GRAND ACTIONS

THE GRAND STRATEGY NEWSLETTER

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Grand River Conservation Authority

The Grand: A Canadian Heritage River

INSIDE

Cover photo

Joe Kral checks one of over 500 bird boxes he has installed at Guelph Lake Conservation Area.

Four watershed award winners

By Janet Baine
GRCA Communications Specialist

Four 2007 Watershed Awards were given out by the GRCA and the recipients are featured in this story. It is based on the awards presentation made at the River Run Centre in Guelph.

The GRCA has given out watershed awards each year since 1976 to recognize individuals, families, corporations and groups that have made a tangible contribution to the preservation and improvement of the Grand River watershed and its natural heritage.

Bird man Joe Kral

Joe Kral has installed and looks after over 500 bird boxes at Guelph Lake Conservation Area.

"The first year I got bluebirds, which hadn't successfully nested at Guelph Lake before. This event captured my heart and truly revealed nature's beauty," Kral says.

His interest in birds dates back to his childhood in the Czech Republic. He installed the first boxes in Guelph in 1992, and since he began keeping track in 1995, 18,700 young birds have been tenants in his boxes.

Kral builds, paints and puts a number on each box, recording its location. He visits regularly and repairs or replaces any boxes that are vandalized.

In the spring he is like a proud dad when he finds babies inside his boxes. In 2007 there were 1,396 tree swallows, 106 house wrens, 89 bluebirds, and only 15 chickadees. These numbers are lower than previous years for all but the bluebirds. Kral is especially worried about the chickadees and has installed some boxes specifically for them.

Native birds need help because house sparrows and starlings, which are not native to Canada, are stronger and are pushing them out.

Once the birds have moved out, he checks and cleans the boxes, which also means clearing out hundreds of wasp nests.

Kral can be seen at the park in every season at any hour and estimates he spends 700 hours a year on this project. Last spring he retired from his job as a tool and die maker at Blount Canada Ltd., so it is easier for him to find the time to be a steward of the birds at Guelph Lake.

People forget that birds eat deer flies, mosqui-

Dennis Wendland knows money doesn't grow on trees, but he has a knack for finding money to grow trees and naturalize schoolyards.

toes and blackflies. Kral estimates that the birds in his boxes consume more than 40 million insects during the nesting period.

He is happy to see that more people are birding at Guelph Lake.

Dennis Wendland, Kitchener

During a long career as an outdoor educator with the Waterloo Region District School Board, Dennis Wendland became an expert at writing proposals to bring in money for outdoor education.

Right from the start it was hard to get the resources for these programs, but he managed to bring in $400,000 from a variety of sources.

This helped train young people to teach children, supplied educational materials, built trails at education centres and helped improve some GRCA properties used by the school board.

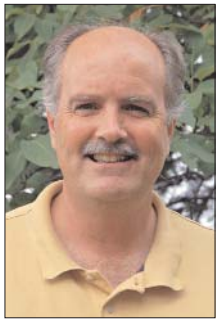
Over the five years since he retired, Wendland has been working with the Evergreen Foundation to promote schoolyard naturalization. So far he has helped 58 schools set up greening committees. He has helped raise $800,000 so schools can install gardens, trees, benches and naturalized areas. Not only has he worked with schools in Waterloo Region, but also Guelph, Brantford, Arthur and Stratford.

Wendland believes Waterloo is a hub for schoolyard greening, and each year the reach is getting further. He makes presentations outside the watershed and usually these are followed a year or two later by requests to undertake projects.

Ignatius Jesuit Centre in Guelph

The Ignatius Jesuits of Guelph and their staff are committed to working with the community to improve the ecology in their part of the watershed.

Father Jim Profit is the director of the Jesuit Collaborative for Ecology, Agriculture and Forestry which is part of the centre. He believes that our experience of the land can lead to an experience of the divine. He leads the Ecology Project which teaches and networks with organizations on ecological issues. One way the Ignatius Jesuits show that ecology is important is by caring for their 600-acre property which includes 150 acres of wetlands. They operate a community shared agriculture project, so that over 200 families can receive local organic produce each week. They also operate an organic farm program for young farmers to learn environmentally-sound farming methods.



Father Jim Profit

The Ignatius Jesuits believe the land is sacred and they don't keep it for their private use. Their trails are open to the public and a cross country ski club uses the land during the winter.

A year ago they launched a fundraising project to turn 100 acres along the

Participants from Canada World Youth, an international exchange program, helped out on the organic farm at the Ignatius Jesuit Centre.

Ron van Ooteghem from Dufferin Aggregates and Larry Wilson from Capital Paving toured the Mill Creek site where the two companies undertook a creek rehabilitation project.

Speed River and Marden Creek into an old growth native forest. This area meets up with Guelph Lake Conservation Area to provide a green corridor along the waterways.

The Ignatius Jesuits want people to look ahead to a distant time when their land will be an old growth forest. Their goal is to raise $4 million through this fundraising campaign for this forest and other projects.

Capital Paving and Dufferin Aggregates

A joint award for improving Mill Creek went to Capital Paving Inc. and Dufferin Aggregates of Aberfoyle.

Mill Creek is a cold water stream that runs through Puslinch Township and into the Grand River at Cambridge.

Capital Paving and Dufferin Aggregates teamed up to undertake a complicated stream improvement project in 2006. The McKinnon pond had been dug into Mill Creek for agricultural purposes, but it made the water too warm for trout. The project to improve the creek at this location took two years to plan and only two days to carry out, thanks to the efforts of many people and organizations who worked together on it.

The two companies had the connections and heavy equipment for construction. They blocked off the pond and dug a carefully-designed new channel for the stream to follow.

The Mill Creek Rangers, students hired for the summer, put rocks, logs and stumps into the new channel. The wood gives fish shelter from the sun and protection from predators. The stream is deeper, colder and offers protection from the sun.

An hour after the new channel was filled, new residents had already started moving into it, but the best thing about the project was the great feeling of accomplishment that everyone had as they carried out the work. After the first half-day, they all became personally involved.

A year after the project was completed, fish of different ages and species were found in the stream, showing that it is much healthier. Dufferin Aggregates and Capital Paving were the two big players that made this project happen. They both continue their commitment to improving the creek by working on other projects with Friends of Mill Creek and the community.

In addition to these awards, an award was given to Waterloo resident Betty Schneider for a lifetime of work in the watershed and her efforts were featured in the last issue of Grand Actions.

Award nominations for 2008

Anyone can nominate an individual, group or company for a 2008 Watershed Award. The nomination form and deadline information will soon be available in the Watershed Awards section of www.grandriver.ca.

WHAT'S HAPPENING?

Kicking up muck on the Grand River

By Stephanie Genge
GRCA Co-op Student

Since I've been old enough to walk, I've enjoyed playing in the mud and catching bugs.

Now that I am at the University of Guelph for a B.Sc. in Environmental Sciences (majoring in ecology), I have been working with the GRCA's water quality team for a co-op placement and nothing much has changed. I spent part of my co-op catching bugs in the river, except now it is called benthic macroinvertebrate sampling.

All of the organisms that live in the river bed — basically all the bugs — make up the benthic community. Some live on rocks, while others live on aquatic plants, under leaves or buried at the bottom of the river.

Our job is to go out into the creek and capture a sample of these organisms so that we can assess the water quality. By learning which "bugs" are living in the river and how many there are, we learn a lot about the health of the river. For example, lots of sow bugs indicate that the water quality is fairly poor, because sow bugs tolerate poor condi-

tions and are often found downstream of waste water treatment facilities.

On the other hand, a stone fly is a sign of good water quality, since these only survive in a narrow range of water conditions. Over time, benthic monitoring shows changes in the health of the river and helps determine whether solutions to problems are effective.

I quickly discovered there is a science to catching bugs. It means we must suit ourselves up with chest waders, bottles, nets, measuring tapes and GPS units. At any site, the first task is to ensure the river is shallow enough to wade from shore to shore.

Kicking begins

Once we know the river's depth, the net comes out and the kicking begins. You travel across the river stirring up the bottom, while keeping the net on the downstream side so that the flowing water carries the dislodged bugs into it. The footwork required for catching aquatic bugs is intricate and if done incorrectly, it could lead to a few broken toes. Kicking a boulder by accident would do the trick.

Stephanie Genge stands in muck and looks for "bugs" from the river. Called benthics monitoring, it is an important indication of water quality.
Photo by Jason Tran

Interesting looking rocks, mud, leaves and plants end up in the net, but it isn't until you reach in the net that it comes alive with squiggling aquatic life. A lime green damsel fly larva, a feisty crayfish snapping his claws menacingly, a big juicy leech and sometimes a couple fish and tadpoles (caught by accident) stare back up at you.

Our job doesn't end there, though. We put these aquatic bugs into bottles so that a lab can identify and count them. This is a simple task, unless of course you're scared of crayfish.

I really don't know where my fear of crayfish comes from, although I'm sure it has something to do with their feisty attitude and their more than adequate claws. A smaller, freshwater version of a lobster, crayfish aren't thrilled with being captured and forced into a jar. The first time I picked one up, I was determined to be brave. Somewhat hesitantly, I held him behind his claws so that he couldn't pinch me and he tucked himself up to play dead.

I relaxed enough to appreciate his natural beauty. But my peaceful existence was shattered by a horrible scream and the poor crayfish was unceremoniously thrown back into the river. I started screaming, too. I looked around to see my co-worker, Lori Richardson, bent over double laughing with absolutely nothing in sight that would have caused her to scream. She assured me that she was laughing "with" me.

Despite this shaky start, my relationship with crayfish has improved and I now take quiet satisfaction each time I place a crayfish into a bottle.

Who knew that my childhood bug catching skills would improve greatly and be so useful to monitor water quality in the Grand River?

U of G researcher finds balance between farming and conservation

By Darek Gondor
Freelance Writer

Modern agriculture and ancient ecosystems don't always make good neighbours — agriculture encroaches on biological harmony and the two need space from each other.

Since 2002, Prof. Wanhong Yang, department of geography at the University of Guelph, has been researching farmland conservation in two agricultural areas in the Grand River watershed — Fairchild Creek near Brantford and Canagagigue Creek near Elmira. He uses a mathematical model that encompasses hydrology, economics and GIS or a geographic information system to find the best kind of farmland for conservation.

"Pollution generation is part of agricultural production, but we have found there are benefits — economic and environmental — of naturalizing areas where sediment and chemicals can easily reach rivers," says Yang. Naturalized areas slow down and filter the runoff before it gets into the waterway, so less pollutants and sediment get into the water.

For Yang, the Grand River watershed is an ideal research location because farmers and GRCA staff are motivated

Prof. Wanhong Yang at the University of Guelph is researching agricultural conservation in parts of the Grand River.

to conserve, while the authority provides data and supports this kind of research.

"Sediment is carried by water which eventually settle at the bottom of rivers. Pollutants that come with it threaten water supplies, recreational opportunities and degrade aquatic ecosystems," Yang explains. "In fact, where the Fairchild Creek and the Grand merge, you can actually see the colour difference where there is a lot of sediment deposited."

The research results are encouraging. Yang and his team have found that taking some agricultural land out of production along waterways to create a riparian buffer system can prevent tons of sediment runoff, particularly along the Canagagigue Creek and along parts of the Grand River as it empties into Lake Erie.

In a subsequent report, Yang and Masters student Chaodong Sheng researched the benefits of less intensive tillage practices in the Fairchild Creek watershed using a similar model. They found the most economical way to decrease sediment runoff comes from practicing conservation tillage on a small portion of agricultural land in the watershed. This means growing crops with a minimal amount of cultivation so the stubble of the plants remains on top of the soil, therefore reducing soil erosion.

Yang hopes his research will help find a balance between conservation and farming.

Putting such environmental techniques into action takes much more than an accurate model of land use, he says. Farmer's concerns, the social aspects of implementation and funding also need to be considered by policy makers.

"My research provides substance in terms of conservation scenarios, but it also hopefully aids in communication between farmers and conservationists," says Yang.

All of this type of research can help programs such as the Rural Water Quality program at the GRCA. This program provides farmers with advice and funding to carry out projects that will help improve water quality, including riparian buffers.says Yang.

Time tells us Laurel Creek rehabilitation is a great success

By Janet Baine
GRCA Communications Specialist

A dozen years ago, City of Waterloo politicians gave the green light to a very innovative stream rehabilitation project that has been a big success.

They did this when they listened to lobbyists like Walt Crawford, a 2006 Watershed Award winner, who urged them not to use concrete to stabilize Laurel Creek as it passed through Bechtel Park. Concrete lasts 20 to 50 years, it doesn't provide useful fish habitat and it warms the water so fish struggle to survive.

Instead, engineers on the project turned to nature, using trees, plants and stones in innovative "bioengineering." techniques.

The creek channel was heavily impacted before the $1.36 million rehabilitation project. During storm water run off events, the water moved uncontrolled in this part of the creek.

To complicate matters, an old landfill site was on the edge of the creek. Erosion was also exposing a buried sewage pipe.

None of this was good for the fish, says Samantha Mason, aquatic biologist at the GRCA. She has studied how and why the project has been successful because she made a presentation on it at the Latornell Symposium, a provincial conservation conference. Mason also worked with the Ontario Chapter of the American Fisheries Society to organize a course in these bioengineering techniques held in the Grand River watershed this fall. Biologists, engineers and stewardship practitioners from across the province attended the course that explored the techniques used for the Bechtel Park rehabilitation.

For the most part, the innovations have worked very well, Mason says. These include vortex rock weirs, or large boulders placed in the stream in a V-shape along 670 metres of channel to help keep the fast-moving water away from the creek banks and control erosion.

Several techniques that use plant material to stabilize the creek have taken root and naturalized the banks of the creek. Called live brush mattresses, live crib walls and live fascines, all of these construction methods use live tree stakes and willow and dogwood shrubs to protect the stream bank and slow erosion. The shrubs also have grow up to provide cover for fish.

The results 12 years later are that Laurel Creek has narrowed and deepened as it runs through Bechtel Park. The erosion is under control and the fish have a better chance of surviving.

Bioengineering projects similar to this one have since been undertaken in other parts of the watershed and across the province, but they are still not done often even today, Mason says.

Students in a bioengineering course install a brush mattress on the banks of Laurel Creek about a kilometre from Bechtel Park. The concrete behind them was only temporary and was removed after installation.

Over 40 volunteers worked for over three weeks to manually lift 900 walleye over the Dunnville Dam to allow the fish to access quality spawning habitat.

Many partners help improve the Grand River fishery

By Steve May
Rural Water Quality Program

Fish living in the Grand River are like canaries in a coal mine, since they tell us how well we are managing our environment.

The Grand River is now home to over half the species of fish in Canada and so good progress has been made. This is true despite the release of some recent data about the Grand River, that rated the area around Dunnville as "marginal."

Since the early 1900's the landscape of the watershed has changed dramatically. As the population grew, the forests have been cleared, wetlands drained and streams have been turned into concrete channels. All of this has damaged water quality and ecosystems in the Grand River watershed.

Many people can remember when the river was little more than an open sewer and you could smell it long before you could see its murky brown water.

Since the 1950s, things have improved dramatically. Municipal water treatment plants have been upgraded. People in both urban and rural areas know a lot more about water and have taken steps that help the environment. Water quality and quantity are being monitored. Volunteers have pitched in with numerous projects that have improved water quality and there are programs in place to help landowners make a difference on their properties.

LOOK WHO'S TAKING ACTION

While the efforts of many groups are paying off, it is a continuous process, especially when growth and climate change mean we expect more from the natural environment.

The Grand River Fisheries Management Plan, the GRCA's Rural Water Quality Program and the Grand River Species at Risk Recovery Team have all made a long-term commitment to improve the river's fishery.

Rural water quality program

Several funding programs have resulted in real improvements in the species found in the Grand River.

The Rural Water Quality Program is funded by municipalities and administered by the GRCA to help rural landowners improve and protect water quality.

Landowners have implemented 2,000 projects using approximately $6.6 million in grant money. The total investment in these projects is $20 million over the past ten years. This has had a real impact on water quality in the watershed.

This program helps in a multitude of ways, including improving stream banks, building manure storage areas, retiring fragile land, planting trees, fencing creek areas and managing milk house wash water better.

The result of this work and other efforts in the watershed has been a gradual, but noticeable improvement in the river and its fish community.

Species at Risk recovery team

The Grand River is home to seven "species at risk" and a Species at Risk recovery team in the Grand River watershed works to help these species recover. The team also enhances the native fish community using sound science, community help and habitat improvement measures. The research and direction of this group of dedicated people ensures that the future is bright for these rare species in the watershed.

The Grand River Fisheries Management Plan Implementation Committee brings together several different partners from government agencies and volunteer organizations to implement the Grand River Fisheries Management Plan. This true partnership has resulted in many habitat improvement projects, improved river access and more sport fishing opportunities.

Improved water quality has made the environment better for the fish community and some Species at Risk that are found in the watershed. There are a few things that individuals can do to make a difference:

- Conserve water in your home
- Beware of what you put on your lawn and down the drain
- Follow all rules and regulations when sport fishing
- Support a club or group that helps the Grand River and its fishery

WHAT YOU CAN DO

Installing a backyard water tank

By Bill Bean
Record Staff

We thought that we were just trying to find a way to keep rainwater for our gardens.

But apparently, we have joined the next big wave in the worldwide engagement over climate change.

We have installed a cistern.

We live in an ordinary Kitchener sidesplit surrounded by trees and gardens. Ten years ago, we got three 45-gallon olive barrels to collect rainwater from our roof, but 135 gallons didn't go far, especially during a drought like this year's, and we didn't want more barrels.

Both of us knew about cisterns from our farm upbringing, so, when we plunged into a backyard reno this year, we decided to add a cistern, theorizing that if you're going to tear up the yard anyway . . .

We soon learned the liquid lexicon.

First, what we got was not a cistern, but a rainwater tank. Cistern water is used for toilets and laundry, and requires special plumbing, filtration and municipal approvals. Our water was for outside use and required no special permits.

Second, we learned that if you have even a rain barrel, you are a rainwater harvester, and have joined a global movement (see the online rainwater harvesting community at HarvestH2O.com or the International Rainwater Harvesting Alliance at irha-h2o.org).

We learned that rainwater harvesting is a huge deal. France offers incentives to homeowners to harvest rain. Australia has required cisterns for new homes. Germany, an early adopter, is a world leader in rainwater filtration systems.

Part of the interest is global climate change. There are fewer, but more intense storms, meaning more dry periods and more erosion. Part of the interest is growth, with many communities facing water restrictions that can limit future development. And part of the interest is "green" building design.

Managing rainfall is one concern of Waterloo Region's water efficiency advisory committee. Steve Gombos, manager of water efficiency for the region, says the region's rain barrel program shows residents have embraced rainwater harvesting. Launched in 2001 as a five-year program to distribute 25,000 barrels, it has handled 31,000 barrels, with another 3,000 approved for next year.

But there are many questions about rainwater harvesting. Should it be limited in groundwater recharge areas? How will it affect water-taking by municipalities? What will the impact be on watercourses if legions of homeowners install rainwater tanks?

Sadly, despite the drought workshops in California and the watering bans in various parts of Ontario, North America is well behind the rest of the world in grappling with these questions.

We got our concrete tank from Unit Precast Concrete Products in Breslau. Chris Schuett was patient as we considered options (concrete or plastic, 700 gallon or 1,000 gallon) over a period of several months.

Unit Precast installs tanks in factories, new homes, institutions and farms, with their biggest rainwater project being three 8,000-gallon tanks linked together at an Oakville shopping mall. Although some builders offer rainwater tanks as an option in new homes, ours was the first delivered by Unit Precast to an established residential area in Waterloo Region.

The crew for Tri-Green Landscape Design and Construction dug the hole and eight days ago, the concrete tank arrived on the back of a crane truck.

The five-tonne tank looked too big for the hole. Indeed, there wasn't a 1,000-gallon tank in inventory, so they brought a 1,100-gallon tank. We knew a bigger one was coming, but had been assured it would fit. We were all startled enough by the size of the tank that Tri-

A five tonne water tank is lowered into the ground in Bill Bean's backyard. in Kitchener. It means they will have lots of water for gardening, even during droughts.

Green lead hand Morris Rees grabbed a tape measure for a quick double-check, before the tank – representing the equivalent of 24 barrels of rain storage – was lowered into position.

It was a perfect fit. The Tri-Green crew completed the backfilling, trenching and piping, and set up the downspout filter (from Germany). The hand pump (from Home Hardware) was installed a day later. Now, we await the rains.

We paid roughly $1,000 for the excavation, trenching and pipes (depending on access and trenching, expect to pay from $750 to $1,500), and $1,800 for the tank. We know that the payback period on this will exceed our occupancy, and that the short-term impact of our single rainwater tank on global water politics and regional water conservation is small.

I should be noble and say that we are investing in a better planet.

Well, that is true, but really, all we wanted was water for next year's azaleas. And maybe that's how a global conservation movement gets started.

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***January melt and flooding*:** *Rain and record-setting warm weather resulted in flooding in some areas, including this road leading to a bridge in Conestogo. The photo doesn't convey the sound and speed of the rushing water, which left large debris on the road. GRCA engineer John Palmer was among the GRCA staff members who visited flooded areas to document the results. At St. Jacobs, the flow reached 371 cubic metres per second compared to only 3.9 cubic metres during the summer low flow.*

Photo by Janet Baine

About Grand Actions

This newsletter is produced bi-monthly by the Grand River Conservation Authority on behalf of the partners in *The Grand Strategy*. Current and back issues are available online at: www.grandriver.ca.

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Deadlines for submissions are the 15th of February, April, June, August, October and December. Submissions may be edited for length or style.

Tax deductible donations and sponsorships toward the cost of producing this newsletter are always welcome.

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The Grand Strategy Calendar

Tree Planting Workshop, Aboyne Hall, Fergus, Thursday Jan. 31, 7 p.m. to 9 p.m. Trees Ontario and its partners the GRCA, Wellington County Stewardship Council and Green Legacy Tree Nursery will host this free event. Space is limited and pre-registration is recommended by calling Trees Ontario at 877-646-1193.

11th Annual Heritage Day Workshop and Celebration, Six Nations Community Centre, Ohsweken, Monday, Feb. 18, 8:30 a.m. to 4 p.m. The theme of the workshop is Restoring Grand Heritage: A First Nations Perspective. For more information, visit www.chiefswood.com or www.grandriver.ca or call 519-752-5005.

Green Innovation, the second annual University of Waterloo Environment and Business Conference, March 26. Keynote speakers are Thomas Homer-Dixon, Tim Jackson and Marc Stoiber. For more information on registration, sponsorship and exhibition opportunities, e-mail ebconference@gmail.com or visit www.ebconference.ca.

Introduction to Hiking, a day-long workshop, Saturday March 15 in Brantford, Saturday March 29 in Kitchener, Saturday, April 12 in Fergus. Please see the GVTA website at www.gvta.on.ca or call 519-576-4376 for more information. Spaces are limited, so please register early.