

***2024 Virtual Meeting of the
Canadian Herpetological Society***

***2024 Congrès Virtuel de la
Société d'Herpétologie du Canada***



Virtual Meeting 2024

Canadian Herpetological Society 2024

Welcome

On behalf of the CHS Meetings and Workshops Committee, welcome to the Virtual Meeting of the Canadian Herpetological Society/Société d'Herpétologie du Canada. This year's meeting continues a long-standing tradition of annual meetings to promote research and conservation of amphibians and reptiles in Canada.

CHS Meetings and Workshops Committee

- Pamela Rutherford (Co-Chair)
- Hannah McCurdy-Adams (Co-chair)
- Amanda Bennett (Logo creator)
- Claudia Lacroix
- Joe Crowley
- Justine Keating
- Andrea Gigeroff

Canadian Herpetological Society

The Canadian Herpetological Society (canadianherpetology.ca) is a registered Canadian charity that advances reptile and amphibian research and conservation in Canada by:

- promoting scientific research on reptiles and amphibians and disseminating the results;
- facilitating collaboration among amateur and professional herpetologists;
- advancing public understanding of our native reptile and amphibian species, the threats they face and the conservation solutions that exist; and
- promoting, supporting and leading conservation and stewardship projects.

CHS is made up of researchers, conservation practitioners, naturalists, educators, and other individuals with an interest in Canada's reptiles and amphibians.

President: Jolene Laverty (Nova Scotia Department of Lands and Forestry, NS)

Vice President: Amanda Bennet (Council of Canadian Academics, Ottawa, ON)

Past President: Pamela Rutherford (Brandon University, Brandon, MB)

Treasurer: Ori Urquhart (Blazing Star Environmental, Oshawa, ON)

Secretary: James Paterson (Ducks Unlimited Canada, Stonewall, MB)

Directors at Large: Christina Davy,, Claudia LaCroix, Hannah McCurdy-Adams

Student Directors: Megan Winand, Jeffrey Ethier

Webmaster: Devin Martin

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Schedule: Wednesday February 21st

Time (CT)	Presentation	Presenter
10:00-10:15	Welcome Message	Pamela Rutherford Hannah McCurdy-Adams

	Session 1: Behaviour and Range Use	<i>Chair:</i> Andrea Gigeroff
10:15-10:20	Biotype does not explain climbing and autumn special distribution of salamanders in the Blue-spotted complex	Sara Ashpole
10:20-10:35	Diet analysis of prairie amphibians	Jordan Vos
10:35-10:50	Factors affecting activity range selection in sympatric eastern red-backed and blue-spotted salamanders	Haley Grieve
10:50-10:55	Amphibian specialist group: status and trends of the world's amphibians and Canadian Amphibian conservation action plan priorities	Sara Ashpole
11:00-11:15	Break	
	Session 2: Conservation and Threats	<i>Chair:</i> Hannah McCurdy-Adams
11:15-11:30	Investigating the presence of non-native gartersnakes (<i>Thamnophis sirtalis</i>) on the island of Newfoundland	Andrea Gigeroff
11:30-11:45	The damsel frogs flee the foodless shores, for the fields and their grasshoppers	Fred Schueler
11:45-12:00	Mitigating turtle vehicle collisions in the United Counties of Leeds and Grenville	Katherine Black
12:00-12:05	Crayfish concerns: potential impacts of exotic crayfish on Pelee Island's endangered salamanders	Beck Bugeya
12:05-12:15	Closing remarks	Pamela Rutherford Hannah McCurdy-Adams

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ABSTRACTS

ASHPOLE

AMPHIBIAN SPECIALIST GROUP: STATUS AND TRENDS OF THE WORLD'S AMPHIBIANS & CANADIAN AMPHIBIAN CONSERVATION ACTION PLAN PRIORITIES

Sara Ashpole¹, Kristiina Ovaska²

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Through collaborations with various national and regional groups, the IUCN Amphibian Specialist Group (ASG) aim to address emerging issues in amphibian conservation, provide resources, and fill in key information gaps. The global IUCN ASG along with members of the Canadian regional group contributed to three valuable recent publications to the literature. The second Global Amphibian Assessment (GAA2), evaluated 8,011 amphibian species and found amphibians to be the most threatened vertebrate class (40.7%); disease and habitat loss drove 91% of status deteriorations between 1980 and 2004. Projected climate change effects drove 39% of status deteriorations since 2004, followed by habitat loss (37%) (Luedtke, J. A., et al (2023). Ongoing declines for the world's amphibians in the face of emerging threats. *Nature*, 622(7982), 308-314.). A more detailed synthesis of the last 15 years of major developments, knowledge gaps and evidence-based priorities can be found in the Amphibian Conservation Action Plan (IUCN, S. (2022). Draft for Open Consultation: The Amphibian Conservation Action Plan (ACAP): A status review and roadmap for global amphibian conservation.). Of particular value to practitioners and for education and community outreach is the graphical publication State of the World's Amphibians: The Second Global Amphibian Assessment (Re:wild, Synchronicity Earth, IUCN SSC Amphibian Specialist Group. 2023. State of the World's Amphibians: The Second Global Amphibian Assessment. Texas, USA: Re:wild.) Near future publications include a global practitioner guide and conservation issues pertinent to Canadian amphibians.

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ASHPOLE

BIOTYPE DOES NOT EXPLAIN CLIMBING AND AUTUMN SPECIAL DISTRIBUTION OF SALAMANDERS IN THE BLUE-SPOTTED COMPLEX

Sara Ashpole¹, Rayna Bidwell¹, Thia Moore¹, Julia Sirois¹, Kristine Hoffman¹, Jim Bogart²

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Ambystoma laterale x jeffersonianum (Blue-spotted Salamander Complex) is found throughout the northeastern US. Blue-spotted and Unisexual salamanders are cold tolerant, terrestrial, and generally understood to be insectivores that hunt beneath leaf litter or underground in burrows. Between October and November 2022, we documented sightings of salamanders in the Blue-spotted Complex. We studied the possibility of gregarious surface behavior. All salamanders were found active, above the leaf litter. We used transects, GIS, and GPS to measure the proximity of individuals in a 10-m radius. 106 complex salamanders were sighted within 22 transects. We recorded instances of perching behavior (n = 14), which has not yet been reported for this complex. When a salamander was seen perched on top of herbaceous vegetation or objects (branches, tree trunks, rocks), we recorded its height from the ground. We found that 57.5% of the salamanders were within 2.6 m of each other (near) and 11% were within 1.1 m (close proximity). Our DNA analysis indicated climbing and spatial distribution did not differ by biotype (Unisexual or Blue-spotted). Further research is needed to determine the role of intraspecific gregariousness and perching behaviors.

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BLACK

MITIGATING TURTLE-VEHICLE COLLISIONS IN THE UNITED COUNTIES OF LEEDS AND GRENVILLE

Katherine Black¹, Cayla Darling², Richard Burger²

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The effects of roads on reptile populations are a significant concern of the United Counties of Leeds and Grenville (UCLG), an upper tier municipality in southeastern Ontario on the north shore of the St. Lawrence River. UCLG is associated with several areas of ecological significance, including an Important Amphibian and Reptile Area and the Frontenac Arch Biosphere.

UCLG initiated a road ecology study in response to concerns raised by community members related to turtle mortalities on County roads. This study, conducted by Blazing Star Environmental on behalf of the Algonquin to Adirondacks Collaborative, used a combination of field studies, geospatial modelling, and statistical modelling to predict turtle mortality risk on County roads. Observations from road surveys were supplemented with turtle records from online sources and local experts to better understand where turtles were most likely to occur on County roads. Specific habitat types in the vicinity of County roads, particularly marshes, thicket swamps, and open water areas, were found to be important predictors of turtle presence on roads. This information was used to develop a geospatial model that predicted turtle road mortality risk across the entirety of UCLG using turtle occurrences and habitat information at a local and landscape scale.

Recommendations from this study include upgrading underpasses, installing fencing, managing traffic, and engaging with the community. Following these recommendations would benefit local turtle populations along with other wildlife taxa, improve motorist safety, and contribute to ecosystem resiliency by enhancing wildlife movement corridors in the face of climate change.

CRAYFISH CONCERNS: POTENTIAL IMPACTS OF EXOTIC CRAYFISH ON PELEE ISLAND'S ENDANGERED SALAMANDERS

Beck Bugeya, David Beresford, Thomas Hossie

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Exotic species can have a variety of negative impacts on native biodiversity, including predation pressure and disrupting trophic webs. The endangered small-mouthed salamander (*Ambystoma texanum*) is found only on Pelee Island in Canada and may be negatively impacted by exotic White River crayfish (*Procambarus acutus*). These crayfish may have consumptive effects, such as reduction in larval abundance, or non-consumptive effects, like behavioural changes leading to smaller body sizes. To investigate these effects, we sampled salamanders in ponds with and without *P. acutus*. We found no evidence that catch-per-unit-effort (CPUE) was reduced by the presence of *P. acutus*. Similarly, larval snout-vent length was not affected by *P. acutus* presence, despite being reduced in ponds with high CPUE. A next step will be to investigate overlap in suitable habitat for *P. acutus* and salamanders on Pelee Island. While we are relieved that White River crayfish are not affecting the salamanders in the ways we investigated, we remain concerned about other routes through which these crayfish may impact native salamanders. Objective evaluation of the impacts posed by exotic species is critical to understanding how introduced species impact native ecosystems, which is essential to the protection of biodiversity in human-affected landscapes.

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GIGEROFF

INVESTIGATING THE PRESENCE OF NON-NATIVE GARTERSNAKES (*Thamnophis sirtalis*) ON THE ISLAND OF NEWFOUNDLAND

Andrea Gigeroff^{1,2}, Julia L. Riley², James Baxter-Gilbert², Jacqueline Litzgus¹

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Historically, the island of Newfoundland has not been home to any native herpetofauna. In recent years, however, gartersnakes (*Thamnophis sirtalis*) have been observed on the island with three official reports between 2010 and 2018. The extent of the snakes' presence on the island, the source of their introduction(s), and their capacity to detrimentally impact the native fauna and ecosystem have not yet been investigated. Our objectives are to (1) identify the source of gartersnakes on the island using genetic markers, (2) determine the diet of gartersnakes on the island using gut content analyses, and (3) compare the behaviour of the Newfoundland gartersnakes to that of native-range conspecifics using standard behavioural assays. In summer 2023, we carried out initial investigations to determine the spatial and temporal extent of gartersnakes on the island via field surveys and through informal in-person discussions with local community members, and social media. We encountered reports of snakes on the island extending as far back as the 1950s, and an abundance of snake sightings on the west coast. In addition, there appear to be low densities of snakes across Newfoundland. We conducted visual surveys and collected specimens to determine whether the gartersnakes are eating native species. Our goal is to carry out a comprehensive study about the natural history of these non-native snakes in Newfoundland that will guide development of management practices to reduce the impact of this species on native species as necessary.

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GRIEVE

FACTORS AFFECTING ACTIVITY RANGE SELECTION IN SYMPATRIC EASTERN RED-BACKED AND BLUE-SPOTTED SALAMANDERS

Haley Grieve, David Beresford, Thomas Hossie

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Ecological theory predicts that ecologically similar species in sympatry may partition their resources to minimize the fitness effects of competition. Blue-spotted (*Ambystoma laterale*) and Red-backed (*Plethodon cinereus*) salamanders consume similar prey and forage within shared habitat. It's possible that these species minimize their interspecific competition by foraging in different areas or by targeting different prey. I hypothesized that salamander activity ranges vary according to body size, species, and the available prey within their ranges. I predicted that larger and *Ambystoma* salamanders would have larger foraging ranges, and both species would forage in areas with elevated prey density relative to paired random sites. To evaluate this, I found wild salamanders, recorded their length and mass, coated them in UV fluorescent powder, and quantified their foraging ranges using minimum convex polygons. I then took soil and leaf samples from within and outside their foraging ranges and extracted the available prey using Bernese funnels. Prey items were later identified to Order. Negative binomial regression models were used to test for an effect of species and body size on activity range size. I used conditional logistic regression to determine which factors affect a species' cover object selection. I'm currently analysing prey composition data to test for species' differences and its impact on foraging location. Thus far, I found that Blue-spotted salamander size is correlated to range size, and that differently sexed Red-backed salamanders prefer different microhabitats. If these salamanders do display dietary niche partitioning, this study will help explain how these species coexist.

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SCHUELER

“THE DAMSEL FROGS FLEE THE FOODLESS SHORES, FOR THE FIELDS AND THEIR GRASSHOPPERS”

Fred Schueler

Fragile Inheritance Natural History, Bishop Mills, Canada, bckcdb@istar.ca

In eastern Ontario springs, when mature Leopard Frogs, *Lithobates pipiens*, including most of the first year males, head from hibernacular water bodies to breeding marshes, the first year females disperse across the countryside, taking advantage of food supplies while the other age/sex cohorts are engaged with breeding. I present data from a massive movement of this kind in May 1999, and counts of these “damsel frogs” around a vernal pool in Bishops Mills, Ontario, where no anurans breed. Movements towards food and moisture have more diverse routes than those towards breeding sites, and will require different kinds of mitigation where they cross roads or other hazards.

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VOS

DIET ANALYSIS OF PRAIRIE AMPHIBIANS

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Amphibians play vital roles in the Canadian prairie ecosystem, contributing to intricate food web dynamics. Despite their importance, the dietary interactions of prairie amphibians remain understudied, creating a critical knowledge gap. This study addresses this gap by initiating an exploration into the eating physiology and biomechanisms of amphibians, employing stomach flushing and DNA analysis for dietary content identification. The study aims to understand the dietary habits of prairie amphibians, utilizing stomach flushing for more detailed assessments. Integrated hypotheses explore dietary preferences, size and morphological adaptations, and the influence of habitat on prey items. The overarching goal is to identify and analyze the dietary preferences and ecological roles of amphibians in the Canadian prairies. Specific objectives include pioneering stomach flushing for diet analysis, identifying diet diversity, exploring the relationship between morphology and prey size, and comparing habitat types of insects through GIS analysis. This research is ongoing into the field season of 2024 and will form the foundation for a comprehensive exploration of amphibian ecology in the Canadian prairies, providing valuable insights into dietary preferences, trophic relationships, and ecological dynamics. While aiming for comprehensive insights, the study acknowledges limitations such as potential seasonal influences on amphibian behavior and constraints in capturing a representative sample. Generalization to other regions may be limited, but the methodologies employed could prove useful for future studies in southern Alberta. Despite the absence of conclusive results, currently, the research anticipates a significant contribution to herpetological studies by providing a base knowledge for multiple ecological and conservation applications.