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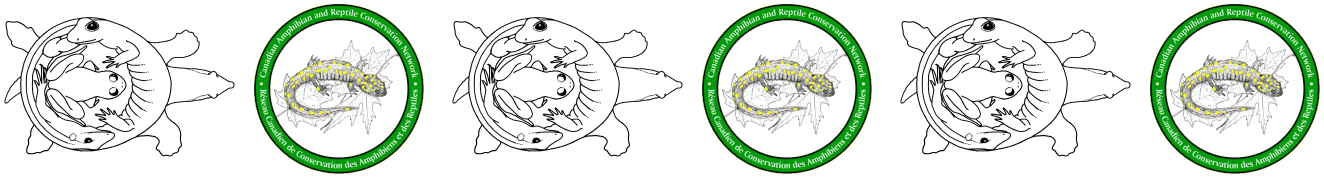

Volume 1, Number 1 – Spring 2011 Student Supplement

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Artistic credit Darlene Hecnar

EDITORIAL NOTES

Sara Ashpole
University of Waterloo

Our special Student Supplement recognizes the outstanding research of our student members, through scholarship and conference presentations. Here we have focused on increasing the scientific quality of our student members by providing award criteria *(tip: have your advisor and peers provide feedback using the rubrics!)*. Definitely, check out Gabriel's must-follow tips for presentation success. You will notice that, as Gabriel suggests, the 2011 abstract review committee will be recommending that students who are in the proposal stage present a poster. Correspondingly, we have developed judging criteria to include proposals.

Don't forget to apply for the 2011 CARCNET/RÉCCAR travel bursary! In 2010, **all** qualified applicants received $250 towards conference travel. Our funds even enabled us to randomly draw one extra student who was attending the conference. Lastly, regularly check out the CARCNET website for upcoming conference details, including abstract submission, applications, deadlines and contact information.

See you in Thunder Bay!

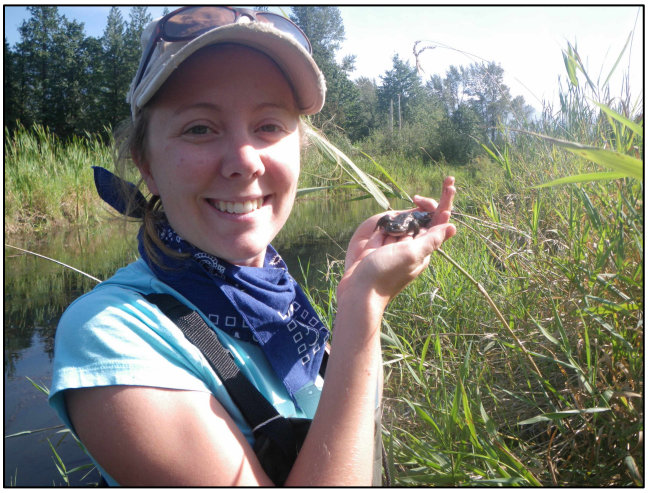
INSTRUCTIONS FOR AUTHORS

We will print articles and news of interest to herpetologists in Canada. These may be in the form of short announcements or letters, or may be written as longer articles. We especially request news of your lab and current research activities, lists of your latest publications (up to one year old), travel plans, new students, grants, awards, fellowships, new books or book reviews, trivia or concerns. Please send your submissions as MS Word documents as email attachments to the Editors (Litzgus or Ashpole).

2010 CARCNET/RÉCCAR SCHOLARSHIP

Congratulations to **Amanda Kissel** of Simon Fraser University for her research on the Oregon Spotted Frog!

Research Title: Evaluating Conservation Strategies for the Oregon Spotted Frog (*Rana pretiosa*)



Amanda at her field site in British Columbia holding an Oregon Spottted frog (*Rana pretiosa*). Photo provided by Amanda Kissel

Introduction to Scientific Questions:
The alarming decline of amphibian populations over the past two decades has been a marquee example of the global biodiversity crisis (1). A diverse suite of threats are commonly cited as causes, including emerging disease, loss of habitat, introduced species, pollutants, and over exploitation (1, 2, 3, 4). Despite concentrated research evaluating specific threats for declining species, guidance from this type of research for reversing declines is rarely evident. As a result, there are few examples of research that is well integrated with conservation decision-making for imperiled amphibians. The successful recovery of species requires not only identifying key threats, but also focusing recovery actions on life history stages that are most likely to influence population dynamics. As an MSc student at Simon Fraser University, I am combining a field-based population study of the highly-endangered Oregon spotted frog (*Rana pretiosa*), with a population dynamics model to identify the most sensitive life history stages and evaluate a range of potential recovery strategies. This work will directly inform decisions of how to best allocate limited recovery funds for this species in Canada, and may provide a useful framework for declining amphibians more broadly.

Species:

R. pretiosa were listed as critically endangered under the Canadian Species at Risk Act in 1999, with only three known breeding populations, one recently extirpated population, and a total population abundance of less than 500 individuals (5). Existing populations are concentrated in the lower Fraser Valley of BC, and although the vast majority of the species range exists south of BC in Oregon and Washington, *R. pretiosa* have been eliminated from over 90% of their historical range (5, 6, 7). It is generally accepted that the primary factor contributing to declines in BC is the reduction in suitable breeding and rearing habitats. Oregon spotted frogs are exclusively aquatic, spending their entire lives within flooded riparian wetlands (5). The broad floodplains of the Fraser Valley have been almost uniformly converted for commercial agriculture, isolating the extant populations and reducing opportunities for recovery. Over the past decade, the *R. pretiosa* recovery team has sought to increase *R. pretiosa* populations to self-sustaining levels and ultimately to re-introduce the species to several restored wetland sites (scheduled for 2011). Population augmentation efforts thus far have targeted increasing early life-history survival (embryos, larvae) through a captive 'head-start' program where embryos are removed from the wild and reared to metamorphosis before being reintroduced. Since the beginning of the program, approximately 40,000 wild embryos have been reared in captivity and 4,200 metamorphosed juvenile frogs released at *R. pretiosa* breeding sites (5). All juvenile frogs are batch marked (by year and population) with Visual Implant Elastomer (VIE) dye prior to release, and trapping is conducted each spring and summer to recapture marked frogs to estimate growth and survival.

Communal Oregon spotted frog (*Rana pretiosa*) egg mass, British Columbia. Photo credit Sara Ashpole

Hypotheses Being Tested:

The head-start and release strategy is based on two key assumptions; 1) that larvae reared in captivity survive at higher rates than in the wild, and 2) that increasing the survival of embryos and larvae will positively affect overall *R. pretiosa* population dynamics. These two assumptions have yet to be critically and quantitatively evaluated. With this study, I will evaluate the current head-start and release strategy for *R. pretiosa* to determine if it targets the appropriate life history stages for maximizing growth of the population. I will also consider alternative management scenarios that have been identified as viable options for *R. pretiosa* recovery; raising larvae *in situ* at known breeding sites, and implementing a fully supplemental captive-breeding program.

Study Design and Methods for Evaluating Hypotheses:

I will build a stage-based projection matrix model coupled with an elasticity analysis to determine the most sensitive life history stages for current *R. pretiosa* populations. In addition to the current head-start program, I will evaluate two scenarios identified by the recovery team as alternatives to the current management approach (5). Raising larvae *in situ* at known breeding sites, as well as a captive breeding program. In spring of 2011, I will conduct a field-based larval enclosure experiment at the largest extant breeding site to estimate wild larval survival *in situ*. In addition, the Vancouver Aquarium (VA) and Greater Vancouver Zoo (GVZ) currently house adult *R. pretiosa*, and during the 2010 breeding season, viable eggs were produced at the VA. If captive-breeding occurs in 2011, I will estimate fecundity and survival of captive individuals. Both of these strategies will be incorporated into the projection matrix model to determine which is most likely to achieve the conservation goals of the recovery team, and linked to an economic analysis of recovery funds to identify the most viable option for species recovery.

Relevance to Conservation of the Species:

This study will provide biologically and economically valuable input to the *R. pretiosa* recovery team by dramatically improving the scientific-basis for recovery efforts. By linking original research to a

quantitative modeling approach that evaluates alternative recovery actions, my project has the potential to increase the impact of limited conservation funds for *R. pretiosa* and focus efforts on actions that are likely to have the largest impact on population dynamics. Such efforts, if successful, aim to stem the decline of Canada's most imperiled amphibian, and may provide a useful framework for evaluating declining amphibians more broadly.

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CARCNET/RÉCCAR SCHOLARSHIP

JUDGING CRITERIA

Each year a panel of CARCNET/RÉCCAR judges use eight *equally weighted* criteria to assess and rank the (English & French) applications.

Rationalization for doing the work

1. Quality of experimental design/statistical analysis/education project design, scientific significance and relevance.
2. Contextualization of any results and communication of the broader implications to the field.
3. Relevance of the work to CARCNET/RÉCCAR goals (conserving Canada's native species of amphibians and reptiles, and their ecological and evolutionary functions in perpetuity).
4. Was the Application well written and concise?
5. Were rationale/hypotheses for the project clearly stated?
6. Was the basic premise supported by adequate citation?
7. Overall impression.

2011 CARCNET/RÉCCAR Scholarship

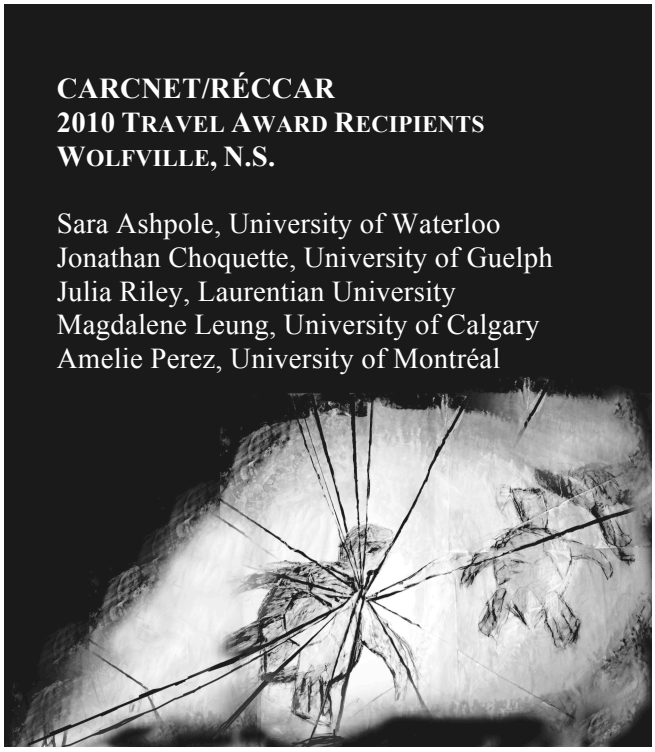
The Canadian Amphibian and Reptile Conservation Network/Réseau Canadien de Conservation des Amphibiens et des Reptiles (CARCNET/RÉCCAR) is offering a scholarship programme consisting of one or more **$500.00** scholarships awarded annually to Canadian students conducting research to support amphibian and reptile conservation in Canada.

Applicants must submit a complete application form (available online: www.carcnet.ca) and one electronic copy of an academic transcript.

Questions can be directed to Sara Ashpole: sashpole@uwaterloo.ca

Scholarship Application Deadline: 1 December 2011, by email to info@carcnet.ca.

TRAVEL AWARDS



2010 Wolfville, conference logo, Nova Scotia. Artistic Credit Mathew Griffin-Allwood

2011 Conference Travel Award
Thunder Bay, ON., 9 to 12 September 2011

The Canadian Amphibian and Reptile Conservation Network/Réseau Canadien de Conservation des Amphibiens et des Reptiles (CARCNET/RÉCCAR) will provide four travel awards, valued at **$250.00** each, in support of Canadian students. Recipients will be selected by **random draw** and notified by email in advance with the award cheques issued to the recipient at the conference. Recipients will be recognized at the conference and on the CARCNET/RÉCCAR website and may be asked to volunteer for one to three hours during the conference. Students who have received the travel bursary previously, or who receive additional travel assistance, may also apply.

To qualify applicants must be:

1. Current CARCNET/RÉCCAR members.
2. Enrolled at a Canadian educational institute.
3. Presenting either a poster or a platform presentation at the conference.
4. Traveling greater than 500 km.
5. Complete the application form available on the website (www.carcnet.ca).

Questions and applications (English & French) can be directed to Sara Ashpole

Travel Award Application Deadline: 12 August 2011, by email to Sara Ashpole: sashpole@uwaterloo.ca

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CONFERENCE STUDENT AWARDS

Congratulations to **Marchell Coulombe** (Platform) and **Joël Leduc** (Poster) for their outstanding presentations in Wolfville!

Presentation Abstracts

Conservation genetics of the wood turtle (*Glyptemys insculpta*) at the north-eastern limit of its range. Marchell G. Coulombe*, Steve Mockford, Tom B. Herman.

Marchell at her field site measuring the carapace of a wood turtle (*Glyptemys insculpta*), Nova Scotia. Photo credit Steve Mockford

Within conservation biology, there is increasing impetus for genetic analyses in species conservation and management. Population genetics are often used to resolve taxonomic uncertainties and relationships within threatened populations and to detect declines in genetic diversity, especially within fragmented

populations. The wood turtle (*Glyptemys insculpta*) is a vulnerable species occupying a disjunct range throughout north-eastern North America. Wood turtles face a diversity of threats, primarily due to habitat loss, and recent studies indicate wood turtle populations are experiencing a steady decline. Although wood turtles have been well described in other jurisdictions, little is known about wood turtle ecology in Nova Scotia, Canada. The wood turtle is one of four indigenous freshwater turtle species found in Nova Scotia, and is generally well distributed throughout the province. While a number of field studies have focused on describing wood turtle ecology, relatively no information exists on the population genetics of this species. The goal of this study is to describe the genetic population structure of the wood turtle in Nova Scotia, at the north-eastern limit of the species' range.

Ecology of Herpetofaunal Populations in Tailings Wetlands in Sudbury, Ontario. Joël C. Leduc*, Kristen J. Kozlowicz, Jacqueline D. Litzgus and David Lesbarréres

Joël on the 2010 conference field trip holding a Northern Ribbon snake (*Thamnophis sauritus septentrionalis*), Kejimkujik National Park Nova Scotia. Photo credit Bruce Pauli

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

Tips to deliver a better presentation
(Reprinted with permission CAH/ACH Bulletin Vol. 18, No 1 Fall 2010)

Respect your allotted time. We allow 12 minutes for the presentation and 3 minutes for questions, for a total of 15 minutes per presentation. At bigger conferences, there are several concurrent sessions and organizers thus maintain extremely strict schedules. It is a good habit to acquire. In addition, going over your allotted time is uncourteous to our audience because they do not have time to ask questions, and it is uncourteous to the persons speaking after you.

State your question and the rationale for it, clearly at the outset. What is the point of your presentation? What is your goal, objective, or aim?

Make sure you know what is a scientific hypothesis (i.e., a proposed explanation for an observed phenomenon). A hypothesis has a more restricted meaning in the context of the scientific method than its formal definition in the dictionary. If you do not

have a formal scientific hypothesis it is fine, but do not try to masquerade a descriptive or an exploratory study as a hypothesis-driven study. If you do not have a hypothesis, you should still have a clear goal, objective, or aim (see point above). Conservation is often used as a weak justification for doing descriptive natural history (e.g., we need to know more about the species to manage it... but clearly we do not need to know everything about a species to manage it!). If you are presenting a descriptive study, make sure you explain how it will contribute meaningfully to conservation or to ecology and evolution.

Provide a brief conceptual context for your question/hypothesis. This should make the rationale of your study clear. To determine if you have an appropriate conceptual context, ask yourself if your presentation would interest an ecologist or an evolutionary biologist that does not work on herptiles. If the answer is no, then chances are your conceptual context is weak or absent.

Given the focus of CACRNET/CAH meetings, you can assume your audience has basic biological and herpetological knowledge. Thus, you do not need to dwell on the natural history of your beast (e.g., wood turtles are brown and semi-terrestrial) or facts that will already be obvious to your audience (e.g., amphibians are in decline) in your introduction. Dwell on the conceptual background instead (see point above). You should pay particular attention to this point if you work on a species that has a history of being over-represented during our meeting (e.g., wood turtle, Fowler's toad, etc.).

Wrap up your talk with the take-home message. This conclusion should be directly related to the hypothesis, question, goal, objective, or aim that you presented at the beginning.

Gabriel holding an Eastern milk snake (*Lampropeltis triangulum*) while leading the 2007 Conference field trip to the Queens University Biological Station, Kingston Ontario. Photo Credit Sara Ashpole

If you do not yet have data to start answering your question, please consider presenting a poster instead of a talk.

Avoid tables like the plague.

Use figures instead. Use text sparingly: slides are meant to complement what you are saying, not duplicate it.

There is no need for an outline when a short (less than 20 min) talk is well organized. If you feel like your talk will not be understood well without an outline, organize your talk better.

Face the audience, be enthusiastic, speak clearly, and do not read from a text or cue cards. Use the pointer sparingly. A well-constructed slide should be self explanatory.

Gabriel Blouin-Demers
University of Ottawa
gblouin@uottawa.ca

CARCNET Judging Form for Student Platform Presentations

Name of Student: _____

Title of Talk: _____

Instructions to Judges: For each category below, circle the appropriate rank. Additional comments are welcome. All judging is confidential. Three volunteers will judge each presentation. Comments can be provided to the presenters by tearing off the lower portion of the page.

Part I. Scientific Merit

1) Rationalization for doing the work / hypothesis development and relevance

(1) Poor (2) (3) (4) (5) High

2a) Quality of experimental design/statistical analysis/education project design/scientific significance and relevance
(1) Poor (2) (3) (4) (5) High

3a) Contextualization of results and communication of the broader implications to the field
(1) Poor (2) (3) (4) (5) High

OR

2b) Proposal: evidence of adequate background literature, and adequacy of proposed methodology to address the hypotheses
(1) Poor (2) (3) (4) (5) High

3b) Proposal: project development, Quality of proposed experimental/educational design /scientific significance and relevance
(1) Poor (2) (3) (4) (5) High

4) Relevance of the work to CARCNET's goals (conserving Canada's native species of amphibians and reptiles, and their ecological and evolutionary functions in perpetuity)
(1) Poor (2) (3) (4) (5) High

5) Response to questions
(1) Poor (2) (3) (4) (5) High

Part II. Format & Style

6) Presenter performance (timing, speaking clarity, volume, enthusiasm, eye contact) and ease of presentation to follow with no ambiguity or confusion
(1) Poor (2) (3) (4) (5) High

7) Clarity of slides, appropriate use of colour, font, graphics and animation
(1) Poor (2) (3) (4) (5) High

8) Overall impression
(1) Poor (2) (3) (4) (5) High

Additional Comments: Total _____/max 40pts

CARCNET Judging Form for Poster Presentations

Name of Student: _____Name of Judge: _____

Title of Poster: _____

PARTS LIST

	Y	N	
1.	❒	❒	TITLE/AUTHOR
2.	❒	❒	ABSTRACT
3.	❒	❒	INTRODUCTION
4.	❒	❒	MATERIALS & METHODS
5.	❒	❒	RESULTS
6.	❒	❒	DISCUSSION
7.	❒	❒	BIBLIOGRAPHY
8.	❒	❒	ACKNOWLEDGMENTS

CONSTRUCTION

	Y	N	
1.	❒	❒	CORRECT POSTER SIZE
2.	❒	❒	BACKGROUND COLOR
3.	❒	❒	USE OF GRAPHIC COLORS
4.	❒	❒	APPROPRIATE FONT SIZE
5.	❒	❒	GRAPH AXIS LABELS
6.	❒	❒	FIGURE & TABLE LEGENDS
7.	❒	❒	TAB/FIG'S REF'D IN TEXT
8.	❒	❒	CORRECT GRAMMAR/SPELLING

Research Merit. CONTENT **(1 = *Poor*; 5 = *Excellent*)**

1. [1 2 3 4 5] Was the Abstract well written and concise?

2. [1 2 3 4 5] Were rationale/hypotheses for the project clearly stated?

3. [1 2 3 4 5] Does the research represent a significant contribution to new knowledge?

4. [1 2 3 4 5] Was the basic premise supported by adequate citation?

5. [1 2 3 4 5] Did the Methods section contain enough information to replicate the study and mention controls?

6a. [1 2 3 4 5] Were adequate data collected to support or reject the hypothesis/rationale?

7a. [1 2 3 4 5] Did the Results section contain adequate figures and tables?

8a. [1 2 3 4 5] Did the Results section contain appropriate sample statistics and trends in the data?

9a. [1 2 3 4 5] Did the Discussion summarize results in the context of the Introduction?

10. [1 2 3 4 5] Were the References in alphabetical order and a consistent format?

11. [1 2 3 4 5] Was the balance between text/data appropriate?

Proposal:

6b. [1 2 3 4 5] Was their adequate project development?

7b. [1 2 3 4 5] Adequate literature to support hypothesis and proposed methodology

8b. [1 2 3 4 5] Adequacy of proposed methodology to address the hypotheses?

9b. [1 2 3 4 5] Are scientific or management implications explored?

Interaction with student

12. ❒ No ❒ Yes [1 2 3 4 5] Rate the student's ability to explain their project

13. ❒ No ❒ Yes [1 2 3 4 5] Rate the student's ability to explain their general topic