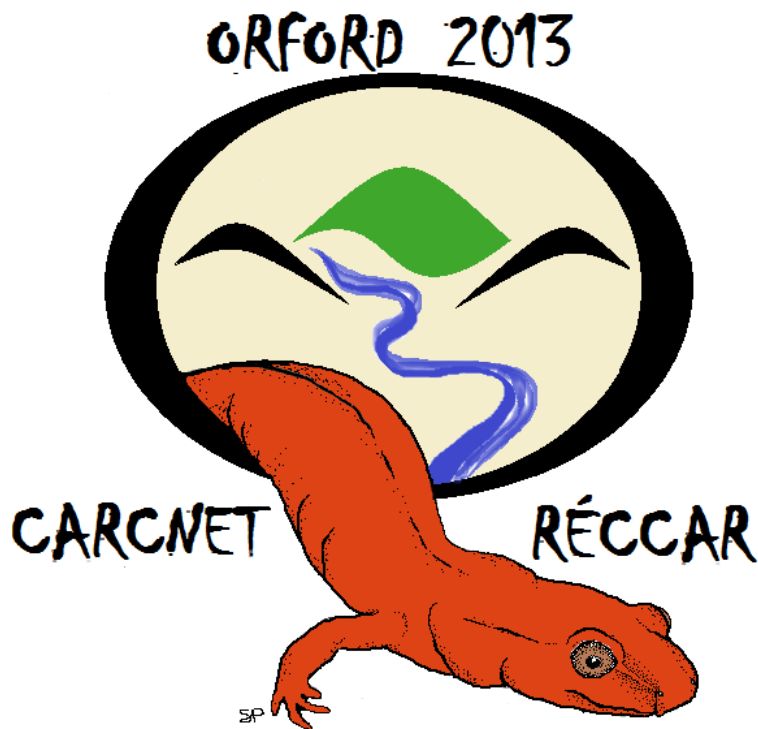


*Réseau canadien de conservation des amphibiens et des reptiles
Canadian Amphibian and Reptile Conservation Network*

23^e congrès annuel / 23rd Annual Meeting

*Association canadienne des herpétologistes
Canadian Association of Herpetologists*

28^e congrès annuel / 28th Annual Meeting



Simon Pelletier

Orford, Québec
2013

REMERCIEMENTS ET COMMANDITAIRES / ACKNOWLEDGEMENTS AND SPONSORS

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Remerciements à / Thanks to:

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- Domaine des salamandres
- SAIL
- Stantec

JEUDI 12 SEPTEMBRE / THURSDAY SEPTEMBER 12TH

16h00-22h00 Accueil et inscription des participants au Centre d'Arts Orford /
Welcome and registration of participants at Centre d'Arts Orford

VENDREDI 13 SEPTEMBRE / FRIDAY SEPTEMBER 13TH

8h30 Accueil et inscription des participants / Welcome and registration of participants

9h30 Mot d'ouverture du congrès annuel 2013 / Opening of the 2013 annual meeting

9h40 Les défis de la conservation de l'herpétofaune au Canada / Challenges of
herpetological conservation in Canada

PRESENTATEURS INVITÉS / GUEST SPEAKERS

TOMMY MONTPETIT : CENTRE D'INFORMATION SUR L'ENVIRONNEMENT DE
LONGUEUIL

TANYA PULFER : ONTARIO NATURE

10h40 Pause / Break

11h00 Les défis de la conservation de l'herpétofaune au Canada / Challenges of
herpetological conservation in Canada (suite / continuation)

DISCUSSION DE GROUPE : OBSTACLES ET SOLUTIONS À LA CONSERVATION / GROUP
DISCUSSION : OBSTACLES AND SOLUTIONS FOR CONSERVATION

12h30 Dîner / Lunch

14h00 Forum ouvert 1^{ère} partie – recherche et conservation sur l'herpétofaune canadienne /
Open space forum 1st part – Research and conservation on Canadian herpetofauna

DISCUSSION DE GROUPE SUR LES ENJEUX PROPOSÉS PAR LES PARTICIPANTS / GROUP
DISCUSSION ON TOPICS PROPOSED BY PARTICIPANTS

15h15 Pause / Break

15h45 Forum ouvert 2^e partie – recherche et conservation sur l'herpétofaune canadienne /
Open space forum 2nd part – Research and conservation on Canadian herpetofauna

DISCUSSION DE GROUPE SUR LES ENJEUX PROPOSÉS PAR LES PARTICIPANTS / GROUP
DISCUSSION ON TOPICS PROPOSED BY PARTICIPANTS

17h00 Encan silencieux et activité sociale / Silent auction and social gathering

18h00 Vins et fromages / Wine and cheese gathering

**19h30 Capsules vidéo et extraits du film *Un monde qui passe inaperçu* /
Video and preview of the movie *An unnoticed world***

ÉTIENNE PLASSE, CINÉASTE, LES FILMS EP

SAMEDI 14 SEPTEMBRE / SATURDAY SEPTEMBER 14TH

8h45 Annonces et ouverture de la session / Opening announcements

9h00 Présentateur invité / Guest speaker

LELIÈVRE, M. **CORRIDOR APPALACHIEN : UNE GRANDE INITIATIVE DE CONSERVATION POUR NOS PETITES BÊTES / APPALACHIAN CORRIDOR : A BIG CONSERVATION INITIATIVE FOR OUR SMALL CREATURES**

9h40 Présentations orales / Platform presentations **Routes / Roads**

BOYLE, P. S. A ROAD TO CONSERVATION: A 4-YEAR BACIP APPROACH TO ROADWAY MITIGATION

SEBURN, D. BLOOD ON THE ROAD: MITIGATING ROADKILL HOTSPOTS FOR TURTLES IN EASTERN ONTARIO

BAXTER-GILBERT, J WHERE CLAWS MEET ASPHALT: USING A NOVEL TECHNIQUE TO MEASURE CORTICOSTERONE IN TOE-NAILS TO EXAMINE STRESS LEVELS IN PAINTED TURTLES (*CHRYSEMYS PICTA*) LIVING AROUND A MAJOR HIGHWAY

10h40 Pause / Break**11h10 Présentations orales / Platform presentations** **Répartition / Distribution**

GIGUÈRE, S. ATLAS DES HABITATS POTENTIELS DE LA TORTUE DES BOIS (*GLYPTHEMYS INSCULPTA*) AU QUÉBEC

DUBOIS, Y. THE SPRING SALAMANDERS: WHERE TO SEARCH AND WHERE TO PROTECT

PULFER, T. PUTTING THE POWER INTO THE HANDS OF CITIZEN SCIENTISTS: ONTARIO REPTILE AND AMPHIBIAN ATLAS USING SMART PHONE APPLICATIONS TO REACH A WIDER AUDIENCE

OUELLETTE, M. PROTOTYPE D'APPLICATION MOBILE POUR LA COLLECTE DE DONNÉES HERPÉTOLOGIQUES SUR LE TERRAIN

12h30 Dîner / Lunch**13h50 Présentations orales / Platform presentations** **Reproduction**

BENNETT, A. DOES MATERNAL INVESTMENT INFLUENCE OFFSPRING RESPONSE TO PREDATION RISK? REARING CAPTIVE-BRED NORTHERN LEOPARD FROG TADPOLES WITH THE PRESENCE OR ABSENCE OF AESHNID DRAGONFLY LARVAE.

RILEY, J. L. EARLY BIRD DOES NOT GET THE WORM: PREDATION OF SNAPPING AND PAINTED TURTLE NESTS IS NOT RESTRICTED TO EARLY INCUBATION

PATERSON, J.E. TESTING SURVIVAL PATTERNS IN EARLY LIFE HISTORY STAGES OF TURTLES

GILLINGWATER, S. SUCCESSFUL REPRODUCTION IN THE WILD OF NON-NATIVE RED-EARED SLIDER IN ONTARIO

15h10 Pause / Break

SAMEDI 14 SEPTEMBRE / SATURDAY SEPTEMBER 14TH

15h40 Présentations orales / Platform presentations Soutien aux populations / Population assistance

- POULIOT, D. ARE JUVENILE WOOD TURTLES (GLYPTEMYS INSCULPTA) "HOME BODIES" ? IMPLICATIONS FOR THEIR CONSERVATION
- D'ENTREMONT, N.D. COMPARITIVE GROWTH AND MOVEMENT ANALYSIS OF HEADSTARTED BLANDING'S TURTLES (EMYDOIDEA BLANDINGII) AT KEJIMKUJIK NATIONAL PARK AND NATIONAL HISTORIC SITE OF CANADA
- LAFLÈCHE, M. EFFORTS DE RÉTABLISSMENT DE LA POPULATION DE LA TORTUE DES BOIS DANS LE TÉMISCOUATA

16h40 Assemblée générale annuelle du RÉCCAR / CARCNET Annual general meeting

18h00 Session d'affiches / Poster sessions

- ASHPOLE, S.L. LONG TERM HERPETOLOGICAL MONITORING AND LANDSCAPE LEVEL CONSERVATION ACTIONS, SOUTH OKANAGAN, BC
- BAXTER-GILBERT, J.H. NOT AS SIMPLE AS GETTING FROM POINT 'A' TO POINT 'B': WILLINGNESS TO UTILIZE ECOPASSAGES BELOW AN ACTIVE MAJOR HIGHWAY BY PAINTED TURTLES.
- CHOQUETTE, J.D. OJIBWAY PRAIRIE COMPLEX ROAD MORTALITY STUDY
- COLLEY, M. SHOULD I CROSS? THE INFLUENCE OF MITIGATION STRUCTURES ON SISTRURUS CATENATUS POPULATIONS IN KILLBEAR PROVINCIAL PARK
- LESBARRÈRES, D. SPATIAL EPIDEMIOLOGY OF AMPHIBIAN EMERGING INFECTIOUS DISEASES IN ONTARIO, CANADA
- M^CCURDY-ADAMS, H SAVING TURTLES AT RISK TODAY
- MOLDOWAN, P.D. POPULATION AND REPRODUCTIVE MONITORING OF SPOTTED SALAMANDERS (AMBYSTOMA MACULATUM) IN CENTRAL ONTARIO
- MONCK-WHIPPI, O. LEAVING THE NEST: POST-EMERGENCE MOVEMENTS OF HATCHLING CHELYDRA SERPENTINA AND CHRYSSEMYIS PICTA
- MOORE, J.-D. LA SALAMANDRE CENDRÉE (PLETHODON CINEREUS) : REMISE EN QUESTION DE SON STATUT D'ESPÈCE INDICATRICE D'ACIDITÉ DU SOL / EASTERN RED-BACKED SALAMANDER (PLETHODON CINEREUS): CHALLENGING ITS STATUS OF INDICATOR OF SOIL ACIDITY
- MOORE, J.-D. EFFET DU CHAULAGE DES ÉRABLIÈRES SUR LA SALAMANDRE CENDRÉE (PLETHODON CINEREUS) / EFFECT OF SUGAR BUSH LIMING ON THE EASTERN RED-BACKED SALAMANDER (PLETHODON CINEREUS)
- PELLETIER, S. INVENTAIRE DE TORTUES DES BOIS AU QUÉBEC : UNE APPROCHE PAR BASSIN VERSANT
- PERRON, M.A.C. CLIMATE-GROWTH RELATIONSHIP IN SNAPPING TURTLES (CHELYDRA SERPENTINA): DEVELOPMENT OF AN INNOVATIVE APPROACH
- POULIOT, D. RACCOON PREDATION INDUCED A SHORT-TERM DECLINE IN A NESTING POPULATION OF WOOD TURTLE (GLYPTEMYS INSCULPTA)
- RILEY, J. L. SCANNING SNAKES: MEASUREMENT OF FAT, LEAN MASS AND TOTAL WATER CONTENT OF LARGE-BODIED SNAKES USING QUANTITATIVE MAGNETIC RESONANCE
- TREMBLAY-BEAULIEU, C. EFFECTS OF MINING ON THE PHYSIOLOGICAL ECOLOGY AND MORPHOLOGY OF HERPETOFAUNA IN SUDBURY, ONTARIO

19h30 Banquet & Quiz

21h30 Prestation musicale / Live music

DIMANCHE 15 SEPTEMBRE / SUNDAY SEPTEMBER 15th

8h20 Annonces et ouverture de la session / Announcements and opening of the session

8h30 Présentations orales / Platform presentations **Stratégie reproduction & croissance/
Reproductive strategy & growth**

GREEN, D. M.	OPERATIONAL VERSUS PHYSICAL SEX RATIOS IN TOADS
MOLDOWAN, P.D.	SEXUAL DIMORPHISM AND ALTERNATIVE MATING STRATEGIES IN THE MIDLAND PAINTED TURTLE (<i>CHRYSEMYS PICTA MARGINATA</i>)
LEFEBVRE, J.	USING STEROIDS AS A NON-INVASIVE METHOD FOR DETERMINING GENDER IN BLANDING'S TURTLES (<i>EMYDOIDEA BLANDINGII</i>)
YAGI, K.	DENSITY-DEPENDENT GROWTH IN POND BREEDING AMPHIBIANS
KEEVIL, M. G.	THE INTERACTION OF HABITAT PRODUCTIVITY AND POPULATION DENSITY ON JUVENILE GROWTH RATES OF PAINTED TURTLES, <i>CHRYSEMYS PICTA</i>
GREENBERG, D.	DOES EMERGENT MARSH VEGETATION DEGRADE LARVAL ANURAN HABITAT THROUGH THE RELEASE OF PLANT SECONDARY COMPOUNDS?

10h30 ***Pause / Break***10h50 Présentations orales / Platform presentations **Génétique / Genetics**

HARVEY, D.	THE DETECTION OF NORTHERN WATERSNAKES (<i>NERODIA SIPEDON</i>) USING ENVIRONMENTAL DNA
LAMARRE, P.	LA DIVERSITÉ GÉNÉTIQUE DES COULEUVRES RÉFLÈTE LA DISPARITION DES MILIEUX OUVERTS DE LA RÉGION MONTRÉALAISE
BEAUREGARD, F.	SÉLECTION ET HYBRIDATION BROUILLENT LES CARTES CHEZ LES SOUS-ESPÈCES DE COULEUVRES RAYÉES
DESROCHES, JF	THE AMBYSTOMA LATERALE-JEFFERSONIANUM SALAMANDERS COMPLEX IN QUÉBEC
BOUCHARD, C.	GÉNÉTIQUE DU PAYSAGE DE LA TORTUE GÉOGRAPHIQUE (<i>GRAPTEMYS GEOGRAPHICA</i>)

12h30 ***Dîner / Lunch***13h40 Présentations orales / Platform presentations **Ecologie/Ecology & population**

ANTHONY, L.	THE RUMSFELD PARADIGM REVISITED: A NEWLY DISCOVERED MAINLAND POPULATION OF THE ENIGMATIC SHARP-TAILED SNAKE, <i>CONTIA TENUIS</i> , FROM PEMBERTON, BRITISH COLUMBIA
PICARD, I.	CHARACTERISTICS OF A PAINTED TURTLE (<i>CHRYSEMYS PICTA</i>) AND SNAPPING TURTLE (<i>CHELYDRA SERPENTINA</i>) POPULATION – A NINE YEAR STUDY
SCHUELER, F.	PRELIMINARY RESULTS: DO DRY SPRINGS AND MOIST AUGUSTS FAVOUR CHORUS FROGS IN BISHOPS MILLS, ONTARIO?

14h40 ***Pause / Break***

-
- 15h00 Présentations orales / Platform presentations **Ecologie/Ecology & population**
- SASAKI, K. EFFECTS OF MINING ON THE POPULATION ECOLOGY OF AMPHIBIANS AND REPTILES IN SUDBURY, ONTARIO
- WOODS, S. B. LESSONS LEARNED FROM RESEARCH ON SAR TURTLES IN AN URBAN ENVIRONMENT
- MC CARTER, J. QUEENSNAKE (REGINA SEPTENVITTATA) POPULATION SIZE AND HABITAT SELECTION IN THE LOWER MAITLAND RIVER VALLEY

16h00 Mot de clôture du congrès annuel 2013 / Closing of the 2013 annual meeting

LUNDI 16 SEPTEMBRE / MONDAY SEPTEMBER 16th

SORTIE DE TERRAIN / FIELD TRIP

- 8h00 Rendez-vous au stationnement et départ pour la sortie de terrain / Meeting point at the parking lot and departure for the field trip.
- 8h30 Visite d'habitats de salamandres de ruisseaux sur le territoire du Corridor Appalachien / Visiting stream salamander habitat in the Appalachian Corridor territory.
- 12h00 Dîner dans les bâtiments du Marais de la Rivière aux Cerises / Lunch in the Marais aux cerises building
- 13h00 Visite des habitats de tortues sur les terrains du Marais de la Rivière aux Cerises / Visiting turtles habitat at the Marais aux cerises.
- 15h30 Retour au stationnement et fin de la sortie de terrain / Return to the parking lot and end of the field trip.

Présentateur invité / Guest Speaker

Lelièvre, M.

CORRIDOR APPALACHIEN : UNE GRANDE INITIATIVE DE CONSERVATION POUR NOS PETITES BÊTES / APPALACHIAN CORRIDOR : A BIG CONSERVATION INITIATIVE FOR OUR SMALL CREATURES

Lelièvre, Mélanie.

¹Corridor Appalachien/Appalachian Corridor, 37, des Pins Sud, Eastman, Québec, J0E 1P0, melanie.lelievre@corridorappalachien.ca

Corridor appalachien est un organisme de conservation sans but lucratif créé en 2002, qui a pour mission de protéger les milieux naturels de la région des Appalaches. Par la mise en oeuvre de sa stratégie de conservation transfrontalière, Corridor appalachien procure aux collectivités locales les moyens de maintenir et de restaurer un cadre de vie qui respecte l'écologie de la région, dans une perspective de développement durable. La conférencière présentera, dans un premier temps, l'organisation et la façon dont elle intervient dans la communauté. Elle abordera par la suite, plus en profondeur, la mise en oeuvre de la stratégie de conservation régionale, à la base de la mission de l'organisme. Pour terminer, les initiatives concrètes visant la protection de certains amphibiens et reptiles, incluant les tortues et les salamandres, mises de l'avant par Corridor appalachien seront présentées.

Affiche/Poster**Regulière/Regular****ASHPOLE, S.L.****LONG TERM HERPETOLOGICAL MONITORING AND LANDSCAPE LEVEL CONSERVATION ACTIONS, SOUTH OKANAGAN, BC****Ashpole, Sara L. ^{*1}, Crosby, Jonquil ² and Lukey, Natasha ²**¹Environmental Studies, ST Lawrence University, 23 Romoda Dr, Canton, NY, USA, 13617²Department of Environment and Resource Studies, University of Waterloo, 200 University Avenue West, Waterloo, ON Canada, N2L 3G1

Herpetological research in the south Okanagan Valley, BC, focuses on landscape level conservation actions. Goals include long-term monitoring (since 2003), invasive species mitigation (since 2004), wetland restoration (since 2004), and road ecology (since 2010). Lowland wetlands exhibit low species richness and reproductive success. To increase the quantity and quality of wetlands, amphibian-monitoring data was used to predict strategic locations for restoration. Since 2006, 21 wetlands have been restored within the study area, effectively doubling the number of available fishless ponds. Immigration and metamorphic success of amphibians have been observed in 13 ponds. Restoration of wetlands has also been achieved through the eradication of invasive American Bullfrogs. An adaptive management program addresses bullfrog population expansion and dispersal risk. Efforts combine population suppression, habitat modeling, education, and stewardship. A total of 14 165 bullfrogs have been removed, with zero detections in 2011 to 2013. Habitat suitability modeling suggests stagnant, permanent ponds surrounded by agriculture and within 2.3 km of a historic bullfrog breeding location are at highest risk of bullfrog colonization. Increased traffic and road expansion likely exacerbates barriers to amphibian migration and dispersal to restoration sites. A landscape level approach assesses amphibian movement and mitigative solutions across a highway-bisected landscape. Fifty kilometers of roadways are being repeatedly surveyed for amphibian occurrence. Efforts focus on a 3 km highway project commencing in 2010 and completed in late 2011. Rigorous data collection was relayed for road kill mitigation collaboration, resulting in nine oversized (900-1200 mm), substrate-lined culverts, and 2000 lineal meters of wildlife fencing. Road survey mortality rates in the first three seasons (660 hrs) were 68.5%, 2010; 44.5%, 2011; 31%, 2012. A further thousand amphibians have been observed on time-lapse photos in the culvert during 2011 and 2012. Interpreting the road data is critical in understanding amphibian movement corridors and hotspots on roadways within the south Okanagan.

Affiche/Poster

Étudiant / Student presentation

BAXTER-GILBERT, J.H.

NOT AS SIMPLE AS GETTING FROM POINT 'A' TO POINT 'B': WILLINGNESS TO UTILIZE ECOPASSAGES BELOW AN ACTIVE MAJOR HIGHWAY BY PAINTED TURTLES.

Baxter-Gilbert, James H.*, Litzgus, Jacqueline D. and Lesbarrères, David

Department of Biology, Laurentian University, Sudbury, ON, P3E 2C6, jx_baxtergilbert@laurentian.ca, jlitzgus@laurentian.ca, dlesbarreres@laurentian.ca

Reptile populations living around roadways are known to be negatively affected by threats including road mortality, habitat fragmentation, and genetic isolation. To counter these threats, the use of ecopassages has been suggested to allow for connectivity without the risk of reptile-vehicle collisions. A number of studies have examined the likelihood of use of ecopassages, based on culvert dimensions and installation methods; however, most of these studies were done in artificial settings. We examined the behavioural responses of midland painted turtles (*Chrysemys picta marginata*) exposed to ecopassages installed underneath a major Ontario highway to better understand, and field test, their effectiveness in an active-highway setting. Turtles (n=52) were captured from a wetland west of the highway and brought to the east mouth of an ecopassage whereupon they were individually acclimated for 10 minutes in a spring-hinged release box. A researcher concealed behind a blind opened the box using a pull-cord to reveal the ecopassage, and observed the turtle and scored its willingness to use the culvert for 20 minutes. We found that while 69% of the turtles were unwilling to make a decision regarding the culvert, 21% refused to use the ecopassage to facilitate westward travel and leave the testing area, compared to only 10% who entered the ecopassage. Our results demonstrated a much lower likelihood of ecopassage use as compared to previous results obtained from arena and laboratory studies. Our findings thus underscore the critical need for enhanced exclusion structures, such as reptile fencing, which would ensure that road crossings occur only via ecopassages rather than allowing the animal to circumnavigate the mitigation area as a result of low willingness to use the crossing structures.

Affiche/Poster**Régulier / Regular****CHOQUETTE, J.D.****OJIBWAY PRAIRIE COMPLEX ROAD MORTALITY STUDY****Choquette, Jonathan D.**

SCC Ecological, P.O. Box 121 Stn. Main, Guelph ON, N1H 6J6

Road mortality is an important threat to the persistence of endangered species in Canada, particularly reptiles. The Ojibway Prairie Complex is the largest protected Tallgrass Prairie remnant in Ontario, contains several Provincially Significantly Wetlands and supports numerous Species at Risk. Despite its ecological significance, it is severed by multiple high traffic roads resulting in wildlife mortality and habitat fragmentation. The main goal of this ongoing study is to describe the nature and extent of vertebrate road mortality, with a focus on reptiles, on roads bisecting the Ojibway Prairie Complex and surrounding natural heritage features in Windsor and LaSalle, ON. Opportunistic road mortality records spanning 1984-2012 were assembled. Also, a systematic road mortality study was conducted by bicycle along seven roads (12.5 km) from May to August 2010 and August to October 2012. In total, 1616 vertebrates (47 species), including 349 reptiles (11 species), were recorded 'dead on road' (DOR) during systematic surveys, including seven federally and provincially listed Species at Risk reptiles (Endangered, Threatened and Special Concern): Blanding's Turtle, Butler's Gartersnake, Eastern Foxsnake, Eastern Musk Turtle, Massasauga, Northern Map Turtle, and Snapping Turtle. Species at Risk are being subject to road mortality on all seven roads surveyed. Over 500 reptiles, including over 100 SAR, are estimated to have been killed on study roads over the course of both study periods (min. of 0.4 reptiles DOR/km/day). There is a strong need for measures to mitigate existing levels of road mortality while enhancing connectivity between natural areas in order to aid with Species at Risk recovery efforts in this urbanizing landscape. Results may be used to guide the location of future mitigation efforts and provide baseline data necessary to evaluate effectiveness of such efforts.

Affiche/Poster**Étudiant / Student presentation****COLLEY, M****SHOULD I CROSS? THE INFLUENCE OF MITIGATION STRUCTURES ON *SISTRURUS CATENATUS* POPULATIONS IN KILLBEAR PROVINCIAL PARK****Colley, Michael^{1*}, Lougheed, Stephen C², Otterbein, Kenton³, Litzgus, Jacqueline D¹**

¹ Department of Biology, Laurentian University, 935 Ramsey Lake Road, Sudbury, ON, P3E 2C6, mcolley@laurentian.ca, jitzgus@laurentian.ca ² Department of Biology, Queens University, 99 University Avenue, Kingston, ON, K7L 3N6, steve.lougheed@queensu.ca ³ Natural Heritage, Killbear Provincial Park, 35 Killbear Park Rd RR1, Novel, ON, P0G 1G0 kenton.otterbein@mnr.gov.on.ca

Reducing the risk of road mortality is essential to the conservation of reptiles. The Georgian Bay population of the Eastern massasauga rattlesnake (*Sistrurus catenatus*) is designated as Threatened by COSEWIC, partially as a result of high road mortality. Killbear Provincial Park has taken steps to reduce reptile road mortality through construction of 4 ecopassages and fencing along 3 busy park roads. Although ecopassages have been widely recommended, their effectiveness has rarely been evaluated. The goal of this study is to assess the efficacy of barrier fencing and ecopassages and to determine their impact on the local Massasauga populations. The park roads are monitored twice per day on bicycles, and again at night by car to document locations of both living and dead reptiles. The 3 fences are walked twice per day to monitor rattlesnake movement. Spring, summer and fall surveys are being conducted to create a subpopulation of PIT-tagged snakes. PIT tag readers and trail cameras were installed at each ecopassage to monitor snake activity. In 2013, 74 Massasaugas have been captured to date, including 3 alive and 7 dead on roads, and one recorded use of an ecopassage. The information collected will augment the park's database (2002-2012), which includes mortality rates and locations of dead and live captures on roads, campgrounds and along fences. The cumulative data will allow investigation into population and road kill trends before and after the installation of fences and ecopassages. Data from the 2014 field season are required before an in depth analysis can be completed. The outcome of this research will determine if further mitigation measures should be taken in other key areas.

Affiche/Poster**Régulière / Regular****LESBARRÈRES, D.****SPATIAL EPIDEMIOLOGY OF AMPHIBIAN EMERGING INFECTIOUS DISEASES IN ONTARIO, CANADA****McMillan, Kirsten^{1,2}, Trenton, Garner², Donnelly, Christl³ and Lesbarrères, David^{1*}**

¹Genetics and Ecology of Amphibians Research Group, Laurentian University, Sudbury, ON, P3E 2C6, kmcmillan@laurentian.ca, dlesbarreres@laurentian.ca; ²Institute of Zoology, Zoological Society of London, London, UK., trent.garner@ioz.ac.uk; ³Department of Infectious Disease Epidemiology, Imperial College London, School of Public Health, St Mary's Campus, London, UK., c.donnely@imperial.ac.uk.

Emerging infectious diseases have significant effects on biological communities. In some cases, pathogens have caused host extinctions. The majority of research has focused on a 'one host – one pathogen framework'. However, individual hosts encounter multiple pathogens simultaneously, which may lead to additive, antagonistic or synergistic effects on hosts. The dynamic interaction between pathogens is an important issue in conservation biology, as it can increase infection prevalence and severity. While establishing the cause of extinction is difficult and candidate model species are few, amphibians appear to be an ideal specimen as increasing evidence suggests that we are facing a global population decline. Ranavirus (family Iridoviridae) and the Chytrid fungus (*Batrachochytrium dendrobatidis*) are the primary pathogens associated with amphibian mortalities. While there have been several reports of ranavirus and chytrid infection within Europe, both pathogens have become prominent in North America and particularly in Canada. We aim to investigate the distribution of both pathogens throughout Ontario, Canada, by testing 3,000 adult Northern Leopard frogs (*Lithobates* (formerly *Rana*) *pipiens*) for presence and intensity of disease. Utilizing these results, we hope to model the dynamics of both pathogens simultaneously. We are interested in evaluating the dynamical impact of seclusion and disease-induced mortality on the pathogen community. This provides us with a mechanism in which to study competitive dynamics on the scale of individuals, and their large-scale consequences.

Affiche/Poster**Étudiant / Student presentation****M^CCURDY-ADAMS, H.****SAVING TURTLES AT RISK TODAY****McCurdy-Adams, Hannah L. ^{1*}, Hathaway, Jeff ², Litzgus, Jacqueline ³**¹Department of Biology, Laurentian University, Sudbury, ON, P3E 2C6, hannahlmcca@gmail.com,²Georgian Bay Turtle Hospital, Oro Medonte, ON, L3V 6H1, gbturtlehospital@gmail.com, ³Department of Biology, Laurentian University, Sudbury, ON, P3E 2C6, Jlitzgus@laurentian.ca.

Seven of eight of the turtle species in Ontario are listed as species at risk. One of the major causes for their population declines is road mortality, but some of those turtles could have been helped if they had received medical treatment. With that in mind, a turtle hospital is being created near Orillia to try to reduce mortality rates, especially of nesting females, through emergency treatment and rehabilitation. The Georgian Bay Turtle Hospital is a new non-profit organization dedicated to the conservation of turtles in central Ontario. Though our rehabilitation plans are still developing, our stewardship and research side has gotten off to a great START – the Saving Turtles At Risk Today research project. This past summer was largely exploratory to find concentrations of turtles and nesting sites in areas of South Muskoka where, previously, little fieldwork on turtles has been done. All reptile sightings were marked with a handheld GPS or the Ontario Nature Reptile and Amphibian Atlas app for iPhones. 4 species of turtle, 10 species of snakes, and 1 species of lizard were found; 8 of these species are species at risk. When a turtle was caught, their sex, gravidity, age, mass, morphometric measures, behaviour, and deformities were recorded. Habitat and weather characteristics, and nesting activity were recorded, nest sites were identified and caged, and radio transmitters were affixed to 5 turtles. Turtles were tracked using radio-telemetry techniques to find summer home ranges and will be tracked into the fall to find hibernation sites. A database is being constructed to organize sightings and data analysis for this long term mark-recapture project. Nest predation attempts will be photographed with camera traps and survival and predation rates will be calculated in future years.

Affiche/Poster

Étudiant / Student presentation

MOLDOWAN, P.D.

**POPULATION AND REPRODUCTIVE MONITORING OF SPOTTED SALAMANDERS
(*Ambystoma maculatum*) IN CENTRAL ONTARIO**

Moldowan, Patrick D.^{1*}, Tattersall, Glenn J.² and Hoare, Jennifer³

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Since 2008, a breeding population of Spotted Salamanders (*Ambystoma maculatum*) has been intensively monitored at Bat Lake, Algonquin Provincial Park (Ontario, Canada). This research has focused on establishing records of individual morphometrics, breeding phenology (e.g., arrival, egg laying, and departure dates), population parameters (e.g., breeding population size, sex ratio), local geographic use dynamics, and environmental conditions. Annual mark-recapture is facilitated through the use of a minimally invasive photographic identification software (Interactive Individual Identification System, I3S 2.0), which catalogues each animal based on the unique spotting pattern. The earliest lay date has advanced by approximately two days every year for the past five years. Combined with data from the early 1990s, it is evident that the earliest lay date of salamanders has been steadily advancing to earlier in the season. Climate change seems a likely explanation for the underlying changes in the breeding phenology of Bat Lake salamanders; however, little research exists on whether these changes in climate may be involved in influencing population size, operational sex ratios, and arrival and departure dates of salamanders at breeding sites. We ask, are salamanders altering the time spent breeding and is an altered arrival time the explanation for changes in lay date? This presentation will highlight findings of the Algonquin Park salamander monitoring project to date.

Affiche/Poster**Étudiant / Student presentation****MONCK-WHIPPI, O.****LEAVING THE NEST: POST-EMERGENCE MOVEMENTS OF HATCHLING *CHELYDRA SERPENTINA* AND *CHRYSEMYS PICTA*****Monck-Whipp, Liv O., Riley, Julia R., and Litzgus, Jaqueline D.**

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Habitat use and behaviour of animals reflect the selective pressures acting upon individuals, and selective pressures differentially affect life-stages within species. In reptiles, predation rates, movements, thermal requirements, and food sources differ among neonates, juveniles, and adults. In particular, little is known about these aspects of the ecology of hatchling turtles. We examined the post-emergence movements of hatchling snapping and painted turtles, and determined if they were affected by: (1) emergence date, (2) nest vegetation cover, (3) proximity of nest to water, (4) nest slope and whether microhabitat use differed between species. *Chrysemys picta* (N=12) and *Chelydra serpentina* (N=4) nests were protected with predator-exclusion cages. Once hatchlings emerged, vegetation cover in a 1 m² quadrat around the nest was quantified. Slope of the nest and the shortest distance from the nest to water were measured. At release, a maximum of 10 hatchlings per clutch were dusted with powder that fluoresces under UV light, and hatchling paths were tracked using UV lamps. Path length was measured, and the proportion of each path in different vegetation types was recorded. We found that 92% of *C. serpentina* (36/39) and 50% of *C. picta* hatchlings (35/69) moved towards water; of these 92% of *C. serpentina* (33/36) and 60% of *C. picta* hatchlings (21/35) successfully reached water. The path hatchlings took to water did not differ from the shortest distance from the nest to water, suggesting that hatchlings minimize energetic costs and predation risk. In *C. serpentina*, date of emergence was slightly negatively related to percentage of hatchlings that reached water. For *C. picta*, nests with a steeper slope towards water had more hatchlings reach water. Hatchling *C. picta* spent more time in brush under trees than *C. serpentina*. Overall the microhabitats used post-emergence differed between species, which may reflect interspecific differences in overwintering strategy.

Affiche/Poster**Régulière / Regular****MOORE, J.-D.****EFFET DU CHAULAGE DES ÉRABLIÈRES SUR LA SALAMANDRE CENDRÉE (PLETHODON CINEREUS) / EFFECT OF SUGAR BUSH LIMING ON THE EASTERN RED-BACKED SALAMANDER (PLETHODON CINEREUS)****Moore, Jean-David***

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Le chaulage est un traitement de fertilisation à base de calcium de plus en plus utilisé au Québec et dans certains États américains afin de revigorer les érablières à vocation acéricole sur les stations acides et peu fertiles. Bien que l'effet bénéfique du chaulage sur la santé de l'érable à sucre ait été démontré, peu d'études se sont attardées aux effets que ce traitement pourrait avoir sur les autres composantes de l'écosystème. La salamandre cendrée (*Plethodon cinereus*) est l'un des plus abondants vertébrés dans les forêts du sud du Québec et du nord-est de l'Amérique du Nord. Dans certains de ces écosystèmes, sa biomasse peut même être deux fois plus élevée que celle des oiseaux, et égale à celle des petits mammifères. La salamandre cendrée joue aussi un rôle important au sein de la chaîne alimentaire et du cycle des éléments nutritifs en s'alimentant d'invertébrés de petite taille, souvent inaccessibles aux prédateurs plus gros. Elle fait partie des Plethodontidae, une famille de salamandres dépourvues de poumon et dont la respiration et l'hydratation se font principalement par la peau. Comme la salamandre cendrée peut être affectée par les perturbations anthropiques telles les coupes forestières, elle sert souvent d'espèce indicatrice lors du « monitoring » des écosystèmes forestiers. Par conséquent, il apparaît important que l'on s'attarde aux facteurs qui peuvent influencer son abondance et sa vitalité. L'objectif de cette étude, qui a débuté au printemps 2013 à la station forestière de Duchesnay, est d'évaluer les effets à court terme du chaulage sur la salamandre cendrée à l'aide de microcosmes installés en milieu forestier. Deux granulométries de chaux, appliquée à une dose de 3 t·ha⁻¹, sont testées et comparées à des microcosmes non chaulés servant de témoins. Des résultats préliminaires seront présentés lors du congrès.

Affiche/Poster

Régulière / Regular

MOORE, J.-D.

LA SALAMANDRE CENDRÉE (*PLETHODON CINEREUS*) : REMISE EN QUESTION DE SON STATUT D'ESPÈCE INDICATRICE D'ACIDITÉ DU SOL / EASTERN RED-BACKED SALAMANDER (*PLETHODON CINEREUS*): CHALLENGING ITS STATUS OF INDICATOR OF SOIL ACIDITY**Moore^{1*}, Jean-David and Wyman², Robert L.**¹Direction de la recherche forestière, Forêt Québec, ministère des Ressources naturelles, 2700 rue Einstein, Québec (Québec) G1P 3W8 Canada. Courriel: jean-david.moore@mrn.gouv.qc.ca²Edmund Niles Huyck Preserve and Biological Research Station, P.O. Box 189, Rensselaerville, NY 12147. Courriel: rlwyman@logical.net

Eastern red-backed salamander (*Plethodon cinereus*; RBS), one of the most common vertebrates within its geographical range, is an amphibian commonly used as an indicator species of forest ecosystem health. Its suitability for this role is based in part on previous studies showing its sensitivity to changes in habitat such as increased acidity. The occurrence and body sizes of RBS were examined under coverboards in a northern hardwood forest of Québec with a highly acidic forest floor (pH = 3.7 ± 0.4). During the 5-year study, 565 RBS were captured. Encounter rate (29%) of salamanders under coverboards was considered very high, as compared to similar studies. Also, 87% of young of the year and 83% of adults were found under coverboards that had a forest floor pH ≤ 3.8, which represented 79% of all coverboards. Weight and length of RBS measured in this forest ecosystem are among the highest values reported in the scientific literature for this species. The relatively high body parameter values and the high occurrence rate both indicate that a highly acidic habitat can support a healthy RBS population, which contradicts previous studies demonstrating the negative influence of low soil pH on the occurrence and health of RBS. Moreover, the studied forest seems to have the lowest pH yet reported for a habitat known to support this salamander species. Given the widespread use of RBS as an indicator species for monitoring forest ecosystems, this new information on microhabitat tolerance should be taken into consideration when using RBS as indicator of forest health and soil acidity. (Published in 2010 in *The American Midland Naturalist* 163: 95-105)

Affiche/Poster**Étudiant / Student presentation****PERRON, M.A.C.****CLIMATE-GROWTH RELATIONSHIP IN SNAPPING TURTLES (*Chelydra serpentina*):
DEVELOPMENT OF AN INNOVATIVE APPROACH****Perron, Mary Ann C.^{1*}, Sasaki, Kiyoshi¹, Dech, Jeffery P.², Keevil, Matthew¹, Shirakura, Fumiko¹, and Litzgus, Jacqueline D.¹**¹Department of Biology, Laurentian University, Sudbury, ON, P3E 2C6, MX1_Perron@laurentian.ca, ksasaki@laurentian.ca, keevilm@gmail.com, fshirakura@laurentian.ca, jlitzgus@laurentian.ca,²Department of Biology and Chemistry, Nipissing University, 100 College Drive, North Bay, ON, P1B 8L7, jeffreyd@nipissingu.ca

In the face of a changing climate, it is important to understand how certain fitness-related physiological traits such as growth rates, respond to climatic factors. Our aim is to devise a dendrochronological approach for identifying seasonal climate variables to which the somatic growth of Snapping Turtles (*Chelydra serpentina*) is most sensitive. Growth was measured as the widths of growth increments visible on vertebral scutes of turtles captured and photographed in Algonquin Provincial Park in 1984. To develop annually resolved growth chronologies to which climatic variables will be correlated, we applied a cross-dating method routinely used in tree-ring analysis that allows identification of missed or non-annual growth increments, thereby ensuring that each annual increment has been correctly identified and assigned the correct calendar year of its formation. Cross-dating is based on the assumption that growth varies from year to year due to annual fluctuations in climate and all individuals of a given area are subjected to similar climatic conditions. Thus, a synchronous pattern of growth increment widths (having conspicuously narrow and broad bands) exists among all individuals, analogous to a bar code of the same product (with some noise). Once the accuracy of cross-dating is verified statistically, increment widths are measured and resulting growth chronologies are statistically de-trended to remove age-related growth trends and autocorrelation. The resulting standardized chronologies are correlated to a range of climatic variables to identify what climatic factors limit turtle growth. We also develop a composite chronology to examine the common population level relationships to climate. Our preliminary results suggest that cross-dating is applicable to Snapping Turtles. When verified, we will examine the effects of climate variability on individual growth rates in the Algonquin Park turtle population. The ultimate goal of this project is to identify locales where Snapping Turtles are most vulnerable to forecasted climate change in Ontario.

Affiche/Poster**Régulier / Regular****POULIOT, D.****RACCOON PREDATION INDUCED A SHORT-TERM DECLINE IN A NESTING POPULATION OF WOOD TURTLE (*Glyptemys insculpta*)****Pouliot, Daniel^{1*}, Masse, Denis¹, and Robitaille, Yves²**

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Since 1996, the nesting population of Wood turtle at a gravel pit is being monitor. A large proportion of the adults females of the nearby river uses this nesting ground. Conservation actions have been implemented over the years to protect this population. Site surveillance and nests protection are among the actions put in place since 1996. Each year, the number of females seen on site as well as the number of nests is recorded. Population studies have shown that before 2003, annual mortality rate was lower than 1%. From 2003 to 2005, a large number of females were found dead on, or within 1 km from, the nesting site. During the month of June 2004, adults females were found dead, with different wounds suggesting that predators were killing the turtles to access their eggs. We finally witness a predation attempt by a Raccoon on two nesting females, on the nesting site. In 2005, the number of females, as the number of nests, dropped by about 50%. Without the direct observation of the predation attempt, the sudden decrease in the number of females could have been associated to other factors, such as disease or illegal collection. From 2006 to 2013, the number of females seen on site increased and remains to an average close to the "pre-predation" years. However, for the same period, the number of nests shows a significant decrease. Interpreting the ratio number of females : number of nests, we proposed that the predation by the Raccoons had only a short-term impact and that the conservation actions may have build-up the recruiting cohorts over the years and help to mitigate the drastic, but punctual mortality. The high number of females visiting the nesting site but not nesting, suggests that the latest decrease in the number of nest may be explained by a decrease in the quality of the nesting site, rather than by the long-term impact of the predation event. The nesting site management plan should be reviewed to consider if the benefit of being able to monitor and protect the nesting population is worth the risk of having a large proportion of nesting adults concentrate in a single area.

Affiche/Poster**Étudiant / Student presentation****RILEY, J.L.****SCANNING SNAKES: MEASUREMENT OF FAT, LEAN MASS AND TOTAL WATER CONTENT OF LARGE-BODIED SNAKES USING QUANTITATIVE MAGNETIC RESONANCE****Riley, Julia L.^{1*} Baxter-Gilbert, James,¹ Guglielmo, Christopher² and Litzgus, Jacqueline D.¹**

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Information on the composition of an organism's body (fat content, lean mass, and water content) can inform a wide variety of field and laboratory research. Conventionally, measurement of body composition requires chemical extraction of carcasses. Chemical extraction is labor intensive, and requires killing the animal which prevents the use of this method on at-risk taxa, like reptiles. Quantitative magnetic resonance analysis (QMR) is a novel technology which measures body condition non-invasively, accurately, and efficiently. This study sought to validate QMR body composition analysis by comparing it with chemical extraction for two large-bodied snake species (*Sistrurus catenatus catenatus* and *Nerodia sipedon sipedon*). From May to August 2012, individuals of these two species that were found intact, but dead-on-the-road were collected, and frozen until analysis. Thawed carcasses were scanned in the QMR, and results were compared to gravimetric chemical analysis. The precision of two replicate QMR scans of carcasses was very high for fat, wet lean and total body water masses (CV = 1.4%, 0.2%, 1.1%, respectively). QMR data were very closely related to gravimetric data for wet lean mass and total body water (R² of predictive models = 0.99 for both). However, fat was predicted less accurately (R² of predictive model = 0.74). A rapid method of analyzing body composition without euthanizing animals would be useful for many fields of study and would make it possible to study animals seasonally through time.

Affiche/Poster

Étudiant / Student presentation

TREMBLAY-BEAULIEU, C.

EFFECTS OF MINING ON THE PHYSIOLOGICAL ECOLOGY AND MORPHOLOGY OF HERPETOFAUNA IN SUDBURY, ONTARIO

Tremblay-Beaulieu, Camille^{1*}, Sasaki, Kiyoshi¹, Lesbarrères, David¹, Watson, Glen², and Litzgus, Jacqueline¹

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A century of Sudbury’s mining operations has created barren landscapes with high levels of heavy metals and acidity. While much effort has been made to assess the impacts of mining on water and soil quality, and the vegetation component of ecosystems, effects on most fauna, including herpetofauna, remain largely uninvestigated. In 2012 we undertook a population-level study and found that severely affected sites (barren), despite their superficial recovery in vegetation cover, had reduced numbers of species and abundances as compared to reference sites. Because inferences based on population-level data need to be supplemented with studies at the individual level to avoid drawing spurious conclusions, our current study focuses on the physical functions and conditions of individuals, including assessments of body condition, bilateral asymmetry in scute number in turtles, scalation in snakes, limb length in frogs, and metabolic rate in snakes. We predicted that animals from the barren sites would display poorer body condition, higher levels of asymmetry, and elevated metabolic rates as compared to animals from reference sites. Preliminary results will be presented, with a focus on snake scalation and metabolic rate. These findings have important consequences because they shed light on the mechanisms underlying impacts at population- and community-levels and will thus help to develop more targeted restoration strategies.

Présentation orale / Platform presentation

Étudiant / Student presentation

ALLAIRE, F.

L'ÎLE AUX MILLE COULEUVRES? ÉTUDE D'UNE POPULATION PAR CAPTURE-MARQUAGE-RECAPTURE

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La relocalisation est de plus en plus un élément important de la conservation et des milliers de cas ont eu lieu à travers le monde. Le succès de cette méthode est très controversé concernant les reptiles. La couleuvre brune (*Storeria dekayi*) est, par sa préférence pour les milieux en friche et en succession végétale, une couleuvre urbaine et périurbaine confrontée à la destruction de son habitat. C'est donc une espèce levier pour la conservation. D'ailleurs, plusieurs villes, ministères et institutions s'y intéressent. Leurs méthodes utilisées regroupent 3 approches : des inventaires, la protection de certains habitats et la relocalisation. Comme la situation de ce serpent est précaire et que des actions sont posées sans avoir les connaissances clés, nous avons utilisé la méthode CMR pour estimer les paramètres démographiques de cette espèce. Les résultats préliminaires montrent que les méthodes d'inventaire sous-estiment grandement le nombre d'individus en plus des taux de capture et de recapture très bas.

Présentation orale / Platform presentation

Régulière / Regular

ANTHONY, L.

THE RUMSFELD PARADIGM REVISITED: A NEWLY DISCOVERED MAINLAND POPULATION OF THE ENIGMATIC SHARP-TAILED SNAKE, *Contia tenuis*, FROM PEMBERTON, BRITISH COLUMBIA**Anthony, Leslie^{1*} and Woodruff, Veronica²**¹12-2221 Gondola Way, Whistler, B.C., V0N 1B2, docleslie@me.com; ²Stewardship Pemberton Society, PO Box 31, Pemberton, B.C., V0N 2L0, vwoodruff@ecofishresearch.com

Understanding habitat requirements is crucial to conserving endangered species, but an often baffling task in highly cryptic forms. Thus, Wilkinson et al. (2007) fittingly invoked the Rumsfeld Paradigm of known knowns, known unknowns, and unknown unknowns in their characterization of habitat use by the semi-fossorial Sharp-tailed Snake, *Contia tenuis*, in Southwestern British Columbia, where its distribution in a few, highly fragmented offshore sites suggested mostly unknown unknowns. Furthering the species' enigma in B.C. was its lack of confirmation from the mainland (a controversial 1960 record from the Interior, widely dismissed by professionals, nevertheless became a question-mark meme in field guides). In August, 2011 an adult STS was found in Pemberton, B.C., 200+ km from the nearest offshore site. Intense searching has since yielded 13 individuals, including hatchlings. The newly discovered population(s) spans ~5 km of a single, geomorphic formation (mountain and ridge) comprising much of the north and west sides of the Pemberton Valley, a highly agrarian area transitional between coastal and interior biogeoclimatic zones. Much of the ridge is under high recreation pressure and has seen recent approval for a large housing development. Because other STS sites in B.C. are characterized by dense human occupation, the species appears tolerant of some anthropogenic disturbance—provided key specific microhabitat requirements are preserved. Since these are poorly understood, stewardship by landowners in preserving broader habitat has been important in conservation programs for this species. Similar proactive measures are currently being undertaken with landowners and developers in Pemberton, simultaneous with attempts to characterize the extent of this population and potential other sites.

Présentation orale / Platform presentation**Étudiant / Student presentation****BAXTER-GILBERT, J. H.****WHERE CLAWS MEET ASPHALT: USING A NOVEL TECHNIQUE TO MEASURE CORTICOSTERONE IN TOE-NAILS TO EXAMINE STRESS LEVELS IN PAINTED TURTLES (*Chrysemys picta*) LIVING AROUND A MAJOR HIGHWAY****Baxter-Gilbert, James H.^{1*}, Riley, Julia L.², Mastromonaco, Gabriela F.³, Lesbarrères, David¹ and Litzgus, Jacqueline D.¹**

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As the field of road ecology expands, our understanding of the various negative effects roads pose to reptile populations is greatly increasing. Road mortality and fragmentation have received much attention; yet more research is needed to understand the indirect effects of roads on wildlife populations. Our study examined the levels of chronic physiological stress in turtles living around a major highway in central Ontario. Physiological stress has been observed to lower immune function, and can affect reproductive rates and life expectancy in many reptile species. Using claw samples from painted turtles (*Chrysemys picta*) found at a site impacted by the road and at a control site further away from road disturbance, we extracted corticosterone, a known biomarker for physiological stress. Measuring corticosterone from claws provided an account of chronic stress levels in these turtles as corticosterone is slowly deposited over the long-term into the claw as they grow. As compared to traditional methods of measuring corticosterone, like sampling blood or faeces, our novel method is minimally invasive, presents less risk of altering the sample, and sample collection requires far less effort. This method thus provides an avenue for examining chronic physiological stress in turtles, which can be applied to examining indirect, population-level effects, of roads and other anthropogenic disturbances.

Présentation orale / Platform presentation

Étudiant / Student presentation

BEAUREGARD, F.

SÉLECTION ET HYBRIDATION BROUILLENT LES CARTES CHEZ LES SOUS-ESPÈCES DE COULEUVRES RAYÉES

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La répartition des 12 sous-espèces de couleuvres rayées est actuellement basée sur leur patron de coloration. Plusieurs études ont cependant relevé une disparité entre leur répartition classique et la répartition inférée à partir de marqueurs génétiques neutres, meilleurs indicateurs de l'histoire évolutive. Une précédente étude de l'ADN mitochondrial des deux sous-espèces présentes au Québec (*T. s. sirtalis* et *T. s. pallidulus*) a confirmé qu'il semblait bien y avoir deux sous-espèces distinctes, susceptibles de s'être différenciées lors des épisodes de glaciations et déglaciation du Pléistocène. Cependant, leur répartition n'est pas conforme à la répartition classique, basée sur les patrons de coloration. De plus, les individus au nord du Québec, officiellement désignés *T. s. pallidulus*, présentent des caractères propres à chacune des deux sous-espèces au sud. Cette étude vise à tester l'hypothèse selon laquelle il y aurait eu hybridation dans le nord du Québec lors du retrait de la Mer de Champlain. Le patron de coloration, le nombre d'écaillés ventrales et caudales ainsi que l'ADN mitochondrial et nucléaire d'individus au nord ont été comparés à ceux d'individus des deux sous-espèces au sud du Québec. L'examen de l'ADN mitochondrial et nucléaire a révélé que les individus retrouvés au nord seraient probablement issus d'une hybridation ancestrale, à laquelle *T. s. sirtalis* aurait contribué davantage. Comment ce groupe a-t-il pu être identifié comme appartenant à *T. s. pallidulus*? Les critères morphologiques utilisés pour établir la répartition des sous-espèces de couleuvre rayée pourraient être faussés par des pressions de sélection locales. Leur répartition serait donc à réévaluer, puisqu'elle ne concorde ni avec le signal génétique, ni avec les barrières à la dispersion de l'espèce.

Présentation orale / Platform presentation**Étudiant / Student presentation****BENNETT, A.****DOES MATERNAL INVESTMENT INFLUENCE OFFSPRING RESPONSE TO PREDATION RISK? REARING CAPTIVE-BRED NORTHERN LEOPARD FROG TADPOLES WITH THE PRESENCE OR ABSENCE OF AESHNID DRAGONFLY LARVAE.****Bennett, Amanda M.* and Murray, Dennis L.**

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Individual female amphibians differ in the size of eggs they produce and larger eggs tend to hatch into larger larvae. Amphibian larvae show phenotypic plasticity in response to predation risk, however the magnitude and direction of plastic responses varies both within and between populations. While genetic variation between families accounts for some of the differences in plasticity observed within populations, we hypothesized that variation is also explained by differential investment in broods between females. We predicted that females in better body condition will lay larger, heavier eggs, and that these eggs, in turn, will hatch into tadpoles that show a higher magnitude of plastic responses to predation risk. Adult Northern leopard frogs (*Lithobates pipiens*; N=14) were captured during spring migrations near Peterborough, Ontario, Canada. Leopard frogs were induced to breed using the Amphiplex cocktail developed by Trudeau et al. (2010). Tadpoles (N=30) were reared with and without caged Aeshnid dragonfly larvae (N=3 replicates per treatment) and behaviour, morphology, growth, and development were monitored over three weeks. Female frogs with higher body condition (as determined by the residuals of a linear regression between body mass and length) laid more (clutch size) and larger (embryo diameter) eggs. Tadpoles responded to caged predators by decreasing activity levels (mean proportion of active tadpoles/tank) and increasing relative tail depth. Effect size of the behavioural response did not correlate with maternal body condition, however, morphological response effect size (increase in relative tail depth) was positively correlated with maternal body condition. This suggests that tadpoles from mothers in good body condition were better able to mount a plastic response to predation risk and that, conversely, females in poor body condition due to disease, habitat loss, or pollution may have young with lower survivorship due to a reduced capacity to avoid predation.

Présentation orale / Platform presentation**Étudiant / Student presentation****BOUCHARD, C.****GÉNÉTIQUE DU PAYSAGE DE LA TORTUE GÉOGRAPHIQUE (GRAPTEMYS GEOGRAPHICA)****Bouchard, Cindy^{1*}, Tessier, Nathalie^{1,2}, Lapointe, François-Joseph¹**

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Depuis le siècle dernier, l'expansion rapide des populations humaines et l'augmentation de leurs infrastructures modifient considérablement l'habitat dans lequel les espèces évoluent. Les individus doivent maintenant faire face à des barrières plus ou moins importantes pour se déplacer dans leur habitat. En présence d'un très faible flux génique, des complications reliées à la consanguinité sont susceptibles d'être observées chez les plus petites populations. La capacité des individus à se déplacer dans ce type de paysage complexe et hétérogène est donc essentielle au maintien régional des populations. La tortue géographique (*Graptemys geographica*) est un bon exemple d'espèce ayant à faire face à cette situation. Tout au long de son habitat, le paysage est largement fragmenté et perturbé par les barrages, les ponts, les écluses et la villégiature. Ce phénomène additionné à de nombreuses autres menaces (prédations, accidents, pollution, etc.) mena à son ajout, en 2002, à la liste des espèces au statut préoccupant par le comité sur la situation des espèces en péril au Canada (COSEPAC). Des analyses en génétique du paysage nous permettront de connaître les effets de ces infrastructures sur la diversité et la différenciation génétiques des populations. Puisque les tortues ont un temps de génération très long, les barrages font partie de leur habitat depuis quelques générations seulement. Pour cette raison, il est intéressant de dissocier les effets, sur la génétique, des paysages historiques (expansion postglaciaire) et contemporains (fragmentation de l'habitat), grâce à des analyses à différentes échelles temporelles. À l'aide de marqueurs microsatellites, nous établirons la structure génétique des populations de tortues et une analyse canonique de redondance (RDA) partielle nous permettra d'analyser différents modèles binaires.

Présentation orale / Platform presentation

Étudiant / Student presentation

BOYLE, P. S.

A ROAD TO CONSERVATION: A 4-YEAR BACIP APPROACH TO ROADWAY MITIGATION

Boyle, Sean P.^{1*}, Brdar, Corina², Tyerman, Don³, Cristen Watt⁴, Litzgus, Jacqueline D.¹ and Lesbarrères, David¹

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Roads are the most pervasive, important and destructive structures humans have ever built. Roads are one of the most significant drivers of reptile and amphibian population declines globally. In some cases road effects can be mitigated by using fencing to prevent access to the road and culverts or bridges to maintain connectivity between fragmented habitats. Presqu'île Provincial Park (Ontario), is planning to resurface its main road in fall 2014. This time frame represents a unique opportunity to use a Before-After-Control-Impact-Paired study design in order to monitor the effects roads have on local herpetofauna and test the effectiveness of mitigation structures. The first part of the project will help determine where road crossings are occurring and thus where mitigation should be implemented. The second part of the project will evaluate the effectiveness of these structures at reducing mortality while maintaining genetic connectivity. The importance of cooperation between government officials, park staff and academia in the planning and coordination of such project - something that historically, has been challenging - along with a report on the high levels of mortality recorded and the next steps planned for this project, will be discussed.

Présentation orale / Platform presentation

Régulière / Regular

DESROCHES, J.-F.

THE AMBYSTOMA LATERALE-JEFFERSONIANUM SALAMANDERS COMPLEX IN QUÉBEC

Desroches, Jean-François.^{1*} and Bogart, Jim.²

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From 2002 to 2009, we collected 202 salamanders of the *A. laterale-jeffersonianum* complex in Québec. We used a variety of techniques (karyotypes, flow cytometry, isozyme electrophoresis, microsatellites) to determine ploidy and genomic constitution. Pure *A. laterale* (LL) comprised 36.6 % of all salamanders, the most common unisexual genototype was LLJ (48.5 % of the specimens collected). The sex ratio was almost equal for LL (53.6 % females) while all but one of the unisexuals were females. Geographic distribution shows that unisexuals are common in western and southern Québec while pure LL populations occur in the northeast. The least common genototype (tetraploid LLLJ) was found in the extreme southwest. Diploid unisexual LJ has a broader distribution and occurrence that is mostly associated with the Appalachian mountains. Highlights with respect to biogeography and morphometry related to genetics will also be discussed.

Présentation orale / Platform presentation

Régulière / Regular

DUBOIS, Y.

LA SALAMANDRE POURPRE: OÙ CHERCHER ET OÙ PROTÉGÉER / THE SRING SALAMANDERS: WHERE TO SEARCH AND WHERE TO PROTECT**Melançon, Dominique¹, Tittley, Isabelle², Dubois, Yohann.*³**

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Au Canada, la salamandre pourpre est présente uniquement dans la portion québécoise des Appalaches. Cette salamandre de ruisseaux a été désignée préoccupante au Canada (2005) et vulnérable au Québec (2009). Le projet vise à obtenir un meilleur portrait des habitats et des menaces potentiels afin d'orienter la mise en œuvre du plan de rétablissement à l'échelle du Québec. D'abord, deux techniques statistiques récentes [Boosted regression tree (BRT) et Ridge regression (RR)] furent utilisées pour prédire la probabilité de présence de l'espèce. Les 300 points de présence au Québec ont été séparés en deux : 150 pour bâtir et 150 pour valider les modèles. Les variables suivantes ont été retenues pour prédire la probabilité dans chaque parcelle de 100 x 100m : le type de peuplement forestier, l'âge du peuplement, l'ouverture de la canopée, l'altitude moyenne et la plage d'altitude. Bien que les deux modèles aient une capacité de prédiction similaire, le BRT utilise moins de variables et facilite ainsi la cartographie des résultats dans ArcGIS. Basé sur les index traditionnels, les modèles ont une capacité prédictive intermédiaire (BRT : sensibilité (0,77), spécificité (0,47), AUC (0,71) RR : sensibilité (0,76), spécificité (0,41), AUC (0,65). Néanmoins, le modèle permet de discriminer près de 50% des habitats disponibles où la présence semble peu probable. Deuxièmement, un indice de priorisation des efforts de conservation a été développé à partir de la carte des habitats potentiels générée grâce au modèle prédictif ci-dessus. D'une part, un indice de qualité d'habitat par sous-bassin versant a été développé en calculant la superficie d'habitat ayant une probabilité de présence > 0,55. D'autre part, un indice de niveau de risque a été calculé en fonction de l'affectation du territoire attribuée aux habitats potentiels retenus. Une matrice de priorisation à deux axes (qualité d'habitat et niveau de risque) a été utilisée pour attribuer une valeur de priorité. Cet indice permet de cibler des habitats de haute priorité représentant environ 10% de l'aire de répartition de l'espèce au Québec.

Présentation orale / Platform presentation

Étudiant / Student presentation

D'ENTREMONT, N.D.

COMPARITIVE GROWTH AND MOVEMENT ANALYSIS OF HEADSTARTED BLANDING'S TURTLES (*Emydoidea blandingii*) AT KEJIMKUJIK NATIONAL PARK AND NATIONAL HISTORIC SITE OF CANADA

d'Entremont, Nicole D.^{1*}, Mockford, Stephen W.¹, Smith, Duncan A.², Avery, Trevor¹ and Neish, James A.²

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With an estimated population of 350 adults, the population of Blanding's turtles (*Emydoidea blandingii*) in Nova Scotia is listed as Endangered both federally and provincially. Headstarting is used in Nova Scotia as recovery program and is designed to improve the survivorship of turtles at an early life history stage. In 2009 and 2010, the largest Blanding's turtle headstarting effort to date in Nova Scotia was undertaken with eggs collected from Kejimikujik National Park and National Historic Site (KNP). These eggs were incubated and hatched in a lab and the hatchlings were subsequently raised in captivity for two years. A total of 154 headstarted turtles were re-introduced into KNP during the summer of 2011 and 2012. A select number of the headstarts released at Atkins Brook were radio tracked using radio telemetry to study growth and movement. For comparative purposes a small number of wild turtles were also collected and tagged for radio tracking. Turtles were tracked weekly from April to November 2012 to collect movement data and were measured the first week of every month. For the purpose of analysis, turtles were divided into 4 groups; 2009-headstarts, 2010-headstarts, wild(3yrs), and wild(5-7). A pairwise comparison found a difference in movement rates between groups. Wild (5-7) turtles were found to have higher movement rate than all other groups ($P < 0.15$ for all cases). Headstarted and Wild(3yrs) had similar movement rates. An ANCOVA test found no significant difference ($F = 0.534$, $df = 3$, $P = 0.660$) in growth rates of headstarted and wild turtles. These results suggest that headstarted turtles are able to adapt to the wild successfully but further study on the long-term survival of headstarts will be important to determine the overall success of the headstarting program in Nova Scotia.

Présentation orale / Platform presentation**Régulière / Regular****GIGUÈRE, S.****ATLAS DES HABITATS POTENTIELS DE LA TORTUE DES BOIS (*GLYPTEMYS INSCULPTA*) AU QUÉBEC****Giguère, Sylvain^{1*}, Côté, Marie-Josée², Daigle, Claude³**

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L'objectif principal de l'Atlas des habitats potentiels de la tortue des bois au Québec (Atlas) est de rendre disponible un outil cartographique pour planifier et améliorer l'efficacité des futurs inventaires au Québec. L'Atlas a été développé selon la prémisse que la tortue des bois sélectionne les habitats qu'elle utilise. Les caractéristiques environnementales utilisées pour concevoir l'indice de qualité d'habitat devaient être : appuyées par la littérature scientifique, cartographiables à l'échelle du Québec et représentatives de nos populations. Cinq caractéristiques ont été retenues : (1) climat, (2) hydrographie, (3) type de sol, (4) végétation et (5) présence humaine. Ces caractéristiques ont été utilisées en deux grandes étapes pour créer l'indice. Nous avons d'abord éliminé les portions du territoire qui sont peu susceptibles d'abriter l'espèce selon le climat, la végétation (résineux) et la présence humaine. Les secteurs potentiels ont ensuite été identifiés dans le territoire résiduel selon l'hydrographie, le type de sol et la structure végétale. Lors du développement de l'indice en 2010, une validation sommaire a été effectuée et les secteurs où des populations sont présentes au Québec y ressortent bien. Depuis 2010 cet outil a été utilisé pour planifier plusieurs inventaires. De façon qualitative, les habitats potentiels sont largement bien prédits par l'indice et plusieurs nouvelles populations ont été détectées. En plus du texte décrivant le développement de l'indice de qualité d'habitat, l'Atlas comprend sept cartes générales (échelle 1 : 1 000 000) de même que 58 cartes régionales (échelle 1 : 250 000). Étant donné la sensibilité de l'espèce à la collecte, la diffusion de l'Atlas est restreinte aux organismes susceptibles d'intervenir dans la gestion et la conservation de cette espèce. À ce jour, près de 50 organismes du Québec ont demandé et obtenu les cartes de l'Atlas pour leur secteur d'intervention.

Présentation orale / Platform presentation

Régulière / Regular

GILLINGWATER, S.D.

SUCCESSFUL REPRODUCTION IN THE WILD OF NON-NATIVE RED-EARED SLIDER IN ONTARIO

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The Red-eared Slider (*Trachemys scripta elegans*) is one of the most commonly sold and kept species of turtle in existence, with large-scale breeding farms producing hundreds of thousands of hatchlings to meet global pet and food demands. Unfortunately, sliders can often survive inhumanely poor care in captivity and due to large space requirements and a moderately large adult size, many keepers lose interest and release their pets. Native to south central United States and northern Mexico, released Red-eared sliders are now found in the wilds of many countries around the world. During a seven year study on Red-eared Sliders found released/escaped in Ontario, data on winter survival, active season threats, oviposition times, clutch size, clutch frequency, egg fertility, and hatch rate were recorded. Long term study of adults, artificial incubation and translocation of eggs as well as in-situ nest protection allowed for new information to be revealed on what is currently one of only two non-native reptiles known to successfully survive and breed in Ontario over multiple years. With the release of Red-eared Sliders in Canada comes a threat to the health of native turtle species. Looking at options for halting the continued sale of *Trachemys scripta elegans* in Canada is justified based on current information.

Présentation orale / Platform presentation

Régulière / Regular

GREEN, D. M.

OPERATIONAL VERSUS PHYSICAL SEX RATIOS IN TOADS

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Sex ratios among anurans at breeding sites are routinely observed to be skewed towards males, which has often been interpreted as evidence of a biased sex ratio within the population. Understanding the extent to which the observed, operational sex-ratio may differ from the population's true, physical, sex ratio is important information for testing hypotheses about mating strategy and for understanding population viability. Using intensive capture/recapture methods, I estimated abundances of both sexes of Fowler's Toads, *Anaxyrus fowleri*, in a population at Long Point, Ontario, over a span of 14 years (1998 to 2011, incl.). Although males greatly outnumbered females at breeding sites, persisted there for longer periods of time and were more readily re-captured, both sexes could be found in their lakeshore non-breeding habitat with equivalent reliability. Estimates of abundance were calculated for each sex based on 3,162 total captures of 686 females and 982 males. The abundances of males and females each year were not significantly different, consistent with a 1:1 physical sex ratio. Both sexes also exhibited large, but strongly correlated, variations in their abundance over the 14 yrs. Only 39% of total estimated males were found at breeding sites. The ratio of males at breeding sites to total males declined significantly over the 14-year study, in parallel with a diminishing availability of breeding sites.

Présentation orale / Platform presentation**Étudiant / Student presentation****GREENBERG, D.****DOES EMERGENT MARSH VEGETATION DEGRADE LARVAL ANURAN HABITAT THROUGH THE RELEASE OF PLANT SECONDARY COMPOUNDS?****Greenberg, Daniel A.^{1*}, and Green, David M.¹**¹Redpath Museum, McGill University, Montreal, QC, H3A 0C4, daniel.greenberg@mail.mcgill.ca, david.m.green@mcgill.ca

Changes in plant communities due to succession and invasion can precipitate numerous changes to the abiotic environment, including the introduction of novel chemicals: plant secondary compounds. Plant secondary compounds are ubiquitous in many aquatic environments, but we still lack clarity in our understanding of how they impact the organisms in those communities. Here, we investigate how the expansion of two emergent marsh plants, the invasive *Phragmites australis* and native *Typha latifolia*, in the wetlands of Long Point may affect the larval performance and development of two anurans, the Fowler's toad (*Anaxyrus fowleri*) and Northern leopard frog (*Lithobates pipiens*), through the release of secondary compounds. We hypothesized that *A. fowleri* would experience reduced larval fitness when exposed to either plant chemical due to gill damage, while *L. pipiens* larvae would experience similar performance across treatments, due to early development of lungs. Individual tadpoles were raised in water inoculated with senescent tissue of *Phragmites*, *Typha*, or a no-plant control. Tadpoles were monitored daily for survival, with weekly measurements of body size, and final developmental stage after 21 days. We found that contrary to our expectations, *A. fowleri* tadpoles experienced no significant differences in survival, growth, or development in the presence of plant secondary compounds. As well, *L. pipiens* did experience a significant reduction in growth and survival in the native *Typha*, but performed best in the presence of *Phragmites* compounds. This illustrates that the expansion of *Phragmites* in the wetlands of Long Point is unlikely to significantly degrade larval habitat for these two species through the release of plant secondary compounds.

Présentation orale / Platform presentation

Étudiant / Student presentation

HARVEY, D.

THE DETECTION OF NORTHERN WATERSNAKES (*Nerodia sipedon*) USING ENVIRONMENTAL DNA

Harvey, Daniel*, Burke, Grace, Dang, Sanjeena, Hanner, Robert, and Adamowicz, Sarah

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Establishing species presence or absence is fundamental to biodiversity research and conservation, yet many monitoring methods are time-consuming and invasive. In fish and amphibians, the detection of species-specific environmental DNA (eDNA) has been used to establish presence without the need for laborious surveys. The goal of our study was to determine whether the presence of an aquatic snake (northern watersnake, *Nerodia sipedon*) in a given waterway could be confirmed using an eDNA approach. Based on cytochrome c oxidase subunit I (COI) sequence information obtained from GenBank, the Barcode of Life Data Systems (BOLD) database, and the sequencing of museum tissue samples, we developed a real-time polymerase chain reaction (qPCR) primer and probe set that selectively amplifies the DNA of watersnakes to the exclusion of the closely related queensnake (*Regina septemvittata*). The primer and probe set were selected in a 593-bp COI segment with low intraspecific variation (maximum p-distance = 0.008) relative to interspecific variation (mean p-distance = 0.077). The sensitivity and specificity of the primer and probe set were evaluated using dilutions of DNA extracted from watersnake and queensnake tissue. The ability of the primer and probe set to amplify eDNA was tested at three lentic waterways with known watersnake presence and known queensnake absence, using two different DNA extraction approaches (centrifugation and filtration). If successful, our research will provide proof-of-concept for the use of an eDNA approach to monitor aquatic reptiles.

Présentation orale / Platform presentation

Régulière / Regular

KARSTAD, A.

PRELIMINARY RESULTS: HYLA VERSICOLOR ON THE BRUCE PENINSULA, 1984-2013

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In the summer and fall of 1983, and the springs and summers of 1984 and 1990, we surveyed the herpetology of the outer townships of the Bruce Peninsula, and were surprised not to find or hear *Hyla versicolor*, the Tetraploid Grey Treefrog. On the night of 8 June 1984, Aleta drove a survey the length of the Peninsula on Hwy 6, and heard *Hyla versicolor* north only to the Howdenvale Road, north of Mar. On the night of 13 June Fred drove from Tobermory to the Howdenvale Road and back, and heard *Hyla versicolor* north only to the Eastnor Swamp, 7.6 km NNW of Mar, 53.6 km SE of Tobermory. This was the only amphibian with a range limit on the Bruce Peninsula that occurred to the north on Manitoulin Island and the North Shore. We attributed this range limit to cool peninsular summers, and predicted that with a warming climate the species might move north. Various circumstances prevented replication of these surveys. On 17 Sept 2012, John found a Treefrog on his rooftop deck in Tobermory, at the northern end of the peninsula, which was seen to go into hibernation and then emerge in the spring. On 19 and 30 May, 2013, surveys heard the species within 4 km of Tobermory, but not south of there, suggesting anthropogenic introduction, rather than natural range expansion from the south. Further surveys are needed to delimit the gap between southern and Tobermory populations..

Présentation orale / Platform presentation**Étudiant / Student presentation****KEEVIL, M.G.****THE INTERACTION OF HABITAT PRODUCTIVITY AND POPULATION DENSITY ON JUVENILE GROWTH RATES OF PAINTED TURTLES, *CHRYSEMYS PICTA*****Sanders, Shawna L. ¹, Keevil, Matthew G.* ¹, Brooks, Ronald J. ² and Litzgus, Jacqueline D. ¹**

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In long-lived organisms, juvenile life stages are often sensitive to density dependence. Previous studies have revealed that turtle abundance and growth rates can be positively related to primary productivity of the habitat. However, intraspecific competition at higher densities may depress juvenile growth. We hypothesized that if productivity has a greater influence on juvenile growth rates, then growth rates would be correlated with productivity regardless of density. However, if density has a significant effect on growth, then growth rates will be depressed at high densities despite higher productivities. Open water nitrogen, phosphorous and euphotic depth were measured at five water bodies in Algonquin Provincial Park, Ontario, Canada, in order to determine the relationship between habitat productivity on population densities and juvenile growth rates of Painted Turtles (*Chrysemys picta*). Abundance estimates were obtained using mark-recapture analysis and growth rates were estimated by measuring the spacing of carapacial growth rings. Our results show that in our study populations, density and productivity were correlated. Although nitrogen had no effect on density, greater phosphorous levels were found at sites with high turtle densities. Secchi disk readings revealed that wetlands with thin, but dense, layers of primary producing organisms at their surfaces may support higher turtle densities. Density appeared to have limited effects on juvenile growth rate except at extremely high densities, at which growth rates were lower. This coincided with the highest estimated productivity and suggests that density dependent effects can override the positive effect of habitat productivity on growth in natural populations.

Présentation orale / Platform presentation

Régulière / Regular

LAFLECHE, M.**EFFORTS DE RÉTABLISSEMENT DE LA POPULATION DE LA TORTUE DES BOIS DANS LE TÉMISCOUATA****Laflèche, Mélanie*, Bertacchi, Walter et Maisonneuve, Charles**

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La région du Témiscouata, située au Bas-Saint-Laurent au Québec, est située à la limite nordique de l'aire de répartition de la tortue des bois (*Glyptemys insculpta*). Depuis 2007, des travaux sont en cours pour identifier les secteurs fréquentés et en assurer la protection. La tortue des bois est une espèce désignée vulnérable au Québec, mais les multiples menaces et la très faible abondance constatées dans le Témiscouata font en sorte que la population de cette région est jugée menacée. Parmi ces menaces, notons la perte et la perturbation des habitats causées par l'activité humaine telle que la construction de routes, l'exploitation de gravières, la circulation automobile et de véhicules récréatifs et l'agriculture. La capture et la garde en captivité de tortues comme animal de compagnie constituent aussi une tradition régionale ayant contribué au déclin de la population. Si rien n'est fait, il est réaliste de croire que la population du Témiscouata pourrait disparaître d'ici quelques décennies. Un projet-pilote de repeuplement a été initié en 2012. Il consiste à recueillir des œufs sur des sites de ponte, à les incuber artificiellement et à relâcher les jeunes après une période de garde en captivité. Un projet de refuge faunique permettra d'assurer un environnement sécuritaire aux individus relâchés et à la population présente sur ce site. Ultiment, les efforts de repeuplement seront déployés dans d'autres secteurs présentant un bon potentiel et tous ces noyaux d'habitat pourront être reliés par un réseau de corridors de protection.

Présentation orale / Platform presentation

Étudiant / Student presentation

LAMARRE, P.

LA DIVERSITÉ GÉNÉTIQUE DES COULEUVRES RÉFLÈTE LA DISPARITION DES MILIEUX OUVERTS DE LA RÉGION MONTRÉALAISE

Lamarre Philippe^{1*}, Réale Denis², Milot Emmanuel² et Angers Bernard¹

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La région métropolitaine de Montréal, formée de nombreuses îles à la jonction du fleuve Saint-Laurent et de la rivière des Outaouais, offre un système idéal pour étudier les effets du développement urbain sur les animaux. Dans ce paysage fragmenté, les populations sont isolées en fonction de la distance entre les îles. De plus, la forte pression d'urbanisation sur le paysage métropolitain menace la pérennité des habitats sur plusieurs d'entre elles. Cette étude a pour objectif de comparer l'effet des activités anthropiques sur les populations insulaires de deux serpents très distincts en utilisant la diversité génétique comme indicateur. Les populations du système géographique de Montréal se retrouvent principalement en milieu insulaire et devraient y présenter un effet fondateur liée à la colonisation des îles. Cet effet devrait se voir atténué chez la couleuvre rayée (*Thamnophis sirtalis*) en raison de sa capacité de dispersion largement supérieure à celle de la couleuvre brune (*Storeria dekayi*). D'autre part, la couleuvre brune s'avère capable de maintenir une haute densité de population dans des habitats perturbés. De ce fait, elle y présente donc une taille efficace importante relativement à la couleuvre rayée, qui devrait se voir plus affectée par les goulots d'étranglements liés à l'étalement urbain. Cette étude permettra d'obtenir une meilleure compréhension des impacts du développement urbain sur les populations animales. Des résultats préliminaires seront présentés.

Présentation orale / Platform presentation**Étudiant / Student presentation****LEFEBVRE, J.****USING STEROIDS AS A NON-INVASIVE METHOD FOR DETERMINING GENDER IN BLANDING'S TURTLES (*EMYDOIDEA BLANDINGII*)****Lefebvre, Jose^{1,2*}, Wilson, Brian¹, Herbinger, Christophe² and Mockford, Stephen W.¹.**

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With species where sex is determined by incubation temperature, such as the Blanding's turtle (*Emydoidea blandingii*), the actual sex could not be confirmed before the individuals acquired secondary sexual characters. The development of laparoscopic equipment has allowed the identification of gonads through surgery, using laparoscopy. This method is commonly used now, but it can still potentially have some risks to the turtles. The individuals are anesthetized before the surgery; which always has a risk of complications or allergic reactions. The surgery also needs large and expensive equipment in an operation room; which means that wild juveniles would have to be brought in for the procedure, raising the stress on the individual. It would also limit the number of individuals that can be sexed, due to the high cost of the surgery and the availability of a qualified veterinary surgeon. Gross et al. (1995) developed a proxy method to determine the sex of marine turtles, using the ratio of Testosterone (T) to Estradiol 17- β (E) in the amniotic fluid of eggs. The results of this method were accurate over 96%. Xia et al. (2011) evaluated the Gross et al. method, and extended the experiment to blood serum with similar results. The steroid proxy method has also been used at least once, with snapping turtles (*Chelydra serpentina*). The goal of this study is to determine if immuno-assays of blood steroids (Testosterone and to Estradiol 17- β) are a viable way of determining the sex of juveniles Blanding's turtles. If successful, this method would be much less invasive, requiring only a blood sample instead of anesthesia and surgery, could be done in situ without displacement of the wild individuals, and would be much less expensive than laparoscopy.

Présentation orale / Platform presentation

Régulière / Regular

MCCARTER, J.I.

QUEENSNAKE (*Regina septemvittata*) POPULATION SIZE AND HABITAT SELECTION IN THE LOWER MAITLAND RIVER VALLEY**McCarter, Jennifer I.¹, Pulfer, Tanya L.², Edelsparre, Allan³, White, Rachel⁴**

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The queensnake is listed as Endangered in Canada and is restricted to isolated populations in southern Ontario. Little is understood about the environmental factors limiting the queensnake's range, habitat and conservation needs. Our study examined the relationship between queensnake and their habitat by addressing two questions; 1) what is the relationship between queensnake abundance and their primary food source (crayfish); and 2) which habitat features do queensnakes select for? To address these questions we estimated queensnake abundance at five sites on the Maitland River using a mark-recapture study and tested whether abundance estimates were related to the abundance of crayfish and habitat selection variables proposed in the literature. Each site was surveyed 5 times between May 21 and August 29, 2012 through active searches. Captured snakes were individually marked and at the capture site we also recorded substrate type, distance to shoreline, water depth and flow. Crayfish abundance was estimated for each 100m section within each site by calculating a capture per unit effort. We compared statistical models that contained crayfish abundance and habitat features, and used the best performing model to estimate population density in the Maitland River. This model estimated 119 (+/-76.66), 44 (+/-31.98), 199 (+/-121) and 38 (+/-30.25) snakes for all sites combined throughout the season. These numbers were highly correlated with capture per unit effort of queensnakes. The best performing model included habitat features only, suggesting that we need to better examine the relationship between queensnake and crayfish abundance. This study improves our knowledge of habitat requirement for queensnake in riverine habitats and will support the protection and recovery of queensnake in Ontario.

Présentation orale / Platform presentation

Étudiant / Student presentation

MOLDOWAN, P.D.

SEXUAL DIMORPHISM AND ALTERNATIVE MATING STRATEGIES IN THE MIDLAND PAINTED TURTLE (*Chrysemys picta marginata*)

Moldowan, Patrick D.^{1*}, Brooks, Ronald J.² and Litzgus, Jacqueline D.¹

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Well-recognized sexual dimorphisms (SD) of the Midland Painted Turtle (*Chrysemys picta marginata*) include a larger female body size and longer male forelimb claws. Observations from a long-term study of Painted Turtles in Algonquin Provincial Park (Ontario, Canada) suggest that males have pronounced philtra, an upper jaw cleft bordered on each side by a tooth-like cusp, of variable lengths, whereas the philtra of females are often less prominent. In addition, female Painted Turtles in Algonquin Park have been regularly recorded with injuries on the neck indicative of bite wounds, possibly inflicted by males during mating. These observations indicate that another potential SD of Painted Turtles is the size of philtra. Traditionally, it is thought that female Painted Turtles choose mates based on courtship display and/or traits that demonstrate male quality; however, recent work has indicated that predictors of male quality (e.g., forelimb claw length) do not reliably account for male reproductive success, suggesting that an alternative mating strategy may be involved in reproduction. We propose that male Painted Turtles exhibit a coercive mating strategy, using their philtra to secure females, as evidenced by bite wounds observed on females. We hypothesize that the philtra of male Painted Turtles confer a reproductive advantage by increasing the frequency of successful copulation. Using field observations, behavioural trials, and paternity data from the Algonquin Park population, our study will explore the relationship between male phenotype and behaviour with respect to siring success in a well-studied population of Painted Turtles. To date, head morphometrics have been gathered for over 250 Painted Turtles. In addition to 14 years of prior data on neck wounding, over 300 individuals have been evaluated in 2013. Forty-eight hours of recorded video from spring breeding trials has been collected. Male coercive tactics, including biting and forced submergence of females, have been observed. Preliminary results will be summarized and presented.

Présentation orale / Platform presentation

Régulier / Regular

OUELLETTE, M.

PROTOTYPE D'APPLICATION MOBILE POUR LA COLLECTE DE DONNÉES HERPÉTOLOGIQUES SUR LE TERRAIN

Ouellette, Mathieu

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Traditionnellement, les données herpétologiques récoltées sur le terrain sont consignées dans un carnet de notes ou sur des feuilles de données préparées à cet effet. De nos jours, les observations sont aussi fréquemment complétées par des photos numériques et des coordonnées prises à l'aide d'un récepteur GPS. Une fois les données récoltées, le support papier est généralement archivé et les données sont quant à elles saisies manuellement dans un format numérique, comme par exemple dans un tableur ou une base de données. Des manipulations supplémentaires peuvent également s'avérer nécessaires pour exploiter les données avec un logiciel de statistiques ou encore un système d'information géographique. L'ensemble de ce processus peut s'avérer fastidieux. De plus, des erreurs de plusieurs types peuvent se glisser dans chacune des étapes et ainsi altérer la qualité de l'observation, voir même remettre sa validité en cause. Pour pallier à ces problèmes, nous avons développé un prototype d'application mobile pour la prise de données herpétologiques sur le terrain. Les objectifs de ce projet sont d'augmenter l'efficacité de la prise de données sur le terrain, de réduire le risque d'erreurs dans l'ensemble du processus et enfin de faciliter le stockage, l'analyse et la diffusion des données au sein de systèmes externes à l'application mobile. Les objectifs ont notamment été rencontrés en automatisant la prise de certaines données, en utilisant des validations et en favorisant l'interopérabilité.

Présentation orale / Platform presentation**Étudiant / Student presentation****PATERSON, J.E.****TESTING SURVIVAL PATTERNS IN EARLY LIFE HISTORY STAGES OF TURTLES****Paterson, James E.^{1*}, Steinberg, Brad D.² and Litzgus, Jacqueline D.¹**¹Department of Biology, Laurentian University, 935 Ramsey Lake Road, Sudbury, Ontario, P3E 2C6, james.earle.paterson@gmail.com, jlitzgus@laurentian.ca. ²Ontario Ministry of Natural Resources, Algonquin Provincial Park, PO Box 219, Whitney, Ontario, K0J 2M0, Canada

The life history of freshwater turtles typically includes high adult survivorship and very low but variable survivorship as hatchlings. Hatchling characteristics such as body size, emergence time, and habitat use may be important predictors for survival of this life stage. We used radio telemetry on naturally emerging hatchlings of two species of conservation concern (*Emydoidea blandingii* and *Glyptemys insculpta*) to test five hypotheses related to survival from nests to overwintering sites, including a null hypothesis, using logistic regression models. Using data from 90 hatchlings, the best model for both species found that smaller hatchlings were more likely to survive from emergence to overwintering. In *E. blandingii*, hatchlings that emerged later in the year, which reduced exposure time to predators and environmental risks, and spent less time in upland open habitat, were more likely to survive. Exposure time and habitat use were not important in predicting survivorship of hatchling *G. insculpta*. Our results demonstrate bigger is not always better and survival may not be directly correlated with size. We suggest possible mechanisms for these findings and compare to previous work using released hatchlings that found larger hatchlings had higher survivorship. These results are important for managing these two species of conservation concern.

Présentation orale / Platform presentation

Régulière / Regular

PICARD, I.

CHARACTERISTICS OF A PAINTED TURTLE (CHRYSEMYS PICTA) AND SNAPPING TURTLE (CHELYDRA SERPENTINA) POPULATION – A NINE YEAR STUDY

Picard, Isabelle^{1*}. Desroches, Jean-François².

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From 2005 to 2013, we studied populations of Painted and Snapping Turtles in a 2.4 ha pond in southern Quebec. A total of 236 different adult Painted Turtles and 17 Snapping Turtles were marked individually. This result in 101 recaptures for Painted turtles and 9 recaptures for Snapping Turtles. The absolute sex ratio (excluding recaptures) was 1 M : 1.5 F for Painted Turtles and 1 M : 1.3 F for Snappers, but including all recaptures it became respectively 1 : 1.1 and 1 : 0.8. Recapture rate of males was 1.7 times that of females for both species (1.7 for Painted Turtles and 3.5 for Snappers). This may be a result of territorial habits in males. Sex ratio was not significantly different from 1 : 1 for both species between the two seasons surveyed (May and August-September). For adult Snapping Turtles, the annual growth rate of the shells varied from 0.2 to 6.3 mm/year. For painted turtles, the annual growth rate is more variable, varying from 0 mm in 3 or 4 years to 8 mm/year. Marks on the shells made for mark-recapture virtually disappeared after 5 to 6 years if not renewed. Comparisons with other turtle populations studied by the authors and population estimates will also be discuss.

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Présentation orale / Platform presentation

Régulière / Regular

POULIOT, D.

**ARE JUVENILE WOOD TURTLES (GLYPTHEMYS INSCULPTA) “HOME BODIES” ?
IMPLICATIONS FOR THEIR CONSERVATION****Pouliot, Daniel ¹, Masse, Denis ¹, Robitaille, Yves ² and Samson, Claude ¹**¹Parc national de La Mauricie, 2141 Chemin Saint-Paul, Saint-Mathieu-du-Parc, QC, G0X 1N0
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This presentation looks at the habitat dataset obtained from a telemetry study done from 2004 to 2007 on juveniles (3-10 years old) Wood turtle. We interpreted the data in the context of the agreement between the Forest environment branch and the Wildlife management branch of the Quebec provincial government. This agreement, signed to reduce the impact of forestry practices on the species at risk habitats, dictated better tree harvesting practices, design for each species at risk. For the moment, these best practices apply only on Crown lands. These guidelines apply within 200 meters from the shoreline and 3 kilometers upstream and downstream from documented occurrences. These best practices were developed using mainly data gathered during a similar study, conducted by Arvisais et al. (2002; 2004) on the same population, at the time, on adults. As the juveniles could present differences in their use of the landscape, we wanted to verify if the best practices in place would also contribute to the conservation of the juveniles. To answer this question we looked at the percentage of localizations that were within 200 meters from the water and at the overlap between the individual home ranges and the 200 meters zone. The distance between the localizations and the shoreline varied accordingly to the pattern displayed by adults Wood turtles, shorter early and late in the season, longer at the peak of active season. About 97% of all the localizations were made within 200 meters from the water. The juveniles individual home range varied greatly from 0,5 to 61,1 ha. The complete (100%) overlap between the individual home range and the 200 meters zone concerns 73% (19/26) of the home ranges. Almost complete overlap (95-99%) concerns 15% (4/26) of the homes ranges and finally, 12% (3/26) of the home ranges overlapped only partially (75-95%) with the 200 meters zone. The disparity in conclusion between the distance to water and home range overlap could be explained by the number of localization done in function of the season. The home range estimates could also influence the results but we think that more localizations would results in larger home range and so a decrease in the overlap with the 200 meters zone. For so, we consider that the 200 meters shall be consider as a minimum for protecting juveniles Wood turtle habitats.

Présentation orale / Platform presentation

Régulier / Regular

PULFER, T.

PUTTING THE POWER INTO THE HANDS OF CITIZEN SCIENTISTS: ONTARIO REPTILE AND AMPHIBIAN ATLAS USING SMART PHONE APPLICATIONS TO REACH A WIDER AUDIENCE**Paterson, James E., Jimenea, Catherine, Urquhart, John and Pulfer, Tanya L.***

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Decision makers are becoming increasingly reliant on citizen science to gain a better understanding of species occurrences throughout the landscape. Crowd-sourcing data collection to the public allows conservation organizations to gather a greater volume of data over wider geographic and temporal scales. With 52% of the reptiles and amphibians found in Ontario listed as at-risk, collecting distribution data for this group of species is critical for their conservation. The Ontario Reptile and Amphibian Atlas (ORAA) aims to increase the knowledge of the distribution and status of all herpetofauna in Ontario through the submission of citizen observations. Building on the success of the previous Ontario Herpetofaunal Summary (OHS), this new initiative hopes to update historical observations of these species. Traditionally most observations have come from naturalists and partnership organizations. In order to fill in knowledge gaps and under-surveyed areas, the new strategy of the ORAA is to encourage the general public and other non-traditional user groups to submit what they find on the landscape. To facilitate the ease of submissions for the general user, Ontario Nature has created an iPhone and Android application (app) that acts as both a portable field guide and an easy-to-use data submission tool. To date, the ORAA has recruited approximately 2000 citizen scientists, with 700 of these using the app after only a few months of its launch. As submitting data goes mobile, it is hoped that the app will facilitate an increase in observation submissions by the ORAA's citizen scientists. This increase in data will help to fill in the gaps that exist in our knowledge of reptile and amphibian distributions and spatial trends in Ontario.

Présentation orale / Platform presentation

Étudiant / Student presentation

RILEY, J. L.

EARLY BIRD DOES NOT GET THE WORM: PREDATION OF SNAPPING AND PAINTED TURTLE NESTS IS NOT RESTRICTED TO EARLY INCUBATION

Riley, Julia. L.^{1*} and Litzgus, Jacqueline. D.¹

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Previous studies have found that turtle nest depredation is concentrated immediately post-oviposition, perhaps because cues alerting predators to nest presence are most obvious during this time. In Algonquin Provincial Park, Ontario the frequency of nest depredation throughout incubation was examined in snapping turtles (*Chelydra serpentina*) and painted turtles (*Chrysemys picta marginata*). In both species, nest depredation was not highest immediately after oviposition, but rather occurred throughout incubation. In fact, only 17% and 14% of snapping and painted turtle nests, respectively, were depredated in the first week post-oviposition. A minor peak in nest depredation occurred late in incubation and may coincide with hatching. These findings have implications for both research on and conservation of turtles. Studies that examine nest predator ecology and behaviour should ensure that sampling coincides with the timing of depredation risk at each study site. Additionally, in areas where protective nest caging is used as a recovery action to counteract the threat of subsidized predators, it may be important to ensure that nest protection measures remain in place throughout incubation until hatchling emergence.

Présentation orale / Platform presentation**Étudiant / Student presentation****SASAKI, K.****EFFECTS OF MINING ON THE POPULATION ECOLOGY OF AMPHIBIANS AND REPTILES IN SUDBURY, ONTARIO****Sasaki, Kiyoshi^{1*}, Lesbarrères, David¹, Watson, Glen², and Litzgus, Jacqueline¹**

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Effective habitat restoration requires an understanding of the underlying mechanisms and ecological consequences of human alterations to ecosystems. By comparing the spatial pattern of species distributions and abundances to environmental variation, we assessed the impacts of mining-caused vegetation and chemical changes on herpetofauna in the Sudbury area. Data were collected from sites ranked at four levels of mining impact: barren, semi-barren, moderately affected, and reference zones. Three study sites were established in each impact zone, for a total of 12 sites. Animals were sampled in three 1-ha plots at each site using standard methods (cover boards, and visual and auditory surveys) in 2012-2013. Chemical (metal concentrations and pH) and physical (habitat structure, temperature, humidity) properties were characterized for each site. Species richness was lowest in the barren zone (lacking all three salamanders and two species of snakes found in reference and moderately affected zones), followed by the semi-barren zone (lacking one salamander species). Overall, there was a strong chemical-physical environmental gradient in amphibian species composition, but not reptile composition, that was correlated with As, Cu and Ni concentrations and structural habitat variables (canopy cover, the amount of coarse woody debris, and tree size). Canonical correspondence analysis and partitioning of the explained variation in the amphibian data revealed that metal concentrations alone explained about as much variation as physical variables alone, and more than half of the variation was jointly explained by both factors. Thus, our study results imply that restoration of the Sudbury environment for herpetofauna should focus on both reducing metal concentrations and re-establishing structural properties of habitats.

Présentation orale / Platform presentation

Régulière / Regular

SCHUELER, F.

PRELIMINARY RESULTS: DO DRY SPRINGS AND MOIST AUGUSTS FAVOUR CHORUS FROGS IN BISHOPS MILLS, ONTARIO?**Schueler, Fred.W*. and Karstad, Aleta**

Frederick W. Schueler & Aleta Karstad, Fragile Inheritance, RR#2 Bishops Mills, Ontario, Canada K0G 1T0 bckcdb@istar.ca karstad@pinicola.ca

We moved to Bishops Mills, in eastern Ontario (44.8716N 75.7009W) in 1979, and heard Chorus Frogs (*Pseudacris triseriata/maculata*) calling every spring we were home until 1993. From 1994-2007 the species was present a couple of km away, but was not heard in regular "backyard" March-July listening from our houses; this was part of a general decline in populations of the brown-maculata populations that led to their COSEWIC status of "Threatened." We heard Chorus Frogs from home once in 2008, three times in 2009, and once in 2010. They have not been heard in 2011-2013, but we've been in the field elsewhere for extended periods in 2012 and 2013. A preliminary analysis suggests that our impression that the revival occurred in years of wet summers, when dispersal to new sites would be possible, is confirmed by Environment Canada data: during the revival of calling August rainfall in nearby Kemptville was 80.5mm, nearly back to the 92.9 mm average of the years of regular presence, from the 55.2 mm recorded during the years of absence. April precipitation showed a similar pattern: 82.6 mm during regular presence, 65.4 mm during absence, and 91.9 mm during the revival, not supporting an idea that Chorus Frogs might be favoured over Peepers (*P. crucifer*) in dry springs because they hibernate nearer to the breeding ponds. Broken metapopulation structure is recognized as one of the causes of the decline of brown-maculata Chorus Frogs, and while there are many factors to be taken into account, it should be possible to use atlassing data and multivariate consideration of the weather data to extend this analysis to the whole range of the species in Ontario and Quebec.

Présentation orale / Platform presentation

Régulier / Regular

SEBURN, D.

BLOOD ON THE ROAD: MITIGATING ROADKILL HOTSPOTS FOR TURTLES IN EASTERN ONTARIO**Gunson, Kari¹, David C. Seburn^{2*}, and David Lesbarrères³**¹Eco-Kare International, 644 Bethune Street, Peterborough, ON, K9H 4A3, kegunson@eco-kare.com;²Seburn Ecological Services, 2710 Clarendo Street, Ottawa, ON, K2B7S5, davidseburn@sympatico.ca;³Department of Biology, Laurentian University, Sudbury, ON, P3E 2C6, dlesbarreres@laurentian.ca

Traffic mortality is widely known to be a significant threat to many species of freshwater turtles. Successful mitigation of roadkill requires knowing where mortality is greatest. Using repeated road surveys we identified roadkill hotspots for turtles along ~100 km of two roads in eastern Ontario. A total of 28 road surveys were conducted from 30 May to 14 September, 2012. Surveys were conducted every 3.8 days on average, but more often during the nesting season. A total of 248 turtles were observed alive or dead (173 Painted Turtles, 44 Snapping Turtles, 29 Blanding's Turtles and 2 turtles not identified due to poor condition). The majority of observations (95%) were of turtles dead on the road. Species at Risk (Snapping and Blanding's Turtles) made up 29% of the observations. Turtles were significantly more likely to be found when water was present within 100 m on both sides of the road. Kernel density analysis identified 6 roadkill hotspots which accounted for only 4.1% of the total road length, yet captured 46.0% of the turtles. In spring 2013, drift fencing and cameras were installed at selected hotspots and culverts to attempt to reduce roadkill and determine if turtles would use existing drainage culverts to cross the highway. Site conditions (e.g. driveways, road construction, water levels) prevented mitigation and cameras being installed at many hotspots. Preliminary results indicate that drift fencing has prevented roadkill in fenced areas, however fence-end roadkill is a significant issue. There is also limited evidence that Painted and Snapping Turtles will use 800-1000 mm diameter culverts to cross the highway.

Présentation orale / Platform presentation

Régulière / Regular

WOODS, S. B.**LESSONS LEARNED FROM RESEARCH ON SAR TURTLES IN AN URBAN ENVIRONMENT****Woods, Sarah B.**

Junction Creek Stewardship Committee, B4-30 Ste Anne Road, Sudbury ON, P3C 5E1, sarah@junctioncreek.com

Community engagement can be a useful resource for research on urban turtle populations; however, the nature of outreach material must be carefully considered to ensure that the research and, more importantly, the safety of the animals are not jeopardized. In spring 2013 the Junction Creek Stewardship Committee (JCSC), a non-profit environmental group established in 1999, began research on urban populations of Blanding's turtles (*Emydoidea blandingii*) and snapping turtles (*Chelydra serpentina*) within the Junction Creek watershed in Greater Sudbury, Ontario. The goals of this project were to characterize the distribution and habitat use of turtles within the watershed with a focus on Blanding's turtles. This was achieved through radio-telemetry and by soliciting reports of sightings from community members. We identified 9 individual Blanding's turtles within the watershed, 7 of which were reported sightings from community members. In 3 cases, reported turtles were captured and fitted with radio transmitters. An additional 2 turtles were detected by researchers and also fitted with transmitters. Prior to this project, only 2 Blanding's turtles were reported in the watershed, both in 2011. Numerous snapping turtle and painted turtle sightings were also submitted by community members. The 5 radio-tracked Blanding's (3 gravid females, 1 male, 1 juvenile) had overlapping ranges and did not move great distances, with maximum linear distance moved of 1.2km. In most cases they did not frequent highly urbanized areas, although the juvenile was first detected in a tool shed. Outreach approach and materials were modified throughout the study based on feedback from the community and concerns about the interpretation of our message. Individuals are sometimes over-zealous in their attempts to assist with research therefore one of the main messages in any outreach, particularly when related to Species at Risk, is the importance of a hands-off approach to assisting with research.

Présentation orale / Platform presentation

Étudiant / Student presentation

YAGI, K.

DENSITY-DEPENDENT GROWTH IN POND BREEDING AMPHIBIANS

Yagi, Katharine T^{1*}. and David M. Green²

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The global decline of amphibian abundance has largely been attributed to factors such as habitat loss, invasive species and climate change. Aquatic habitat loss can have negative impacts on amphibian population persistence because individuals will be competing for space at both the adult and larval stage. Fowler's toads, *Anaxyrus fowleri*, are an endangered species in Canada. In Long Point, Ontario the population size has significantly decreased since 2004 due to the loss of breeding habitat caused by the invasion of the Common reed, *Phragmites australis*. The objective of this study is to determine the effects of larval density on growth rate in these pond breeding amphibians. Two Fowler's toad egg masses were collected from the field in Long Point and 100 individuals were randomly selected for each of eight density treatments. Density was varied by building eight aquatic enclosures, each of different volumes. The enclosures were placed within a pond located in the back-dune area of the NWA in Long Point, Ontario. Digital photographs were taken of the tadpoles every 4 to 5 days and body size was measured using imageJ. We found a strong negative relationship between increasing density and growth rate. Time to metamorphosis was also shown to be increasingly delayed with increasing density conditions. These results will be used to address questions regarding compensatory growth and dispersal in the near future.

Liste des participants / Participant list

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