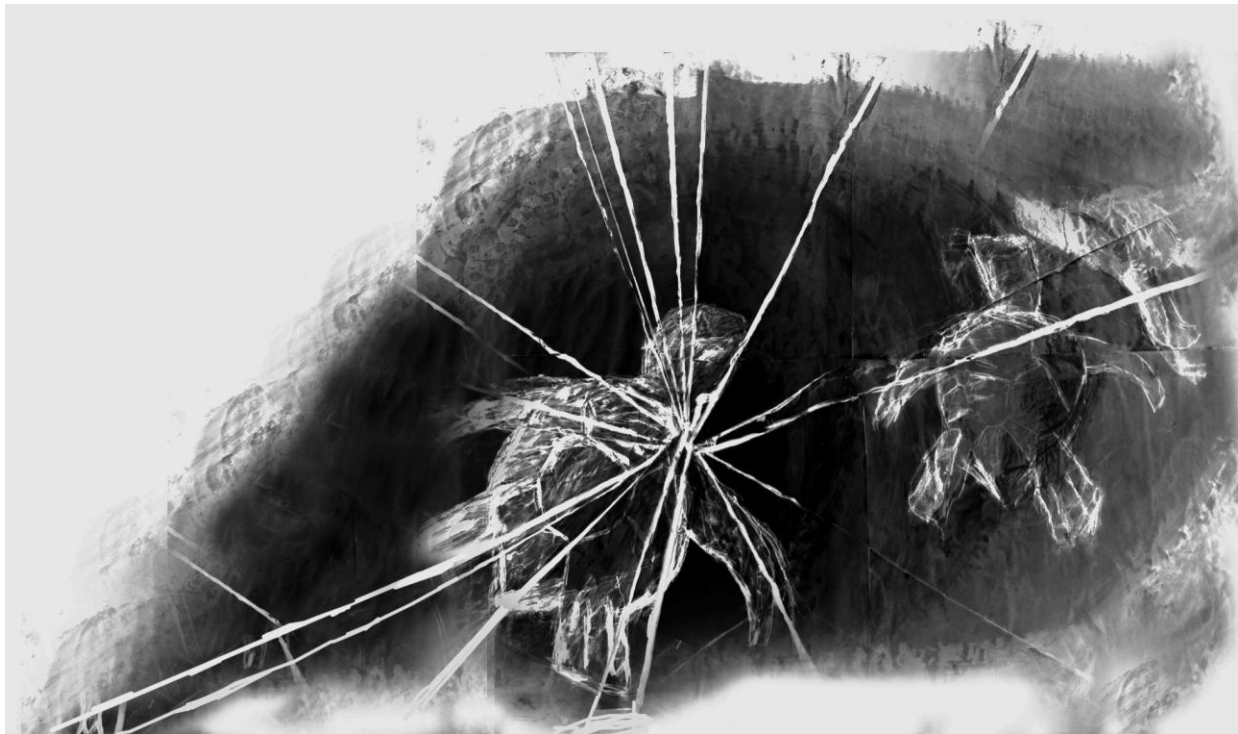


# CARCNET/RÉCCAR and CAH 2010

---

*Canadian Amphibian and Reptile Conservation Network  
Réseau Canadien de Conservation des Amphibiens et des  
Reptiles  
20th Annual Meeting*

*Canadian Association of Herpetologists  
24th Annual Meeting*



*Matthew Griffin-Allwood*

*Acadia University  
Wolfville, Nova Scotia, 2010*

# CARCNET/RÉCCAR and CAH 2010

---

## ACKNOWLEDGEMENTS AND SPONSORS

### Local Planning Committee:

- Tom B. Herman
- Jose Lefebvre (lead)
- Steve Mockford
- Jeffie McNeil
- Chris Ogbuah
- Heather Reed
- Jesse Saroli
- Rachel Thibodeau
- Travis White

### CARCNET Conference Committee

- Heather Andrachuck (Co-Chair Awards Committee)
- Sara Ashpole (Co-Chair Awards Committee)
- David Green
- Donald McAlpine
- Tara McDaniel
- Bruce Pauli
- Pamela Rutherford (Chair)
- Richard Wassersug (CAH delegate)

### Thanks to:

- Gabriel Blouin-Demers (Chair)
- Ron Brooks (Chair)
- Graham Dixon-McCallum (Volunteer)
- Matthew Griffin-Allwood (Design creator)
- Beverly Horn (Webmaster CARCNET)
- Members of the COSEWIC Amphibians and Reptiles Subcommittee
- Acadia University
- Kejimikujik National Park and Historic Site
- Benjamin Bridge Winery
- Gaspereau Vineyards
- Lunenburg County Winery
- Muir Murray Estate Winery
- St-Famille Vineyards

# CARCNET/RÉCCAR and CAH 2010

---

## Friday September 17<sup>th</sup>, 2010

1900-2200 Meet and Greet, Registration (New Biology Building Mezzanine) Cash Bar and snacks.

## Saturday September 18<sup>th</sup>, 2010

0800-0840 Registration

0830-0840 Opening Remarks

### Session 1 Turtle Stewardship

(chair: Tom Herman)

0840-0920 **Are we blind turtles swimming in a vast ocean? (Plenary)**  
Sherman Boates

0920-0940 **Juvenile wood turtle (*Glyptemys insculpta*) translocation pilot project at La Mauricie National Park.**

Daniel Pouliot\*, Denis Masse, Sylvain Paradis and Yves Robitaille.

0940-1000 **Habitat Stewardship for the western painted turtle on Vancouver island.**

Kristiina Ovaska\* and Christian Engelsoft.

1000-1020 **Artificial incubation and release of Blanding's turtles (*Emydoidea blandingii*) headstarts in Nova Scotia.**

Lilianne Arsenault\*, Thomas B. Herman, Stephen W. Mockford and Jennifer A. McNeil.

1020-1040 **Break**

### Session 2 Reptile Conservation

(chair: Gabriel Blouin-Demers)

1040-1100 **The Kawarta turtle trauma centre: Conservation in action.**

Amanda M. Bennett.

1100-1120 **Intentional harm to snake project.**

Jonathan Choquette\*, Kristen Campbell, Brian Hutchinson and Bob Payne.

1120-1140 **Conservation genetics of the wood turtle (*Glyptemys insculpta*) at the north-eastern limit of its range.**

Marchell G. Coulombe\*, Steve Mockford, and Tom B. Herman.

1140-1200 **Population genetics of spotted turtles (*Clemmys guttata*) in Canada: Conservation implications .**

Christina M. Davy.

# CARCNET/RÉCCAR and CAH 2010

---

1200-1340 **Lunch**

(CARCNET Board Meeting in KCIC Library)

## **Session 3 Amphibian Ecology and Conservation Part I (chair: David Green)**

1340-1400 **Geographic variation in dorsal colour patterns in Fowler's toads.**

Brigette Zacharczenko and David M. Green\*.

1400-1420 **Density dependence in body size in the terrestrial stage of Fowler's toad (*Bufo fowleri*): Age influence.**

Jessica H. Middleton

1420-1440 **Home range, habitat selection and site fidelity of Fowler's toads.**

Morgan C. Boenke.

1440-1500 **The bigger the better? Allometry and sexually dimorphic traits in anurans.**

David Lesbarrères\* and Albrecht Schulte-Hostedde.

1500-1520 **Break**

## **Session 4 Amphibian Ecology and Conservation Part II (chair: Sara Ashpole)**

1520-1540 **Conservation of northern biodiversity: Population genetics patterns observed in populations of wood frogs (*Lithobates sylvaticus*) in the James Bay area.**

Andrée-Michelle D'Aoust-Messier\* and David Lesbarrères.

1540-1600 **Amphibian occurrence on South Okanagan roadways, B.C.**

Jonquil E. Crosby, Sara L. Ashpole\* and Stephen Murphy.

1600-1620 **Preliminary comparisons of wild anuran species abundance, water quality measures, weather and land use on Prince Edward Island, Canada.**

Marianne Parent\*, Maria Forzan, Natacha Hogan and Raphaël Vanderstichel.

1620-1640 **Long-term trends in the abundance of a common species: What can green frogs teach us about population dynamics, monitoring and conservation?**

Stephen J. Hecnar\* and Darlene R. Hecnar.

1640-1700 **Which factors structure amphibian communities in largely disturbed wetlands and roadside ditches?**

Krista G. Hilchey\* and Ron W. Russell.

1630-1830 **Poster Session (cash bar)**

# CARCNET/RÉCCAR and CAH 2010

---

1900-2300 **Banquet, Banquet talks, Silver Salamander and Blue Racer awards, CARCNET/CAH scholarship and travel award, Herp quiz.**

## Sunday September 19th, 2010

0800-0840 Registration

### Session 5 Lizard Ecology and Conservation (chair: Pamela Rutherford)

0840-0900 **The Assiniboine River separates two genetically distinct clusters of the Northern Prairie skink (*Plestiodon septentrionalis*).**  
William C. McFadden, Pamela L. Rutherford\*, Drew J. Hoysak and Stephen C. Loughheed.

0900-0920 **Microhabitat preferences of the Northern Prairie skink (*Plestiodon septentrionalis*) on exurban residential land in South-Western Manitoba.**  
Allison M. Krause Danielsen\*, Pamela L. Rutherford and Nicola Koper.

0920-0940 **Investigating the phylogeography of the greater short-horned lizard (*Phrynosoma hernandesi*) in Alberta.**  
Magdalene N.Y. Leung\* and Anthony P. Russel.

0940-1000 **Ecology of herpetofaunal populations in tailing wetlands in Sudbury, Ontario.**  
Joël C. Leduc\*, Kristen J. Kozlowicz, Jacqueline D. Litzgus et David Lesbarrères

1000-1020 **Break**

### Session 6 Amphibian diseases, parasites and toxicology (chair: Richard Wassersug)

1020-1040 **Effects of *Batrachochytrium dendrobatidis* infections on larval foraging performance.**  
Matthew D. Veneski\*, Richard J. Wassersug and Matthew J. Parris.

1040-1100 **How do missing labial teeth affect feeding kinematics and foraging performance of a ranid tadpole (*Lithobates sphenoccephalus*)?**  
Matthew D. Veneski, Richard J. Wassersug\* and Matthew J. Parris.

# CARCNET/RÉCCAR and CAH 2010

---

1100-1120 **Toxicity of de-icing salt components on early amphibian life stages.**

Sara E.J. Collins\* and Ronald W. Russell.

1120-1140 **Prevalence and intensity of *Hepatozoon* sp. : Inspection in green frogs (*Lithobates (Rana) clamitans*) of Prince Edward Island, Canada.**

Jessica L. Mitchell\* and Maria Forzan.

1140-1200 **Stage susceptibility to frog virus 3 in *Lithobates pipiens*: an epidemiological perspective.**

Pierre Echaubard\* and David Lesbarrères.

1200-1215 **Group Photo (front steps of KCIC)**

1215-1320 **Lunch**

## **Session 7 Turtle Ecology and Conservation (chair: Steve Mockford)**

1320-1340 **Effects of water-based recreation on the population ecology of turtles in Massasauga Provincial Park.**

Jolene F. Laverty\* and Jacqueline D. Litzgus.

1340-1400 **Spatial ecology and habitat selection in a northern population of snapping turtles (*Chelydra serpentina*).**

James E. Patterson\*, Brad Steinberg and Jacqueline D. Litzgus.

1400-1420 **Habitat selection, site fidelity and communal behaviour of overwintering wood turtles (*Glyptemys insculpta*) in Nova Scotia.**

Travis B. White\*, Mark D. Pulsifer and Tom B. Herman.

1420-1440 **Nesting ecology and natural history of a central Nova Scotia wood turtle (*Glyptemys insculpta*) population.**

Wendy G. Holman\* and Steve Mockford.

1440-1500 **Thermoregulation and behaviour of spotted turtles (*Clemmys guttata*) in a beaver-flooded location.**

Katharine Yagi\* and Jacqueline D. Litzgus.

1500-1520 **Studying movement rates, patterns, and home ranges of the endangered Blanding's turtle (*Emydoidea blandingii*) in Nova Scotia, using innovative GPS loggers.**

Peter Kydd\*, Stephen Mockford, Norm Green, and Thomas Herman.

1520-1540 **Break**

# CARCNET/RÉCCAR and CAH 2010

---

## Session 8 Snake Ecology and Conservation (chair: Ron Brooks)

- 1540-1600 **Identifying ecological correlates associated with colour variation in western terrestrial garter snakes, *Thamnophis elegans*, and potential implications for conservation.**  
Leigh Anne Isaac.
- 1600-1620 **Scent detection and tracking dogs for reptiles: Preliminary results for Nova Scotian ribbonsnake, Blanding's turtles and wood turtles.**  
Simon Gadbois\* and Deborah Austin.
- 1620-1640 **Habitat use and movement of eastern ribbonsnake (*Thamnophis sauritus*) at meso-scales.**  
Jesse A. M. Saroli
- 1640-1700 **Eastern ribbonsnake range, behaviour and habitat use findings from the Southwest Nova Scotia Biosphere Reserve.**  
Brad E. Toms\* and Jeffie McNeil.
- 1700-1800 **Closing Remarks Annual General Meeting:  
Open to all members and guests.  
Presentation of student awards for best presentation and best poster.**

# CARCNET/RÉCCAR and CAH 2010

---

## POSTERS

### **MICROHABITAT SELECTION OF DEKAY'S BROWNSNAKE (*Storeria dekayi*) IN A DUNE HABITAT AT POINT PELEE NATIONAL PARK**

Stephen J. Hecnar and Darlene R. Hecnar\*

### **AMPHIBIAN AND REPTILE ROAD MORTALITY: THE ISSUE AND SOLUTIONS**

Greg F.M. Jongsma

### **COMPARING DISPERSAL OF SNAPPING AND PAINTED TURTLES: INVESTIGATING A CRYPTIC LIFE HISTORY TRAIT USING MULTIPLE APPROACHES.**

Matthew Keevil\*, Ronald Brooks, and Jacqueline Litzgus

### **ECOLOGY OF HERPETOFAUNAL POPULATIONS IN TAILINGS WETLANDS IN SUDBURY, ONTARIO.**

Joël C. Leduc\*, Kristen J. Kozlowicz, Jacqueline D. Litzgus et David Lesbarrères

### **TICKLE-ME SOFTLY: A NEW NON-INVASIVE TECHNIQUE FOR SPERM COLLECTION IN MALE FRESHWATER TURTLES.**

Jose Lefebvre\* & Steve Mockford

### **MOVEMENT PATTERNS OF COMMON SNAPPING TURTLES (*CHELYDRA SERPENTINA*) IN SOUTHWESTERN MANITOBA.**

Kali Meadows, Chris Malcolm, and Pamela L. Rutherford\*

### **EFFECTS OF LAKE CHUB (*Couesius plumbeus*) ON SURVIVAL AND BEHAVIOUR OF LONG-TOED SALAMANDER (*Ambystoma macrodactylum*) LARVAE**

Katie S. Pagnucco, Cynthia A. Paszkowski\* and Garry Scrimgeour

### **AN INVASIVE PLANT COULD AFFECT THE AMPHIBIANS: CASE OF *Phragmites australis***

Amélie Perez \*, Marc J. Mazerolle et Jacques Brisson

### **EFFECTS OF LONG TERM RESOURCE AVAILABILITY ON REPRODUCTION IN OVIPAROUS AND VIVIPAROUS SNAKES**

Megan L. Rasmussen\* and Jacqueline D. Litzgus

### **IMPLICATIONS OF ALTERNATIVE NEST-CAGING METHODS ON THE FITNESS OF HATCHLING *Chrysemys picta* AND *Chelydra serpentina***

Julia L. Riley\*, and Jacqueline D. Litzgus

### **TRAJECTORY AND HERPETOLOGICAL RESULTS OF THE 30 YEARS LATER EXPEDITION.**

Frederick W. Schueler\*, Aleta Karstad, & Adam Zieleman.

**\*Students to be judged for presentation and poster awards, in the following abstracts.**



# CONFERENCE ABSTRACTS 2010

---

\*ARSENAULT

## **ARTIFICIAL INCUBATION AND RELEASE OF BLANDING'S TURTLE (*EMYDOIDEA BLANDINGII*) HEADSTARTS IN NOVA SCOTIA**

Lilianne M. Arsenault\*, Thomas B. Herman, Stephen W. Mockford, and Jennifer A. McNeil

Department of Biology, Acadia University, Wolfville, NS B4P 2R6, 093566a@acadiau.ca

Nova Scotia supports a small population complex of Blanding's turtle at the northeastern periphery of the species range. The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) has listed this turtle as Endangered in Nova Scotia. Ongoing efforts to conserve this population have included species, habitat and nest protection, public stewardship, and headstarting. Despite past and ongoing conservation efforts, recruitment of juveniles to the breeding population remains low. A recent population viability analysis indicates that without further intervention the population will continue to decline. In response, a management strategy involving nest protection, artificial egg incubation, and a two year captive rearing regime was undertaken to bolster juvenile recruitment. The present study investigates artificial incubation conditions and the release of headstarts to natural habitats. The effects of incubation temperature and clutch on hatching success and growth of hatchlings were examined. Post-release survival, growth, and movement were examined in headstarts and wild juvenile turtles. Preliminary results suggest that headstarts released to their natural habitats have similar survival, growth, and movement patterns to those of wild juvenile turtles. While these findings indicate short-term success, replicated releases and sustained monitoring are required to measure the long-term effectiveness of the headstart program.

### **PLATFORM**

---

---

---

---

---

---

---

---

---

---

# CONFERENCE ABSTRACTS 2010

---

ASHPOLE

## AMPHIBIAN OCCURENCE ON SOUTH OKANAGAN ROADWAYS, B.C.

Jonquil E. Crosby<sup>1</sup>, Sara L. Ashpole<sup>2\*</sup>, and Stephen Murphy<sup>1</sup>

<sup>1</sup>Department of Environment and Resource Studies, University of Waterloo, Waterloo, ON, N2L 3G1, j2crosby@uwaterloo.ca. <sup>2</sup>School of Planning, University of Waterloo, Waterloo, ON, N2L 3G1

Increased traffic and road expansion along Highway 97, a main artery through British Columbia's South Okanagan Valley, serves as a barrier to amphibian migration and dispersal events. Annual movements for the COSEWIC listed Tiger Salamander (*Ambystoma tigrinum*) and Great Basin Spadefoot (*Spea intermontana*) occur from upland overwintering habitat to lowland breeding areas, followed by travel to as-yet unspecified summer foraging grounds. The purpose of this study is to assess amphibian movement and population threats across a landscape bisected by a highway. From 15 April to 3 July 2010, 60 night-time road surveys recorded amphibian occurrence and traffic volume. Over 50 km of highway between the U.S. border and north of Oliver B.C., as well as along a scenic "winery route", were surveyed. Surveys were carried out utilizing vehicles, bicycles, and on foot. Survey efforts were concentrated within a 3 km passing lane construction zone adjacent to a floodplain. This was surveyed on 46 nights, compared to three secondary routes that were surveyed on average 22 times each. We recorded 199 dead versus 152 live spadefoot metamorphs (the latter were relocated off the road), 717 dead versus 459 live adult spadefoots, and 9 dead versus one living adult salamanders. We also estimated another 400 dead spadefoot metamorphs during a migration by partial remains or smears. The majority of movements occurred on wet, rainy nights; thirty rain events occurred from 15 April to 3 July 2010. Amphibian road use data and landscape variables are being used to mitigate the effects of road construction through strategic culvert placement and design and the position of drift fencing. Continued research on post-construction roadway effects on amphibians, use of culverts as ecopassages, and greater movement data will commence in 2011 when the passing lane will be in use.

## PLATFORM

---

---

---

---

---

---

# CONFERENCE ABSTRACTS 2010

---

BENNETT

## THE KAWARTHA TURTLE TRAUMA CENTRE: CONSERVATION IN ACTION

Amanda M. Bennett

Kawartha Turtle Trauma Center volunteer, Peterborough, ON, K9J 6Z5,  
info@kawarthaturtle.org

The Kawartha Turtle Trauma Centre (KTTC) is a licensed wildlife rehabilitation centre located in Peterborough, Ontario, dedicated to the conservation of Ontario's native turtle species. Founded in 2002 by local veterinarian Dr. Kristy Hiltz, the Riverview Park and Zoo, and several other volunteers from the conservation community, the KTTC became a registered charity in 2004. Historically, over 90% of the KTTC's operating costs have been covered by donations, and the centre was housed in donated spaces from 2002-2009. As of May 2009 the KTTC has moved into a leased commercial space, acquired a new veterinarian – Dr. Sue Carstairs, and received a grant through Ontario Trillium Foundation to hire a full-time Volunteer / Outreach Coordinator. Typically, the centre admits close to 100 turtles a year, with the majority of those turtles successfully rehabilitated and released at their point of origin. In addition, eggs from moribund gravid females are harvested and incubated. Treatment methods for repairing fractured shells have included orthopedic wire and screws, dental braces, cable ties and epoxy, and duct tape. Snapping Turtles (*Chelydra serpentina*) present a particular challenge for rehabilitation as they snap at cars passing over them, resulting in large, deep wounds on their carapace that take over a year to heal and fractured jaws that require surgery to repair. Along with providing emergency treatment and rehabilitation, the KTTC is also dedicated to creating an appreciation of Ontario's native turtles through public education, and volunteers have presented educational materials at local schools, festivals, parks, and other events. Fundraising efforts have increased dramatically over the past year, with the creation of an online store, an art auction and gala, acquisition of several grants, as well as donations from concerned citizens. Future goals include the continued expansion of our impact on turtle conservation in Ontario, through partnerships and professional cooperation.

## PLATFORM

---

---

---

---

---

---

# CONFERENCE ABSTRACTS 2010

---

**\*BOENKE**

## **HOME RANGE, HABITAT SELECTION AND SITE FIDELITY OF FOWLER'S TOADS**

Morgan C. Boenke

Redpath Museum, Department of Biology, McGill University, Montreal, QC, H3A 2K6,  
[morgan.boenke@mail.mcgill.ca](mailto:morgan.boenke@mail.mcgill.ca)

Quantification of home range provides conservation planners with a valuable tool for estimating the spatial requirements of species at risk. The movements which generate the spatial patterns from which range estimates are generated are the result of numerous interacting factors. Estimating the degree to which intrinsic (individual) and extrinsic (environmental and habitat) effects influence spatial utility may allow range estimates from one location or population to be applied at broader spatial and temporal scales. Twenty four Fowler's Toads at Long Point Ontario were radio tracked over two summers yielding mean seasonal Minimum Convex Polygon and 90% Kernel Density home range estimates of 7200 m<sup>2</sup> and 9395 m<sup>2</sup> respectively. Some individuals utilized an order of magnitude more space. Gender and body size do not explain this variation. Habitat associated with daytime refuge sites and evening activity centers differed significantly. The distribution of these distinct habitat elements, however, does not explain the widely divergent patterns of spatial utility between individuals. Analysis of movement across three temporal extents suggests a high degree of site fidelity within an evening, within a season and between years. A small proportion of individuals were more prone to long distance movements on a day to day time scale. Seasonal migrations from breeding sites to summer ranges, short term environmental conditions and escape from localized pockets of high population density may explain this phenomenon.

## **PLATFORM**

---

---

---

---

---

---

---

---

---

---

# CONFERENCE ABSTRACTS 2010

---

\*CHOQUETTE

## INTENTIONAL HARM TO SNAKES PROJECT

Jonathan Choquette\*<sup>1</sup>, Kristen Campbell<sup>2</sup>, Brian Hutchinson<sup>3</sup>, and Bob Payne<sup>4</sup>

<sup>1</sup>School of Environmental Design and Rural Development, University of Guelph, Guelph ON, N1G 2W1, [jchoquet@uoguelph.ca](mailto:jchoquet@uoguelph.ca); <sup>2</sup>School of Environmental Studies, University of Victoria, Victoria BC, V8P 5C2, [KCampbell@pratum.ca](mailto:KCampbell@pratum.ca); <sup>3</sup>Parks Canada, Ottawa ON, K1B 3V7, [Brian.Hutchinson@pc.gc.ca](mailto:Brian.Hutchinson@pc.gc.ca); <sup>4</sup>School of Outdoor Recreation, Parks and Tourism, Lakehead University, Thunder Bay ON, P7B 5E1, [rjpayne@lakeheadu.ca](mailto:rjpayne@lakeheadu.ca)

Human persecution is a threat to the persistence of the majority of Species at Risk snakes in Canada (75% of snake species listed by COSEWIC). The frequency and significance of this activity has yet to be quantified or gauged in the Canadian context. Although traditional interpretive and outreach education programs have attempted to curb persecution of snakes, studies have been unable to demonstrate any lasting effects on behaviour. Conversely, social marketing techniques have been employed successfully for other resistant behaviours and may be successful at curbing intentional harm toward snakes. The goal of this study is to provide baseline data for the development of a social marketing campaign directed at modifying the behavior associated with the deliberate harming and killing of snakes in Canada. A nation-wide telephone survey was conducted on a representative sample of Canadians (n= 2000) to examine the extent of the behaviour (human persecution of snakes), possible motivations, preferred modes of communication and the common elements of the target audience. Results from the national survey indicate that only a small percentage of Canadians admit to intentionally harming snakes (<10%), that middle-aged males are more likely to engage in this behaviour, and that the majority of Canadians (>75%) are unaware of any protection afforded to snakes. Results will be used in the development of two regional scale studies in Southern Alberta and Southwestern Ontario in order to better understand behaviour motivations. To effectively plan and undertake recovery strategies, it is vital for species managers to understand the causes, extent and significance of known threats.

## PLATFORM

---

---

---

---

# CONFERENCE ABSTRACTS 2010

---

COLLINS

## TOXICITY OF DEICING SALT COMPONENTS ON EARLY AMPHIBIAN LIFE STAGES

Sara E.J. Collins\* and Ronald W. Russell

Department of Biology, Saint Mary's University, Halifax, N.S., B3H 3C3, [sara.collins@smu.ca](mailto:sara.collins@smu.ca), [ron.russell@smu.ca](mailto:ron.russell@smu.ca)

Amphibian population declines are increasing at alarming rates over the planet. Chemical contamination has been identified as an important factor contributing to these worldwide declines. In northern localities, road salt is a major pollutant producing elevated chloride concentrations in freshwater systems. Additionally, ferrocyanide anti-caking agents are released from road salt and effects on the environment are poorly understood. Amphibians exhibit low tolerance to salt. Lethal concentrations have been previously determined, but consequences of sub-lethal exposure are unclear. Our purpose is to investigate chronic, sub-lethal NaCl exposure on early developmental amphibian stages to evaluate effects on hatching success, mortality, larval period length, metamorphic weight, and behaviour. Our additional objective is to determine acute toxicity of cyanide to larval amphibians and obtain median lethal concentration (LC<sub>50</sub>) values for the test species. Chronic toxicity experiments at environmentally significant salt concentrations were conducted on larvae of three species and embryos of five species in the laboratory. Species tested were spotted salamanders, American toads, spring peepers, green frogs and wood frogs. Cyanide acute toxicity experiments were performed on the five species. Chronic salt exposure reduced hatching, increased mortality, increased larval period length and induced developmental and behavioural anomalies. Median lethal concentration values were calculated from cyanide acute toxicity experiments. Results indicate that the chronic effects can inflict detrimental consequences to amphibian populations.

### PLATFORM

---

---

---

---

---

---

---

---



# CONFERENCE ABSTRACTS 2010

---

\*DANIELSEN

## **MICROHABITAT PREFERENCES OF THE NORTHERN PRAIRIE SKINK (*PLESTIODON SEPTENTRIONALIS*) ON EXURBAN RESIDENTIAL LAND IN SOUTH-WESTERN MANITOBA**

Allison M. Krause Danielsen<sup>1\*</sup>, Pamela L. Rutherford<sup>2</sup> and Nicola Koper<sup>1</sup>

<sup>1</sup>Natural Resource Institute, University of Manitoba, Winnipeg, MB, R3T 2N2, [umkraus1@umanitoba.ca](mailto:umkraus1@umanitoba.ca), [koper@cc.umanitoba.ca](mailto:koper@cc.umanitoba.ca); <sup>2</sup>Department of Biology, Brandon University, Brandon, MB, R7A 6A9, [rutherfordp@brandonu.ca](mailto:rutherfordp@brandonu.ca)

The northern prairie skink (*Plestiodon septentrionalis*) is listed as Endangered under the federal Species at Risk Act. Very little is known about habitat use of this semi-fossorial lizard and much of the research to date has occurred on provincial park lands and federal military lands. This project aims to define prairie skink habitat characteristics on exurban private land, which is defined as low density rural residential developments, 5-20 acres in size. Our study uses both quantitative and qualitative methods to uncover which habitats are used by the prairie skink and also landowner awareness of skink activity. The quantitative data was collected using visual encounter surveys (VES) in three habitats found on exurban lands: mowed lawn, gardens/flower beds and native prairie. During the VES, I searched the entire area of a particular habitat on foot and calculated person/hours of search effort. At each capture site and three other randomly selected sites within 10m, I recorded percent cover of grasses, forbs, small shrubs, lichens/mosses, bare ground, litter and cover material. I also recorded distance to trees and weather information. The qualitative data was collected from landowners in the Carberry/Shilo area. Landowners participated in a 20-30 minute semi-structured interview regarding land-use, and skink awareness. The interview was, in most cases followed by a walk on the property, during which the landowner pointed out locations of skink sightings. Occasionally, skinks were observed during the walk. Preliminary data from the VES suggests that skinks use native prairie openings most often, and are usually encountered within 10m of a treed area. Although skinks were rarely observed to use lawns and gardens during the VES, landowners are aware of skinks in their yards and reported seeing them frequently. Rail ties, commonly used as retaining walls for flower beds and gardens, seem to provide suitable habitat in manicured yards.

## **PLATFORM**

---

---

---



# CONFERENCE ABSTRACTS 2010

---

**\*D'AOUST-MESSIER**

**CONSERVATION OF NORTHERN BIODIVERSITY: POPULATION GENETICS PATTERNS OBSERVED IN POPULATIONS OF WOOD FROGS (*Lithobates sylvaticus*) IN THE JAMES BAY AREA**

Andrée-Michelle D' Aoust-Messier\* and David Lesbarrères

Department of Biology, Laurentian University, Sudbury, ON, P3E 2C6,  
ax\_daoustmessier@laurentian.ca, dlesbarreres@laurentian.ca

Wildlife managers now utilize several methods to assess the health of wildlife populations. Complementing ecological assessment, population genetics patterns can infer genetic health of the assessed populations and can indicate which population is in need of management to conserve the species' genetic integrity. Northern landscapes offer an interesting platform to study population genetics, as resident species had to migrate following the retreat of the glaciers to colonize these landscapes, thus exhibiting the genetic fingerprints of numerous founder effects, decreasing the genetic variation available for adaptation. Amphibians consist of great model organisms to study population genetics as they have limited dispersing abilities, they are often philopatric to breeding sites, and they are one of the first organisms to be affected by environmental disturbances. To investigate the genetic health and describe the persistence and resilience of amphibians in northern landscapes, the genetic characteristics of populations of wood frogs (*Lithobates sylvaticus*) in the James Bay area were assessed.

**PLATFORM**

---

---

---

---

---

---

---

---

---

---

---

# CONFERENCE ABSTRACTS 2010

---

\*DAVY

## **POPULATION GENETICS OF SPOTTED TURTLES (*Clemmys guttata*) IN CANADA: CONSERVATION IMPLICATIONS**

Christina M. Davy

Department of Ecology and Evolutionary Biology, University of Toronto, 25 Wilcocks St., Toronto, ON, M5S 3B2, [purple\\_salamander@hotmail.com](mailto:purple_salamander@hotmail.com).

Isolated population fragments of Species At Risk are vulnerable to stochastic events and to general loss of genetic diversity. Maintaining the genetic diversity of a species is critical to its long-term persistence, and long-term management plans therefore must take genetic factors into account. The Spotted Turtle (*Clemmys guttata*) is currently listed as Endangered by COSEWIC, and faces multiple threats across its range in Canada. One of these threats is extreme habitat fragmentation, which leads to isolation of small populations. Population fragmentation eventually leads to genetic differentiation of populations, as well as decreasing the genetic variability of each population fragment. However, the genetic distinctiveness and current levels of gene flow between Spotted Turtle populations in Canada are not currently known. I use microsatellite markers to study the population genetics of Spotted Turtles in Canada and ask three specific questions. First, do population relatedness support historic dispersal along the shores of the Great Lakes or overland through wetlands? Second, do any of the study populations of *C. guttata* show evidence of the negative genetic effects of population fragmentation (bottlenecks; loss of heterozygosity; or loss of alleles)? This data will be useful in the formulation of management plans for Spotted Turtles in Canada, and may help to indicate which, if any, Canadian Spotted Turtle populations are in need of genetic rescue.

## **PLATFORM**

---

---

---

---

---

---

---

---

---

---

# CONFERENCE ABSTRACTS 2010

---

\*ECHAUBARD

## STAGE SUSCEPTIBILITY TO FROG VIRUS 3 IN LITHOBATES PIPIENS: AN EPIDEMIOLOGICAL PERSPECTIVE

Pierre Echaubard<sup>1\*</sup>, and David Lesbarrères<sup>1</sup>

<sup>1</sup>Genetics and Ecology of Amphibians Research Group (GEARG), Department of Biology, Laurentian University, Sudbury, ON, P3E 2C6, Canada, [pn\\_echaubard@laurentian.ca](mailto:pn_echaubard@laurentian.ca) ; [Dlesbarreres@laurentian.ca](mailto:Dlesbarreres@laurentian.ca)

Pathogen transmission is of fundamental importance in the understanding of ecology and evolution of host–pathogen interactions for two conceptual reasons often investigated in isolation to each other. First, in the current evolutionary thinking, a pathogen’s transmission mode is a key determinant of its virulence and therefore a fundamental parameter to be accounted for virulence evolution. Second, from an epidemiological perspective, the form and magnitude of transmission rates determine whether a pathogen establishes itself in a host population and whether an epidemic develops, in turn critically influencing management decisions and disease outbreak forecasts. Both approaches rely on a complete description of a parasite/pathogen’s transmission pathway (qualitative) and the quantification, a least partial, of the host susceptibility differences among life history stages. In the present study, we investigated the susceptibility of *Lithobates (Rana) pipiens* eggs and larvae to Ranavirus (FV-3) in a two-step lab experiment. Our objective was to verify the susceptibility of *L. pipiens* eggs to infection by the Ranavirus and to quantify the embryo’s infection rate during the first part of the experiment. Second, a portion of the eggs exposed to the virus during the first part of the experiment were re-exposed to the same virus concentration at the tadpole stage to investigate a potential influence of the egg-stage exposure scenario on the tadpole’s infection rate.

The results of this study will complete our understanding of the Ranavirus (FV-3) transmission patterns and infection rate as well as its overall epidemiological dynamic.

### PLATFORM

---

---

---

---

---

---

# CONFERENCE ABSTRACTS 2010

---

GADBOIS

## SCENT DETECTION AND TRACKING DOGS FOR REPTILES: PRELIMINARY RESULTS FOR NOVA SCOTIAN RIBBON SNAKES, BLANDING'S TURTLES, AND WOOD TURTLES

Simon Gadbois<sup>1</sup> & Deborah Austin<sup>2</sup>

<sup>1</sup> Canid Ethology Laboratory, Department of Psychology and Neuroscience, Dalhousie University, Halifax, NS, B3H 4J1, [sgadbois@dal.ca](mailto:sgadbois@dal.ca)

<sup>2</sup> Parks Canada, Atlantic Service Centre, Halifax, NS, [deborah.austin@pc.gc.ca](mailto:deborah.austin@pc.gc.ca)

Wildlife conservation dogs have been used in North America to locate different species of reptiles, birds, and mammals. In 2009, Parks Canada and Dalhousie University joined forces to create the first Reptile Conservation Canine team in Atlantic Canada. Depending on the species and local priorities, applications include finding adults or juveniles for population monitoring, finding hibernacula, and finding nests. Our target species for the first pilot season was the Eastern Ribbon Snake in Kejimikujik National Park. Reptiles present some unique challenges and few reptile species have been tracked by dogs in the field. For example, the ribbon snake is semi-aquatic, spending a considerable amount of time in fairly stagnant water (a known problem for tracking dogs). Four dogs were trained for the program and after five months of training, two were selected for field work. The field season was divided into two phases: summer and fall. To determine if dogs increased sighting/capture efficiency, we compared sighting/capture success with and without dogs. Teams with dogs did very well in the summer, contributing to more sightings and captures. The fall data is less convincing: dog teams still contributed more to sightings, but not to captures, and overall, human teams were better at finding snakes. A decrease in average ground temperature may have affected the mobility of snakes, making them easier to be sighted and captured in the fall by humans, and harder to detect and track by dogs. Dog teams were more efficient at finding smaller snakes than human-only teams. Subsequent to the Ribbon Snake project, we have been implementing a training program for Blanding's and Wood turtles. An overview of the current trials will be presented.

## PLATFORM

---

---

---

---

# CONFERENCE ABSTRACTS 2010

---

HECNAR

## **MICROHABITAT SELECTION OF DEKAY'S BROWNSNAKE (*Storeria dekayi*) IN A DUNE HABITAT AT POINT PELEE NATIONAL PARK**

Stephen J. Hecnar and Darlene R. Hecnar\*

Department of Biology, Lakehead University, Thunder Bay, ON, P7B 5E1,  
shecnar@lakeheadu.ca, [drhecnar@lakeheadu.ca](mailto:drhecnar@lakeheadu.ca)

Understanding habitat and microhabitat selection is a fundamental goal of ecology and is vitally important for effective species conservation. During an annual midsummer herpetofaunal survey of stabilized dune habitat at Point Pelee National Park, ON from 1990-2010, we recorded information on the presence of Northern Brownsnakes (*S. d. dekayi*). Dekay's Brownsnake is one of the most abundant and widespread snake species in North America, and its association with woody debris is generally well known, but the details of choice of refuge sites is largely unknown. On surveys we systematically checked all woody debris in the stabilized dune and noted sex and size of snake and the size and state of decay of used woody debris. Brownsnakes were the second most abundant reptile, and most common snake, occurring in the dune habitat at this time of year. Surprisingly, nearly all of our observations were of gravid females under woody debris. Debris used was of a moderate decay class and of a particular size indicating selection. It appears that female brownsnakes in the park migrate to stabilized dune habitat to select suitable woody debris for parturition sites. These refuge sites provide a more moist and cooler microclimate than ambient conditions. Observations of numerous shed skins also suggest that this woody debris also provide important microhabitat for ecdysis. Analysis of relative abundance over two decades showed considerable variation in numbers (1-31/y) and a slight increasing trend. Despite no evidence of local decline in this common snake, it is still important to understand its microhabitat requirements. Monitoring common species is important because they are usually the first species to show signs of anthropogenic stress. Our observations suggest that predation by raccoons and road mortality are the most important sources of potential mortality to this population.

## **POSTER**

---

---

---

---

---

---

# CONFERENCE ABSTRACTS 2010

---

HECNAR

## LONG-TERM TRENDS IN THE ABUNDANCE OF A COMMON SPECIES: WHAT CAN GREEN FROGS TEACH US ABOUT POPULATION DYNAMICS, MONITORING AND CONSERVATION?

Stephen J. Hecnar\* and Darlene R. Hecnar

Department of Biology, Lakehead University, Thunder Bay, ON, P7B 5E1,  
shecnar@lakeheadu.ca, [drhecnar@lakeheadu.ca](mailto:drhecnar@lakeheadu.ca)

Conservation efforts typically focus on rare species. It seems logical to devote our time and limited resources saving species on the brink of extinction. However, rare species are usually expensive conservation cases and few become delisted despite our efforts. We usually ignore common species or consider them not at risk (NAR) because they appear abundant and/or widespread. However, common species usually play key roles in ecosystems, and are often first to show signs of anthropogenic stress. We studied the dynamics of Green Frogs (*Rana [Lithobates] clamitans*) among 35 ponds over 19 years in the Stratford Region of Ontario. Because of their territoriality and conspicuous nature, they are easy to survey. We used repeated surveys annually to document relative abundance. Populations showed no trends at 26 ponds (74%), increased at 1 (3%), decreased at 6 (17%), and 2 ponds (6%) were lost. Populations declined in 2 of 3 watersheds, but showed no trend overall at the regional scale. Abundance among years varied greatest at the local scale, moderately at the watershed scale, and lowest at the regional scale as theory predicts. Because no regional trend was detected, one could easily conclude that gains and losses were balanced and there is no concern. However, considering two ponds lost and that declines outnumbered increases at the local scale, one could also conclude that the commonness of the Green Frog can mask conservation concerns. We suggest that monitoring common species is just as important as monitoring rare species. A cogent argument can be made that common species are in fact more important ecologically than rare species and that the traditional conservation approach of focusing mainly on rare species is flawed and dangerous. Perhaps we should adhere to the old adage that “an ounce of prevention is worth more than a pound of cure” and that considering common species may be a more efficacious conservation approach.

### PLATFORM

---

---

---

---



# CONFERENCE ABSTRACTS 2010

---

HOLMAN

## NESTING ECOLOGY AND NATURAL HISTORY OF A CENTRAL NOVA SCOTIA WOOD TURTLE (*Glyptemys insculpta*) POPULATION.

Wendy G. Holman\* and Steve Mockford

Department of Biology, Acadia University, 33 Westwood Ave, Wolfville, NS, B4P 2R6,  
[stephen.mockford@acadiu.ca](mailto:stephen.mockford@acadiu.ca).

The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) listed the wood turtle, *Glyptemys insculpta*, as a threatened species in 2007. The wood turtle is not well studied in the Musquodoboit Valley, which limits the development of conservation strategies. This three year study examines the nesting ecology of a central Nova Scotia population of wood turtles. The objectives include describing where and when nesting occurs in the Musquodoboit Watershed, as well as comparing nesting ecology to that of other populations. Several areas were surveyed to identify appropriate nesting habitat, and turtles were closely monitored during the nesting season. All nests were protected with predator exclusion boxes. Morphometric data were obtained from over 125 turtles and from all nests encountered. Unfortunately, all protected nests on the main nesting beach were inundated during high waters each year, resulting in the death of all eggs. This precluded any analysis of incubation time or hatching success. Embryos were examined for developmental deformities. Three nests located on a different river successfully hatched in 2009. In 2010, the development of a community based volunteer program began, increasing contact with landowners and leading to identification of additional activity areas and nesting areas. This study has led to a better understanding of the nesting ecology of the species in Nova Scotia, identified critical habitat for nesting, and led to the identification of a population of wood turtles in Nova Scotia that has not been well studied.

### PLATFORM

---

---

---

---

---

---

---

---

---

---



# CONFERENCE ABSTRACTS 2010

---

ISAAC

## **IDENTIFYING ECOLOGICAL CORRELATES ASSOCIATED WITH COLOUR VARIATION IN WESTERN TERRESTRIAL GARTER SNAKES, *THAMNOPHIS ELEGANS*, AND POTENTIAL IMPLICATIONS FOR CONSERVATION.**

Leigh Anne Isaac.

Department of Biology, University of Victoria, P.O. Box 3020, Station CSC, Victoria, B.C., V8W 3N5, [laisaac@uvic.ca](mailto:laisaac@uvic.ca).

Colour influences numerous aspects of the ecology of organisms, including foraging ability, communication with conspecifics, thermoregulation, and defense against predators. To avoid being preyed upon, animals can use bright, contrasting colours to advertise their unpalatability or cryptic, concealing colours to minimize their detection. Crypsis depends on the surrounding light environment and background against which an animal is seen and it can be expected that the better an animal matches its background, the less its chance of being detected by a predator. Crypsis is considered an adaptation against visually-oriented predators and in some groups; immobility forms an integral part of this strategy. Early work on animal colour patterns has also shown that dorsal pigmentation patterns are often correlated with different predator avoidance behaviours.

As habitats change either by alteration, fragmentation or complete loss, structural diversity as well as other abiotic components become altered, including thermal and light environments. As a result, what are the potential consequences for animals that become exposed to conditions for which they may not be well adapted? Here I discuss crypsis and antipredator behaviours observed in Western Terrestrial Garter Snakes, *Thamnophis elegans*, and how these traits may be influenced by changing landscapes.

### **PLATFORM**

---

---

---

---

---

---

---

---

---

---

# CONFERENCE ABSTRACTS 2010

---

JONGSMA

## AMPHIBIAN AND REPTILE ROAD MORTALITY: THE ISSUE AND SOLUTIONS

Greg F.M. Jongsma

Nature NB,  
Fredericton, NB, E3B 2T9,  
[Gregor.jongsma@gmail.com](mailto:Gregor.jongsma@gmail.com)

As roads increasingly cut through natural landscapes and especially through sensitive habitat like wetlands, more and more species are coming into contact with roads and vehicles. Amphibians are facing a global decline as a result of many factors including habitat loss, disease, and climate change and road mortality. The combination of these factors has left 30% of all known amphibian species threatened with extinction, 60% of all turtle's species and 23% of all snakes and lizards. Drift fences and culverts appear to be the most effective approach for curbing road mortality for reptiles and amphibians. This approach has been applied throughout North America and Europe. In an effort to curb amphibian and reptile road mortality in Fredericton, New Brunswick, Canada a study is being conducted along a new road that crosses through a wetland. In order to identify areas along the road with the highest herpetofauna traffic we have set up 80 meters of drift fences on either side of the road with pitfall traps every 10 meters. Volunteers monitor the traps, checking them every half hour on warm rainy nights when amphibians appear to be the most active. By identifying the areas with the highest herpetofauna traffic decision makers are equipped to make responsible and informed decisions about where to place culverts and drift fences and potentially reduce herpetofaunal road mortality in target areas by close to 100 percent.

## POSTER

---

---

---

---

---

---

---

---

---

---

# CONFERENCE ABSTRACTS 2010

---

\*KEEVIL

## COMPARING DISPERSAL OF SNAPPING AND PAINTED TURTLES: INVESTIGATING A CRYPTIC LIFE HISTORY TRAIT USING MULTIPLE APPROACHES.

Matthew Keevil\*<sup>1</sup>, Ronald Brooks<sup>2</sup>, and Jacqueline Litzgus<sup>1</sup>

<sup>1</sup>Department of Biology, Laurentian University, Sudbury, ON, P3E 2C6, mg\_keevil@laurentian.ca, jlitzgus@laurentian.ca; <sup>2</sup>Department of Integrative Biology, University of Guelph, Guelph, ON, N1G 2W1, rjbrooks@uoguelph.ca

Many processes affecting population ecology in long lived species are difficult to observe, especially those that occur infrequently at the temporal scale of most field research. Dispersal is one such process that may occur one or a few times during the lifetime of individual animals while playing a crucial role in population genetics, metapopulation dynamics, and life history evolution. Using long-term mark-recapture datasets combined with genetic and road observation data, we will conduct a comparative analysis of dispersal in Snapping Turtles (*Chelydra serpentina*) and Painted Turtles (*Chrysemys picta*) in Algonquin Provincial Park, Ontario. Literature reports suggest that Snapping Turtles are genetically homogeneous and this, along with observations of overland movement and previous analyses of the datasets, leads us to predict higher rates of dispersal for Snapping Turtles compared to Painted Turtles. This prediction will be tested by combining mark-recapture data with microsatellite-based estimates of gene flow. Demographics of turtles on roads will also be examined using multiple datasets from a wider geographic area in order to test the applicability of our hypothesis beyond our study area. The mark-recapture data will be used to test our hypothesis using three approaches: 1) inferring dispersal from the discrepancy in juvenile survivorships estimated from recapture rates of marked juveniles compared to survivorships estimated from fecundity and adult recruitment, 2) proportion of recruited adults marked as hatchlings relative to unmarked recruits, and 3) proportion of marked hatchlings captured as adults at natal patches and distant patches. Knowledge of dispersal rates is important for informing conservation and management strategies. The dependency of recruitment within habitat patches on dispersers from neighbouring patches determines the importance of mortality sources that exist in the matrix between occupied habitat patches. An understanding of dispersal dynamics is also critical for evaluating the role of dispersal in turtle life history and phylogeography.

## POSTER

---

---

---

# CONFERENCE ABSTRACTS 2010

---

KYDD

## STUDYING MOVEMENT RATES, PATTERNS, AND HOME RANGES OF THE ENDANGERED BLANDING'S TURTLE (*EMYDOIDEA BLANDINGII*) IN NOVA SCOTIA, USING INNOVATIVE GPS LOGGERS.

Peter Kydd\*<sup>1</sup>, Stephen Mockford<sup>1</sup>, Norm Green<sup>2</sup>, and Thomas Herman<sup>1</sup>

<sup>1</sup> Biology Department, Acadia University, Wolfville, NS, B4P 2R6; [059491k@acadiau.ca](mailto:059491k@acadiau.ca), [stephen.mockford@acadiau.ca](mailto:stephen.mockford@acadiau.ca), [tom.herman@acadiau.ca](mailto:tom.herman@acadiau.ca)

<sup>2</sup> Friends of Keji Cooperating Association, Hammonds Plains, NS, B3Z 1K4; [nrgreen@accesswave.ca](mailto:nrgreen@accesswave.ca)

The Blanding's turtle (*Emydoidea blandingii*) is endangered in Nova Scotia, and listed locally as either threatened or endangered throughout most of its range. Understanding movement and home range dynamics enhances the ability to make informed recovery decisions. We employed new innovative GPS technology to increase our understanding of movement and home ranges of Blanding's turtle in Nova Scotia. In 2007 and 2008, GPS loggers were deployed on the carapaces of Blanding's turtles in Kejimikujik National Park and National Historic Site. These GPS loggers successfully documented 2198 location points, which include the entire active season of 6 turtles and the nesting routes of 14 turtles. Female home range sizes were larger than those reported in other populations, while those of males were within the range of those reported elsewhere. Four home range estimators, MCP, NNCH, KA (LSCV), and KA ( $h_{ref}$ ), yielded considerable variation in size. Movement rates (m/day) were significantly affected by site, sex, time of day, and time of year, ranging from 208 to 448 m/day, with females moving at a higher rate than males. The highest movement rates occurred between 04:00 and 08:00, while the lowest occurred between 20:00 and 04:00. The highest movement rates for both males and females occurred in June and July. Temperature, mean daily temperature, and total daily precipitation also significantly affected movement rates. Successful use of new GPS technology with Blanding's turtles suggests a role for this technology in the recovery of other species at risk, particularly those whose size did not permit the use of existing technology.

---

---

---

---

# CONFERENCE ABSTRACTS 2010

---

\*LAVERTY

## EFFECTS OF WATER-BASED RECREATION ON THE POPULATION ECOLOGY OF TURTLES IN THE MASSASAUGA PROVINCIAL PARK

Jolene F. Laverty\*, Jandacqueline D. Litzgus

Department of Biology, Laurentian University, Sudbury, ON, P3E 2C6,  
jf\_laverty@laurentian.ca, jlitzgus@laurentian.ca

Studying the effects of water-based recreation on the population ecology of turtles through mark-recapture studies can help determine whether these activities are negatively impacting population structure. The objective of this study was to determine if water-based recreation is having an impact on the population ecology of turtle species within The Massasauga Provincial Park (The MPP) through a mark-recapture study. This study is unique in that The MPP is only accessible by air or water, thus removing the confounding effect of roads. Six study sites were included: three impacted and three non-impacted. Impacted sites were areas of the park with one or more of the following: designated campsites, day use areas, mooring areas and buoys, and/or boat channels nearby. Non-impacted sites were areas that had no park use designation associated with them. We hypothesized that if water-based recreation is negatively affecting turtles, then abundance and diversity of turtles would be lower in impacted sites compared to non-impacted sites. The total number of turtles of all species captured was similar among categories for both study years (2008 - Impacted: N=76, Non-impacted: N=73, 2009- Impacted: N=129, Non-impacted: N=122). Injury rates did not differ between impacted sites to non-impacted sites. Body condition of turtles in impacted areas was better than those in non-impacted sites. Some species of turtles were captured in higher numbers during the second field season, while one impacted site showed low diversity and evenness for the two consecutive years. Sex ratios for *Sternotherus odoratus* revealed a male bias at one impacted site in both years and at two non-impacted sites in 2009. Turtle populations at The MPP may be showing signs of impact from water-based recreation in terms of species diversity and body condition. More research is needed to fully understand how turtles are affected by water-based recreational impacts.

### PLATFORM

---

---

---

---

# CONFERENCE ABSTRACTS 2010

---

\*LEDUC

## **ECOLOGY OF HERPETOFAUNAL POPULATIONS IN TAILINGS WETLANDS IN SUDBURY, ONTARIO.**

Joël C. Leduc<sup>1\*</sup>, Kristen J. Kozlowicz<sup>2</sup>, Jacqueline D. Litzgus<sup>3</sup> et David Lesbarrères<sup>4</sup>

Department of Biology, Laurentian University, Sudbury, ON, P3E 2C6, jc\_leduc@laurentian.ca, kx\_kozlowicz@laurentian.ca, jlitzgus@laurentian.ca; dlesbarreres@laurentian.ca

Since the 1920's, Sudbury, Ontario has emerged into one of the world's largest metal producers. The mining and smelting industries have left a devastating ecological footprint on the Sudbury landscape with metal-contaminated substrates and acidified waters near the smelting facilities and tailings wetlands. We tested the hypothesis that the perturbations caused by to smelting activities have a negative effect on ecological aspects of amphibian and reptile populations on the tailings wetlands of Xstrata Nickel. We examined the differences in herpetofaunal amphibian and reptile abundance, diversity, biomass, body length and reproduction among three impacted wetlands situated at Xstrata Nickel, Falconbridge, Ontario in comparison with a non-tailings wetland located at the Laurentian Conservation Area, Sudbury, Ontario. Day and night field surveying and sampling were performed two to three times per week for an entire breeding season (22 May – 24 September, 2009). We found significant differences in abundance, biomass, and reproduction, but no differences in species richness or body size in a target species, the green frog (*Lithobates clamitans*), among sites. The three impacted sites demonstrated lower abundance and biomass than the control site, and fewer species were reproductively active. Our findings indicate that the tailings wetlands may not be able to sustain the large dynamic communities present at non-tailings wetlands, and that herpetofaunal communities may be negatively impacted within the tailings wetlands.

## **PLATFORM & POSTER**

---

---

---

---

---

---

---

---

---

---

# CONFERENCE ABSTRACTS 2010

---

\*LEFEBVRE

## TICKLE-ME SOFTLY: A NEW NON-INVASIVE TECHNIQUE FOR SPERM COLLECTION IN MALE FRESHWATER TURTLES.

Jose Lefebvre<sup>\*1</sup> & Steve Mockford<sup>2</sup>

<sup>1</sup>Department of Biology, Dalhousie University, Halifax, Nova Scotia, B3H 3J5, [Jose.Lefebvre@Dal.Ca](mailto:Jose.Lefebvre@Dal.Ca). <sup>2</sup>Department of Biology, Acadia University, Wolfville, Nova Scotia, B4P 2R6, [Stephen.mockford@acadiu.ca](mailto:Stephen.mockford@acadiu.ca).

The reproductive cycles of Blanding's turtles (*Emydoidea blandingii*) are poorly understood; the male reproductive cycle has never been studied. Both sexes show promiscuity during reproduction and females can store sperm for long periods. Consequently, multiple paternity within single clutches has a high frequency in this species. However, the frequency of this phenomenon is much lower in the populations of Nova Scotia. Previous work showed only 4-20% and 29-33% multiple paternity within clutches respectively in Nova Scotia. In addition, algorithm models suggest a low male contribution to the gene pool (2-5%). Low fertility is one of the hypotheses to explain this phenomenon. There are three recognized methods for sperm collection in turtles; flushing of the oviducts of females, removal of the epididymis and electroejaculation. The first method doesn't allow the identification of the donor, and the last two are invasive or lethal. Nova Scotia's populations are small, and designated as endangered under The Species at Risk Act, We have develop a less invasive method to apply on a Species At Risk. During notching of carapace on new captures, it was noticed that the vibration produced an erection in male Blanding's turtles. I hypothesized that slightly stronger vibration applied at a specific location could induce ejaculation. The method was tested on male Blanding's turtles, using a 2.5 inch "Silver Bullet" vibrator, first applied to the plastron to induce an erection, and then to the vial where the hemipenis was inserted. The method was successful in inducing ejaculation, was fairly quick (less than 5 minutes) to minimize handling time, and did not require any intrusion or removal on the specimens.

## POSTER

---

---

---

---

---

---

# CONFERENCE ABSTRACTS 2010

---

LESBARRÈRES

## **THE BIGGER THE BETTER? ALLOMETRY AND SEXUALLY DIMORPHIC TRAITS IN ANURANS**

David Lesbarrères\* and Albrecht Schulte-Hostedde

Biology Department, Laurentian University, Sudbury, Ontario, Canada, P3E 2C6,  
[dlesbarreres@laurentian.ca](mailto:dlesbarreres@laurentian.ca)

Allometry of secondary sexual traits has been subject to a debate for some times and the generality of positive allometry and its association with sexual selection have been recently questioned. While some studies suggest an almost universal positive allometry for traits under sexual selection and isometry or a negative allometry for traits not under such pressure, other studies argue that this pattern results from the study of exaggerated (ornamental) traits. To answer the call for an examination of the allometry of less exaggerated sexually selected traits, we have examined morphological data from 13 sexually dimorphic traits and 7 monomorphic traits from three anuran species. Although we found evidence of positive allometry in male secondary sexual traits of several species and populations, not all non-sexual traits were isometric or exhibited negative allometry. Furthermore, our results indicate that larger traits in the populations that we studied were not associated with greater allometric slopes. Therefore, our study is in line with the contention suggesting no specific kind of allometric pattern for sexual and nonsexual characters, and we can only advocate for further investigation of trait allometry and sexual selection in order to understand the complexity underlying the evolution of allometry in sexual traits.

## **PLATFORM**

---

---

---

---

---

---

---

---

---

---





# CONFERENCE ABSTRACTS 2010

---

MEADOWS

## MOVEMENT PATTERNS OF COMMON SNAPPING TURTLES (*Chelydra serpentina*) IN SOUTHWESTERN MANITOBA

Kali Meadows<sup>1</sup>, Chris Malcolm<sup>1,2</sup>, Pamela L. Rutherford\*<sup>1,3</sup>

<sup>1</sup>Environmental Science, Brandon University, Brandon, MB, R7A 6A9;

<sup>2</sup>Department of Geography, Brandon University, Brandon, MB, R7A 6A9;

<sup>3</sup>Department of Biology, Brandon University, Brandon, MB, R7A 6A9;

Common snapping turtles (*Chelydra serpentina*) are Canada's largest freshwater turtle with a lifespan similar to humans. The majority of known populations in Canada is comprised of adults due to their long lifespan, and high levels of juvenile mortality and nest predation rates. Common snapping turtles are federally listed as Special Concern and ranked as S3 in Manitoba. For these reasons, the common snapping turtle is of conservation concern. The preferred habitat of common snapping turtles is generally characterized by slow-moving water with soft muddy bottoms and dense aquatic vegetation. In Ontario, they are active from early May to mid October, with nesting occurring in mid June. Habitat use and activity patterns are not known for Manitoba populations. The objective of this study is to determine movement patterns of common snapping turtles in the Little Saskatchewan River in southwestern Manitoba. In May and June, adult turtles (N=9) were captured by net. Each turtle was measured, given a unique identification, and a radio transmitter was epoxied to its carapace. Each week the location and behaviour of each turtle was recorded. All turtles were initially captured in a marsh area and oxbow near the main river channel. By August, all turtles had moved into the main river channel. Several individuals exhibited large movements within the river (both upstream and downstream) throughout the summer. In future, we will use knowledge of their movement patterns to locate nest sites, and determine nest predation rates and juvenile mortality.

## POSTER

---

---

---

---

---

---

---

---



# CONFERENCE ABSTRACTS 2010

---

\*MITCHELL

## **PREVALENCE AND INTENSITY OF *Hepatozoon* sp INFECTION IN GREEN FROGS (*Lithobates (Rana) clamitans*) OF PRINCE EDWARD ISLAND, CANADA**

Jessicca L. Mitchell\*, and María Forzán

Canadian Cooperative Wildlife Health Center, Department of Pathology and Microbiology,  
Atlantic Veterinary College, 550 University Ave, Charlottetown, PE, C1A 4P3

[jlitchell@upei.ca](mailto:jlitchell@upei.ca); [mforzan@cewhc.ca](mailto:mforzan@cewhc.ca)

The apicomplexan protozoan parasites *Hepatozoon clamatae* and *H. catesbiana*e are known to infect frogs native to north-eastern North America, including New York, Ontario and Nova Scotia. Prince Edward Island is one of the Maritime Provinces of Canada that harbours the definitive host for the parasite, *Culex territans*, as well as similar anuran species to those found in the neighbouring Nova Scotia. No reports of infection with *Hepatozoon* sp in PEI frogs were found in the literature. To determine presence, prevalence and intensity of infection, 61 green frogs, *Lithobates (Rana) clamitans*, were sampled from four ponds on Prince Edward Island. Blood was collected with a capillary tube via puncture of the maxillary vein using a 25-30 gauge needle; thin blood smears were prepared on glass microscopic slides and stained with Wright-Giemsa. Pack cell volumes (PCV) were also measured in 19 of the frogs. Infection with *H. clamatae* and *H. catesbiana*e was distinguished based on presence or absence of nuclear fragmentation, respectively, in the infected erythrocyte. The prevalence (number of infected frogsx100/total of frogs examined) and intensity (number of erythrocytes infectedx100/2000 erythrocytes per frog) of *H. clamatae* and *H. catesbiana*e infections were determined by systematically scanning each blood smear and examining 2000 erythrocytes. Results will be presented at the upcoming CARCNET meeting.

### **PLATFORM**

---

---

---

---

---

---

---

---

# CONFERENCE ABSTRACTS 2010

---

OVASKA

## HABITAT STEWARDSHIP FOR THE WESTERN PAINTED TURTLE ON VANCOUVER ISLAND

Kristiina Ovaska\* and Christian Engelstoft

Habitat Acquisition Trust, PO Box 8552, Victoria, B.C. V8W 3S2; [kovaska@shaw.ca](mailto:kovaska@shaw.ca); [Christian@hat.bc.ca](mailto:Christian@hat.bc.ca)

The distribution of the endangered Western Painted Turtle (Pacific Coast Population) coincides with populated areas in southwestern B.C., where the turtles face threats from urban development and other human activities. Since 2008 we have worked with landowners to protect populations on Vancouver Island with the objectives of (a) delineating distribution and important habitats, (b) developing management guidelines for urban and forestry lands, and (c) mitigating threats and enhancing habitat. Survey results and reports from the public suggest that the species is widely distributed in southern and eastern parts of the island and occurs both in urban/rural areas and in forested backcountry lakes. We developed management guidelines for large land owners and for residential properties with documented turtle nesting activity. Habitat rehabilitation began in 2010 and consisted of nesting habitat enhancement at two sites, set up as experiments with different substrate treatments, and installation of basking logs at three sites. Preliminary results indicate that turning over soil is an effective method to enhance nesting habitat at our study sites; we are also investigating the effectiveness of adding sand and garden soil to the substrate in different proportions. Turtles readily used the basking logs that were added to ponds, suggesting that basking sites were in short supply. We will continue monitoring the use of the enhanced habitat by turtles and plan to expand those treatments that are most successful.

## PLATFORM

---

---

---

---

---

---

---

---

---

---

# CONFERENCE ABSTRACTS 2010

---

\*PARENT

## PRELIMINARY COMPARISONS OF WILD ANURAN SPECIES ABUNDANCE, WATER QUALITY MEASURES, WEATHER AND LAND USE ON PRINCE EDWARD ISLAND, CANADA

Marianne Parent\*<sup>1,2\*</sup>, María Forzán<sup>2</sup>, Natacha Hogan<sup>1</sup>, and Raphaël Vanderstichel<sup>3</sup>

<sup>1</sup> Department of Biology, University of Prince Edward Island, Charlottetown, PE, C1A 4P3, mparent@upei.ca, nshogan@upei.ca

<sup>2</sup> Canadian Cooperative Wildlife Health Centre, Department of Pathology and Microbiology, Atlantic Veterinary College, University of Prince Edward Island, Charlottetown, PE, mforzan@ccwhc.ca

<sup>3</sup> Department of Health Management, Atlantic Veterinary College, University of Prince Edward Island, Charlottetown, PE, rvanderstich@upei.ca

Anurans are currently challenged with declining populations and extinctions in regions across the world. Multiple factors influence anuran population decline, including loss of habitat and decline in habitat quality. To investigate habitat quality on Prince Edward Island data on resident amphibians, water quality and land use were collected from 42 water bodies with known green frog, *Lithobates (Rana) clamitans*, and Northern leopard frog, *Lithobates (Rana) pipiens*, populations. Sampling was performed with owner's consent between May and August 2010. For each of the sites visited, populations were estimated using call surveys, land use around the site was characterized as percent agricultural land, water quality parameters (e.g. temperature, salinity) were recorded using a YSI and a 135 ml sample was collected for pH and nutrient-level (e.g. nitrates) testing. Weather data were obtained from the Environment Canada website. After the site characteristics were recorded, 1 to 35 frogs were captured during a 1-hour visual search along the emergent vegetation of the pond, using nets. The frogs were transferred to Ziploc® containers and released after sex, age, length (mm) and weight (g) were recorded. All equipment was disinfected in between captures and between sites following established recommendations of The Australian Treatment Abatement Plan. Results will be presented at the 20th Annual Meeting of CARCNET.

## PLATFORM

---

---

---

---

---

---

---

---

# CONFERENCE ABSTRACTS 2010

---

PASZKOWSKI

## **EFFECTS OF LAKE CHUB (*Couesius plumbeus*) ON SURVIVAL AND BEHAVIOUR OF LONG-TOED SALAMANDER (*Ambystoma macrodactylum*) LARVAE**

Katie S. Pagnucco<sup>1</sup>, Cynthia A. Paszkowski<sup>1\*</sup> and Garry Scrimgeour<sup>2</sup>

<sup>1</sup>Department of Biological Sciences, University of Alberta, Edmonton, AB T6G 2E9, kpacagnucc@ualberta.ca, cindy.paszowski@ualberta.ca; <sup>2</sup> Parks Canada, Western and Northern Service Centre, Calgary, Alberta, Canada T2P 3M3, garry.scrimgeour@pc.gov.ca

Fish can affect amphibian larvae directly through consumption or indirectly by eliciting antipredator behaviours that can reduce fitness. Because of predation, long-toed salamanders (*Ambystoma macrodactylum*) typically breed in fishless water bodies. Linnet Lake (Waterton Lakes National Park, Alberta) represents the unusual situation where salamanders coexist with a small-bodied cyprinid, lake chub (*Couesius plumbeus*). Our objective was to assess the role of lake chub in the decline of this salamander population by combining field observations and laboratory experiments. We used mark-recapture techniques to estimate the size of the two populations. The adult salamander population had decreased by 60% in 14 years and we found little evidence of successful reproduction. In contrast, a large, breeding population of lake chub was present. A series of predation experiments documented that lake chub between 70 – 100 mm could consume salamander larvae < 40mm. We also observed cannibalism in long-toed salamander larvae. In a second series of behavioural experiments, larvae responded to the presence of lake chub by reducing activity and increasing refuge use, especially during the day. Larvae did not respond to potentially predaceous conspecifics. Our study is one of few to document the ability of a native small-bodied fish to consume amphibian larvae. The coexistence of fish and salamanders in Linnet Lake may result from a dynamic interplay between periodic extirpation of fish by winter hypoxia and of salamanders by predation, punctuated by episodes of re-colonization or strong recruitment of either species.

## **POSTER**

---

---

---

---

---

---

---

# CONFERENCE ABSTRACTS 2010

---

\*PATERSON

## SPATIAL ECOLOGY AND HABITAT SELECTION IN A NORTHERN POPULATION OF SNAPPING TURTLES (*Chelydra serpentina*)

James E. Paterson<sup>1\*</sup>, Brad Steinberg<sup>2</sup>, and Jacqueline D. Litzgus<sup>1</sup>

<sup>1</sup>Department of Biology, Laurentian University, Sudbury, ON, P3E 2C6, [jp\\_paterson@laurentian.ca](mailto:jp_paterson@laurentian.ca), [jlitzgus@laurentian.ca](mailto:jlitzgus@laurentian.ca); <sup>2</sup>Algonquin Park, PO Box 219, Whitney, ON, K0J 2M0, [brad.steinberg@ontario.ca](mailto:brad.steinberg@ontario.ca)

Central to our understanding of animal ecology is habitat use and resource selection. By comparing habitat use to habitat availability, preferences for specific habitats may become evident, and this information is important for creating management plans for species at risk. We examined habitat selection and spatial ecology in a northern population of Snapping Turtles (*Chelydra serpentina*) in Algonquin Provincial Park, Ontario. Snapping Turtles were recently listed as a Species of Special Concern in Canada, and data on their spatial ecology are needed to inform recovery planning. Radio telemetry was used to follow 11 adult turtles from May-Oct 2009. Average daily distances travelled varied widely among individuals from 23-179 m/day (mean = 78, SE = 15), but were greater in females than in males. In addition, annual home ranges varied widely from 0.1-330 ha (mean = 60, SE = 30), although there was no difference between the sexes. Comparisons of habitat use and availability will be carried out using the distance-based method and ArcGIS software at two spatial scales: selection of a home range from the population range, and selection of habitat within the home range. Studying local populations of widely distributed generalist species allows recognition of important habitat characteristics preferred by these organisms, and allows comparisons of geographic differences among populations. Studies on habitat selection are important for identifying critical habitat for at-risk species, as well as for answering questions about life history evolution.

### PLATFORM

---

---

---

---

---

---

---

---



# CONFERENCE ABSTRACTS 2010

---

**\*PEREZ**

## **AN INVASIVE PLANT COULD AFFECT THE AMPHIBIANS: CASE OF *Phragmites australis***

Amélie Perez <sup>\*1</sup>, Marc J. Mazerolle<sup>2</sup> et Jacques Brisson<sup>1</sup>

<sup>1</sup> Institut de Recherche en Biologie Végétale, Université de Montréal, QC, [amelie.perez@umontreal.ca](mailto:amelie.perez@umontreal.ca) ; <sup>2</sup> Centre d'étude de la forêt, Département des sciences appliquées, Université de Québec en Abitibi Témiscaminque et Département des sciences biologiques, Université de Montréal, QC.

In the context of the declining amphibian populations, introduction of exotic animal species has been the subject of numerous studies. Nevertheless, exotic invasive plant species can modify substantially wetland structure. We have studied the consequences of the establishment of the exotic common reed (*Phragmites australis*) on amphibian populations. We hypothesized that secondary compounds emitted by the plant and the decrease of available space resulting from dense growth, could reduce larval anuran development. We tested this hypothesis by studying the larval development of the wood frog (*Lithobates sylvaticus*) during an experiment in mesocosms placed in the field. We recreated several homogeneous habitats with different densities of reed and a control habitat without reed. Tadpoles were placed in the mesocosms and were followed during six weeks until metamorphosis.

Preliminary results show that a medium density of reed does not influence survival rate and larval development of tadpole. The results show that the size and the mass of the tadpoles do not differ between treatments.

## **POSTER**

---

---

---

---

---

---

---

---

---

---

# CONFERENCE ABSTRACTS 2010

---

POULIOT

## JUVENILE WOOD TURTLE (*GLYPTEMYS INSCULPTA*) TRANSLOCATION PILOT PROJECT AT LA MAURICIE NATIONAL PARK

Daniel Pouliot<sup>1\*</sup>, Denis Masse<sup>1</sup>, Claude Samson<sup>2</sup>, Sylvain Paradis<sup>2</sup> and Yves Robitaille<sup>3</sup>

<sup>1</sup>Service de la conservation des ressources, Parc national du Canada La Mauricie, 2141 Chemin St-Paul, Saint-Mathieu-du-Parc (Québec), Canada, G0X 1N0; <sup>2</sup>Service de la conservation des écosystèmes, Agence Parcs Canada, Centre de services du Québec, 3 passage du Chien d'Or, CP 6060, Haute-Ville, Québec (Québec), Canada, G1R 4V7; <sup>3</sup>Ministère des Ressources naturelles et de la Faune du Québec, Direction générale de la Mauricie-Centre-du-Québec, 100 rue Laviolette, bureau 207, Trois-Rivières (Québec), Canada, G9A 5S9

One of the largest populations of Wood Turtle, a threatened species in Canada, is found in the Shawinigan River Watershed (SRW), partially located within La Mauricie National Park (LMNP) borders. The population has been studied and protected since 1994. Despite the presence of suitable habitat, only a few observations of turtles have been reported within the park. A restocking program, involving the translocation of juveniles, has been proposed to increase the local population in LMNP. However, efficiency of translocating and restocking programs for herpetofauna has been questioned. Therefore, before implementing the program, a pilot study was conducted to evaluate the effects of translocation on survival and dispersal rates of turtles. In 2006, 16 juvenile turtles (3-10 years old) were captured from the SRW outside the park, fitted with a radio transmitter and translocated to two sites within LMNP. The turtles were radio tracked from May 2006 to October 2009. Survival, retention and growth rates, as well as body condition, home range size and distance from water, have been compared to juvenile turtles radio tracked in SRW, outside the park, from 2004 to 2007. Results suggests that, on a short term basis

(4 years), this pilot translocation project did not appear to strongly affect survival, dispersal and ecology of the juvenile Wood Turtles in LMNP. Translocated turtles are being annually monitored and project success will be re-evaluated in future years.

## PLATFORM

---

---

---

---

---

---



# CONFERENCE ABSTRACTS 2010

---

\*RILEY

## IMPLICATIONS OF ALTERNATIVE NEST-CAGING METHODS ON THE FITNESS OF HATCHLING *Chrysemys picta* AND *Chelydra serpentina*

Julia L. Riley<sup>1\*</sup>, and Jacqueline D. Litzgus<sup>1</sup>

<sup>1</sup>Department of Biology, Laurentian University, Sudbury, ON, P3E 2C6,  
[julia.riley87@gmail.com](mailto:julia.riley87@gmail.com), [jlitzgus@laurentian.ca](mailto:jlitzgus@laurentian.ca)

Conservation biology seeks to mitigate anthropogenic impacts on natural ecosystems. It follows that conservation techniques themselves should minimize their impacts on targeted species. Nest caging is a well-established and widely-used tool in turtle conservation, although its direct effects on hatchling fitness have not been empirically tested. Nest caging reduces nest predation and substantially increases potential recruitment of hatchlings. Despite documented benefits, shortcomings have also been identified. Entrapment in cage wire can cause death of young, and anecdotal evidence suggests that above-ground wire nest cages reduce the incubation temperature when compared against non-caged nests. Nest-caging methods vary greatly between species and management strategies. The first goal of this study is to determine whether two nest-caging methods have significantly different effects on the environment of the nest chamber. The secondary study goal is to determine if nest-caging, and the resulting incubation environment, has an effect on hatching success, condition, and sex. This research is currently being conducted in Algonquin Provincial Park, Ontario, where painted turtle (*Chrysemys picta*, N=55) and snapping turtles (*Chelydra serpentina*, N=37) nests were assigned to one of two treatment groups or a control: above- or below-ground wire nest cages or no nest cage, respectively. In each nest a temperature data logger has been placed. Once hatching occurs, incubation duration, hatching success, frequency of deformities, body condition, and hatchling fitness will be quantified. In addition, hatchling sex-ratios will be inferred from the collected nest temperature data and known published pivotal temperatures. This study's results will enhance turtle conservation strategies. Eight of nine Canadian turtles are designated at-risk by COSEWIC, and nest caging is recommended in all of their recovery strategies. Overall, turtles select nests depending on specific micro-habitat characteristics to maximize hatching success. If nest-caging adversely alters this environment, then the technique should be re-assessed to minimize its negative impacts.

**POSTER**

---

---

---

# CONFERENCE ABSTRACTS 2010

---

RUTHERFORD

## THE ASSINIBOINE RIVER SEPARATES TWO GENETICALLY DISTINCT CLUSTERS OF THE NORTHERN PRAIRIE SKINK (*Plestiodon septentrionalis*)

William C.J. McFadden<sup>1</sup>, Pamela L. Rutherford<sup>1\*</sup>, Drew J. Hoysak<sup>1</sup>, and Stephen C. Loughheed<sup>2</sup>

<sup>1</sup>Department of Biology, Brandon University, Brandon, MB, R7A 6A9, [mcfadden.william@gmail.com](mailto:mcfadden.william@gmail.com), [rutherfordp@brandonu.ca](mailto:rutherfordp@brandonu.ca), [hoysakd@brandonu.ca](mailto:hoysakd@brandonu.ca);

<sup>2</sup>Department of Biology, Queen's University, Kingston, ON, K7L 3N6, [steve.loughheed@queensu.ca](mailto:steve.loughheed@queensu.ca).

The purpose of this study was to determine genetic distribution patterns of the northern prairie skink *Plestiodon septentrionalis* within its population of southwestern Manitoba. This population is disjunct from the contiguous population of the central northern United States, and no gene flow occurs between the two. The Manitoban prairie skinks are threatened by loss of habitat, and steps are being taken to ensure the conservation of the species. Determining genetically distinct groups within the Manitoba population may help determine future conservation efforts. Skinks of the Carberry Sandhills region were captured, sampled for DNA, and released after capture. DNA microsatellites were amplified by PCR, and six amplified loci were found to show polymorphism. The loci were examined for departures from Hardy-Weinberg equilibrium and analyzed using a spatial assignment program to determine the number of distinct clusters within the population. Two such clusters were found, with the Assiniboine River separating them. Highways, forests, and extensive agricultural tracts do not appear to be barriers to gene flow, or have not existed long enough for their effects to be seen.

### PLATFORM

---

---

---

---

---

---

---

---

---

---

# CONFERENCE ABSTRACTS 2010

---

SAROLI

## **HABITAT USE AND MOVEMENT OF THE EASTERN RIBBONSNAKE (*Thamnophis sauritus*) AT MESO-SCALES.**

Jesse Andres Mendel Saroli

Biology Department, Acadia University, Wolfville, NS. [jsaroli@hotmail.com](mailto:jsaroli@hotmail.com)

The Eastern Ribbonsnake (*Thamnophis sauritus*) is listed as a threatened species in Nova Scotia. The threat of diminishing habitat due to shoreline property development combined with a general dearth of knowledge on the snakes' movements and habitat use complicates conservation and potential recovery planning. Visual surveys were conducted at Molega Lake, an area known to contain a small population of Ribbonsnakes. The survey area was expanded in 2008 from previous studies to include four new areas, chosen along the shoreline at varying distances from the original site. The new areas, chosen based on reports of sightings, similarity of habitat, and proximity to the previous study site were surveyed along with the original site. Snakes were hand-captured and identified. Eligible specimens were implanted with a subcutaneous passive integrated transponder as a means of identification. Individual movements were small, with maximum recorded movements shown to be less than that of the smallest distance between survey zones. Home range, calculated from an individual with many recaptures was shown to encompass most of the original survey zone; however, no specimens were observed in more than one area over the four month research season, despite the more populous areas being approximately only 175m apart. Total observations of individual snakes were very low for two of the new areas, and one area showed a marked decrease of observations in the months of July and August. Almost all of the observations occurred within the current critical habitat description, with no sightings in the area specifically chosen for its different habitat type.

## **PLATFORM**

---

---

---

---

---

---

---

---

# CONFERENCE ABSTRACTS 2010

---

SCHUELER

## **TRAJECTORY AND HERPETOLOGICAL RESULTS OF THE 30 YEARS LATER EXPEDITION.**

Frederick W. Schueler\*, Aleta Karstad, & Adam Zieleman.

Bishops Mills Natural History Centre, Bishops Mills, RR#2 Oxford Station, Ontario, Canada K0G 1T0 - (613)258-3107.

Frederick W. Schueler: [bkcdb@istar.ca](mailto:bkcdb@istar.ca) , Aleta Karstad: [karstad@pinicola.ca](mailto:karstad@pinicola.ca) , Adam Zieleman: [barvazoni@hotmail.com](mailto:barvazoni@hotmail.com).

The 30 Years Later Expedition is a trans-Canada Biological Survey launched in the International Year of Biodiversity, in partnership with the Canadian Museum of Nature, primarily revisiting sites where Fred Schueler and Aleta Karstad have made observations and collections since 1970. The project involves databasing, up-grading, and revisiting observations recorded in theirs', and others', field notes, as well as sketching and painting on-site, and testing the hypotheses about possible ecological change that they had in mind when they made the initial observations, or that have arisen since. The 2010 field season has included trips to NE Ontario, the Lake Ontario shore, and currently New Brunswick & Nova Scotia. Conditions for herpetological work have been diversely unfavourable in 2010, but herpetological findings have included confirmation of the loss of leopard frogs (*Lithobates pipiens*) from NE Ontario, another observation of massive egg mortality in *L. sylvaticus* at a NE Ontario study site in an el Niño spring, possible earthworm-induced change in colour morph ratio of *Plethodon cinereus* in an eastern Ontario old-growth forest, and ongoing monitoring of nesting-season road mortality among turtles in eastern Ontario. see <http://www.fragileinheritance.org/projects/thirty/thirtyintro.html>.

## **POSTER**

---

---

---

---

---

---

---

---

---

---





# CONFERENCE ABSTRACTS 2010

---

\*VENESKI

## EFFECTS OF *BATRACHOCHYTRIUM DENDROBATIDIS* INFECTIONS ON LARVAL FORAGING PERFORMANCE

Matthew D. Venesky<sup>1\*</sup>, Richard J. Wassersug<sup>2</sup>, and Matthew J. Parris<sup>1</sup>

<sup>1</sup>Department of Biological Sciences, The University of Memphis, Memphis TN USA, 38152, mvenesky@memphis.edu, mparris@memphis.edu; <sup>2</sup>Department of Anatomy and Neurobiology, Dalhousie University, Halifax, NS B3H 4H7, tadpole@dal.ca

Pathogens that do not directly kill their hosts may nevertheless modify host behavior in ways that reduce foraging efficiency and indirectly impede growth and development. We explored if such a process occurs for tadpoles of the Fowler's Toad (*Anaxyrus* [=*Bufo*] *fowleri*) and the Grey Treefrog (*Hyla chrysoscelis*), which were infected by the fungus *Batrachochytrium dendrobatidis* (*Bd*). *Bd* causes the disease chytridiomycosis and has been implicated in amphibian declines worldwide. We hypothesized that *Bd*-infected tadpoles would forage less often and less efficiently than non-infected tadpoles. First, we observed foraging behavior of *Bd*-infected and non-infected tadpoles to test for differences in foraging activity. We then tested for differences in the ingestion rates of tadpoles by examining the amount of food in their alimentary track after a 3 hour foraging period. As predicted, *Bd*-infected *Anaxyrus* tadpoles foraged less often than controls; however, the feeding activity of *Bd*-infected *Hyla* tadpoles was not reduced. We also found that *Bd*-infection reduced the efficiency at which tadpoles of both species obtained food relative to non-infected tadpoles (however not to the same extent in these two species). To better understand precisely how *Bd* reduced feeding efficiency we use high-speed (500 frames/sec) videography to study the way that *Bd*-induced mouthpart deformities altered the feeding kinematics of tadpoles of both species. The teeth of *Bd*-infected tadpoles slipped off of surfaces on which tadpoles graze and were in contact with an algal-covered substratum for a shorter duration in each gape cycle compared to teeth of control tadpoles. Collectively, our data show explicitly how *Bd* infection reduces foraging efficiency of anuran tadpoles by altering feeding kinematics. These results elucidate the mechanism linking *Bd* infection with reduced developmental rates of infected tadpoles.

## PLATFORM

---

---

---

---

---

---

# CONFERENCE ABSTRACTS 2010

---

VENESKI

## HOW DO MISSING LABIAL TEETH AFFECT FEEDING KINEMATICS AND FORAGING PERFORMANCE OF A RANID TADPOLE (*LITHOBATES SPHENOCEPHALUS*)?

Matthew D. Venesky<sup>1</sup>, Richard J. Wassersug<sup>2\*</sup>, and Matthew J. Parris<sup>1</sup>

<sup>1</sup>Department of Biological Sciences, The University of Memphis, Memphis TN USA, 38152, mvenesky@memphis.edu, mparris@memphis.edu; <sup>2</sup>Department of Anatomy and Neurobiology, Dalhousie University, Halifax, NS B3H 4H7, tadpole@dal.ca

Previously, we demonstrated how pathogen-induced mouthpart deformities can affect the foraging performance and feeding kinematics of tadpoles. However, pathogens can cause numerous changes in a host's biology. Thus, we were unsure if missing labial teeth alone was sufficient to account for the altered feeding we observed. We used high-speed videography to further explore how missing labial teeth alters the feeding kinematics and foraging performance of Southern Leopard Frog (*Lithobates sphenoccephalus* [= *Rana sphenoccephala*]) tadpoles. In Experiment 1, we tested if the degree of natural tooth loss in these tadpoles correlated with the amount of time the tadpoles were in contact with, and grazed upon, an algal-covered substratum. In Experiment 2, we controlled the pattern of tooth loss by surgically removing one row of teeth to test how this altered the feeding kinematics of the tadpoles. We also conducted foraging efficiency trials to determine if tadpoles with fewer teeth foraged less efficiently than control tadpoles. In Experiment 1, linear regression revealed a significant positive relationship between duration of time the labial teeth were in contact with the substrate and the number of labial teeth present. Thus, loss of teeth resulted in a shorter portion of the gape cycle during which tadpoles could acquire food. In Experiment 2, the teeth of tadpoles from the surgery treatment slipped off while foraging and were in contact with the substratum for a shorter duration in each gape cycle compared to teeth of control tadpoles. Surprisingly, tadpoles with missing teeth obtained similar amounts of food as tadpoles with intact mouthparts. However, tadpoles with missing teeth completed approximately 25% more foraging bouts per unit time. Our data indicate that tadpoles with missing labial teeth compensate for inferior feeding kinematics during mouth closing in each gape cycle by increasing the number of gape cycles per unit time.

### PLATFORM

---

---

---

---

# CONFERENCE ABSTRACTS 2010

---

\*WHITE

## **HABITAT SELECTION, SITE FIDELITY, AND COMMUNAL BEHAVIOUR OF OVERWINTERING WOOD TURTLES (*Glyptemys insculpta*) in NOVA SCOTIA**

Travis B. White<sup>1</sup>, Mark D. Pulsifer<sup>2</sup>, and Tom B. Herman<sup>1</sup>

<sup>1</sup>Department of Biology, Acadia University, Wolfville, NS, B4P 2R6, 102682w@acadiau.ca, tom.herman@acadiau.ca; <sup>2</sup> Nova Scotia Department of Natural Resources, Antigonish, NS, B2G 2L, pulsifmd@gov.ns.ca

To effectively conserve Wood Turtles (*Glyptemys insculpta*), knowledge of their winter ecology is essential. Previous research has examined overwintering elsewhere in the species range, but no overwintering study has been conducted on *G.insculpta* in Nova Scotia. The literature provides several competing causal hypotheses regarding communal overwintering and site fidelity in wood turtles. Site fidelity in freshwater turtles may be related to increase mating opportunities. Our study area contains one of the highest population densities and the largest known wood turtle population in the species range, providing a large sample size to examine site fidelity and communal behavior. Research will be conducted in the St Mary's River watershed on the eastern mainland of Nova Scotia. Surveys will be focused within the Aspen region along the East River St Mary's, McKeens Brook, and adjacent lands. Thirty- two adult turtles will be captured opportunistically from May to October 2010 and fitted with radio transmitters. When brumation has been observed, each overwintering site will be identified and its thermal, chemical, and structural attributes characterized. Temperature data loggers will be deployed at each hibernaculum to allow for continual monitoring. Bi-weekly site visits will include measurements of dissolved oxygen, ice thickness, and distance from shore, relocations, and visual observations. Each overwintering site will be paired with a random location (control), which will also be characterized and monitored. In year 2, site fidelity and communal overwintering will be intensively studied .The primary goals of this study are to gain a deeper understanding of micro-habitat properties that are critical to overwintering, and how site fidelity and communal behavior are correlated to sites being selected by *G.insculpta*.

### **PLATFORM**

---

---

---

---

# CONFERENCE ABSTRACTS 2010

---

YAGI

## **THERMOREGULATION AND BEHAVIOUR OF SPOTTED TURTLES (*Clemmys guttata*) IN A BEAVER-FLOODED LOCATION**

Katharine Yagi and Jacqueline Litzgus

Department of Biology, Laurentian University, Sudbury, ON, P3E 2C6, [kx\\_yagi@laurentian.ca](mailto:kx_yagi@laurentian.ca).

As ectotherms, turtles are able to behaviorally adjust their body temperatures using available environmental temperatures. Body temperature has a major influence on the physiological processes, growth, reproductive output, and overall survival of ectotherms. When a habitat is altered as a result of natural or anthropogenic influences, the available temperatures in the habitat can change, thus affecting an animal's ability for thermoregulation. I studied thermoregulation in an isolated population of Spotted Turtles (*Clemmys guttata*) in the Niagara District of Southern Ontario. The study site was historically mined for peat leaving various drains containing surface water scattered within expanses of the residual peat. Spotted Turtles were recorded in these drains by the Ontario Ministry of Natural Resources (OMNR) beginning in 1998. Following colonization by beavers (*Castor canadensis*) in 2005, dam building has caused increased water levels and has potentially created new opportunities for the Spotted Turtles. From 18 March 2009 to 11 October 2009, nineteen Spotted Turtles were outfitted with radio transmitters and iButtons to estimate body temperatures ( $T_b$ ) continuously throughout the active season. Fifty artificial turtle models outfitted with iButtons were deployed in the nine available habitat types to collect environmental temperatures ( $T_e$ ). Thirteen Spotted Turtles were tested in a linear thermal gradient under laboratory conditions to determine the population target body temperature range ( $T_{set}$ ). The  $T_{set}$  for the population ranged from 20°C to 26°C. In the field,  $T_b$  was within the  $T_{set}$  range 28% of the time from March to October, and 67% of the time from July to August. Effectiveness of thermoregulation ( $E$ ) was calculated to be highest in July and August. The habitat type with the highest thermal quality was the shallow flooded zone surface, a habitat created by the beaver flooding (mean deviation from  $T_{set} = 1.79^\circ\text{C}$ ), and the habitat with the lowest thermal quality was the drain bottom, the only aquatic habitat available prior to beaver flooding ( $d_e = 5.31^\circ\text{C}$ ). This study confirms that beaver flooding has provided a wide variety of preferable thermal opportunities for Spotted Turtles because habitat types with the best thermal qualities are all the new aquatic habitats that were not present before flooding. Further investigation is needed to determine whether there are seasonal shifts in  $T_{set}$ , and more detailed analyses of Spotted Turtle thermoregulation during nesting and hibernation are needed.

**PLATFORM**

---

---

---

# CONFERENCE ABSTRACTS 2010

---

ZACHARCZENKO

## **GEOGRAPHIC VARIATION IN DORSAL COLOUR PATTERNS IN FOWLER'S TOADS.**

Brigette Zacharczenko and David M. Green\*

Redpath Museum, McGill University, Montreal, QC, H3A 2K6,  
brigette.zacharczenko@mail.mcgill.ca, david.m.green@mcgill.ca

One of the most often used distinguishing morphological characteristics of toads is the number of warts per dark spot on the dorsum. Fowler's toads are routinely described as possessing three or more small warts per spot on the dorsum, which is said to differentiate them from co-occurring American toads which have fewer, larger, warts per dorsal spot. Nevertheless, dorsal colour patterns among toads are notoriously variable and, based on many years of observations, Fowler's toads at Long Point, Ontario, appear not to conform to the standard morphological descriptions of the species, potentially resulting in many cases of mistaken identity. We manipulated digital images of Fowler's toads from Massachusetts (representing the type locality for the species), Connecticut, Rhode Island, Virginia, North Carolina and Long Point, Ontario, and the program tpsDIG to quantify the number and area of dark spots on the toads' dorsal surfaces. We used partial correlation to compensate for variation in body size in order to compare total number of spots, total spot area and relative spot size among samples using ANOVA. Long Point toads did not have significantly fewer spots than other samples but did have significantly smaller total spot area ( $R^2 = 0.732$ ,  $p < 0.001$ ) and thus smaller spots. The Long Point population of Fowler's toads appears to be distinctive in terms of both their mitochondrial genetics and their morphology.

## **PLATFORM**

---

---

---

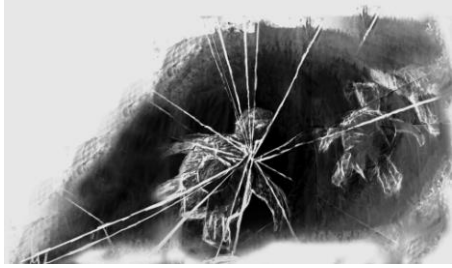
---

---

---

---

---



**20<sup>th</sup> Annual Meeting of CARCNET/RÉCCAR  
and  
24<sup>th</sup> Annual Meeting of CAH  
Wolfville, Nova Scotia  
17-20 September 2010**

**CONFERENCE EVALUATION FORM**

**(Please complete and leave the form in the designated box provided or send later to the address listed below.)**

	POOR			GOOD	
<b>Conference organization/information</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
<b>Conference materials</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
<b>Conference length</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
<b>Scientific content</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>

**What was good about the conference was:**

---

---

---

---

---

**What could have been better was:**

---

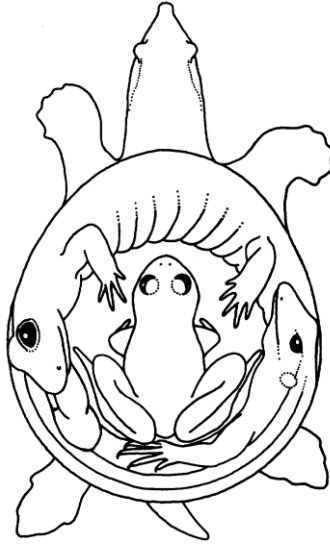
---

---

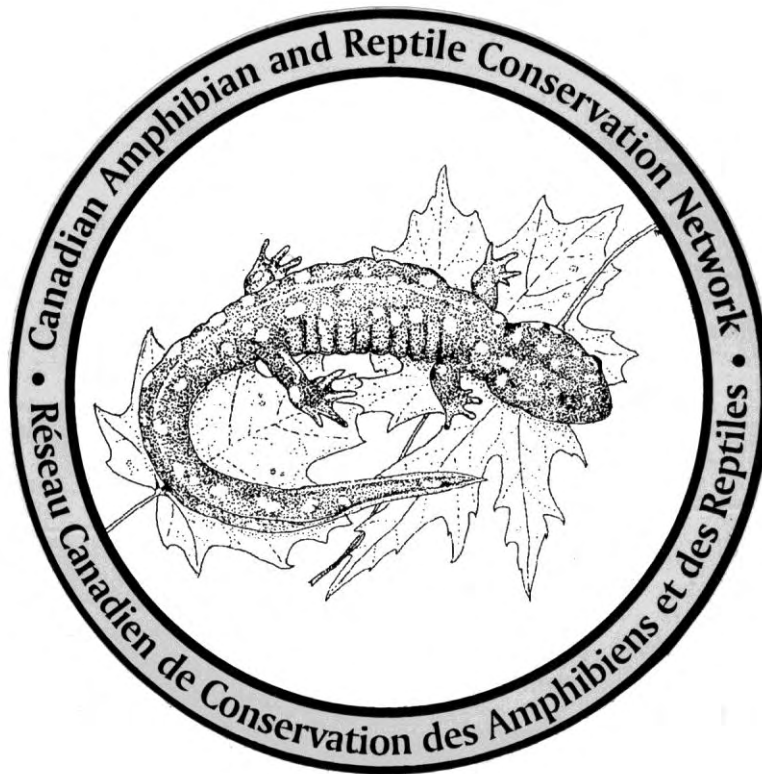
*(Please see over)*

*Please return to:*  
**Bruce D. Pauli**  
**National Wildlife Research Centre**  
**Carleton University**  
**1125 Colonel By Drive (Raven Road)**  
**Ottawa, Ontario. CANADA K1A 0H3**  
**FAX: 613 998 0458**





**Canadian Association of Herpetologists**



<http://www.carcnet.ca/>