
CROAKS AND TRILLS

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From the Editor

We have moved!



Our new address and contact information for the Alberta Volunteer Amphibian Monitoring Program is:

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Thank you!

--- Kris Kendell

Would you believe...?

By Sandra Olson

If you kill a toad in Vietnam, you'll be struck by lightning, but if you kill a toad in Estonia, your sins will be forgiven. Then again, if you kill a toad in England, you'll disturb a witch's soul and suffer the consequences of her wrath.

You don't believe it? Well, people did at one time, depending on where they lived. Throughout history there have been some unusual beliefs surrounding toads, frogs, and salamanders and here is just a small sample.

Amphibians were viewed in a favorable light in many parts of the world, often associated with life, renewal, and prosperity. Frogs signified fertility to the ancient Egyptians and Heqet, their goddess of childbirth, adorned the head of a frog. So important were frogs in this society that many were embalmed after death.



A wood frog sits atop a mushroom, cooperating just long enough for a quick photo opportunity
(Photo by Sandra Olson).

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Would you believe...? (cont'd from page 1)

Numerous cultures related frogs and toads to the weather because of their sudden appearance after a rainfall. Tribes of Bolivia and Peru placed small statues of toads on hilltops to bring on the rain.

The Greeks and Romans discovered that frogs croaked before a rain storm, which came in useful for predicting weather. Sadly, others would impale amphibians and base their weather prediction on the tone of the frog's anguished cry!

Warriors of Alberta's Blackfoot tribe looked upon the metamorphosis from tadpole to frog as a clever way to change shape and elude the enemy. War shirts were often decorated with images of tadpoles, with each pollywog representing an enemy's arrow or bullet that was now impenetrable.

Salamanders have their own place in folklore, being correlated with fire. Even their name roughly translates as 'fire lizard'. When a salamander scurried for safety from the logs of a newly lit fire, people assumed that the flames gave birth to the mysterious animal that now held magical fire powers.



The fire salamander (*Salamandra salamandra*) is a well-known salamander species native to Europe and owes its name to the myth it could survive in fire (Photo from: Wikipedia, the free encyclopedia).

A rabbi would anoint himself with salamander blood which offered protection from the fires of hell. Because they were thought to both nurture and extinguish fire, King Francis I of France used this amphibian as his personal emblem and adopted the motto "I stoke and I extinguish".

Finding dead salamanders that appeared covered in milk led to the belief that these creatures could suckle a cow dry. Little did people know that the salamander had actually been stepped on by a cow and automatically released its skin toxins which are, as you may have guessed, milky!

Many North American Plains tribes held salamanders in high esteem for their ability to elude predators. In the hopes that their children would elude death, an umbilical cord would be sewn into a piece of leather that was shaped as a salamander and worn around a child's neck.

No amphibian folklore story would be complete without the mention of frogs and toads during the middle ages. Because of their unfavorable references in the bible, these unfortunate creatures were equated with everything satanic. The devil was known to display three toads on his coat of arms and sighting a toad, in some incidences, was a sign of impending doom! The saliva, skin secretions, and body parts of frogs and toads were thought to be used by witches in concocting all sorts of evil potions and spells. And to identify a witch, all you had to do was look in her left eye for the image of a toad!

During this period in history, amphibians also had incredible medicinal and protective powers. The legs of a live toad were sometimes torn off and hung around the neck to ward off evil. Part of a frog's liver, it was believed, would be the antidote to any poison. And who could forget the infamous 'toadstone'? This jewel resided in a toad's head and once it was removed, would either heat up or change color to warn its owner of poison.

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Would You Believe...? (cont'd from page 2)

If you find these beliefs unbelievable, just look at the ideas people have today! Many insist that a toad will give you warts; that torched salamanders have aphrodisiacal properties; and that eating live frogs will cure stomach ailments.



A boreal toad is carefully handled with no fear of getting “warts” (Photo by Sandra Olson).

And most ridiculous of all is the belief of some that declining amphibian populations have no impact on our ecosystem and richness of our lives and are therefore, of little concern. Isn't it amazing what some people believe? ❖

Where have all the toads gone?

By Connie Browne

Researchers at the University of Alberta and from Alberta Fish and Wildlife are updating the status evaluation for the Canadian toad in Alberta. However, the task is proving to be difficult because there are not enough records to accurately determine their historical or current distribution within Alberta.

Over the past decade, many people who have searched for amphibians in Alberta have formed the impression that Canadian toads are becoming increasingly rare and have possibly disappeared completely from some areas of their expected range. A difficulty in assessing the status of Canadian toads in Alberta is

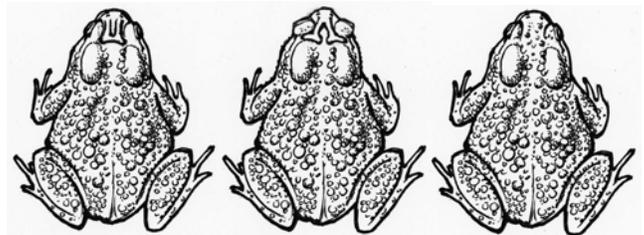
determining if areas without recent toad observations are because they are actually absent or few in numbers, or if these areas have simply never been searched for toads.



A Canadian toad; note the presence of two parallel ridges or cranial crest, on the top of the head (Photo by Lynn Hallson).

Three species of true toads (family Bufonidae) are found in Alberta: the Canadian toad (*Bufo hemiophrys*), boreal toad (*B. boreas*), and Great Plains toad (*B. cognatus*). True toads can be distinguished from frogs by their relatively dry and bumpy or “warty” skin, enlarged glands behind the eyes and short bodies with stubby legs.

The three species can be distinguished from one another by the presence (or absence) and shape of the bony plates on top of the head that form a cranial crest. The Canadian toad's cranial crest consists of two parallel ridges that are sometimes fused to form a single raised bump, or boss. The Great Plains toad's cranial crest forms an “L” shape behind the eye, and comes together on the top of the head to form a “V” shaped boss. The boreal toad lacks a cranial crest.



Left to right: Canadian toad, Great Plains toad, and boreal toad; note cranial crests (Line Drawings by Brian Huffman).

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Where have all the toads gone? *(cont'd from page 3)*

It is believed that western toads are most common in the western half of Alberta, but do occur as far east as Fort McMurray, Cold Lake, and Elk Island National Park. Canadian toads are thought to occur primarily in the eastern half of Alberta, but may be found as far west as the foothills; they do not occur in the extreme southern parts of Alberta. Great Plains toads only occur in the extreme southeastern corner of the province. It should be noted that the distribution of the Canadian toad overlaps with the western toad and Great Plains toad in some areas.

We are asking for assistance with this project from anyone who works in the field or who spends time enjoying nature and the outdoors. You can help by reporting observations of toads to the Alberta Volunteer Amphibian Monitoring Program. If possible, please send a photo of all toad observations. Thank you very much in advance for your help! ❖

Dispersed forest harvesting wood residue: habitat value for amphibians?

By Jim Witiw

Daishowa Marubeni International Ltd (DMI) is currently reviewing some of its practices around biomass/wood residue treatment from field portable-chipper sites (harvesting operations). This system of whole-tree processing in-field (on-site) is rather unique to DMI and the company has been testing a variety of techniques for wood-residue treatment over past years since 2002.

The wood-debris (biomass) resulting from such a process is not so much "wood chips", as it more accurately consists of ground-up small limbs, bark and other residue from the de-barking process that stems undergo 'before' entering chipper-knives on the portable chippers. DMI has been trialing different techniques for treating this material, including a test of 'dispersed' distribution in small piles scattered throughout the harvest area.

Over the past few years the company has approached this with much curiosity regarding the material's potential to be inert, beneficial or detrimental. Consequently, DMI is early in the process of various research-interest pursuits that wish to answer questions around examining soil nutrient-cycling efficacy, deciduous forest-regeneration effect, and biodiversity-utilization (micro-site level) considering the decomposition dynamics of this material.



A biomass/wood residue pile (Photo by Jim Witiw).

Recently (July 2007), we revisited a 2002 harvest block to see how this dispersed treatment method was appearing 5-years later. DMI's interest was in investigating extent of woody-residue break-down, decomposition and settling. We discovered a completely 'unanticipated' ecological surprise at one of the first randomly selected piles.

Wood decomposition was well underway with consistent internal-moisture at depth 2-3inches+ into the pile. Various primary producers were evidently colonizing the piles (various fungi sp., Horsetail sp., Sarsaparilla, etc).

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Habitat value for amphibians? *(cont'd from page 4)*

However on closer examination, we noted a significant variety of other biota visiting and/or residing at piles: evidence of medium to large mammals disturbing pile surface (possible trophic pursuits), good air-space and subnivean micro-habitat presence, with occupation by ants, spiders, and a rather unusual high-count presence of juvenile boreal chorus frogs.



A boreal chorus frog emerging from a biomass/wood residue pile (Photo by Jim Witiw).

Interestingly, no significant water sources exist within close proximity. Specifically, with regard to amphibian biota, I suspect these sites may provide very good hydration-refuge, predation cover, and trophic opportunity for them. It is possible they may also represent potential over-wintering sites within such recovering forest harvest sites.

This particular pile had at least seven juvenile boreal chorus frogs emerging from a pile approximately 2-meters in diameter (and probably others not visible, since they seemed to be surfacing from within pile air-space). Subsequent August visits to a number of other piles in the area were consistently found to be occupied by similar biota.

DMI will be collaborating to develop a “species diversity” sample of these types of piles over a range of year-2002 to current, in order to map out temporal colonization by the various species evident (e.g., invertebrates, plants, amphibians, mammals). These

piles represent a wood-residue form unique to DMI operations, so they are a subject of curiosity regarding 'soil-nutrient cycling' aspects and 'biodiversity' aspects.

I'm not quite sure at this stage that we can solidly state that these small biomass piles are "beneficial" (despite the seemingly rather indisputable visual evidence at a grab sample of locations). Since this specific type of wood-residue material is unique to a rather new style of DMI operations (origin from "portable-chippers") DMI is currently at the front-end of collaborating to develop some research to quantify the merits of such an approach to wood-residue treatment (and any potential risks/detriments); both to "forest productivity soil nutrient-cycling", as well as "biodiversity (colonization, micro-site habitat, stand level connectivity function, etc).



A bird's-eye view of small biomass/wood residue piles scattered throughout a harvest area (Photo by Jim Witiw).

The discovery that the piles offer refuge and habitat for a variety of biota was rather accidental, although in hindsight and on site-examination, it is not all that surprising. This measure was not specifically designed to 'serve' habitat purposes for amphibians or other biota. Nevertheless, the translation to landholders (woodlot owners) might be that leaving 'well-dispersed' small piles of limb/top debris in-situ to decompose on their properties may in-fact provide very good biodiversity value for a variety of species.

Jim Witiw is the Forest Resources Coordinator with Daishowa Marubeni International Ltd, Peace River Pulp Division. ❖

Amazing amphibians and remarkable reptiles!

- Frogs produce a number of chemicals in their skin, including hallucinogens, glues and antimicrobials. Some amphibian skin secretions even act as insect repellent.
- To date, approximately 10% of the Nobel prizes in physiology and medicine have resulted from investigations using frogs. (See: <http://nobelprize.org>).
- In attempt to control insect pests of sugar cane, in 1935 cane toads (*Bufo marinus*) were released in Australia. Since then, millions of dollars have been spent by the State and Federal Governments of Australia in an attempt to control the toad which has become a serious threat to Australia's ecosystems. Currently the toad is advancing across NW Australia at a rate of more than 100 km each year!
- The eyelash viper (*Bothriechis schlegelii*) is a venomous pit viper species found in Central and South America. Sometimes these snakes (especially juveniles) will employ what is known as "caudal luring", where they will wiggle their tail in worm-like motions to encourage potential prey to move within striking range.
- The common basilisk (*Basiliscus basiliscus*) is a lizard belonging to the iguana family. Living near rivers and streams of Central and South American rainforest, it has the ability to walk on water – when fleeing from a predator. Powerful hind limbs, large hind feet fashioned with flaps of skin between each toe and sufficient momentum allows this lizard to run on top of water for a short distance (up to about 10-20 metres) without sinking!
- Since 1985, the total number of recognized amphibian species has increased by nearly 35%. As of October 2007, more than 6200 amphibian species have been documented worldwide. Source: <http://amphibiaweb.org/index.html>
- The saltwater or estuarine crocodile (*Crocodylus porosus*) is the largest of all living reptiles and is found in Southeast Asia and northern Australia. An average adult male may grow to 5.5 metres (18 feet) long, and weigh about 770 kg (1700 lb). However, it has been reported that individuals can grow greater than 7 metres (23 feet) in length and weigh upwards of 1497 kg (3300 lb)! ❖

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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