

VERNALIS

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The Newsletter of the Ontario Vernal Pool Association

SUMMER 2006

OVPA Annual General Meeting 2006 By Adrienne Duff

The third Annual General Meeting of the Ontario Vernal Pool Association was held on Saturday April 29, 2006 at Nottawasaga Valley Conservation Authority's beautiful Tiffin Centre for Conservation in Utopia, Ontario.

The day began with a welcome and introduction to the OVPA followed by a Business Report from President Scott Sampson. Included in the report were some of the ongoing, current and upcoming projects being undertaken by the OVPA. Scott also provided a brief introduction to vernal pools.

The first guest speaker of the day was Albert Garofalo of the Ontario Ministry of Natural Resources on the topic of **Tracking the Jefferson Salamander**. The Jefferson Salamander, a nationally and provincially threatened species, is an obligate dweller of vernal pools although upland habitat is also critical to the species. In order to answer the question: "How much space is enough", a radio telemetry study was performed in 2005 on the Jefferson Salamander Complex, an individual that contains the genetic material of both the Jefferson and Blue Spotted salamanders. The Jefferson Salamander Complex is often more common than the Jefferson itself and occupies a similar habitat. This work was done in conjunction with the

University of Guelph and expanded on work previously carried out by the University. The study took place in two different locations: Hilton Falls, representing a relatively undisturbed habitat, and a location in Mississauga, representing an urban site. A 1.2 gram transmitter was implanted in 26 salamanders. A receiver tracked the movements and locations of salamanders at each of the sites over a period of about two months. Typical upland habitat used by salamanders in the study included: small mammal tunnels, tree bases, bark shingle, rock crevices, under dead fall or rocks, and "tip up mounds" (an area where a large tree tips over and brings up root mass and earth, which then falls to create a mound). While there is some protection of vernal pools through the Provincial Policy Statement, this study demonstrates the importance of critical upland habitat to the protection of the Jefferson Salamander.

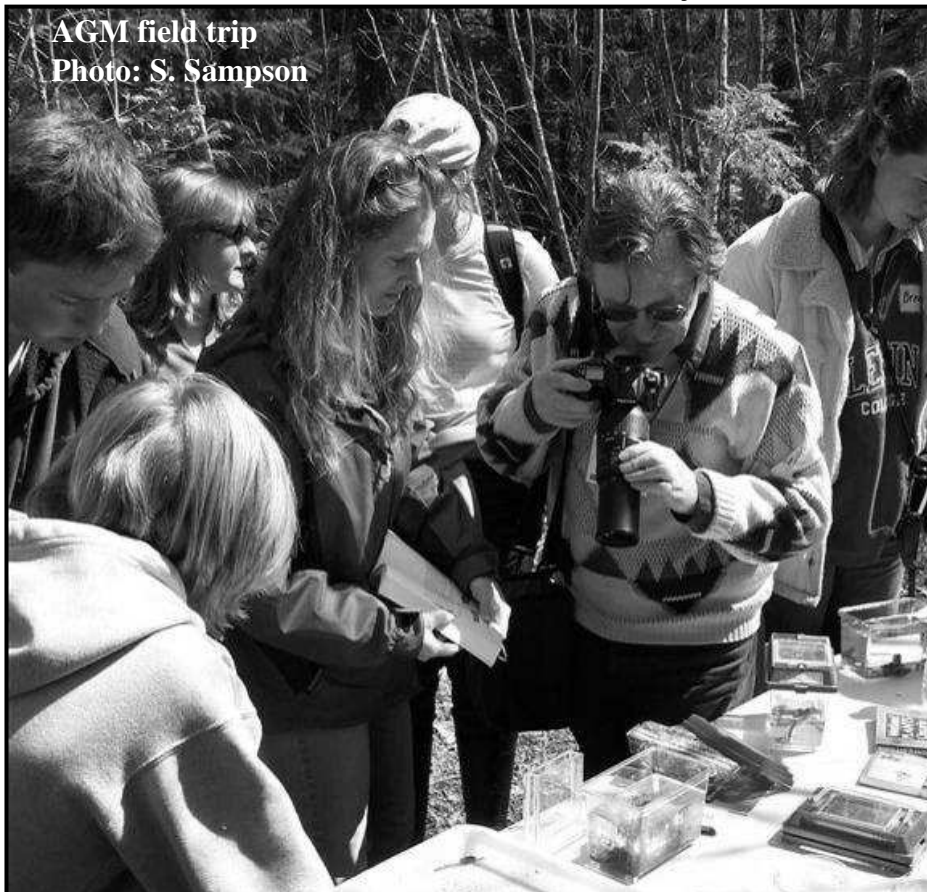
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Under the FlashLight: Gordian or Horsehair Worms

By W.D. McIlveen

Gordian or Horsehair Worms are long, slender aquatic worms that are typically only 1 to 2 mm in diameter although they can range from one or two inches all the way to three feet long. As single worms, they are relatively inconspicuous and therefore go unreported. When they form balls of knotted bodies during a mating ritual, they can be more obvious. They are generally brownish in colour but that range can extend from yellow through to black.

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Meet the OVPA Executive

President	Scott Sampson 1-800-668-5557
Vice President	Karen Chisholme
Treasurer	Heather Lynn
Recording Secretary	Adrienne Duff
Membership Secretary	Michelle Sampson
Director-at-large	Bronwen Smith
Director-at-large	Teresa Rigg
Director-at-large	Bill McIlveen
Newsletter editor	Karen Chisholme

*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.*

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Dragonfly Observing Etiquette

By Brenda Van Ryswyk

Dragonflies, and many insects, are very resilient creatures but when handling dragonflies there are a few things to keep in mind that will minimize the chance of harming your captive.

To capture and handle just about any dragonfly the first, and pretty much only, tool you will need is a simple bug net. If you are planning to make a hobby of the study of Odonata (dragonflies) I would suggest investing in a good quality net. Bug nets are available from many scientific stores and can vary in price from very simple student nets for \$10 to collapsible detachable nets costing \$40 or more. I have recently found a few models available at butterfly conservatories. While they are a bit more expensive than ordering directly you do not have to pay the shipping and border costs. If you are only after Odonata then the standard bug mesh that comes on the aerial nets is suitable. If you



Photo: S. Sampson

are going to expand into Lepidoptera (butterflies) make sure you order netting that is designed not to damage their fragile wings. Children's nets with the nylon or other netting are not recommended as the mesh size varies and you may get legs or appendages caught in the mesh. Children's nets are not designed to last nor will they likely be a convenient size for you. The size of the mouth of the net can also vary. Generally a 12" to 15" net width is sufficient. The larger size nets can be helpful for

trying to capture large or very fast Odes but you do not want to rely on size alone or have a net that is too large and becomes cumbersome. When you first get your net, take it out to the garden or field for a test run and get use to the way it swings and how to aim for what you want. The biggest danger to Odes when netting them is the possibility of hitting them with the ring of the net as you're swinging. If this happens it is often a deadly collision so before trying on living creatures aim for a few

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The next topic was **Energy Cycling in Vernal Pools**, presented by Dr. William McIlveen. Dr. McIlveen's talk began with a review of the requirements of any ecological system, one of which is energy. The transfer of energy follows the carbon cycle and is usually lost as heat. Dr. McIlveen reviewed possible sources of energy in an ecosystem, which include inorganic chemicals, physical factors such as wind or rain, animal movement, solar energy, and decomposition. In a vernal pool, leaf litter is a significant source of energy, as wind carries more leaves to wet areas (e.g. pools) due to their low position on the ground and their ability to trap leaves. Dr. McIlveen noted the differential leaf decomposition between species. For example, a basswood leaf decomposes faster than an oak leaf and thus the surrounding forest type will have an impact on the rate of decomposition in a pool. Because energy cycling happens faster in water, leaf litter tends to break down faster. Various species rely on energy for its role in converting a species from a dormant to an active life stage. The topic of energy movement in habitats often goes unexplored, although its implication to the functioning of vernal pools is significant.

Bob Morris of Credit Valley Conservation next spoke about **Seasonal Fish Habitats** which can include vernal pools. Bob spoke of some of the possible methods of migration or colonization of these habitats, including movement by waterfowl, human introduction and flood events causing connectivity of isolated ponds. Fish that occupy these habitats tend to be prolific, short-lived species that are tolerant of environmental fluctuations. Bob reviewed the life histories and environmental requirements of possible seasonal habitat dwellers such as the Brook Stickleback and

Central Mudminnow. Fish are likely competitors to amphibians, making their co-habitation difficult. In addition, Fairy Shrimp, an obligate vernal pool species, are not known to overlap with the presence of fish. While vernal pools are typically considered to be absent of fish, it is clear that functions of weather and wildlife can create linkages between habitats and introduce fish into otherwise isolated streams, wetlands, and pools.

Following lunch, Natalie Helferty spoke on the topic of **Climate Change and Vernal Pools**. Natalie began with a review of human history in southern Ontario and drew attention to the practice of agriculture from as early as 1350. Although southern Ontario has the best farmland in the province, it has been largely developed. The threatened Jefferson Salamander has been found on the Oak Ridges Moraine, although Natalie pointed out the pressures of development, including street and housing construction, on this habitat. Some attempts have been made to protect amphibians, such as through the construction of bridges and tunnels to allow for migration, although the fault was that housing

was constructed on either side. Natalie stressed the need to illustrate to decision-makers the function of vernal pools and their significance to humans. For example, that amphibian larvae will grow to eat mosquitoes. She also noted that climate change has not been recognized by such important guiding regulations and legislation as the Planning Act and the Provincial Policy Statement. Natalie also argued that international efforts (i.e. Kyoto) will only buy us time when it comes to climate change. In terms of impacts to vernal pools, with less snow and snowmelt, it is predicted there will be fewer pools. With more droughts and flooding events as well as hotter temperatures, wildlife, and in particular amphibians, will have trouble adapting to climate change. Clearly, recognition of both vernal pool significance and impacts of climate change are needed in our planning policies.

The day wrapped up with a hike to the nearby vernal pools on the Tiffin Centre property. Attendees, both children and adults, enjoyed exploring the pools under a beautiful blue sky and examining the many invertebrates, tadpoles,



**Bob Morris - Biologist,
Credit Valley Conservation
Photo: S. Sampson**

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frogs, and even turtles, found in the pools. Informal talks by OVPA members and executive made this a learning experience for all. For many, this was the highlight of the day. While the day's presentations focused on the science and policy issues relevant to vernal pools, the field trip drew us closer to these important habitats and created a sense of appreciation, which is absolutely essential to the protection of vernal pools.

... Under the Flashlight con't

Taxonomically, they are related to the nematodes that include intestinal roundworms and hookworms that parasitize animals. Gordian Worms form the invertebrate Class Nematomorpha. Two of the most common general in freshwater are *Gordius* and *Paragordius*. Others include *Euchordodes*, *Pantochordodes* and *Semigordionus*. The names are derived from the fabled 'Gordian Knot' in reference to their behaviour in forming the mating knots.

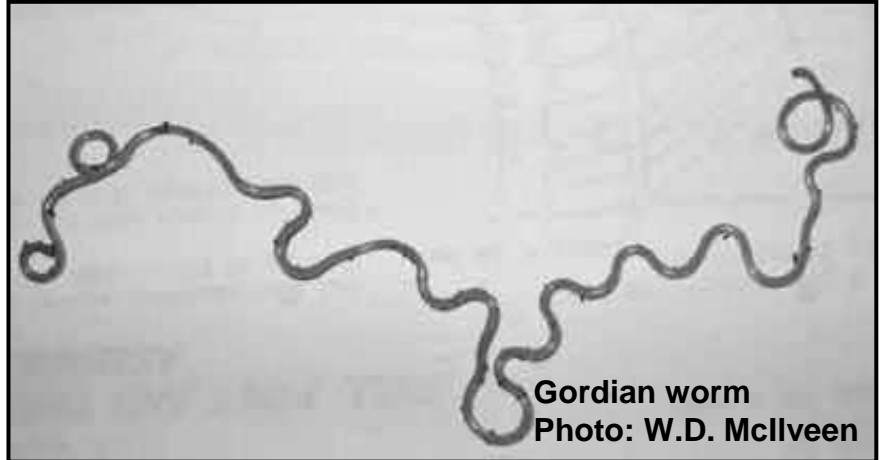
Eggs are laid in strings in the water. Over a period of several weeks, a single female may produce up to 4 million eggs. On hatching, the larvae swim about until they find an arthropod host such as fish, snails, small crustaceans and many kinds of

small insect larvae. In these organisms, the invading larva forms a cyst. In most cases, these are not suitable hosts and the life cycle is broken. Snails appear to form a significant reservoir for the survival of the worms. Frequently, the cysts are ingested by a second host that is typically a terrestrial insect. Only terrestrial insects that feed on the infected tissues of the aforementioned aquatic organisms can become infected themselves. This mainly includes grasshoppers, crickets and ground beetles. At this life stage, the worms tend to be much more host-specific. The larva grows in the body cavity of the second host and it can take from 4-20 weeks to reach maturity. After they leave the invertebrate host, they molt and live a free existence in the water.

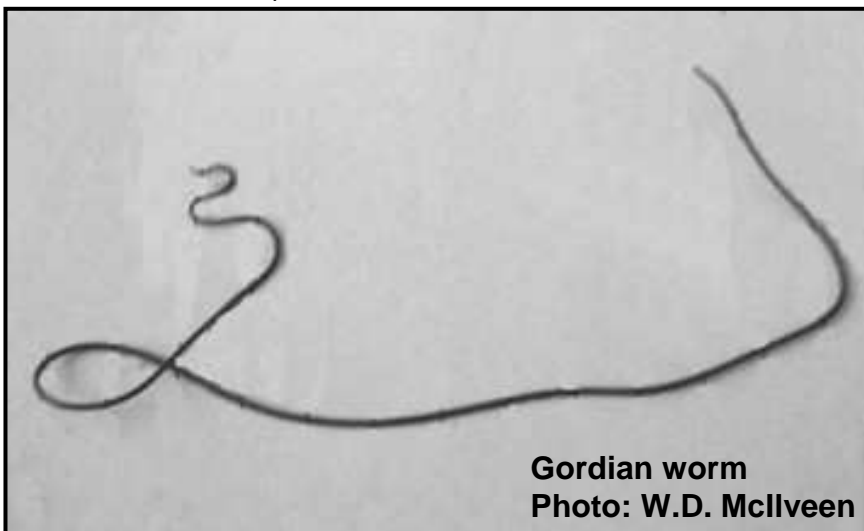
As adults, the worms are free-living

but they never feed. At this stage, their digestive tracts are degenerate and the animals are therefore incapable of feeding. The digestive system in the larval forms is likewise poorly developed but the animals can absorb all their required nutrition through the body wall from their hosts. Circulatory, respiratory, and excretory systems are also lacking. The animals are no doubt able to conduct these functions through the cell wall that is always close by owing to the long and slender body structure. Because the adults do not feed, all the food required by the adults must be stored up during the immature or larval stages.

A curious feature of these worms is their ability to control the activities of their host insects. By some means, they can influence their host such as a cricket to have an increased tendency to jump into water. This makes the probability of the survival of the new adult much higher. If the worm exited their host on dry land, they would not be able to survive. An ability to make their host travel towards water as they reach maturity is a definite advantage to the worms. The Gordian Worm hosts are not selective about what water body they travel to. Because of this indiscriminate process, adult Gordian Worms can be found not just in vernal pools but also in such diverse places as toilets, pet water bowls or yards.



**Gordian worm
Photo: W.D. McIlveen**



**Gordian worm
Photo: W.D. McIlveen**

Dragonfly Etiquette con't...

flowers or grass heads. Once you have mastered catching flowers, you can move on to the real thing.

To start, be aware of the vegetation and other materials around you and where you are stepping. This is especially important at the waters edge. If you are not careful you may trample and destroy the habitat of the very creatures you came to observe. Waterside vegetation is a vital part of the ecosystem and the dragonflies habitat. Also be aware of other people around you. If you are in a public park or path be sure your swings will not take out any unsuspecting passersby. Make sure you have adequate swinging room.

You don't have to swing the net with all your might to capture a dragonfly. Try to swing light or moderately, as the harder and faster you swing the more likely you are to injure your object. Take it slow at first and you will soon learn which Odes need a bit more speed and which do not. Damselflies are very weak. Often you need just enough speed to keep the tail of the net open. Darners are very quick and require fast maneuvering. If you do accidentally injure your target it is probably best to collect it and put it out of its misery quickly by immersing it in acetone (available at any hardware store). Swinging at a stationary target is always easy and has less chance of injuring them so begin with trying to capture dragonflies at rest. As you become more acquainted with your net and how to handle it then it will become easier to capture Odes in flight.

Once you have a dragonfly in the net the next challenge is to get it in hand. If you caught the Ode mid-air just twist the net so it folds on itself to close the opening. If you captured the Ode in the ground, lift the tail of the net and allow the dragonfly to fly up into the small portion of the net. Next grasp the net about halfway down to capture the Ode in the end 'pouch'. Lift the net and slide your hand into it, opening the pouch just enough to let your hand and arm in. Wait for the dragonfly to become still and gently grasp its wings. If it is a damselfly you have caught this will be quite easy as they rest with all wings over their backs. Dragonflies



Photo: S. Sampson

are a bit tricky as they rest with their wings at their sides. When they rest you can use the net to gently confine them and edge their wings over their back and gently grasp all four between your forefinger and thumb. It is important to get all of their wings in your grip as the less wings you have the less control you have and the more chance the dragonfly will get injured. If you have a good, firm but gentle grip on all their wings you can now remove it from the net. Slowly move the dragonfly

away from the netting, making sure they release their grip on the netting. Once it is free from the netting you can release the net to dangle and open, then draw the dragonfly from the net fully. Set the net aside and you are now free to closely inspect your captive. For some species, especially the damselflies, it is helpful to have a hand lens or magnifying glass to inspect the appendages.

Try not to keep your subject captive for too long as it is stressful on them. Once you are finished examining your captive and it is time to release it do not just drop it mid-air. Instead gently place it on your shoulder or a nearby object (tree branch, stump, etc.) and release its wings. For dragonflies the position of the wings over their backs is not a natural position and by holding the wings like that you are stretching their 'muscles'. By setting them on a surface it allows them to relax their wings back into a more natural position. The dragonfly may take off immediately but sometimes they will require a few minutes before they can fly away.

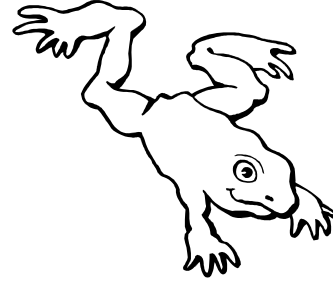
As a general rule try not to capture teneral (freshly emerged) individuals as they are very fragile. They will also be difficult to identify without their adult colouring (which will take some time to develop). If you do capture a teneral do not handle its wings and release is as soon as possible.

Most of all take some time to not only observe your subject naturally but also make note of their habitat, watch for different behaviors and patterns in different species and different situations. Studying Odonata is a fascinating and exciting hobby! We still have much to learn about dragon and damselflies and their habits.

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**.

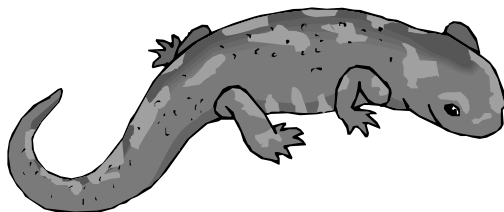
	1 Year	3 Year
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Student*	\$15.00	\$45.00
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Member information will be kept confidential

* 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.