Sydenham River Watershed

helping species at risk

March 2021

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. A great diversity of freshwater species, including at least 34 species of mussels and 80 species of fishes reside in the Sydenham River, making it one of the most species-rich watersheds in Canada. Several species are found nowhere else in Canada, and some remain at only a few locations globally. Nineteen species of fish and mussels which live in and around the Sydenham River are nationally or provincially Species at Risk.

Reflections on Conducting Research During a Pandemic

When the snow and ice recedes under the rejuvenating spring sun, the St. Clair Region Conservation Authority (SCRCA) Biology department embarks on an intensive monitoring schedule throughout the watershed. Much of the watershed-based research conducted attempts to understand the physical health of the environment by assessing water quality and biological health through the study of aquatic organisms like fish, mussels and benthic macroinvertebrates. The 2020 field season presented many unique challenges with an ongoing global pandemic, reduced monitoring window resulting from lockdown restrictions, and a work schedule bursting at the seams. Despite these unique challenges, 2020 was a resounding success.

In early June, SCRCA biologists began the 2020 season with their turtle head-starting program, where turtle nests located within the watershed are monitored during the nesting season. Staff carefully collect eggs from nests that are at risk of predation and destruction and safely store them in incubators until they hatch. The turtle head-starting program aims to increase hatchling survivorship by eliminating the threats posed by nest predation and destruction during one of the most challenging and vulnerable stages in a young turtle's lifecycle. The SCRCA turtle team collected 799 eggs during the 2020 season (496 endangered Eastern Spiny Softshell, 303 special concern Common Snapping Turtle) — a new record for the turtle team. The hatchlings were released back at their original nest sites in late August.

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Eastern Spiny Softshell Turtle


Salamander Mussel


Round Goby

Between turtle egg collection and waiting for the hatchlings to develop, the biology team began freshwater mussel monitoring along a 5 km stretch of the Sydenham River. Staff documented 1,689 live mussels, 89 of which were species at risk including the globally threatened Northern Riffleshell, Salamander Mussel, Snuffbox, and Rayed Bean. Although rarely seen or encountered, mussels play an integral role in shaping aquatic ecosystems. Beneath the surface, mussels are a filter-feeding powerhouse. A single mussel can filter 40 L of water per day. Collectively, the mussels recorded in this study can filter a staggering 25 million litres of water a year! This filtering process removes algae, organic matter, and nutrients; converts cloudy contaminated water to clear and healthy; and benefits an array of aquatic organisms from plants to fish to invertebrates.

As the mussels filter the waters of the Sydenham River and turtle hatchlings begin to emerge from eggs, fish monitoring begins. The 2020 fish monitoring program focused on detecting the invasive Round Goby using 10 index sites along the Sydenham River previously surveyed in 2002, 2010 and 2016. Round Goby are a non-native fish that arrived in the Great Lakes from the Caspian Sea through the ballast water of large shipping vessels. The Round Goby can reduce native fish populations by devouring their eggs and young (predation) as well as outcompeting them for food sources. A total of 3,611 fish were captured, identified and released in 2020 — representing 40 species. A total of 233 Round Goby were captured. These records will help map the changes in distribution and range of these invaders and is essential to conserving native fish biodiversity in the St. Clair Region and beyond.

With the returning snow and ice, the 2020 field season drew to a close and the planning for the 2021 field season is underway.

Critical Habitat & What it Means for In-water or Near-water Projects

Critical habitat is identified under the *Species at Risk Act* (SARA) as the habitat necessary for the survival or recovery of a listed wildlife species. The Act makes it illegal to destroy any part of recognized SAR critical habitat and may impose restrictions on development and construction.

What does this mean?
Any *in-water* work (e.g., installing culverts, dredging, building bridges) that takes place in an area recognized as critical habitat, must be reviewed by local, provincial or federal authorities and authorized through formal approvals and permits. Projects *near water* (e.g., docks, drainage, flooding and erosion control, stormwater and wastewater management) require approval from the Department of Fisheries and Oceans Canada if activities are prohibited under Sections 32, 33, and 58(1) of SARA.

If you are planning to carry out a project in or near water, you should first determine if there are any aquatic species at risk or critical habitat near your project location by referring to Fisheries and Oceans Canada maps at https://www.dfo-mpo.gc.ca/species-especes/sara-lep/map-carte/index-eng.html.

Species at Risk in the Sydenham River ¥

Mussels
Eastern Pondmussel – Special Concern **
Fawnsfoot – Endangered
Kidneyshell – Endangered
Lilliput – Threatened
Mapleleaf Mussel – Special Concern
Northern Riffleshell – Endangered
Rainbow Mussel – Special Concern
Rayed Bean – Endangered
Round Hickorynut – Endangered
Round Pigtoe – Endangered
Salamander Mussel – Endangered
Snuffbox – Endangered
Wavy-rayed Lampmussel – Threatened *

Fish
Blackstripe Topminnow – Special Concern
Eastern Sand Darter – Endangered
Grass Pickerel – Special Concern
Northern Madtom – Endangered **
Pugnose Minnow – Threatened
Spotted Gar – Endangered **
Spotted Sucker – Special Concern

Reptiles
Blanding's Turtle – Threatened
Eastern Musk Turtle – Special Concern
Northern Map Turtle – Special Concern
Snapping Turtle – Special Concern
Spiny Softshell – Endangered
Eastern Foxsnake – Endangered

Endangered: A species facing imminent extirpation or extinction.
Threatened: A species that is likely to become endangered if limiting factors are not reversed.
Special Concern: A species with characteristics that make it particularly sensitive to human activities or natural events.

¥ *Provincial status*
* *The Wavy-rayed Lampmussel is considered extirpated from the Sydenham River as the last recorded live shell was observed in 1971, despite extensive searches within their previously known range.*
** *Very few historical records*

Supporting Future Generations of Species at Risk

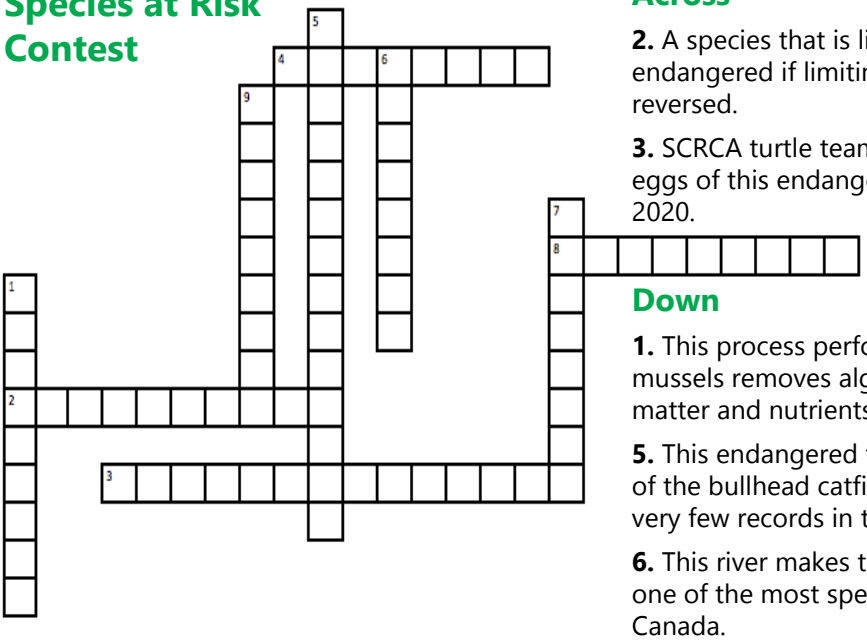
One morning in June, our biology staff received a report of a large snapping turtle laying eggs at the Wawanosh Wetlands Conservation Area. Local resident, Ben Andrew, spotted the turtle that morning while taking his daughter for a walk around the ponds. Using photos and directions from Ben, our staff were able to locate and recover the eggs. It was the largest single nest recorded in our turtle program's history – 84 eggs! After incubating for about 60 days, the hatchlings were ready to return home and Ben was able to meet up with our staff to see them being released.


PC - Ben Andrew

"It was a great experience to be part of, little did I know my phone call would result in 80 species at risk turtles being saved!"

Ben Andrew, Sarnia Resident

Species at Risk Contest



Across

2. A species that is likely to become endangered if limiting factors are not reversed.

3. SCRCA turtle team collected 496 eggs of this endangered turtle in 2020.

4. This endangered snake (Eastern _____) is at risk due to loss of habitat.

8. An invasive fish that arrived in the Great Lakes through ballast water of large shipping vessels.

Down

1. This process performed by mussels removes algae, organic matter and nutrients.

5. This endangered fish is a member of the bullhead catfish family and has very few records in the Sydenham.

6. This river makes the watershed one of the most species-rich in Canada.

7. Habitat that is necessary for the survival or recovery of a wildlife species.

9. This mussel is one of the globally threatened species that lives in the Sydenham River.

Submit your answers by March 20th to **contests@scrca.on.ca** for your chance to win one of three great prizes!

Wetlands and Rural Stewardship

Landowners living on or around the Sydenham River and its tributaries can help improve habitat for aquatic species at risk (and wildlife habitat in general) by restoring and/or conserving marginal land. Allowing vegetation and trees to grow along watercourses can provide shade to keep water temperatures cool, provide a buffer from adjacent land use, and retain excess soils and nutrients. Grassed waterways and erosion control berms in agricultural fields can further reduce soil and nutrient runoff while wetlands can mitigate flooding and allow water to return to the watercourse at a slower rate.

The SCRCA's Healthy Watershed Program provides technical and financial support for projects that protect rural water quality and improve local habitat. Landowners interested in retiring marginal or unproductive farmland can meet with SCRCA staff who will offer advice, assist with project design, and help with the coordination of contractors and materials.

Just this past year, over 55,000 trees were planted and 42 hectares of land was retired and transformed into natural landscapes including windbreaks, buffers, and wetlands!

Want to learn more about projects that may qualify for funding and how to become a steward of the Sydenham? Contact Jessica Van Zwol, Healthy Watershed Specialist at the St Clair Region Conservation Authority (519-245-3710 ext. 241).

For more information
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