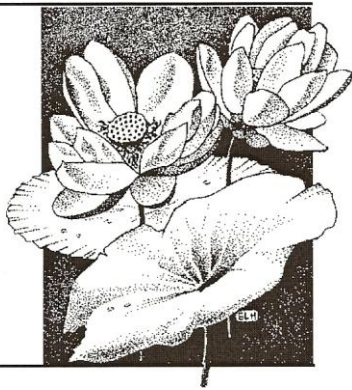


Lotus

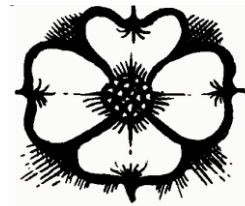
NEWSLETTER

of the

NORFOLK FIELD NATURALISTS



APRIL 2014



FRESHWATER MUSSELS OF ONTARIO

A review of Dr. Todd J. Morris' presentation
at the NFN meeting on November 12, 2013

Compiled by: Inga Hinnerichsen

Photos: MNR & Ontario Freshwater Mussel Recovery
Team websites, Dr. Todd Morris, Inga Hinnerichsen



Those NFN members who braved the snowy roads on November 12, 2013, to attend our regular monthly meeting were treated to a unique presentation in the history of our club (attested to by Harry B. Barrett).

Our distinguished guest speaker that evening, Dr. Todd J. Morris, is a Research Scientist with the Great Lakes Laboratory for Fisheries and Aquatic Sciences, Division of Fisheries and Oceans Canada (DFO). He is currently stationed in Burlington, Ontario at the Canada Centre for Inland Waters. He has been studying the unionid fauna of central Canada for the last 19 years. He is currently a member of the Biodiversity Science section of DFO and is responsible for leading DFO's research program on freshwater mussel Species at Risk. His research focuses on the distributional patterns of aquatic organisms and the relative contribution of biotic and abiotic structuring factors. Dr. Morris is a founding member and chair of the Ontario Freshwater Mussel Recovery Team and is a member of the Committee of the Status of Endangered Wildlife in Canada (COSEWIC), Mollusc Subcommittee, the American Fisheries Society Endangered Mussel Subcommittee and the Freshwater Mollusk Conservation Society.

April 2014

The following is an outline of a few highlights of Dr. Morris' presentation.

WHAT IS A FRESHWATER MUSSEL?

Taxonomy:

- **Phylum Mollusca**
 - mussels, clams, snails, slugs, abalone, nautilus, octopus
- **Class Bivalvia**
 - Bilateral symmetry, 2 hinged shells
- **Order Unionoida**
 - Parasitic larval stage

Ecology:

- Long lived, benthic, burrowing filter feeders
- cycle nutrients, transfer energy within ecosystems, provide habitat and clarify water bodies.

WHAT IS NOT A FRESHWATER MUSSEL?

- Fingernail clams (Sphaeriidae)
- Zebra and Quagga mussels (Dreissenidae)
- Asian Clam (Corbiculidae)

Continued on page 2 ...

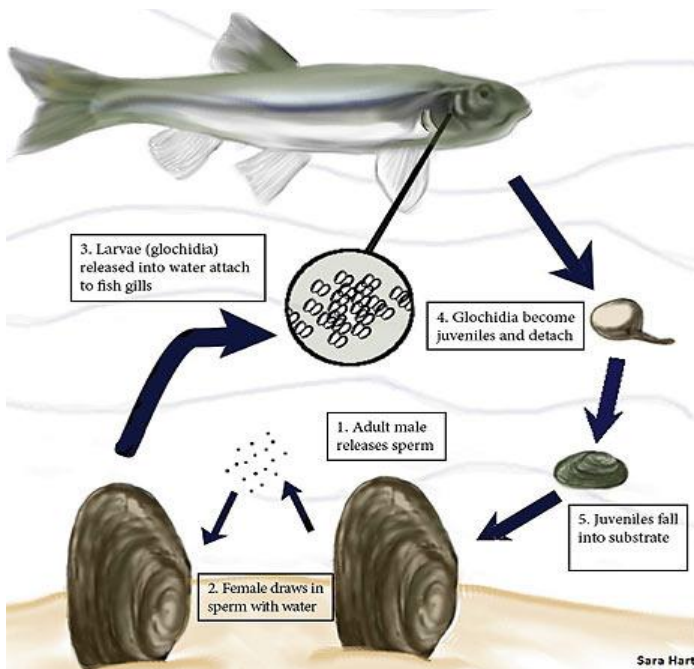
GLOBAL DIVERSITY

- 842 recognized species worldwide
- 302 in North America (2 families)
- 54 in Canada (2 families)
- 41 in Ontario (1 family)

In Ontario there are 14 COSEWIC assessed mussel species, 10 are SARO (Species At Risk Ontario) listed with 4 awaiting listing decisions.

The life cycle and specific reproduction tactics of the freshwater mussels can often take strange paths.

In general, the adult mussel releases a cloud of glochidia (tiny embryos) into the water. The glochidia need a host fish for the next stage of their lives. They attach themselves to the gills of the host where they mature into juveniles - up to 6000 glochidia per gill. The juveniles then release from the host and drift to the bottom of the water body where they grow into adults.



The reproduction tactics employed by various species is where it gets really interesting, sometimes even bizarre:

1. Broadcast release (Many glochidia, low cost, low success, host generalists)

The mussel releases huge amounts of glochidia into the water chancing that a suitable host fish might come swimming by.



2. Lures - when mussels go fishing (fewer glochidia, higher cost, higher success rate)

Some mussels have developed lures to attract host fishes. The fleshy protrusions of their mantle may take on the appearance of a wiggly worm or a small fry complete with eye spot and fins (see the above photo), etc.

Some of these mussels release the glochidia first and then try to attract the host, others lure the fish first and when the host has arrived it releases the glochidia.

Another North American mussel (not in Canada) squirts a stream of water into the air in shallow water. The water droplets hitting the surface causes ripples mimicking insect activity attracting the fish.

3. Host capture (few glochidia, high cost, high success, specialists)

The Snuffbox mussel uses this most unusual tactic. It focuses on host fishes that forage on pebbly areas, the Logperch, for example. The fish nudges and rolls the pebbles in search of tasty morsels and if it happens to nudge a Snuffbox the mussel grabs hold of the fish with its jagged shell edges. It then releases the glochidia directly at the fish ensuring a very high success rate before releasing the host.



The jagged edge of a Snuffbox mussel shell

FRESHWATER MUSSELS continued from page 2

Human activity is a major stress factor to the mussel populations. Historically mussels have been commercially harvested mainly for their shells - mother-of-pearl buttons were very popular before the development of synthetic materials. They were also harvested for freshwater pearls. Locally, thousands of mussels were pulled from the Grand River where the population hasn't recovered so far. Disturbances in waterways caused by dams, roads, agriculture, construction, etc. are other factors in the decline of the freshwater mussel populations.

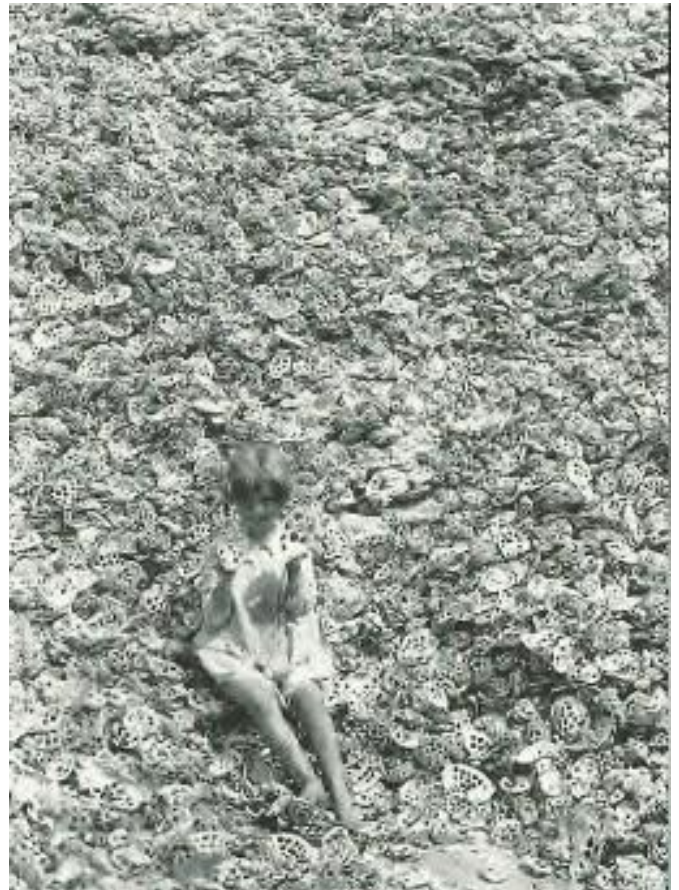


Round Gobi

Alien invaders, such as Zebra Mussels and Quagga Mussels attach themselves to the shells of native mussels in large clumps, the weight of which can make the host mussel sink into the bottom silt and suffocate. Fish species like the Round Gobi, a molluscivore, out-compete native fishes. Introduced crayfish and the threat of the Asian Carp invasion present a serious risk to the freshwater mussels by direct predation or predation of the host fish species.



A small colony of Zebra Mussels attached to the shell of a Fatmucket



A girl sitting on a huge mound of mussel shells punched out for Mother-of-Pearl buttons.



Shell button found on Long Point beach

The good news is that there are potential areas for recovery in and around the Great Lakes (according to a study by the National General Assessment for Freshwater Mussels of 2004). One such area is the Inner Bay at Long Point. Other hot spots can be found at Bruce Peninsula, Lake St. Claire, the south west end of Lake Erie and a couple of areas in Lake Ontario.

Additional information can be found on the **Ontario Freshwater Mussel Recovery Team** web site. The **Photo Field Guide to the Freshwater Mussels of Ontario** is available at the University of Guelph Bookstore: www.bookstore.uoguelph.ca or: download the **Canadian Freshwater Mussel Guide** App on the Fisheries and Oceans Canada web site.

OTTER VALLEY NATURALISTS

Long Point Outing

March 22, 2014

Report and photos by: Joe Stephenson

What a great day it was for the OVN Outing to the Long Point area. We had decent weather with a bit of wind and the birds didn't disappoint us.

Covered areas included Port Rowan Lagoons, the causeway, Old Cut, NCC, LP Basin Land Trust and LPRCA properties and roads travelled in between.

Overall 55 species were counted. Tundra Swans were all over the place including on the ice on Long Point Bay in high numbers. Waterfowl species were in abundance in Big Creek. Red-headed Woodpeckers were seen in good numbers at the LPBLT property. Details below:

<u>Species</u>	<u>Count:</u>
Canada Goose	479
Mute Swan	1
Tundra Swan	3132
American Wigeon	8
American Black Duck	92
Mallard	70
Northern Shoveler	3
Northern Pintail	22
Canvasback	103
Redhead	390
Ring-necked Duck	19
Bufflehead	40
Hooded Merganser	13
Common Merganser	8
Ruddy Duck	2
Pied-billed Grebe	3
Turkey Vulture	6
Bald Eagle	5
Red-tailed Hawk	1
American Coot	104
Sandhill Crane	29
Killdeer	4
Ring-billed Gull	35
Herring Gull	4
Rock Pigeon (Feral Pigeon)	5
Mourning Dove	22
Red-headed Woodpecker	6
Red-bellied Woodpecker	2
Downy Woodpecker	4
Hairy Woodpecker	2
Northern Flicker	2



Red-headed Woodpecker

Pileated Woodpecker	1
American Kestrel	3
Blue Jay	22
American Crow	33
Horned Lark	4
Black-capped Chickadee	4
White-breasted Nuthatch	1
Carolina Wren	3
Eastern Bluebird	1
American Robin	61
European Starling	79
American Tree Sparrow	3
Song Sparrow	31
Swamp Sparrow	2
White-throated Sparrow	4
Dark-eyed Junco	17
Northern Cardinal	13
Red-winged Blackbird	396
Eastern Meadowlark	1
Rusty Blackbird	31
Common Grackle	521
House Finch	1
American Goldfinch	40
House Sparrow	2



SHORT-EARED OWL SIGHTING

Submitted by Bernie Solymár

Charles Welsh and his family, who farm north of Scotland, ON, were surprised one morning recently to find this beautiful Short-eared Owl sitting on their vehicle. The owl had a vole in its talons and seemed unperturbed by the curious humans as it proceeded to eat its supper in plain view. The Short-eared Owl spends its life in the Arctic, along the shores of Hudson Bay, but often winters in southern Ontario where it may occur in small groups.



Have you seen anything interesting?
...or been somewhere beautiful?

**Share your photos
with your fellow NFN Members
in the LOTUS**

Email to : daveinga@live.ca
Subject line: Photos for Lotus

BOARD OF DIRECTORS' REPORT

February / March 2014

The Directors met on January 28, 2014, to review ongoing NFN business.

Financial: Decisions were made to move the funds from the inactive Barn Owl fund to the SAR Badger Project and the remaining funds from the completed Great Tree Hunt Project into unrestricted funds. A donation of \$100.00 to be made to NCEE for the building of bird and bat boxes.

The Ontario Not for Profit Corporations Act will change by mid 2014 and the NFN bylaws will need to be reviewed.

The Haldimand Winter Birding outing and the Owl Prowl had to be cancelled because of adverse weather conditions.

A new table top display board was ready for the Woodlot Owners' AGM. Thank you to Barb Hourigan for the idea and realizing it with the assistance of Inga Hinnerichsen.

The NFN submitted a letter to the Minister or MNR proposing that Phragmites be added to the Noxious Weed Act.

Bernie Solymár represented NFN at the Carolinian East regional meeting of Ontario Nature on April 5, 2014.

The new improved NFN Website will be up and running shortly!

No meeting was held in February or March.

WELCOME NEW MEMBERS

2014 season:

Lita and Jay O'Hearn

We are looking forward to meeting you and hope you will participate in and enjoy all the NFN indoor presentations and field outings!

IN MEMORIAM

The Norfolk Field Naturalists lost one of our long-time members this winter

Marvin Grove

We extend our deepest sympathy to the
Grove family.

The Effects of Habitat Fragmentation on Swallowtail Butterflies

By: Jenna Siu, Department of Biology, University of Western Ontario

Jenna Siu is a M.Sc. Candidate in the Environment and Sustainability Collaborative Program, Department of Biology, The University of Western Ontario, London, Ontario. Research was done under the supervision of Dr. Daria Koscinski and Dr. Nusha Keyghobadi. The following is a brief summary of Jenna's research work.



Background:

In southern Ontario some of the most threatened habitats occur in the Carolinian Zone, where major portions of prairies, savannahs and forests have been destroyed. These changes to the natural landscape have caused habitat loss and fragmentation; the breaking up of habitat into smaller patches creating more edges, or the boundary between two land cover types. Habitat fragmentation has been shown to have harmful impacts on native populations (e.g. the Acadian Flycatcher, the American Badger, and the Grey Ratsnake). To understand how species are affected by fragmentation, we need to know how they respond to edges, where some species avoid them while others may prefer them.



Ryan is recording the number of Swallowtails in a field



Eastern Tiger Swallowtail feeding on Milkweed

For my master's research, I studied the effects of habitat fragmentation on two butterfly species, the **Eastern Tiger** (*Papilio glaucus*) and the **Spicebush** (*P. troilus*) **Swallowtails** in Norfolk County, Ontario. These species have a unique habitat requirement because they use two different habitat types (e.g. forests and meadows). They require forest species such as tulip trees, spicebush, and sassafras to lay eggs on as well as flowers in meadows for nectar. The distribution of their resources in forests and in meadows predicts that they will be concentrated at forest edges to be able to access both resources. This is also known as a positive edge response.



Spicebush Swallowtail feeding on Dame's Rocket

What I did:

With the help of many of the local residents offering their properties for field sites, volunteers and my field assistants Sarah Kruis and Ryan Smith, I was able to test the positive edge hypothesis for these swallowtail butterflies.

Continued on page 7...

SWALLOWTAIL BUTTERFLIES

... Continued from page 6

During the summer of 2013, I surveyed their abundance along paths that spanned forests, forest edges, and meadows. In 2012, I also examined their flight orientation by capturing and releasing butterflies at various distances in meadows and in forests and tracking their movement using a handheld GPS.



Jenna and Sarah releasing a butterfly in a meadow

What I found:

My results show that the presence of forest edge is an important feature in the landscape for these butterflies. Both species are more abundant at or near the edge and fly towards the edge when released from distances from both forests and meadows. I did find differences between the two species; the Eastern Tiger swallowtails exhibited a much clearer edge response than the Spicebush swallowtail. I also found differences in the flight orientations between males and females, where males had more direct flights than females.

The big picture:

My study demonstrates that these swallowtails may be reliant on the forest edge, which provides accessibility to these two habitat types. This would make them edge species, in contrast to the generalist, or woodland species they are considered to be. Therefore, some degree of forest fragmentation may actually be beneficial to native species and should be considered in land management plans.

Acknowledgements:

Nature Conservancy of Canada,
Long Point Regional Conservation Authority,
Long Point Waterfowl Research and Education
Center,
local land owners, volunteers, and field assistants

For more information, you can contact me at
jenna.c.siu@gmail.com

This research was funded by:



Butterfly Garden Workshop



Monarch Friendly Habitat Workshop

Date: Saturday, April 12th, 2014

Time: 10:00am - 3:30pm

Fee: \$45 + tax

Workshops fees include materials and handouts,
morning snacks and a light lunch.
Pre-registration required.

Where: Backus Heritage Conservation Area, Port Rowan
Call 519-842-4242 for information and to register.

Workshop will cover:

- The lifecycle and biology of the monarch butterfly
- Threats to the monarch population
- Native plants that attract monarchs
- Best practices for monarch friendly gardens
- Maintenance requirements

Upcoming NFN & other Spring/Summer Events

St. Williams Conservation Reserve Community Council OPEN HOUSE & Site Tours

Saturday, April 12, 2014
10.00 am - 4.00 pm

**Long Point Waterfowl Research
and Education Centre**
546 Turkey Point Road
Tours 11am & 1.30pm, Door Prize

Spring Hike in Spooky Hollow Sanctuary

Saturday, April 19, 2014
1.00 - 3.00 pm

Frank Morrow of the Hamilton
Naturalist Club will host this early
spring walk. The trail is 1.3 km long
with some steep portions. Go south on
Charlottetown Rd. #2 and left on
Spooky Hollow Rd. Park on the road at
the entrance to the HNC property.
Contact Bernie at 519-428-0706

Mother's Day Spring Wildflower Hike

Sunday, May 11, 2014,
1.00 - 3.00 pm In Backus Woods

Meet at the parking lot off Concession
Rd. #3 (by the Turkey Cairn)
This is a joint family event with
LPRCA. A small donation will be
appreciated.

Contact: Colleen at 519-582-0483

Re-discovering Nature: Pathways to Healthier Kids & Stronger, Closer Families

Tuesday, May 13, 2014, 7.30 pm

Speaker: Bernie Solymár

Learn about the ways Nature's Calling
Environmental Education is
addressing "nature deficit disorder" in
our community.

Huron Fringe Birding Festival

May 23 - June 1, 2014

MacGregor Provincial Park

Port Elgin, ON

Program & on-line registration:
www.friendsofmacgregor.org
or call: 519-389-9056

NFN meetings

Norfolk Field Naturalist meetings
are held the second Tuesday of
the month from September to May.

Meetings take place at the
Simcoe Seniors Centre,
89 Pond Street.

The meetings are free and visitors
are always welcome. Doors open
at 7:15 pm, programs begin at
7:30 pm.

NFN Mailing Address

Norfolk Field Naturalists
PO Box 995, Simcoe, ON
N3Y 5B3

Next Lotus issue:

June 2014

Input dead line:
Friday, May 30, 2014

About the NFN

Norfolk Field Naturalists members
participate in meetings and field
outings, many of which are family-
friendly. Membership fees are \$20
Individual and \$30 Family.

Donations are eligible for income
tax credits. Charitable registration
11905869RR00001

Guest speakers present programs
on interesting and relevant natural
history and conservation topics.
Club members receive the Lotus
newsletter with articles on local
natural history and club activities.
Copies of the Lotus are available
at meetings, by mail or by email
and posted on the NFN web site.
Articles published in the Lotus
reflect the views and opinions of
the authors, but not necessarily
those of the NFN.

www.norfolkfieldnaturalists.org

2013 - 2014 NFN Executive with contact & project information

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Speaker Program	(vacant)		
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Christmas Bird Counts: (appointed) David Okines - Woodhouse Count 519-586-9464
Linda Thrower - Fisherville Count 905-774-1230

Honorary President: Al Robinson

Honorary Directors: Harry Barrett, Jim Harlow