

THE CANADIAN HERPETOLOGIST / L'HERPÉTOLOGISTE CANADIEN



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Instructions for Authors

We will print articles and news of interest to herpetologists in Canada. These may be in the form of short announcements or letters, or may be written as longer articles. We especially request news of your lab and current conservation and research activities, lists of your latest publications (up to one year old), travel plans, new students, grants, awards, fellowships, new books or book reviews, trivia or concerns. We also encourage you to send in your photographs of Canadian herpetofauna. Please send your submissions as MS Word documents attached to an email to the co-Editors (jlitzgus@laurentian.ca or Joe.Crowley@ontario.ca).

EDITORIAL NOTES

Jackie Litzgus
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Are you warm, yet? This past winter was a doozy, from record cold to record snowfalls. But that's all behind us now. Spring has sprung, and there is herping to be done!



Spring Peeper
Photo by Nick Cairns

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.*

L'Herpétologiste Canadien (LHC) est une publication biannuelle publiée par Société d'herpétologie du Canada. Faites parvenir votre correspondance aux Éditeurs. *Les opinions exprimées par les auteurs qui collaborent au L'Herpétologiste Canadien ne sont pas nécessairement partagées par la publication, ses éditeurs, ou les Société d'herpétologie du Canada.*

In a much better showing compared to my poor attempt at rhyming, in this issue you will find, in the Field Notes section, Patrick Moldowan's herpetological field season musings with a Christmas-like anticipation. Don Scallen gives an informative description of his 8 years of Map Turtle surveys in southern Ontario in the Feature Article section. We get news from the north from the Hecnar Lab in Thunder Bay, Ontario, and information on how to get your hands on the newest

Ontario herp guide, just in time for this field season. Also, check inside to see what's been happening recently with our graduate students and undergraduates, from thesis abstracts, to publications, and travels abroad.

Speaking of travel, head east my friends! As your field season winds down, time to wind up over to the right side of the country. The second annual meeting of the CHS will take place in beautiful New Brunswick this fall. Hope to see you all there! Mark your calendars and save the dates; see inside this issue and keep your eyes on our lovely new website for more details.

I hope you enjoy this spring 2015 issue of TCH!



Grey Treefrog
Photo by Nick Cairns

MEETINGS

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

CHS 2nd Annual General Meeting Saint John, NB 18-21 September 2015

The Canadian Herpetological Society (CHS) will be hosting its Annual General Meeting in eastern Canada this year, at the New Brunswick Museum at Market Square, located just steps away from the Bay of Fundy, several pubs, and local culinary delights. All are welcome and encouraged to attend. Conference activities will take place from Friday September 18 to Sunday September 20, followed by a field trip on Monday September 21.

We hope to see you in the Maritimes! See the "Meetings" page of the CHS website for more information as it becomes available:

<http://www.canadianherpetology.ca/about/meetings.html>



Joint Meeting of Ichthyologists and Herpetologists (JMIH) Reno, NV, USA 15-19 July 2015

The JMIH local host organizing committee (LHC) extends their warmest invitation to the 2015 Joint Meeting of Ichthyologists and Herpetologists (JMIH) in Reno, Nevada. The meeting will take place at the Grand Sierra Resort and Casino, July 15–19. The 2015 JMIH includes the 31st annual meeting of the American Elasmobranch Society, the 73rd annual meeting of the Herpetologists' League, and the 95th annual meeting of the American Society of Ichthyologists and Herpetologists.



Reno is located at the northwestern border of Nevada, in a valley known as the Truckee Meadows. Our high desert city (elevation of 4505 ft) sits between the western edge of the Great Basin Desert and the eastern escarpment of the Sierra Nevada, and is thus near a number of diverse ecological communities. Reno is approximately 20 miles east of Lake Tahoe, itself the second largest alpine lake in North America, and sixth largest lake (by volume) in the USA after the five Great Lakes. The cool waters of Lake Tahoe flow into the Truckee River, which passes through the heart of Reno before terminating in Pyramid Lake, an endorheic lake with an endemic fish (cui-ui) and other important western natives. So bring your swimsuit to "float" the Truckee, either by kayak, raft, or tube, and your rod to fly-fish for native Lahontan cutthroat trout, even in downtown Reno.

On behalf of the local committee, I'm happy to welcome you to join us for some fun in the sun, in the "Biggest Little City in the World". From our blue skies and grand vistas, to our western cuisine, we think you'll have a great time exploring the Reno-Tahoe area. We

look forward to seeing you in July!
 Chris Feldman, LHC chair
 Please see the meeting website for more information:
<http://www.dce.k-state.edu/conf/jointmeeting/>



Tiger Salamander on a stormy night
 Photo by Nick Cairns

FEATURE ARTICLE

The distribution of Northern Map Turtles (*Graptemys geographica*) on the Grand River and in wetlands associated with Lake Ontario

Don Scallen
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Introduction

Beginning in 2008 and extending through 2014, I conducted surveys for turtles in all the major wetlands associated with Lake Ontario from the Niagara River to Presqu'ile Bay in Northumberland County; I also surveyed East Lake in Prince Edward County. A total of 28 wetlands were surveyed. In addition, I surveyed the Grand River from Schneider Creek in Kitchener to Lake Erie.

For the Lake Ontario surveys, my definition of "wetlands" included streams and rivers that terminate at Lake Ontario. Thus I surveyed all of the navigable (by kayak) rivers that empty into Lake Ontario in this region including the Niagara, Credit, Humber and Rouge. Other surveyed wetlands included marshes (Jordan Harbour, Cootes Paradise), embayments (Carroll's Bay at the western end of Lake Ontario, and Presqu'ile), the lagoons of the Toronto Islands, and the wetlands in and around the Leslie Street Spit.

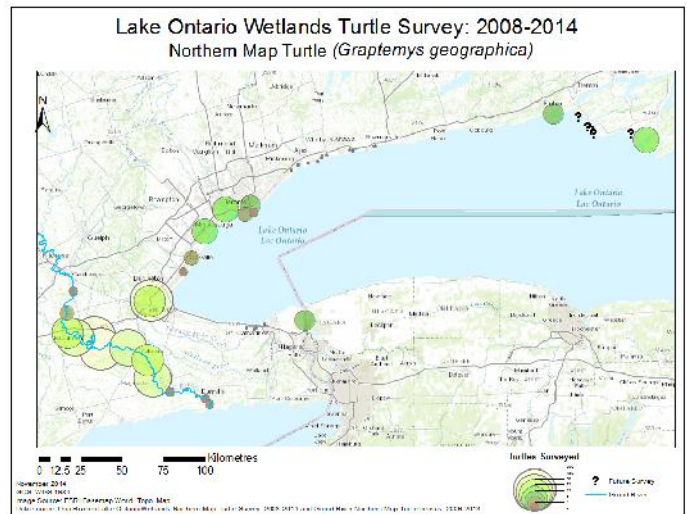
For the Grand River surveys, I generally paddled 10 to 14 km stretches of the river on each survey day,

except near the mouth of the Grand River at Lake Erie, where extensive marshes necessitated surveying a more localized area.

I tallied observations of turtles of five different species: Snapping Turtle (*Chelydra serpentina*), Blanding's Turtle (*Emydoidea blandingii*), Northern Map Turtle (*Graptemys geographica*), Midland Painted Turtle (*Chrysemys picta marginata*), and the invasive Red-eared Slider (*Trachemys scripta elegans*). Map and Painted turtles were found most frequently. All data have been submitted to the Toronto Zoo's Turtle Tally, and complete data lists are available upon request.

The Northern Map Turtle (Special Concern, COSEWIC 2012) is the focus of this report. I counted 977 Map Turtles along the Grand River and 331 Map Turtles in 12 of the 28 Lake Ontario wetlands. (Totals include the highest counts for each wetland or stretch of river surveyed, and exclude lower counts from sites surveyed more than once.)

These data can contribute to the understanding of the distribution of the Northern Map Turtle in southern Ontario. The data are also of value for identifying locations of high Map Turtle population density, and also where their numbers are low or absent. My hope is that these data can serve as the basis for further study. I present two hypotheses to explain Map Turtle distribution in the Grand River and Lake Ontario wetlands; perhaps these hypotheses could be modified and tested by researchers.



Methods

All surveys were conducted from a kayak. Binoculars were used to scan basking sites and the water surface. All surveys, for the purposes of this particular report, were conducted on sunny to partly sunny days, spring through autumn, with air temperatures ranging from 20C to 30C; that is, during times of the year when

turtles are active and on days conducive to turtle basking. This should allow the surveys to be replicated, and permit data sets to be compared, with some assurance that similar environmental conditions prevailed.

Most of the records I've compiled are of turtles engaged in "aerial" basking: basking above the water surface on logs, rocks, banks, etc. I also recorded swimming turtles that could be identified to species, and turtles basking on submerged aquatic vegetation.

There are a number of variables that can affect aerial basking beyond ambient air temperatures. These include: 1) time of year; 2) water temperature: when water temperatures are higher, the necessity to thermoregulate by aerial basking likely decreases; 3) prevailing weather conditions: a protracted period of wet, cool weather may lead to more basking when the sun reappears; and 4) the need for reproductive females to thermoregulate, to promote egg development. Despite these variables, I believe that my records go some distance towards furthering our understanding of the distribution of the Northern Map Turtle in southern Ontario. This species, in my experience, continues to bask at a high rate from late spring through early fall. Whereas Painted Turtles bask less frequently in the summer than they do in spring, a similar seasonal decline in basking by Map Turtles does not appear to occur, or at least, is likely less pronounced.

Results and Discussion

Map Turtles are not uniformly distributed along the Grand River or in Lake Ontario wetlands. Population concentrations occur in some areas while in other areas, often nearby, Map Turtles are scarce or even absent.

Map Turtles in the Grand River.-- On the Grand River, the largest concentration of Northern Map Turtles occurred in the Brantford area. For example, on 31 July 2009, a 3-hour survey of a section of the Grand River yielded 298 Map Turtle sightings. I have paddled this particular section four other times during the summer months with totals of 153, 200, 291 and 294 Map Turtles being observed on each survey, respectively.

Other sections of the Grand River appear to support far fewer Map Turtles. I counted no turtles during a survey from Schneider Creek in Kitchener to the Cambridge dam. South of this, between the Cambridge dam and Glen Morris, I observed only one Map Turtle. Further downstream, approximately 20 hours of survey work from Cayuga to Lake Erie, yielded only 3 Map Turtle sightings.

The reasons behind the lack of uniformity in the distribution of Map Turtles along the Grand River should be studied. Possible variables affecting Map Turtle numbers along the Grand include: 1) water depth;

2) available basking sites; 3) dissolved oxygen content; 4) river bottom substrate; 5) prey availability, especially mussel populations; and 6) rate of flow.

Here, I offer a hypothesis to explain the absence or scarcity of Map Turtles in sections of the Grand River upstream from Paris: *Shallow water in a stream with gradients that produce riffles and rapids acts as a barrier to the upstream movement of Map Turtles.* Such conditions are common between Cambridge and Paris, where I found few Map Turtles. To support this hypothesis, Map Turtles also appear to be scarce or absent upstream from the relatively quiet, deeper waters of rivers flowing into Lake Ontario. For example, where the Credit River and the Humber River become too shallow to be navigated by kayak, where rapids are present and where stony substrate is close to the water surface, Map Turtles appear to be absent. They also appear to be absent further upstream in the Credit and Humber Rivers, despite the availability of deeper, quieter waters in some upstream sections. I am aware that there have been sightings of Map Turtles upstream from Cambridge on the Grand River. My observations suggest however, that this species is likely uncommon in these upstream areas, perhaps because of the reason indicated above.



Map Turtles and Spotted Sandpiper in Carroll's Bay.
Photo by Don Scallen

Map turtles in Lake Ontario wetlands.-- Map Turtles are not distributed evenly in Lake Ontario wetlands. Almost certainly the largest concentration between the Niagara River and Presqu'ile Bay is in Burlington Bay. My highest count of basking Map Turtles at this site was on 21 June 2009 when I recorded 192 turtles. Other surveys of the area have yielded 180, 127, 94, 93 and 75 turtles per survey. Even the lower numbers tallied from the site far exceed any other Map Turtle counts in other wetlands from the Niagara River to Presqu'ile. The next highest counts occurred in Cootes Paradise which, though connected by a short

channel to Burlington Bay, is separated by a carp exclusion barrier. The highest totals I observed at Cootes Paradise were 34 turtles on 15 May 2008 and 33 turtles on 25 September 2011. Numbers of Map Turtles at other Lake Ontario wetlands were 28 in the lower Credit River, 16 in the lower Humber River, and 26 at East Lake in Prince Edward County. It is clear that the Map Turtle population in Burlington Bay is a very important component of the overall Map Turtle population on the Ontario shore of Lake Ontario. Its protection should be a conservation priority.

Here, I offer a hypothesis to explain the apparent absence of Map Turtles in some of the wetlands I surveyed along Lake Ontario: *The Lake Ontario wetlands that appear not to support Map Turtles lack sufficient dissolved oxygen for winter survival.* Map Turtles are anoxia-intolerant (Reese et al. 2001), meaning that survival during winter hibernation requires well-oxygenated water. In support of this hypothesis, Jordan Harbour in Niagara Region, a large body of open water with numerous fallen trees along its margins offering basking sites, appears to be good Map Turtle habitat, but I didn't observe any Map Turtles there. The small stream entering Jordan Harbour from the south (Twenty Mile Creek), may not deliver enough oxygen to the harbour to support Map Turtle hibernation. There is little mixing of the waters of Jordan Harbour with Lake Ontario waters, as the outlet to the lake is small. The apparent lack of Map Turtles at Jordan Harbour led me to predict that other Niagara Peninsula wetlands (e.g., 16 Mile Pond, Martindale Pond, 15 Mile Pond) would also lack map turtles because, like Jordan Harbour, these ponds are not subject to the inflow of large streams or rivers and again like Jordan Harbour, these ponds have only small openings to the well-oxygenated waters of Lake Ontario. As expected, I did not find Map Turtles in these bodies of water, or in similar quiet wetlands in Durham Region (e.g., Frenchman's Bay, Second Marsh). After observing no Map Turtles in the Niagara Region wetlands, I predicted that I would encounter them again in the Niagara River where high levels of dissolved oxygen would be present. This was indeed the case; I found 13 Map Turtles between Niagara-on-the-Lake and Queenston Heights on the west side of the river. If the dissolved oxygen hypothesis explains the absence of Map Turtles in Lake Ontario wetlands, it may also explain the scarcity of Map Turtles in the extensive marshes of the lower Grand River.

A note on hibernacula.-- Map Turtles likely hibernate in many of the areas I surveyed, but two localized probable hibernating sites need to be mentioned for their obvious conservation importance. One is the aforementioned Burlington Bay where on 8

November 2009, I counted 45 Map Turtles basking. At this late date in the year, these turtles were almost certain to hibernate close to these basking sites in Burlington Bay. A second likely Map Turtle hibernaculum is found along the Grand River between York and Cayuga in Haldimand County; this location is a quiet side-channel of the Grand River. It is connected to the main channel via a small passage, so it would remain well-oxygenated over the winter, but it would be somewhat sheltered from the strong flow of the main channel. Though small in area, I counted 15 Map Turtles basking and another 33 floating in this side-channel on 10 September 2011.

A note on surveying Map Turtles.-- Map Turtles appear preferentially to choose basking sites (logs, rocks) surrounded by water. Logs extending from shore are also used. In the absence of these structures, they emerge onto the banks of rivers and lakes in areas clear of vegetation. Their heads are generally oriented towards the water in these situations. Where banks are heavily vegetated (e.g., by cattails) and where emergent structure is not available, Map Turtles appear to seek submerged aquatic vegetation to rest upon and thermoregulate. They can be difficult to survey in such situations, but a careful scan in areas of submerged vegetation can sometimes yield surprising numbers of turtles.

Additional details about these turtle survey data can be obtained by contacting Don Scallen at dscallen@cogeco.ca.

FIELD NOTES

'Twas the Night Before Field Season

Patrick Moldowan

Mauritius (seriously)

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'Twas the night before Field Season,
and Herpers had best get some sleep.
Not a creature was stirring, not so much as a peep(er).

The waders were patched to seal up the tears,
in hopes that some early spring turtles would be out
there.

The Herpers were nestled all snug in their beds,
while a cacophony of Wood Frogs resonated in their
heads.

Grad students in their Carhardts, and I in my cap,
were just coming out of our long winter's nap,
when out in the wetland there arose such a clatter,

we sprang from our beds to see what was the matter.

For the warm rain had come all the sudden,
before we knew it, we would be muddin'!

The moon high in the sky sent the frogs into frenzy,
soon followed the salamanders all slippery and bendy.

When, what to my wondering eyes should appear,
but an overwintered clutch of Painted Turtles so near
and dear.

They scampered to the water, so lively and quick,
they had made it through their long winter's trip!
The Herper's memories were rusty, but the thoughts
soon came,

and (s)he whistled, and shouted, and called them by
name:

"Now, *Ambystoma*! Now, *Lithobates*! Now, *Chelydra*
and *Thamnophis*!

On, *Plethodon*! On *Pseudacris*! On, *Chrysemys* and
Diadophis!

Check carefully under each rock, under each log!

Now herp on! herp on! No matter the bog!"

As dry leaves soften and rain continued to fall,
the anurans picked up the intensity of their calls.

So out in the forest, the Herpers they perused,
with a long night ahead, they cracked open a few brews.

And then with an inkling they heard over a ridge,
the faintest, mostly slightest call of,

"Is that what I think it is?"

They adjusted their headlamps and started to bound,
down to the pond they all gathered around.

He was dressed all in brown, with warts head to toes,
and protected by poisonous skin, he had very few foes.

The female sat still with a lucky partner on her back,
the satellite males looked on with inflated vocal sacs.

The salamanders they swam so eloquently at that,
the females, burdened with eggs, were very, very fat!

The Herpers where smitten with this little pool,
for the guy Herpers beards had accumulated some drool.

Linnaeus had spoke of these creatures as foul and
loathsome,

but everyone here found them rather wholesome.

A Herper crouched, and frigid water filled his/her welly,
all to admire what was a fresh amphibian egg mass of
jelly.

Springtime herping is never a bore,
off in the distance, a Leopard Frog let out a loud snore.

Excitement was high on this crisp, drizzly night,
camera flashes were fully alight!

It had been many months since the *Necturus* fix at
Oxford Mills,

the Herpers found that to be a perfect practice drill!
Just one more log, just one more rock, hurry up and
come,

it's *Hemidactylum*, a lifer for some!

In the wee hours of morning, the headlamps grew dull,
with cooler temperatures, amphibian activity began to
lull.

Flashlights soon required battery replacement,
but after a long winter, these back-ups were accidentally
forgotten in the basement!

Soaked to the bone with numb fingertips,
these Herpers had little cover left to flip.

The night felt short but the days grew longer,
in the coming weeks the Herpers' search would become
broader.

They bid goodbye and goodnight to the ponds,
having met new friends and developed new bonds.

Knowing that there was a full season ahead,
the Herpers decided to retire to their beds.
Sleep came on quick and their dreams brought much
promise,

in the near future lay *Heterodon*, *Sistrurus*, and *Hyla*
chrysoyelis!

Happy Field Season to all, and to all a Great Summer!



The Wandering Salamander

Kristiina Ovaska

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Wandering Salamander

Photo by Kristiina Ovaska

The Wandering Salamander, *Aneides vagrans*, was
assessed as Special Concern by COSEWIC in April

2014. This species has a curious disjunct distribution and occurs on Vancouver Island, BC, and in northern California; various hypotheses ranging from drafting on ocean currents to introductions within historical times have been proposed as explanations for this pattern. Wandering Salamanders are almost invariably found in association with moderately decayed wood and are also known to climb trees. One individual was spotted in the lofty height of 57 m in a large Sitka Spruce on the west coast of Vancouver Island!



Wandering Salamander
Photo by Kristiina Ovaska

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.

Juneau, V. M.Sc. 2014. University of Ottawa (Supervisor: G. Blouin-Demers)

Chronically elevated corticosterone levels, via cocoa butter injections of corticosterone, do not affect stress response, immune function, and body condition in free-living Painted Turtles (*Chrysemys picta*).

Chronic stress can result in elevated circulating levels of glucocorticoid hormones in vertebrates, which can affect their stress response, their immune function, and eventually their fitness. I tested the effect of chronic corticosterone (CORT) elevation on the acute stress responsiveness, immune function, and body condition of free-living Painted Turtles (*Chrysemys picta*) in Gatineau Park, using slow-release exogenous CORT administration. While Silastic implants did not predictably elevate circulating CORT concentrations in Painted Turtles, injections of CORT-laden cocoa butter kept circulating levels elevated for up to 3 weeks, to concentrations likely physiologically and ecologically relevant for the species. I measured the acute CORT stress response, parasitaemia, heterophil-to-lymphocyte ratios, and total leukocyte counts after 1 week and 3 weeks, and determined body condition after 1 week, 3 weeks, and 1 year. Compared to sham and control turtles, I observed no effect of treatment on these hormonal, immune, and body condition metrics of stress, possibly because CORT mediates resource allocation only in the presence of additional immune or energy challenges, because of the masking effect of extrinsic factors, or because free, not total, CORT appears to be biologically active.

Marchand, K.A. B.Sc. 2015. Laurentian University, Sudbury, ON. (Supervisors: J.D. Litzgus and G.N. Hughes)

Geographic variation in somatic growth rate of Wood Turtles (*Glyptemys insculpta*).

Life history traits in turtles, such as body size and age at maturity, have been found to display intra-specific variation across a species' geographic range. Previous studies have examined body size variation of turtles among populations and found that body size increases with increasing latitude; an exception is the Wood Turtle (*Glyptemys insculpta*), which follows a non-linear relationship with larger body sizes at the two range extremes. Similarly, growth rates are influenced by climatic variables and should display geographic

patterns reflective of different environments. Few studies have examined variation in somatic growth rate across the Wood Turtle's geographic range, and to date no studies have quantified somatic growth for the Sudbury District population, located near the species' northern range limit. The objectives of this study were to quantify somatic growth in the Sudbury population, and to determine if the observed geographic variation in body size was the result of inter-population variation in somatic growth rates. In the Sudbury population, males grew faster than females during early life history stages, and overall grew to larger mean carapace lengths than females. The most significant variation in somatic growth increments occurred as the turtles approach maturity, at which point energy resources are reallocated to reproduction. Across the geographic range, populations at southern extremes had higher somatic growth rates, grew to smaller mean carapace lengths, and attained sexual maturity earlier than those at the northern extremes; this pattern was related to the number of frost-free days and mean active and annual temperatures. Understanding variation in species' life history traits is critical to understanding changes in population demography, which is important when managing populations that are in decline.



Spiny Softshell
Photo by Nick Cairns

Myschowoda, K.R. B.Sc.F. 2015. Lakehead University, Thunder Bay, ON (Supervisor: S.J. Hecnar)

Caudal autotomy as a function of potential predators of the Common Five-lined Skink (*Plestiodon fasciatus*) at Point Pelee National Park.

Predation is a major ecological interaction and an important evolutionary process affecting both predators and their prey. Using the observed occurrence of caudal autotomy in the Point Pelee population of *P. fasciatus* my goal was to identify key potential skink predators

and to discuss their potential influence on this sensitive skink population. Using park visitor records and survey data, I used two different but complementary approaches: stepwise linear regression, and an information theoretic approach to compare the occurrence of caudal autotomy and the potential predator visitor records observed at Point Pelee. Best models from both approaches concurred with tail-break frequency being explained by skunk, corvid, cuculid, and human visitor numbers. Identifying key potential skink predators may be relevant to resource managers and could help to develop conservation strategies for *P. fasciatus* at Point Pelee National Park.

Szabo, A. B.Sc. 2014. University of Ottawa (Supervisor: G. Blouin-Demers)

Factors influencing parasite load in male Ornate Tree Lizards (*Urosaurus ornatus*): throat colour, population density, and habitat type.

Parasite load can lead to numerous fitness consequences within a host, and often varies widely between individuals of a population under the influence of numerous physiological and environmental factors. Male Ornate Tree Lizards present a complex form of colour polymorphism on their extensible throat fan, which is indicative of their dominance and territoriality. If males exhibiting territorial behaviour suffer testosterone-derived immunosuppression or stress associated with territorial behaviour, this could increase their parasite loads. Population density may also increase parasite loads as a result of increased probability of transmission between individuals, or reduced immune function resulting from density-dependent territorial interactions. Levels of parasitism within a particular habitat can affect the quality of the habitat for the host. Habitat type may influence parasite load as a result of the suitability of the habitat for the completion of the parasite's life-cycle. I examined these three competing, although not mutually exclusive, hypotheses in six wild populations of male Ornate Tree Lizards (*Urosaurus ornatus*) in the Chiricahua Mountains of Arizona. I compared the chigger (ectoparasite) and Plasmodium (haemoparasite) loads in individual males 1) with different throat colours, 2) from six populations varying in density, and 3) from one of either two habitat types (a treed riparian habitat and a creek bed). Parasite loads did not differ significantly between males of different throat colours or between males from different habitat types. Chigger loads decreased significantly with population density, although the effect size was very small, and Plasmodium levels did not vary significantly with density. I did not

find support for any of the three hypotheses, but more data need to be collected on non-territorial males and overall host density (including other lizard species in the area) before reaching more definitive conclusions about the effects of throat colour and population density on parasite load.



Ornate Tree Lizard
Photo by Joe Crowley

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, D. Lesbarrères, and J.D. Litzgus. 2015. Mitigating reptile road mortality: Fence failures compromise ecopassage effectiveness. PLoS ONE doi:10.1371/journal.pone.0120537.
- Baxter-Gilbert, J.H., J.L. Riley, P. Moldowan, and J.D. Litzgus. 2015. *Sistrurus catenatus catenatus* (Eastern Massasauga) and *Nerodia sipedon sipedon* (Northern Watersnake). Diet and foreign object. Herpetological Review 46(1): 107.
- Boyle, S., J.D. Litzgus, and D. Lesbarrères. 2015. *Chelydra serpentina* (Snapping Turtle). Wounding. Herpetological Review (in press).
- Catrysse, J., E. Slavik, J. Choquette, A.E. Leifso, and C.M. Davy. 2015. Mass mortality of Northern Map Turtles (*Graptemys geographica*). Canadian Field-Naturalist 129(1): 80-83.
- D'Aoust-Messier, A-M., P. Echaubard, V. Billy, and D. Lesbarrères. 2015. Amphibian pathogens at northern latitudes: presence of chytrid fungus and ranavirus in northeastern Canada. Diseases of Aquatic Organisms 113: 149-155.
- Halliday, W.D., and G. Blouin-Demers. 2015. Efficacy of coverboards for sampling small northern snakes. Herpetology Notes (in press).
- Juneau, V., K.M. Gilmour, and G. Blouin-Demers. 2015. Cocoa butter injections, but not sealed or perforated silastic implants, of corticosterone can be used to chronically elevate corticosterone in free-living painted turtles (*Chrysemys picta*). Journal of Herpetology (in press).
- Maillet, Z., W.D. Halliday, and G. Blouin-Demers. 2015. Exploratory and defensive behaviours change with sex and body size in eastern garter snakes (*Thamnophis sirtalis*). Journal of Ethology 33: 47-54.
- Midwood, J.D., N.A. Cairns, L.J. Stoot, J.J. Cooke, and G. Blouin-Demers. 2015. Bycatch mortality can cause extirpation in four freshwater turtle species. Aquatic Conservation: Marine and Freshwater Ecosystems 25: 71-80.
- Moldowan, P.D., M.G. Keevil, S. Kell, R.J. Brooks, and J.D. Litzgus. 2015. Anti-predator defenses of Brown Bullheads (*Ameiurus nebulosus*) and interactions with Snapping Turtles (*Chelydra serpentina*). Canadian Field-Naturalist 129(2): in press.
- Moldowan, P.D., M.G. Keevil, N. Koper, R.J. Brooks, and J.D. Litzgus. 2015. Growth, sexual maturity, and reproduction of a female Midland Painted Turtle (*Chrysemys picta marginata*) afflicted with kyphosis. Chelonian Conservation and Biology (in press).
- Moore, J-D., and M. Ouellet. 2015. Questioning the use of an amphibian colour morph as an indicator of climate change. Global Change Biology 21: 566-571 (doi: 10.1111/gcb.12744).
- Riley, J.L., S. Freedberg, and J.D. Litzgus. 2015. Incubation temperature influences hatchling phenotype of two freshwater turtle species in the wild. Evolutionary Ecology Research 16: 397-416.
- Rogic, A., N. Tessier, S. Noël, A. Gendron, A. Branchaud, and F-J. Lapointe. 2015. A "trilling" case of mistaken identity: Call playbacks and mitochondrial DNA identify Chorus Frogs in Southern Québec (Canada) as *Pseudacris maculata* and not *P. triseriata*. Herpetological Review 46(1): 1-7.
- Sasaki, K., D. Lesbarrères, G. Watson, and J.D. Litzgus. 2015. Mining-caused changes to habitat structure affect amphibian and reptile population ecology more than metal pollution. Ecological Applications doi:10.1890/14-1418.1.
- Thomasson, V., and G. Blouin-Demers. 2015. Using habitat suitability models considering biotic interactions to inform critical habitat delineation: an

example with the eastern hog-nosed snake (*Heterodon platirhinos*) in Ontario, Canada. *Canadian Wildlife Biology & Management* 4: 1-17.

NEWS AND ANNOUNCEMENTS

PhD Position Available

Under the supervision of Marc Mazerolle (U. Laval), Louis Imbeau (UQAT), and Pierre Drapeau (UQAM).
Sous la direction de Marc Mazerolle (U. Laval), Louis Imbeau (UQAT) et Pierre Drapeau (UQAM).

Spatial configuration of downed woody debris and carry-over effects of canopy opening on amphibian life history traits.

Project description: We are searching for a student to quantify the influence of the spatial configuration and quantity of downed woody debris and carry-over effects of canopy opening on the behaviour and survival of Wood frog juveniles. This project will be conducted in an experimental setup in mesocosms with manipulation of the amount of woody debris on the ground. The student is expected to enroll at Laval University in Quebec City, Canada.

Requirements: M. Sc. in biology, wildlife ecology, forest sciences, or related field. Excellent academic records. Motivation and independence in the field. Experience in herpetology. Strong quantitative skills (R programming, CMR analyses, demographic analyses). Demonstrated scientific writing skills.

Funding: This project is funded by the NSERC CRD program and includes a three-year scholarship.

Starting date: Fall 2015 or Winter 2016

Interested candidates should send a cover letter and curriculum vitae to Marc Mazerolle (marc.mazerolle@uqat.ca) by email before 15 August 2015.

Quantité et configuration spatiale des débris ligneux au sol et effets à retardement de l'ouverture de la canopée sur les traits des amphibiens

Description du projet: Nous sommes à la recherche d'un étudiant ou d'une étudiante afin de mener un projet de doctorat en sciences forestières traitant de l'influence de la quantité de débris ligneux au sol et des effets à

retardement de l'ouverture du couvert sur le comportement et la survie des juvéniles de la Grenouille des bois. Ce projet, initié à l'automne 2015, s'effectuera dans un dispositif expérimental combinant des mésocosmes ainsi que des manipulations de la quantité de débris ligneux au sol. L'étudiant s'inscrira à l'Université Laval.

Compétences nécessaires: Détenir une maîtrise en biologie, écologie, ou sciences forestières. Avoir un bon dossier académique. Motivation et indépendance sur le terrain. Expérience en herpétologie un atout. Aptitudes démontrées à l'analyse quantitative (programmation R, analyse de CMR). Aptitudes démontrées à la rédaction scientifique.

Financement: Ce projet est financé par le CRSNG (RDC) et comprend une bourse de trois ans.

Début du doctorat: automne 2015 ou hiver 2016

Les candidats intéressés sont priés d'envoyer une lettre de présentation ainsi qu'un curriculum vitae à Marc Mazerolle (marc.mazerolle@uqat.ca) par courrier électronique avant le 15 août 2015.

Marc J. Mazerolle. Centre d'étude de la forêt Université du Québec en Abitibi-Témiscamingue. 445 boulevard de l'Université Rouyn-Noranda, Québec J9X 5E4, Canada. Tel: (819) 762-0971 ext. 2458.



News from the Hecnar Herpetology Lab

Lakehead University
Thunder Bay, ON

Steve Hecnar

shecnar@lakeheadu.ca

The past year in our lab was quite busy with seven staff working on various projects, travel to interesting field locations, and we had several notable visitors. The end of fieldwork in 2014 was a milestone marking a quarter century of field research on the ecology and conservation of the Five-lined Skink (*Plestiodon fasciatus*) and research on amphibian metapopulations and metacommunities.

After a lengthy frigid winter we began the spring with a one week lab/field workshop in Ontario's

Carolinian zone to train government scientists in skink conservation and field techniques. The sessions at Pinery, Rondeau, and Point Pelee parks were a hit with about 75 participants in total. Highlights of the field trips included capturing a Smooth Greensnake (*Opheodrys vernalis*) at Rondeau and learning that an Eastern Box Turtle (*Terrapene ornata*) marked about 30 years ago was recaptured at the base of a newly discovered 'giant' Eastern Cottonwood Tree (*Populus grandidentata*; 1.6 m dbh, 34 m ht) during skink habitat restoration at Point Pelee. It is amazing that such a unique turtle and a record tree can remain hidden in a small park for so long with so many visitors. We returned in July to train Parks Canada staff in how to take over our long-term skink study as recent budgetary cutbacks mean that they can no longer reimburse us for expenses. It was with mixed emotions that Darlene and I left the field that day ending 25 years of fieldwork. Working long days in sandy poison-ivy cloaked dune habitat with temperatures soaring into the high 30s with 100% humidity is definitely the most grueling field conditions that we have ever experienced. Timber cruising at 56 below zero in Northern Ontario, looking for adders in rainy Britain, or studying lizards in the deserts of the US Southwest seem like a walk in the park compared to Point Pelee. Yet every day in the field at Pelee brought us experiences that will last our lifetimes and are already providing amazing tales for our grandchildren. Even at its most difficult conditions, it still beats a day in the office facing the bureaucracy of universities and government. This season, Pelee staff will do the annual survey alone and we wish them success.

While our personal involvement in skink work at Point Pelee is decreasing, our work on the species overall is actually expanding. Dan Brazeau completed a third year of studying habitat selection in skinks at Rondeau and is currently finishing his thesis. His main findings were an overwhelming preference by skinks for stabilized dune habitat over savannah-prairie remnants, anthropogenic sites, and forest. However, he found high seasonal use of anthropogenic structures in spring and late autumn (hibernacula?). Rondeau initially asked us to determine the status of their skink population with concerns that the many cottages and other human infrastructure were threatening. Yet our work here and elsewhere highlights how human actions are often a double-edged sword and sometimes the good can actually exceed the bad and the ugly (Eastwood et al. 1966). Dan also identified a strong threshold effect for habitat use that indicates skink use sharply declines when forest canopy reaches 40 – 60% coverage. This he found also coincides with optimal thermal environments

that our cover objects provide. Dan is now preparing to begin radio-telemetry work on skinks and assessing current habitat quality of historical skink locations in the Carolinian zone.



Smooth Greensnake
Photo by Nick Cairns

This past year we also examined skink scats from Rondeau Provincial Park and Point Pelee National Park to compare skink diets between locations and to determine if diet changed from our study a decade ago (Hecnar et al. 2002. *Herp. Rev.* 33: 307-308). We enlisted my former entomology/invertebrate professor from the 1970s, Rick Freitag, to sift through the scats to identify the taxa consumed. It's important to keep your former mentors active! Our recently-accepted paper (Brazeau et al. 2015. *Herp. Rev.*) demonstrates that while skinks show some preference for arachnids and orthopterans in their wide arthropod diets, they are also opportunistic and now feed heavily on invasive earwigs and termites.

Another lab member, Kyle Myschowoda, helped with fieldwork and recently completed a thesis on skink tail-breaks (caudal autotomy) as a function of the abundance of potential predators over the past 24 years at Point Pelee (see Thesis Abstracts this issue). Kyle found that the rate of autotomy can be best explained by a model including numbers of skunks, corvids (crows and jays), cuckoos, and human visitors. While tail-break frequency increased as numbers of skunks, corvids and cuckoos increased, tail-breaks declined when visitor numbers increased. It appears that presence of visitors in open park habitats deters diurnal predator activity. We are currently writing a manuscript based on elaborating on this tale.

As partners in a stewardship grant at Pinery Provincial Park, we advised and assisted Jackie Prisciak, Alistair MacKenzie and staff of Pinery Provincial Park in assessing the status of their Five-lined Skink

population. Jackie's first year of results suggest that skinks are the numerically abundant reptile species in the park similar to the communities in the neighbouring isolates of Pinery and Pelee. Being able to work in the three largest isolated Carolinian skink populations is confirming our suspected similarities of skink biology and critical habitat requirements. This work is generating valuable guidelines for regional restoration and possibly future translocations. A quarter century ago it was depressing to witness the rapid decline and seeing skinks on the brink. But the research of our students and associates and active management has created a cornucopia of knowledge on the species' biology and threats. Our long-term time series data now indicate a trend of increasing abundance and our PVAs estimate much lower risks of extinction. We are now encouraged that skinks will survive in the region and perhaps reclaim some of their historic distribution if researchers, government agencies, and non-governmental organizations continue to work together.



Red-sided Gartersnake
Photo by Nick Cairns

Last August we traveled to Sprucewoods Provincial Park in Manitoba to present a plaque for the park's designation as an IMPARA site. I provided an invited talk on herpetological conservation, the CHS, and the IMPARA program that was warmly received in the well-attended outdoor amphitheatre. The next day Allison Kraus Danielson (MB Natural Resources) and a couple of Pam Rutherford's students (Brandon University) led us on a great field trip to view Northern Prairie Skinks (*Plestiodon septentrionalis*) and their habitat. The similarities and conservation issues between these two sister species are remarkable.

Our work was not totally consumed with lizards. We continued our work with Wayne Weller (Ontario Power Generation, now retired) on intergrade Western-Midland Painted Turtles (Weller et al. 2010. *Herp. Conserv. Biol.*

5: 166-173) extending their apparent post-glacial dispersal corridor from Northern Michigan through the Algoma District further north to the White River area.

In 2014 we completed our 23rd consecutive year of research on long-term spatial dynamics of amphibian metapopulations and metacommunities in the Stratford Plain region of southwestern Ontario. After two decades, the main drivers of community structure are finally becoming clear and reinforce our concerns about what small-scale – short-term studies that typify most of the biological literature can really tell us about how nature works. Virtually all field ecologists recognize the importance of long-term studies and spatial scale, but few funding agencies are convinced to support these programs. We have been largely self-financing this work over the past five years since NSERC ended its support, and we may have to retire the work if new sources are not found soon.

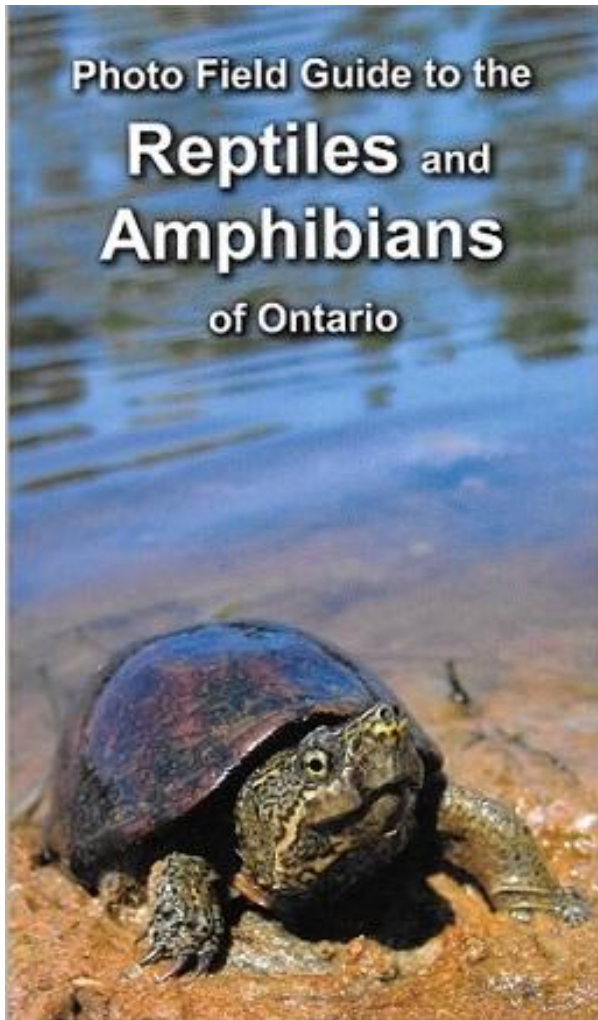
We were fortunate to have the eminent evolutionary biologists Peter and Rosemary Grant (Princeton University) visit our lab last year. Their long-term work on the evolution of Darwin's Finches in the Galapagos is legendary and has provided much knowledge on long-term population and community dynamics. When I asked them about how they were able to keep the work funded for so long, they answered it was mostly luck, and that they operated in better times. Peter said that it was doubtful that their work would have flourished if they started in present times. His answer was modest, much of his and Rosemary's contributions came from their individual hard work and brilliance, but to hear that success is often out of our hands was both reassuring and scary.

Fortunately, the reams of data we acquired over dozens of years of field work will allow us to write papers until the cows come home or until environmental science becomes fashionable again. Although the time will be valuable for the equally important task of writing, the field work will be missed. Too many of us spend far too much time studying nature from behind computer monitors. While we are planning a number of novel manuscripts based on our long-term data, we continued to write and submit papers on small pieces of the puzzle in the past year including an account of toad breeding failure in ATV tracks, and vehicular-assisted dispersal and range expansion in treefrogs (both currently under review). We are also documenting new locality records of Mudpuppies, Snapping Turtles and other species in the Lake Superior Basin to reassess the northern range boundaries of several amphibian and reptile species in the future. It boggles the mind, my mind anyways, that most of the northern parts of our provinces remain unexplored herpetologically and most northern range

boundaries for Canadian amphibians and reptiles are based largely on guesswork. This promotes the Wallacean Shortfall (populations are lost before their distributions become known) and the ‘cart-before-horse’ school of resource management (implementing management strategies before knowing what resources you actually have). Although the current funding environment is a challenging one in which to conduct research on herpetological ecology and conservation, and to train our next generation of herpetologists, we continue to look forward to a brighter future for our herpetofauna.



Introducing the “Photo Field Guide to the Reptiles and Amphibians of Ontario”



After a long wait, and much anticipation, the Photo Field Guide to the Reptiles and Amphibians of Ontario is now available. The 144 page guide covers all currently occurring and extirpated reptiles and amphibians in Ontario with 396 colour photographs depicting various age classes, as well as colour and pattern variations. Detailed descriptions, natural history notes, and general distribution are all included. This is the most complete reptile and amphibian ID guide available for Ontario and will be useful for researchers, enforcement, naturalists and those generally interested in nature. The authors’ hope is that the book will limit issues with incorrect identification and foster an appreciation for these “horrible scary” creatures. Our own CHS President Scott Gillingwater wrote the guide and provided photographs, Alistair MacKenzie (Pinery Provincial Park) did layout and design, Ron Brooks, Bob Johnson, David Green, and Mike Oldham were reviewers, and the St. Thomas Field Naturalists fund-raised to have the book printed.

The guide can be purchased from the St Thomas Field Naturalists for \$15 each. Please call 519-773-8768 or 519-633-4235, or email stfnfieldguides@gmail.com, for more information.



Patrick Moldowan is Canada’s “New Noah”

Patrick Moldowan, MSc graduate (2014) from the Litzgus Lab at Laurentian University, Sudbury, Ontario is Canada's "New Noah"! Patrick received a scholarship from Wildlife Preservation Canada that will enable him to spend 6 months on the island of Mauritius, working on various conservation projects, including some that are herp-related, while also obtaining a post-graduate diploma in endangered species recovery.

The Canada’s New Noah’s program is a highly valued opportunity for young biologists in Canada. Since 1990, it has filled a gap in conservation education in this country, providing practical training and field experience in managing and conserving endangered species. Each year, more than 150 candidates – including Bachelors, Masters, and Ph.D. level students, practising wildlife biologists, and veterinarians – request applications for the single, coveted position.

See more at <https://wildlifepreservation.ca/our-staff/species/>



Patrick in Algonquin Park, Ontario, working with Snapping Turtles. Photo by Matt Keevil.



Community Builders Award for Excellence Environment Category

MSc graduates from Laurentian University, James Baxter-Gilbert (2014) and Julia Riley (2012), along with supervisors David Lesbarrères, and Jackie Litzgus, were the recipients of the City of Sudbury’s Community Builders Award for their project examining the effectiveness of exclusion fencing and ecopassages for reducing road mortality of reptiles on the Highway 69 expansion project in central Ontario. The Environment category award was sponsored by Porter Airlines (rep on left in picture). Julia attended the awards banquet via Skype on David’s phone. On the right is Jerry Smith, our project partner from Magentawan First Nation. For more information and videos, see the CBA website: <http://www.cbawards.ca/winners/2015/environment.asp>



Current Graduate Student Projects in the Litzgus Lab Laurentian University

Sean Boyle (Ph.D. candidate; OGS scholar; co-supervised w/ D. Lesbarrères) - A road to conservation: A multi-taxa approach to understanding the effects of roads on wildlife, management strategies, and conservation along roads.

Michael Colley (M.Sc. candidate; co-supervised w/ S. Loughheed) - The impacts of road mortality mitigation on the population ecology of Massasauga Rattlesnakes in Killbear Provincial Park.

Donnell Gasbarrini (M.Sc candidate; co-supervised w/ D. Lesbarrères) - Murder Mystery at Misery Bay: Investigating the causes of a mass mortality of species at risk turtles.

Geoffrey Hughes (M.Sc. candidate) - Navigating the thermal landscape: Thermal ecology of Wood Turtles in the north.

Matthew Keevil (Ph.D. candidate; OGS scholar) - Dispersal of Snapping Turtles and Painted Turtles: A comparative investigation of a cryptic life history trait.

Hannah McCurdy-Adams (M.Sc. candidate; OGS scholar) - Anthropogenic influences on chronic stress and patterns of nest predation in freshwater turtles.

Kiyoshi Sasaki (Post doc) - Impact assessment and development of ecological restoration strategies for reptiles and amphibians inhabiting mining-disturbed environments.



Plains Gartersnake
Photo by Nick Cairns



Canadian Herpetological Society
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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): _____

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