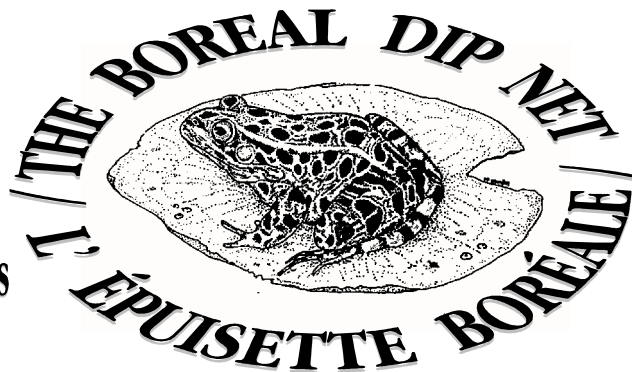


Newsletter of the Canadian Amphibian and Reptile Conservation Network /

Réseau Canadien de Conservation des Amphibiens et des Reptiles



Winter 2000

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Volume 4, Number 1

In this issue:

- COSEWIC Update - 1
- Message from the Chairperson - 2
- Thank You.... - 2
- Board Announcements - 3
- Conference Annuele du RCCAR à Quebec - 3
- Field Trip at the Quebec Meeting - 4
- International Symposium ... - 5
- Wood Turtles Galore! - 6
- Abstract Titles from the Quebec Conference - 6
- Pelee Island: 'The Galapagos Islands of Canada' - 11
- The Big Three - Pelee Island's Endangered Snake Fauna - 12
- Book Review - 13
- Current CARCN/RCCAR Projects - 13
- Some Project Updates - 13
- Road Mortality Workshop... - 14
- CARCN/RCCAR Website Update - 15
- 2000 Annual Meeting Announcement - 15
- Check Out This New Website! - 16
- Emergency Listing By COSEWIC - 16
- Is This How You Remember Dissection? - 17
- Membership in CARCN/RCCAR - 18
- Ontario Herpetofaunal Atlas Maps - 18

From the Editor

Kerrie Serben

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The 1999 CARCN/RCCAR Annual Meeting was a great success! The meeting was well attended by herpetologists from Canada, the United States, and Europe. Many interesting articles are included in this issue, such as an overview of the numerous wood turtle presentations and a discussion of the symposium on herpetological education. Thank you to all the contributors!

There are many changes in CARCN/RCCAR to report on in this issue of **The Boreal Dip Net**. The Board of Directors is restructuring to improve its efficiency, and has decided to implement a membership fee to enhance the services of the organization. **Stan Orchard** has accepted an exciting employment opportunity in Australia and will no longer be able to continue in the position as editor for our newsletter. I am very pleased and honoured to take on this challenge.

COSEWIC Update

A number of reptilian and amphibian species received ratings at the April 1999 meeting of COSEWIC.

Endangered:

Sharp-tailed Snake	<i>(Contia tenuis)</i>
Oregon Spotted Frog	<i>(Rana pretiosa)</i>

Threatened:

Eastern Fox Snake	<i>(Elaphe vulpina gloydi)</i>
Queen Snake	<i>(Regina septemvittata)</i>
Fowler's Toad	<i>(Bufo fowleri)</i>

Vulnerable:

Butler's Garter Snake	<i>(Thamnophis butleri)</i>
Northern Red-legged Frog	<i>(Rana aurora)</i>
Spring Salamander	<i>(Gyrinophilus porphyriticus)</i>
Great Plains Toad	<i>(Bufo cognatus)</i>

Message from the Chairperson

Christine Bishop

Canadian Wildlife Service, Canada Centre for Inland Waters, P.O. Box 5050, 867 Lakeshore Road, Burlington, Ontario L7R 4A6 (cab.bishop@ec.gc.ca)

The Canadian Amphibian and Reptile Conservation Network (CARCN) has officially been speaking on behalf of reptiles and amphibians and their habitats since 1997 as a non-profit charitable organization. The Network began in 1991, when a nation-wide movement began to increase awareness about conservation issues relating to amphibians. At that time, we initially focused on amphibians but recognized that the plight of many reptiles, whose populations have declined even more drastically than those of many amphibian species, needed attention too.

This past year has been a productive one for CARCN. At our annual meeting more than 60 presentations addressed the biology of reptiles and amphibians and efforts to conserve these animals. Our board of directors meets once a year at the annual meeting. This year we made a few structural changes to enhance the efficiency of the board and to assign duties to all board members. We increased our board membership to eleven. Terms have been staggered so that in the future no more than about one-third of the Board positions will expire in any given year.

PAST CHAIR: Stan Orchard (2 yrs)
CURRENT CHAIR: Christine Bishop (4 yrs)
VICE- CHAIR AND EASTERN COORDINATOR: Martin Ouellet (4 yrs)
VICE- CHAIR AND WESTERN COORDINATOR: Andrew Didiuk (3 yrs)
SECRETARY/ARCHIVIST: Donald McAlpine (2 yrs)
TREASURER: Bruce Pauli (3 yrs)

DIRECTORS AT LARGE: Ronald Brooks (3 yrs); Samara Eaton (4 yrs); Wayne Weller (2 yrs); Jacques Jutras (3 yrs); Larry Halverson (4 yrs)

CARCN continues to promote public involvement in frog and toad monitoring programs across Canada and is providing input to the Environmental Monitoring and Assessment Network to establish a national FROGWATCH program which is coming to a web site near you soon! Our own web site is now complete, including an amphibian and a reptile quiz (<http://www.cciw.ca/ecowatch/dapcan/intro.html>). Other organizations, such as Environment Canada and the World Wildlife Fund, have sought our advice on how to preserve Canadian ecosystems for frogs, toads, salamanders, turtles, snakes, and lizards. We are currently developing a system to designate Important Reptile

Areas and Important Amphibian Areas in Canada to raise awareness about the animals and their habitats. As this project develops, we will be looking for direction from those of you studying amphibians and reptiles for suggestions of areas that you think should be named as Important Amphibian Areas and/or Important Reptile Areas.

I look forward to seeing you at the next annual meeting in Penticton, British Columbia next fall!

From the Board of Directors of CARCN....

Thank you to the organizers and sponsors of the CARCN annual meeting!

The annual meeting in Québec City in October was a great success and a credit to everyone involved. It was a great scientific experience, and it was a fun and beautiful place to meet. For their time, effort, and creativity, we would like to thank Jacques Jutras, Martin Ouellet, Claude Daigle, Louise Champoux, Bruce Pauli, Joël Bonin, Jean-François Desroches, David Rodrigue, Patrick Galois, Heather Gray, Martin Léveillé, Nicolas Wampach, Roger Bider, Céline Dubeau, Linda Paetow, Ginette Morel, Jean Berthiaume, Christiane Picard, Doris Cooper, Denis Dorion, and Pierre Richard.

Our sponsors for the meeting were **Gouvernement du Québec/Faune et Parcs, Service Canadien de la faune/Canadian Wildlife Service, and La Fondation de la faune du Québec.**



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Board Announcements

CARCN/RCCAR 1999 BOARD OF DIRECTORS MEETING

Donald McAlpine

Natural Sciences Division, New Brunswick Museum, 227 Douglas Avenue, Saint John, New Brunswick E2K 1E5 (dmcaldpin@nbnet.nb.ca)

The CARCN/RCCAR Board of Directors met just prior to the 1999 Annual Meeting. The meeting got underway just after 19:30, and continued until after midnight (I'm glad I wasn't giving a paper the next day!).

The most important topic discussed was the need to adopt a board structure that is efficient, gets lots of people involved (i.e. spreads the workload around), and is reflective of CARCN/RCCAR objectives and mandate. With all this in mind, and although aware of how well our initial structure worked for DAPCAN (a testament to the organizational skills of **David Green**, **Stan Orchard**, and others) a new, more traditional, board structure has been adopted.

Due to family and work commitments, **Carolyn Seburn** tendered her resignation from the Board. Stan, now in an exciting position in Australia, has also stepped down as CARCN/RCCAR Chair. Thankfully, both Carolyn and Stan will continue to be actively involved with CARCN/RCCAR. Carolyn has agreed to continue as co-editor of the reptile book (see below), and Stan, as Past Chair, will continue to provide his insight to the rest of the Board.

For the past year, efforts have been underway to produce a CARCN/RCCAR book on Canadian reptile conservation issues. Carolyn and Christine have agreed to co-edit the volume. Authors are lined up for various contributions; some outlines and one chapter have already been received and several publishers have been contacted. In the coming months the editors will likely start to put the heat on those authors who are foot-dragging (you know who you are - expect an e-mail soon). This book will be a valuable contribution to reptile conservation efforts in Canada, and we expect it will have the same positive impact that the CARCN/RCCAR - CAH/ACH amphibian volume has had.

CARCN/RCCAR is playing an increasingly active role on the national stage with respect to herps and herp conservation in Canada. Both the World Wildlife Fund and Environment Canada's EMAN program are looking to us for direction and CARCN/RCCAR is now providing information which will be used in developing new federal endangered species legislation. Related to these initiatives, the Board has agreed

to establish a special account to accept donations to help purchase a block of property on Pelee Island that has significance to several rare and endangered Canadian snakes.

Following the evolution of DAPCAN into CARCN/RCCAR, we have continued to maintain a close working relationship with DAPTF. DAPTF still has important work to do and the support of CARCN/RCCAR is important. DAPCAN has frequently been touted as the most successful module of the DAPTF program to date. CARCN/RCCAR will continue to liaise with DAPTF and will provide an annual report to the DAPTF Chair. **Don McAlpine** has agreed to prepare this report on behalf of the CARCN/RCCAR Board.

Finally, the Board accepted an offer to convene our 2000 Annual Meeting in British Columbia, in the Okanagan Valley. There will be more details on that in later issues of the Boreal Dip Net. Hope to see you all there!

Conférence Annuelle du RCCAR à Québec

Jacques Jutras

Société de la faune et des parcs du Québec, Service de la faune terrestre, 675, boul. René-Lévesque 11^e, Québec, Québec G1R 5V7 (jacques.jutras@mef.gouv.gc.ca)

En 1999, la Conférence annuelle du RCCAR a eu lieu dans la ville de Québec. Cet événement, qui s'est déroulé du 15 au 18 octobre, a remporté un vif succès. Environ 120 personnes ont assisté à cette conférence. Les participants, composés principalement de chercheurs, d'étudiants et de gestionnaires, provenaient des différentes provinces canadiennes, de quelques états américains ainsi que de certains pays d'Europe tels la Hongrie, la Suède, la France et la Grande-Bretagne.

Les conférences de la première journée furent consacrées à l'éducation en herpétologie tandis que les présentations des deux autres jours portaient sur divers travaux de recherche relatifs aux amphibiens et reptiles. Un système de traduction simultané permettait aux conférenciers de s'exprimer en français ou en anglais. Plus de 60 conférenciers ont répondu à l'appel et sont venus à Québec présenter les résultats de leurs recherches. À souligner la présence à titre de conférenciers invités, d'**Alain Dubois** du Muséum National d'Histoire Naturelle de Paris qui nous a entretenu sur l'anomalie « P » chez les grenouilles vertes *Rana (Pelophylax) synkl. esculenta* et les anomalies voisines chez les amphibiens d'Europe, de **Henry Mushinsky** de l'Université de la Floride du sud qui est venu nous faire part de ses réflexions sur les sciences, la société et l'éthique, finalement de **Per Sjögren-Gulve** de l'Université d'Uppsala en Suède dont la conférence portait sur l'application de la théorie des métapopulations

aux actions de conservations, en prenant comme exemple *Rana lessonae*. De nombreux autres sujets ont été abordés lors de cet événement, dont: les malformations chez les amphibiens, plusieurs études sur les tortues (plus particulièrement la tortue des bois), les patrons de migration chez les salamandres, les techniques d'inventaire de populations et la mortalité hivernale chez certaines populations de couleuvres, les programmes éducatifs en herpétologie.

Tout au long de cet événement, les participants et le public en général ont pu observer dans le hall de la salle de conférence, des spécimens vivants représentatifs de l'herpétofaune québécoise. Ces spécimens avaient été mis à notre disposition par **Roger Bider** et **David Rodrigue** de la Société d'Histoire Naturelle de la Vallée du Saint-Laurent. Les gens pouvaient également prendre connaissance des résultats de certaines recherches présentés lors des sessions d'affichage.

Le vendredi soir, un cocktail a été servi au 31^{ième} étage de l'Idifice Marie-Guyart. Les gens ont passé la soirée à discuter tout en bénéficiant d'une vue magnifique sur la Ville de Québec et en dégustant un verre de Rescousse, une bière québécoise qui a été créé afin d'amasser des fonds pour la sauvegarde des espèces menacées ou vulnérables. Pour agrémenter la soirée, nous avons eu le plaisir de participer à un jeu questionnaire sur les amphibiens et reptiles du Canada. Ce quiz, animé par **Martin Ouellet** et **Christine Bishop**, a été des plus amusant et nous a permis de mettre à l'épreuve nos connaissances en herpétologie. **David Green** fut déclaré grand gagnant de ce concours!

Les activités sociales organisées dans le cadre des réunions annuelles du RCCAR constituent des occasions privilégiées pour établir des contacts entre les spécialistes de l'herpétofaune. Ainsi, lors du banquet organisé le samedi soir au Musée du Québec, les personnes présentes ont pu poursuivre les discussions entamées dans la journée.

Pour clore cet événement, une sortie sur le terrain a été organisée par **Joël Bonin** et **Jean-François Desroches**. Les participants ont été conduits en autocar sur la Côte de Beaupré le long du fleuve Saint-Laurent. Un arrêt à la Chute Montmorency leur a permis d'observer certaines espèces de salamandres dont la salamandre sombre du nord (*Desmognathus fuscus*) et la salamandre rayée (*Plethodon cinereus*). Par la suite, les personnes ont pu observer plusieurs milliers d'oies des neiges sur les battures du fleuve de même que les paysages d'automne aux couleurs magnifiques de la réserve nationale de faune du Cap Tourmente.



La conférence annuelle a été des plus appréciée. L'an prochain cet événement aura lieu en Colombie-Britannique.

Field trip at the Quebec Meeting

Salamanders by the pound: The CARCN/RCCAR field trip at our annual meeting October 1999

Christine Bishop

On my way to the CARCN/RCCAR meeting in Québec City last fall, I flew over eastern Ontario and Québec and was treated to a perspective on autumn colours that I had never had before. It was a bright, sunny day and orange and red leaf colour was at its peak in forests across Québec. From the sky, the crowns of the woodlots looked like puffy coloured clouds below. This part of the country in autumn is one of the most beautiful places on the planet. The field trip after the meeting was another opportunity to appreciate la belle province.

Our tour guide, **Joël Bonin**, educated us about geology and biology of the area during a thoroughly humorous trip across the countryside near Québec City. He took us to our first stop at Parc de la Chute-Montmorency where **Jean-François Desroches** immediately pointed us toward an area known for Northern Dusky Salamander (*Desmognathus fuscus*) and Northern Two-lined Salamander (*Eurycea bislineata*). Around the seeps and splash zones of the Montmorency River, only a few minutes of flipping rocks turned up a tiny, centimeter-long juvenile Northern Dusky Salamander. Laying on the end of Miklos Puky's finger, this juvenile had plenty of room to spare and looked incredibly fragile for an animal that survives among the cold, rocky areas of this river. Several adult Dusky's were also found and the speckling along the sides of the body was obvious on the adults while the juvenile was simply charcoal coloured overall. Then a Northern Two-lined Salamander and a Redbacked Salamander (*Plethodon cinereus*) were unearthed so that comparison among the species was possible. The yellow belly and dark lateral lines of the Two-lined Salamander were very distinctive while the faint yellowish band of colour down its back was harder to detect. However, there was no mistaking the differences among the three species. Within a half an hour into the field trip, I had seen two new life herps.

The day started with light rain. The trails were slippery, but as we followed the path over to Montmorency Falls, the temperature rose, the sun came out, and the day became warmly autumnal. The bridge over the river gave us a chance to appreciate the full 83 m height of

these falls; 30 m higher than Niagara Falls, just ask **Martin Ouellet!** We descended to the bottom of the gorge to the heavily mist-filled edge of the fall pools and found more Dusky and Redback Salamanders. I am sure thousands of people walk through the park every year without an awareness of its importance to these species. But considering the fragility of these splash zones, the salamanders are probably all the better for that.

Before lunch we searched for the Smooth Green Snake (*Liochlorophis vernalis*) at an overgrown site of a small factory, which is the most northern location for this species. Given there had already been two frosts in the past month, it was no surprise that our attempts to find this little snake were in vain. But it was interesting to see the site, being so significant yet located right beside a major highway.

We stopped for lunch and an opportunity to get our picture taken with the best man in Québec 'le Bonhomme Carnaval'. Then we were treated to 'Jacques' bilingual harmonica show' and **Diane Ostiguy** pointed out haunted houses and stunning cathedrals as we travelled to Cap Tourmente. Rolling along towards Cap Tourmente, you could see that the fields extending from the St. Lawrence River and up over the ancient river bank crest were still reminiscent of the old seigneurie system. The oldest seigneurie manor in Québec is located at the entrance to Cap Tourmente. This National Wildlife Area is only an hour or so from Québec City and in 1981, was the very first RAMSAR wetland site designated in Canada. We saw in the neighbourhood of 31,000 Greater Snow Geese (*Chen caerulescens*) and an easily countable, single, male Peregrine Falcon (*Falco peregrinus*). Along the foothills of the cliffs surrounding Cap Tourmente, a trail through a maple forest and along a coldwater stream took us through perfect Redback Salamander habitat and several animals were easily discovered. As we wandered along the trails with the afternoon light turning the forest golden, we captured a slow-moving Common Garter Snake (*Thamnophis sirtalis*), perhaps the last one I would see in this century.

International Symposium at the Québec Conference

Stan Orchard

National Co-ordinator, WWF Frogs Programme, P.O. Box 528, Sydney, New South Wales, Australia 2001 (sorchard@bigpond.com)

An extra day was added to the 1999 annual meeting of the CARCN/RCCAR in order to hold an **international symposium on herpetological education**. Entitled, "*Perspectives on Herpetological*

Education and Its Relation to Conservation Biology", it drew speakers from across Canada, the United States, United Kingdom, Australia, and Hungary, with co-author participation from Slovenia, Yugoslavia, and Romania. The event was co-organized by **Stan A. Orchard** (World Wide Fund for Nature Australia) and **Henry R. Mushinsky** (University of South Florida) and was a formal continuation of an informal discussion held at the **Third World Congress of Herpetology** in Prague in August 1997.

Thirteen papers were presented, including: *Perspectives on Herpetological Education and Its Relation to Conservation Biology: Introductory Remarks* (**Stan A. Orchard**, WWF-Australia, Sydney); *Science, Societies, Advocacy, and Ethics* (**Henry R. Mushinsky**, University of South Florida, Tampa); *Educational Activities Relating to Herpetofauna at the Ecomuseum, and Their Implication* (**David Rodrigue** and **Roger Bider**, Ecomuseum, Ste-Anne-de-Bellevue, Québec); *The Educational Aspects of the International Salamander Year, a Twelve Country Project in Europe and 1999 - European Pond Terrapin Year in Hungary* (**Miklós Puky, et al.**, Hungarian Academy of Sciences); *Children Helping Amphibians* (**Daniel Bergeron**, Association for the Protection of Brompton Lake, St-Élie-d'Orford, Québec); *In the Kingdom of the Wetlands: An Environmental Education Project* (**Diane Ostiguy**, Valcartier, Québec); *Contemporary Attitudes Towards Amphibians and Reptiles* (**Stan A. Orchard**, WWF-Australia, Sydney); *Multimedia Technology as a Tool in Herpetological Education* (**Andrea Sangster**, Digital Frog International, Inc., Puslinch, Ontario); *Volunteers as Integral Participants of Amphibian and Reptile Monitoring Studies* (**Karyn Molines** and **Christopher Swarth**, Jug Bay Wetlands Sanctuary, Lothian, Maryland); *Mudpuppy Night in Oxford Mills: It's Your Only Chance to See An Active Amphibian When the Air Temperature is -26°C!* (**Frederick W. Schueler**, Eastern Ontario Biodiversity Museum, Kemptonville, Ontario); *Advice in a Crowded Country: Methods for Public Education to Promote Herp Conservation in Britain* (**Jim Foster** and **Jennifer Barr**, Froglife, Bramfield, United Kingdom); *Public Participation and Outreach Programming for the Recovery of Threatened Species and Their Habitats* and a video *Living With Wildlife: The Eastern Massasauga Rattlesnake* (**Bob Johnson**, Metro Toronto Zoo, Toronto).

The proceedings from this symposium will form the basis of a book, edited by **Stan A. Orchard** and **Henry R. Mushinsky**, that will include more contributions from around the world and will present an even more comprehensive look at the arts and science of herpetological education and its relation to conservation biology. The number of contributors is growing rapidly and will include topics such as a cross-cultural analysis of contemporary attitudes, the value of herpetological museum collections to education and conservation, education and the internet, practical conservation and the timber industry, how to educate policy makers, public education in zoos, community education and invasive species, and cross-cultural education involving aboriginal communities. Publication is expected sometime in 2001.

Wood Turtles Galore!

Kim Smith

Graduate student (M.Sc.) with Dr. R. Brooks at the Department of Zoology, University of Guelph, Guelph, Ontario, Canada (ksmith00@uoguelph.ca)

I could not have been more excited when I first browsed through the abstracts for the 1999 CARCN meeting in la ville de Québec- six wood turtle talks! The talks themselves did not disappoint, and a number of interesting parallels emerged among the studies.

I was the first to delve into the wood turtle theme. I described the preliminary results of my first field season in Algonquin Provincial Park, Ontario, during which I examined the home range, habitat selection and demography of wood turtles. My first, and most crucial, discovery was that there were indeed still wood turtles in the Park. Ten years had passed since Norm Quinn and Doug Tate finished the first intensive wood turtle study in this area, and my all-encompassing fear in the early days of the project was that I wouldn't have any study subjects. Fortunately, I did find 32 adults and juveniles, and 96 of the cutest hatchlings you will ever see. I fitted 15 turtles with radio transmitters, and proceeded to spend the next five months following them around. This proved much more difficult than I had anticipated. Similar to the results of **Martin Arvisais** in Québec, I discovered that average home range size was 1-2 orders of magnitude higher than those reported in previous studies. I found it a bit embarrassing to admit that an animal so renowned for its slowness could out-run me, but there it is - these turtles are wanderers. Another similar finding was that wood turtles inhabit a wide variety of habitats, which change throughout the season. What this actually means is that just as you are getting totally fed-up with tripping over the horizontal branches of alder swale in the spring, the turtles move through dense forests where a significant portion of your budget is spent replacing antenna cords, broken from being constantly wrenched through the unforgiving branches. Did I also mention how wood turtles and bears share the same love of berries (and therefore habitat) in July? Enough said...

Nesting season was fun! We were fortunate in that one of our main nest sites was a sandy road: thus, we were able to do late-night 'stake-outs' from inside the truck, watching the activity of the turtles as we

taunted the mosquitoes & blackflies pounding the windows outside. Similar to the results of **Andrew Walde** and **Steven Parren** in Québec and Vermont, mammalian predation of unprotected nests was very low. Given that turtle nest predation is generally highly stochastic between years for any particular site, and often reaches 80-100%, it is interesting to see this uncharacteristically low level of predation common among the three study sites. **Serge Montour** provided some nest-finding tips which should prove helpful for other researchers in the future. Andrew had an additional observation, accompanied by what surely must have been the best slide of the conference: a rear-end shot of a female wood turtle 'tiptoeing' away from her completed nest! This behaviour has never been reported before, and Andrew believed its purpose was to help conceal the location of the nest from potential predators. Cool stuff!

In terms of population structure and demographic stability, it's too soon to say whether or not the Algonquin wood turtle population is secure. Unlike **Sylvain Paradis'** assessment of the wood turtle population in La Mauricie National Park, **Ron Brooks** had some pretty depressing news about wood turtle numbers in the Maitland River watershed in southwestern Ontario. He estimated that overall population size has declined by about 50% since 1993. A sudden decline of such magnitude is consistent with only one cause: poaching. With the growing popularity of wood turtles in the pet trade, Canadian populations could suffer the same fate as those in the United States which have been depleted for this purpose. Withholding exact localities of wood turtle populations from public release is the only way to prevent, or at least delay, this outcome.

Wood turtles even made an appearance at the evening mixer on Friday night. **M. Bernard Beaudin** of the Fondation de la Faune du Québec unveiled an absolutely beautiful painting by **Patricia Pépin**, depicting two wood turtles. The painting is featured on a stamp issued by the foundation in support of its mandate to promote conservation, and to give special prominence to the wildlife and wilderness habitat in all parts of Québec. Quel beau choix, mes amis!

Abstract Titles from the Quebec Conference



The titles of the abstracts presented at the Quebec Conference are listed alphabetically

The Boreal Dip Net / L'Épuisette Boréale

Winter 2000 - Volume 4, Number 1

according to the last name of the senior author. Contact information is listed after the title and authors' names. A copy of the abstract will soon be added to the CARCN/RCCAR website (<http://www.cciw.ca/ecowatch/dapcan/intro.html>). If necessary, a hard copy of the abstract booklet can be obtained by contacting **Martin Ouellet** (mouell9@po-box.mcgill.ca).

CARACTÉRISATION ET SÉLECTION D'HABITATS À L'INTÉRIEUR DES DOMAINES VITAUX CHEZ LA TORTUE DES BOIS (*Clemmys insculpta*)

Martin Arvisais¹, Esther Lévesque¹ et Jean-Claude Bourgeois²
¹Université du Québec à Trois-Rivières, Département de Chimie Biologie, 3351 Boul des Forges, C.P. 500, Trois-Rivières, Québec, G9A 5H7, Canada, (martin_arvisais@uqtr.quebec.ca); ²Société de la faune et des parcs du Québec, 5575 rue St-Joseph, Trois-Rivières Ouest, Québec, G8Z 4L7, Canada, (meftro@infoteck.qc.ca)

ASSOCIATION BETWEEN SEXUALLY DIMORPHIC TRAITS, GONADAL DEVELOPMENT, AND BEHAVIOUR OF HATCHLING SNAPPING TURTLES (*Chelydra serpentina*) WITH ORGANOCHLORINE EXPOSURE

Sara L. Ashpole¹, Shane R. de Solla¹, Christine A. Bishop², and Ronald J. Brooks¹

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GENETIC STRUCTURE, PHYLOGEOGRAPHY AND GENE FLOW IN THE BULLFROG (*Rana catesbeiana*)

James Austin, Steve Lougheed, and Peter Boag
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LES ENFANTS À LA RESCOUSSE DES GRENOUILLES

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DES TUNNELS POUR LE PASSAGE DES AMPHIBIENS

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1999 BASKATHON: A FIRST FOR THE WORLD

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IMPORTANT REPTILE AREAS AND IMPORTANT

AMPHIBIAN AREAS OF CANADA: A CASE STUDY OF PELEE ISLAND

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CONTAMINANTS AND WILDLIFE IN 15 STORMWATER DETENTION PONDS IN SOUTHERN ONTARIO

Christine A. Bishop¹, John Struger¹, Lesley Dunn¹, Donna Bedard² and Leonard Shirose¹
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SAUVEGARDER LES HABITATS CLÉS

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LES FORÊTS ANCIENNES: REFUGES POUR LES SALAMANDRES

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WOOD TURTLE (*Clemmys insculpta*) NUMBERS IN SOUTHERN ONTARIO

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PROGRESS TOWARDS A NATIONAL FROGWATCH PROGRAM

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SYNERGISTIC EFFECTS OF THE XENOESTROGEN

4-OCTYLPHENOL (4-OP) AND UV-B RADIATION ON SOMATIC DEVELOPMENT AND GENE EXPRESSION IN THE FOREBRAIN OF THE LEOPARD FROG (*Rana pipiens*)

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EVALUATING FOUR TYPES OF SALAMANDER COVER BOARDS AT SMITHSONIAN INSTITUTION FOREST BIODIVERSITY PERMANENT PLOTS UTILIZING STUDENT VOLUNTEERS

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HERPETOLOGY IN GUAM

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L'ANOMALIE P DES GRENOUILLES VERTES, *Rana (pelophylax) synkl. esculenta* ET LES ANOMALIES VOISINES CHEZ LES AMPHIBIENS D'EUROPE

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ADVICE IN A CROWDED COUNTRY: METHODS FOR PUBLIC EDUCATION TO PROMOTE HERP CONSERVATION IN BRITAIN

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A PRELIMINARY STUDY OF THE INCIDENCE OF DEFORMITIES IN GREEN FROGS (*Rana clamitans*) AND NORTHERN LEOPARD FROGS (*Rana pipiens*) ON PRINCE EDWARD ISLAND

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UTILISATION SPATIO-TEMPORELLE DU NORD DU LAC CHAMPLAIN PAR LA TORTUE-MOLLE À ÉPINES (*Apalone spinifera*)

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AMPHIBIAN ABNORMALITIES AND HEAVILY MANAGED LAND USES IN VERMONT

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LEVELS OF EXTERNAL DEVELOPMENTAL ABNORMALITY AND TRAUMATIC INJURY IN PANAMANIAN ANURAN POPULATIONS

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COSEWIC: ENDANGERED SPECIES DESIGNATION IN CANADA

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STATISTICAL ESTIMATION OF AMPHIBIAN MALFORMATION

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WILL GLOBAL WARMING CAUSE THE DECLINE OF SPECIES WITH TEMPERATURE SEX DETERMINATION?

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PUBLIC PARTICIPATION AND OUTREACH PROGRAMMING FOR THE RECOVERY OF THREATENED SPECIES AND THEIR HABITATS

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ABUNDANCE, MORTALITY AND AGE DISTRIBUTION OF THREE SPECIES OF RANIDS IN ALGONQUIN PROVINCIAL PARK, ONTARIO: ARE AMPHIBIANS

The Boreal Dip Net / L'Épuisette Boréale

Winter 2000 - Volume 4, Number 1

DECLINING IN UNDISTURBED HABITAT?

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NORTHERN PAINTED TURTLES (*Chrysemys picta*): SIMULTANEOUSLY ABUNDANT AND RARE

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ANOMALIES MORPHOLOGIQUES CHEZ *Ambystoma maculatum* ET *Notophthalmus viridescens* EN MILIEU NATUREL

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A MAJOR DIE-OFF OF RED-SIDED GARTER SNAKES AT NARCISSE WILDLIFE MANAGEMENT AREA, MANITOBA IN 1999

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ÉCODÉMOGRAPHIE D'UNE POPULATION DE Salamandres rayées, *Plethodon cinereus*, DU PLATEAU LAURENTIEN

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TESTING COMPETING VICARIANCE HYPOTHESES OF AMAZONIAN DIVERSIFICATION USING TWO SPECIES OF FROG

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THE EFFECTS OF GROUND COVER, SOIL MOISTURE, AND SOIL URINE CONTENT ON NEST-SITE SELECTION OF PAINTED TURTLES (*Chrysemys picta*) IN ALGONQUIN PARK, ON.

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AMPHIBIAN ACTIVITY, MOVEMENT PATTERNS AND BODY SIZE IN FRAGMENTED PEAT BOGS

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PREVALENCE OF MORPHOLOGICAL DEFORMITIES AND TRAUMATIC INJURIES IN NEW BRUNSWICK ANURANS: PRELIMINARY DATA

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THE EVOLUTION OF THE BREEDING SYSTEM OF THE PAINTED TURTLE (*Chrysemys picta*)

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ASPECTS OF THE MIGRATORY ACTIVITY OF MARBLED SALAMANDERS, *Ambystoma opacum*

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ÉTUDE DES DÉPLACEMENTS QUOTIDIENS LORS DE LA PÉRIODE DE NIDIFICATION ET LOCALISATION DE SITES DE PONTE POTENTIELS CHEZ LA TORTUE DES

The Boreal Dip Net / L'Épuisette Boréale

Winter 2000 - Volume 4, Number 1

BOIS (*Clemmys insculpta*)

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SCIENCE, SOCIETIES, ADVOCACY, AND ETHICS

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PERSPECTIVES ON HERPETOLOGICAL EDUCATION AND ITS RELATION TO CONSERVATION BIOLOGY: INTRODUCTORY REMARKS

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CONTEMPORARY ATTITUDES TOWARDS AMPHIBIANS AND REPTILES

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AU ROYAUME DES TERRES HUMIDES, UN PROJET D'ÉDUCATION RELATIVE À L'ENVIRONNEMENT

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ICHTHYOPHONOSE: UNE MALADIE ENZOOTIQUE CHEZ LES AMPHIBIENS SAUVAGES DU QUÉBEC

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LA SITUATION DE LA TORTUE DES BOIS (*Clemmys insculpta*) EN MAURICIE

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WOOD TURTLE, *Clemmys insculpta*, INJURY AND MORTALITY IN A VERMONT, USA POPULATION

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SAMPLING BIASES IN DEMOGRAPHIC ANALYSES OF BLACK RAT SNAKES (*Elaphe o. obsoleta*)

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STRATEGIC PLANNING FOR HERPETOFAUNAL RECOVERY IN CANADA: FROM PAST PRACTICES TO FUTURE GAINS

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MASS OCCURRENCE OF DEFORMITIES IN A *Bombina bombina* POPULATION IN THE DANUBE FLOODPLAIN AT SZEREMLE, HUNGARY

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1999 – EUROPEAN POND TERRAPIN YEAR IN HUNGARY

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The Boreal Dip Net / L'Épuisette Boréale

Winter 2000 - Volume 4, Number 1

THE EDUCATIONAL ASPECTS OF THE INTERNATIONAL SALAMANDER YEAR, A TWELVE COUNTRY PROJECT IN EUROPE

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LA DIVERSIFICATION DES ACTIVITÉS ÉDUCATIVES RELIÉES À L'HERPÉTOFAUNE À L'ÉCOMUSEUM ET SON IMPLICATION

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CHLORINATED HYDROCARBON CONCENTRATIONS IN PLASMA OF THE NORTHERN WATER SNAKE (*Nerodia sipedon*) FROM THE GREAT LAKES BASIN

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MULTIMEDIA TECHNOLOGY AS A TOOL IN HERPETOLOGICAL EDUCATION

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MUDPUPPY NIGHT IN OXFORD MILLS: IT'S YOUR ONLY CHANCE TO SEE AN ACTIVE AMPHIBIAN WHEN THE AIR TEMPERATURE IS -26°C!

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REGIONAL "TOP 10" LISTS OF HERPETOFAUNAL DECLINE

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IN VIVO INDUCED PHOTOLYASE ACTIVITY OF WOOD FROG (*Rana sylvatica*) EMBRYOS

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DEMOGRAPHY AND HOME RANGES OF WOOD TURTLES, *Clemmys insculpta*, IN ALGONQUIN PARK, ONTARIO

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APPLICATION OF METAPOPOPULATION THEORY TO PRACTICAL CONSERVATION, WITH THE POOL FROG *Rana lessonae* AS A FOCAL EXAMPLE

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GEOGRAPHIC VARIATION IN THE LIFE HISTORY OF THE PAINTED TURTLE, *Chrysemys picta*

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NESTING ECOLOGY AND HATCHING SUCCESS OF THE WOOD TURTLE, *Clemmys insculpta*

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ECOLOGY AND CONSERVATION OF PELEE ISLAND'S ENDANGERED SNAKE FAUNA

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Pelee Island: The 'Galapagos Islands of Canada'

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Lying smack in the middle of one of the most heavily populated areas of the southern Great Lakes region is an oasis of biological diversity and cultural distinction: Pelee Island.

As the largest island in a chain of fifteen Canadian and American islands known as the Lake Erie Archipelago, Pelee Island lies about 5 km north of Middle Island, which has recently earned international recognition from the Nature Conservancy of Canada's successful bid to buy it for preservation. Likened to a historical building left untouched amongst a sea of modern day "progress" and urban development, Pelee Island remains a sanctuary for globally restricted habitats, endangered species, as well as a small community of those recognizing these benefits of isolation from the pace of mainland Ontario.

Pelee Island still remains a place of high biological diversity and rarity. This contrasts to the mainland and the southern three counties of Canada (Essex, Kent, Lambton), located to the north of western Lake Erie. Those counties contain less than 3% of their natural habitats. Farms, towns, and other developments have rendered 97% of this vast area as a virtual clear-cut and marsh-dredged system. The habitats, species and associated benefits lost from this former ecosystem are now mirrored in the low biological diversity observed and the current degraded environmental standards, such as poor drinking water, dangerous air quality, and congested roadways.

As the most southerly human-inhabited land mass in the country, Pelee Island has been referred to by some as the "Galapagos Islands" of Canada. The moderate climate, resulting from the shallow and warm waters of Lake Erie, allows for a growing season equivalent to that of southern Ohio. This moderated climate results in a mixture of habitats and species that are found nowhere else in Canada or in any of the adjacent U.S. states. This little island is also home to a high concentration of endangered, threatened or vulnerable species, such as the Lake Erie Water Snake, Fox Snake, Blue Racer, Bald Eagle and Prickly Pear Cactus and dozens of other rare plants and invertebrates.

Pelee Island's population has steadily declined from 2000 people in the 1940's to the present population of about 190, largely because of the



introduction of mechanized agriculture. Today, the island appears to be at a turning point in its history. It is believed by a large number of

local residents and community leaders that the island must develop its economy quickly, in order to keep the small resident population viable. The hope shared by many of these people is that more jobs will be created in construction, tourism and the aggregate extractive industry. Some of these ventures will have minimal or no impacts on the rare species and habitats found on the island, whereas others could have highly detrimental effects if they do not consider sensitive habitats. Some large developments have recently been approved and others are currently proposed. Additionally, Pelee Island has been the focus of much media coverage as a tourist destination, which will likely increase visitor numbers immensely.

In light of the high diversity of rare habitats, plants and animals still found on Pelee Island, it is critical that measures are taken to protect, restore and promote rare habitats and species in a manner that helps ensure that Pelee Island remains an area of natural and cultural distinction.

The Big Three - Pelee Island's Endangered Snake Fauna

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Pelee Island has long been known as a Canadian refuge for rare plants and animals, many of which were formerly found in the surrounding mainland areas of Ohio, Michigan, and Ontario. In particular, the island historically hosted a diverse herpetofauna. The island's unique habitats and warm southerly climate enabled many reptile species to thrive. Once greater than 60% marsh, the island experienced a severe habitat change in the late 1800's when most of the wetlands were drained for agriculture. At the turn of the century, sudden habitat change, continued persecution by humans, and possibly other factors led to the disappearance of several of Pelee Island's large snake species. The extirpated species included the Timber Rattlesnake (*Crotalus horridus*), the Eastern Massasauga (*Sistrurus catenatus catenatus*), and the Eastern Hognose Snake (*Heterodon platirhinos*). These species were also becoming increasingly rare on the Ontario mainland.

Five snake species can still be found on Pelee Island. Two of them, the Eastern Garter Snake (*Thamnophis sirtalis sirtalis*) and the Northern Brown Snake (*Storeria dekayi*) are still relatively common. A large percentage of the garter snakes are melanistic, jet black individuals with white chins. Larger, and less common are the blue

racer (*Coluber constrictor foxii*), the Lake Erie Water Snake (*Nerodia sipedon insularum*), and the Eastern Fox Snake (*Elaphe vulpina gloydi*). The racer, the water snake, and the fox snake are Pelee Island's "Big Three", not only because of their physical size but because of their present, and historical, importance to endangered species conservation in Ontario and Canada. All three species presently have Federal and Provincial status and the blue racer was one of the first animals to be placed on Ontario's list of endangered species. The racer was designated provincially endangered in 1973 joining the likes of the Bald Eagle and Eastern Cougar. The Lake Erie Water Snake soon followed suit and was also designated endangered in 1976. In theory, this designation would allow for the protection of the snakes and their habitat under Ontario's Endangered Species Act. In 1991, both snakes were designated endangered by COSEWIC. Finally, the threatened status of the Eastern Fox Snake was recognized by COSEWIC and COSSARO (the provincial equivalent) in 1999.

Each snake has a unique ecology and distribution on Pelee Island but they also share many behaviours and habitats. The Blue Racer is a species of open habitat, thriving in the island's alvar-savanna, old fields, and hedgerows. Formerly found on the western side of the island, the Blue Racer's distribution is now restricted to the eastern two thirds, where as few as 200 adults remain. Although occasionally found inland in habitats like old quarries and canals, the Lake Erie Water Snake forages primarily along the island's rocky and sandy shorelines and gravid females use the vegetated areas of the shoreline for thermoregulation. The Eastern Fox Snake occurs in varying stages of succeeding woodland, savanna, and old field and although a resident of extensive marshes on the mainland, the species seems to have adapted relatively well to the island's wetland loss.

The Big Three have a varied ecology and distribution on Pelee Island, but in one regard they are very similar, they all require the same resource - habitat to roam (or slither). It is likely that Pelee Island's snake populations will continue to decline due to road mortality, persecution, and loss of critical habitat. Hopefully, some of these negative trends can be reversed or at least halted with existing provincial statutes or imminent federal legislation. However, if we truly wish to prevent further species declines and habitat loss, we need to take a proactive approach and protect the habitats before they disappear. The biological attributes of Pelee Island's snake fauna make them one of the most unique snake assemblages in Canada, and their rarity and endangered/threatened status make them one of the most important.

Book Review: *Rare Amphibians, Reptiles, and Mammals of British Columbia*

Larry Halverson

Cannings, S.G., L.R. Ramsay, D.F. Fraser, and M.A. Fraker. 1999. "Rare Amphibians, Reptiles, and Mammals of British Columbia". Wildl. Branch and Resour. Inv. Branch, B.C. Minist. Environment, Lands and Parks, Victoria, BC. 198pp. ISBN 0-7726-3832-2

This report contains the current Red and Blue Lists of native amphibians, reptiles and mammals at risk in British Columbia.

The spiral-bound book devotes 35 pages towards amphibians and reptiles along with 6 pages of references plus appendices giving the Red and Blue lists plus rankings from adjacent states and provinces and the globe. It outlines the process used to apply ranks and the rationale used for the inclusion of "peripheral species" to the Red and Blue lists. It also begins to address the conservation of genetic diversity by including subspecies at risk and in some cases, geographically-isolated populations.

A brief account for each species on the list is presented; the taxonomy, biology, global and provincial ranking, population size, trends, and risk factors for each species is given. There is also some discussion about conservation needs as it applies to research, inventory, management and stewardship practices. A British Columbia range map is also included for each species listed.

The publication is one way of sharing the present understanding about species at risk with land managers, with the hope that better monitoring, research and management will reduce the number of rare species.

This book is available through Crown Publications Inc., 521 Fort Street, Victoria, B.C., V8W 1E7, (e-mail crown@pinc.com or <http://www.crownpub.bc.ca>) for \$26.00.

Current CARCN/RCCAR Projects

Christine Bishop

CARCN is currently conducting a couple of conservation projects that are sponsored by the World Wildlife Fund and the Environmental Monitoring and Assessment Network.

CARCN is developing criteria for designating Important Amphibian Areas and Important Reptile Areas in Canada. Once the criteria are developed, a web site will be established and herpetologists across Canada will be able to contribute information about areas of importance to these animals. Later, CARCN will be asking people to submit and to review proposals for designating an area important to amphibians or reptiles. Ultimately, this initiative will lead to the

designation and better recognition of areas in Canada that deserve special attention in the conservation and protection of herptofauna.

CARCN is also developing lists of specific conservation actions for amphibian and reptile species designated as at risk or threatened. The World Wildlife Fund will use this information to develop projects to benefit amphibians and reptiles in Canada. This project will finish in April 2000 and its findings presented at the annual meeting next fall.



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Some Project Updates From B.C.

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NORTHERN LEOPARD FROG STATUS

Once a common species and a favourite specimen in high school biology experiments, the Northern Leopard Frog is now a red-listed species whose populations have been disappearing in BC.

In the first year of this project, biologists identified two separate Northern leopard frog breeding locations in the Creston Valley Wildlife Management Area (CVWMA). Biologists also found egg masses and juvenile frogs which confirms that successful reproduction is still occurring at this site. Last year, project biologists found a fairly healthy population of at least several hundred frogs. However, accurate population estimates of this red-listed species continue to be difficult to obtain.

Activities this year include: continued radio telemetry work on leopard frogs to identify potential management concerns regarding the operations of the CVWMA; continued monitoring to obtain population

estimates; and developing a management recovery plan for leopard frogs.

Project Duration: Year 3 of 3

Partners: **Creston Valley Wildlife Management Area**

PAINTED TURTLE CROSSING ASSESSMENT

Painted turtles are being killed in significant numbers by motorists each spring and summer throughout the Columbia Basin as they cross roads to and from nesting sites, particularly in Cranbrook (Elizabeth Lake) and Revelstoke (Williamson Lake). Local residents, school children and community groups have become involved to raise public awareness including erecting "Turtle X-ing" signs to warn motorists. However, high mortality rates persist for this vulnerable (blue-listed) species.

At Elizabeth Lake, alternate nesting sites were constructed and turtle fences erected to discourage turtles from crossing the road. Residents were consulted in compiling information on the most common turtle crossing points, direction, timing and reasons for movement. The first year's results were promising with no mortalities by motorists and the turtles are nesting at the alternate site.

Alternate nesting sites were constructed at Williamson Lake, but were not as successful in preventing mortalities because of fencing restrictions. Turtle crossing signs to warn motorists were stolen shortly after they were erected. Turtle crossing assessments were also carried out at Mirror Lake near Kaslo, McGinty Lake near Kimberley, Argenta Marsh, Erie Lake and Rosebud Lake.

This year, biologists and volunteers will continue to monitor the effectiveness of the alternate nesting sites at Elizabeth Lake and Williamson Lake including assessing the need to control vegetation at the sites and the creation of more alternate turtle nesting sites. The Program will also capitalize on opportunities to raise public awareness through community expressions, interpretive signs, and site turtle crossing road signs.

Project Duration: Year 4 of 4

Partners: **Rocky Mountain Naturalists, City of Cranbrook; City of Revelstoke; Ministry of Transportation & Highways; Revelstoke Arrow Heights Elementary School**

Notes from Saskatoon's Annual Meeting: Road Mortality Workshop

Carolyn Seburn

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A workshop on road mortality in amphibians and reptiles was held at the 1998 Annual Meeting in Saskatoon. The workshop identified three critical areas that need work: Education, Research, Action. It was agreed that CARCN should form a national working group to coordinate and provide a context for people working on regional issues. This was followed by a brain-storming session in which people identified needs and suggested approaches within these three areas. A brief summary of some of these ideas follows. If anyone would like to join the working group, make suggestions, or report on sources of data or research in progress please contact Jonathan Wright (c/o andrew.didiuk@ec.gc.ca).

Education:

- ▶ Involve the public in collecting data on critical sites and time periods
- ▶ Raise public awareness of issue using showcase sites (see below)
- ▶ Hold local workshops with prepackaged educational presentations and solicit information and ideas from schools, industry, natural history groups, general public
- ▶ Involve a variety of media including the internet
- ▶ Look at techniques that have been used to reduce large mammal mortality and see if they can be adapted to small vertebrates

Research:

- ▶ Summarize and synthesize existing information including lists of authorities, interested agencies, literature and research projects and databases
- ▶ Identify showcase sites that can highlight the issue (i.e. Long Point, Suffield, Narcisse)
- ▶ Identify known critical areas
- ▶ Identify research needs

Professional Research Questions:

- ▶ Can studies help us address the questions of how much mortality is too much (i.e. Farhig and Pope study) so that we know when and how much action is necessary? Can we develop guidelines to assess the degree of threat to local populations?
- ▶ Does road mortality primarily effect local populations or dispersers?
- ▶ Can we make up for road mortality by enhancing populations in other ways (we must pay attention to what segments of a population are being affected)?
- ▶ Does road mortality have indirect effects on herp populations (for example by providing lots of easy food to crows, jays, raccoons,

skunks et cetera and thereby artificially enhancing predator populations)?

Volunteer Data Collection:

- ▶ Set up a national database for research and data information
- ▶ Solicit reports on timing, location mortality level for critical mortality events.
- ▶ Solicit incidental observations as well as getting people to run routes.

Action:

- ▶ Familiarize ourselves with solutions other groups have used.
- ▶ When we have identified solutions, we need to communicate these to planners, public, landowners, politicians et cetera. Different information is required for different groups.
- ▶ Suggest things that the public can do that will make a difference.

General:

- ▶ Find other agencies to cooperate with such as National and Provincial parks.

CARCN Website Part II

Carolyn Seburn

The reptile half of the CARCN website is now up and running and is accessible from the same web address as the amphibian site: <http://www.cciw.ca/ecowatch/dapcan>. We are still missing images of Green Turtle and Atlantic (Kemp's) Ridley if anyone has pictures they would like to donate to the site. Please contact David or Carolyn Seburn (seburns@cyberus.ca; (613) 258-6142). Thanks to all the contributors for making this website possible.

Annual Meeting: September 22-25, 2000 Penticton, British Columbia, Canada

Larry Halverson



CARCN's 2000 Annual Conference is being held in one of the most unique and endangered ecological regions in North America – The South Okanagan of British Columbia - Canada's only "arid" desert. The Okanagan

Valley has more species of plants and animals than most areas of Canada. Its herp fauna consists of 8 amphibians and 11 reptiles, some of which are found nowhere else in Canada. Who knows you may even add a new "lifer" to your list, with a sighting of Ogoopogo.

Please forward your ideas, comments, suggestions or proposals for this meeting to Larry Halverson (telephone: 250 347 2207, fax: 250 347 9980, e-mail larry_halverson@pch.gc.ca) or Laura Friis (telephone: 250 387 9755, fax: 250 356 9145, e-mail laura.friis@gems8.gov.bc.ca)

Check Out This New Website!

Posted to the amphibian.decline newsgroup by David B. Wake of The AmphibiaWeb Team.

We are pleased to announce AmphibiaWeb (<http://www.amphibiaweb.org>), a public interface providing access to information on all aspects of amphibian biology. The site presents a general overview of the declining amphibian problem, with links to species pages that offer current natural history data, taxonomic histories, photographs, and distribution maps for species worldwide. A link to the Museum of Vertebrate Zoology catalog allows on-line access to specimen data. In the future we hope other museums and databases will join this endeavor. Species accounts are being added regularly, with plans to eventually include a page for every amphibian species.

The site is sponsored by several organizations, including IBOY (International Biodiversity Observation Year; see *BioScience*, 50:103-107, Feb. 2000), the Declining Amphibian Population Task Force (DAPTF), the Turner Foundation, the University of California Digital Library Project, and the Museum of Vertebrate Zoology, and is maintained at the University of California, Berkeley. Cooperating institutions include the American Museum of Natural History. Distribution maps are being provided through the courtesy of the Catalogue of American Amphibians and Reptiles, Atlas of Amphibians and Reptiles in Europe, Pensoft Publications and Sergei Kuzmin for the Former Soviet Union, and other sources. See announcement in *Nature* 403:471-472, Feb. 3, 2000.

The ultimate success of AmphibiaWeb will depend on steady addition of species accounts, supporting data such as maps and photographs, and their regular revision as new information becomes available. We appeal to volunteers who are willing to prepare accounts, provide photos and data, serve as reviewers, and prepare accounts. Questions about AmphibiaWeb should be addressed to: amphibiaweb@elib.cs.berkeley.edu.

Emergency Designation of an Endangered Species

COSEWIC Declares Rare B.C. Frog Endangered

The following press release was written and submitted by Dr. David Green, Chair of the Committee of the Status of Endangered Wildlife in Canada. He can be reached at (514) 398-4086 (ext. 4088).

OTTAWA, November 1, 1999 - The Committee on the Status of Endangered Wildlife in Canada (COSEWIC), has declared the Oregon spotted frog an endangered species. This is the first time that COSEWIC has made an emergency designation. COSEWIC normally meets annually in late spring to consider the status of endangered wildlife. "Declaring this frog endangered now will give recovery plans a valuable head start," said Dr. David Green, a professor at McGill University and the Chair of COSEWIC.

The request for the listing came from Mr. Doug Dryden, British Columbia's Director of Wildlife. "The combination of rapid decline, fragmented Canadian range, very small number of breeding adults and collapse of the species throughout its North American range puts this species at grave risk, and justifies consideration as an emergency designation," said Mr. Dryden.

Mr. David Fraser, Endangered Species Specialist with British Columbia's Wildlife Branch and British Columbia's representative on COSEWIC added that the species should be considered endangered in an emergency designation so that "attention can be drawn to the species and recovery efforts can begin before next February, at the beginning of the frog's breeding season."

The evidence for declaring the Oregon spotted frog an endangered species is contained in a detailed report prepared for COSEWIC by Mr. Russell Haycock of Vancouver. The endangered status of the species will be formally assessed by COSEWIC at its next regular meeting in May 2000.

The Oregon spotted frog, known as *Rana pretiosa* is brown to reddish brown in colour with circular black spots spread over its head and back. Adult frogs have a mottled, salmon-coloured belly. Suitable habitat for the species lies in scattered patches in the Fraser Valley Lowlands. The frog requires shallow temporary pools and small wetlands associated with permanent water.

Known populations of the Oregon spotted frog are isolated from one another. In British Columbia, the only Canadian province where it lives, the Oregon spotted frog has been found in just six sites. The frog has disappeared from three, and possibly even five, of those sites. It has

also disappeared from over 80% of known sites in the rest of its range in Washington, Oregon, and northern California. The Washington Fish and Wildlife Commission has already designated the species endangered.

Leaders of the Sto:lo Nation, whose traditional territory contains the remaining populations of Oregon spotted frog, fully support the emergency designation, and look forward to active involvement in recovery planning. "Protecting animals like the Oregon spotted frog is an important way we can show respect for our territory," said Chief Wayne Bobb of Sea Bird Island First Nation, a member of the Sto:lo Nation. Chief Bobb added that "frogs are culturally significant to Aboriginal people, and are an indicator of environmental health."

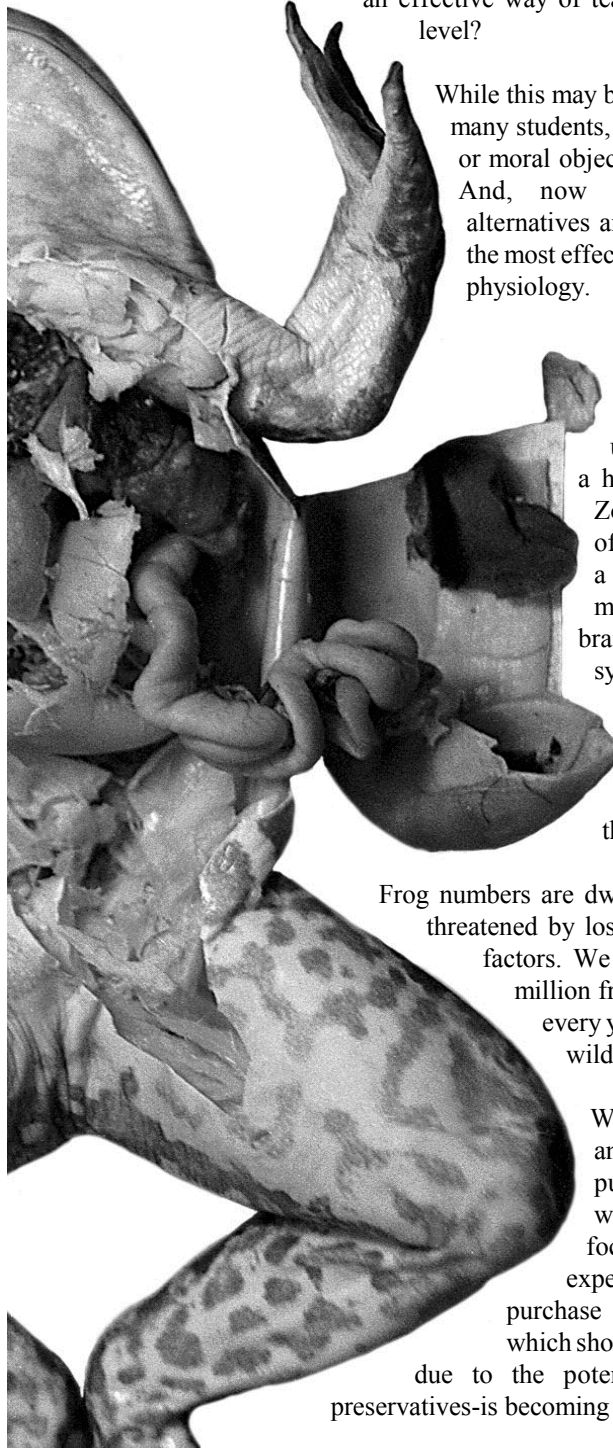
The Oregon spotted frog has been known only since 1997 when research by Dr. Green and his team at McGill University confirmed that it and the nearly identical Columbia spotted frog, known as *Rana luteiventris*, are distinct species. Previously, they both were known as the spotted frog, a single species. The Columbia spotted frog is widely distributed throughout most of British Columbia and appears not to be at risk.

COSEWIC is an independent committee of scientists and wildlife experts consisting of the chairs of its eight taxonomically-based Species Specialist Groups and representatives from each of the ten provinces and three territories of Canada, four federal departments and agencies, and three non-government organisations. COSEWIC has met annually to consider the status of wildlife at risk in Canada since 1978. Further details on COSEWIC and the complete national list of species at risk are available at <http://www.cosewic.gc.ca>

Is This How You Remember Dissection?

Many thanks to Andrea Sangster at Digital Frog International Inc., for submitting this article and its accompanying graphic. The article can also be found on the company's website: <http://www.digitalfrog.com/new/dissection.html>

We talk to a lot of people, and for many, the word "dissection" evokes unpleasant memories, although not as bad as this image. Is dissection



an effective way of teaching anatomy at the high school level?

While this may be a positive learning experience for many students, it is difficult for those with ethical or moral objections to using animals in this way. And, now that excellent computer-based alternatives are available, dissection may not be the most effective way to learn about anatomy and physiology.

Downsides of dissection

Clumsy technique can impose unnecessary suffering: Bob Johnson, a herpetologist at the Metro Toronto Zoo writes, "My lasting recollection of frog dissection involved the use of a live, pithed frog (a process which mashes the brain so that the frog is brain-dead, but its heart and nervous system still function). Without going into details, not one of our university students effectively pithed the frog or avoided inflicting unnecessary pain on those helpless animals."

Frog numbers are dwindling: Frog populations are also threatened by loss of wetlands, pollution and other factors. We understand that approximately 10 million frogs are dissected in North America every year, many of them plucked from the wild.

Wet labs require careful management and are expensive: Biology teachers put a lot of effort into ensuring that wet labs are safe and effective, but the focus is often on the dissection, at the expense of anatomy and physiology. The purchase and disposal of preserved frogs - which should be treated as biohazardous waste due to the potential carcinogenic nature of the preservatives-is becoming increasingly expensive.

Benefits of dissection

Tactile experience: Many teachers feel that the only way to comprehend the true positioning and feel of the organs is to handle the specimen.

Teaching respect: Managed by a sensitive and caring teacher, dissection can be used to teach respect for all living things.

Dissection skills: Students who plan to become doctors or veterinarians, or pursue a career in medical research will need dissection skills.

Is there a better way?

While early computer-based alternatives were fairly primitive, the newer alternatives, such as The Digital Frog 2, are much more useful, and very effective; they include photographs, excellent video and detailed animations (including 3D) that can explain complicated concepts extremely well. The Digital Frog 2 also includes human anatomy comparisons, an ecology module, an interactive map so students never get lost, as well as definitions and pronunciations for scientific words. And unlike a real frog, it can be used again and again.

If you teach biology, consider these options:

- ▶ use a computerized alternative as the main teaching tool for every student.
- ▶ dissect just one demonstration frog, offering the tactile experience to those students who choose to participate.
- ▶ use computerized alternatives in the lower grades and make dissection an option only for serious biology students.

Whatever you decide, we are confident that The Digital Frog 2 can enhance the learning experience for your students and make your job as the biology teacher easier. Call 1-800-621-FROG (3764) for competitive upgrade pricing, or for a demo disc.

Be a member of...
*The Canadian Amphibian and Reptile Conservation
Network!*

Christine Bishop

CARCN is an active organization. Each board member gives his/her time freely to make this a great organization. To date, CARCN has managed to conduct its activities without asking individuals to provide any monetary support. However, in order to be a more self-sufficient conservation group, our board of directors has chosen to establish a membership base. A small membership fee will be instituted and I urge you to join CARCN. The cost will be only \$10 for students and \$16 for non-students.

The membership price will help to further our goals of promoting research on reptiles and amphibians. Money from the membership fee (\$2 from the student membership and \$4 from the non-student membership) will be set aside in a fund for a student award for the best paper presented at our annual meeting. Your membership will also support the publication and mailing of our newsletter. The Boreal Dip Net informs you about herpetology and reptile and amphibian conservation in Canada, and informs others about your work when you write an article for the Boreal Dip

The Boreal Dip Net / L'Épuisette Boréale

Winter 2000 - Volume 4, Number 1

Net. With membership you will get a significant discount for the registration to our annual meeting and for our t-shirts. We hope you will agree that this small membership fee is a great value for the dollar.

Yes, include me as a member of the Canadian Amphibian and Reptile Conservation Network / Réseau Canadien de Conservation des Amphibiens et des Reptiles. Enclosed is my membership fee of:

\$10 (Students) \$16 (Non-Students)

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Please make cheques or money orders payable to
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**Bruce Pauli / CARCN
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Hull, Quebec,
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Yes, I wish to donate to the on-going work of the Canadian Amphibian and Reptile Conservation Network / Réseau Canadien de Conservation des Amphibiens et des Reptiles, including the IUCN/SSC Task Force on Declining Amphibian Populations in Canada (DAPCAN) in the amount of:

\$25 \$50 \$100

\$500 Other (Please specify)

Please make cheques or money orders payable to "CARCN"
and send to the above address.

Ontario Herpetofaunal Atlas Maps Are Now on the Web!

The Ontario Herpetofaunal Atlas is getting close to publication! It has been in the works for over a decade but we won't have to wait too much longer. For now, the maps from the atlas are up on the web and can be located at the web page for the Natural Heritage Information Centre: <http://www.mnr.gov.on.ca/mnr/nhic/nhic.html>

Any questions regarding the maps and the atlas should be forwarded to Michael Oldham at the Ontario Natural Heritage Information Centre (NHIC), Ministry of Natural Resources, 300 Water Street, 2nd Floor, North Tower, P.O. Box 7000, Peterborough, Ontario K9J 8M5. (Email: michael.oldham@mnr.gov.on.ca; phone: 705-755-2160).