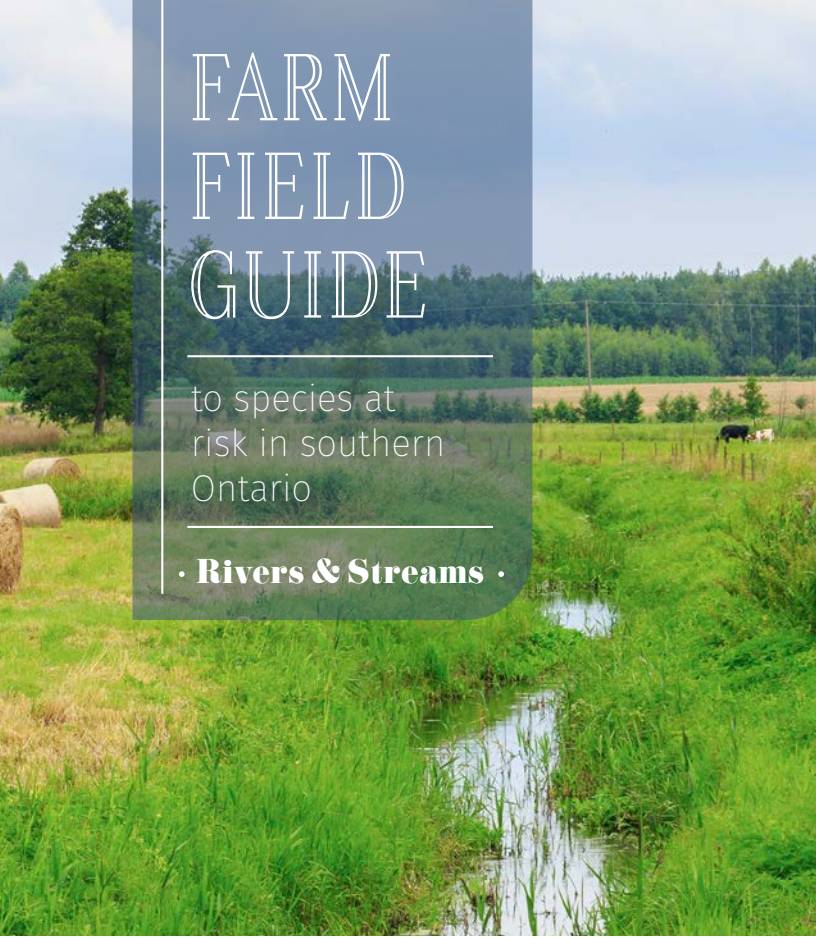


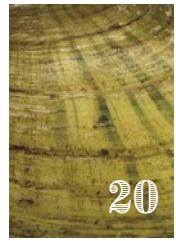
FARM FIELD GUIDE

to species at risk in southern Ontario

· Rivers & Streams ·

A WILDLIFE GUIDE FOR FARMERS

CONTENT

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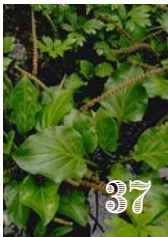
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AN IDENTIFICATION GUIDE FOR SPECIES AT RISK THAT USE RIVERS AND STREAMS IN ONTARIO

Rivers and streams are defined as fast moving or flowing bodies of water. Rivers and streams have been an important part of Ontario's development and growth providing many services to its inhabitants. Most importantly, these waterways are a valuable source of drinking water. Did you know the average person requires about 360 litres of water per day for daily activities?

These waterways provide many valuable services to the agricultural community, including water sources for both growing food and livestock, and recreational opportunities such as fishing or paddling. However, many rivers and streams in Ontario have been diverted and deteriorated by humans. As this trend continues, pressure is placed on the plants and animals that depend on these habitats for survival. All the wildlife featured in this guide depend on rivers and streams and are facing population declines due to various threats. Each species is designated as a species at risk (SAR) provincially and/or federally. This guide will help you identify some examples of wildlife SAR that you may find in rivers and streams on your farm in Ontario.

Each SAR is assigned a status that reflects the level of risk it faces. The Ontario Ministry of the Environment, Conservation and Parks (MECP) defines four categories of species at risk:

"SPECIAL CONCERN"

means the species lives in Ontario, is not endangered or threatened, but may become threatened or endangered due to a combination of biological characteristics and threats.

"THREATENED"

means the species lives in Ontario, is not endangered, but is likely to become endangered if threats are not addressed.

"ENDANGERED"

means the species lives in Ontario but is facing looming extinction or extirpation.

"EXTIRPATED"

means the species once lived in Ontario, but no longer does. Extirpated species are not extinct and live somewhere outside of Ontario. Extirpated species have not been included in this field guide.

WHAT ARE RIVERS AND STREAMS AND HOW CAN THEY BENEFIT MY FARM?

Rivers and streams are an important part of the hydrologic cycle. As rain falls, it either absorbs into the ground or it flows over the surface of the land. The water travels across the landscape, flowing into tributaries (rivers and streams) on its ways to larger bodies of water. Unlike wetlands, rivers and streams always have surface water that flows in a channel. The source of this flowing water is from surface runoff, subsurface runoff, and groundwater. A stream's discharge may increase or decrease depending on the year, season, and weather events. During the spring, snow meltwater travels into rivers and streams, increasing the flow.

During the summer when it is dry, the flow typically decreases. Rivers and streams are comprised of channelized, flowing water. In waterways with gravel or coarser sediment, a riffle-pool sequence develops as a stream's flow alternates from relatively shallow areas with coarse substrate called riffles, to areas with deeper water called pools. The transition zone between the waterway and the surrounding uplands, floodplains, and wetlands is called a river or stream corridor.

Rivers and streams provide many benefits, including:

- Transportation of nutrients that enrich the soil and benefit plant growth
- Water source (for plants, people, and livestock)
- Water storage
- Water filtration by stream corridor vegetation
- Habitat for plant and animal species that benefit overall ecosystem health
- Recreational opportunities including fishing and paddling

STATE OF RIVERS & STREAMS

By the mid 1800's much of Ontario's landscape had been cleared for urban and agricultural development. These land use changes had negative effects on the health of waterways and the species that use them. When a watershed becomes unable to absorb rain into the ground due to parking lots, roads, rooftops etc. the amount of surface runoff increases, which often transports harmful pollutants and excess nutrients into the waterway. This increased surface flow of contaminated water causes increased water temperature, decreased water quality, and shoreline erosion. All of these pressures combined lead to degradation of wildlife habitat. As the health of a waterway decreases, animals that rely on this important habitat struggle. Healthy waterways are required to support wildlife breeding, feeding and overwintering. Fortunately, thriving agricultural landscapes and healthy stream environments can coexist and benefit from each other!

By protecting and restoring rivers and streams, you can help prevent threatened wildlife species from disappearing from Ontario! Planting or maintaining a vegetated buffer between waterways and agricultural activities (ex: grazing livestock or cutting hay) is a simple but effective way to help keep your farm stream healthy.

HOW TO USE THIS GUIDE

This guide contains two types of species descriptions. Full species accounts are given for SAR that are relatively wide-ranging in Ontario rivers and streams. These accounts include a photograph, identification features, habitat needs, and threats. Partial species accounts are given for the SAR that have limited ranges in Ontario. These sections include a photograph of the species and a short description. The species listed in this guide are not a complete list; some other important river and stream SAR are excluded from this guide because they have very restricted ranges and/or they require expert knowledge to identify and differentiate them from similar species.

Additional information on the species listed in this guide and other SAR in your area can be found at the Species at Risk in Ontario webpage, the Environment and Climate Change Canada Species at Risk Public Registry, and on Canada's Aquatic Species at Risk Map.

SAR In Ontario: www.ontario.ca/page/species-risk
SAR In Canada: www.registrelep-sararegistry.gc.ca
National Aquatic SAR:
www.dfo-mpo.gc.ca/species-especes/sara-lep/map-carte/index-eng.html

YOUR OBSERVATIONS ARE IMPORTANT

Why Should I Report the Species I See?

Long-term monitoring is the best way to understand if species' populations are increasing, decreasing or stable. Monitoring SAR is especially important as it helps us understand what recovery actions are needed to stop population declines, and if our actions are helping populations recover. Reports from people living across the landscape are incredibly beneficial for long-term monitoring. This information is often called citizen science, and it can enhance the monitoring done by scientists in the field.

Reporting SAR observations can also benefit your farm. Stewardship programs and funding to support protection and recovery of SAR and their habitat are often available. Restoring stream habitat will likely benefit many other species, bringing with them additional benefits for your farm.

What Should I Record?

When you are working on the farm, it can be useful to have a notebook on hand to record any species information. The species name, date, number of individuals, behaviour, weather conditions, and location are all important details to include.

Where Should I Report My Observations?

You can report your species (plant and animal) observations to the Natural Heritage Information Centre. Your observations will support biodiversity conservation efforts in Ontario!

Natural Heritage Information Centre:
www.ontario.ca/page/report-rare-species-animals-and-plants

Many thanks to Blazing Star Environmental for developing the content of this field guide. For more information on any of the species included in this guide, or to learn about other species at risk found in rivers and streams or on farms in Ontario, please visit www.ontario.ca/environment-and-energy/species-risk-ontario-list

Design by Supermarket Communications.

REDSIDE DACE

Clinostomus elongatus

Status in Ontario: **Endangered**

This member of the minnow family can be found in select streams flowing into Lake Huron, Lake Simcoe and Lake Ontario. Within these streams, redside dace can be found in pools or slow-moving sections of gravel-bottomed streams that contain overhanging shoreline vegetation. Their spawning season occurs in late May, and during that time they can be found in shallow stream sections. Redside dace are expected to live for 3-5 years. Redside dace consume terrestrial insects such as flies that can be found flying around overhanging shoreline vegetation. This species is threatened by habitat loss and degradation caused by shoreline vegetation removal, pollution and sedimentation from surface runoff.

Size

Adults are 7.5 - 12 cm long

Shape

- Small narrow body
- Large mouth and protruding lower jaw for feeding on insects
- Males have longer pectoral fins than females

Colour

- A thick red stripe extends from the front half of the body, turning into a black stripe that extends to the tail fin
- Above the red stripe, a yellow stripe extends from just behind the eye to the tail fin
- Green back with a silvery white belly
- Males are slightly brighter than the females, particularly in the breeding season (May)

Did you know the redside dace can leap up to 10 centimetres out of the water to capture flying insects?

Photo by Brian Zimmerman

EASTERN SAND DARTER

Ammocrypta pellucida

Status in Ontario: **Endangered**

The eastern sand darter is a member of the perch family. It can be found in southwestern Ontario in rivers, streams, and shallow lakes with clear, sandy bottoms. However, it isn't easy to see this secretive species because its colouring allows it to blend in perfectly with the sandy bottom, where it spends much of its time buried. It mainly feeds on small aquatic insects. Threats faced by this species include increased sediment from surface runoff that can kill fish eggs, dams that block movement of the species, and invasive species like the round goby that out-compete the eastern sand darter.

Size

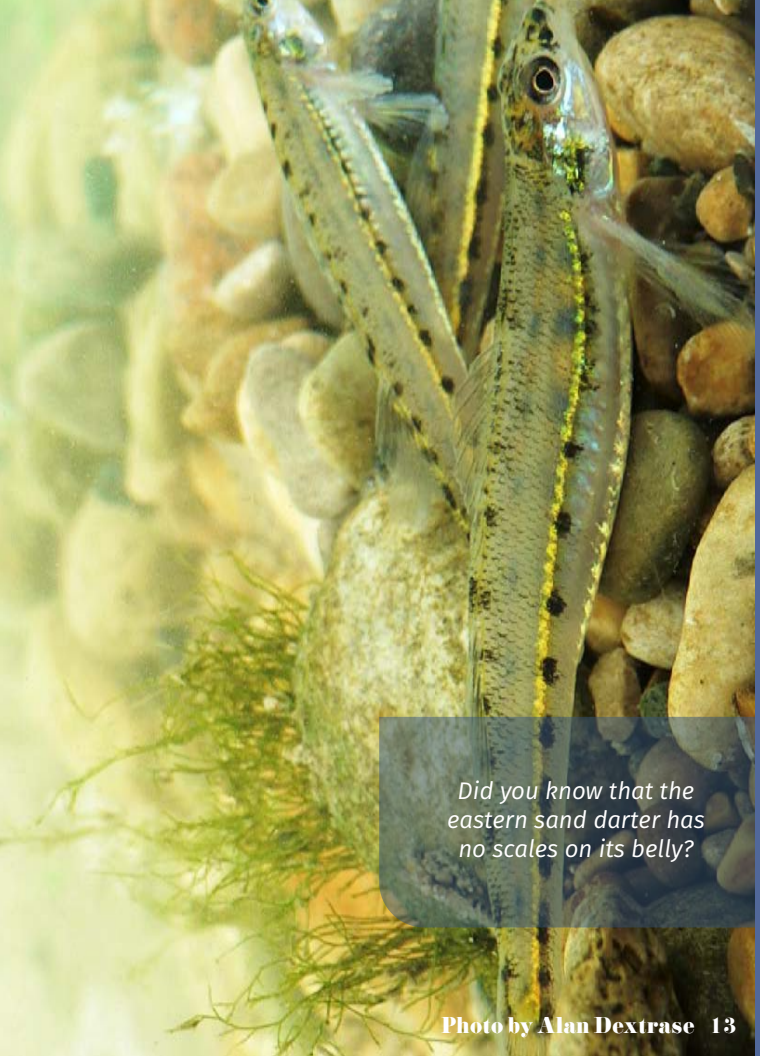
Adults are 4 – 7 cm long

Shape

- Slender-bodied fish
- Large eyes
- Small mouth

Colour

- Translucent body with white, yellow, or silver tinges
- Dark spots along sides
- Breeding males can have metallic blue or green colouration on their cheeks



Eastern Sand Darter · *Endangered*

Did you know that the eastern sand darter has no scales on its belly?

Photo by Alan Dextrase

GRASS PICKEREL

Status in Ontario: **Special Concern**

Esox americanus vermiculatus

The grass pickerel is a member of the pike family. In southern Ontario, it can be found in the Great Lakes region. The grass pickerel can be found in many aquatic environments including slow-moving streams, wetlands, ponds, and shallow portions of lakes. It prefers heavily vegetated, warm, shallow and clear water. The grass pickerel spawns from March to May, 2-3 years after hatching. Some grass pickerel spawn a second time from late summer into early winter. Juveniles feed on insects, while adults hunt other fish. This species is threatened by decreased water levels, loss of vegetation, and decreased water clarity caused by fertilizer-enriched surface runoff and shoreline modifications.

Size

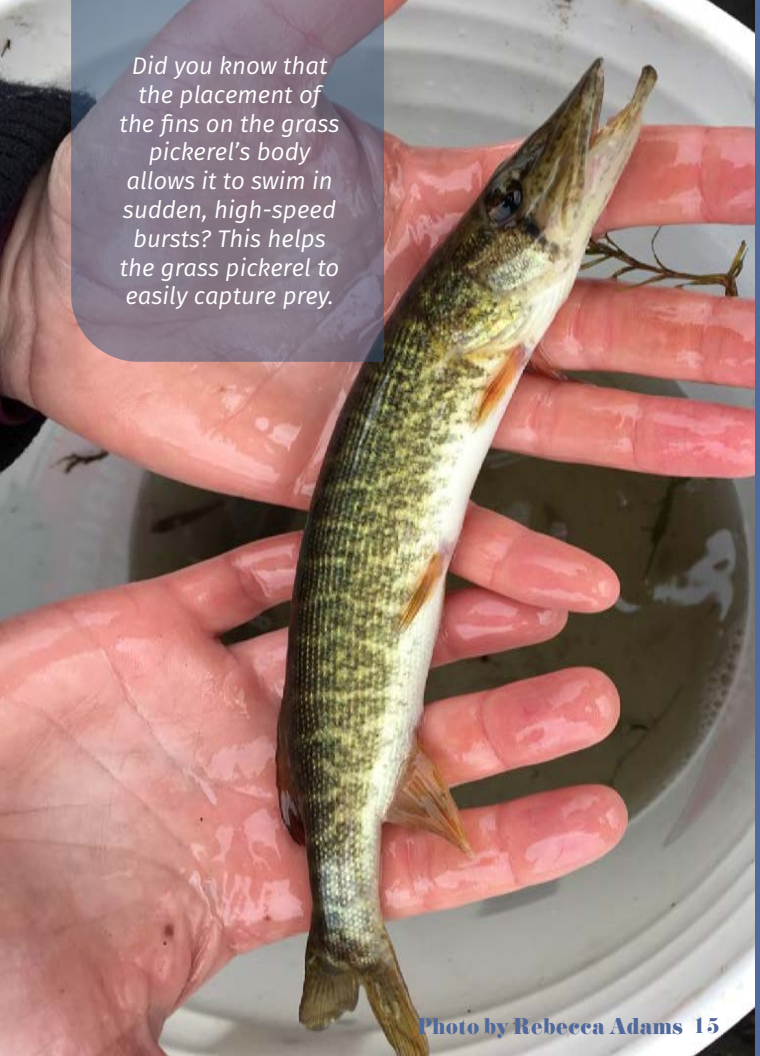
Adults are less than 30 cm long

Shape

- Long, cylindrical body with a long snout and forked tail
- Dorsal and anal fins are located far back on the body

Colour

- Body is pale to dark green, with many wavy dark brown or green bars on sides
- Fins are yellow-green
- Adults have a dark brown or green bar below the eye



Did you know that the placement of the fins on the grass pickerel's body allows it to swim in sudden, high-speed bursts? This helps the grass pickerel to easily capture prey.

Photo by Rebecca Adams

NORTHERN BROOK LAMPREY

Ichthyomyzon fossor | *Status in Ontario:* **Special Concern**

The northern brook lamprey is a jawless fish. In Ontario, northern brook lamprey can be found near Hudson Bay and in the Great Lakes region. They prefer clear, cold, slow-moving streams with muddy bottoms, which juvenile northern brook lamprey will burrow into. Adult northern brook lamprey can be found in fast-flowing sections of streams which are used for spawning. The northern brook lamprey is threatened by pollution, changes in water levels and water temperature, and pesticides used in their habitat to control invasive lamprey species such as the sea lamprey.

Size

Adults can grow up to 16 cm long

Colour

- Back and sides are dark grey-brown
- Belly is pale grey or silvery white

Shape

- Small, elongated, slender body like an eel
- One single continuous dorsal fin running the length of the body
- Round, jawless mouth with teeth arranged in a circle

Did you know that lampreys have no bones? Their skeleton is made of cartilage!

Northern Brook Lamprey · *Special Concern*

Photo by Phil Bird

WAVY-RAYED LAMPMUSSEL

Lampsilis fasciola | *Status in Ontario:* **Threatened**

The wavy-rayed lampmussel can be found in southwestern Ontario. It prefers small to medium-sized rivers that have a strong current and a sandy bottom. All mussels find their food by filtering nutrients, bacteria and algae out of water. The wavy-rayed lampmussel larvae must attach to their fish hosts, largemouth bass and smallmouth bass, to mature. The wavy-rayed lampmussel is threatened by increased pollutants and sediment due to surface runoff as well as the invasive zebra mussel.

Size

Up to 10 cm long

Shape

Rounded shell

Colour

Shell is yellow or yellow-green with many wavy thin green lines

Did you know that mussels can tell us a lot about the health of their environment? Since they are a long-lived species, and filter their food from the water, a lot of healthy mussels means a very healthy waterway!

Photo by Shawn Staton

RAINBOW MUSSEL

Villosa iris | *Status in Ontario:* **Special Concern**

The rainbow mussel can be found in southwestern Ontario. It prefers small to medium rivers that have a strong current and a sandy bottom. This species can be found in riffle areas in shallow water (less than 1 m deep) alongside shoreline vegetation. All mussels find their food by filtering nutrients, bacteria and algae out of water. The rainbow mussel uses a variety of fish hosts, including smallmouth bass, largemouth bass, rainbow darter, and yellow perch to name a few. The rainbow mussel is threatened by pollutants and the invasive zebra mussel.

Size

Up to 8 cm long

Shape

Elongated and oval-shaped shell

Colour

- The outside shell is yellow, green or brown with broken dark green lines
- The inside shell is iridescent with different hues of the rainbow

Did you know that the rainbow mussel can produce a biological fishing lure that resembles a crayfish?

Photo by Janice L. Metcalfe-Smith

QUEENSNAKE

Status in Ontario:
Endangered

Regina septemvittata

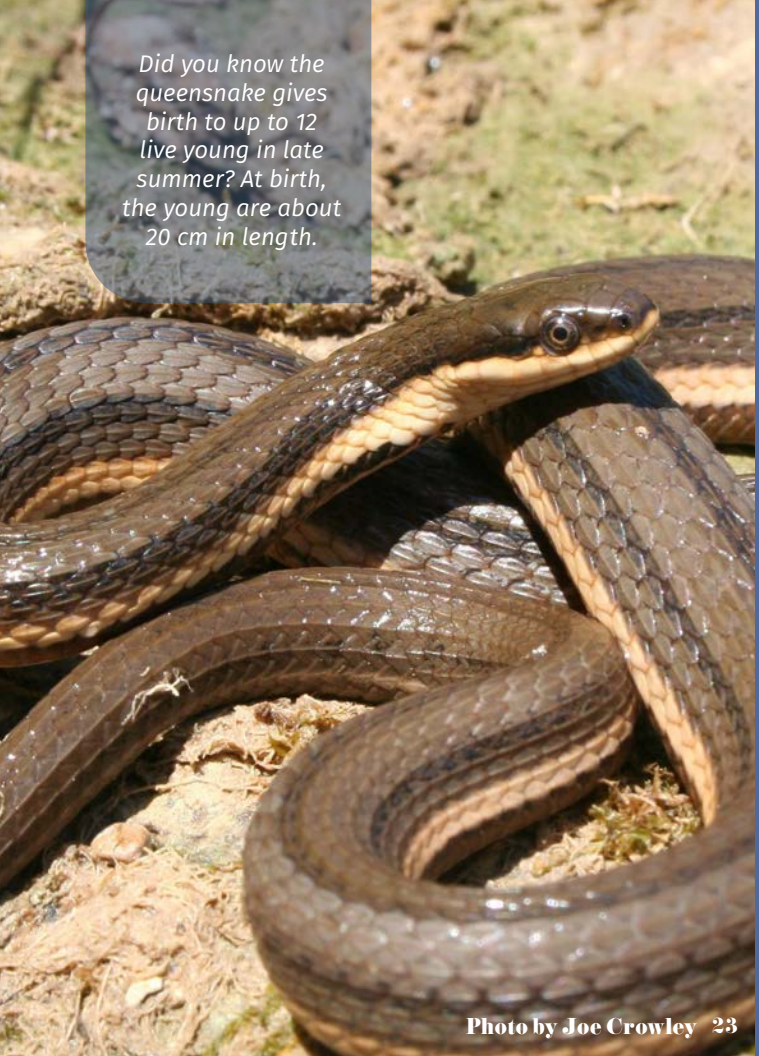
The queensnake is a semi-aquatic snake species that can be found in or near rivers and streams with high water quality and rocky bottoms. Queensnakes can only be found in a few areas within southwestern Ontario and the Bruce Peninsula. The queensnake feeds mostly on freshly molted crayfish with the occasional small fish or tadpole. It spends much of its time hunting for crayfish, basking on overhanging shoreline vegetation and taking cover under rocks in rivers and streams. During the winter, queensnakes will hibernate in abutments of old bridges and cracks in bedrock. Queensnakes reach maturity after 3-4 years and are estimated to live for more than 20 years. Habitat loss due to waterway drainage, urban development, pollution as well as human persecution and illegal collection for the pet trade threaten queensnake populations.

Size
Adults are 34-92 cm long

Shape
A slender-bodied snake

Colour

- Overall brown, olive or grey in colour
- 7 dark stripes run the length of the body: 3 faint stripes along the back, 1 on each side, and 2 along the belly
- Cream, yellow, grey or tan belly with 2 dark stripes (the only snake in Ontario with stripes on its belly)



Did you know the queensnake gives birth to up to 12 live young in late summer? At birth, the young are about 20 cm in length.

Photo by Joe Crowley

SPINY SOFTSHELL

Apalone spinifera

Status in Ontario: **Endangered**

The spiny softshell is one of Ontario's most unique and easily recognizable turtles. It is highly aquatic with a distinct leathery shell that is round and flat. Its range extends from Quebec into southwestern Ontario. Within that range, they can be found in rivers, lakes and creeks with shallow muddy or sandy areas to bury into, deep pools for hibernation and nearby sand or gravel patches for nesting. Males reach maturity in 4 years, while females reach maturity in 7 years. Spiny softshells lay 3-43 round hard-shelled eggs that hatch in 2-3 months. Shoreline development, nest predation, nest flooding, fishing accidents, and illegal collection threaten this species.

Size

- Adult male shell is 12-24 cm long
- Adult female shell is 18-50 cm long

Shape

- Round, flat and leathery shell
- Long neck usually half the length of the shell with a snorkel-like snout

Colour

- Male: shells are solid olive-brown, with many dark-bordered spots
- Female: shells are camouflaged pattern with green, brown and beige blotches
- The lower shell (plastron) is cream coloured
- Tail and legs appear green with yellow and black stripes, flecks and blotches
- The head has a dark-bordered yellow stripe that passes through each eye

Spiny Softshell · *Endangered*

Did you know that the spiny softshell is the second largest native turtle species in Ontario? It is only smaller than the snapping turtle!

Photo by Scott Gillingwater

NORTHERN MAP TURTLE

Graptemys geographica | *Status in Ontario:* **Special Concern**

The northern map turtle can be found in rivers and streams throughout southern Ontario and as far north as Georgian Bay. It prefers rivers and lakes with high water quality that contain basking sites (rocks and logs) and lots of food prey. Northern map turtles primarily eat molluscs and have a hard, strong jaw used to crack them open. Female northern map turtles take more than 10 years to reach maturity. At maturity, map turtles lay 7-23 eggs in a clutch in May and June. Habitat loss and degradation, road mortality, boat propeller mortality and illegal collection for the pet trade threaten this species.

Size

- Adult male shell length is 9-16 cm
- Adult female shell length is 18-27 cm

Colour

- Shell is green or brown with contoured yellow lines like contour lines on a map
- Lower shell (plastron) is cream to yellow
- Head and limbs are dark brown or green with many yellow stripes

Shape

- Oval shell that is serrated at the back
- Upper shell has a central keel

Look for

- Northern map turtles can be seen basking on logs, rocks, or floating near the warm water surface
- In late May to late June, females might be seen moving to nest sites to lay their egg

Did you know that map turtles are fantastic swimmers? They have large webbed feet to help them swim in deep cold waterbodies.

Photo by Joe Crowley

BALD EAGLE

Haliaeetus leucocephalus | *Status in Ontario:* **Special Concern**

Bald eagles can be found throughout Ontario. The bald eagle nests in large trees located near major rivers and lakes, where they have easy access to fish, their main food source. Bald eagles also act as scavengers and can prey upon dead animals. In the winter, bald eagles congregate together near open water. This species historically faced threats including hunting and pesticides. Today, bald eagles are threatened by shoreline development and pollution.

Size

- Wingspan up to 2 m
- Up to 80 cm tall

Shape

- Large, perching bird of prey
- Big body, large beak and strong powerful legs
- While flying, it's white head and neck, and tail appear to be equal lengths

Colour

- Adult: White head, neck and tail, dark brown body, yellow beak and pale eyes
- Juveniles: Mostly brown with variable white speckles

Listen for

A series of high-pitched whistling notes

Look for

A large soaring bird with white head and tail whose wings appear flat and straight

Did you know that bald eagle nests can reach 1.5 metres wide and 1.2 metres deep!

BANK SWALLOW

Riparia riparia | *Status in Ontario:* **Threatened**

Bank swallows can be found in spring and summer throughout southern Ontario, with small populations in northern Ontario. Bank swallows nest in burrows within sand or silt deposits with vertical faces. Nests are often found along riverbanks and lakes but can also be found in gravel or sand pits. Bank swallows primarily consume insects while flying, and hunt on land for insects including spiders. This species is threatened by loss of habitat, vehicle collisions, and decreasing prey populations.

Size

Approximately 12 cm from bill to tip of tail

Colour

- Brown back, wings, tail and head
- While belly, neck, and underside of wings
- Dark brown band across chest

Shape

A small songbird

Look for

Characteristic flight pattern of quick erratic wing beats

Listen for

Constant buzzing and chattering vocalizations while in flight

Did you know that bank swallows can dig a 60-90 cm long burrow in just 5 days?

EASTERN MUSK TURTLE

Sternotherus odoratus

Status in Ontario: **Special Concern**

Eastern musk turtles are one of Ontario's smallest turtle species. They are found in many slow-moving freshwater environments including rivers, lakes, and ponds. Their habitat must have muddy bottoms which the eastern musk turtle burrows into, and lots of aquatic vegetation. Like other turtle species, the eastern musk turtle is threatened by habitat loss and degradation, pollution, and boat injuries.

Size

Adult shell length 9-12 cm

Shape

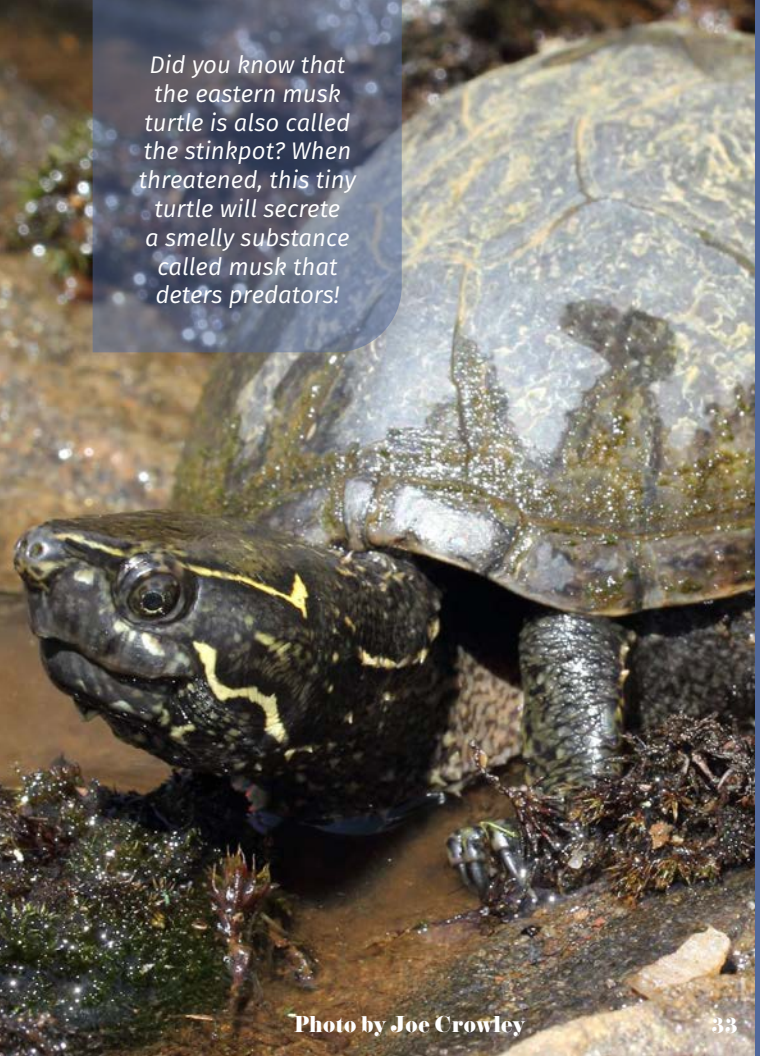
Highly-domed, small shell with a large triangular head

Colour

- Shell is tan, cream, olive or black with dark flecks or spots, often covered in green algae
- Lower shell is small, provides little protection, and is usually cream, pink or black
- Skin can be pink, grey, light brown or black

Look for

- Eastern musk turtles prefer to hide or "aqua-bask" under lily pads in warm surface water – lily pads can bulge up when an eastern musk turtle is under it
- Eastern musk turtles will remain under cover until late morning when the surface of the water warms up enough to aqua-bask



Did you know that the eastern musk turtle is also called the stinkpot? When threatened, this tiny turtle will secrete a smelly substance called musk that deters predators!

Photo by Joe Crowley

KIDNEYSHELL MUSSEL

Ptychobranchus fasciolaris

Status in Ontario:
Endangered

- They occur in four known areas in southwestern Ontario. Found in small to medium-sized rivers with shallow, fast-moving water.
- Average length of 12 cm
- Shell is kidney-shaped with squarish green spots.


Photo by Todd Morris

SILVER SHINER

Notropis photogenis

Status in Ontario:
Threatened

- A member of the minnow family that is found in rivers and streams that flow into Lake Ontario. The silver shiner prefers sections of streams with a strong current. This species feeds on crustaceans and adult flies.
- Adults grow up to 14 cm long


Photo by Andy Turner

CHANNEL DARTER

Percina copelandi

Status in Ontario:
Special Concern

- A small member of the perch family that can be found in clean, sandy-bottomed tributaries in southwestern Ontario.
- Adults are 3 – 7 cm long


Photo by Mike Parna

HUNGERFORD'S CRAWLING WATER BEETLE

Brychius hungerfordi

Status in Ontario:
Endangered

- Only three known populations occur in Ontario. They live in small to medium-sized rivers with cool, fast-flowing water, often downstream from beaver damns, and man-made barriers.
- 4 mm long


Photo by Steve Marshall

LAURA'S CLUBTAIL

Stylurus laurae

Status in Ontario:
Endangered

- Only two known populations occur in southwestern Ontario. The larvae need shallow, muddy-bottomed creeks with forested shorelines.
- 6 cm long
- Bright green eyes and pale face with one or two black crossbars

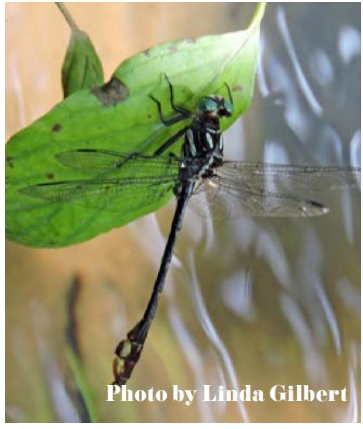


Photo by Linda Gilbert

RIVERINE CLUBTAIL

Stylurus amnicola

Status in Ontario:
Endangered

- Only two populations occur in southwestern Ontario near Lake Erie. The riverine clubtail needs shallow, muddy-bottomed creeks.
- 5 cm long
- A black dragonfly with yellow spots, and a distinctive three-pointed star on thorax. They have a prominent club at the end of its tail.


Photo by John Abbot

AMERICAN WATER-WILLOW

Justicia americana

Status in Ontario:
Threatened

- Grows along the shores and in the water of streams, rivers, lakes, ditches and wetlands.
- 20 - 100 cm high
- Blooms in May and early June


Photo by Sam Brinker

HEART-LEAVED PLANTAIN

Plantago cordata

Status in Ontario:
Endangered

- Found in undisturbed wet woods along rocky beds of shallow, slow-moving streams.
- 10 - 25 cm high
- Large, heart-shaped leaves during the summer
- Purple-green flowers


Photo by Mike Oldham