

Amphibian Voice

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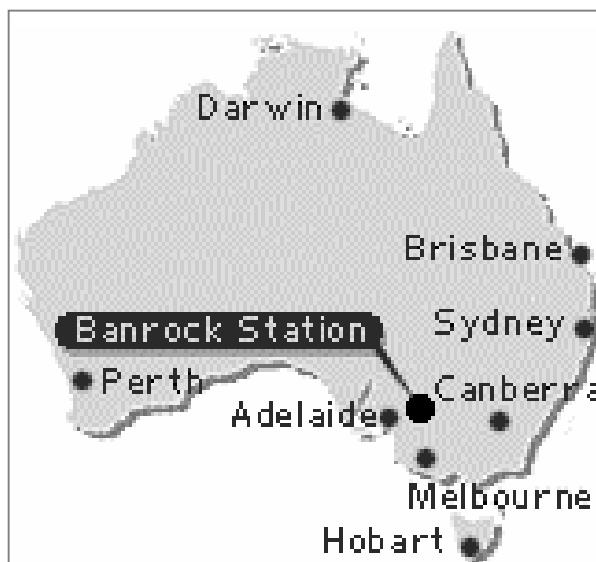
Banrock Station: Wetlands and Wine

By: Tony Sharley, Manager, Banrock Station Wetlands Centre

Editor's Note: It's not everyday that you come across a company like Banrock Station that is committed to sustainable environmental practices and environmental protection. In Canada, Banrock Station Wetlands Foundation Canada was formed to administer funds raised through the sale of Banrock Station wine. Through the foundation, Banrock Station has been able to support several conservation initiatives including: the Wild Bird Trust of British Columbia, the Whooping Crane Conservation Fund in Alberta, Ducks Unlimited in the Maritimes and the Royal Ontario Museum. This year the Adopt-A-Pond Programme is very pleased to announce the sponsorship of our programme by Banrock Station Wetlands Foundation Canada. We look forward to a prosperous relationship to conserve wetlands and wetland species in Ontario.

Australia and it becomes one of 1022 wetlands worldwide to achieve this status.

The listing has capped off an amazing decade for



our company with Banrock Station Wines also winning the Ramsar and Evian Prize in 2002 for International Wetland Conservation in recognition of our commitment to restoring our own wetlands and helping to restore a further 33 wetlands in 9 countries. The award also recognised our sustainable irrigation programs in our vineyards, and our commitment to public education about wetlands on our interpretive boardwalk trail. The prize money of US\$10,000 has been matched by our company and committed to a project to help protect Lake Nakuru in Kenya.

In November 2002, a 10 year program to restore the wetlands at Banrock Station was recognised by the world's peak wetland conservation body, the Ramsar Bureau, which listed the Banrock Station Wetland Complex as a Wetland of International Importance. This was the 63rd wetland listed from

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We began our commitment to restoring wetlands in 1993 when we purchased Banrock Station on the Murray River in South Australia. The Station is 1800 hectares (4450 acres) and more than half the area is wetland. At that time the wetlands were badly affected by salt, introduced animals and permanent inundation. We were contacted by Ducks Unlimited Australia (now Wetland Care Australia) and we agreed to take on the

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important wetland restoration work that they had started with the previous owners.

In just 10 years we have seen significant improvements in wildlife habitat and water quality in the wetland. The reintroduction of a drying phase in the wetland has helped to control the introduced European Carp. The reduction in the carp population has increased our aquatic plant diversity and reduced water turbidity, and the reintroduction of spring floods has helped to trigger breeding cycles in animals and restore native vegetation on the floodplain. The removal of stock and rabbits has helped to increase plant cover and the success of revegetation programs.

Our 250 hectare vineyard was planted in 1994/95 using innovative techniques to produce highest quality fruit and to prevent drainage and salinity impacts on the wetlands. It has just been accredited with the International Standard for environmental management *ISO 14001*. Dripper irrigation, soil moisture monitoring and careful timing of irrigation to ensure "right amount of water at the right time" are fundamental. As our vines came into production in 1996, we launched Banrock Station Wines and decided to sponsor wetland conservation projects based on a small donation per bottle sold in Australia. Then in 1998 we commenced development of the Banrock Station Wine and Wetland Centre to showcase the wines, vineyards and wetlands to the public.

Our commitment to wetland restoration at Banrock Station has been carried out in partnership with numerous groups including Wetland Care Australia, Greening Australia, Conservation Volunteers Australia, several primary and secondary schools, State and Commonwealth Government agencies, consulting groups and voluntary professional groups.

Wetland restoration has helped to bring the wildlife back, which has enabled us to develop nature trails. There are several thousand birds on the wetlands and more than 160 bird species on Banrock Station today. The boardwalk walking trails provide wine consumers with a unique experience that helps us to market our wines. Since the Wine and Wetland Centre opened in February 1999 visitor numbers have grown from 40,000 to 90,000 per year, largely as a result of the

spectacular views of the wetlands and the opportunity to explore them along the walking trails before or after a glass of wine. Today our wines are sold in more than 40 countries and in 2002, we received visitors to the Wine and Wetland Centre from more than 30 countries.

We have supported wetland restoration projects in the Netherlands, Finland, Sweden, Denmark, USA, Canada, The United Kingdom, New Zealand and Kenya, and we are currently looking for more projects to support. Since 1996, our worldwide contribution to wetland conservation has exceeded AUD \$1.5 million. For those who believe we can only do this because we can afford to — we believe that we can't afford not to. Our future depends on a healthy environment.

Gray Treefrog Habitat Restoration Project

By: Sarah Ingwersen

On the southwestern border of the Toronto Zoo site, a tableland Gray treefrog breeding pond was discovered in 2000. High levels of precipitation and poor drainage caused this open, disturbed site to flood temporarily and be opportunistically colonized by Gray treefrogs. Treefrogs were found in all stages of development, from tadpole to newly emerged froglet. Unfortunately, only a few were able to complete metamorphosis before the pond dried out in early August.



Discovery of the breeding site, in 2000

Many of the wetlands used by amphibians in the Greater Toronto Area (GTA) have been destroyed. Relict populations of Gray treefrogs (*Hyla versicolor*) remain in areas characterized by ponds fringed with shrubs or willow and nearby woodlots for overwintering. Uncommon in the GTA, this species requires natural corridors for movement between aquatic breeding habitats and woodlands during the spring and summer.

The Rouge Valley is a stronghold for this species, as it is one of the only places in the GTA where

prime breeding habitat for the Gray treefrog still exists. However, critical breeding habitat on the Rouge tablelands has been significantly altered and Gray treefrog populations have declined or disappeared completely in many locations. Rouge groups have been active in restoring many wetlands in the area.

Historically a Gray treefrog breeding site, the Toronto Zoo contains remnant treefrog populations and remnant tableland breeding habitats. Gray treefrog populations have been monitored for over 30 years to determine critical breeding habitat locations at the Toronto Zoo. Treefrogs appear to be breeding in temporary pools, marshes and animal holding/exhibit ponds on the site.



Gray Treefrog tadpole and froglet at the site in 2000

The site hydrology, and its location directly adjacent to the Rouge Valley, made it ideal for restoration as breeding habitat. Restoring surrounding habitat would also serve as a migration corridor between Rouge valleylands and tablelands.

Early in 2001, funding was received from the Shell Environment Fund to restore this habitat and plans for the restoration site were finalized. Due to drought conditions in 2001, the site where the Gray treefrog tadpoles were found in the previous year was completely dried and therefore contained no tadpoles. This lack of water facilitated excavation with no impact on aquatic life. The site was excavated in July 2001 and surrounding berms were formed.

A group of volunteers from Friends of the Rouge Watershed helped to plant 245 plants on the site in August 2001 and 200 additional plants in September 2001. In 2002, the model for the sign was commissioned and work began on the signage.

In 2002, the site was holding water and the pond had a variety of life-forms including American toad tadpoles, aquatic invertebrates, Northern

Brown snakes, ducks, Red-winged blackbirds and White-tailed deer between May and July 2002. Due to extreme drought conditions the pond dried in July, 2002.



The site in April 2002

The sign was erected and the site was added to the Zoomobile tour dialogue to communicate to zoo visitors/zoomobile riders of the importance of this site.

In April, 2003 we placed a "Froglogger" (a recording device) at the site to monitor amphibian arrivals through their calls. We are extremely happy to report that on May 17 Gray Treefrogs announced their arrival to this site! Gray Treefrog tadpoles were sighted on June 16, 2003.



A Gray treefrog, like the ones heard calling on May 17, 2003 perches on a birch tree

The Gray Treefrog Habitat Restoration Project brings awareness and understanding to the importance of wetlands and amphibians in the landscape, especially the urban landscape.

Editor's Note:

Adopt-A-Pond thanks the Shell Environment Fund for their generous funding of this project.



Lily Pads & Cattails

2003 Spring Toad Festival: A "Toad"al Success

By: Jessica Steiner

May 3rd and 4th marked the Toronto Zoo's 5th annual Spring Toad Festival, hosted by Adopt-A-Pond and Zoo Volunteers. The 2-day event was a great success, with hundreds of visitors joining the activities at the American Wetlands exhibit to help celebrate the arrival of spring and witness the beginning of the American Toad's breeding season.



The giant Toad welcomes visitors to the 2003 Spring Toad Festival

Festival-goers were greeted at the wetland area by a symphony of male calls, thanks to the warming temperature of days leading up to the event. Leopard frogs also joined in the chorus.

Visitors were welcomed to the festivities by "Toad", a giant American Toad, and were amazed by the a magician with a bag full of tricks. There were origami toads to make, and frog calls to learn. Children became official "Toad Detectives" after learning to use radio telemetry equipment to track down a hidden toad model. Families learned how they could participate in Frogwatch-Ontario by helping to monitor frogs from their own backyards, and our new Turtle Tally Programme.

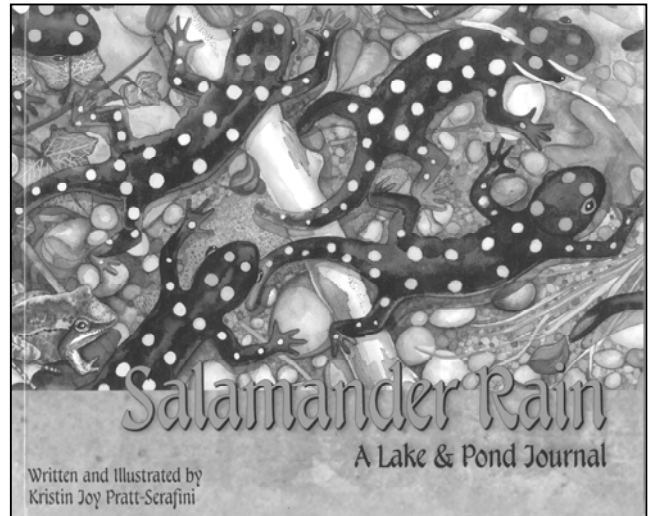
With the help of zoo volunteers, participants were exposed to the large variety of wildlife that inhabits this unique habitat: red-winged black birds, great blue herons, leopard frogs, dragonfly nymphs, water boatmen, and many more! Thanks to the zoo volunteers and visitors for making this year's festival such a success!

Ribbet's Review

By Phung Tran

Salamander Rain: A Lake & Pond Journal

Written and Illustrated by Kristin Joy Pratt-Serafini
Dawn Publications, 2000



What kinds of things can you find in a lake or a pond? A "Planet Scout" named Klint has written a few journal entries about the things he has seen and experienced on his Wetland Patrol at Spider Lake where his Grandma lives. Who knew there was so much activity in and around a pond! *Salamander Rain, A Lake & Pond Journal* is a great book colourfully illustrated for ages 6 to 12.

Follow Klint's adventures and learn about what the first warm rain of the year brings. Find out what the frogs, the great blue heron and the fairy shrimp are up to. Discover the different kinds of plants, snakes, birds, fish and turtles that can be found in and around ponds and about the busy beavers! Klint is also a Planet Scout and tells everyone about it in *Salamander Rain*!

Praised by the Center for Environmental Education and the National Wildlife Federation, *Salamander Rain: A Lake & Pond Journal*, shows children the diversity found in wetland areas and how they can explore and be involved in wetlands. A fun read for educators, students, parents and children alike!

Catastrophic die-offs of amphibian tadpoles and young metamorphs

By: Michael Berrill, Biology Department
Trent University

During each summer of the past several years, we have come across a few instances of unexpected and catastrophic die-offs of late stage tadpoles or young metamorphs. In each case, a large portion of the affected population died. During the past several months, we have established that these populations were heavily infected by a virus known as Ranavirus.



The Bullfrog, Wood Frog and Leopard Frog, three species that have been affected by Ranavirus in Ontario

Ranavirus infects amphibians and fish, but doesn't infect birds or mammals, and poses no risk to human health. However, its impact on amphibian populations can be quite drastic. We have found it in two populations of wood frogs and one population of leopard frogs, and suspect that it was the cause of a die-off of bullfrog tadpoles in another population. These are the first records of the virus in Ontario. The only record in Canada involved some salamander populations in Saskatchewan.

We need to find out how widespread Ranavirus infections are in Ontario, for we need to know whether the infections are spreading or are relatively rare and localized. If they are spreading, we hope to understand how they spread, and how we may be able to contain them.

In order for us to be able to do this, we need information on any tadpole or juvenile frog kills that we can obtain. We hope that you will be able to help us. If you notice any unusual death of tadpoles or young juveniles, of any species of amphibian, please contact us. If we can visit the site, we will, for we need to obtain samples from animals before they are dead from the infection in order to test for the presence of the virus.

You can reach us in several ways:

E-mail: mberrill@trentu.ca

Phone: 705-748-1011 ext 1455, ask for Michael, Dave or Amy, or leave a message for us to contact you.

Website:

<http://www.trentu.ca/biology/tadpoles/welcome.htm>.

This is an interactive site where you can include information on your observations.

Call 'um of the Wild

Healthy Wetlands Devour Mosquitos

By: Steven Racey

There has been much discussion in the press lately about the West Nile Virus with most predicting a bad year for mosquito populations.

A recent article in a local paper showed an angered woman with a wetland in the background indicating that the swamp behind her property was the source of all her mosquito problems. I'm continuously amazed at how much ignorance still exists when it comes to the importance of wetlands in our communities and countryside.

While the number one reason for protecting our wetlands remains a source of clean drinking water, they also provide flood control, habitat for wildlife and recreation. Contrary to popular

belief, a healthy wetland will also do an amazing job at keeping mosquitoes under control.

Many people may think that draining the wetland in their area will help control the mosquito population. This is because mosquitoes require standing water in which to breed. If there is no standing water there are no mosquitoes. In fact, mosquitoes have a very short life cycle typically between four days and a month but their eggs can remain dormant for more than a year and will hatch when flooded with water. Therefore even after a wetland has been drained it will still hold enough water to breed mosquitoes.



The answer to mosquito population control can be achieved with the balance of nature. A healthy wetland provides the habitat for

many unique animals including natural enemies of mosquitoes. These natural predators keep the population low. Certain birds, tadpoles, frogs, toads, turtles, fish and insects live in these wetlands and feed on mosquito larvae and/or adults. The following insects are the natural enemies of mosquitoes: Dragonflies, Damselflies, Water Strays, Backswimmers, and Predacious Diving Beetles. These animals and insects need a proper habitat, in other words a healthy wetland, to survive and you won't find them in the typical areas where the common Northern House Mosquito (*Culex* species) thrive.

Only seven of the 57 species found in Southern Ontario are potential carriers of the West Nile Virus. The carrier, the *Culex* species is an urban mosquito, which breeds primarily in small areas of open water, cans, containers, pots, birdbaths, pool covers, rain gutters, rain barrels, and discarded tires. The Northern House Mosquito does not breed in wetlands; therefore spraying or draining wetlands would be ineffective in the control of the West Nile Virus.

Bats, while traditionally having a bad reputation rising from fear of half-truths, myths, and legends, can eat up to 500 mosquitoes an hour on a summer night. A typical Little Brown Bat (*Myotis Lucifugus*) consumes half its body weight in

insects during a single evening! Species of bats that occur in Ontario pose no risk to humans and are an important part of a wetland ecosystem.

Restoring a wetland decreases mosquito populations in two ways: by providing proper habitat for the natural enemies of mosquitoes, and by preventing or reducing flooding (in areas that aren't normally wet and thus support mosquitoes and not their predators). A recent U.S. mosquito control project in Essex County, Massachusetts, restored a 1,500 acre wetland and the mosquito population dropped by 90 percent. The experts there now know that wetland restoration is synonymous with genuine mosquito control.

If you manage or own drained wetlands you can expect blooms of mosquitoes after every rain and if you are tired of donating blood, consider restoring or creating a healthy wetland. Within days, natural predators of mosquitoes will begin to return. Not only will you be reducing the mosquito population, you'll also be creating an excellent wildlife habitat, reducing the likelihood of flooding on adjacent ground and improving ground water quality.

The best control of the spread of the West Nile Virus is public education and taking responsibility for ourselves. Mosquitoes have been around for millions of years and draining wetlands will not make them go away. Using pesticides, such as the larvicide, Methoprene, can have many side effects on aquatic animals such as deaths and deformities in amphibians, crustaceans and fish. This is because most insecticides are broad spectrum in their killing power. Overhead spraying is even worse, bringing with it possible side effects that are as lethal and dangerous as the symptoms of the West Nile Virus. Although pesticides sometimes produce short term results, their long term use often results in a pest that is resilient to the chemical with all the natural predators long since eliminated.

In closing I am constantly reminded: "Humans aren't the only species on earth, we just act like it."

Editor's Note: For other West Nile Virus perspectives and updates visit the Adopt-A-Pond Website www.torontozoo.com/adoptapond

Ephemeral Wetlands: More than just spring ponds

*By Richard E. Grosshans,
Ducks Unlimited Canada*

Ephemeral wetlands (also referred to as ephemeral ponds, seasonal ponds, temporary ponds or vernal pools) are depressions or low-lying areas in the landscape that temporarily hold water in the spring, early summer and after heavy rains. Ephemeral wetlands are often hard to define because they are typically small, isolated and temporary, periodically drying up in mid to late summer.

For the hundreds of thousands of ducks arriving on the breeding grounds of Canada during early spring, an ephemeral or temporary wetland is an important habitat after a long journey north. Because of their size, these wetlands are ice-free long before the larger more permanent wetlands and warm up quickly, attracting loafing, feeding, and nesting waterfowl. During the spring, these ponds fill from snowmelt and spring runoff, and can hold anywhere from 10 to 60 cm of water. These ponds provide valuable breeding habitat for amphibians such as frogs and salamanders, and aquatic invertebrates like snails, water fleas and shrimp. The abundance of these invertebrates provides an important protein rich food source for the arriving migratory waterfowl, emphasizing the importance of these ephemeral wetlands.

By mid-summer, however, these ponds begin to dry up and by fall there is little trace of the once productive wetlands. Since these wetlands periodically dry up and are isolated without a permanent inlet or outlet (often overflowing in times of high water), they are free of fish. This allows for successful breeding of amphibians and invertebrates. The dry phase also completes the life cycle for many invertebrates whose eggs require a dry period to hatch in the spring.

From 1997-2000 Ducks Unlimited Canada (DUC) evaluated four study sites (one per year) in an agricultural landscape in southern Ontario.

Female mallard ducks were radio-tagged and followed throughout the spring and summer months to gain a better understanding of the nesting habits and survival of breeding ducks in eastern North America. One finding from this study was that ducks spent a significant amount of time on ephemeral wetlands especially during the early part of the season. These small temporary ponds cover the landscape of Southern Ontario, composing up to 20% of the wetlands within the study sites.



An Ephemeral Wetland in southern Ontario

Not only are ephemeral wetlands important for wildlife and waterfowl, they are also tremendously important for flood control of the surrounding landscape and improving water quality. Ephemeral wetlands collect and hold vast amounts of runoff water from the surrounding watershed and help to prevent downstream peaks in water flow. The loss of the water retention attributes of these ephemeral wetlands to drainage and human development can cause extensive downstream flooding during spring snowmelt and heavy rain events. By holding runoff water these ponds also provide a fresh water supply long after rain events cease. Just as significant to flood control is that wetlands play an instrumental role in filtering our drinking water. The vegetation and other aquatic life of a wetland provide a natural filter for waters that run through it. Chances are the water that is serving the needs of the household may have at one time been through a wetland.

By helping to conserve our wetlands today, we are benefiting both wildlife and people tomorrow.

Wacky Wetlands Word Search

Hidden in the murky depths of the swamp are 28 plants and animals commonly found in and around wetlands. Can you find them? Use the remaining letters, from left to right, to reveal a secret message!



T	S	D	E	E	W	K	C	U	D	O	W
G	E	S	T	T	C	N	H	D	E	R	I
E	W	S	N	S	O	H	I	M	R	E	B
D	A	G	E	N	Y	U	M	A	A	S	L
B	C	R	T	A	O	B	A	P	G	N	A
A	M	E	R	I	C	A	N	T	O	A	D
C	A	A	A	L	N	N	A	U	N	P	D
K	L	T	M	O	H	D	H	R	F	P	E
S	L	B	O	E	P	L	S	T	L	I	R
A	A	L	U	O	P	M	I	L	Y	N	W
L	R	U	L	L	O	P	F	E	R	G	O
A	D	E	O	O	R	T	N	E	C	T	R
M	T	H	S	O	N	U	U	T	F	U	T
A	R	E	D	A	S	H	S	E	A	R	R
N	I	R	O	W	S	W	D	H	E	T	T
D	L	O	A	A	R	E	D	L	A	L	N
E	D	N	W	I	R	L	D	L	I	E	F
R	E	V	A	E	B	E	M	I	N	N	O

Amphibians

American Toad
Red-Back Salamander
Red Eft
Tadpole

Invertebrates

Dragonfly
Snail
Water Strider

Plants

Alder
Bladderwort
Bulrush
Duck Weeds
Red Ash
Willow

Reptiles

Map Turtle
Snapping Turtle

Birds

Great Blue Heron
Loon
Mallard
Swan

Fish

Bass
Chub
Minnow
Sunfish

Mammals

Moose
Beaver
Coyote
Mink
Marten

Secret message:

_____,
_____.

MESSAGE: TOGETHER WE CAN HELP PROTECT ONTARIO'S WETLAND WILDLIFE

Volume 13, No. 1

Since 1991, **Amphibian Voice** has been 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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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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