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Not only do frogs and toads rely on aquatic ecosystems during at least some life stage, the fact that anurans are ectotherms – their body temperature is dependant on the environment – is of special note given the Canadian climate. All amphibians in Canada exist at the northernmost limit of their species' distribution. Many scientists are interested in how these animals have adapted their physiology to survive our severe winters and short summers. Two species of frog, the Wood and Mink frogs, as well as one aptly named the Canadian toad, have 75% of their range in Canada (on a global distribution).

project was initiated last year to search for observation records of these creatures. The value of historic observation and location records is that they can be compared it to the information being collected by Frogwatchers today. This will help clarify the picture of how populations of these creatures are changing and how we can best protect them. Organizations who participated in



The Wood frog (top) and the Mink frog (bottom) are two frogs that have adapted superbly to Canada's harsh climate.

There is still much to be learned about the populations of anurans such as species abundance and distribution. Frogwatch is a "citizen science" monitoring program administered through a partnership between the Ecological Monitoring and Assessment Network Coordinating Office, Environment Canada (EMAN CO) and the Canadian Nature Federation. This program encourages naturalists, schools, community groups, individuals, backyard enthusiasts, Scouts and Guides to engage in the monitoring of their community's ecosystems. The Toronto Zoo's Adopt-A-Pond Program is the coordination body in Ontario.

In order to address some of the issues and concerns surrounding anurans, an EMAN CO



Frogwatcher observations are very important to identify environmental trends.

this process and contributed records include the Royal Ontario Museum, Bird Studies Canada in Port Rowan, the Toronto Region Conservation Authority, the Canadian Wildlife Service of Environment Canada and the Toronto Zoo.

EMAN CO encourages individuals to become Frogwatchers and contribute their information to us. There are materials available free of charge through EMAN CO, to help Frogwatchers in identifying the different species. These materials include identification posters of Canadian anurans available in English and French, a CD-ROM with frog calls and further information about Canadian frog species, and a content rich website to register for the program and submit observations. For more information or to participate in the program please log on to: www.frogwatch.ca.

Editor's Note: Adopt-A-Pond produces materials on amphibian species of Ontario including the Amphibians of Ontario Identifier Guide and Poster and the Frog Calls of Ontario Tape. Interested participants can also log onto www.torontozoo.com/adoptapond to learn the calls of Ontario's frogs and toads. To submit observations follow the links to www.frogwatch.ca.

FABULOUS FROGWATCHERS

Editor's Note: We have several submissions from FABULOUS FROGWATCHERS who have taken time to share with us their stories, poems and some of the reasons why they Frogwatch. Thank you to each of our FABULOUS FROGWATCHERS and to everyone who participates in Frogwatch-Ontario!

Treefrog Nursery

By: Catherine Huang

I was eager to participate in the Frogwatch program when I first heard about it because it offered an opportunity to learn about amphibians and increase the family's appreciation of the natural world surrounding us. Besides, it's a chance for us to do "real science" (homeschool moms are always looking for educational experiences!). All of our Frogwatch observations are made from our home, many without going out of doors, and we have lots to observe. Some of our friends from downtown Toronto claim they can't sleep when they visit because the frogs are so loud. Our property is home to a lot of amphibians including American Toads, Gray Treefrogs, Green Frogs, Spring Peepers, Wood Frogs, and Leopard Frogs. Many of the treefrogs and toads spawn in our swimming pool cover. Our very own amphibian nursery! We try to time the pool opening to occur when the little ones are starting metamorphosis and ready for a new life in the pond down the hill. We scoop them out and relocate them by the bucketful. Other dedicated Frogwatchers who regularly visit include Great Blue Herons and racoons. Once the kids asked if they could please keep a treefrog in the house overnight. They had already named the creature ("Pinky") and set up a little terrarium for it. Around 9 pm it started to call at full volume -- the house was uninhabitable for humans. Pinky had to go "back to nature" immediately.

It's well known that treefrogs are capable of camouflage by turning various colours of grey, green and brown, and we have often marvelled at their abilities. However, we found one who was truly a master of disguise. This frog actually managed to hide on the vinyl liner of the swimming pool by turning itself bright aqua. I

didn't think we had any amphibians that colour in the Northern Hemisphere. "It's like the poison arrow frogs" remarked the children, greatly impressed.

Our Ponds...

By: John and Carol

My wife and I retired a few years ago in L'Amable, just south of Bancroft on the Shore of Tait Lake. We had a small fishpond in Whitby, and when we relocated here, I built two interconnected 12 foot ponds about 30 feet from our front entrance, and about 60 feet from the lake. The lake level drops about 2-3 feet each year, and is spring fed. Each spring the level rises again. Our lot is spotted with many mature trees- principally hemlock.

The property is structured a bit like the prow of a ship, so we are fortunate to have 350 feet of shoreline, including a small marsh on the southwest side. Our pond was created for fish, and as a landscape feature- we planted grasses, lily pads, and each spring, I purchase duckweed. The other plants are left in the pond and reappear each spring. We winter our fish in the pond. (4 to 5 foot deep) , usually with success.

The pond is ringed with garden lights, which act to attract insects. Shortly after completion of construction, and starting about June each year since, the combination (I suspect) of dropping water levels, and garden lights, motivate frogs to migrate from the adjacent lake marsh to our pond. By mid August, there are usually 40 to 50 frogs in our ponds.

While a few stay weeks, it seems that most return to the lake, because the species, sizes and quantities change every few days, and there is no evidence of predators, except other bullfrogs and green frogs.

We thought that mink, muskrat and herons, all visitors to our lakeshore, would be attracted to the pond, and kill off the fish and frogs. None have ventured there however, although the muskrat has eaten tomatoes planted beside our front door.



Our frog mix is usually balanced between bullfrogs, and I believe green frogs- although most are mottled and brownish, but these ones lack the leopard frog's outer ring. The basement window wells have about 2-3 toads each, and appear to have their own entrance, because when I removed them thinking they were trapped, they kept reoccurring.

As I said, I have now been catching and returning the frogs to the lake, to discourage them from hibernating in the ponds. At the rate I am going, it may become a career- 12 taxied today- and the same yesterday.

It pleases me to have these visitors, it make the pond more interesting, and it is reassuring that our small lake is healthy enough to support our endangered friends.

Why Do I Frogwatch?

By: Sarah Keefer

Why do I Frogwatch? Bird-watchers explain their hobby because of their subjects' lovely colours and glorious song. Frogs and toads are humbler in their attire, but their voices, starting in the cool of the day and rising to full chorus on the edge of April nightfall, are one of the most magnificent gifts that Nature can give us. The song of the toad (a new discovery for me when I began with Frogwatch, that it was from *Bufo* and not from frogs) hallmarks the lengthening of days, the beginning of spring, and recalls early childhood memories of that association for me. The astonishing vocal activities of the wood frogs in our pond down by the hayfields delights me every year; they were so loud the first time I heard them that I could have sworn they were quacking ducks instead! These lovely creatures, so threatened by humanity's disregard, deserve all the wonder and joy that they inspire, and all the protection we can give them. The more we know of them, the more we can do for them.

Editor's Note: Sarah Keefer is a university professor of English, at Trent University and has found inspiration for poetry from the frogs and toads on her farm. Here are two of her works:

Duet

The rain is pelting ink outside, this night,
But there, where ink is tamed to pen,
The downpour has a voice and roars a baritone barrage.
Louder than the thunder all around,
It pummel-rumbles, booming water-blocks of black
down-sheeted
groundward,
Drums and hammers on our woods and fields
Til all the sky's a waterfall of sound
Outside our farmhouse walls.
It mostly drowns all other noises out,
but, in the break
where storm-clouds catch their breath before
they clamour once again,
I hear the distant multi-treble trill
Of jubilation, bubbling in the pond:
The frogs, unafraid of the fearsome shout,
Are singing songs of exaltation to the rain.

The Spring Chorus

When spring has lulled the chill away from freeze,
we hear the whistling wheek of frog-calls
in the swamp-marsh through the hills on April nights,
Discorporate trilling in the lilac-coloured air:
small remote steam-kettles by the thousands
and all coming to the boil in different keys,
The crenellated thunder is a wall of tiny voices,
pond-song from a quarter-mile away
beside the back fields;
the yarking crunk of tenors,
loud ecstatic gruckulations of the oldest of the members of the sing,
overflattered every seventh bar with creeling treble trill-notes,
gaudeamus-gargled ,
spattering like raindrops on the pond-face,
an unending liquid relay-race of aliensong
to celebrate the spring.

Passing last year's grasses, crackling folded in the wind,
and creeping closer to the pond
where,
of an instant,
silence drops a veil.
Within three beats, not yet a bar in full,
the trill is gone, and
(so my story-teller eye would have)
a hundred froggy hands clamp froggy mouths: "a stranger comes!"
A thousand froggy eyes gaze fearful, watchful in the waning day,
Upward through the greening stagnant stale
in-shot with icy freshets
til
The stranger goes away.

Decreasing Numbers

By: *Linda Ervine & John Parry*

The East Don Parklands are close to our home, and we enjoy walking along the trails. When we started walking in this area, the oxbow pond just south of Alamosa Drive teemed with amphibians. In Spring, the noise was deafening, and in the Fall you had to be careful where you put your feet, for fear of stepping on a froglet. Over the last decade we noticed an alarming drop in the numbers of amphibians. This occurred because some thoughtless person introduced Golden Carp to the pond. That sounded the death-knell for our amphibians: these fish ate all the spawn, and as their numbers multiplied the amphibian population nose-dived. We still go out to survey the amphibians, but now we consider ourselves lucky if we hear more than one.

We walk in the area anyway because we are keen birdwatchers and conservationists, so it makes sense for us to monitor such an important biological indicator. We hope that someday the authorities will clear the pond of carp, so we can once again have the pleasure of shouting to make our voices heard above the mating calls of the amphibian population.

Peters Corners

By: *Jane Collins*

You ask, "How did you become a Frogwatcher?" Well to tell you the truth, I don't remember. My 70th birthday is coming up next week and maybe that qualifies me for not remembering. But it could have been a copy of Seasons magazine. Anyway, I heard that I could hear the frog calls on the telephone. That was exciting, and then I found them on the computer along with pictures and information on the frogs. Somehow I got my hands on a Frogwatch poster and I registered since we had a small pond behind the house here at Peters Corners. I have enjoyed the time spent listening to the frog calls and identifying them.

One year, my daughter-in-law who lives about a 1/4 km. down the road, had a frog making such a racket under her bedroom window that she couldn't sleep at night. She searched for the frog and found it on the side of the pool. She decided

she would bring it over and put it in my small pond, thinking that was a better place for it. Well it wasn't long before I had a frog making a terrible racket under my bedroom window. The next day I explored to find it hanging on to the barbeque underneath the barbeque cover. Of course, this fellow was a Grey treefrog and he certainly liked to be out of the water rather than in it.

Why I Frogwatch....

By: *Frank Ahern*

I am a retired earth scientist, having spent 25 years as a research scientist with the Canada Centre for Remote Sensing, part of the federal Natural Resources department. My job was to figure out how to put the data from earth observation satellites to practical use here on Earth. I primarily developed forestry applications of remote sensing data, but I also worked on agriculture and rangeland applications. Some of the most educational and rewarding aspects of my work were the observations I made on the ground.

My wife Doyne and I moved from Ottawa to Cormac 3 years ago, to a 6 ha (150 acre) property that includes a lake and several wetlands. Frog calls are an important component of our spring environment here, and I soon realised that different species have different calls and also different phenology. It made me very happy to hear all the frogs, because I have been reading about big population declines of frogs, possibly (probably?) related to various forms of human impact on the environment. It was nice to live in a place where frogs seem to "do their thing" in a natural way.

This year someone told me about Frogwatch. Realising that these observations can be helpful from a number of perspectives, I eagerly signed up. I found the website most helpful, being able to download the calls and see the pictures. I can never find the frogs, even with a flashlight at night, so it is nice to see what they look like. Actually, there are lots of leopard and bullfrogs to see, but not at night.

Anyway, I am pleased to contribute my observations, and I am eager to hear about summaries of the observations and any original research that may ensue from them.

Lily Pads & Cattails

2003 Frogwatch-Ontario Updates

By: Jessica Steiner

This has certainly been a successful year for Frogwatch-Ontario. 2003 brought 60 new Frogwatchers to this regional monitoring programme, as well as 92 new observation stations. Frogwatchers across Ontario contributed over 1000 observations this season. Since its beginning in 1999, almost 5000 observations have been recorded, adding important data to growing scientific databases on provincial frog and toad distributions. These contributions can allow early detection of issues such as climatic change and local environmental degradation.

Adopt-A-Pond Wetland Conservation Programme has been the provincial coordinator of Frogwatch-Ontario since March 30th, 1999. Every year Adopt-A-Pond participates in a variety of events to educate people about wetlands, amphibians, opportunities with Frogwatch-Ontario, and other Adopt-A-Pond programmes. 2003 Frogwatch training programmes were presented at:

- The Cottage Life Show
- 2003 Spring Toad Festival at the Toronto Zoo
- Roots and Shoots Conference
- Zoo Camps
- The Frost Centre – Natural Heritage Education
- Civic Garden Centre – March Break Programme
- Otonabee Conservation Authority
- Wye Marsh
- Zoo Volunteers

At each event, people interested in participating in Frogwatch-Ontario were provided with the necessary resources to get started. If you are interested in attending any of these events next year, please contact Adopt-A-Pond for details and dates.

Success of the Frogwatch-Ontario programme depends on the dedication of volunteer Frogwatchers. Becoming a Frogwatcher is a fun, easy and educational way to get involved and take an active part in conservation! Thank you to all of our dedicated Frogwatchers!

Take Action: Become a Frogwatcher!

By: Jessica Steiner

Because of their sensitive skin, amphibians are very vulnerable to changes in environmental health. Spending time on land and in the water, amphibians are susceptible to changes in both of these environments, including exposure to herbicides and pesticides, acid rain, and increases in UV light. These characteristics make amphibians important indicators of the state of our wetland ecosystems, and ultimately our planet.

Over a decade ago, it was noticed that amphibian populations worldwide were declining. This loss is a warning that our environment is being altered and polluted in a way that can't sustain amphibian life – and eventually may not be able to sustain human life. Monitoring amphibian populations gives us a “heads up” on changes that are occurring in our environment of which we may not yet be aware. By detecting changes early on we have a better chance of taking steps to rectify the problem.

Frogwatch-Ontario is a province-wide amphibian-monitoring programme that allows community members of all ages to get active in local wetland conservation. It is a fun, easy, and exciting opportunity for individuals and families to explore local wetlands, collect valuable information about amphibians and contribute to our understanding of ecosystem health. By simply listening for the calls of frogs and toads in your backyard, local wetland or pond, or at the cottage, you can help collect valuable information on the status and distribution of amphibians and their habitats in Ontario. The presence of calling amphibians indicates a healthy habitat. By recording the abundance or absence of calling frogs and toads, you are actually telling us the quality of the freshwater or wetland habitat in your area!

So how do YOU become an expert Frogwatcher? Just follow these six easy steps:

Step 1: Register as a Frogwatch-Ontario observer.

Visit the Frogwatch-Ontario website at www.naturewatch.ca to fill out an on-line registration form. If you don't have access to the internet, you can receive a registration form by mail by contacting Adopt-A-Pond at: 361A Old Finch Ave. Scarborough, ON M1B 5K7 or fax at: 416-392-4979.

Step 2: Register your location(s) as a Frogwatch-Ontario observation station.

Your observation station can be a local wetland, pond, stream, or your own backyard! To register on-line or by contacting Adopt-A-Pond, you require the following information:

- *Latitude and Longitude* of your station (available on Frogwatch website, your local library, or by contacting Adopt-A-Pond)
- Name of the *nearest named city or town*
- *Distance* from the nearest named city or town
- *Direction* (north, south, etc.) from nearest named place
- *Habitat type* (e.g. pond, swamp, urban area)

Step 3: Learn the calls of Ontario's 13 frog and toad species.

This is easier than you may think! Each species has a unique call that distinguishes it from other species. With a little practice, they are easily recognizable. An "Amphibians of Ontario" guide is available on the Adopt-A-Pond website, where you can listen to calls while viewing species photos. Alternately, an *Ontario Frog and Toad Call* cassette tape is available by contacting Adopt-A-Pond.

Step 4: Begin listening for frog calls at your observation station.

Frogs and toads begin calling in early spring and continue for most of the summer. Listen for 3 minutes each time you monitor. Ideally, we would like Frogwatchers to monitor their stations once or twice a week, but even a single report is valuable! Although dusk is the best time to monitor, some species do call during the day, so you may prefer to monitor then.

Step 5: Record your data.

While at your observation station, record the following:

- Date and time of observation
- The species heard
- The abundance code, as follows:

<p>0 – no frogs or toads seen or heard 1 – Frog or toad seen but not heard 2 – Individuals can be counted, calls not overlapping 3 – Some individuals can be counted, other calls overlapping 4 – Full chorus, calls continuous and overlapping, individuals NOT distinguishable</p>

- Air and water temperature, if possible
- Any additional information, e.g. presence of eggs, tadpoles or other animals

Data collection forms can be printed from the Frogwatch website or are available by contacting Adopt-A-Pond.

Step 6: Submit your data.

Data can be submitted via mail or fax to Adopt-A-Pond, or online at the Frogwatch-Ontario website (www.naturewatch.ca). In order to submit your data, you will need your Frogwatch Observer number and Observation Location Identification Number (both available at the time of registration). All data is sent directly to the Natural Heritage Information Centre in Peterborough, Ontario. Your data is contributing to the long-term collection of amphibian population data across the province and will be used to update frog and toad distribution maps for Ontario.

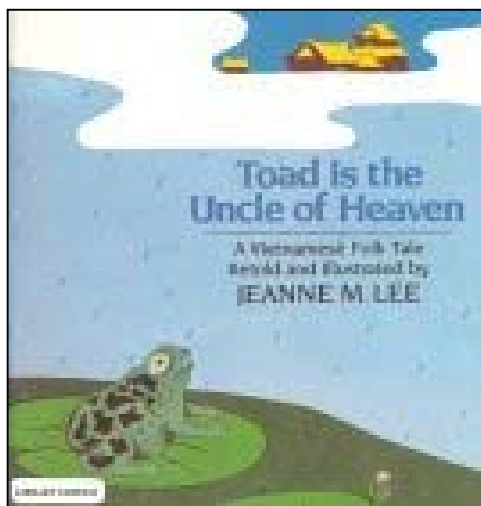
Congratulations! You are now a Frogwatcher! We thank you for joining the many others whom care deeply about amphibian decline and the state of our planet. You are making a difference!

Ribbet's Review

By: Alison Ronson

Toad is the Uncle of Heaven

A Vietnamese Folk Tale Retold and Illustrated by Jeanne M. Lee
Published by Henry Holt and Company, 1989
ISBN: 0805011471



Have you ever wondered why toads croak before rain? In "Toad is the Uncle of Heaven," Jeanne M. Lee unfolds this Vietnamese folk story of Toad and the King of Heaven, and reveals the wonderful answer to that very question.

The story begins when a drought has settled upon all the Earth. Toad, worried about losing his home and life, sets out on a journey to seek the King of Heaven, to ask for rain. Along the way, Toad meets other animals also worried about the drought- bees, a rooster and a tiger. Together, the animals travel across the Earth, over the mountains and into the clouds, searching for Heaven. When they arrive at the palace however, the King is furious at Toad's impudence, and attacks him with his royal guards, the God of Thunder, and the Hound of Heaven. Read on to find out how Toad and his friends fend off these terrors, and how the King of Heaven finally respects Toad enough to call him "Uncle."

"Toad is the Uncle of Heaven" is a fun and educational folk story for kids aged 4-8, who will learn something of Vietnamese folklore and legend, and about how a small toad became a big success. Jeanne M. Lee retells the folk story beautifully, in a way that will teach children respect and admiration for the one of the smallest and most seemingly powerless animal on Earth- the Toad. Her illustrations are bright and colourful.

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Amphibian Voice is distributed to schools and communities participating in the Adopt-A-Pond programme. The purpose of this newsletter is to provide information on amphibian, turtle and wetland conservation issues and efforts in Ontario.

Send in your stories, drawings and photographs to the address below and we will "hoppily" include them in future issues.

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Toronto Zoo Foundation

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We welcome support of our programme! Please make cheques payable to "Toronto Zoo" and send them to the following address. Thank you!

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