Newsletter of the Adopt-A-Pond Wetland Conservation Programme, Sponsored by Banrock Station Wetlands Foundation Canada

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Amphibian Voice

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EPHEMERAL WETLANDS AND SALAMANDERS

Ontario Vernal Pool Association

By: Scott Sampson, OVPA President

Vernal pools, or ephemeral wetlands are landform depressions that temporarily fill with water following heavy rainfalls, the snowmelt in the spring, or as a result of a high water table. Vernal pools vary in their size, shape, depth, timing and duration of flooding, and the types of species that are able to use them. A defining feature of vernal pools is that they usually dry up by the middle of the summer; however, some vernal pools may only dry up every couple of years. Some animals have adapted and thrive because of the wet-dry cycles of the vernal pool. Many of the species found in vernal pools are dependent on the water of vernal pools for reproduction and other stages of their life cycle. Species like Wood Frog (*Rana sylvatica*), fairy shrimp and many mole salamanders are dependent on vernal pools for their reproduction. Vernal pools provide critical habitat for significant species like the nationally threatened Jefferson Salamander (*Ambystoma jeffersonianum*). The destruction of vernal pools will result in the loss of the species that are dependent on vernal pools for their survival and that cannot successfully complete their lifecycle in other habitats. In Ontario, vernal pools are threatened habitats due urban development, deforestation, and poor land and water management and conservation practices.

Ephemeral wetlands or Vernal Pools fill with water in spring

To properly understand and conserve vernal pools we must examine their features, functions, and threats. The Ontario Vernal Pool Association (OVPA) is a non-profit, non-government organization that promotes the study and protection of vernal pool habitats in Ontario. Other goals of the OVPA include the development of partnerships and the support of

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others involved in the study and conservation of vernal pools. The Ontario Vernal Pool Association organizes hikes, workshops, conferences, and develops products to promote the study and protection of vernal pool habitats in Ontario. The Ontario Vernal Pool Association prints its newsletter, VERNALIS, in March, July, and November.

Editor's Note: For more information on the Ontario Vernal Pool Association please visit www.ontariovernalpools.org or contact them at opva@sympatico.ca .

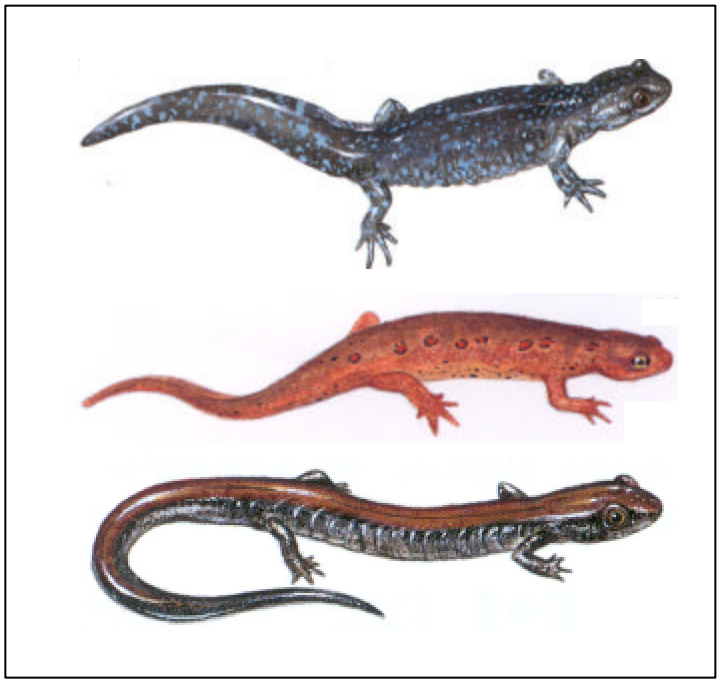
Halton-North Peel Naturalist Club (HNPNC) Salamander Monitoring Project

By: Scott Sampson
Member, Halton-North Peel Naturalists' Club
Natural Heritage Technician, Credit Valley Conservation

The Halton/North Peel Naturalist Club (HNPNC) Salamander Monitoring Project was designed to measure variations of red-backed salamander and other salamander populations over time at six sites in the Halton and Peel Regions. The Ontario Ministry of Natural Resources provided the monitoring protocol and funding for this project. Credit Valley Conservation (CVC) provided access to their properties, logistical, and technical support. The Bruce Trail Association allowed access to one of their properties.

Volunteers from the HNPNC and CVC constructed sampling boards late in the summer of 2002. These boards were transported and laid out at the six sites by the volunteers in early Spring 2003. A grid of 20 modified boards (4 x 5) will be set up at each site. Once the plots were set up, volunteers visited and checked the boards for salamanders once every month from snow melt to first snowfall. Salamanders were identified by species, counted, and measured for length.

The monitoring of the plots during 2003 has produced 152 red-backed salamanders, plus 6 lead-backed phases of red-backed salamander, 2 blue-spotted salamanders, and 7 red efts; for a total of 167 salamanders and red efts. No spotted salamanders, four-toed salamanders, or Jefferson salamanders were observed during monitoring. At one plot, salamanders were observed in significant numbers on every visit, while at the other plots the numbers of salamanders appeared to increase with each subsequent visit. At a plot in Halton, no salamanders were observed during the entire sampling period. Another significant result includes the identification of a blue-spotted salamander in the heart of the City of Mississauga.



The blue spotted salamander, the red eft and the red-backed salamander, three of the species of salamanders observed by the Halton/Peel Naturalist Club. (Illustrations by: Wally Edwards for Adopt-A-Pond)

This project is a multi-year project, and is being carried out in conjunction with Credit Valley Conservation's Terrestrial Monitoring Program. Members of the HNPNC have enjoyed the project and look forward to the future of the project. Credit Valley Conservation is considering expanding the salamander monitoring to other areas of the watershed as part of their monitoring programs.

Editor's Note: Sampling boards are wooden boards placed on the ground to mimic downed woody debris, under which salamanders seek cover.

Salamander Research In North Bay, Ontario

By: Dr. Dave Hackett, Nipissing University

In 1990, the World learned that amphibians (meaning "frogs and toads" to most people) seemed to be declining globally. Merilyn Twiss of the Ontario Ministry of Natural Resources (OMNR) in North Bay and I brought together a team of colleagues, students and volunteers and started to study our local amphibian populations.

Joe Crowley checking a salamander cover board.

Within a few years, we discovered that the frogs and toads in our area seemed to be doing just fine, but that little was known about the salamanders. These important creatures **can be** abundant indicators of healthy forest ecosystems ... but they are also silent, secretive, and vulnerable to a host of environmental impacts (such as global warming, dryness, pollution, pesticides, thinning of the ozone layer, and forestry practices). How were the salamanders of our region faring?

With the help of many people from Nipissing University, the OMNR, and the North Bay community, we began a series of studies: 1) we monitored populations of all species of salamanders in the various forest ecotypes around North Bay, 2) we experimented with every known means of monitoring salamander populations, ranging from crawling along sampling lines in the dark rainy forest to flipping over various types of sampling boards by day or by night, and 3) we assessed the types of techniques that might be used most effectively by the public – in the hopes that volunteers could participate in long-term large-scale salamander studies and contribute high-quality data. In a nutshell, we found that: 1) salamanders were abundant in local forest ecotypes as long as downed woody debris was present, 2) the most effective sampling techniques depended on factors such species of salamander, time of year, weather, budget, and time available for sampling, and 3) the public could take accurate data if they measured the "snout-to-hind-legs" length instead of the conventional "snout-to-vent" length.

Next - we held the "Monitoring Salamanders Conference" at Nipissing University (1999) and invited international experts, scientists, decision makers, foresters, the Press, and the public. There was even an inventor who had created a machine that could suck up litter from the forest floor and safely collect the salamanders! The conference was a huge success and did much to raise the status of salamanders among researchers, the people who make decisions about how our forests are cut, and the public who pays for everything!

Recently – we have been learning more about our most abundant forest salamander, the red-backed salamander (*Plethodon cinereus*), through the research projects of some of my students. Joe Crowley illustrated that moisture is so important to red-backed salamanders that population monitoring can be biased if some of the collecting boards are drier, or newer, than other boards on the study site! Njal Rollinson demonstrated that red-backed salamanders defend territories – and that the "red-backed" colour morph is aggressively dominant to the

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Njal Rollingson holds two salamanders

darker "lead-backed" colour morph. Dan Reeves is taking this finding a step further by testing the idea that the two colour morphs of the red-backed salamander will be found to have different metabolic rates, and therefore different rates of aggression, at different temperatures. If true, this might explain why "red-backs" are numerically superior in the cool forests of North Bay yet "lead-backs" are numerically superior in warmer U.S. forests.

Much remains to be determined, but woodland salamanders are now taken seriously as fascinating study subjects and as valuable indicators of the health of forest ecosystems!

LILY PADS & CATTAILS

ONTARIO VERNAL POOLS ASSOCIATION SPECIAL MEETING

By: Sarah Ingwersen

On March 6, 2004 the Ontario Vernal Pools Association (OVPA) hosted their first annual special meeting to launch the Ontario Vernal Pools Association (OVPA). The meeting took place at the Credit Valley Conservation Office and hosted a variety of guests including naturalists, academics and community groups. Guests heard from speakers from organisations working to protect Ontario's ephemeral wetlands and their species. Speakers included: Scott Sampson, President of OVPA; Fred Johnson, Oak Ridges Moraine Co-ordinator, OMNR; Dr. Jim Bogart; University of Guelph; Don Sutherland, Natural Heritage Information Centre; Dave McLaughlin, DU Canada, and a representative from the Wetland Habitat Fund. I presented on the Adopt-A-Pond Programme and our initiatives to protect ephemeral wetlands in Ontario. Numerous poster presentations rounded out the day.

This meeting was a great success and participants left with greater understanding of ephemeral wetland ecology, conservation and their purpose in the landscape.

ovpa

In the coming months, Adopt-A-Pond will be working with the Ontario Vernal Pools Association to develop a series of educational materials on ephemeral wetlands in Ontario...Please stay tuned!

I SAY GOODBYE, SHE SAYS HELLO...

By: Sarah Ingwersen

I would like to take this opportunity to bid each of you a fond farewell. I will be leaving the position of Adopt-A-Pond Co-ordinator at the end of June. I have enjoyed my $3^{1/2}$ years at the Zoo and I feel privileged to have corresponded with many of you. I hope you will continue to participate in Adopt-A-Pond programming, whether it be Frogwatch-Ontario, the Ontario Turtle Tally, Pond Guardians or use our resources in your classrooms. So long, farewell and thank you for contributing your time and enthusiasm to Adopt-A-Pond!

I would also like to introduce the new Adopt-A-Pond Co-ordinator, Lisa Sealock. Lisa comes to the Toronto Zoo from the City of Toronto and has extensive experience in water conservation, public consultation and restoration ecology.

Lisa looks forward to providing you with any assistance that you may require and to developing new resources and programming to conserve wetlands and wetland species in Ontario. Lisa's e-mail is lsealock@torontozoo.ca .

Vernal Pools in Southern Ontario

By: Jessica Steiner,
Adopt-A-Pond Conservation Assistant

Vernal pools, also known as ephemeral wetlands, are shallow depressions that temporarily fill with water following the snow melt in the spring or heavy rainfall events. These unique habitats constitute an increasingly vulnerable type of wetland inhabited by many species of wildlife, some of which are totally dependent on vernal pools for their survival. Because of the temporary nature of these wetlands, fish cannot inhabit these pools. As a result, populations of frogs, salamanders and invertebrates thrive. Some species are highly adapted to the wet-dry cycle of these pools and come to depend on it for successful reproduction. These species are considered obligate species, and it is their presence, which distinguishes vernal pools from an ordinary puddle.

Example of a Southern Ontario vernal pool

Urban development, deforestation, and poor land and water management and conservation practices threaten the disappearance of vernal pool habitats in Southern Ontario. Intense agricultural practices have already striped the land of almost all of its forested and wetland areas, leaving only remnant woodlots where vernal pools may have been found. Excavation of drainage networks, poor water conservation and deforestation are the biggest issues facing what little is left of these vernal pool habitats in Southern Ontario.

Agriculture is an important contributor to Ontario's economy. Because excess water can make fields unworkable for farmers, they drain surface and subsurface water from the land in order to grow crops. This is achieved by constructing deep agricultural drains. Southern Ontario has the largest drainage network in the province, with Haldimand-Norfolk County alone containing over 1100 km of drain. The municipal drainage act does not protect wooded wetlands, and so headwater areas are frequently drained, depleting the water holding capacity of vernal pools or eliminating them altogether. Agriculture is also the biggest user of water in the area. Irrigation during July and August can drop the water table by 1 – 2 m in vulnerable areas, causing pools to dry up beyond the point by which they can be restored by fall or winter precipitation. Obligate species who depend on a certain length of time to complete the aquatic phase of their life cycle will perish when the pool dries up too early.

The issue of water quantity has actually become quite important to the region recently. The massive drainage network is almost too efficient, lowering water table levels to a point where water is becoming scarce for irrigation in the drier summer months. It is increasingly becoming clear that wooded wet areas are ideal for storing water and drains are now being used to enhance water supplies. Drains, which originally removed water from wooded wetland areas, are now serving as water storage and discharge areas. A steady seepage of water from restored wet wooded areas can help raise the water table, resulting in an increase in surface and groundwater available. This not only benefits the community by helping to buffer water users against drought, but also means some good news for vernal pools, since water levels are maintained throughout the summer.

Although water management issues threaten to dry up vernal pools for good, loss of surrounding wooded areas can be just as devastating. Many of the reptiles and amphibians that use vernal pools spend most of the year in the surrounding forests, making the upland area around a pool as important to species survival as the vernal pool

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itself. Land use near pools affects their value as breeding sites. Loss of surrounding trees can increase water temperature, decrease oxygen content and alter the wet-dry cycle making the pools unsuitable for reproduction. The loss of acceptable breeding pools can mean trouble for a species' survival. Without obligate species a valuable vernal pool is reduced to a barren puddle.

While Southern Ontario searches for ways to improve water quality and quantity, vernal pools will indirectly benefit. Restoring wet areas along drains, protecting existing wooded wet areas, and replanting upland forests are all being implemented as ways to reduce pressures on natural systems and reestablish natural water systems. But more direct efforts focused on vernal pool conservation are still needed in order to ensure the persistence of this unique habitat for future generations.

2004 SPRING TOAD FESTIVAL: An *almost* toadal success!

By: Laurie Kryshka

On Saturday, May 1 and Sunday, May 2 Toronto Zoo hosted it's annual Spring Toad Festival. This event celebrates the arrival of spring with the return of American toads to the wetlands in Ontario. At this year's festival participants visited with the Giant Toad, they watched some magic and became Toad Detectives by tracking a toad using radio telemetry equipment. Participants learned about Frogwatch-Ontario while folding origami toads. New to the festival this year was a face painter who decorated the children's faces with beautiful images of toads, frogs and tadpoles! Of course, the main event of the festival is observing American toads. Saturday was a beautiful spring day and the full chorus of American toads were joined by a chorus of Leopard frogs, and a Canada goose warmed her eggs while two Painted turtles sunned themselves on a log. Toads laid eggs as the day progressed.

The Giant Toad greets festival guests at the 2004 Spring Toad Festival. Our real stars, the toads, showed up the first week of May as they do every year.

Children get their faces painted with images of toads and tadpoles at the 2004 Spring Toad Festival.

Over 800 visitors visited the America's Wetlands Exhibit on Saturday and were privileged with warm, sunny weather and an abundance of toads calling, toads in amplexus, frog and toad eggs and tadpoles. But...Sunday was another story. Sunday was cold and wet. It was too cold for toads and too wet for humans. Temperatures were below 10^0C and not a toad was seen or heard. With steady downpours very few people were spotted, either. There was, however, one brave Leopard frog that celebrated the weather. His solo call brightened our day.

So, even though the weather did not cooperate on Sunday the 2004 Spring Toad Festival was a wonderful success. This event is a great opportunity to glimpse into the wonderful world of amphibians by observing them in their natural environment. If you are interested in learning more about the Spring Toad Festival log on to www.torontozoo.com/adoptapond and plan to attend the 2005 spring toad festival, the first week of May.

A TOAD'ST TO WETLANDS: Wine, Wetlands and Websites

By: Sarah Ingwersen

On June 2, 2004 the Adopt-A-Pond Programme hosted it's first wine tasting event at the Toronto Zoo. The event was held for three primary purposes: to officially launch the sponsorship of the Adopt-A-Pond Programme by Banrock Station Wetlands Foundation Canada, to launch Adopt-A-Pond's new website, and to learn more about Banrock Station. There was an excellent turnout for this event with over 100 people attending the event. Attendees were able to sample a variety of wines from Banrock Station including the unwooded chardonnay, shiraz and the sparkling chardonnay.

The sponsorship of Adopt-A-Pond is for $100, 000 over five years. Through this sponsorship, Adopt-A-Pond will expand programming and will allow us to deliver programmes to more communities throughout Ontario. The first project completed under this sponsorship is Adopt-A-Pond's new and improved website.

Adopt-A-Pond's new website contains interactive material and more information on wetlands and wetland species. It includes the new Ontario Turtle Tally database, where the public can report turtle sightings and the new Pond Guardians database a powerful tool for the public to share innovative wetland protection efforts.

We were privileged to have a special guest speaker, Tony Sharley, Manager of the Wine and Wetland Centre at Banrock Station. Mr. Sharley gave an informative and enthusiastic presentation on the wetland restoration activities that have taken place at Banrock Station in south Australia.

Adopt-A-Pond is thrilled to be supported by Banrock Station Wetlands Foundation Canada and we look forward to a prosperous relationship in our efforts to protect and restore wetlands in Ontario!

A view of Adopt-A-Pond's new website launched on June 2, 2004

Banrock Station Wetlands Foundation Canada presents the 2004 installment of the sponsorship to Adopt-A-Pond. From left to right, Bob Johnson (Curator, Amphibians and Reptiles), Cal White (General Manager, Toronto Zoo), Chris Churchill (Director, Banrock Station Wetlands Foundation Canada) and Tony Sharley (Manager of the Wine and Wetland Centre, Banrock Station Australia). Photo By: Andrew Richardson.

Attendees of the June 2 event get the first peak at Adopt-A-Pond's new website. Photo by: Judith Ingwersen

Ribbet's Review

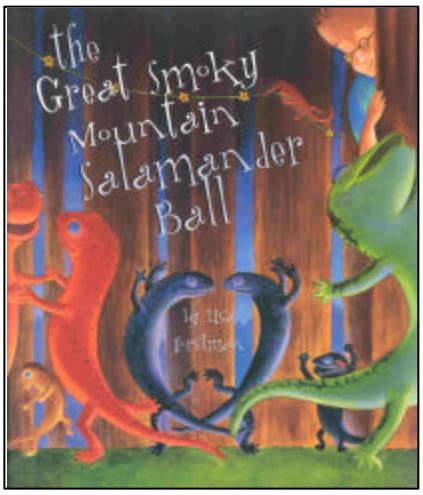
Spring 2004

By: Sarah Ingwersen

The Great Smoky Mountain Salamander Ball

Author: Lisa Horstman

Published by the Great Smoky Mountains Natural History Association (1997)
ISBN 0-937207-21-7



The Great Smoky Mountain Salamander Ball is a delightful story of a little girl, Sara, who discovers some tiny footprints and a tiny invitation to a salamander ball. Sara follows the footprints until she reaches the clearing on the top of the mountain where the salamander ball is being held. It is quite a spectacle with the arrivals of the various species of salamanders. From her hiding spot, Sara watches the salamanders dance until she is discovered. The salamanders are scared and they worry about the future of the salamander ball. One salamander suggests that they teach her about salamander ways so that she can be their ambassador to take their message to the humans. The salamanders begin teaching her about their ways and Sara listens intently. Once the salamanders have awarded her a ribbon as their ambassador she is officially invited to the ball. The party goes late into the night and Sara falls asleep. Sara grows up to be a park ranger and she teaches people about how to protect salamanders.

This is a fun book that has educational value and is suitable for people of all ages. Through its gentle rhymes the story will inspire readers to be salamander ambassadors, too!

Volume 14, No.1

Amphibian Voice is distributed to schools and communities participating in the Adopt-A-Pond programme. The purpose of this newsletter is to provide information on amphibian, turtle and wetland conservation issues and efforts in Ontario.

Send in your stories, drawings and photographs to the address below and we will "hoppily" include them in future issues.

Editors:
Sarah Ingwersen
Adopt-A-Pond Coordinator

Bob Johnson
Curator of Reptiles & Amphibians

Contributors:
Scott Sampson, OVPA
Dr. David Hackett, Nipissing University
Jessica Steiner
Laurie Kryshka

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Adopt-A-Pond is a non-profit wetland education programme. Costs to produce this newsletter, and other resources, are funded by grants and private donations.

We welcome support of our programme! Please make cheques payable to "Toronto Zoo" and send them to the following address. Thank you!

Adopt-A-Pond
Toronto Zoo
361A Old Finch Ave.
Scarborough, ON M1B 5K7

Fax: (416) 392-4979
aap@torontozoo.ca

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