

# THE CANADIAN HERPETOLOGIST / L'HERPÉTOLOGISTE CANADIEN



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# THE CANADIAN HERPETOLOGIST/ L'HERPÉTOLOGISTE CANADIEN

## Volume 4, Number 2. Fall 2014

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about research or programs they have been involved with outside of Canada are also considered for publication. Please submit:

- Citations of recent (within the last 2 years) publications relevant to Canadian herpetology that have not already been listed in TCH. If the publication was "in press" in the previous issue, we will re-list it in the upcoming issue with the full citation information
- Abstracts of student theses (4th year, M.Sc., Ph.D.) that have not been listed in a previous issue of TCH
- Feature articles on topics such as ecology, genetics, taxonomy, conservation issues, field techniques, recovery programs, etc.
- Field notes outlining the results of recent herpetological work
- News, announcements, job postings, collaboration opportunities or any other information that may be of interest to Canadian amphibian and reptile researchers and conservation practitioners
- Photographs and art
- Book reviews

Please e-mail your submissions as MS Word documents with photos attached separately as JPEGs to the Editors (jlitzgus@laurentian.ca or Joe.Crowley@ontario.ca).

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**EDITORIAL NOTES**

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The Canadian Herpetologist (TCH) is a publication produced twice each year by the Canadian Herpetological Society. Correspondence should be addressed to the Editors. *Opinions expressed by authors contributing to The Canadian Herpetologist are not necessarily shared by the publication, its editors, or the Canadian Herpetological Society.*

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**Instructions for Authors**

All submissions should be relevant to Canadian herpetofauna or other topics related to Canadian herpetology. Submissions by Canadian herpetologists

It has been another very busy and exciting year for the Canadian Herpetological Society. One of the main projects that we've been working on this year has been the development of a new CHS website, which went live just before our fall meeting. There is still a lot of work to do on the website, but it was very exciting to get the site launched and to establish an online presence for CHS! For more detail about the website and how you can get involved, check out the short article about our new website in the Announcements section of this issue. Although our name change has been accepted by the Canada Revenue Agency, we are still working with CRA to update our governing documents. The Board of Directors has also been working on regular business, such as moving the IMPARA program forward, and several board members were also heavily involved in planning this year's AGM.

We had a great meeting in Calgary this fall, which is summarized by Steve Mockford in this issue of TCH. In addition to a great turnout, wonderful food and lots of informative presentations at the meeting, the field trip held up to the very high standard that we have been setting in recent years. We hope to announce the meeting dates and location for next year's AGM soon. One particularly time-sensitive announcement that I want to draw your attention to is the call for applications for the Ontario Species at Risk Steward and Research Funds (SARSF and SARRF). These programs are an excellent resource for anyone working with Ontario's at-risk reptile and amphibian species. See the Announcements section for more information about this and other news and opportunities. In the Field Notes section of this issue you will also learn about a number of interesting herpetofauna conservation and research projects from across the country in which our members have been engaged. I hope everyone has a great winter, and I look forward to seeing applications from many of you for upcoming SARSF and SARRF projects.

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## MEETINGS

*TCH will post announcements about upcoming herpetological meetings and provide reports of recently-held meetings.*

### 2014 CHS AGM in Calgary, AB

**Stephen Mockford**

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We have gathered annually as Canadian herpetologists for many years, but this year marked the first time that we came together as the Canadian Herpetological Society. The first annual meeting was held at the University of Calgary in September. I am confident that all who attended found it as interesting and engaging as I did. For those of you who could not attend, but are interested in what transpired, the program is available on the "Meetings" page of the CHS website: [http://www.canadianherpetology.ca/about/docs/CHS\\_2014\\_Program.pdf](http://www.canadianherpetology.ca/about/docs/CHS_2014_Program.pdf)

As part of the meeting we also held the first Annual General Meeting of the society, which was well attended, and there was some good discussion. I will be finishing my tenure as President of the society at the end of the

year and will move on to the position of Past President. On January 1st 2015, Scott Gillingwater will take over as President; this leaves the need for a new Vice-President. An election was held at the AGM and Joe Crowley was elected as the Society's new Vice-President. Congratulations Joe.

Although all of the talks were interesting, there are two talks deserving of special note. The meeting started with a keynote talk by Purnima Govindarajul looking at the challenges and current initiatives in setting conservation priorities for herpetofauna in British Columbia. Judging by the questions and discussion that followed, the challenges are certainly not limited to BC. Pat Gregory brought us up to date on his herpetological adventures in the UK in his travelogue talk during the banquet. While his talk centered on his work with the Grass Snake (*Natrix natrix*), Pat also managed to cover herp diversity in much of Europe.



2014 CHS conference (photo by Joe Crowley)

While I am on the subject of the banquet there were several well-deserved awards presented as well. Tony Russell received the Michael Rankin Distinguished Canadian Herpetologist Award; Tom Herman received the Blue Racer Award; and The Alberta Amphibian and Reptile Specialist Group were awarded the Silver Salamander Award. Congratulations to all. The evening finished with the traditional amphibian and reptile trivia quiz which was designed and delivered by Steve Marks who seemed to take a perverse delight in its difficulty – thanks Steve.

On the Monday following the formal meeting, a field trip was organized to visit the Lethbridge Nature Reserve's Helen Schuler Nature Centre to see their rattlesnake conservation efforts. Unfortunately I could not attend but luckily Leslie Anthony not only attended, but wrote a very nice piece on the visit for Pique Newsmagazine which can be viewed at the following link: [www.piquenewsmagazine.com/whistler/raising-rattlers/Content?oid=2570540](http://www.piquenewsmagazine.com/whistler/raising-rattlers/Content?oid=2570540). After a short presentation at the nature centre, the field trip participants visited several rattlesnake hibernacula and were pleased to find



The CHS membership at the 2014 AGM (photo by friendly bystander)

piles of basking rattlesnakes that had begun congregating for the winter. Other herpetofauna, such as Western Painted Turtles and Wandering Gartersnakes, were also observed over the course of the trip.

Overall, it was a weekend of informative talks and interesting conversations. I look forward to seeing you all next year.



Field trip participants at one of the rattlesnake dens that we visited (photo by Joe Crowley)



One of many Western Painted Turtles that was found during the field trip (photo by Joe Crowley)

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## FEATURE ARTICLES

### Unveiling of an Educational Panel Commemorating Over 40 Years of Turtle Research in Algonquin Provincial Park

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The Algonquin Turtle Project began in 1972 at the Algonquin Wildlife Research Station (AWRS) when 20 Snapping Turtles nesting on the Lake Sasajewan dam were first tagged. There was no goal at that time other than to see if they returned in subsequent years. By 1976, 80 females had been tagged and it was decided to undertake a “long-term” study of reproductive output and movements. Painted Turtles were added to the study in 1978. In 1981, it was realized that these turtles were relatively long-lived and offered a reliable way to measure key life-history and environmental variables in a long-lived species that would complement the long-term (1952-present) Algonquin Park study of short-lived small mammals in comparatively undisturbed aquatic and terrestrial ecosystems.

Many of the turtles captured as adults in the first years of study are still alive and reproducing annually, and may be as old as 100 years. The study has investigated growth, reproductive output and success, recruitment, genetic variation, movements, diet, (the lack of) density-dependent changes, impacts of increased mortality, age-specific life-history changes and the role and effects of thermal constraints. We now

have a unique set of data spanning over 40 years with thousands of captures providing information on animal responses to climate and demographic pressures. Long-term studies are essential to understand such phenomena, as well as to formulate and test ecological theory. The 2014 field season marked the 42<sup>nd</sup> year of the Snapping Turtle, and the 36<sup>th</sup> year of the Painted Turtle studies.

An interpretive panel, unveiled at the Wolf Howl Pond long-term study site during the AWRS 70th Reunion (Oct. 4-5, 2014), provides an educational piece for the thousands of tourists hiking the popular Mizzy Lake Trail in Algonquin Provincial Park. Dozens of researchers and students involved in the Algonquin turtle project joined the surprise unveiling and a talk on the history of Algonquin turtle research by Dr. Ron Brooks, Professor Emeritus at the University of Guelph. The group was also joined by Dr. Justin Congdon, whose influential research has encompassed energy budgets, demographics, reproductive biology, senescence of reptiles, especially chelonians. Now even when turtle researchers are not around catching turtles or surveying for turtle nests, curious visitors can get answers to their questions: "How long do turtles live?" or "what are those numbers bobbing in the water?"

Thank you to all the past Algonquin turtle researchers, Friends of Algonquin Park, University of Guelph College of Biological Science and Department of Integrative Biology, and friends of Dr. Ron Brooks who supported this initiative. The Algonquin Turtle Project is jointly conducted by Dr. Ron Brooks and Dr. Jacqueline Litzgus, Professor at Laurentian University.



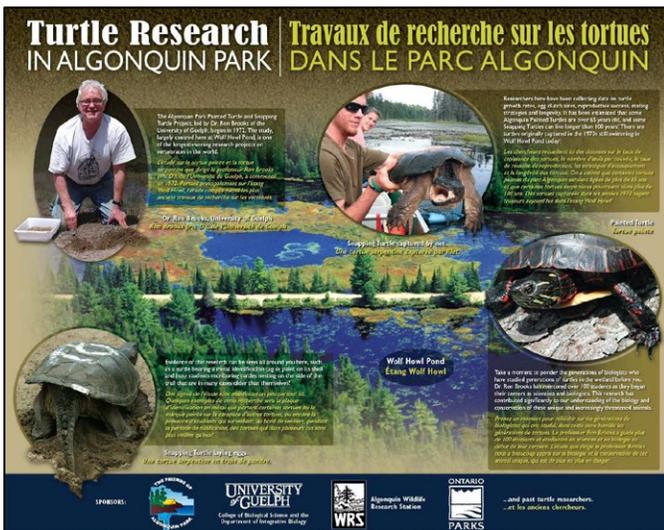
### Nest Site Overwintering by Northern Map Turtle (*Graptemys geographica*) Hatchlings and Nest Protection at a Major Nesting Site in Quebec

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Ron and Algonquin turtle researchers (photo by Paul Gelok)



Interpretive panel at Wolf Howl Pond

One of Québec's most important known nesting sites for the Northern Map Turtle (*Graptemys geographica*) is located at a marina in the municipality of Senneville, a village that is part of the Montréal agglomeration, in Québec. Located at the southwestern edge of the island of Montréal, this small man-made private property hosts more than a hundred nesting female Northern Map Turtles each year. They come from different parts of Lac des Deux-Montagnes, Lac St-Louis and the Saint-Lawrence River to lay their eggs on the marina pier during June and July. The Senneville Yacht Club harbor was constructed at the end of the 1964 season; the first studies mentioning the presence of Northern Map Turtle in the area were done in 1990 (Bonin et al. 1991, Bonin 1992, 1993a and 1993b, Tessier et al. 2008). The emergence of a new Northern Map Turtle nesting area in Senneville may be associated with changes made at the Senneville Yacht Club in the late 1980s. The marina pier wall was reinforced, and gravel spread along the pier and on the parking lot (Bernier and Rouleau 2010). Turtle nests were found mainly dug on the pier, and there was significant loss of eggs from raccoon predation (Tessier et al. 2008). A study by the Ville de Montréal of the raccoon population at parc-nature du Cap St-Jacques, a natural park located within five kilometers of this nesting site, indicated a high density (40/km<sup>2</sup>; Fournier and Dancosse 2011).

In 2013, 20 nests were protected with mesh to prevent raccoons from preying on the eggs: only 11 were not predated. The raccoons found all sorts of shrewd ways to remove eggs from the nests (e.g. by removing the mesh from its ground attachment or by simply tunneling from below). We had to modify our nest protection method several times by changing the type of mesh (chicken wire), using mesh with a smaller diameter (1 cm<sup>2</sup>) and increasing the area protected (50 cm<sup>2</sup>). The mesh was securely attached to the ground with 20-cm metal stakes. We also experimented with protective cages manufactured by the Montréal Biodôme, which were placed on two turtle nests. The two cages proved effective in protecting the nests from predators.



Turtle nest cage (photo by Denis Fournier)



Hatchling Map Turtle (photo by Denis Fournier)

In 2013, from May to mid-July, we counted more than 100 nests that were predated, primarily by raccoons, on the pier and main parking lot of Senneville Yacht Club. It has been demonstrated that raccoons can easily locate a turtle nest by smell once eggs have been laid (Galois 1996). Our observations were similar, indicating

that the raccoon detected the nest during a relatively short time after the eggs were laid; nests left unprotected after oviposition were subject to predation on the following day.

The protective mesh and cages were removed from the nests in mid-August, four weeks after the last of the mesh was installed at the site. This waiting period appeared to be sufficient to eliminate odors; none of these nests were subject to predation after the mesh was removed. A marker (a 25-cm nail) was installed at a specific distance and azimuth angle from the central point of the nest and flagging tape was added to the marker to identify and help locate the nest subsequently.

In early June of the following year (2014), we revisited the 11 nests that had been protected the previous year. Four markers were not found; the markers were probably accidentally removed by the yacht club employees. Inside the seven other nests, we observed a similar number of hatched (empty shells) and unhatched eggs, indicating that some turtles had already emerged. Two of these nests still contained young Northern Map Turtles in a hibernation state: two juveniles in one nest on June 5 and one juvenile in a second nest on June 6. The juvenile turtles were acclimated to ambient temperature and then placed in a flat container with a little water to stimulate them. Approximately 30 to 40 minutes later, the turtles were released in their natural aquatic habitat; they moved easily, swimming quite vigorously.

These observations at the Senneville Yacht Club comprise the first verification that in Québec, at our latitude, some young Northern Map Turtles spend the winter underground after hatching and emerge the following year. This behavior has been previously observed and documented in the United States and Ontario (Baker et al 2003, Nagle et al. 2004, Ernst and Lovich 2009). Consequently, it is important to continue studies on nest predation rates and the rate of overwinter survival of young Northern Map Turtles in Québec nests.

#### Acknowledgments

We would like to thank Amélie Lalonde and Stéphanie Chin Sang, Cegep St-Laurent interns in bioecological techniques, for their diligent field work; as well as Jacques Dancosse, veterinary and scientific adviser at the Biodôme de Montréal for designing and monitoring the experimental anti-predator cages.

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Female Northern Map Turtle (photo by Joe Crowley)

## FIELD NOTES

### An Overview NCC's Conservation Efforts for Endangered Herpetofauna in the Ottawa Valley (Quebec)

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The Nature Conservancy of Canada (NCC) protects areas of natural diversity for their intrinsic value. The Ottawa Valley is known to host a rich variety of common and rare species, and NCC is undertaking conservation efforts in this area by purchasing properties and raising awareness among landowners. The Blanding's Turtle (*Emydoidea blandingii*) is one of NCC's principal targets of biodiversity for the Ottawa Valley. Throughout the years, NCC acquired several properties based on Blanding's Turtle distribution in this natural area, located just a few miles west of Gatineau-Ottawa. In the summer of 2014, NCC and its partners conducted a turtle inventory to locate new communities of Blanding's Turtles in potential habitats that have never been surveyed before. In spite of the efforts and the quality of the habitats that have been selected for the study, only two Blanding's Turtles were captured. This low capture rate suggests that this species is rare in the area and that ongoing conservation work is important to ensure the local survival of this species

Since 2013, NCC has also been implementing a stewardship program for the Western Chorus Frog (*Pseudacris triseriata*) in agricultural lands across the

Ottawa Valley. To date, more than 140 breeding sites have been identified in the agricultural landscape, which have been grouped into 26 metapopulations. The project consists of three main steps: (i) to develop a conservation strategy for the 26 metapopulations, (ii) to approach and raise awareness among farmers whose land shelters the Western Chorus Frog and (iii) to produce and install signs in the protected habitats to identify the breeding ponds that dry up during the summer. The goal is to encourage farmers to adopt or maintain agricultural practices that are consistent with the persistence of the species and ultimately, to avoid destroying the habitat. Indeed, studies have shown that non-intensive pasture and hay culture are compatible with the Western Chorus Frog's habitat. Thus, a personalized stewardship guide is presented to the farmers, in which there is a description of the species and its ecology, information about threats, and recommendations that will help farmers protect the Western Chorus Frog's habitat on their land.



**Calgary Zoo Centre for Conservation & Research 2014 Fieldwork Update**

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We recently completed our 6<sup>th</sup> year of monitoring Northern Leopard Frog populations in southern Alberta. Each year since 2009, we have conducted repeat visual surveys at each of 68 wetlands during the spring breeding season (20 April–02 June) and again in the late summer (21 July–30 August). Our study area is 60,000 km<sup>2</sup> and represents about 85% of the current range of Northern Leopard Frogs in Alberta. So far there is no evidence that Northern Leopard Frog populations have recovered in our study area. Among sites where they have been found in the past, or sites predicted to be good habitat, occupancy was typically less in spring than in summer (0.40 +/- 0.04 vs. 0.53 +/- 0.05). This year we also used song meters to detect breeding activity and collected eDNA to compare the effectiveness of different methods of detecting Northern Leopard Frogs. In addition to this, we are studying what

effect (if any) chytrid fungus has on Northern Leopard Frog occupancy in Alberta.



Northern Leopard Frog (photo by Joe Crowley)

The BC Northern Leopard Frog recovery team is leading a project to reintroduce Northern Leopard Frogs at a second reintroduction site within their historic range in BC. Along with other members of the BC Northern Leopard Frog Recovery team, local conservation organizations and staff from the Vancouver Aquarium, we helped release approximately 2,000 tadpoles at this reintroduction site this spring. Prior to this reintroduction, Leopard Frogs hadn't been observed in the region for over 25 years. Ongoing monitoring has detected recently metamorphosed frogs at this site, but so far no adults. We are hopeful that this coming spring we will see evidence of successful overwintering. This year marked the second of a planned 5-year reintroduction project. This fall we assisted in another BC Northern Leopard Frog Recovery Team-led project to assess the movement pattern of Northern Leopard frogs at the first reintroduction site in BC. This project involved testing several different radio-transmitter belt designs to determine which design would be the most effective and cause the least discomfort or injury.



**Fall Update on the Ojibway Massasauga Recovery Program**

**Jonathan Choquette**

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Monitoring surveys targeting one of the last populations of Massasaugas in Canada's Carolinian zone (the Ojibway Prairie population) are now complete for the 2014 field season. We monitored a total of 10 - 14 two hectare sites within the historical range of the species using standardized detection surveys from 2013-14. Eastern Massasaugas were only detected at three sites in both years and the biological area of occupancy is estimated at ~35 ha. Based on a recent abundance analysis using the Peterson method and 2013-14 mark-recapture data, population size is estimated at 13 (9 - 49) adults and sub-adults. The actual number remaining is likely at the lower end of this range as the method does not account for death between surveys. We are planning for the collection of wild neonates from this, and a closely related population in Michigan, next field season in order to preserve the unique genetic signature of the Ojibway population and to contribute to future ex-situ recovery initiatives targeting this population.



One of the few remaining adult Massasaugas from the Ojibway Prairie population captured and marked in 2014 (photo by Lindsey Valliant)



Massasauga (photo by Joe Crowley)



### First Northern Map Turtle (*Graptemys geographica*) Capture in Algonquin Provincial Park

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Over the 42 years of the Algonquin turtle project there have been a lot of firsts. Each and every year brings something new to discover and the 2014 field season is no exception. We are ecstatic to announce the first capture of a Northern Map Turtle (*Graptemys geographica*) in Algonquin Provincial Park!

Reports of a Northern Map Turtle in Algonquin Park first circulated during the summer of 2010 with a photo of taken by Jeremy Inglis, Ontario Parks Staff, in the Bonnechere watershed, eastern Algonquin Park (where the species is known to occur outside of the Park's boundaries). In 2012, Park Naturalist Justin Peter snapped a photo of a Map Turtle basking in the South Madawaska River, near Lake of Two Rivers, western Algonquin Park. During turtle nesting surveys this year, something unusual caught the eye of turtle project field leader Matt Keevil. The Map Turtle had returned and was perched on what looked like the very same log it was first photographed on in 2012.

The next day, June 15, 2014, was sunny and brought great prospects for basking turtles and the capture of the elusive western Algonquin Park Map Turtle. The turtle research crew launched a canoe equipped with landing nets, wetsuit, flippers, and pure determination. With researchers Steven Kell and Patrick Moldowan in a canoe and Matt Keevil snorkeling stealthily, we started upstream with the hopes of catching the turtle by surprise. The Map Turtle was once again basking on her favourite log, next to a Painted Turtle. Not wasting any time, the turtles dove off and headed for deep water. The turtle researchers followed close and after much splashing, hollering, and excitement the Map Turtle was in hand!

As the first of her kind on the west side of Algonquin Park, this Map Turtle has a lot to teach us. There is still a lot of speculation about this turtle's past. Where did she come from? Is this a case of range expansion, natural dispersal, or relocation by humans?

According to Ontario Reptile and Amphibian Atlas maps, the next closest Map Turtle observations are from the Lake Nipissing area (Nipissing District) approximately 100 km NW, the single eastern Algonquin Park (Nipissing District) observation made in 2010 approximately 50 km NE, and Bonnechere populations (Renfrew County) approximately 70 km E. A blood sample has been taken to serve as a genetic reference for other study populations.

We look forward to following up with this Map Turtle in the years ahead, probably on her favourite basking log once again. Welcome to the long-term study, Algonquin Map Turtle #1!



Northern Map Turtle captured in Algonquin Provincial Park (photo by Patrick Moldowan)



Matt Kevil and a Snapping, Map and Painted Turtle that were captured while snorkelling (photo by Patrick Moldowan)



## Record Size Female Blanding's Turtle (*Emydoidea blandingii*) Found in Algonquin Provincial Park

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It is a rare day indeed when a Blanding's Turtle (*Emydoidea blandingii*) is spotted on the west side of Algonquin Park. Despite over 40 years of studying life history and ecology of Snapping Turtles (*Chelydra serpentina*) and Midland Painted Turtles (*Chrysemys picta marginata*) at the Algonquin Wildlife Research Station, only three nests and approximately 20 sightings of Blanding's Turtles have been recorded in western Algonquin Park. You can imagine our surprise when a previously marked gravid adult female Blanding's Turtle was captured in western Algonquin Park this past summer. Blanding's Turtle 025 measured a straight maximum plastron length of 23.84 cm, a straight carapace length of 24.33 cm and weighed in at 1.95 kg. She has grown only slightly since her first and most recent capture in 2008. This Blanding's Turtle was equipped with a radio transmitter with the hope that researchers could track her movements throughout the summer to better understand the ecology of this threatened species in Ontario.



Record size Blanding's Turtle found in Algonquin Provincial Park (photo by Patrick Moldowan)

The reference book *Turtles of the United States and Canada* (2009) by Ernst and Lovich report a record female Blanding's Turtle size of 21.8 cm straight carapace length. Thus, Blanding's Turtle 025 from Algonquin Park is 2.53cm larger in straight carapace length than the previous record. It is also noteworthy

that a record egg size (Riley *et al.* 2011. Herpetological Review 42, p. 417-418) and a record clutch size (Riley *et al.* 2013. Herpetological Review 43, p. 326) has been published for Algonquin Park Blanding's Turtles. The Blanding's Turtles of Algonquin Park are approaching the northern range limit of the species. Perhaps the record setting nature of Algonquin Blanding's Turtles can be related to the short growing seasons and cold environmental conditions that slow growth and result in a large size and later age at sexual maturity, as has been observed in the long-term study of Snapping Turtles and Painted Turtles. A manuscript on this new size record is in preparation for peer-review.

We are encouraging other Canadian herpetologists to contribute their Blanding's Turtle body size records for a collaborative effort documenting body size of Blanding's Turtles across their Canadian range. Please contact Patrick Moldowan to contribute unpublished Blanding's Turtles body size records ([pmoldowan1@laurentian.ca](mailto:pmoldowan1@laurentian.ca)).



## Toad Tales from Long Point, Ontario PART 1

**Katharine T. Yagi**

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For the past thirteen years I have been working in the field with herps, whether it was with Spotted Turtles during my Master's work, or catching Massasaugas as an Ontario Ministry of Natural Resources and Forestry student technician. During this time I was always involved with Fowler's Toads through volunteering and working on the toad survey in the Niagara region. For the last three years, I have been spending my summers on the beaches of Long Point, Ontario, collecting empirical data for my PhD work. This toad population has given me one of the best field study locations so far! A quiet cottage, a clean sandy beach, turquoise-blue water, and wildlife everywhere!

The objective of my PhD thesis is to examine the effects of larval density on adult dispersal strategy in pond breeding amphibians, using the Fowler's Toads at Long Point as my model system. Along with conducting my own experiments in the field, I also help conduct the

annual Fowler's Toad population survey, which requires the help of many student volunteers. For this survey, we catch and identify toads, as well as record all other amphibian species detected. For the past two years we have included surveys of new breeding ponds that were dug by the Canadian Wildlife Service in the back-dune area of the Long Point National Wildlife Area.

During the spring survey, we recorded six amphibian species and five reptile species using the new ponds for breeding and foraging purposes. We tried luring Fowler's Toad males to the ponds by playing their calls on portable speakers in the marsh. We ended up finding one male Fowler's Toad using one of the ponds as a calling site for two consecutive nights. We hope he will remember to call from the ponds again next year and lure more males into making a calling chorus at the new pond.



Fowler's Toad (photo by Joe Crowley)



American Toad calling from one of the created ponds in 2014 (photo by Katherine Yagi)

Though we did not find any Fowler's Toads laying eggs in these new ponds, we did find three egg masses that were laid in ephemeral beach pools within our study area. We rescued those eggs before the pools

disappeared and I raised the tadpoles in our ponds, successfully producing many toadlets. There were some issues that were ironed out the previous season that made data collecting much easier this year: we sewed up the holes in our aquatic enclosures before they went into the water and we sewed our semi-terrestrial enclosures out of fiberglass mosquito-mesh. Never use plastic to house amphibians!

Finally, we were successful in recapturing five toads this year that we had raised up to toadlet stage last year. I am looking forward to re-capturing our 2014 crop of toadlets next season! It is likely that winter mortality will be very high for these animals but I was able to produce three times as many toadlets this year as the previous year, so my odds are slightly higher. Thank you to everyone who helped us with catching toads and counting tadpoles this year!



## Toad Tales from Long Point, Ontario PART 2

**Flavia Papini**

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After two seasons working as an assistant field researcher on David Green's long-term Fowler's Toad monitoring project in Long Point, it is no surprise that I once again found myself in rural Ontario for a third stint of toad-related activities. It was the first official field season of my M.Sc. research and it began on a high note with news that I had been granted a Quebec FRQNT scholarship, supporting me until graduation.

In addition to the ongoing Fowler's Toad population survey, my study involved the collection of urine samples. In brief, I am comparing androgen levels, chorus size, and frequency of amplexus among the toads in relation to their abundance, comparing our low-abundance Long Point population with the high-abundance Nickel Beach population on the Niagara shoreline. To investigate a possible endocrine system response to conspecific calls as auditory cues, I am collecting urine samples from males, females and juveniles during spring breeding and throughout the active summer season. After years of being the targets of projectile toad pee, we are finally making use of it! Yes, field work is glamorous work.

The first night we detected toads calling, though, turned into a logistical disaster. It was already raining when we heard two males screaming from an almost impenetrably dense stand of Phragmites reeds. As we pushed our way through, we paused every few minutes to inspire the spooked males to resume singing. My bulky equipment snagged on the giant reeds, and as we moved further in, our filling boots and leaking waders left us in low spirits. At last, we caught them. Unfortunately, I was unable to obtain more than a drop of urine from each. They seemed to be far more preoccupied with singing than with deterring us.



Early spring at Long Point (photo by Flavia Papini)



Fowler's Toads in Amplexus (Photo by Flavia Papini)

As the season progressed, though, I found that gently pressing their toes triggered the urination response fairly rapidly and the rest of my sample collection went more smoothly. Urinary hormone analysis is a relatively new, but promising, non-invasive technique for estimating hormone levels and constructing seasonal hormone profiles of endangered amphibians. It's certainly a lot safer than cardiac puncture. I kept my samples on ice in the field and stored them in liquid nitrogen vapour until I could deliver them to the Toronto Zoo's Reproductive Biology

lab. The analyses are currently being finalized and I have high hopes for androgen detection through amphibian-specific enzyme immuno-assays.

After four months in the field, I imagine the toads were relieved to see us go in late August — but I know that winter will not last forever and the next field season is just around the corner.

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## THESIS ABSTRACTS IN CANADIAN HERPETOLOGY

*TCH publishes abstracts of recently completed Honours, M.Sc., and Ph.D. theses from Canadian universities and professors. Students or their supervisors are invited to send abstracts to the Editor.*

**Moldowan, P.D.** 2014. M.Sc. Laurentian University, Sudbury, ON. (Supervisor: J.D. Litzgus)

**Sexual dimorphism and alternative reproductive tactics in the Midland Painted Turtle (*Chrysemys picta marginata*)**



Painted Turtles from the Algonquin Provincial Park study site (photo by Patrick Moldowan)

The reproductive strategy of Painted Turtles (*Chrysemys picta*) has been described as a combination of male courtship and female mate choice. However, in situ field observations from a long-term study of *C. picta* in Algonquin Provincial Park (Ontario, Canada) suggest that males also demonstrate coercive mating tactics. Males are equipped with prominent tomiodonts,

tooth-like cusps of the upper jaw, which seemingly function in restraining mates and result in wounding to the head and neck of females. I propose that the tomiodonts of male *C. picta* serve as sexual weapons used to coerce females into mating. This thesis has two main objectives: 1) to describe the tomiodont morphology of *C. picta*, and 2) to test the functional significance of tomiodonts in the mating tactics of male *C. picta*. In Chapter I, I investigate the overall cranial morphology of *C. picta* with an emphasis on sexual dimorphism of the tomiodonts. I show that male *C. picta* have sexually size dimorphic tomiodonts with an optimized arrangement for biting and gripping. In Chapter II, I investigate the soft tissue wounding demographics of a *C. picta* population as these wounds relate to antagonistic sexual interactions. Using a 24-year dataset on wounding I show that large females experience the highest wounding probability and that elevated rates of wounding occur during the late summer breeding period. In Chapter III, I use behavioural trials during the spring and late summer reproductive seasons to evaluate male reproductive behaviour. I show that small males court females through titillation, whereas larger males employ coercive tactics, such as biting and forced submergence. My findings are contrary to the female choice mating system reported for *C. picta* and join a growing body of research demonstrating the importance of coercive tactics in the reproduction of male emydid turtles.

**Crosby, J.** 2014. M.E.S. University of Waterloo, Waterloo, Ontario. (Supervisors: S. Murphy and S. Ashpole)

**Amphibian occurrence on south Okanagan roadways (2010-2012): Investigating movement patterns, crossing hotspots and roadkill mitigation structure use at the landscape scales.**

Road expansion and increased traffic likely exacerbates barriers to amphibian migration and dispersal. Within British Columbia's south Okanagan valley there is particular concern that the COSEWIC-listed Blotched Tiger Salamander (*Ambystoma mavortium melanostictum*) and Great Basin Spadefoot (*Spea intermontana*) are vulnerable to road effects in their annual movements from upland overwintering habitat to lowland breeding areas. My study utilizes a before after control impact (BACI) approach to assess amphibian movement and population threats across this highway-bisected landscape. Throughout the spring and summer of 2010-2012, 52 km of roadways (31 km of highway, 21 km of paved backroad) were repeatedly

surveyed from the Canada-USA border to north of Oliver, BC; surveys were carried out utilising vehicles and on foot. Along Highway 97, a 3 km four-lane highway expansion project was constructed through 2010 and open to traffic use in 2011. Adjacent to a floodplain, survey effort was focused throughout this transect for informed roadkill mitigation structure placement and ongoing ecopassage effectiveness monitoring. Automated camera trap monitoring of culverts within highly concentrated amphibian road hotspots during spring and summer 2011 (three culverts) and 2012 (two culverts) resulted in over 800 amphibian culvert events observed. Two sample Wilcoxon tests revealed differences between years in amphibian occurrence between 2010 and 2012 ( $W = 4679.5$ ,  $p = 0.02$ ), and mortalities among transect areas, with the largest differences between years within the Osoyoos passing lanes transect. Amphibian mortalities within the passing lanes transect were significantly reduced with the implementation of mitigation structures ( $\bar{x}$  2010 =  $13.2 \pm 32.5$ ,  $\bar{x}$  2011 =  $4.7 \pm 12.8$ ,  $\bar{x}$  2012 =  $2.3 \pm 7.3$ ; 2010 vs. 2012:  $W = 1535.5$ ,  $p < 0.001$ ). Roadkill mitigation structures proved effective in observed amphibian occurrence of the entire passing lanes stretch as well as at distances 100 m and 200 m from observed culverts. Double fenced areas resulted in a 94% reduction in amphibian road occurrence. Five species of amphibians were observed over the three survey years (4051 road incidences over 657 survey hours): Pacific Chorus Frog (*Pseudacris regilla*), Western Toad (*Anaxyrus boreas*), Long-toed Salamander (*Ambystoma macrodactylum*) plus Blotched Tiger Salamander and Great Basin Spadefoot. This study aims to provide a better understanding of amphibian hotspots on roadways and ecopassage use within the south Okanagan. It may act as a catalyst to further wildlife-vehicle interaction studies with improved mitigation solutions for amphibian roadway fatalities.



Great Basin Spadefoot (photo by Jonquil Crosby)

## RECENT PUBLICATIONS IN CANADIAN HERPETOLOGY

*TCH lists recent publications by Canadian herpetologists working in Canada and abroad. Please send to the Editor a list of your recent papers, and send citation information for new papers as they come hot off the presses.*

- Baxter-Gilbert, J.H., J.L. Riley, G. Mastro Monaco, J.D. Litzgus and D. Lesbarrères. 2014. Using a novel technique to measure chronic levels of corticosterone in turtles living around a major roadway. *Conservation Physiology* 2: doi:10.1093/conphys/cou036
- Bell, K.A.H. and P.T. Gregory. 2014. White blood cells in Northwestern Gartersnakes (*Thamnophis ordinoides*). *Herpetology Notes* 7: 535-541.
- Bennett, A.M. and J.D. Litzgus. 2014. Injury rates of species at risk turtles on a recreational waterway in Ontario, Canada. *Journal of Herpetology* 48(2): 262-266.
- Davy, C.M., J.E. Paterson and A.E. Leifso. 2014. When righting is wrong: Performance measures require rank repeatability for estimates of individual fitness. *Animal Behaviour* 93: 15-23. doi: 10.1016/j.anbehav.2014.04.013
- de Solla, S.R., K.E. Palonen and P.A. Martin. 2014. Toxicity of pesticides associated with potato production, including soil fumigants, to snapping turtle eggs (*Chelydra serpentina*). *Environmental Toxicology and Chemistry* 33: 102-106.
- Girard, P., L. Parrott, C.A. Caron and D.M. Green. 2014. Effects of temperature and surface water availability on spatiotemporal dynamics of stream salamanders using pattern-oriented modelling. *Ecological Modelling* 296:12-23.
- Green, D.M. 2013 Sex ratio and breeding population size in Fowler's Toad, *Anaxyrus* (= *Bufo*) *fowleri*. *Copeia* 2013: 647-652.
- Green, D.M., L. Weir, G.S. Casper and M. J. Lannoo. 2013. *North American Amphibians: Distribution and Diversity*. University of California Press, Berkeley, CA. x + 340 pp.
- Green, D.M. 2014. Implications of female body-size variation for the reproductive ecology of an anuran amphibian. *Ethology, Ecology & Evolution*. doi: 10.1080/03949370.2014.915430
- Lesbarrères, D., S.L. Ashpole, C.A. Bishop, G. Blouin-Demers, R.J. Brooks, P. Echaubard, P.

- Govindarajulu, D.M. Green, S.J. Hecnar, T. Herman, J. Houlahan, J.D. Litzgus, M.J. Mazerolle, C.A. Paszkowski, P. Rutherford, D.M. Schock, K.B. Storey and S.C. Lougheed. 2014. Conservation of herpetofauna in northern landscapes: Threats and challenges from a Canadian perspective. *Biological Conservation* 170: 48-55.
- Mathieu-Denoncourt, J., C.J. Martyniuk, R.R. de Solla, V.K. Balakrishnan and V.S. Langlois. 2014. Sediment contaminated with the azo dye Disperse Yellow 7 alters cellular stress- and androgen-related transcription in *Silurana tropicalis* larvae. *Environmental Science and Technology* 48: 2952-2956.
- Moore, J. and M. Ouellet. 2014. A review of colour phenotypes of the Eastern Red-backed Salamander, *Plethodon cinereus*, in North America. *Canadian Field-Naturalist* 128: 250-259.
- Paterson, J.E., B.D. Steinberg and J.D. Litzgus. 2014. Effects of body size, habitat selection and exposure on hatchling turtle survival. *Journal of Zoology*. doi: 10.1111/jzo.12176
- Randall, L.A., L.D. Chalmers, A. Moehrensclager and A.P. Russell. 2014. Asynchronous breeding and variable embryonic development period in the threatened Northern Leopard Frog (*Lithobates pipiens*) in the Cypress Hills, Alberta, Canada: conservation and management implications. *Canadian Field-Naturalist* 128: 50-56.
- Riley, J.L., G.J. Tattersall and J.D. Litzgus. 2014. Potential sources of intra-population variation in painted turtle (*Chrysemys picta*) hatchling overwintering strategy. *Journal of Experimental Biology*. doi:10.1242/jeb.111120
- Riley, J.L. and J.D. Litzgus. 2014. Cues used by predators to detect freshwater turtle nests may persist late into incubation. *Canadian Field-Naturalist* 128(2): 179-188.
- Seburn, D.C., K. Gunson and F.W. Schueler. 2014. Apparent widespread decline of the Boreal Chorus Frog (*Pseudacris maculata*) in eastern Ottawa. *Canadian Field-Naturalist* 128:151-157.
- Smith, D.H.V., L. Randall, B.L. Jones and D.R.C. Prescott. 2014. Difference in detection and occupancy between two anurans: The importance of species-specific monitoring. *Herpetological Conservation and Biology* 9: 267-277.
- Soriano, J.J., J. Mathieu-Denoncourt, G. Norman, S.R. de Solla SR and V.S. Langlois. 2014 Toxicity of the azo dyes Acid Red 97 and Bismarck Brown Y to Western clawed frog (*Silurana tropicalis*). *Environmental Science and Pollution Research* 21: 3582-3591.

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## NEWS AND ANNOUNCEMENTS

### Announcing the New CHS Website

**Joe Crowley**

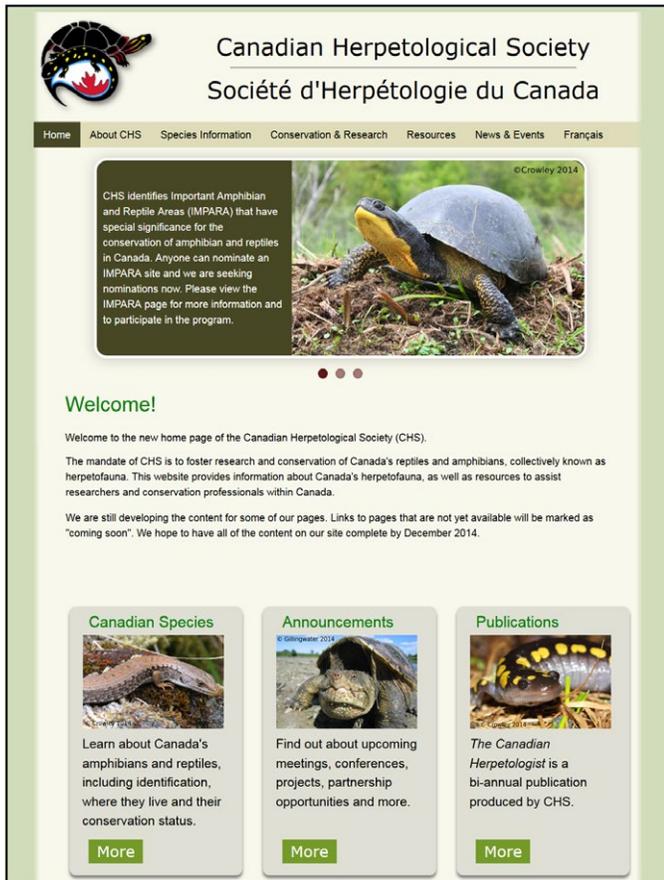
Ontario Ministry of Natural Resources and Forestry  
Peterborough, ON  
Joe.Crowley@ontario.ca

After the merger of CARCNET and CAH at last year's meeting, we began rebranding the organization by adopting the name "Canadian Herpetological Society" and having a stunning new logo developed by Lucie Veileux. Last fall we also initiated the development of a new website, which included a long overdue update to most of the content on the previous CARCNET website. Over the past year, I have been leading the development of the content for the new website with the help of the Board and several volunteers on our website committee. Drew Hoysak, our webmaster, has been doing an amazing job designing the website.

We quickly found that the development of the new CHS site was a very ambitious task; in addition to the need for new content about CHS, there was an overwhelming amount of information on the CARCNET website that needed to be updated. Most daunting of which is the species information, with over 100 pages of information to review, update, edit and add to the new site, along with pictures. Despite the large workload, we have made good progress and have completed the home page, all of the pages about CHS (e.g. membership, etc), pages for our key programs such as IMPARA and TCH, the index for the species pages and the announcements and news pages. We launched the new site at the end of August and provided an overview of it at the AGM. Check out the new CHS website at: [www.canadianherpetology.ca](http://www.canadianherpetology.ca)

If you are interested in joining the website committee to help out with the ongoing development of the CHS website, please do not hesitate to contact me at Joe.Crowley@ontario.ca. At this point, we would like to start translating the main pages to French and are especially in need of volunteers to help with that. We would also appreciate the help of individuals who are knowledgeable of amphibians to assist in drafting or reviewing the amphibian species pages. And of course we still need help to write and edit general content, as well as pull together content for the resources pages. Lastly, I encourage everyone to submit announcements, news and job postings to Drew at webmaster@canadianherpetology.ca so that he can post

them on the website. Those pages will only be relevant and useful if everyone helps to populate them. If you have any comments or questions about the new website, please don't hesitate to contact me.



Screenshot of the new CHS home page



**Call for Applications for the Ontario Species at Risk Stewardship Fund and Ontario Species at Risk Research Fund**

**Joe Crowley**

Ontario Ministry of Natural Resources and Forestry  
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The annual call for applications for the Ontario Species at Risk Stewardship Fund (SARSF) and Ontario Species at Risk Research Fund (SARRF) was announced a few weeks ago. Together, these programs provide almost five million dollars annually for species

at risk stewardship and research projects in Ontario. Since many of Ontario's herpetofauna are at-risk, the fund has been making a significant contribution to herpetofauna research and conservation in the province. For example, in 2014, 45 reptile and amphibian projects were approved for funding under these programs, including Long Point Basin Land Trust's regional reptile conservation program *Conserving Carolinian Reptiles*, the next phase of the *Ontario Reptile and Amphibian Atlas*, Jeff Hathaway's *Reptiles at Risk on the Road* project, the Massasauga recovery program that was featured in the field notes section of this issue and research projects on Fowlers' Toad, Five-lined Skink and Wood Turtle.

Individuals and organizations can apply for funding for projects that contribute to the protection and recovery of species at risk through activities such as monitoring, inventories, research, threat mitigation, habitat creation, outreach and education, etc. I encourage everyone who is carrying out herp research and conservation projects in Ontario to apply to the fund. The deadline for the SARSF is December 10<sup>th</sup> and the deadline for the SARRF is December 16<sup>th</sup>. For more information, please contact Kim Jaxa-Debicki at 705-755-5506 or SAR.stewardship@ontario.ca. Note that you need to register for the online application system before you can apply, and registration can take up to five days.



**Support the Kawartha Turtle Trauma Centre by Voting in the Aviva Community Fund Competition**

**Christina Davy**

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The Kawartha Turtle Trauma Centre (KTTC; kawarthaturtle.org) is a 2014 semi-finalist in the Aviva Community Fund competition. This is an opportunity for the KTTC to receive support for another year of operations. The KTTC rehabilitates turtles injured on Ontario roads, conducts research into effective conservation methods for turtles, and provides training and education to the public. You can support this work

with just a few clicks a day - simply VOTE for KTTC in the Aviva Community Fund challenge!

The final round of voting for the 2014 AVIVA Community Fund runs from December 1 until December 10th. To vote, go to [www.avivacommunityfund.org/ideas/acf19461](http://www.avivacommunityfund.org/ideas/acf19461). Each supporter gets one vote per day, so be sure to vote every day! Please pass this on to your turtle-loving friends and family too - we need every vote we can get!"



### The 2015 Ontario Amphibian and Reptile Field Course

**Joe Crowley**

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Peterborough, ON  
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There is an exciting new reptile and amphibian field course that has been offered each spring for the past 3 years in Ontario. The course teaches participants how to survey for reptiles and amphibians, and it also provides an overview of the basic biology, ecology and identification of the province's herpetofauna. It is organized collaboratively by the Nature Conservancy of Canada, Ontario Nature and the MNR in partnership with Fleming College, Scales Nature Park, Camp Kitchikewana and Parks Canada. The course is instructed by expert herpetologists from across Ontario.

Next spring, the course will be returning to Beausoleil Island in Georgian Bay Islands National Park. The island is located along a transition zone between the open rock barrens and windswept pines of the Canadian Shield and the hardwood forests and deeper soils characteristic of Great-Lakes-St. Lawrence Lowlands. As a result of this transition zone and the shoreline ecosystems, the island has a rich diversity of habitats that support an impressive number of herpetofauna species. With confirmed accounts of 15 reptile and 12 amphibian species, the island hosts over half of Ontario's herpetofauna diversity and just over one quarter of Canada's herpetofauna diversity. Thus, this field course is not only a great opportunity to learn about Ontario's herpetofauna, it is also allows participants to observe many of Ontario's cryptic and seldom-seen species in their natural habitats. The dates

for the 2015 course have been set for June 12<sup>th</sup> - 14<sup>th</sup>. Additional details will be available in 2015, and we will circulate this information to the membership and post it on the CHS website.



Four-toed Salamander and juvenile Eastern Hog-nosed Snake found during the 2014 herp course (photos by Joe Crowley)



Shoreline and wetland habitats on Beausoleil Island (photos by Joe Crowley)



## 2014 CHS/SHC Student Awards

Each year at the AGM, an award is given out for the best student platform presentation and the best student poster presentation. These award winners receive \$250 each. This year, the Student Platform Presentation Award went to Patrick Moldowan for his talk: *Courtship of coercion? Testing for a novel mating strategy in the midland Painted Turtle (*Chrysemys picta marginata*)*. The Student Poster Award went to Michael Colley for his poster: *Preparing for the future: a hot spot analysis of reptile road mortality in Killbear Provincial Park*. As always, there were many amazing presentations and posters to choose from.

CHS/SHC also gives out travel awards to help make attending the AGM and conference more affordable for students. This year, the recipients of the student travel awards, in the amount of \$250 each, were Sara Collins, Patrick Moldowan, Mathilde Girard-Robert, Sean Boyle, Hannah McCurdy-Adams and Katharine Yagi. These travel awards are given out each year and the application for these awards is available on our website.

Congratulations to all of our 2014 student award winners, and thank to you everyone who contributed to the 2014 AGM!



Snapping Turtle taking a ride in a turtle researcher's canoe on Lake Sasajewun in Algonquin Provincial Park (photo by Patrick Moldowan)



Canadian Herpetological Society  
Soci t  d'Herp tologie du Canada

**Membership Form**

Membership begins and ends on January 1 of each year. Multi-year membership allows you to avoid the hassle of re-registering every year and protects you from increases in membership fees.

**Student Membership:**    \$20 / year     or \$90 / 5 years

**Regular Membership:**    \$30 / year     or \$135 / 5 years

Yes, I wish to donate to the on-going work of the Canadian Herpetological Society in the amount of: \$25     \$50     \$100     Other (Please specify): \_\_\_\_\_

**Total Amount Paid:** \_\_\_\_\_

Please make cheques or money orders payable to Jose Lefebvre

Please mail this form, along with your membership fee, to:  
Jose Lefebvre, Acadia University, Biology Dept., 33 Westwood Ave, Wolfville, NS, B4P 2R6.

**Your Information:**

Title: \_\_\_\_\_ First Name: \_\_\_\_\_ Last: \_\_\_\_\_

Institution/Affiliation: \_\_\_\_\_

Department/Section: \_\_\_\_\_

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Street Address: \_\_\_\_\_

City: \_\_\_\_\_

Province / State: \_\_\_\_\_

Country: \_\_\_\_\_

Postal / Zip code: \_\_\_\_\_

Email: \_\_\_\_\_

Phone: \_\_\_\_\_ Fax: \_\_\_\_\_