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# CROAKS AND TRILLS

Volume 12, Issue 1



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## From the Editor



### We are moving!

As of July 30<sup>th</sup> 2007, the new address and contact information for the Alberta Volunteer Amphibian Monitoring Program will be:

101 - 9 Chippewa Road  
Sherwood Park, AB T8A 6J7

Phone: 780-410-1978 (local)  
Phone: 1-877-777-FROG (3764) (toll-free)  
Fax: 780-464-0141

Thank you!

--- Kris Kendall

## Discovering herpetiles for the second time

*By Ian Kanda*

When someone mentions the word reptile, people generally think of one of two things. A wild beast lurking in the wilderness, or the family pet they keep at home. Of course, for some, thoughts quickly run wild. Many cringe, while a growing number of people's minds race from species to species or to memories of zoo animals, animals at home and at work, or in their back yard. And those people will quickly correct me and tell me I should say herpetile so as not to exclude the ever-alluring amphibians.

I'll admit that I am a city boy. My early recollections of herpetiles were watching these critters through the glass at the local pet store, and sooner than later, in my home. For the first 15 years of my "reptile existence", all that I knew was how hot to keep this animal, and which diet suited that animal... Back then, reptiles to me were creatures of confinement.



Captive-bred snakes, like this corn snake, are often bred for living in captivity. Keeping such animals does not deplete native populations (Photo by Ian Kanda).

As my experience and expertise grew I was finding that the more you recreate the natural environment for your pet "herp", the better they would flourish.

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## Discovering herpetiles *(cont'd from page 1)*

In essence, the less the animal felt confined, the happier it was. Natural vivaria were the next step in enclosure enhancement, providing my live animals conditions resembling their natural habitat.

This would serve to bridge two interests and begin the appreciation for these animals in the wild. Nowadays when I find a frog I not only see the frog, but the water's edge, the bugs it feeds on, and the mud and moss it lives on. I also hear the mating calls, and notice would-be predators. All of these things can happen at nearly any pond or slough, near or far.

An important resource for anyone interested in captive herpetile care is a local herpetile association. There are two in Alberta. The Edmonton Reptile and Amphibian Society (ERAS), and in Calgary, there is The Alberta Reptile and Amphibian Society (TARAS). Each has slightly different mission statements, but all in all they are pretty similar. Their goal is to create a collective forum for spreading and sharing information on captive herpetile husbandry so many people from all over Alberta can have positive pet experiences with happy and healthy animals.

As a member of the ERAS I gained relationships with other hobbyists, biologists, paleontologists, and, perhaps by accident, I stumbled on what would be my greatest discovery yet so far. Alberta has toads.



A boreal toad is gently restrained for a quick photo opportunity (Photo by Ian Kanda).

Pretty funny how simple it is, isn't it? This mere fact opened up a whole new ball game to me. Suddenly when someone said herpetile, I didn't immediately think of my curly tailed lizards at home, but that there were actually "herps" in the community. The trick was to find them!

My past experience with wild herpetiles was limited to the odd wood frog seen on biennial family trips to Elk Island National Park. I believe it was the good ol' John Acorn, a.k.a. "The Nature Nut", which presented a photo tour of all 18 of Alberta's herpetiles to ERAS. It wasn't long before I was spending every weekend out at Wagner Bog near Edmonton, or at Elk Island National Park, chasing anurans (frogs and toads).

Herpetiles in the wild, while of interest to many that keep and breed live amphibians and reptiles, are often overlooked as it is commonly assumed that field "herping" can only be done in hot and tropical places. Of course, the best pet reptiles are those that have been bred in captivity – their wild counterparts often found half way around the world.

The final cog in my conversion to field "herper" was a spontaneous bright idea to run down to Lethbridge and search for rattlesnakes and other herpetofauna. A great friend of mine shared my enthusiasm and together we discovered the next chapter for what Alberta has to offer.

As I write this, I admit I have come along way. A full circle if you will. Now, I am the mentor that encourages ERAS society members to follow me on great adventures to find and appreciate native frogs, toads, or snakes living in their natural habitats in Alberta's great outdoors.

For more information on Edmonton Reptile and Amphibian Society (ERAS) please visit: [www.edmontonreptiles.com/](http://www.edmontonreptiles.com/)

For more information on The Alberta Reptile and Amphibian Society (TARAS) please visit: [www.albertareptilesociety.org/](http://www.albertareptilesociety.org/) ❖

## Amazing amphibians and remarkable reptiles!

- Over the long course of evolution, snakes have lost more than just legs... Ears and even the entire left lung have virtually disappeared in many species.
- Unlike lizards, snakes cannot drop and regenerate their tails.
- The tailed frog (*Ascaphus truei*) of the Pacific Northwest inhabits very cold, fast-flowing forest streams. Males have a short copulatory organ that suggests a “tail” (hence their name), and which they use to internally fertilize the females. Internal fertilization of the eggs is necessary to prevent the male’s sperm from being washed away.
- The Australian treefrog, *Litoria caerulea*, may be called White’s treefrog, dumpy treefrog, or Australian giant treefrog... However, when spoken of in scientific terms it can only be called *Litoria caerulea*.
- All lizards, except for a few gekkonids (gecko species), have claws.
- Many aquatic turtles can remain under water for long periods of time and have the ability to extract oxygen from water into the circulatory system through highly vascularised areas of the walls of the pharynx or cloaca.
- The male African bullfrog (*Pyxicephalus adspersus*) may reach 9 inches (23 cm) or more in body length and is an outstanding parent. Males will aggressively guard their eggs and tadpoles from any animal that approaches too close, including other bullfrogs, cranes, people, and even lions!
- Newts and related species in the same genus have the most potent skin toxin of any North American amphibian. ❖

## Alberta Volunteer Amphibian Monitoring Program: 2006 results

More than 36 individuals, organizations and families contributed 356 amphibian observations and 11 reptile observations in 2006-07 (see Table below). Of the 356 amphibian observations, 20 records were of observations made in 2001, 2004 and 2005 (submitted with 2006-07 data). Of the 11 reptile observations submitted in 2006-07, one was of an observation made in 2004.

Records for 9 of the 10 species of amphibians found in Alberta were submitted in 2006-07 (including the records from 2001, 2004 and 2005); in addition, observations for five species snakes were submitted, including the one record of a Bullsnake from 2004. The Great Plains toad was the only amphibian species not observed by volunteers in 2006 (see Table below).

Species Observed	Number of Observations
Boreal Chorus Frog	108
Wood Frog	128
Columbia Spotted Frog	19
Northern Leopard Frog	16
Plains Spadefoot	4
Boreal Toad	40
Canadian Toad	23
Long-toed Salamander	6
Tiger Salamander	12
Red-sided Garter Snake	4
Wandering Garter Snake	3
Plains Garter Snake	2
Bullsnake	1
Prairie Rattlesnake	1

All amphibian and reptile data collected and submitted by volunteers in 2006-07 have been entered into the Fish and Wildlife Management Information System (FWMIS) database. FWMIS is a database maintained by Alberta Fish and Wildlife Division and used to store observational data on wildlife species within Alberta. ❖

*Have fun monitoring amphibians in 2007!*

## The frog's final hour?

By Julian Brimelow

Amphibian populations around the globe are under immense stress, and as a result significantly more amphibian species are classified as Threatened than are species of any other taxon. Although amphibian declines are attributed to a number of factors, there is now convincing evidence that some frog species have suffered declines or become extinct on account of habitat loss stemming from global warming. Perhaps the most well-known example is the recent loss of the Monteverde golden toad (*Bufo periglenes*). The golden toad lived in a narrow band of cloud forest in the mountains of Costa Rica.



The last golden toad to be seen in the world was in 1989. It is now classified by the IUCN as an extinct species (Photo from: Wikipedia, the free encyclopedia).

It is purported that global warming was one of the main drivers that contributed to the observed increase in height of the cloud bases in the region. Because the toads occupied habitat located near the summit of the mountain, they simply had nowhere to go once the cloud bases lifted beyond a critical level, and they perished.

The earth's climate is in a constant state of flux. However, the overwhelming majority of peer-reviewed scientific research is that human activities are having a significant impact on the earth's climate. While not all of the warming can be attributed to anthropogenic forcing, the burning of fossil fuels has significantly modified the composition of the earth's atmosphere. For example, atmospheric concentrations of methane and carbon dioxide (CO<sub>2</sub>) are currently at

their highest levels in the past 650 000 years. It is this unprecedented increase in the concentration of greenhouse gases that has made a major contribution to the warming of the earth's climate. In fact, in the last 50 years the earth's mean temperature has warmed at a rate that is unprecedented in the past 1300 years, and the warming is predicted to accelerate in the 21<sup>st</sup> century and beyond.

Analyses of climate records extending back many thousands of years using proxy data (e.g., ice cores), indicate that shifts in climate typically take place over centuries or millennia. Under stable climate regime, climatologists have described the climate at a given region in context of observations made in the preceding 30 years. However, significant changes in climate are now occurring on a decadal timescale. Research has shown that there have been statistically significant changes in the climate over Alberta (AB) in the last 50 years. Specifically, the number of extremely warm days during the summer has increased over southern AB, while the number of extremely cold days has decreased significantly across the province. Also, the annual snowfall has decreased, while the number of consecutive dry days has increased.

The Canadian prairies are prone to droughts, and in recent history the area has experienced decade-long super droughts. Despite the disastrous droughts experienced in the 1930s, for the most part water availability in the 20<sup>th</sup> century was favourable by historic standards, and many of us have been lulled into a false sense of security. Not only should we expect super droughts in the future, but also the return period of major droughts is likely to decrease. Climate model simulations indicate that, whereas in the 20th century only about 1% of the land surface at any one time tended to be in extreme drought, as much as 30% of the land surface could experience extreme drought by 2100.

Another critical component of climate change is that the hydrological cycle is going to accelerate, and there is evidence that this already occurring over Alberta.

(cont'd on page 5)



## **Final hour?** *(cont'd from page 4)*

What this means is that although the air will be able to hold more moisture as the atmosphere's temperature warms, more of the precipitation is predicted to fall in fewer, but heavier events.

While this may seem promising, the problem is that warmer temperatures will also result in more evaporation from water bodies and the soil. Consequently, it is expected that soil moisture will actually decrease on the prairies. Also, much less precipitation has been falling as snow, which will mean less runoff to fill dugouts and ponds that ultimately form critical breeding grounds for amphibians.

Anthropogenically enhanced global warming will very likely have dire consequences for many of the earth's ecosystems and their inhabitants. Not all species will be affected equally. A given species' ability to survive will depend on its ability to adapt or relocate. The predicted warming over Alberta of 3 to 5 °C over the next century may not allow short-lived or less mobile species to adapt fast enough. While such a change in temperature on a day-to-day timescale seem small, one must keep in mind that the difference in mean annual temperature between Medicine Hat and Edmonton is only 2.5 °C.

Alberta has experienced super droughts before, yet many of our amphibian species have been able to cope; perhaps because their habitat was sufficiently widespread? If so, it is possible that enough pockets of habitat remained to ensure that, with time, they could once again re-colonize and occupy their previous ranges in sustainable numbers. Unfortunately, human activities have greatly reduced the amount of habitat suitable for amphibians, and consequently today's amphibians will not have the same advantage that their predecessors had to survive major shifts in the climate.

*Julian Brimelow is a PhD candidate with the Centre for Earth Observation Science (CEOS), at the University of Manitoba, Winnipeg, Manitoba, Canada*

For more information on climate change please visit:

[http://news.bbc.co.uk/2/hi/science/nature/portal/climate\\_change/default.stm](http://news.bbc.co.uk/2/hi/science/nature/portal/climate_change/default.stm)

[www.metoffice.gov.uk/research/hadleycentre/](http://www.metoffice.gov.uk/research/hadleycentre/)

[www.ncdc.noaa.gov/oa/climate/globalwarming.html](http://www.ncdc.noaa.gov/oa/climate/globalwarming.html)

[www.realclimate.org](http://www.realclimate.org)

### Sources Cited:

Fourth Assessment Report of the Intergovernmental Panel on Climate Change, available at: <http://www.ipcc.ch/>

Burke, E.J., S.J. Brown, and N. Christidis, 2006: Modeling the recent evolution of global drought and projections for the twenty-first century using with the Hadley Centre Climate model. *Journal of Hydrometeorology*, vol. 7, 1113-1125.

Vincent, L.A., and E. Mekis, 2006: Changes in daily extreme temperature and precipitation indices for Canada over the twentieth century. *Atmosphere-Ocean*, vol. 44, 177-193.

Sauchyn, D.J. and Skinner, W.R. 2001. A proxy record of drought severity for the southwestern Canadian plains. *Canadian Water Resources Journal*, vol. 26, 253-272. ❖

## **Stewardship success story**

*By Kris Kendell*

Alberta's rangelands and their riparian areas provide habitat for countless species of mammals, birds, reptiles, amphibians and other wildlife. The careful use and management of these habitats benefit wildlife and humans alike.

During the summer of 2006, the Alberta Conservation Association led the assessment of several northern leopard frog sites in southern Alberta for the implementation of stewardship activities. The work was completed in partnership with the federal government's Habitat Stewardship Program, and other agencies. Confirmed breeding ponds were targeted to receive stewardship attention because they represented areas of habitat that were considered vital to the maintenance of the local northern leopard frog populations of interest.

*(cont'd on page 6)*

## Success story *(cont'd from page 5)*

All sites were managed by landowners that were interested in implementing stewardship activities to help improve habitat conditions for northern leopard frogs on their properties. Of the sites evaluated, two sites were ultimately selected to receive stewardship projects. These projects involved fencing and, at one site, the installation of an off-site water system (see photos below).



From left to right: spring-fed dugout before fencing; solar-powered livestock water system (powers floating pump in dugout); cattle trough outside fenced dugout area (electronic float switch in trough) (Photos by Kris Kendell).

The success of these stewardship activities may only be obvious when evaluated over the long-term. However, in the short-term, it is expected that bank vegetation, plant structure and diversity surrounding the breeding ponds will improve. Such vegetation will provide the frogs using the site important cover from predators and unfavourable weather conditions. Restored emergent (and aquatic) vegetation will also provide important egg-laying habitat and rearing habitat for developing tadpoles. And, the overall water quality (siltation and turbidity) will improve. A more immediate success of the 2006 stewardship campaign was the fact that the landowners, land-managers and producers involved in these projects increased their awareness of the northern leopard frog. This awareness led to their cooperation in the initiation and successful implementation of stewardship activities on their land, allowing them contribute to the well being and survival of northern leopard frog in Alberta. ❖

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**CROAKS AND TRILLS** is the official information newsletter of the Alberta Volunteer Amphibian Monitoring Program, a program delivered by the Alberta Conservation Association.

For more information on:

- the Alberta Volunteer Amphibian Monitoring Program
- amphibians and reptiles of Alberta
- how to submit monitoring data, or other amphibian and reptile observations

Please contact:

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