
CROAKS AND TRILLS



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From the Editor

Do you require additional copies of the Alberta Volunteer Amphibian Monitoring Program's observation data form?

To request an electronic or paper copy of the observation data form, simply contact the AVAMP coordinator:

kris.kendell@ab-conservation.com or
1-877-777-FROG

--- Kris Kendell

Long-toes of grizzly

By Mike Jokinen

While enjoying the beautiful backcountry in southwest Alberta last summer we discovered that although our mountain setting provided a sense of vastness and everything "big", we were repeatedly reminded about the "little" things surrounding us.

Spending a few nights at a place by the name of Grizzly Lake would rouse most imaginations to run wild with images of big game and night-time crashes through the forest. While we did experience the occasional crash in the forest while sitting around the campfire, we never did see any big game during our stay.



Grizzly Lake, a high alpine lake in southwest Alberta, accessible by foot, cycling, or horseback. (Photo: Mike Jokinen)

Instead, we were awakened in the middle of the night by the sounds of mischievous bushy-tailed woodrats scurrying around our tent, with a special interest in chewing our hiking boots. Other noises of the night included rising trout on the calm lake surface and the monotonous "toot" whistle of a distant saw-whet owl. During the day we could hear pikas above tree line, squeaking amongst the rocks and boulders of a nearby talus slope. The almost constant buzzing of a myriad of bugs along the water's edge and the harsh call of Clark's nutcrackers from the cliffs above rounded out the cacophony of sounds around our camp.

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Long-toes of grizzly (*cont'd from page 1*)



Exploring the shoreline of Grizzly Lake. (Photo: Aaron Davydiuk)

We spent our days angling for dinner, collecting firewood, and hiking surrounding slopes. While exploring along the lake shore, we came across a small pond that was located just off the main trail system and only a few meters from the lake. Taking a closer look, we noticed the pond was full of long-toed salamander larvae. As we photographed the barely-little-legged creatures, we marveled at how these tiny animals survive in such a rugged high mountain environment.



Long-toed salamander breeding pond located along the shoreline of Grizzly Lake. (Photo: Mike Jokinen)

It made good sense why the adult salamanders chose this little pond to breed and lay their eggs. When compared to the nearby lake, the pond offered warmer

water temperatures and thus optimal conditions for their eggs to develop and hatch, and later their larvae to develop. It was also a safer environment for the young salamanders to grow as they are considered on the menu for the trout inhabiting the lake.

Grizzly Lake is a popular backcountry horseback destination. We noticed that local wildlife and horse traffic had impacted the habitat surrounding the pond, resulting in reduced vegetative cover. Emergent and aquatic vegetation was also largely lacking in the pond. This was not a good situation for the salamanders using the area as upland vegetation provides important cover for the salamanders from potential predators and unfavorable environmental conditions. Emergent and aquatic vegetation is also important and offers cover for their developing aquatic larvae as well as a surface beneath the water for breeding salamanders to attach their jellylike eggs.



Adult long-toed salamander. (Photo: Steven Hanus)

In an effort to improve the habitat surrounding the pond, Alberta Conservation Association and Alberta Sustainable Resource Development created informative signs to bring attention to the long-toed salamander population in the area and increase awareness of the sensitive habitat in and around the pond. The signs also help serve to remind us all that when in the wilds of Alberta's backcountry there are a multitude of species, some big, and many small, that depend on the unique and often fragile environment that the region's elevation and climate create. ❖

Growing a better environment

By Velma Hudson, Joan Gabrielson, Jim Fisher

Many farmers are environmentalists but they don't always admit it. They have been quietly "doing the right thing" on their lands for many years and often these good things come at a cost to the farming operation, however for many, the rewards are far greater than the cost.

In the County of Vermilion River, in east central Alberta, an innovative group of farmers, with the support of local government and conservation groups are telling Canadians about their good stewardship practices through a pilot project called Alternative Land Use Services (ALUS). ALUS operates on the belief that land use practices employed by Canada's farmers and ranchers are part of the solution to the environmental issues and loss of natural capital facing Canadian society today.

Under the ALUS concept, these farmers are offering Canadians an environmental partnership where they contribute the use of a portion of their land, plus labour, equipment, fuel, and cash to produce environmental benefits which provide all citizens with cleaner air, water, safer food, abundant wildlife and an attractive rural environment. An annual incentive payment is provided to participating farmers and ranchers to offset some of their costs in return for the environmental benefits/ecological goods and services produced on farm.

Projects that produce environmental benefits on farm include the planting of native vegetation, the creation and enhancement of wetlands, establishment of native pollinating plants to increase habitat for pollinator species, creation of native vegetation buffers around wetlands, reforestation, the establishment of nesting structures for waterfowl, and so forth. The projects are focused on marginal farm land ensuring that agriculturally productive lands remain producers of food and fibre.

Farm sustainability is a goal of ALUS and projects are designed to benefit both the environment and the

producer. Project activities may include establishing native vegetation buffers around wetlands, restricting direct livestock access to wetlands, and providing alternative water sources for livestock through off-site watering systems.



Planting trees on an ALUS demonstration farm. (Photo: Tanya McGrath)

The goal is to improve wetland habitat and water quality for amphibians and other wildlife, while at the same time, provide a healthier environment for livestock. Livestock that have convenient access to clean drinking water spend more time grazing and less time resting than those drinking contaminated water, providing quicker weight gain and a leaner, better quality beef product for the consumer.



An example of healthy riparian habitat. (Courtesy: ACA)

A sustainable system is established where the environment wins through carbon storage and ecosystem replacement; the farmer wins by re-

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Growing a better environment (cont'd from page 3)

discovering natural solutions, and society – the consumer in particular – wins by having access to healthier food choices produced in a manner that improves the world in which we live.



A landowner's son, Tommy, holds a wood frog while on a tour of an ALUS demonstration site. (Photo: Jim Fisher)

ALUS was originally started in Manitoba by the Keystone Agricultural Producers and Delta Waterfowl. The concept is catching on with pilot projects in Ontario, Manitoba, and now Alberta. Prince Edward Island has adopted ALUS as a provincial program. Each pilot project is tailored to its specific area by the people who live there, but the core principle is a community-led, farmer delivered collaborative that seeks to harvest the full basket of value that farms produce.

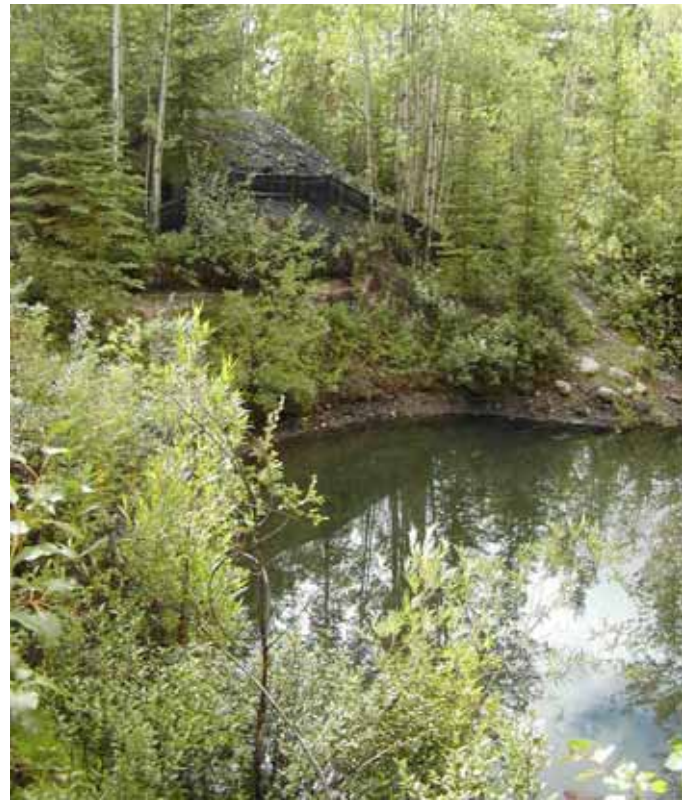
The County of Vermilion River ALUS pilot project is supported by producers, County of Vermilion River, Delta Waterfowl, Cows and Fish, Alberta Environmentally Sustainable Agriculture, and Alberta Conservation Association.

For more information please contact: Joan [Gabrielson](mailto:jgabrielson.alus@mcsnet.ca), jgabrielson.alus@mcsnet.ca ❖

Canmore volunteers make a difference

By Lisa Wilkinson

For many years, a provincial amphibian monitoring program called RANA (Researching Amphibian Numbers in Alberta) operated at several sites throughout province. Unfortunately, funding cutbacks over the years meant that the program all but ended with the exception of one of the longest running sites in Canmore, known as Kuhn's Pond. Here, Alberta Parks Division and some local volunteers stepped in to help continue the monitoring work.



Kuhn's Pond. (Photo: Selwyn Rose)

Kuhn's Pond is home to long-toed salamanders, Columbia spotted frogs, boreal toads, and wood frogs. Every spring these species come to this small pond to breed and deposit their eggs. Following metamorphosis from tadpole or larvae, their young leave the pond for the surrounding forest in late summer and early fall.

In order to monitor amphibian dispersal and overall numbers at Kuhn's Pond, researchers surrounded the

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Canmore volunteers (cont'd from page 4)

pond with an impassable 3-foot tall drift fence as well as pitfall traps that were carefully positioned on either side of the fence at regular intervals. As amphibians travel to and from the pond they were intercepted by the drift fence and directed into the pitfall traps.



Columbia spotted frog (Courtesy: Kris Kendell)

The pitfall traps consist of 1-gallon plastic flower pots buried flush with the ground. Wetted moss or a sponge was placed inside each trap to keep captured amphibians moist and each trap was shaded with a cover to keep it cool. The traps offered a safe and comfortable place for the trapped amphibians, albeit only temporarily. It was important that the traps were checked regularly and any animals within liberated quickly; however not before volunteers collected information on the amphibians within, including species, sex, age, weight, and length.

Amphibian populations fluctuate naturally because of such factors as drought, food availability, changes in predator numbers, and disease. These factors result in yearly or seasonal changes in abundance. It is therefore necessary to track amphibian populations over long periods of time to define population status and detect potential declines. That is why the work the volunteers are doing collecting the long-term data on amphibian populations at Kuhn's Pond is so important.

All volunteers take part in training sessions for both pitfall trapping and pond surveys, which includes amphibian identification and handling as well as data collection skills. This year the number of "regular" volunteers grew to 20, with an additional 3 "junior" volunteers recruited in the spring.

Along with monitoring the pitfall traps during the late summer and early fall, some of the volunteers also participated in early summer pond surveys. These surveys involved visiting ponds in the area where researchers had recorded evidence of breeding amphibians in the past, such as the presence of eggs.



Sola, the 4-year old daughter of an Alberta Parks Division staff member holds a boreal toad at Kuhn's Pond. (Photo: Sandra Cole)

The volunteers have done a fabulous job, sometimes dealing with dozens of amphibians caught in the traps at one time. They've even had to deal with a local black bear that frequented the pond last summer!

Over the last 2 years, volunteers have devoted more than 300 hours to the project! The work of the Canmore volunteers and the Parks' staff is an excellent example of what a community can do to support local wildlife research with a little bit of time and a lot of enthusiasm.

For more information please contact: Lisa Wilkinson, lisa.wilkinson@gov.ab.ca ❖

Solar-powered salamander

By Kris Kendell

What do algae and salamanders have in common? Not much. But, a single-celled alga, *Oophila amblystomatis*, enjoys a symbiotic relationship with the eggs of the spotted salamander (*Ambystoma maculatum*) – a species of salamander native to eastern United States and southern regions of eastern Canada. The tiny green algae do not occur anywhere in nature other than in the eggs of a few amphibian species. The mutually advantageous relationship occurs between the salamander embryo and algae living outside it, as they work separately toward a fair exchange of resources. In this arrangement, the developing amphibian embryo produces nitrogen-rich waste that is beneficial to the algae and in turn the algae supply oxygen for the respiring embryos.

Recently, this algal species was discovered inside the cells of the spotted salamander and may provide the products of photosynthesis to the salamander cells that encapsulate them. Such a close co-existence with a photosynthetic organism has previously been only found in invertebrates, such as corals; never in a vertebrate. The presence of algae in the oviducts of adult female spotted salamanders raises the possibility that the symbiotic algae are passed from mother to the egg's jelly sacs during reproduction. Another intriguing possibility is that the genome of the alga is assimilated in the salamander reproductive germ (sex) cells.



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www.edmontonreptiles.com

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

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