



**NIAGARA
RESTORATION
COUNCIL**

The Niagara Restoration Council is a not-for-profit environmental organization whose mandate is to "re-establish, protect, and maintain the integrity of the Niagara River ecosystem".

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"Restoring Nature to Niagara"

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NIAGARA RESTORATION COUNCIL

Board of Directors
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The next NRC board meeting is June 12, 2007 at the Niagara Peninsula Conservation Authority office at 6:30pm. Visitors are welcome, so feel free to attend, learn more about us, and get involved.

The NRC gratefully acknowledges the financial support of:

EcoAction
Great Lakes Sustainability Fund
Ontario Trillium Foundation
Shell Environmental Fund
Niagara Peninsula Conservation Authority
Niagara Community Foundation
Ontario Great Lakes Renewal Foundation
Ontario Ministry of Natural Resources
Ontario Power Generation
Toronto Dominion Friends of the Environment
Wetland Habitat Fund
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Restoration Report

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"Restoring Nature to Niagara"

SPRING 2007

YEAR 8 ISSUE 1

WORRIED ABOUT GLOBAL WARMING?

Come join us in planting native trees, shrubs and wildflowers to help restore the ecosystems of Niagara!

For all events we will be meeting in the parking lot at the Niagara Peninsula Conservation Authority offices, 250 Thorold Road West, Welland, Ontario at 9:00 am.

Saturday, May 26th, 2007
Wednesday, May 30th, 2007
Saturday, June 2nd, 2007
Wednesday, June 13th, 2007
Friday, June 15, 2007
Saturday, June 16th, 2007

Please check our website for updates as dates may be changed or added.

Come and learn more about the Niagara Restoration Council and its current projects!

Impacts of a Sulphur Spring on Fish Habitat and Movement in Buckhorn Creek

In 2001, the Niagara Restoration Council (NRC) identified a cold water sulphur spring which drains into Buckhorn Creek as a potential barrier to fish migration.

The existence of sulphur springs in the Niagara region was not a new discovery; but the potential for these springs to act as barriers to fish migration was a cause for concern. In fact, several cold water sulphur springs have been identified in the Niagara peninsula. These springs are all quite similar – temperatures range between 9 and 10 °C year round, they smell of sulphur, and are blue-grey in color.

In 2006, with financial assistance from the Great Lakes Sustainability Fund, and in partnership with the Niagara Peninsula Conservation Authority, the City of Hamilton, the Glanbrook Landfill Coordinating Committee

and Niagara College, the Niagara Restoration Council employed Biotactic Fish and Wildlife Research to determine if the Buckhorn creek sulphur spring was a natural environmental feature and if it was a chemical barrier to fish movement.

A series of experiments was conducted, the first, an on-site bioassay experiment, showed that the cold water spring at Buckhorn Creek produces a chemical barrier that extends ~500 m downstream during low flow periods.

Electrofishing surveys revealed fish were present both upstream and downstream from the spring, suggesting that fish passage is possible. High selenium levels encountered at the spring could result in reproductive failure among many of the fish species (such as green sunfish, bluegill and largemouth bass) that exist both upstream and downstream from the spring. However, selenium effects

on these fish appear to be localized to areas with low dissolved oxygen (where fish are not present) and these levels are periodically diluted by precipitation events.

Similarities in temperature, pH and metal profiles were noted in samples taken from other cold water sulphur springs in the Niagara Peninsula and it was determined that these springs are of natural origin. Biotactic concluded, based on evidence from their studies, that the Buckhorn Creek sulphur spring contributes to biodiversity with regionally (and perhaps globally) unique purple sulphur bacteria, primitive cyanobacteria and other species worthy of conservation.

It was determined that the Buckhorn spring is not a complete barrier

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Oswego Creek Sulphur Spring

Did you know that the Endangered Species Act has recently extended the protected range of the Cucumber Tree?

Project Site Profile: Fish Barrier #109

At site #109, a former agricultural crossing had become perched, its culverts impeding stream flow and fish migration. Under most circumstances, the perched culverts would just be replaced and sunk below grade, but here, the force of the spring freshet warranted either a large, cumbersome culvert, or a costly bridge.

The solution? Thin but strong concrete slabs were anchored into large concrete blocks embedded into the stream bank. The result? A farm crossing that provides safe access through the stream which can be submerged during the spring freshet!



Fish Barrier #109 (left), the newly installed clear span bridge (middle), and the site submerged during the spring of 2007 (right).

Impacts of a Sulphur Spring on Fish Habitat and Movement in Buckhorn Creek

Cont'd from Page #2...

... to fish movement during high flow events like the spring freshet which stimulates many fish species to migrate upstream. Approximately 500 m of habitat downstream from the spring is unsuitable for fish during low flow conditions. Water from the spring is naturally remediated within this 500 m “reaction zone” as a result of gas volatilization, chemical oxidization, precipitation of sulphates and biological oxidization by various species of bacteria and algae. The spring contributes to base-flow in the creek,

especially during summer, and upstream and downstream from the “reaction zone”, a multitude of fish, insect, amphibian and reptile species were observed. It is therefore concluded that the spring does not produce a complete barrier to fish movement throughout the year, and does not require remediation.

The Niagara Restoration Council is interested in locating previously unrecorded cold water sulphur springs. If you are aware of the location of a potential cold water sulphur spring please contact us via niagararestitution@beco

n.org, or phone at (905) 788-0248.

This study was presented at the Great Lakes Sustainability Fund conference in December 2006 and the American Fisheries Society Ontario Chapter Annual General Meeting in March 2007. Copies of the final report will be available via our website at www.niagararestitution.org. For more information on this study please contact Dr. Chris Bunt, Biotactic Fish and Wildlife Research cbunt@biotactic.com, or visit the Biotactic website at www.biotactic.com.

“...the Buckhorn Creek sulphur spring contributes to biodiversity with regionally (and perhaps globally) unique purple sulphur bacteria, primitive cyanobacteria and other species worthy of conservation.”

The NRC Welcomes Corey Burant!

Hello Everyone,

My name is Corey Burant and I am the newest employee of the Niagara Restoration Council (NRC). As the new Environmental Program Manager, I will strive to continue the success the NRC has had over the past several years. While I have only been here a short time, everyone has made the transition very easy for me.

I would like to take this opportunity to introduce myself. Born and raised in Sudbury, Ontario, I grew up playing in the great northern wilderness. Along with fishing, hiking, and camping, I am also an avid canoeist so you will be sure to see me paddling in the local rivers. With my love for the outdoors, it was only natural to make this my career choice. Attending Laurentian University, I received a B.Sc (Hon) in Wildlife and Habitat Ecology along with a certificate of Environmental Biology. This program provided me with the knowledge and tools to pursue the career of my dreams, a career managing wildlife and their habitats.

After university, I was hired by the Chapleau Regional Development Corporation as a Wildlife Biologist in Chapleau, Ontario, also known as Black Bear Country. Chapleau is a small Northern Ontario town approximately 9 hours north of Toronto. While promoting Chapleau as the Gateway to the World's Largest Crown Game Preserve, it was my responsibility to ensure that wildlife and their natural habitats were not being affected by tourism. I had the opportunity to work with a wide range of groups such as the Ministry of Natural Resources, First Nation Groups, and various other community groups. This project had great potential, but due to recent political issues, the project has been put on hold.

While the Niagara region is definitely a big change from Northern Ontario, I am excited about the opportunity to learn about the various species of plants and animals the area has to offer. I look forward to continuing and forming new partnerships as well. It is only through solid partnerships that we can make our projects a reality, for the benefit of the Niagara region. I am eager to meet each and every one of you, so if you have any questions or ideas, please do not hesitate to contact me.

Sincerely,
Corey Burant
Environmental Program Manager

Corey (pictured at right leading a tourist through the Chapleau Game Reserve) has wandered pretty far south to join the NRC team and we look forward to new direction under his leadership!



Eco-web Focus: CBC Quirks and Quarks <http://www.cbc.ca/quirks/index.html>

Although we all try desperately to stay up to date with the latest in scientific and environmental news, it is not always an easy task. Lucky for us CBC has archived past seasons of the popular science show Quirks and Quarks, and visitors to this site can search for radio programs by subject and listen to/download mp3's or ogg files. Podcasts are also available, and of course, you can still tune in live every Saturday on CBC Radio One from 12:00 to 1:00pm.

WILDLIFE CORRIDOR PROJECT UPDATE

This past fall, the NRC volunteers, over 6,000 meeting but surpassing strengthened efforts to trees, and machine our goal of planting 50,000 promote the Wildlife planting over 15 acres of trees in the 15, 16 & 18 Corridor Project, and our trees. In total 20,000 trees Mile watersheds! efforts have been will be planted this spring. Have you been rewarded. With project sites thinking about planting

Now, with over 30 already planned for the trees on your property? landowners participating in spring of 2008, and the Wondering if your property the project, this spring the addition of new sites this falls into our project area? NRC will be hand planting, coming year, the NRC is Give us a call at (905) with the help of looking forward to not only 788-0248!



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