

VERNALIS

Issue#6

The Newsletter of the Ontario Vernal Pool Association

Winter 2005

A Guide to Common Freshwater Invertebrates of North America

By J. Reese Voshell, Jr., 2002
Illustrated by Amy Bartlett Wright
The McDonald and Woodward Publishing Company.
Blacksburg, Virginia
ISBN 0-939923-87-4

Reviewed by Scott Sampson

A goal of the Ontario Vernal Pool Association is to promote the study and protection of vernal pool habitats in Ontario, and one of the ways that we accomplish this is by spreading the word about useful resources.

Invertebrates are those animals that do not have an internal skeleton of cartilage or bone, and many inhabit vernal pools and provide important ecological services. These vernal pool invertebrates fulfill many ecological niches as decomposers, parasites, predators, and prey. Due to the harsh environmental conditions attributed to vernal pools, including short flooding periods, warm water temperatures, and low dissolved oxygen levels, all vernal pool organisms must have strategies for dealing with the extreme environmental conditions associated with vernal pools. Studying the physiology and behaviour of invertebrates can provide valuable insights into the ecology of vernal pools.

The Guide to Common Freshwater Invertebrates of North America provides an introduction to the identification, biology and ecology

of freshwater invertebrates. This guide focuses on macro-invertebrates, which are those invertebrates that are visible to the naked eye, or with the assistance of a hand lens. This includes flat worms, leeches, aquatic earthworms, snails, mussels, clams, water mites, aquatic sow bugs, scuds, crayfish, shrimps, true bugs, water beetles, and the larvae of dragonflies, damselflies, stoneflies, mayflies, dobsonflies, alderflies, caddisflies, water beetles, and true flies.

While not all specimens in the book are residents of vernal pools, the guide allows users the opportunity to begin to understand the ecological niches that different types of invertebrates fulfill.

The guide is divided into three sections; Section One - Introduction; Section Two - Identification; and Section Three - Information. Section One provides an introduction to freshwater invertebrates, their ecology and

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Under the FlashLight: Leeches

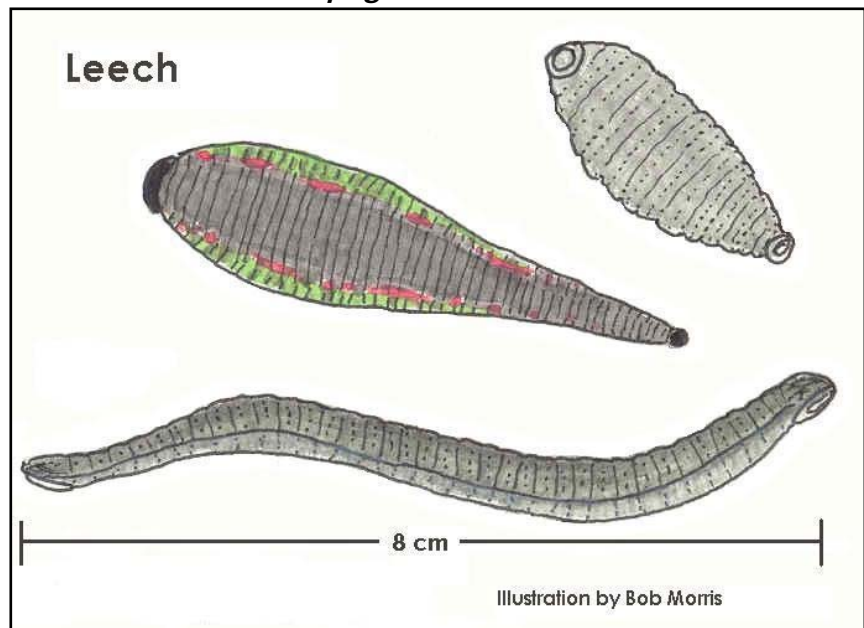
By Adrienne Duff



I believe I am not alone when I say I have a certain fear of leeches. Many people may recall the infamous scene from the film *Stand by Me* where a group of boys mistakenly end up in what is possibly a vernal pool only to find they have become meals to the pool's resident leech population. Aside from their role in medicine and the belief that they are all bloodsucking parasites, most people know very little about leeches... nor do they care to know.

With close to 70 species in North America's inland waters, leeches belong to the class Hirudinea, in the phylum Annelida (segmented worms). Anatomically,

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Meet the OVPA Executive

President	Scott Sampson 1-800-668-5557
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*If you are interested in contributing to future issues of **Vernalis**, please contact OVPA via email or send your article and contact information via regular post.*

How to Contact us

**OVPA
P.O. Box 263
Norval ON
L0P 1K0**

ovpa@sympatico.ca

or check us out on the web!

www.ontariovernalpools.org

or discuss the issues

<http://groups.yahoo.com/group/ovpa/>

FYI

For Your Information

The Ontario Vernal Pool Association Board of Directors has voted in support of an amendment to the membership fees to offer our members more options for paying membership dues.

OVPA members will now be able to purchase memberships in 3-year increments. This change will assist the membership secretary with tracking memberships as well as benefit members who would like to continue their membership for multiple years without resubmitting their application every year.

Starting in 2006 the following memberships will be offered.

Individual membership – for individuals who wish to purchase their membership on a year-to-year basis. Yearly cost \$20.00. 3-year cost \$60.00

Student membership – for students currently enrolled in secondary school, college or university. **Proof of enrollment is required with application.* Yearly cost \$15.00. 3-year cost \$45.00.

Family membership – for family consisting of 2 married or common law spouses with up to 2 children. Yearly cost \$30.00. 3-year cost \$90.00

Organization membership – for organizations with one or more staff members wishing to join OVPA. (please note that the organization has only one vote at the Annual General Meeting) Yearly cost \$30.00. 3-year cost \$90.00.

Members are reminded to help us keep your information up to date so that you continue to receive your newsletter and other information about the Ontario Vernal Pool Association. To update your address, phone number, email address, etc. or if you have an enquiry about the status of your membership, please email the OVPA membership secretary at **membership@ontariovernalpools.org**.

**... A Guide to Common
Freshwater Invertebrates of
North America can't**



biology. In addition, the section outlines methods for collecting and studying freshwater invertebrates

Section Two contains the "QuickGuide" taxonomic key, and beautiful colour, and black & white illustrations of many of the common freshwater invertebrates. The "QuickGuide" taxonomic key has been designed to assist users with the identification of specimens to major taxonomic groups based on visual characteristics. A brief description of the identifying features and a scale is provided to assist in the identification. Section Three examines the biology and ecology of the specimens contained within the guide. This section provides profiles for each taxonomic group, and includes descriptions on the groups distinguishing features, explanation of names, habitat, movement, feeding, breathing, life history, significance, and stress tolerance.

The author of the guide suggests that "with a little practice, users will be able to correctly name about 90% of the invertebrates that they find". Based on my experience using the guide, I would tend to agree that the book should help users get most specimens to the correct classification of family or class. I recommend this book to naturalists, academics, conservation professionals, and land owners who are interested in learning the basic ecology and biology of vernal pool invertebrates.

For more information, please visit the McDonald and Woodward Publishing Company website at <http://www.mwpubco.com/inverts.htm>

... Under the Flashlight can't

and behaviourally, they are more specialized than other Annelids. Their dorsoventrally flattened bodies are divided into 34 segments, making leeches the only annelid with a fixed number of body segments. Their colour is highly variable, from black to brown to green and they may possess attractive patterns of brightly coloured spots. Its body length may be from 4 to 450 mm when fully extended.

Like other annelids, leeches are hermaphroditic yet they cannot self-fertilize. A leech will generally reproduce only once or twice before dying. Reproduction generally takes place in the spring. Most species produce cocoons that are deposited and attached to the bottom substrate. It is here that the young leeches will develop. In the case of some species, specifically those belonging to the family Glossiphoniidae, cocoons attach to the parent and remain there as the young leeches develop. Even once they hatch, the Glossiphoniidae parent continues nurture its young by offering protection from predators and providing food.

Leeches are facultative vernal pool dwellers, generally residing near the bottom sediment. During dry periods, leeches will burrow into the pool's mud. Generally more active at night, leeches will avoid light by burrowing under debris. Leeches are equipped with sensory organs found on the top of their bodies that allow them to detect changes in light and temperature conditions. Leeches have between one and five pairs of eyes located

toward the front of the body. They are able to swim through the water by undulating their bodies using well-developed muscles.

Most species prefer somewhat alkaline conditions. Only the extremely tolerant species can survive in water with a pH of less than 6.

Despite popular belief, not all species of leeches are sanguivorous, or bloodsucking. All leeches do, however, feed on the fluids of other organisms. Some leeches also supplement their diet by feeding on decaying plant and animal material, while others feed on small invertebrates or the eggs of fish and amphibians. The leech detects its prey by vibrations felt in the water. In vernal pools, predators of the leech may include turtles and salamanders. Invertebrates such as dragonflies and caddisflies may also feed on leeches.

Suckers are found at both the anterior and posterior ends of the leech's body. The posterior sucker is generally the larger of the two. Suckers assist in not only feeding, but also in movement. The leech crawls in a looping "inchworm" fashion by moving the anterior sucker forward and attaching it, followed by the forward movement and attachment of the posterior sucker. Bloodsucking leeches have well developed jaws. Hosts of freshwater bloodsucking leeches may include frogs, turtles, fish and occasionally mammals including humans. Once they've attached to their host, the leech will cut the skin with its small teeth to start the bleeding. The host animal's blood-clotting properties are inhibited by an anticoagulant called "hirudin" that is produced by the leech. A leech may consume up to five times its body weight in blood.

Leeches, though often overlooked (or feared!), are a unique group of creatures important to aquatic and vernal pool habitats.

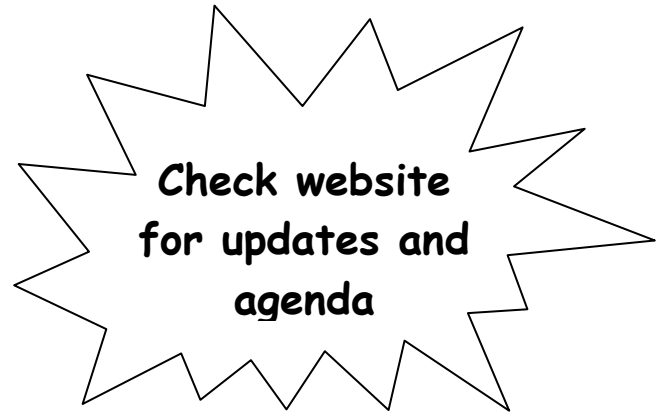
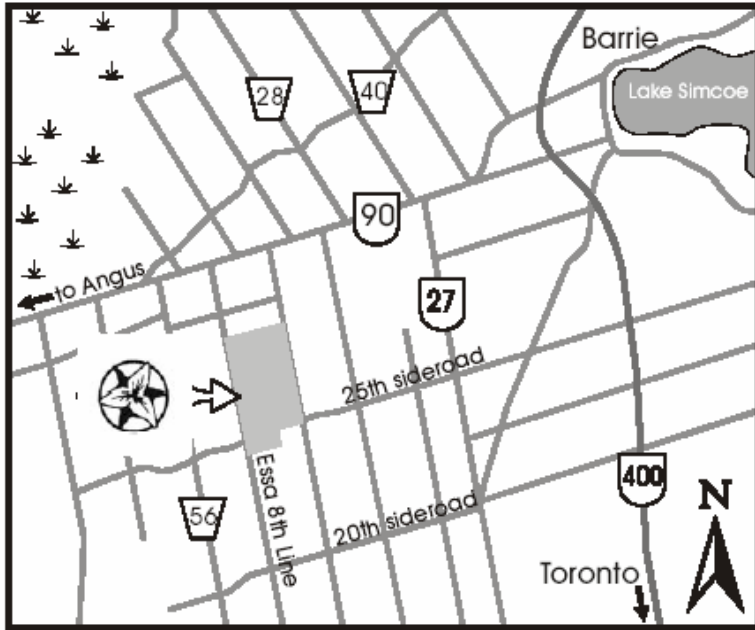
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Word List:

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|-----------------|--------------------------|---------------|-------|
| acidic | grass | sedge | worms |
| amphipod | hydrology | skimmer | |
| backswimmer | hydroperiod | sow bug | |
| beetle | invertebrates | spotted | |
| caddisfly | jefferson | spring | |
| cattails | larvae | spring peeper | |
| conservation | leaf pack | stonefly | |
| crawl | leech | strider | |
| crayfish | mayfly | temporary | |
| cycles | midge | toad | |
| damsel fly | mites | turtle | |
| debris | newts | twigs | |
| dragonfly | pleurocerid snail | vernal pool | |
| duckweed | pond | water | |
| eggs | predaceous diving beetle | water boatmen | |
| fairy shrimp | red back | water mites | |
| ferns | red eft | wood duck | |
| fingernail clam | salamander | wood frog | |
| forest | scuds | woody | |

2006 OVPA Annual General Meeting
April 29th, 2006
Tiffin Centre for Conservation



Tiffin Centre for Conservation
8195 8th Line (Essa Township)
4km south of HWY 90 (Dunlop Street)



I would like to register for the Annual General Meeting of the Ontario Vernal Pool Association

Complete the following form and mail to:
Membership Secretary
c/o Ontario Vernal Pool Association
P.O. Box 263
Norval ON L0P 1K0

Please print

Name: _____

Address: _____ City: _____

Postal Code: _____ Phone #: (H) _____ (W) _____

Email Address: _____

Type of Registration (check one):
Please make cheques payable to **Ontario Vernal Pool Association**.

- Members (\$15.00 – includes lunch)
- Non-member (\$20.00 – includes lunch)

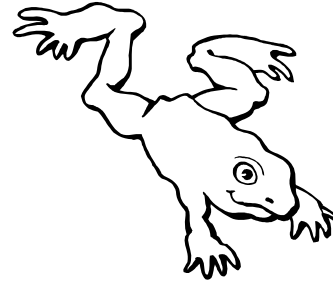
Vegetarian

Payment is non-refundable. Payments by cheque will be subject to bank fees if applicable.

Please enrol me as a member of the Ontario Vernal Pool Association

Complete the following form and mail to:

Membership Secretary
c/o Ontario Vernal Pool Association
P.O. Box 263
Norval ON L0P 1K0



Please print

Name: _____

Address: _____ City: _____

Postal Code: _____ Phone #: (H) _____ (W) _____

Email Address: _____

Signature

Date

Type of membership (check one):

Please make cheques payable to **Ontario Vernal Pool Association**.

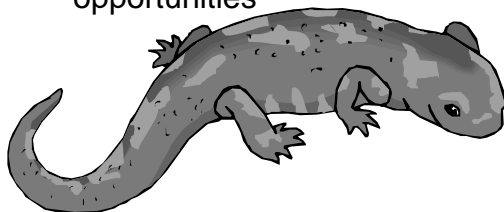
	1 Year	3 Year
Individual	<input type="checkbox"/> \$20.00	<input type="checkbox"/> \$60.00
Student*	<input type="checkbox"/> \$15.00	<input type="checkbox"/> \$45.00
Family**	<input type="checkbox"/> \$30.00	<input type="checkbox"/> \$90.00
Organization	<input type="checkbox"/> \$30.00	<input type="checkbox"/> \$90.00

Please send the OVPA newsletter to me via (check one):

- E-mail
- Regular Post

My interests include (check all that apply):

- Amphibians
- Reptiles
- Invertebrates
- Ecology
- Field trips
- Scientific Studies
- Volunteer opportunities
- Botany
- Speaker Series
- Workshops
- Other _____



I would like to make a donation of

- \$10.00
- \$25.00
- \$ 50.00
- \$100.00
- Other \$ _____

Member information will be kept confidential

* valid student ID required. **Family membership includes two (2) married or common-law spouses and up to two (2) children.

The OVPA assumes no responsibility for injuries of any kind sustained by anyone as a result of participating in any OVPA event.