

# Sydenham River Watershed

## helping species at risk

September, 2016

*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. This has made the river a biological treasure. The Sydenham River supports an incredible variety of aquatic life, or what we call biodiversity. At least 82 species of fish and 35 species of freshwater mussels have been found here, making it one of the most species-rich watersheds in all of Canada. Several species in the Sydenham River 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.*

## Mussels, mussels, and more mussels...oh my!

by Kelly McNichols-O'Rourke and Katherine Wright

Mapleleaf, Pimpleback, Giant Floater, Snuffbox – any guesses as to what they are? These are some of the creative, common names of native freshwater mussels found in the Sydenham River! The river is one of the most amazing rivers in Canada, especially when it comes to native freshwater mussels. Historically, 35 different species of mussels could be found in this river. Today, it is home to 32 live species, including 12 species that are considered at risk (endangered or threatened) in Canada. In 2015, Fisheries and Oceans Canada surveyed two sites in the Sydenham River near Florence and Dawn Mills, Ontario. Over 2,700 mussels, representing 26 different species, were found and measured. Nine of these species, 760 individuals, were species at risk. These sites are definitely “hot spots” for mussel diversity, not only in Ontario but in all of Canada.



Did you know that mussels require a host to complete their lifecycle? That's right! In order for baby mussels to become adults, they must hitch a ride on a host, usually a fish. When a fish swims by, the mother mussel “squirts” her babies at it and these “glochidia” attach to the fish's gills or body. As a hitchhiker on the fish, they develop into juvenile mussels. Once developed, they let go of the fish and drop to the river bottom, where they grow into adults. Don't worry – none of this hurts the fish and it's a great way for mussels to move!

You may ask why mussels are important, as many people say “they are just rocks.” Mussels are natural biofilters and clean

the water by filtering particles and nutrients, which make them great indicators of the health of an ecosystem. Some of these species can live over 100 years and filter up to 40 L of water per day – that's a lot of cleaning!

Unfortunately, many species are threatened by pollution, habitat alteration, and invasive species. Although many conservation and research projects are underway, we can all help by doing simple things like cleaning the underside of our boats to prevent the spread of invasive species, recycling, and educating ourselves on the importance of different animals in our water systems.

There are no other rivers in Canada that can rival the mussel diversity currently found in the Sydenham River, so take care of it and show off your mussels – they are awesome.



# High School Students Get Hands-on Experience

With help from SCRCA staff, Grade 12 Biology students at North Lambton Secondary School conducted an aquatic inventory on Hickory Creek. Students learned about species at risk reptiles in the area and how good water quality and ecosystem health is important to support biodiversity. Using probes, students evaluated surface water parameters including conductivity, pH, temperature, and dissolved oxygen.

This is just one of many types of education programs offered by St. Clair Conservation. Topics range from Aquatic Species at Risk, Endangered Species, Conservation, Wetlands and more. For more information visit [www.scrca.on.ca](http://www.scrca.on.ca).



Brandon Jordan, a local Wallaceburg District Secondary School student, volunteered his time this summer to be a nesting box steward and monitor the artificial nesting boxes for activity. This involved observing adult snakes hunting, looking for food around the site in early to mid-summer, finding snake skin sheds in the nesting box material, and observing young snakes around the nesting site in early to mid-fall.



Staff work with landowners to develop and fund projects that help improve our watersheds.



About 80 eastern spiny softshell turtle hatchlings were released into the wild this summer. Biologists have noted an absence of young turtles in the Sydenham River as nests for this secretive species are often subject to predation by raccoons. It is hoped that efforts such as this will provide opportunities for this species to maintain its population while stewardship projects to enhance habitat are undertaken.

The Sydenham River has over 32 different types of mussels, more mussel species than any other body of water in Canada!



Snuffbox



Pimpleback



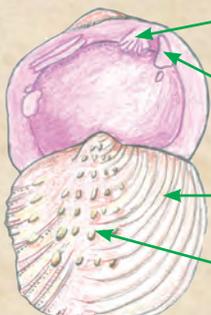
Giant Floater



Mapleleaf

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### General Morphology of Shell



- Pseudocardinal Teeth
- Muscle scar
- Growth Lines
- Pustules



Deep water in the Sydenham made raccooning for mussels a challenge

# Healthy Sydenham Headwaters Initiative

With funding from the Ontario Trillium Foundation and the Middlesex Stewardship Council, the Healthy Sydenham Headwaters Initiative has been a great success. While grants from the original funders have come to an end, the headwaters of the Sydenham River remain an important component of our Healthy Watershed Program. The SCRCA continues to encourage conservation and restoration efforts in the headwaters of the Sydenham River. Additionally, staff continue to meet with landowners seeking to implement stewardship projects. Other partners providing funds for the projects along the East Branch of the Sydenham River include Environment and Climate Change Canada's Habitat Stewardship Program (Aquatic Species at Risk \$52,000/year) and Wildlife Habitat Canada (\$21,000 for wetlands), Ontario Ministry of Natural Resources and Forestry Species at Risk Program (\$47,000), and Ducks Unlimited Canada. If you are interested in a wetland, riparian buffer, fencing livestock from watercourses or woodlots, tree planting and/or erosion control projects in the watersheds of either the North and East Branch of the Sydenham River, contact Jessica Van Zwol, Healthy Watershed Specialist, [jvanzwol@scrca.on.ca](mailto:jvanzwol@scrca.on.ca)



*This newly constructed wetland in Strathroy will reduce overland flow and serve as a sink for nutrient runoff from nearby farm fields. Funding for this project came from Ducks Unlimited Canada; Middlesex Stewardship Council; Environment and Climate Change Canada's Habitat Stewardship Program (Aquatic Species at Risk); Wildlife Habitat Canada; and the Ontario Ministry of Natural Resources and Forestry Species at Risk Program.*

# Aquatic Species at Risk in the Sydenham River

## Mussels

northern riffleshell - **Endangered**  
wavy-rayed lampmussel - **Threatened** \*  
rayed bean - **Endangered**  
salamander mussel - **Endangered**  
snuffbox - **Endangered**  
kidneyshell - **Endangered**  
round hickorynut - **Endangered**  
round pigtoe - **Endangered**  
rainbow mussel - **Endangered**  
fawnsfoot - **Endangered**  
eastern pondmussel - **Endangered**  
mapleleaf mussel - **Threatened**

## Fish

northern madtom - **Endangered** \*\*  
eastern sand darter - **Endangered**  
blackstripe topminnow - **Special Concern**  
pugnose minnow - **Threatened**  
grass pickerel - **Special Concern**  
spotted gar - **Threatened** \*\*  
spotted sucker - **Special Concern**

**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 is of special concern because of characteristics that make it particularly sensitive to human activities or natural events.

\* The wavy-rayed lampmussel is no longer found in the Sydenham River.

\*\* Very few historical records



*The northern riffleshell is a small, colourful freshwater mussel that lives in highly oxygenated riffle areas of rivers and streams. This subspecies has suffered dramatic declines throughout its range in North America and is now globally endangered. The Sydenham River population still appears relatively healthy and is one of only three reproducing populations left on the continent. The northern riffleshell occurs only in the middle to lower reaches of the East Sydenham River.*

# Species at Risk Contest

## Solve our riddles

This fish is the fastest guy on the beach.

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This mussel deerly wishes she had a bigger foot.

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Which mussel is worth a pot of gold?

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This fish always falls for a scam.

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This flag waving mussel hails from Canada.

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Where is a great place to get a soaker, visit a coot, pull a cat's tail and hear a croak?

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**First Prize** - Binoculars and a Weekend Camping Package

**Second Prize** - "Skink on the Brink"  
(a children's picture book) and a SCRCA Weekend Camping Package

**Third Prize** - SCRCA Gift Bag

You can send in your answer by e-mail to:  
contests@scrca.on.ca or by mailing your answers to:  
St. Clair Region Conservation Authority  
205 Mill Pond Cr., Strathroy, ON, N7G 3P9

Be sure to include contact information so we can notify the winners.

**Draw will be held October 28, 2016**

### For more information

St. Clair Region Conservation Authority  
205 Mill Pond Cr., Strathroy, ON, N7G 3P9  
519 245-3710 stclair@scrca.on.ca  
[www.scrca.on.ca](http://www.scrca.on.ca)

## Fish Monitoring

The purpose of fish community surveys is to gain important information on fish species distribution within the watershed. Survey results have many uses including:

- as an indicator of watershed health
- to guide decisions on potential restoration project sites
- to aid in watershed planning
- to update fish distribution mapping

There are approximately 160 freshwater fish species in Ontario with the Sydenham River being home to at least 82. In 2015 and 2016, approximately 4,000 and 11,000 fish were sampled respectively.



**Blackstripe topminnow** - The entire Canadian population of this small freshwater fish lives along a 60 kilometre stretch of the Sydenham River in southwestern Ontario. The blackstripe topminnow gets its name from the horizontal black stripe that runs the length of its body along its sides.

### Partners in Conservation

Environment and Climate Change Canada  
Fisheries and Oceans Canada  
Ontario Ministry of Natural Resources and Forestry  
Ontario Ministry of the Environment and Climate Change  
Ontario Ministry of Agriculture, Food and Rural Affairs  
Ontario Trillium Foundation  
St. Clair Region Conservation Authority  
St. Clair Region Conservation Foundation  
Ducks Unlimited Canada  
Wildlife Habitat Canada  
Carolinian Canada Coalition  
Forests Ontario