Sydenham River Watershed

helping aquatic species at risk

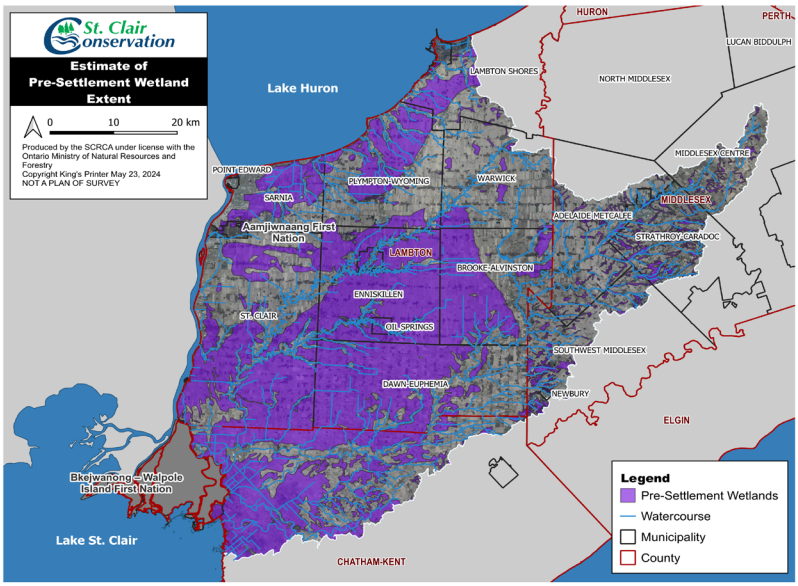
March 2025

A RIVER WORTH KNOWING – THE SYDENHAM AT A GLANCE

BY: JESSICA VAN ZWOL, HEALTHY WATERSHED COORDINATOR

Welcome to the 22nd edition of the Sydenham River Watershed Newsletter! Whether you're a long-time reader or just discovering our work, it's always a good time to connect with the incredible Sydenham River.

With a watershed stretching 2,725 km² across southwestern Ontario, the Sydenham River is a hidden gem, winding through farmland and forests before reaching Lake St. Clair. The watershed was once home to the vast Great Enniskillen Swamp (see map below), but now only ~1% remains. Historically, what wasn't covered by the Great Enniskillen Swamp, ~70% of the landscape, was treed. Today, tree coverage is down to ~11%. Despite this, the Sydenham remains one of Canada's most biodiverse rivers, supporting 34 species of freshwater mussels (more than any other river in the country) and 80 fish species. Fifteen mussels and ten fish are species at risk due to habitat degradation.



The Sydenham is also home to rare turtles and dragonflies, making it a hotspot for conservation efforts. With 85% of the watershed now in agriculture, balancing farming and conservation is key to protecting the river's fragile ecosystems. Through awareness and stewardship, we can ensure that Sydenham continues to thrive for generations to come.

SCRCA created new social media pages to recognize this amazing river, as well as the amazing animals, stories, and people along it. Follow @SydenhamRiver on Instagram and Facebook to stay up-to-date on SCRCA's work, events, and more!

WHAT IS A CRITICAL HABITAT?

The Federal *Species at Risk Act (2016)* states, "critical habitat is the habitat necessary for the survival or recovery of listed extirpated, endangered, or threatened species, and that it is identified as critical habitat in a recovery strategy or action plan".

CANADIAN THROUGH AND THROUGH

BY: CRAIG PATERSON, MANAGER OF BIOLOGY

A recent article in the journal *The Canadian Field-Naturalist* by researchers from Simon Fraser University and Wildlife Preservation Canada found that the Eastern Spiny Softshell Turtle, *Apalone spinifera*, is the most evolutionarily distinct terrestrial animal in Canada.

Eastern Spiny Softshell Turtle (*Apalone spinifera*)
Photo by Scott Gillingwater

Evolutionary distinctiveness (ED) is the amount of time a species has evolved independently; the further back in time a species connects to its family tree and the fewer relatives it has overall, the higher its ED score. High-scoring species like the Spiny Softshell have unique biological features and embody millions of years of evolution independent of other Canadian species and contribute significantly to Canada's biodiversity. This research is even more significant knowing that only 1,000 adult Softshells are left in Canadian waters. Can Canada afford to lose something so distinctively Canadian?

A TOUGH YEAR FOR TURTLES

BY: CRAIG PATERSON, MANAGER OF BIOLOGY

Entering its ninth year, the SCRCA's Captive Hatch and Release Program (CHRP) experienced a difficult year due to intense flooding. Turtles rely on suitable environmental conditions to raise the next generation. Eggs are deposited in shallow excavated holes and covered with loose soil where the heat of the sun and earth incubate eggs for 60-75 days through the summer months. Typically, these are the driest and warmest months of the year, a great time to raise a family.

Despite the flooding, the CHRP Team was able to rescue over 300 Spiny Softshell eggs.
Photo by Emily Febrey

However, the 2024 nesting season on the Sydenham River was heavily impacted by intense precipitation events and subsequent flooding. Key nesting sites along the river were submerged for weeks, resulting in limited nesting site availability and hundreds of drowned eggs.

Local communities also grappled with the effects of the July floods; a section of Highway 402 near Strathroy was closed due to the floodwaters. With more frequent and intense precipitation events predicted for the region due to the changing climate, we are likely to see further disruptions to our travel. While we might experience travel delays or detours with flashy storms and flooding, one poor nesting season can have a prolonged and devastating impact on turtle population longevity/stability. We need to enhance the resiliency of the watershed and decrease flood risks through rural stormwater management.

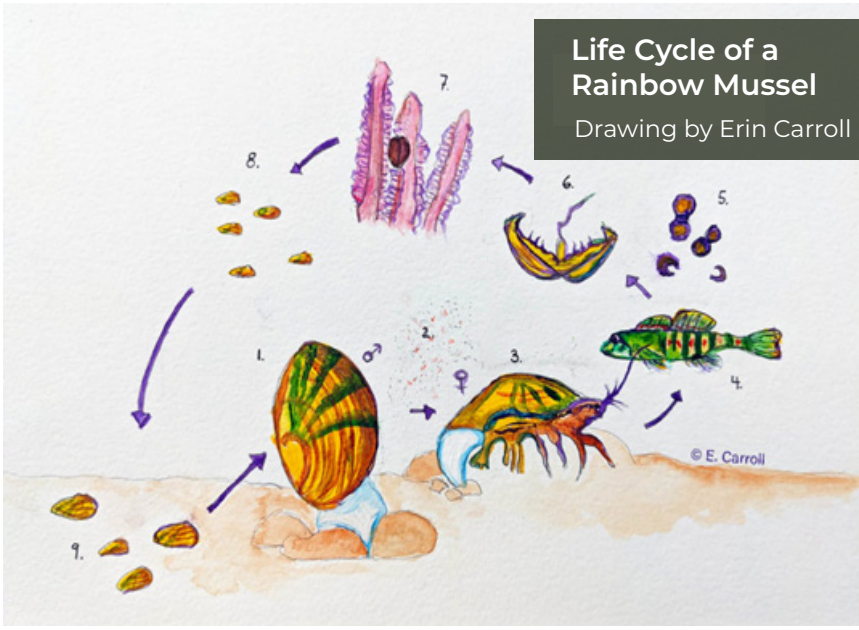
MARVELOUS MISS MUSSEL: THE ALLURE OF THE RAINBOW MUSSEL

BY: SARAH SNETSINGER, WATERSHED BIOLOGIST

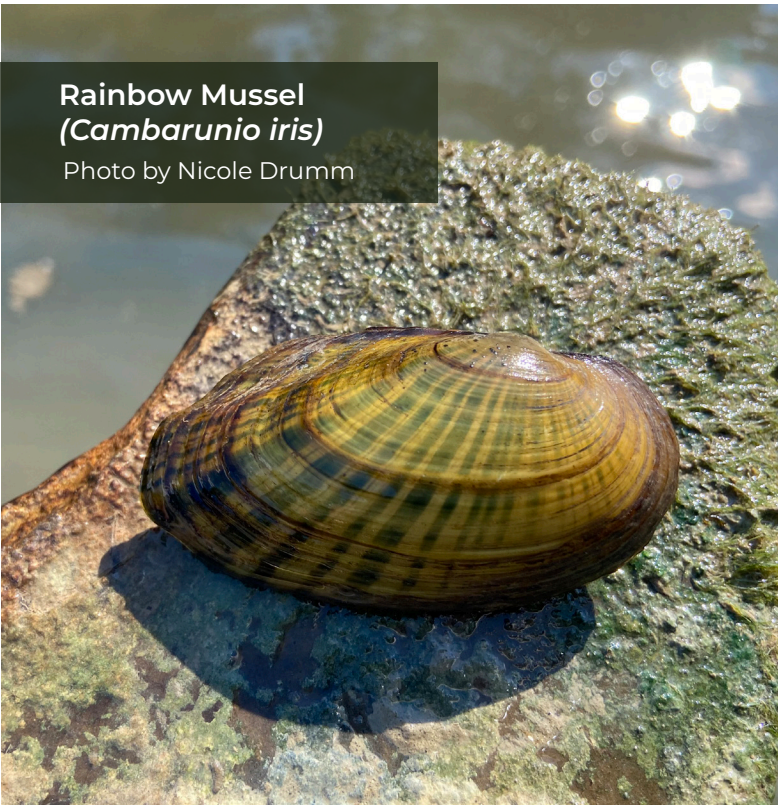
The Rainbow mussel *(Cambarunio iris)* is a species of "Special Concern" found locally in the East Sydenham River and Bear Creek (North Branch of the Sydenham). It is a small yellow mussel with green rays. The name Rainbow comes from the interior of the mussel shell, which has an iridescent pearly sheen. These mussels can live up to 40 years, and don't start reproducing until they are 5-9 years old. Like all freshwater mussel species, the Rainbow mussel relies on host fishes to support their young, called glochidia (gla-kid-ee-ah), at the beginning of their life cycle. Glochidia are parasitic, attaching to fish gills until they are developed enough to drop off and survive in the riverbed on their own.

Many mussel species have developed fascinating strategies to attract host fishes and improve their chance of reproductive success. The Rainbow mussel will display a lure resembling a crayfish to attract a host fish that often eats crayfish, such as Smallmouth Bass. As the bass approaches, the mussel sprays a cloud of glochidia toward the bass' face. The glochidia that successfully reach the fish, clamp onto the bass' gills to feed and grow.

The truly remarkable fact is the Rainbow Mussel has never actually seen a crayfish.



Life Cycle of a Rainbow Mussel
Drawing by Erin Carroll



Rainbow Mussel *(Cambarunio iris)*
Photo by Nicole Drumm

Mussels do not have eyes. They have evolved over millennia to mimic a crayfish, without the use of eyes!

Mussels with a lure that more closely resembles a crayfish attract more fish, and therefore have better success at reproducing. This adaptation causes each subsequent generation to develop more accurate lures. Other species of mussels have also adapted lifelike lures of common prey, such as minnows or aquatic insects, to improve their reproductive success.

SPECIAL CONCERN:

A species of special concern under the *Species at Risk Act (SARA), 2016* is a species that could become endangered or threatened due to a combination of biological characteristics and identified threats.

PROJECT HIGHLIGHT – STEWARDSHIP IN CRITICAL HABITAT

BY: LISA MCNEILL, AGRICULTURAL STEWARDSHIP TECHNICIAN

Agriculture and watershed health are closely linked, with the Sydenham River's health relying on Best Management Practices (BMPs) implemented by rural landowners and farmers. As farmland covers 85% of St. Clair watersheds, agricultural and rural BMPs play a vital role in protecting water quality and critical habitat for aquatic species at risk (ASAR).

Agricultural practices such as fertilizer inputs and tillage practices can degrade water quality when they go unmanaged. Runoff containing phosphorus (a key fertilizer nutrient) leads to toxic algal blooms, which harm drinking water and aquatic life. Soil runoff clouds the water, preventing sunlight from reaching submerged vegetation, smothers spawning beds, and clogs the gills of fish and mussels.

Wetland creation or enhancement is an effective BMP that improves water quality by filtering nutrients, sediment, and pollutants before they reach waterways, while also supporting ASAR. In 2021, SCRCA completed a two-tiered wetland with a local landowner. The wetland was established in a fallow field to capture overland runoff. The first tier of the wetland (top photo) acts as a sediment trap, allowing sediment and nutrients to settle out from tile water and overland runoff. Meanwhile, the second tier (bottom photo) captures any overflow from the first tier above and allows water to return to the river at a slower speed. This project has contributed to improving water quality and critical habitat in the Sydenham River.

Landowners near the Sydenham River may be eligible for grants to assist with BMP adoption. For more information, contact Jessica Van Zwol, Healthy Watershed Coordinator (jvanzwol@scrca.on.ca), or visit www.sydenhamriver.on.ca under the "Get Involved" tab.

HELP SAVE A TURTLE BY DONATING TO THE CAPTIVE HATCH AND RELEASE PROGRAM

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N7G 3P9
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Donations are eligible for a charitable tax receipt.
To make a donation online, please visit: sydenhamriver.on.ca/get-involved/

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