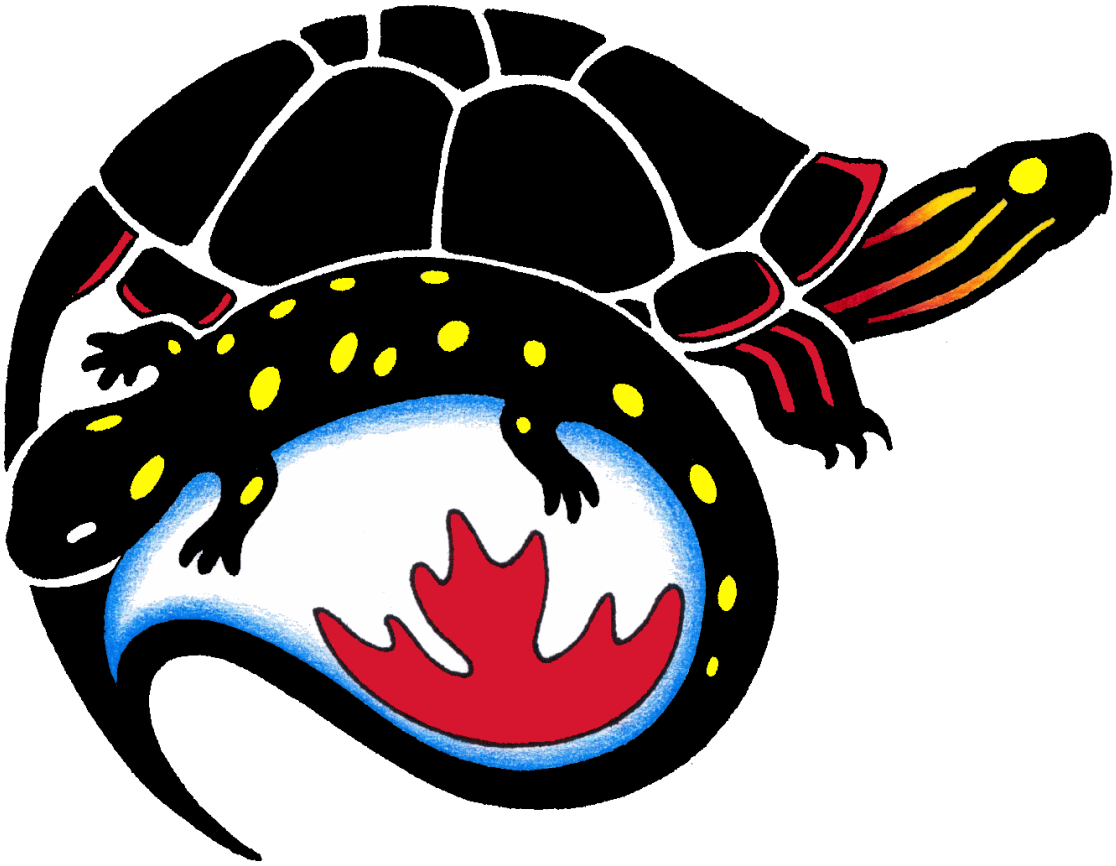
1st Annual Meeting of the Canadian Herpetological Society

1er Congrès Annuel de la Société d'Herpétologie du Canada



University of Calgary
Calgary, Alberta, 2014

Canadian Herpetological Society

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ACKNOWLEDGEMENTS

Local Planning Committee:

- Jonathan Choquette
- Jolene Laverty
- Steve Marks
- Lea Randall
- Anthony Russell
- Kelly Swan

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Thanks to:

- Drew Hoysak (Webmaster CHS)
- Members of the COSEWIC Amphibians and Reptiles Subcommittee
- Department of Biological Sciences, University of Calgary
- Faculty of Science, University of Calgary
- Golder Associates, Calgary
- DWB Consulting Services Ltd., Prince George, BC
- Alberta Society of Professional Biologists
- The Fishin' Hole
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- Ca;gary Zoo
- The Nardella Clinic
- Alberta Conservation Association

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Airport transportation

Calgary Taxi Service: Calgary Airport Taxi Service is available 24 hours a day. The taxi cost to the university is approximately $40. Taxi pickup in front of the arrivals level terminals.

Calgary Downtown Hotel Service: Collect your luggage and go to the ALLIED Airport Shuttle Desk. ALLIED offers service to/from most hotels in downtown Calgary throughout most of the day. The cost is $15.00 per person with no advance reservations required FROM the airport. Reservations with ALLIED are required TO the airport. Take Northbound Crowfoot C-train and get off at the University station and walk to Hotel Alma.

Calgary transit airport service: Bus bay 20 at the arrivals level and take Route 300 Airport to City Centre (Tickets cost $8.50 and can be purchased at Ticket Vending Machines located at the bus zone, and can also be purchased at Mac's stores in the airport terminal) and when downtown transfer to Northbound Crowfoot C-train on 7th avenue and get off at the University station and walk to Hotel Alma. Trip takes about an hour. (See http://www.calgarytransit.com/html/airport_service.html for more information)

Contacts for transit

It can be difficult to get a cab in Calgary. Here are some phone numbers but I would recommend calling and lining up a cab in advance unless at the airport

Checker Cab (403) 299-9999, Associated Taxi (403) 299-1111, Mayfair Taxi (403) 255-6555

Text #taxi (#8294) cost is from $1.25 to $2.50 per call depending on your cell carrier or download taxiguy (free app for cell phone)

Calgary transit: http://www.calgarytransit.com/

Parking on campus (See Parking Map below)
(Closest lots are L3 and L4 (L3a on some maps) which are hourly rate and the Arts Parkade which has a daily rate)
Pay per entry surface lots – Lot 10, 11 & 32 $7.00 per entry
Close proximity pay per entry evenings $8.00 per entry (Lots 13, 21, 31 & 33)
Art Parkade $10.00 per entry
Art Parkade evening rate – after 18:00 $7.00 per entry
MacEwan Hall parkade $6.00 per hour to a daily maximum of $24.00
TRW parkade $4.50 per hour to a daily maximum of $18.00
Hourly lots $4.00 per hour to a daily maximum of $20.00
Carpool (3 or more in car) Lot 10, 11 or 32 $5.00 per entry
(when attendant on duty)

Accommodations

The Hotel Alma, located on the University Campus, is providing a reduced group rate of $125 per night for the CHS meeting. The hotel rate includes wi-fi internet, local and long-distance phone calls, continental breakfast and gym access. There is also a mini-fridge, microwave and coffee maker in each room. We encourage guests to stay at the Hotel Alma because of its proximity to the conference: the Friday evening wine and cheese will be on the top floor of the hotel, and the conference will take place in the Alberta Room of the Dining Centre attached to the Hotel Alma.

Hotel Alma http://www.hotelalma.ca/

Hotel village (may have some less expensive options, one C- train stop or about a 20 min walk to the University)

Comfort Inn: http://www.choicehotels.ca/en/comfort-inn-&-suites-university-calgary-hotel-cn387?promo=gglocalcaen

EconoLodge Motel Village: http://www.econolodgecalgary.com/

Super 8: http://www.super8.com/hotels/alberta/calgary/super-8-village-calgary-ab/hotel-overview

On a tight budget? Here are some other options:

http://www.hihostels.ca/westerncanada/354/hi-calgary_city_centre.hostel (downtown and near train route, recently renovated)

http://www.wickedhostel.com/ (not close to train route)

https://www.airbnb.ca/s/Calgary--Canada

http://www.flipkey.com/calgary-vacation-rentals/g154913/

http://www.homeaway.com/vacation-rentals/alberta/calgary/r8710

https://www.couchsurfing.org/n/places/calgary-alberta-canada

Food on-campus

MacEwan Hall and MacEwan Student Centre Food court restaurants
(Food vendors are open from 10am-6pm Monday-Friday, 12-6 pm Saturday & Sunday; individual businesses may be open additional hours)

A&W
Bake Chef Co.
Coffee Company
Dairy Queen / Orange Julius
Happy Hut
Jugo Juice
Kobe Beef
Korean BBQ House
La Prep Daily Fresh
Noodle & Grill Vietnamese Cuisine
Opa! of Greece
Oriental Wok
Subway
Tim Hortons
Umi Sushi Express

Campus sit down restaurants/pubs
in MacEwan Hall and MacEwan Student Centre
Last Defence Lounge (bring conference ID badge for admittance)
The Den
Bistro Alma in the http://www.hotelalma.ca/bistro_alma

Food off-campus
Nearby restaurants, fast food and pubs that are walking distance from campus (about 20 min walk)
Wendy's 4122 Brentwood Rd NW
Nick's Steakhouse 2430 Crowchild Tr NW
Big T's BBQ 2138 Crowchild Trail NW
Saigon Y2K (Vietnamese) 2110 Crowchild Tr NW
Joey's Seafood 2120 Crowchild Trail NW
Domino's Pizza 2008 Crowchild Trail NW
Green Chili (Indian) 2128 Crowchild Tr NW
Papa John's Pizza 2134 Crowchild Tr NW
Dairy Queen 2126 Crowchild Tr NW
Kilkenny Irish Pub 3630 Brentwood Rd NW
Jamison's Irish Pub 3790 Brentwood Rd NW
Harvey's 3630 Brentwood Rd NW

Grocery stores
Calgary Co-op Brentwood Centre 4122 Brentwood Rd NW
Safeway 3636 Brentwood Rd NW

Exercise facilities on Campus
http://www.ucalgary.ca/activeliving/facilities

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Schedule of Presentations and Events

* Denotes the speaker when multiple authors.

Friday September 12th, 2014

1800-2200 Registration

1900-2200 Wine and Cheese Reception

Saturday September 13th, 2014

0800-0845 Registration

0845-0900 Opening Remarks

Session 1 Coast to Coast

0900-1000 ***Plenary Speaker***

SETTING CONSERVATION PRIORITIES FOR HERPETOFAUNA CONSERVATION IN BRITISH COLUMBIA: CHALLENGES AND CURRENT INITIATIVES. Purnima Govindarajulu

1000-1020 **HERPETOLOGY OF RIVERINE SITES ALONG THE ENERGY EAST PIPELINE ROUTE FROM NEW BRUNSWICK TO ALBERTA: A TRAVELOGUE.** Frederick W. Schueler* and Aleta Karstad

1020-1040 **Break**

Session 2 Reptile Movements (Leslie Anthony)

1040-1100 **OBSERVATIONS ON THE DISTRIBUTION, ECOLOGY, MOVEMENTS AND REPRODUCTION OF RUBBER BOAS (Charina bottae) IN THE PEMBERTON VALLEY, BRITISH COLUMBIA: IMPLICATIONS FOR POPULATION STUDIES AND CONSERVATION.** Leslie Anthony Lowcock* and Veronica Woodruff

1100-1120 **NAVIGATING THE THERMAL LANDSCAPE: THERMAL ECOLOGY OF WOOD TURTLES (Glyptemys insculpta) IN THE NORTH.** Geoffrey N Hughes* and Jacqueline D. Litzgus

1120-1140 **PRELIMINARY RESULTS OF POST RELEASE STUDIES OF HEADSTARTED BLANDING'S TURTLES (*Emydoidea blandingii*) USING RADIO TELEMETRY.** Sue J. Carstairs* and Christina M. Davy

1140-1200 **PRAIRIE SKINKS OR FOREST SKINKS: MOVEMENT PATTERNS OF Plestiodon septentrionalis IN SOUTHWESTERN MANITOBA.** Pamela L. Rutherford*, Shane Pratt, Nicola Koper, Drew J. Hoysak and Dion J. Wiseman

1200-1400 **Lunch**

(Location TBD)

Session 3 Amphibian Ecology (David Green)

1400-1420 **ENVIRONMENTAL CORRELATES OF SPRING EMERGENCE IN FOWLER'S TOADS AT LONG POINT, ONTARIO.** Taylor Green and David M. Green*

1420-1440 **UNISEXUAL SALAMANDERS IN THE GENUS AMBYSTOMA DISCOMBOBULATE EFFORTS TO SAVE ENDANGERED SPECIES.** James P. Bogart

1440-1500 **LOCAL ADAPTATION OF SPOTTED SALAMANDERS (Ambystoma maculatum) TO NATURALLY ACIDIC CONDITIONS.** Nicholas H. Gervais*, David M. Green

1500-1520 **Break**

Session 4 Roadkill Mitigation part I (Joe Crowley)

1520-1540 **DETECTION OF SPATIOTEMPORAL SHIFTS IN HERPETOFUANA ROAD MORTALITY HOTSPOTS.** Sean P. Boyle*, Jacqueline D. Litzgus, Corina Brdar and David Lesbarrères

1540-1600 **THE IMPACTS OF ROAD MORTALITY MITIGATION ON THE POPULATION ECOLOGY OF Sistrurus catenanus IN KILLBEAR PROVINCIAL PARK.** Michael Colley*, Stephen C Lougheed, Kenton Otterbein, Jacqueline D Litzgus

1600-1700 **Annual General Meeting: Open to all members and guests.**

1700-1830 **Poster Session**

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

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Sunday September 14th, 2014

0800-0900 Registration

Session 5 Amphibian Movement (Lea Randall)

0900-0920 **IMPLICATIONS OF SEASONAL DIFFERENCES IN EXTINCTION AND COLONIZATION ON THE OCCUPANCY DYNAMICS OF AN IMPERILLED AMPHIBIAN.** Lea A. Randall,*, Des H.V. Smith, Breana L. Jones, David R.C. Prescott, Axel Moehrenschlager

0920-0940 **STRATEGIES OF DISPERSAL IN POND BREEDING AMPHIBIANS.** Katharine T. Yagi* and David M. Green

0940-1000 **USING RFID TECHNOLOGY AND PIT TELEMETRY TO TRACK AND MONITOR THE MOVEMENT OF SMALL-BODIED AMPHIBIANS.** Matthew R. Adams

1000-1020 **GIVING FROGS AND TOADS A HELPING HAND: AN EVALUATION OF AMPHIBIAN TRANSLOCATION EFFORTS FOR MITIGATION PURPOSES.** Aleksandra Bugajski*, Dustin Oaten, Tamara Lamb, Derek Ebner1 and Marcel Gahbauer

1020-1040 **Break**

Session 6 Conservation and Recovery (Jonathan Choquette)

1040-1100 **OJIBWAY PRAIRIE COMPLEX ROAD MORTALITY STUDY.** Jonathan D. Choquette

1100-1120 **WHAT WOULD BE A STRATEGY FOR RECOVERY? THE CASE OF THE GREAT LAKES/St LAWRENCE POPULATIONS OF Pseudacris maculata.** Frederick W. Schueler

1120-1140 **VALIDATION OF ENVIRONMENTAL DNA (eDNA) DETECTION FOR A SUITE OF SYMPATRIC AT-RISK AND INVASIVE TURTLE SPECIES.** Christina M. Davy*, Anne G. Kidd and Chris C. Wilson

1140-1200 **S.T.A.R.T. – DEVELOPMENT OF THE SAVING TURTLES AT RISK TODAY PROJECT IN MUSKOKA, ONTARIO.** Jeff Hathaway*, Hannah L. McCurdy-Adams, and Jacqueline D. Litzgus

1200-1215 **Group Photo**

1215-1400 **Lunch**

Session 7 Roadkill Mitigation part II (Steve Marks)

1400-1420 **Rt. Hon. HERB GRAY PARKWAY PROJECT.** Steve Marks* and Megan Hazell

1420-1440 **WESTERN TOAD ROADKILL MITIGATION IN KENTUCKY-ALLEYNE PROVINCIAL PARK, BC.** Kristiina Ovaska*, Lennart Sopuck, Christian Engelstoft, Andrea D. Lawrence, and Alan E. Burger

1440-1500 **REDUCING ROADKILL: DEVELOPING GUIDELINES FOR CROSSING STRUCTURES FOR AMPHIBIANS AND REPTILES.** David C. Seburn, Kari Gunson, Julia Kintsch, Joe Crowley*

1500-1520 **Break**

Session 8 Reptile Ecology (Steve Mockford)

1520-1540 **POPULATION SIZE AND DEMOGRAPHIC PARAMETERS IN WESTERN RATTLESNAKES *Crotalus oreganus* in BC.** Christine A. Bishop*, David Kirk, Owain McKibbin, Karl Larsen, Emily Lomas, Charlotte Stringham

1540-1600 **IDENTIFICATION OF CANOPY COVER THRESHOLDS FOR THE FIVE-LINED SKINK (Plestitodon fasciatus) NEAR THE NORTHERN EXTENT OF ITS RANGE**. Dan J. Brazeau*, Stephen J. Hecnar

1600-1620 **COURTSHIP OR COERCION? TESTING FOR A NOVEL MATING STRATEGY IN THE MIDLAND PAINTED TURTLE (Chrysemys picta marginata).** Patrick D. Moldowan*, Ronald J. Brooks, and Jacqueline D. Litzgus

1620-1640 **ANTHROPOGENIC INFLUENCES ON CHRONIC STRESS AND PATTERNS OF NEST PREDATION IN FRESHWATER TURTLES.** H. L. MCCurdy-Adams*, Jeff Hathaway, Jacqueline Litzgus

Monday September 15th, 2014

Field Trip Itinnerary (tentative)

800 All participants meet at U of Calgary for departure

1100-1145 arrive in Lethbridge and pick up lunch

1145-1300 lunch at Helen Schuler Nature Centre: Overview of Lethbridge Rattlesnake program

1300-1700 Field trip out to Cottonwood Park and Popson Park.

1730-1830 dinner then depart for U of Calgary

2100 Arrive at U of Calgary.

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Posters

* Denotes the presenter when multiple authors.

ENVIROMENTAL DNA: USING MOLECULAR ANALYSIS TO DETECT CANADIAN TOAD (*ANAXYRUS HEMIOPHRYS*) IN CENTRAL ALBERTA.
Brandon K. Booker; Kris Kendell*; David W. Coltman (PhD); Corey S. Davis (PhD); Doug Manzer, (PhD); Cynthia A. Paszkowski (PhD).

OJIBWAY PRAIRIE COMPLEX ROAD MORTALITY STUDY
Jonathan D. Choquette

PREPARING FOR THE FUTURE: A HOT SPOT ANALYSIS OF REPTILE ROAD MORTALITY IN KILLBEAR PROVINCIAL PARK.
Michael Colley*, Stephen C Lougheed, Kenton Otterbein, Jacqueline D Litzgus.

INFLUENCE OF AGRICULTURAL LANDSCAPE STRUCTURE ON ANURAN POPULATIONS IN THE NATIONAL CAPITAL REGION, CANADA.
Sara E.J. Collins* and Lenore Fahrig.

DOES TADPOLE DEVELOPMENTAL STAGE AFFECT CHLORIDE TOLERANCE?
Allison L. Copan* and Ronald W. Russell.

HERPETOFAUNA OF ALBERTA BIOBANK PROJECT.
Brian Eaton, Kris Kendell*, Ian Kriston, Anthony Russell, Mark Steinhilber.

THE IMPACTS OF ROADS ON COLONIZATION AND EXTINCTION DYNAMICS OF WETLAND AMPHIBIANS.
Mathilde Girard-Robert [*] , Marc J. Mazerolle , and Louis Imbeau.

ALBERTA VOLUNTEER AMPHIBIAN MONITORING PROGRAM.
Kris Kendell.

GEOGRAPHIC VARIATION IN SOMATIC GROWTH RATE OF WOOD TURTLES (*Glyptemys insculpta*).
Kelsey A. Marchand*, Geoffrey N. Hughes, and Jacqueline D. Litzgus.

TURTLES WITH TEETH: TOMIODONT MORPHOLOGY AND FUNCTIONAL SIGNIFICANCE IN THE PAINTED TURTLE (*Chrysemys picta*).
Patrick D. Moldowan*, Ronald J. Brooks, and Jacqueline D. Litzgus.

MAKING IT OUT ALIVE: A SWIMMING POOL ESCAPE ROUTE FOR BLOTCH TIGER SALAMANDERS, SOUTH OKANAGAN, BC.
Katherine Pullman[1] and Sara Ashpole*.

RALLYING COMMUNITY SUPPORT FOR THE CONSERVATION OF FOWLER'S TOADS AT LONG POINT, ONTARIO.

Katharine Yagi*, Anne Yagi and David M. Green.

***Denotes students to be judged for presentation and poster awards, in the following abstracts.**

***ADAMS**

USING RFID TECHNOLOGY AND PIT TELEMETRY TO TRACK AND MONITOR THE MOVEMENT OF SMALL-BODIED AMPHIBIANS

Matthew R. Adams

Biological Sciences Department, University of Alberta, Edmonton, AB, T6G 2E9, mratkins@ualberta.ca

Small-bodied vertebrates, including reptiles and amphibians, are historically difficult to track using conventional methods, such as radio telemetry. Limitations to using radio telemetry often result from the relatively large size of transmitters, compared to animal body size, and the short battery life of small transmitters. In an ongoing study, I use passive integrated transponder (PIT) tags and a hand-made, mobile radio frequency identification (RFID) antenna to conduct PIT telemetry as an alternative to radio telemetry with long-toed salamanders (*Ambystoma macrodactylum*) in Waterton Lakes National Park, Alberta. In this study, PIT tags and RFID antennas, both mobile and stationary, are used to monitor salamander use of road crossing structures, and to locate subterranean individuals in the terrestrial environment after breeding activities have concluded in the early summer. Using these methods, I have detected over 100 road crossing events, as well as relocated over 100 individual salamanders terrestrially. Although PIT telemetry has been tested for practicality in simple experimental studies, this study is one of the first to successfully use it as a method to answer ecological questions regarding habitat use and movement patterns with an amphibian in the terrestrial environment.

PLATFORM

POPULATION SIZE AND DEMOGRAPHIC PARAMETERS IN WESTERN RATTLESNAKES *Crotalus oreganus* in BC

[1]*Christine A. Bishop, [2]David Kirk, [3]Owain McKibbin, [4]Karl Larsen, [4]E mily Lomas,
[5] Charlotte Stringham [6] Jeffrey Row [7] Juanxia He

[1]Environment Canada, Wildlife Research Division, 5421 Robertson Road, Delta, BC V4K3N2 Cab.bishop@ec.gc.ca;
[2]David Kirk, Aquila Conservation & Environment Consulting, 75 Albert Street, Suite 300, Ottawa, Ontario K1P 5E7; Environment Canada,
[3]Canadian Wildlife Service, 5421 Robertson Road, Delta, BC V4K3N2 owain.mckibbin@ec.gc.ca;
[4]Thompson Rivers University, Kamloops, BC klarsen@tru.ca; emlomas@gmail.com; ,
[5]Osoyoos Indian Band, 1000 Rancher Road, Osoyoos, BC, V0H1V6 cstringham@nkmipdesert.com
[6]Environment and Resource Studies, University of Waterloo, Waterloo, Ontario, Canada, N2L 3G1 Jeff.row@me.com
[7]University of Ottawa

We used data collected from a 10-year study of Western Rattlesnakes (*Crotalus oreganus*) at the Osoyoos Indian Reserve (OIR) in the southern Okanagan of British Columbia to: 1) calculate overall population size using mark-recapture observations; and 2) calculate the age of maturity based on growth rates over time of reproductive females and generation time (the average age of reproductive individuals in the population). A third component was to develop a habitat suitability model from occurrence data for the entire range to predict habitat-specific densities and overall population size of rattlesnakes in the province. We used 'R-capture' (developed in the R statistical package) which uses a poisson regression model with the loglinear output parameters being converted to population estimates. We ran the model as an open model which assumes that immigration and mortality occur between sampling periods. We divided the data into time periods (years) for a robust model and estimated abundance and survival for each sampling period using the Jolly-Seber method. We ran separate models for adults and juveniles and juveniles and adults combined.According to the population model, the rattlesnake population at the OIR was estimated at 1351 individuals (including adults and juveniles). We therefore estimate that the maximum age at maturity is on average 8.16.
To estimate population size of rattlesnakes within their entire provincial range, we obtained data on rattlesnake distribution and abundance from the British Columbia Conservation Data Centre. Based on the total area of habitat and density estimates from the OIR, the total population according to MaxEnt models was either 86,134 or 65,539 and for Boosted Regression Trees it was either 30,052 or 25,627. The latter estimates are more conservative and likely more accurate since MaxEnt has a tendency to overestimate habitat suitability.

PLATFORM

UNISEXUAL SALAMANDERS IN THE GENUS *AMBYSTOMA* DISCOMBOBULATE EFFORTS TO SAVE ENDANGERED SPECIES.

James P. Bogart

Department of Integrative Biology
University of Guelph, Guelph, ON, N1G 2W1, jbogart@uoguelph.ca

Unisexual (all female) salamanders require sperm donors for recruitment. Unisexuals are mostly triploid but can be diploid, tetraploid, and even penataploid. Their nuclear genome always has at least one set of *A. laterale* chromosomes but the other set(s) can be chromosomes of *A. barbouri*, *A. jeffersonianum*, *A. texanum*, or *A. tigrinum*. These 5 species are used by unisexuals as sperm donors. Normally, reproduction of unisexuals is gynogenetic and sperm is used only to stimulate embryogenesis but sperm can be incorporated to elevate ploidy. Unisexuals arose about 5 million years ago and possess a common mitochondrial genome that is distinctly different from that found in any of the sperm donors. In various parts of the sperm donor's ranges, the sperm donor is designated as an endangered species. In Canada, all populations of two endangered species (*A. jeffersonianum*, and *A. texanum*) co-exist with unisexuals, which make up more than 90% of the individuals in most populations. Distinguishing between the sperm donor species and unisexuals within a population is difficult and requires genetic screening. For this reason, unisexuals that live with *A. jeffersonianum* are also protected under the Species at Risk Act even though unisexuals might constitute a major threat to an endangered species when sperm is limiting in a population. If sperm donors are extirpated in a population, unisexuals cannot reproduce and will also be extirpated. Is there a unisexual/bisexual evolutionarily stable strategy? Can unisexuals switch sperm donors when a species is rare or extirpated? These questions are addressed by comparing populations of unisexuals in Ontario that steal sperm from Canada's two endangered species of mole salamanders.

PLATFORM

***BOOKER**

ENVIROMENTAL DNA: USING MOLECULAR ANALYSIS TO DETECT CANADIAN TOAD (*ANAXYRUS HEMIOPHRYS*) IN CENTERAL ALBERTA.

Brandon K. Booker[1]; Kris Kendell[2]*; David W. Coltman (PhD)[3]; Corey S. Davis (PhD)[4]; Doug Manzer, (Ph.D)[5]; Cynthia A. Paszkowski (PhD)[6]

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Monitoring species by detection is the first stage to creating biodiversity indices for species distributions. Traditional amphibian monitoring using physical detection may be biased due to the secretive nature of many amphibians (Jung *et al*. 2000). This presents a need for innovative approaches to amphibian monitoring that are more sensitive and comprehensive. In aquatic habitats sloughing cellular debris creates an accumulation of nucleic acids. Amplifying, sequencing, and comparing short genetic fragments from the environment (environmental DNA or eDNA) may provide information on what organisms occupy a habitat. In Alberta, the Canadian Toad (*Anaxyrus hemiophrys*) is listed as a "data deficient" species due to insufficient information to determine if it is at risk (Alberta Environment and Sustainable Resource Development 2012). We are developing an eDNA protocol to detect Canadian Toads and testing it across their range in central Alberta. We selected 26 potential breeding ponds by querying Alberta's Fisheries and Wildlife Management Information System (FWMIS) database and consultation with local researchers. Call and visual encounter surveys were conducted at each site for Canadian Toad presence or absence. Four water samples were taken per site in a triangulated pattern, preserved, and stored at -20°C until processed. Two target loci will be amplified from water samples, sequenced, and aligned to known Canadian Toad sequences to establish presence or absence at each site. Results will be compared to the physical detection data determine the reliability of the eDNA method for detecting the Canadian Toad.

POSTER

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***BRAZEAU**

IDENTIFICATION OF CANOPY COVER THRESHOLDS FOR THE FIVE-LINED SKINK (*Plestiodon fasciatus*) NEAR THE NORTHERN EXTENT OF ITS RANGE

Dan J. Brazeau[1]*, Stephen J. Hecnar [1]

[1]Department of Biology, Lakehead University, Thunder Bay, ON, P7B 5E1, dbrazeau@lakeheadu.ca, shecnar@lakeheadu.ca

The consequences of living in a particular habitat can influence processes beyond the individual with observable effects on populations, species interactions, assembly of ecological communities, and the origin and maintenance of biodiversity. The study of habitat selection by animals is thus vital to identify potential threats and to conserve species at risk. Habitat use of the Five-lined Skink (*Plestiodon fasciatus*) has been reasonably well studied, with populations located in northern portions of the species range occurring primarily in open areas within the eastern deciduous forest. However, the relative importance of canopy structure to other habitat variables for skink occupancy and the nature of this relationship remains largely unknown. Our study asks whether skinks show a gradual or threshold response with increasing canopy cover. We completed visual surveys of cover board transects and measured multiple habitat parameters to study their relative effects on a Carolinian population of Five-lined Skinks in Ontario, Canada. Using Poisson regression analysis and Akaike Information Criteria several variables were identified as contributing to observed habitat use. We identified canopy cover (%) as the single most important variable of the final model. To examine whether habitat use exhibited a threshold response to canopy cover we used Piecewise regression to test for abrupt changes in the correlative relationship. This analysis revealed two thresholds in the correlation, a lower level threshold of 38% and an upward level threshold of 55%. Habitat loss and the rate of natural succession are concerns for the remaining Endangered Carolinian populations of the Five-lined Skink. Knowledge of the interaction between occupancy and forest canopy structure may assist targeted management efforts to preserve existing isolated populations and to restore areas for future translocations.

PLATFORM

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***BOYLE**

DETECTION OF SPATIOTEMPORAL SHIFTS IN HERPETOFUANA ROAD MORTALITY HOTSPOTS

Sean P. Boyle[1*], Jacqueline D. Litzgus[1], Corina Brdar[2] and David Lesbarrères[1]

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Reptiles and amphibians are among the most threatened taxa on local and global scales. Roads, which are the most pervasive human structure on the planet, present one of the most significant threats to herpetofauna populations. Common techniques used to mitigate these threats include exclusion fencing to minimize animal access to roads and culverts to maintain habitat permeability; however, appropriate placement of mitigation structures requires prior knowledge of animal crossing locations. Hotspot analysis allows researchers and managers to quickly identify areas of concern in order to maximize the effectiveness of mitigation. Multiple surveys were conducted daily in order to rigorously identify herpetofauna crossing points on the park road. Linear Ripley's K-analyses were used on GPS waypoints to identify significant hotspots for all herpetofauna. Hotspots varied spatially both within and between taxa. We identified six major hotspots along 1.2 km of road: one for turtles, three for snakes, and two for frogs. Based on our first year of data, we developed a comprehensive mitigation strategy. We suggest that by collecting multiple years of data, will allow us to detect stochastic shifts in herpetofauna movement patterns across a road. Our methodology highlights the importance of intensive monitoring and a multi species approach. Presqu'ile Provincial Park is installing two 2m box culverts, four 0.8m culverts and 1.2 km of exclusion fencing on both sides of the road when they repave their main road in October 2014.

PLATFORM

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GIVING FROGS AND TOADS A HELPING HAND: AN EVALUATION OF AMPHIBIAN TRANSLOCATION EFFORTS FOR MITIGATION PURPOSES

Aleksandra Bugajski[1]*, Dustin Oaten[2], Tamara Lamb[3], Derek Ebner[1] and Marcel Gahbauer[4]

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Habitat destruction and fragmentation have been identified as primary threats to amphibian populations and are contributing in many amphibians being identified as species at risk. Translocation has been identified as a potentially effective means to reduce the effects of development activities on amphibians. Translocation can reduce direct mortality of individuals during project activities when disturbance of breeding or overwintering habitats cannot be avoided. This presentation outlines recommended methods and examples of translocation programs that have been implemented for several industrial development projects in western Canada. Through these programs, individuals from known breeding populations of western (*Anaxyrus boreas*) and Canadian toads (*Bufo hemiophrys*) occurring within or adjacent to development footprints were captured and translocated during construction activities. Amphibians were prevented from entering construction sites through the use of pitfall traps and silt fencing and were captured by hand for translocation. Over three field seasons, 105 western and 56 Canadian toads were translocated at projects in central Alberta and southern Saskatchewan. Capture success for western toads was highest during spring breeding with the use of spot lighting and nets with >90% of these individuals being male. Pitfall trapping was ineffective for western toads during the spring and fall with only one individual caught in 2012. Conversely, 80% of Canadian toads were caught in pitfall traps during the fall, with 98% of those individuals being young of the year. Diminishing returns of captured individuals throughout these programs suggest that we were successful at capturing toads for mitigation purposes. The timing of use and placement of different trap types should be considered prior to any translocation programs.

PLATFORM

CARSTAIRS

PRELIMINARY RESULTS OF POST RELEASE STUDIES OF HEADSTARTED BLANDING'S TURTLES (*EMYDOIDEA BLANDINGII*) USING RADIO TELEMETRY

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The Kawartha Turtle Trauma Centre (Ontario Turtle Conservation Centre) is completing its third year of field studies monitoring survival and behaviour of headstarted Blanding's turtles (*Emydoidea blandingii*). Turtles for the study originated from eggs retrieved from injured or deceased turtles admitted to KTTC. These turtles were twice overwintered, and released near the origin of the mother, at a weight between 100 and 200 grams. The purpose of this long term study is to aid in providing information to assess the viability of headstarting as a conservation strategy for Ontario's turtles. Turtles were tracked using radio telemetry. In 2012, 10 juvenile headstarted turtles were released at one study site. Eight of the 10 were predated over the course of the summer. Two turtles proceeded into hibernation. One of these hibernated successfully; the second lost its transmitter over the winter and only the transmitter was recovered. In 2013, an additional 38 headstarted Blanding's turtles were released at 5 different field sites. In addition, a control group of 10 wild Blanding's was added at the initial field site. Including the original survivor from 2012, this resulted in 49 turtles tracked in total. At the original field site, of 10 controls and 13 headstarted turtles, all hibernated successfully except for one headstarted juvenile found dead in the spring. At the other 4 field sites, no mortalities were discovered. However, 2 headstarted juveniles at one site have been impossible to detect, despite many months of searching. In 2014, an additional juvenile wild control was added at the original field site. There have been no mortalities throughout the summer.

PLATFORM

THE OJIBWAY MASSASAUGA RECOVERY PROJECT

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The Ojibway Prairie population of Eastern Massasaugas in Windsor/LaSalle Ontario is an important component of Canadian herpetofauna as it represents an ecologically and genetically unique entity. This population is isolated from its Canadian counterparts by over 300 km and is the only Canadian representative of a Tallgrass Prairie population of Eastern Massasauga. Unfortunately, the extent of occurrence of this population has contracted by an estimated 75% over the past 40 years to the point where only one or two dozen adults are thought to remain. Although hundreds of hectares of suitable habitat is protected within the Ojibway and LaSalle Prairie Remnants, much of this is unoccupied and colonization from occupied patches is hindered by roads, development and, increasingly, small population size. Should the Ojibway Prairie population be allowed to go extinct, the geographic range and genetic variation of the Eastern Massasauga in Canada will decline drastically. The goal of the Ojibway Massasauga Recovery Project is to conduct research and recovery actions aimed at reducing the extinction probability of the Ojibway Prairie population. These include long-term monitoring, threat mitigation, increasing connectivity, habitat restoration and population augmentation. Road mortality surveys were conducted from 2010 – 2013 to estimate incidence of road mortality and to guide mitigation locations. Building on previous work by the Ojibway Nature Centre, long-term monitoring using standardized, time constrained visual encounter surveys began in 2013 to estimate detection probability and trends in occupancy. Gestation sites are currently being monitored via trail cameras to better estimate poaching threat. Large-scale habitat enhancement and restoration initiatives are planned for fall 2014. Regardless, the steady trend in range decline and number of gravid females observed strongly suggests an immediate need for *ex situ* management interventions in order to prevent extirpation. A preliminary proposal for a long-term head-starting and population augmentation program will be discussed.

Platform

OJIBWAY PRAIRIE COMPLEX ROAD MORTALITY STUDY

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Road mortality is an important threat to the persistence of endangered reptiles in Canada. The Ojibway Prairie Complex is the largest protected Tallgrass Prairie remnant in Ontario, contains several Provincially Significantly Wetlands and supports numerous Species at Risk (SAR). Despite its ecological significance, it is severed by multiple high traffic roads resulting in wildlife mortality and habitat fragmentation. The main goal of this study was 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. A systematic road mortality study was conducted by bicycle along seven roads (12.5 km) from May to August 2010, August to October 2012, and May to October 2013. Also, opportunistic road mortality records spanning 1984 - 2013 were gathered from various sources. In total, 2083 vertebrates (51 species), including 446 reptiles (11 species), were recorded 'dead on road' (DOR) during systematic surveys. After controlling for number of kilometers surveyed, turtles were most frequently recorded DOR in May and June (0.06 DOR/km), snakes in August (0.36 DOR/km) and SAR in September (0.09 DOR/km). Seven SAR reptiles have been observed DOR systematically and opportunistically: Blanding's Turtle, Butler's Gartersnake, Eastern Foxsnake, Eastern Musk Turtle, Massasauga, Northern Map Turtle, and Snapping Turtle. SAR are being killed on all seven roads surveyed. Reptile DOR appear to cluster where a high transmission power line corridor intersects each of four roads in the study area. 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 SAR 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.

POSTER

***COLLEY**

THE IMPACTS OF ROAD MORTALITY MITIGATION ON THE POPULATION ECOLOGY OF *Sistrurus catenatus* IN KILLBEAR PROVINCIAL PARK

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Reducing road mortality is essential to reptile conservation. The Georgian Bay, Ontario population of the Eastern massasauga rattlesnake (*Sistrurus catenatus*) is designated as Threatened by COSEWIC, in part because of high road mortality. Killbear Provincial Park has taken steps to reduce reptile road mortality through construction of 4 ecopassages and barrier fencing along 3 busy park roads. Although ecopassages have been widely recommended, their effectiveness has rarely been evaluated. Our goal is to study the efficacy of fencing and ecopassages and to determine their impact on local Massasauga population viability. Park roads will be monitored twice daily on bicycles, and again at night by car to document locations of both living and dead Massasaugas. Spring, summer and fall surveys will create a subpopulation of PIT-tagged snakes. Automated PIT tag readers and trail cameras installed at each ecopassage will record snake activity. To further explore the effectiveness of the ecopassages a "willingness to utilize" experiment will be conducted. Information collected will augment the park's long-term database (1992-present), which includes mortality rates and locations of dead and live captures on roads, campgrounds and along fences. Population viability modeling will predict the demographic requirements for this species' survival, determine current status, and provide a relative estimate of the effect of road mortality on the long-term viability of Killbear's Massasauga population. Ultimately, this project will provide a template for construction of similar ecopassages in other key locations where road mortality is prevalent.

PLATFORM

***COLLEY**

PREPARING FOR THE FUTURE: A HOT SPOT ANALYSIS OF REPTILE ROAD MORTALITY IN KILLBEAR PROVINCIAL PARK

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Scientists are increasingly concerned over global declines in reptile populations. These declines have been attributed to multiple causes including habitat fragmentation and loss, climate change, persecution, and road mortality. Roads cause diminution in population size through direct mortality caused by vehicles. Wildlife barriers and ecopassages recently have been used in many locations in an attempt to reduce the threat of reptile road mortality. Killbear Provincial Park in Ontario hosts a variety of reptile species, many of which are in decline, in part, because of road mortality. The park currently has 3.5 km of wildlife barrier fencing and 4 ecopassages, thus potentially mitigating road mortality on 2.5 km of park roads; however, road mortality still occurs in places lacking mitigation measures. Our goal is to identify and quantify the locations of high road mortality ("hot spots") and potential future mitigation sites. In 2013 and 2014 park roads were monitored twice daily on bicycles, and again at night by car to document locations of both living and dead snakes and turtles. Prior to 2013, park staff opportunistically monitored park roads by car for Massasauga Rattlesnakes and Eastern Foxsnakes. Road surveys in 2013 indicated over 190 dead-on-road reptiles and identified three sites on park roads that may need mitigation. Road surveys to date in 2014 have documented over 90 dead-on-road reptiles; data from the 2014 field season are still being collected and will augment the final analyses. We will use approaches encoded in SIRIEMA and Circuitscape software to identify specific hot spots that require mitigation. Determining the locations of such hot spots is essential for directing effective future mitigation on roadways. The outreach completed as a component of this project will help inform key stakeholders and the public of the negative effects that roads have on reptiles and measures that can counter them.

POSTER

***COLLINS**

INFLUENCE OF AGRICULTURAL LANDSCAPE STRUCTURE ON ANURAN POPULATIONS IN THE NATIONAL CAPITAL REGION, CANADA

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Agricultural intensification has been identified as the leading cause of habitat degradation and global biodiversity decline. There is strong need therefore to identify agricultural landscape characteristics that provide refuge for local biodiversity and minimize environmental impacts. Promoting landscape heterogeneity on farms has been suggested as a means to achieve these goals. Landscape heterogeneity refers to the diversity of cover types in a given area and the complexity of their spatial arrangement. Evidence suggests that more heterogeneous landscapes support higher biodiversity and promote population stability. The objective of this research was to determine if agricultural landscape heterogeneity influences anuran populations in a farming dominated region. We hypothesized that agricultural landscapes with smaller field sizes and landscapes with higher amounts of semi natural cover support anuran populations by facilitating successful dispersal between habitat types, and by providing refuge habitat. In spring 2012, 36 farms in eastern Ontario representing gradients in configurational heterogeneity (mean field size) and proportion of cropped cover were surveyed for anuran richness and abundance following standard anuran auditory survey protocols. The landscape heterogeneity metrics (predictor variables) were calculated in a 1km radius around each survey point using Arc GIS software. Significant relationships were found between both anuran species richness and total abundance with both mean field size and proportion of cropped cover within agricultural landscapes. Anuran species richness and total abundance increased as mean field sizes decreased in agricultural landscapes. Both response variables decreased as the proportion of cropped cover in the landscapes increased. Results support predictions that landscape heterogeneity in farms can benefit anuran species, and can be applied to policies to reduce field sizes and maintain areas of natural cover in farms. Furthermore, these results represent a part of a larger trend in focusing more conservation efforts on human modified landscapes.

POSTER

***COPAN**

DOES TADPOLE DEVELOPMENTAL STAGE AFFECT CHLORIDE TOLERANCE?

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Road salt (NaCl) used for deicing in winter is recognized as a major contributor to increasing salinization of surface and ground waters in northern latitudes. The low cost, availability, and high usage of NaCl on roads has resulted in rates of salinization that threaten availability of fresh water in Eastern Canada and the northeastern United States. Amphibians inhabiting roadside wetlands are particularly susceptible to the toxic effects of chloride in runoff water. A number of researchers have published results from acute exposures of amphibians to chloride. The experimental results are, for the most part, not comparable. We exposed wood frog tadpoles (*Lithobates sylvaticus*) of different Gosner developmental stages to chloride in the form of salt (NaCl). Tolerance to chloride increased dramatically with Gosner stage and weight. Wood frog tadpoles collected from salty and relatively salt-free wetlands were exposed to acute concentrations of chloride. No tolerance was observed in tadpoles collected from the saltier wetlands. Early stage wood frog tadpoles were exposed to acute concentrations of chloride at environmentally significant temperatures. Tadpoles exposed at low temperatures exhibited significant increases in chloride tolerance over those exposed at room temperature. This was confirmed with American toads (*Anaxyrus americanus*). This work highlights the necessity for details of tadpole developmental stage, weight, and test conditions in order to properly compare data from different researchers.

POSTER

DAVY

VALIDATION OF ENVIRONMENTAL DNA (eDNA) DETECTION FOR A SUITE OF SYMPATRIC AT-RISK AND INVASIVE TURTLE SPECIES

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Detection rates for rare or invasive species are often low. Thus, extensive survey effort is often required to determine presence or likely absence of at-risk species, especially those with cryptic behaviours. Low detection rates can lead to false assumptions that a species is absent from a site. This has direct conservation implications at sites where large developments and habitat modifications are proposed, because the habitat of at-risk species is often not protected until the species' presence at the site is confirmed. Molecular approaches can improve the detection of cryptic species. For example, environmental DNA (eDNA; DNA shed by an organism into its habitat) can be used to detect species at a site where individuals are present, but difficult to detect with traditional survey methods. eDNA surveys have been successfully applied to fish, amphibians and snakes, but have not yet been described for freshwater turtles. We developed a panel of species-specific primers for the eight turtle species native to Ontario (*Chrysemys picta, Emydoidea blandingii, Graptemys geographica, Clemmys guttata, Glyptemys insculpta, Apalone spinifera, Chelydra serpentina* and *Sternotherus odoratus*). We also designed primers targeting an invasive and now established species, the Red-Eared Slider (*Trachemys scripta).* Primers successfully amplified target species and did not cross-amplify among species. Validation using water from aquaria containing captive turtles was successful (i.e. we were able to detect the DNA of each species in aquarium water). A preliminary field test from a pond containing *T. scripta* was also successful, indicating that this method could be applied to field surveys. There are challenges with eDNA detection that must be considered when designing an eDNA survey. Once these are overcome, eDNA surveys for turtles may prove more cost-effective and accurate than traditional presence-absence surveys.

PLATFORM

HERPETOFAUNA OF ALBERTA BIOBANK PROJECT

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The Herpetofauna of Alberta BioBank (HABB) is a collaborative project developed by the Alberta Amphibian and Reptile Specialist Group (AARSG) and the Royal Alberta Museum (RAM). AARSG, chaired by the Alberta Conservation Association (ACA), is a network of scientists and naturalists dedicated to the study and conservation of amphibians and reptiles in Alberta. One role of the AARSG is to initiate new projects that will be beneficial to all who are interested in amphibians and reptiles in this province. The HABB project is the first of these initiatives. AARSG, through the HABB project, coordinates the collection, curation, and supply of amphibian and reptile tissue for genetic, disease and contaminant research, and other applications. The objective is to ultimately develop a tissue bank that covers the entirety of the province, on a grid-like basis. Currently the testing of the collection protocol and curation process is underway, based upon the acquisition of anuran larvae. Tissues are being collected and preserved following a standardized protocol and are then shipped to the RAM in Edmonton for verification of identification, curation, storage and disbursement. Based upon the current testing procedure, protocols will later be developed for the collection and handling of tissue from other anuran life stages, larval and adult salamanders, and reptile species. The BioBank will be managed by the RAM and disbursement of tissue will be at its discretion.

POSTER

***GIRARD-ROBERT**

THE IMPACTS OF ROADS ON COLONIZATION AND EXTINCTION DYNAMICS OF WETLAND AMPHIBIANS

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Habitat degradation and fragmentation are the leading factors affecting the loss of biodiversity. Functional connectivity between local populations is essential for the long term viability of populations. The fragmentation and deterioration of amphibians' habitat following the establishment of roads may pose a serious problem for populations persistence. The purpose of our study is to quantify the impact of roads on colonization and extinction dynamics of wetland amphibians. We selected 54 wetlands in each of two study areas, one located in the vicinity of Plaisance National Park (Outaouais) and another in Aiguebelle National Park (Abitibi-Témiscamingue). Using a stratified sampling design, we randomly selected wetlands along on a gradient of road distances from wetlands (<50 m, 50-100 m, >100 m) and road types (unpaved, secondary asphalted, primary asphalted). Each site was visited 3 to 4 times per season for three breeding seasons (2012 - 2014). We used call surveys to detect anurans at each site. We are testing several hypotheses regarding the effects of road distance, road type and the interaction with forest cover surrounding the wetlands. Specifically, we predict that forest cover or wetland cover can mitigate the effect of road proximity on population persistence. We are using dynamic occupancy models to estimate the occupancy, extinction, and colonization parameters, after accounting for imperfect detectability.

POSTER

***GERVAIS**

LOCAL ADAPTATION OF SPOTTED SALAMANDERS (*Ambystoma maculatum*) TO NATURALLY ACIDIC CONDITIONS.

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Adaptation is the key to survival in adverse environmental conditions. Degraded habitats have multiple negative effects on amphibian populations yet some species have been found to be able to adapt to less than ideal conditions. Bat Lake in Algonquin Park, Ontario, is naturally highly acidic yet supports a robust breeding population of Spotted salamanders (*Ambystoma maculatum*). If this population has become specifically adapted to the acidic conditions of Bat Lake compared to other populations in non-acidified water bodies, then larvae of Bat Lake salamanders should grow and survive better when grown under acidic conditions than larvae from elsewhere, and vice versa. To test this hypothesis, we raised Bat Lake larvae and larvae from four less acidic lakes in the surrounding area in common garden lab experiment under conditions spanning a range of pH values and in waters of the various lakes. Egg masses and lake water were taken from the each of the five study populations in early spring. In total, 485 larvae were grown in individual cups until metamorphosis. All were fed *ad libidum* on brine shrimp and California blackworms. Time to metamorphosis, size at metamorphosis and survival rate from each treatment were recorded and compared. Preliminary results show that overall, the larvae fared better in their own waters then in the waters of other lakes. In the pH treatments, they all fared poorly in the highly acidic treatments (pH4) but most populations did well in the moderately acidic ones (pH5.5). Most surprisingly, the larvae also did very poorly in the neutral pH treatments showing that they may all be adapted to a certain level of acidity.

PLATFORM

SETTING CONSERVATION PRIORITIES FOR HERPETOFAUNA CONSERVATION IN BRITISH COLUMBIA: CHALLENGES AND CURRENT INITIATIVES

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British Columbia has the second most diverse herpetofauna in Canada. However, 55% of native amphibian species (11/20) and 66% of native reptile species (8/12) are of conservation concern at the provincial and/or national level. Given this high level of concern and limited financial and logistical resources, how can conservation priorities be set? Internationally, NatureServe provides scientific data to rank species at risk from Latin America to Canada, and this system is also used to rank species in British Columbia. Nationally, the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) ranks species at risk. While neither scheme sets conservation priority, the results of these rankings strongly influence conservation actions. Nationally, under the Species at Risk Act once a species is legally designated at risk, strategies and plans are drafted that rank specific conservation actions for each species by urgency as "essential" (start immediately), "necessary" (start in 2-5 years) and "beneficial" (do when feasible). In addition, the B.C. Ministry of Environment launched the Conservation Framework in 2007 to guide effective conservation actions by prioritizing species (and ecosystems) for conservation. Although this scheme prioritizes species for conservation, it does not prioritize the conservation actions. Another useful tool for potentially guiding conservation actions is the threat classification system developed by the IUCN and Conservation Measures Partnership (IUCN-CMP) which provides a standardized way of classifying threats facing species-at-risk. Addressing the highest impact threats and threats that affect the most number of species from this standardized threat assessment could set the priority for conservation. The challenge facing conservation managers is how to take the outputs of these ranking schemes, recovery strategies and threat assessments and set priorities for effective conservation. The talk summarizes recent and current herpetology conservation projects, and evaluates their importance against the tools described above that could be used for priority setting. The talk addresses the question: Are the current projects addressing the highest priority conservation issues for herpetofauna in B.C.?

PLATFORM

GREEN

ENVIRONMENTAL CORRELATES OF SPRING EMERGENCE IN FOWLER'S TOADS AT LONG POINT, ONTARIO.

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Global climate warming, bringing with it shorter winters and earlier springs, is predicted to lead to an increasingly earlier onset of spring breeding by anurans. There have been numerous observations in accordance with this prediction but there has also been apparently contradictory evidence, particularly from a population of Fowler's toads at Long Point, Ontario, at the northern limit of their range. We re-examined the onset of springtime emergence and chorusing behaviour using data collected over 24 years (1989 – 2012) to test for environmental correlates to an hypothesized early spring ascent of the animals through the soil column, associated with the vernal turnover of the subsurface temperature gradient, and emergence from the ground and resumption of surface activity six to nine weeks later. Over the period of 24 years, there was consideration variation in emergence date and no strong correlation with average annual spring air temperatures. However, air temperature just after the spring equinox and rainfall 3 – 4 weeks later were both significantly correlated with the timing of spring emergence some 7 – 10 weeks after the vernal equinox. The actual day of spring emergence was significantly associated with the waxing full moon and a rise in surface air temperature. Species that hibernate terrestrially deep underground to escape penetrating frost may respond differently to springtime surface temperature trends than do species that overwinter nearer to the surface.

PLATFORM

S.T.A.R.T. – DEVELOPMENT OF THE SAVING TURTLES AT RISK TODAY PROJECT IN MUSKOKA, ONTARIO.

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The District of Muskoka features a largely natural Canadian shield landscape with varying levels of anthropogenic impact. Substantial populations of six of Ontario's eight turtle species remain in the District, though most are rare in adjacent areas to the south, east, and north due to habitat loss or cooler climate. Turtle population declines are suspected in Muskoka, but little effort has been made to substantiate these in the past. The human population is growing, however it is also affluent, well educated, and supportive of turtle conservation. The combination of these factors makes Muskoka an ideal location for a long-term turtle conservation project. The Saving Turtles at Risk Today project began in 2013 and expanded considerably in 2014. It is a multi-pronged approach to conservation involving research (i.e. nest predation and chronic stress across anthropogenic influences) and stewardship efforts (i.e. outreach, volunteer training, nest protection). Funding is secured for two more years and we expect the project to expand and continue for the long term. This presentation explores the goals and progress of the project, and offers an unusual opportunity for discussion and input into the direction of research over the next few years.

PLATFORM

***HUGUES**

NAVIGATING THE THERMAL LANDSCAPE: THERMAL ECOLOGY OF WOOD TURTLES (*Glyptemys insculpta*) IN THE NORTH

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The features of a physical landscape (topographic relief, canopy cover, and water and soil configurations) generate a dynamic thermal landscape over the course of daily and seasonal cycles. For ectothermic organisms like reptiles, this thermal landscape may be of greater importance than the physical landscape. Previous thermal ecology studies have mainly focused on thermal selection at the site level, rather than on the landscape level; the thermal landscape concept has thus far primarily been studied in urban planning. Our project explores the thermal landscape as an ecological concept, along with its implications for conservation. The wood turtle (*Glyptemys insculpta*) was chosen as the study species; being more terrestrial than other Ontario turtle species, the wood turtle covers a wide variety of terrestrial and aquatic habitats during the course of its active season. Using thermal imaging cameras, we will compare the importance of physical and thermal properties in nest-site selection by female wood turtles, and test the effectiveness of thermal imaging cameras as tools for detecting turtle nests. Using temperature dataloggers attached to radio-tagged turtles and to thermal models placed throughout the study area, we will examine the predictive utility of the thermal landscape model on wood turtle habitat use and movements. We will also place thermal models within nearby harvested forestry sites and aggregate pits; comparisons to the thermal model data from the main study site will allow us to examine the thermal impact of resource development on wood turtle habitat. We will use these data to develop and test a rehabilitation strategy for retired aggregate pits in wood turtle ranges. Preliminary data will be presented.

PLATFORM

ALBERTA VOLUNTEER AMPHIBIAN MONITORING PROGRAM.

Kris Kendell

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The Alberta Volunteer Amphibian Monitoring Program (AVAMP) is delivered by Alberta Conservation Association (ACA) in partnership with Alberta Environment and Sustainable Resource Development. AVAMP is a long-term community survey of amphibians established in 1992 under the auspices of the Declining Amphibian Population Task Force (DAPTF) in response to information showing that many populations of amphibians throughout the world have declined. Such declines have been documented in Alberta (e.g., northern leopard frog [*Lithobates pipiens*]). AVAMP participants contribute to the advancement of amphibian and reptile conservation through submission of voluntary data on their own time, without direct supervision from ACA. AVAMP is an effective and economical means to collect basic data (i.e., species, date, location and surveyor) that can be used by researchers, government, educators, and consulting companies. This data provides general distribution information for herpetofauna populations in the province and, along with other data, assist in updating the general status of amphibians and reptiles in Alberta. All data collected through the project is entered into Fish and Wildlife Management Information System (FWMIS) database. FWMIS provides a central repository where government staff, industry and the public can store and access fisheries and wildlife data. AVAMP data is an important contribution to this knowledge base.

POSTER

OBSERVATIONS ON THE DISTRIBUTION, ECOLOGY, MOVEMENTS AND REPRODUCTION OF RUBBER BOAS (*Charina bottae*) IN THE PEMBERTON VALLEY, BRITISH COLUMBIA: IMPLICATIONS FOR POPULATION STUDIES AND CONSERVATION.

Leslie Anthony Lowcock [1*] and Veronica Woodruff[2]

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Understanding distribution, life-history and habitat requirements are crucial to conserving threatened species, information that can be elusive in cryptic, seldom-seen forms. The Northern Rubber Boa, *Charina Bottae* is a medium-sized, semi-fossorial snake that primarily utilizes rodent tunnels, rock fractures and interstitial spaces on talus in all life stages. Compounding the difficulty of direct observation, the species is strongly crepuscular/nocturnal, preferring underground retreat or subsurface basking beneath rocks during the day where they are most often located—particularly during spring emergence. In the warmth of summer, Rubber Boas become more strongly nocturnal. In British Columbia, at its northern range limit, this long-lived species (30-70 years) hibernates from mid-October to mid-March, spending considerable time on either end of this period near den sites, mating, foraging, and incubating small numbers of live-born young. In the Pemberton Valley, a highly agrarian area transitional between mild coastal and warm interior biogeoclimatic zones, Rubber Boas remain common, transiting short distances between hillside denning/parturition sites and riparian foraging areas. Unfortunately, den areas are now under high recreation pressure and being rapidly cleared for housing—a scenario which has extirpated the species elsewhere in the province. Because den/breeding habitat appears most critical to survival in such a slow-maturing (8-14 years) species with low-reproductive rates (2-4 young every 4 years), roadways, cats and other threats accompanying dense human development can quickly remove irreplaceable breeding females. I review four years of observations of this species in Pemberton and suggest areas of study that might aid in its immediate conservation.

PLATFORM

***MARCHAND**

GEOGRAPHIC VARIATION IN SOMATIC GROWTH RATE OF WOOD TURTLES (*Glyptemys insculpta*)

Kelsey A. Marchand*, Geoffrey N. Hughes, and Jacqueline D. Litzgus

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Studies of variation in life-history characters, such as body size and growth rate, are important for understanding population demographics of a species across its range. Turtles are a good model species for studying such variation because of their rigid shell, which is unaffected by brief changes in health, reproductive condition, or during low food availability. Previous studies have examined body size variation of turtles among populations and found that body size increases with increasing latitude: an exception is the wood turtle (*Glyptemys insculpta*), which follows a non-linear relationship with larger body sizes at the two extremes. Few studies have examined variation in somatic growth rate across the geographic range. Growth rates, like body size, are influenced by temperature, precipitation and nutrient availability, and thus should display geographic patterns reflective of differing environments. Wood turtles are long-lived, which, when combined with their ability to retain growth rings on their shells well into adulthood, makes them an excellent species for studying growth rates. Our study will examine somatic growth rates in a northern population of wood turtles. We will collect diagonal measurements of growth rings found on the second costal scute of the carapace of each captured turtle with discernable growth rings, and then calculate relative carapace lengths for each ring using the Sergeev method. These data will provide growth curves for each turtle found in the northern population, which will be used to compare growth rates between the sexes and across life history stages. We will then compare our findings to previous studies on body size and growth rate throughout the species' geographic range. This research will aid in life-history studies of populations for which long term mark-recapture data are not available, and will elucidate the effect of environmental variation on somatic growth rate, which impacts the viability of turtle populations via age at sexual maturity.

POSTER

MARKS

Rt. Hon. HERB GRAY PARKWAY PROJECT.

Steve Marks and Megan Hazell.

AMEC Environment and Infrastructure, 11865 County Road 42, Tecumseh, ON N8N 2M1, steve.marks@amec.com

The Rt. Hon. Herb Gray Parkway is a highway construction project in Windsor Ontario linking Provincial Highway 401 to a new border crossing bridge. The main purpose of the new parkway is to allow separation of freight truck from local automobile traffic for public safety. The Parkway Project is the first large scale highway project to be Permitted under Ontario's Endangered Species Act, 2007. There were 10 Threatened or Endangered Species of plants and animals associated with this Project at its onset. The speaker will address the mitigation and protection measures undertaken for two rare snake species, the Eastern Foxsnake (Endangered) and the Butler's Gartersnake (Endangered), including an overpass and expansion of habitat, and the plans for monitoring the success of the species post-construction.

PLATFORM

***M^{c}CURDY-ADAMS**

ANTHROPOGENIC INFLUENCES ON CHRONIC STRESS AND PATTERNS OF NEST PREDATION IN FRESHWATER TURTLES

H. L. M^{C}Curdy-Adams*[1], Jeff Hathaway[2], Jacqueline Litzgus[1]

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Turtles and their populations face many threats, both indirect and direct. Indirect threats affect physiology by re-directing resources from production to maintenance, while direct threats cause mortality. The objective of our study is to investigate the indirect and direct impacts of human development on turtles by examining chronic stress levels and nest predation patterns in areas that differ in human influence. Animals near human-altered landscapes exhibit high levels of stress hormones that have been associated with decreased fitness. A new non-invasive technique for measuring stress hormone levels has been developed using enzyme immunoassays on human nail samples and a pilot study using similar assays on turtle claws showed that stress hormones can be accurately measured from claws. We hypothesize that if human presence increases the long-term stress levels of turtles, then turtles at field sites closer to anthropogenic structures will display higher levels of corticosterone in their claws than turtles from more pristine field sites. A number of studies have found that the highest predation risk to turtle nests is within the first week after the eggs are laid, however, other studies have found that predation occurs throughout the incubation period. Predator abundance is higher where anthropogenic sources of food subsidize mesopredators populations. We hypothesize that if human presence increases predator abundance, then the frequency of predation events on turtle nests will be greater at field sites closer to anthropogenic structures than at more pristine field sites. Understanding these effects will aid in the recovery and conservation of turtle populations.

PLATFORM

***MOLDOWAN**

COURTSHIP OR COERCION? TESTING FOR A NOVEL MATING STRATEGY IN THE MIDLAND PAINTED TURTLE (*Chrysemys picta marginata*)

Patrick D. Moldowan[1*], Ronald J. Brooks[2], and Jacqueline D. Litzgus[1]

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ABSTRACT: The mating strategy of the Painted Turtle (*Chrysemys picta*) is well recognized as involving an elaborate male courtship display coupled with female mate choice. During breeding, male *C. picta* demonstrate a stereotyped titillation sequence including the stroking of the head and anterior carapace of a female with elongate fore claws. Traditionally it is thought that female *C. picta* choose mates on the basis of courtship display and/or traits that demonstrate male quality. *In situ* field observations and experimental trials from a long-term study of *C. picta* in Algonquin Provincial Park (Ontario, Canada) suggest that males also demonstrate an alternative, coercive mating strategy. Males are equipped with prominent tomiodonts, tooth-like cusps of the upper jaw, which seemingly function in immobilizing mates and result in extensive wounding to the head and neck of females. Over 100 hours of video recordings from experimental trials during the spring and fall (2013) breeding periods will be summarized. The courtship and pre-copulatory behaviors of males, including titillation, chasing, biting, and the forced submergence of females, were quantified. We describe shell clattering, a frontal ramming of the shell, as a novel apparent reproductive behaviour in *C. picta*. The biological explanations for multiple reproductive strategies will be discussed. We propose that male *C. picta* exhibit sexual weapons in the form of tomiodonts used in mate coercion and challenge the notion that sexual coercion is unlikely in open-water and free-swimming freshwater turtles. As a group with a rich evolutionary history, turtles are a fascinating taxon in which to ask and address questions about mating system evolution.

PLATFORM

***MOLDOWAN**

TURTLES WITH TEETH: TOMIODONT MORPHOLOGY AND FUNCTIONAL SIGNIFICANCE IN THE PAINTED TURTLE (*Chrysemys picta*)

Patrick D. Moldowan[1*], Ronald J. Brooks[2], and Jacqueline D. Litzgus[1]

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Sexually dimorphic characters are relatively common among vertebrates, ranging from dramatic body size disparities to much more subtle differences in morphology. The Painted Turtle (*Chrysemys picta*) has an upper jaw notch bordered on each side by tooth-like cusps called tomiodonts. For 180 years, these tomiodonts have been used as a descriptor in chelonian anatomy, phylogenetics, and natural history; however, no quantitative study of these traits or their function has ever been completed. Observations of *C. picta* from a long-term study in Algonquin Provincial Park (Ontario, Canada) have suggested that males have tomiodonts of more variable morphology and greater prominence than those of females. In addition, female *C. picta* in Algonquin Park have been regularly recorded with injuries on the head and neck indicative of bite wounds, possibly inflicted by the tomiodonts of males during mating. The putative sexually dimorphic nature of the tomiodonts has raised questions about their functional significance. We hypothesized that the tomiodonts confer a reproductive advantage to male *C. picta* in securing mates. Evidence for the sexual dimorphism and functional significance of the tomiodonts, including the demography of bite wounds in an Algonquin Park *C. picta* population, and experimental trials to assess courtship and pre-copulatory behavior, will be introduced. Based on our evidence, we propose that males employ a coercive mating strategy and that the sexual dimorphism and functional significance of the tomiodonts contributes to differential reproductive success among male *C. picta* in our study population.

POSTER

OVASKA

WESTERN TOAD ROADKILL MITIGATION IN KENTUCKY-ALLEYNE PROVINCIAL PARK, BC

Kristiina Ovaska*[1], Lennart Sopuck[1], Christian Engelstoft[1], Andrea D. Lawrence[2], and Alan E. Burger[2]

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Kentucky-Alleyne Provincial Park contains a communal breeding site of the Western Toad (*Anaxyrus boreas*), a species listed as Special Concern in Canada. Tens of thousands of metamorphs migrate from the breeding pond into the surrounding forest in late summer. In May 2013, BC Parks installed an underpass on a park road where previous monitoring results indicated that large numbers of metamorphs crossed the road during the migration and where thousands of toadlets were killed. The underpass consisted of a semi-cylindrical "half-culvert"; drift fences constructed of black landscaping cloth, supported by wooden stakes, lead the toadlets into the tunnel and then into the forest. In 2013, both time-lapse camera data and observations by Nicola Naturalist Society volunteers indicated that toadlets used the underpass extensively, but some circumvented the fences and were killed. Toadlets entered the tunnel with no apparent hesitation and seemed to use it as a refuge at night. Its large diameter (180 cm), earthen floor, and relatively short length (366 cm), probably contributed to its attractiveness. In 2014, we extended the length of the drift fences funneling the toadlets from the pond into the tunnel (to 125 m in total) and experimented with a more permanent system of fences constructed of removable sections of wooden planks 20 cm high and with an overhanging ledge. Studies are in progress to continue monitoring the effectiveness of the underpass system during the toad migration in July – August 2014.

PLATFORM

PULLMAN

MAKING IT OUT ALIVE: A SWIMMING POOL ESCAPE ROUTE FOR BLOTCH TIGER SALAMANDERS, SOUTH OKANAGAN, BC

Katherine Pullman[1] and Sara Ashpole[1,2]*

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The south Okanagan valley is a multi-stressor environment for the endangered Blotch Tiger Salamander (*Ambystoma tigrinum melanostictum*). Survival threats include habitat fragmentation, breeding pond isolation, and increased road mortality from land-use modification/infilling, non-native predatory species, agricultural contaminants, and die-offs. Long-term wetland monitoring since 2003, identifies less than seven known tiger salamander ponds in the lower valley. In late summer 2013 a record number of adult and metamorphic tiger salamanders (in the 100s) were reported dead in a residents swimming pool. A threat mitigation project to install escape ramps adjacent to know priority sites was developed using ARC GIS and Google Earth. Privately owned in ground swimming pools were identified within a 500m, 1000m, and 3000m buffer of known salamander occurrences. Of 316 pools identified, ground truthing narrowed the number of potential high priority sites to 27. A total of twenty-two pool owners were provided an informational letter, a local news article that reported a residents swimming pool mortality, and an article regarding the effectiveness of Froglog™ escape ramps. These devices are relatively inexpensive ($20), and reported as effective solutions that private land-owners can utilize in order to limit unwanted creatures (frogs/rodents) found in their pools, while aiding conservation efforts. However, the ability of salamanders to use the Froglogs™ successfully requires verification. Website blogging, Facebook™, local farmer markets, and a pool store helped to further raise regional awareness. Currently, four stewards have installed ramps in their pools. Participants signed a five-year voluntary stewardship agreement and committed to using the ramps and report observed mortality or successful escape. The Froglogs™ durability, ease of maintenance/use, and negative or positive associations will also be documented. The project is an in-class and in-field undergraduate experiential learning opportunity in collaboration with the Okanagan Similkameen Stewardship Society with funding provided by the Habitat Conservation Trust Fund, Habitat Stewardship Fund, and St. Lawrence University.

POSTER

RANDALL

IMPLICATIONS OF SEASONAL DIFFERENCES IN EXTINCTION AND COLONIZATION ON THE OCCUPANCY DYNAMICS OF AN IMPERILLED AMPHIBIAN

Lea A. Randall[1,*], Des H.V. Smith[1,2], Breana L. Jones[1], David R.C. Prescott[3], Axel Moehrenschlager[1]

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Despite concerns about declining amphibian biodiversity and abundance, we still lack a fundamental understanding of the population dynamics of many amphibian species. Estimating changes in anuran occupancy over time can elucidate processes, such as colonization or extinction, that lead to metapopulation extinction or persistence. At northern latitudes, seasonal climate extremes can further complicate our understanding of occupancy dynamics. We used repeat visual surveys each spring and summer from 2009–2013 to examine the annual and seasonal occupancy, colonization and extinction dynamics of a regionally imperiled species, the northern leopard frog (*Lithobates pipiens*). Few other rigorous assessments of occupancy, colonization, and extinction have been conducted for an imperiled amphibian at this wide geographic scale. We determined that occupancy dynamics were more strongly influenced by seasonal rather than annual variation with low spring occupancy and higher summer occupancy. Between spring and summer, colonization was high and extinction low; inversely, colonization was low and extinction high over the winter. Although the strongest weight of evidence indicated that long-term occupancy was constant over the course of our study in both spring and summer, the underlying colonization and extinction dynamics differed in each season. Extinction and colonization rates for the spring period declined over the five years, whereas extinction and colonization rates were constant in summer over the same period. The factors influencing declining extinction and colonization may be complex and this uncertainty makes conservation management challenging. A better understanding of seasonal patterns in extinction and colonization and occupancy dynamics may allow manager to effectively target conservation efforts at those life-stages or seasons that will provide maximum benefit for imperiled amphibian populations.

PLATFORM

Canadian Herpetological Society
Société d'herpétologie du Canada

PRAIRIE SKINKS OR FOREST SKINKS: MOVEMENT PATTERNS OF *Plestiodon septentrionalis* IN SOUTHWESTERN MANITOBA

Pamela L. Rutherford[1*], Shane Pratt[2,3], Nicola Koper[2], Drew J. Hoysak[4] and Dion J. Wiseman[4]

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Mixed-grass prairie within the Northern Prairie Skinks' range has become increasingly fragmented and lost, primarily due to farming activities, aspen encroachment and leafy spurge invasion. The microhabitat requirements for this species have not been quantified but are necessary for development of a management plan. Past research on Northern Prairie Skink habitat use has been conducted using cover board sampling, which is widely used in herpetological studies. However, this may not provide accurate information on the natural habitat use or retreat site selection of the Northern Prairie Skink if the cover boards alter landscape and habitat characteristics. In addition, there may be a bias in locating and/or capturing animals under cover boards simply because animals are more accessible under cover boards than if they are in natural, grassland habitat. Previous research to describe Northern Prairie Skink habitat by random walk surveys or tracking resulted in few captures or short tracking times. It is therefore important to determine habitat characteristics for this species using non-habitat altering techniques and longer tracking times. The objectives of this project were: 1) to track Northern Prairie Skinks using radio telemetry and 2) to describe their habitat with advanced GIS techniques using aerial photography. Radio telemetry was conducted at two sites in southwestern Manitoba in 2012 (N = 7) and 2013 (N =16). Individuals were tracked for 3-8 days from July 5 to August 9, 2012; and for 7-17 days from May 27 to June 29, 2013. We recorded the following data for the capture location and two nearby, randomly selected locations: temperature, vegetation height, and distance to forest canopy. We also categorized the vegetation at the two sites using aerial photography collected with an unmanned aerial vehicle (UAV).

PLATFORM

SCHUELER

HERPETOLOGY OF RIVERINE SITES ALONG THE ENERGY EAST PIPELINE ROUTE FROM NEW BRUNSWICK TO ALBERTA: A TRAVELOGUE

Frederick W. Schueler* and Aleta Karstad

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At abstract deadline submission date, we're setting out to survey the organisms we focus on -- herps, aquatic macroinvertebrates, invasive Plants, & terrestrial Mollusks -- at sites where streams cross the proposed Energy East pipeline. The proposed line runs along the route we take to New Brunswick Museum bioblitzes every summer, past our long-term herp monitoring site near Cochrane, Ontario, and west to the CHS meetings. We will present herpetological results of our painting-a-day exploration of the sites along this 3500 km transect across Canada.

PLATFORM

WHAT WOULD BE A STRATEGY FOR RECOVERY? THE CASE OF THE GREAT LAKES/St LAWRENCE POPULATIONS OF *Pseudacris maculata.*

Frederick W. Schuler.

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"Recovery" is a feature of the Species at Risk process, but when a species has been depleted by something more complex than direct anthropogenic mortality or the loss of small scale habitat features, it's hard to know how to plan to increase populations of a species. In the 1970s, the Midland chorus frog *Pseudacris "triseriata"*, was widespread & abundant across southern Ontario and SW Quebec, but in the 1990s causally ambiguous declines occurred in the Bruce Peninsula & along Lake Huron, across Eastern Ontario, and along the north shore of Lake Ontario (populations around Toronto had already disappeared). As some of us were worrying about this and writing a COSEWIC report, it was shown that the decimated population had the mitochondrial and later nuclear DNA, of otherwise mid-continental Boreal Frog, *P.maculata*. In July 2014 Environment Canada posted a "Recovery Strategy" for this "*Designable Unit*" which made an attempt to designate Critical Habitat on the basis of Herp Atlas data, and which inspired the thought that ***if habitat has been irrevocably lost to urbanization and intensified agriculture, the concept of "recovery" inevitably implies the creation or occupation of new habitat.*** I will discuss how these little Chorus Frogs might "recover" into anthropogenic habitats different from those they throve in the mid-twentieth Century.

PLATFORM

REDUCING ROADKILL: DEVELOPING GUIDELINES FOR CROSSING STRUCTURES FOR AMPHIBIANS AND REPTILES.

David C. Seburn[1], Kari Gunson[2], Julia Kintsch[3], Joe Crowley[4].

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Road kill is one of the greatest threats facing many species of amphibians and reptiles. While fencing can effectively keep individuals off roads, in many cases it is important to allow movement from one side of the road to other for individuals to access key habitats. Many factors will affect the ability and willingness of amphibians and reptiles to use tunnels under roads. We reviewed over 50 studies that examined tunnel usage by amphibians and reptiles to develop preliminary guidelines for optimal crossing structures. While round tunnels (e.g. pipe culverts) have been used by many species, in general, tunnel usage is greater with rectangular culverts, which provide a large crossing surface. Both open and closed topped tunnels have been used by many amphibian and reptile species. The use of a local substrate along with cover objects such as flat rocks and woody debris is beneficial. Tunnels at least 1.5 x 1 m (W x H) are recommended for turtles, and tunnels at least 1 x 1 m are recommended for all other Canadian amphibians and reptiles (for tunnels up to 20 m long). Wider openings are recommended for longer tunnels, and tunnels longer than 30 m are not recommended.

PLATFORM

***YAGI**

STRATEGIES OF DISPERSAL IN POND BREEDING AMPHIBIANS

Katharine T. Yagi[1]* and David M. Green[2]

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Dispersal is a necessary process for any species living in a fragmented landscape and therefore the dispersal strategies of endangered amphibians are important considerations for population recovery and effective management. Fowler's toads, *Anaxyrus fowleri*, exist in three remnant populations in Canada, one of which is at Long Point, Ontario. The Long Point population has undergone a significant decline in numbers since 2004, largely due to loss of breeding habitat. Adult body size in the population negatively correlated with density but it is unknown precisely how body size is related to dispersal. If dispersal is in some way size-dependent, then by manipulating larval density conditions to produce juvenile toads of varying sizes in the same adult habitat, we should see a correlation between movement and body size among individuals.
To address this, we reared Fowler's toad tadpoles in eight density treatments in four artificial ponds located in the Long Point National Wildlife Area. Eighteen tadpoles at stage 40 from each treatment were randomly selected, placed alone in a dish of water and filmed for one hour to assess activity level. Activity level was scored based on whether the subject changed positions in the dish every 5 seconds. A similar test was conducted on the same treatment groups once toadlets reached a weight of 1.0 gram, where six individuals were filmed in a terrestrial enclosure for 4 hours and activity was scored based on whether the subject changed positions every 1 minute. We predicted tadpole activity level will correlate positively with density because crowded conditions can cause increased competitive behaviour, and we predicted a negative relationship for toadlets because high density toadlets emerge at small sizes suggesting smaller energy stores will be allocated towards movement. These results will be a component in predicting the effect of larval density on amphibian dispersal.

PLATFORM

***YAGI**

RALLYING COMMUNITY SUPPORT FOR THE CONSERVATION OF FOWLER'S TOADS AT LONG POINT, ONTARIO.

Katharine Yagi[1]*, Anne Yagi[2] and David M. Green[1]

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Community backing for conservation efforts in aid of endangered species protection and recovery is not just valuable for effective conservation but essential. Over may years, the Fowler's Toad Recovery and Implementation Team has gained the trust and support of residents and landowners at Long Point for Fowler's Toads in the area by distributing pamphlets, stickers, bags and fridge magnets, producing a stewardship guide for cottage owners, putting road signs and organizing visits by Joad the Toad. All this had made it easier to conduct research on the toads and implement mitigation measures designed to recover the population.

NOTES

Canadian Herpetological Society

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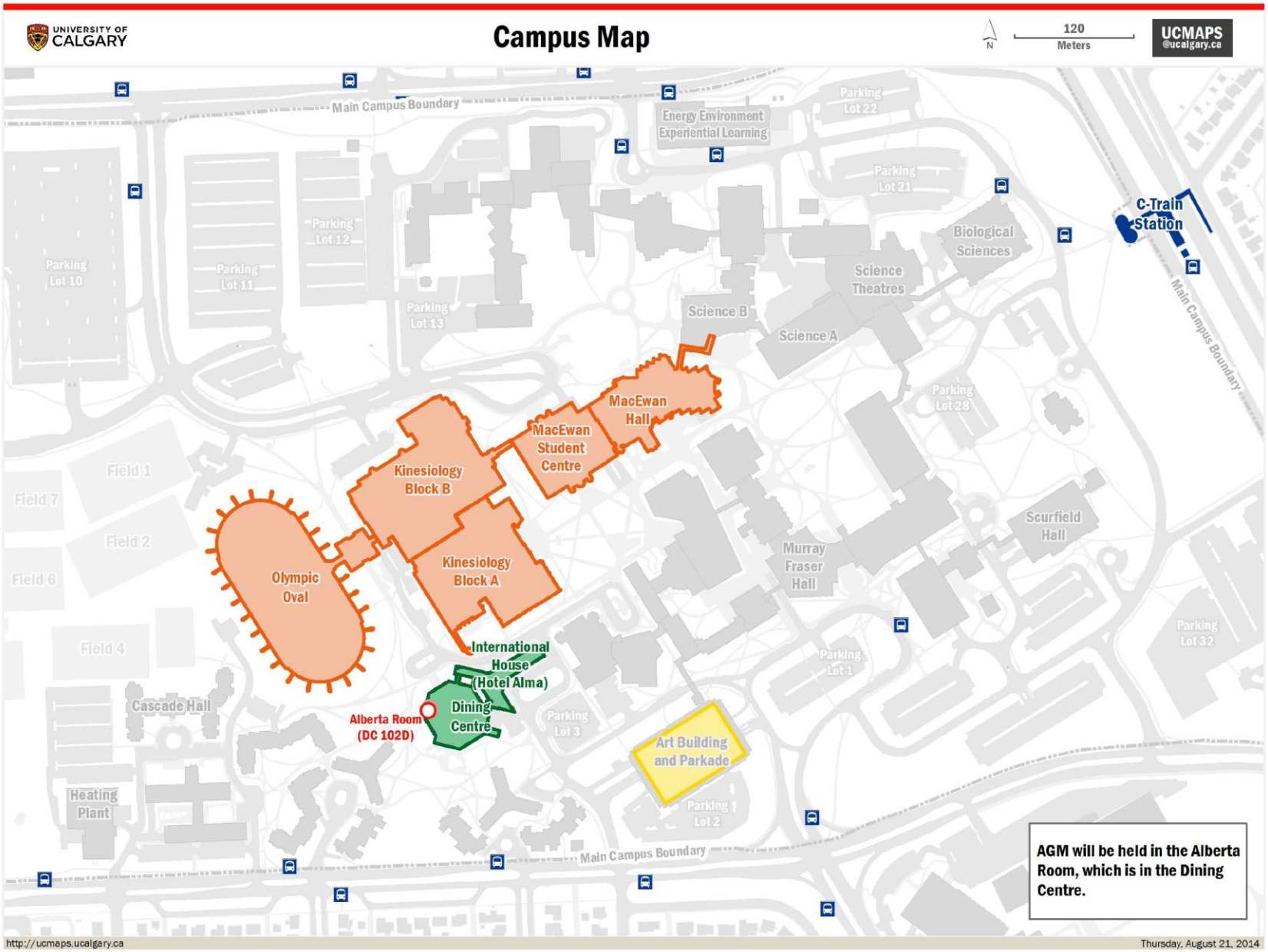
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Parking Lot 13
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Parking Lot 28
MacEwan Hall
MacEwan Student Centre
Kinesiology Block B
Kinesiology Block A
Olympic Oval
Field 1
Field 7
Field 2
Field 6
Field 4
Scurfield Hall
Murray Fraser Hall
Parking Lot 32
Parking Lot 1
International House (Hotel Alma)
Dining Centre
Alberta Room (DC 102D)
Cascade Hall
Parking Lot 3
Art Building and Parkade
Heating Plant
Parking Lot 2
Main Campus Boundary
AGM will be held in the Alberta Room, which is in the Dining Centre.
http://ucmaps.ucalgary.ca
Thursday, August 21, 2014