

# Sydenham River Watershed

*helping species at risk* **May 2024**

The Sydenham River in southwestern Ontario is the only major watershed which lies completely in the Carolinian Life Zone and is relatively undisturbed by industrial and urban development. The Sydenham is a biological treasure – it supports an incredible variety of aquatic life, or what we call biodiversity. An array of freshwater species, including at least 34 mussel species and 80 fish species reside in the Sydenham River, making it one of the most species-rich watersheds in Canada. Several species are found nowhere else in the country, and some remain at only a few locations globally. More than 20 species of fish and mussels that live in and around the Sydenham River are nationally or provincially Species at Risk.

## What's Inside

**10,000 Turtles!**  
**A Milestone for the ages!**

**Learning Conservation Through Internship**  
**Dominique Rumball**  
**(PhD Student)**

**Project Spotlight**  
**Farm Fields & Turtles are connected!**

**Species at Risk Photo Contest**  
**Enter Now!**

## Exploring the Secrets of the North (Sydenham)

*SCRCA Biology Department launches the North Sydenham Watershed Mussel and Host Fishes Inventory*

The Sydenham River is globally recognized and known for its incredible

biodiversity and conservation of some of the rarest species in North America. Much of this acclaim is a result of the numerous studies and surveys conducted on the Sydenham's infamous East Branch. The Sydenham's North Branch may often be overshadowed by its larger, eastern sister, but it still holds many secrets of its own. An example of North Branch discoveries happened during surveys conducted between 2017 and 2019; SCRCA Biologists recorded over 15,000 mussel observations, including four species recorded for the first time on the North Branch. These included Pimpleback, Slippershell, Threehorn Wartyback (Threatened), and Kidneyshell (Endangered).

With these recent first-time discoveries in mind, the SCRCA Biology Department, in partnership with Fisheries and Oceans Canada's Habitat Stewardship Program, launched the North Sydenham Watershed Mussel and Host Fishes Inventory.



*Continued on Next Page* →

## What is a Host Fish?

In ecosystems, a Host is a larger organism that "hosts" a smaller organism for a period of time, typically providing food and shelter. In the case of some freshwater mussels, they clamp onto a fish's gills during their larval (baby) stage, until they are able to survive on their own and detach from the fish. This interaction is necessary for the mussel's survival and does not have any lasting negative effects on the fish.



The three-year project will adopt a multi-species sampling approach to quantify the distribution of species at risk (SAR) mussels and fishes in understudied tributaries of the North Sydenham River. The main goal of these inventories is to continue filling knowledge gaps relating to SAR mussel distribution and population size. Research projects like this can help with species recovery efforts and inform land managers on where to focus stewardship projects to mitigate threats faced by aquatic species at risk.

To learn more about the species of the Sydenham River, visit the "Species At Risk" tab on our website at [www.sydenhamriver.on.ca](http://www.sydenhamriver.on.ca).



**Cylindrical Papershell Mussels**  
(*Anodontooides ferussacianus*)

Photo by Craig Paterson



**Turtle Hatchlings Making it Home**

Photo provided by Imperial Oil Sarnia

## 10,000 Turtles!

*Milestone Achieved by SCRCA's Captive Hatch and Release Program*

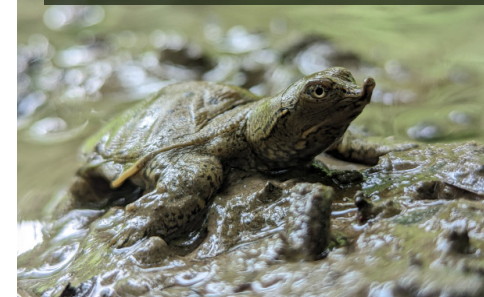
Since 2016, biologists at the SCRCA have been aiding in the recovery of at-risk turtles through the Captive Hatch and Release Program. The program aims to increase hatchling survivorship by eliminating threats posed by nest predation and destruction during one of the most challenging and vulnerable stages in a young turtle's life.

This year marked the release of the 10,000<sup>th</sup> turtle hatchling back into the wild through this program. This momentous achievement would not be possible without the continued help and support from the Authority's extensive partner network, in particular, Species at Risk Biologist Scott Gillingwater of the Upper Thames River Conservation Authority.

### *Partnership Highlight: Imperial Oil Partnership*

Imperial Oil Sarnia generously donated \$30,000 to support the SCRCA's Captive Hatch and Release Program that successfully rescued, incubated, and released over 2,600 at-risk turtle hatchlings during the 2023 season. Imperial Oil representatives joined SCRCA staff to help release the hatchlings (see image to the left).

**Eastern Spiny Softshell Turtle**  
(*Apalone spinifera*)



## Sydenham River Aquatic Species at Risk Threat Inventory

The SCRCA is working on a three-year project to catalogue threats that are experienced by 22 aquatic Species at Risk that are found in the Sydenham River, including five globally threatened species. The threat inventory will help scientists, land managers, policymakers, and communities better understand and reduce the local threats experienced by these animals as well as the aquatic environment overall. This project is being undertaken by the SCRCA with funding from the Habitat Stewardship Program for Aquatic Species at Risk.



## Project Spotlight

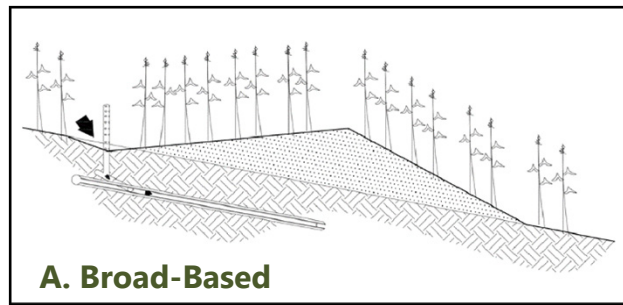
*How are farm fields and Eastern Spiny Softshell Turtles connected?*

Agriculture is the predominant land use throughout the Canadian range of the Eastern Spiny Softshell Turtle (ESST). As the Sydenham River meanders, it gathers overland runoff that flows off the land. Rural runoff can carry valuable nutrients and sediment from a farm field and deposit them into nearby watercourses (see image below). Losing nutrients and sediment through runoff hinders the productivity of a farm field and when deposited into a watercourse, can degrade water quality. Sedimentation can 1) increase turbidity (cloudiness) of the water, impeding an ESST's ability to forage; 2) inhibit aquatic plant growth; and 3) alter natural food chains by smothering organisms (and their habitats) at the base of the food chain.

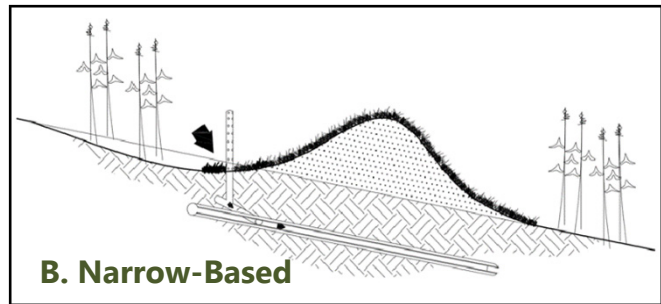


The Erosion Control Project above was in the Upper Sydenham River Subwatershed. It addressed numerous gullies present on the farm fields, by designing and installing twenty-two WASCoBs.

How can farmers keep their much-needed soil and nutrients on the field? One method is to install an earthen berm or a Water and Sediment Control Basin (WASCoB) perpendicular to the overland flow.



WASCoBs can be a) broad-based and used for crop production or b) narrow-based and permanently vegetated with crops grown on either side.



WASCoBs are commonly built in areas prone to gully erosion and/or with high overland flow. The small earthen embankments store overland flow and slowly release water through an underground outlet, typically via a Hickenbottom (the orange plastic risers often seen in a farm field) connected to an underground tile.

By storing the water, and slowly releasing it, suspended sediment and nutrients can settle; the reduced speed of overland flow prevents gully erosion; and water drains at a rate that will not drown or damage the surrounding crop. Some WASCoBs are short and wide enough to farm over, while others need to be taller and permanently vegetated; the watershed determines the size of the WASCoB drains (see diagrams above).

Landowners living on or around the Sydenham River and its tributaries can help improve aquatic Species at Risk habitat (and the health of the watershed in general) by restoring and/or conserving marginal land.

Contact Jessica Van Zwol, Healthy Watershed Specialist at the St. Clair Region Conservation Authority ([jvanzwol@scrca.on.ca](mailto:jvanzwol@scrca.on.ca)) or visit [www.sydenhamriver.on.ca](http://www.sydenhamriver.on.ca) "Get Involved" Tab to find out more about stewardship projects in the watershed.



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## Partners in Conservation

Department of Fisheries and Oceans Canada

Environment and Climate Change Canada

Ontario Ministry of Natural Resources and Forestry

Ontario Ministry of the Environment, Conservation, and Parks

Ontario Ministry of Agriculture, Food, and Rural Affairs

Aamjiwnaang First Nation

Chippewas of Kettle & Stony Point First Nation

Bkejwanong First Nation

Chippewas of the Thames First Nation

Caldwell First Nation

Delaware Nation

Munsee-Delaware Nation

Oneida Nation of the Thames

Upper Thames River Conservation Authority

Salthaven Wildlife Rehabilitation and Education Centre

Ontario Soil and Crop Improvement Association

Ontario Nature

Ducks Unlimited Canada

Wildlife Habitat Canada

Forests Ontario

University of Windsor Healthy Headwaters Lab

FishCAST

Rural Lambton Stewardship Network

Ontario NativeScape

ALUS (Middlesex, Lambton, Kent)

Imperial Oil

Enbridge

Friends of the St. Clair River

St. Clair Region Conservation Foundation

## Experiencing Conservation Through Internship

*Dominique Rumball, PhD Student at University of Toronto*

I am a PhD student studying freshwater ecosystems at the University of Toronto, and a member of the FishCAST NSERC Create Program. I was fortunate enough to join the SCRCA biology team for a two-month internship in the Summer of 2023. During my time with SCRCA, I encountered many unique species living in naturalized and human-impacted areas of the Sydenham River Watershed. Some of the many highlights of my internship included collecting turtle eggs and releasing turtle hatchlings as part of the Captive Hatch and Release Program, conducting exploratory fish and mussel sampling in tributaries that have never been sampled before; producing an episode for "Learn with Ranger Em", on Spotted Gar and Habitat Restoration with the revered Ranger Em, a local conservationist with her own show on Rogers tv; and joining the Healthy Headwaters Lab and Bkejwanong Eco-Keepers for a fantastic afternoon of knowledge-sharing. Lastly, I was lucky enough to work with some amazing science communicators to create an interpretive sign for the Keith McLean Conservation Area and educational resources for my soon-to-be-published children's book, *Finding A Forever Home, The Adventures of Giigoonh, The Spotted Gar*.

Thank you to SCRCA for making this internship such a fantastic experience and showing me how we can all work together with nature to create a better future.



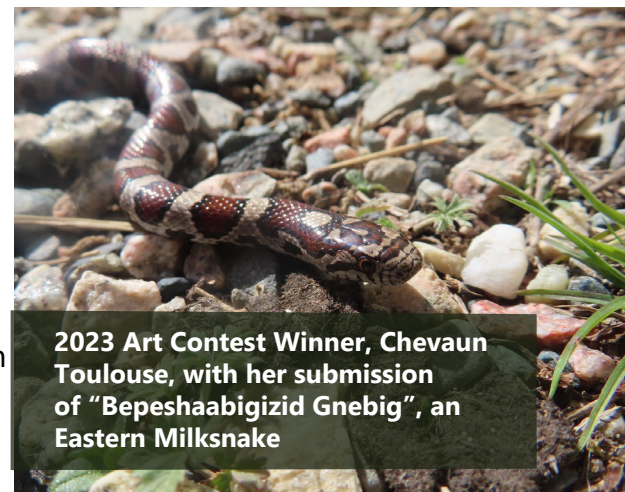
**Dominique Rumball, holding a Spotted Gar**

## 2024 Annual Photo Contest

*Entries due August 31st*

This year, the SCRCA will be hosting a photo contest to celebrate this wonderful watershed we live in! The contest is open to everyone, but the photos must have been captured within the St. Clair Region Watersheds (map can be found online). The contest will have two age groups:

adults and children (ages 12 and under), with two categories to submit photos: Habitat/Landscape and People in Nature. Entries are due by August 31, 2024. For all the details and to enter, please visit [www.sydenhamriver.on.ca/2024-art](http://www.sydenhamriver.on.ca/2024-art)



**2023 Art Contest Winner, Chevaun Toulouse, with her submission of "Bepeshaabigizid Gnebig", an Eastern Milksnake**