



Grand River
Conservation
Authority



The Grand:
A Canadian
Heritage River

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Cover photo: Trees lining a street in Brantford. Urban trees can cut energy use, keep neighbourhoods quieter and the air cleaner.



Investing in trees

Trees are good for the environment and the bankbook, too

By Virginia Gauley
GRCA Forester

Imagine your neighbourhood without any trees. It would look pretty dismal, more like an industrial area than a residential neighbourhood.

Trees are an important part of our lives, offer-

ing us a sense of place within our community and providing us with many benefits on a daily basis. Trees can provide us with a shady place to have a picnic on a hot summer day, a quiet location for a walk along the river or perhaps a serene setting to read a good book.

But trees have many practical uses as well, especially for those of us living within a city, where they can reduce noise from busy streets, increase privacy in backyards and keep houses cool in the summer.

We don't often realize that the trees growing within our neighbourhood are saving us lots of money. Planting trees is really like making a long-term investment.

The benefits of trees extend far beyond their ability to provide shade and privacy. We derive economic benefits from trees in many ways and not just in terms of forestry resources such as lumber and timber products. Trees are able to reduce the amount of money that we spend on treating and managing our water supply, heating

Focus on forests

Several of the articles in this edition of Grand Actions are focused on the forest resources of the Grand River watershed, which are the subject of the new Grand River Watershed Forest Plan. For more on the plan, see Milestones on Page 6.

and cooling our homes, combating air pollution and producing energy. Trees are especially important in an urban setting where they are needed to maintain a healthy environment by cleaning the air and water, and counteracting the effects of urban growth.

Cities spend a lot of money installing stormwater management facilities and, through the Grand River Conservation Authority, managing flood control systems. Trees can offset these costs by intercepting rainwater and reducing the amount of runoff that must be managed in the urban area and by storm water management facilities.

A study in Charlottesville, Virginia showed that when tree cover dropped eight per cent between 1976 and 2000, the amount of runoff increased by 19 per cent. It would cost about US\$6 billion to build stormwater retention ponds and other engineered systems to intercept the runoff that had previously been captured by the trees.

Reduce runoff

The study also reported that the city's tree cover captured an estimated 7,200 tonnes of carbon per year and removed close to 104,300 tonnes of pollutants from the atmosphere. The dollar value placed on these services was estimated to be US\$567 million.

The Grand River watershed is about one-third the size of the Charlottesville study area, however, similar results could be expected based on population size and density of the Grand River watershed as a whole. ("Regional Ecosystem Analysis for Chesapeake Bay Watershed" is available at http://www.americanforests.org/downloads/rea/AF_Chesapeake2.pdf).

The urban core and other parts of a city where tree cover is scarce are often referred to as "heat islands." These are areas where air temperatures are often much higher than the surrounding area, sometimes by as much as 3C to 5C.

Higher temperatures in urban heat islands bring with them increased energy



Trees can make a big difference in cities, helping to cut pollution, keep the air cooler and reduce runoff from rain.

use, mostly due to a greater demand for air conditioning. As power plants burn more fossil fuels, they increase both pollution levels and energy costs.

Wintertime also brings on higher heating costs in areas with low tree cover due to the cooling effects of the wind and weather on an exposed building.

Planting trees strategically at various locations around an otherwise exposed building can reduce heating and cooling costs by as much as 40 percent.

Trees are most effective in reducing cooling costs when they shade air conditioners, windows or walls, and when located on the side of the home receiving the most sun. Windbreaks on the north side of a house are most effective in the winter for blocking cold northerly winds. Over their lifetimes, trees can be much less expensive than air conditioners and heating systems, and the energy needed to run them. (More information is available from the Vancouver-Clark Washington Parks and Recreation website at [/www.ci.vancouver.wa.us/parks-recreation/index.asp](http://www.ci.vancouver.wa.us/parks-recreation/index.asp).)

So we know that trees can save us money, but how do they make us money?

Trees create a pleasant environment.

They create a sense of place and provide us with a sense of security. They even make us want to shop! A study conducted in Vancouver-Clark, Washington showed that people shopping in a treed business district were inclined to shop more often, for longer periods of time, and to spend in the range of 11 percent more for the same product than if it was sold in a treeless business district. This shows great promise for small businesses located in well-established neighbourhoods where the tree canopy is fully developed and mature trees line the city streets.

Trees help raise real estate prices. The homes located on a well-treed street are often priced higher than a comparable home located in a relatively treeless neighbourhood. Urban foresters and real estate agents have found that trees increase the real estate value of both residential and commercial property. American Forests estimates that a well-landscaped home and mature trees will increase the value of the property by 15 percent. That is an additional \$22,500 on a home valued at \$150,000.

Target for canopy cover

There is no question that trees add value and benefit to our everyday lives. But there is also financial incentive involved in planting trees that will help keep money in your own pocket and help to maintain the health of our environment for the long term.

American Forests, a not-for-profit organization involved in assessing the value of tree cover on the landscape, recommends that tree leaves should cover 40 per cent of the area within a city. This minimum area would ensure the sustainability of the urban ecosystem and maintain a balance between urban growth and a healthy environment. The urban centres in the Grand River watershed vary from a low of 24 per cent in Brantford to a high of 29 per cent in Waterloo.

The goal of 40 per cent is attainable and can be accomplished through com-

munity effort and dedication. There are currently numerous groups committed to reaching this goal in the Grand River watershed and they have already achieved significant results, but every effort made is a step in the right direction. So in the end, take a moment to plant a tree, save some money and make an investment into the future of your community.

Former GRCA head recalls early days of tree program

By Michael Bradley
GRCA Arborist

While tree planting techniques and species may have changed over the past 50 years, the goals for tree planting in the Grand River Watershed have remained the same. This was the conclusion of former GRCA General Manager Mac Coutts as he reflected on the origins of the GRCA's private land tree planting program. The GRCA is celebrating 50 years of tree planting on private land this year.

Coutts was one of the original employees of the Grand Valley Conservation Authority, one of the first conservation authorities in Ontario. He was originally a field officer with the Ministry of Natural Resources, and was "loaned" to the conservation authority to help implement watershed projects.

"We realized that there was an interwoven objective between planting trees on rural land and improving water quality," Coutts said. The value of forested land was seen in its ability to retain snowmelt, which would gradually recharge groundwater. Forested land along waterways was also an objective of the early planting projects, as this reduced erosion. Coutts sees a parallel between the authority's early land-use advisory programs and today's Rural Water Quality Program.

The Ministry of Natural Resources played an important role in the early tree planting programs.



Mac Coutts, former general manager of the GRCA says the organization assisted many private landowners with their tree-planting projects.

"The MNR focused on large reforestation projects, and encouraged the authority to pick up the smaller landowner projects," Coutts says, adding that there was an excellent working relationship between the staff of the conservation authority and the ministry's forestry staff. The good relationship is one reason for the long-term success of the private land tree-planting program.

Coutts credits the local municipalities and townships with promoting the private land tree-planting program. Each municipality had an advisory board that provided assistance and guidance to the authority. These advisory boards were crucial in promoting the tree-planting program to local landowners. Parallels can be seen today with programs such as the Brant Millennium Grow Green program, Trees for Peel, and the Wellington Green Legacy project. These projects recruit landowners for tree planting through local governments.

Coutts remembers the authority's first tree-planting project 50 years ago at the farm of Earle Hindley in Eramosa Township. Coutts borrowed a crawler from a Cambridge resident named Preston Graham, who owned a garage

next to the Knotty Pine restaurant. The tree-planting machine used was also made locally. The ministry provided the seedlings free to the project from its nursery in St. Williams, Ontario. Jokingly, Coutts suggests that the smaller field projects he personally oversaw in the 1950s and early 1960s remain vivid in his memory, as opposed to the larger projects he directed in the 1970s and 1980s when he was general manager.

As the first general manager of the GRCA, Coutts was the founder of the GRCA's private land tree planting program, and helped to guide it through the planting of millions of trees throughout the Grand River watershed.



Mapping Ontario's groundwater resources

The Ontario Geological Survey is taking an in-depth look at the Region of Waterloo

If you've ever wondered where the Region of Waterloo obtains much of its drinking water, just look down. The answer lies beneath your feet in the layers of sand and gravel left behind by glaciers, and in the underlying, much older, layers of limestone. The buried layers that contain large volumes of water are termed aquifers and the region taps into these for approximately 75 per cent of its daily water consumption.

Waterloo Region is one of the largest municipal users of groundwater in Canada. To ensure adequate water supplies in the face of a projected population increase to 558,000 by the year 2016, the municipality's long-term water strategy includes plans to find additional groundwater sources and increase the number of production wells.

To this end, Dr. Andy Bajc, a geolo-



Overburden drilling undertaken to characterize subsurface sediment units in the Region of Waterloo.

gist with the Ontario Geological Survey, a division of the Ministry of Northern Development and Mines, has begun a project to better define the location and characteristics of the region's important aquifers.

Create a 3D picture

In essence, Bajc will create a three-dimensional (3D) picture of the various layers of sand and gravel that host the region's water supply. He will also define the intervening glacial deposits of clay, silt and boulder debris, which in places seal and protect the buried groundwater sources. The 3D picture will help outline new groundwater resources for the region, and provide information critical for land-use planning and water protection. This is one of several OGS groundwater projects currently underway in southern Ontario.

Developing a 3-D model of the region's geology may be thought of as putting together a jigsaw puzzle without having a picture to refer to. Highly trained and experienced geologists must analyze a wide variety of existing geo-

science data, collect new information and apply their knowledge and expertise to develop the model.

To achieve this, work has focussed on three main areas: 1) compiling existing geoscience data; 2) acquiring new geologic data; and 3) interpreting, synthesizing and presenting data.

The groundwater project is fortunate that a wealth of geologic data exists for the region, however, the OGS has had to spend considerable time standardizing its quality and terminology.

To date, the OGS database contains more than 23,000 records, and information on more than 100,000 layers of sediment. Even so, Bajc is collecting new geologic information in critical parts of the region.

During the summers of 2002 and 2003, Bajc and colleagues from the University of Waterloo and the Geological Survey of Canada completed a number of geophysical soundings in the region.

"You might think of these geophysical surveys as performing an ultrasound of the earth," said Bajc.

"The surveys send sound waves into the subsurface where they bounce off different layers of soil or rock and back to the surface. Listening devices called geophones detect the sound waves at the surface. With computer analysis of the data, we can produce a picture of the subsurface layers and bedrock surface to locate, among other features, ancient river valleys carved into the bedrock surface."

Many of these bedrock valleys are filled with thick sequences of sand and gravel that have potential for hosting large volumes of groundwater. One such valley near the town of Wellesley is buried by more than 100 metres of sand and gravel-rich sediment.

Monitoring wells installed

To complement the geophysical surveys, the OGS conducted overburden drilling of the sediments overlying bedrock during the fall of 2003 and winter of 2004, and is currently analyzing the results. Sediment cores from a series of nine strategically located boreholes, each approximately 8.5 cm in diameter, were retrieved and analyzed.

To help characterize the various geological units in the subsurface, geophysical probes were lowered down each borehole. Monitoring wells were installed at most locations and will be maintained by either the Region of Waterloo or the Grand River Conservation Authority.

Interpreting and synthesizing the data is a labour-intensive process that requires use of sophisticated software programs. The OGS will publicize the study results after the project's completion in 2005. A suite of derivative and value-added products will also be developed after consultation with the region's client groups.

For further information regarding this project contact project leader Dr. Andy Bajc, Ontario Geological Survey at 933 Ramsey Lake Road, 7th floor, Sudbury, P3E 6BF

Tree Planting at Luther Marsh

In the spring of 2002, Ontario Power Generation and the GRCA launched a program to plant trees at Luther Marsh Wildlife Management Area under their Carbon Sequestration and Biodiversity Management Program.

OPG is financing the program because trees have the ability to remove carbon dioxide from the atmosphere and store it in their woody parts, thereby cleaning the air and helping to counteract the greenhouse effect.

A total of 65,670 native trees and shrubs have been planted to reforest approximately 67 hectares of land since 2002. Ontario Power Generation has contributed a total of \$85,000 towards this project to date.

To maximize the benefits of the trees planted under this program, OPG focused on planting in a type of habitat that is rare in southern Ontario: big blocks of natural forest.

Large forested areas are becoming scarce in the Grand River watershed and throughout southern Ontario due to population growth and development. As a result, species that depend on large undisturbed forest habitat are being threatened and population sizes are decreasing.

Several of these species are found at Luther Marsh, the largest block of natural habitat in the Grand River watershed. Despite its size, Luther Marsh faces the same threats as other smaller forested areas throughout the watershed due to the high density of agriculture lands surrounding its perimeter. Some examples of species dependent on big block forests found at Luther Marsh include the red-shouldered hawk and the Blackburnian warbler.

The project at Luther Marsh was to come to an end this past spring, but because of the ongoing success of the project the GRCA will seek funding into 2006.



Boy Scouts help with tree planting at Luther Marsh in a program sponsored by Ontario Power Generation.

Forestry programs across the watershed

Several innovative programs related to tree planting are highlighted in the Watershed Forest Plan for the Grand River. These programs, along with many other positive actions, point the way to a future with a healthy, sustainable forest in the Grand River watershed.

Trees for Guelph

Trees for Guelph, after 14 successful years of urban forest enhancement and education, recently completed a one-year pilot project with Ontario Trillium Foundation funding to explore the possibility of linking carbon reduction goals with tree planting. Carbon emissions contribute to global climate change, and growing trees store carbon, thereby counteracting climate change.

McNeil Consumer Healthcare has now offset all of its carbon emissions annually for several years through the Trees for Guelph program. During the recent pilot project, several schools and factories became involved in the plant-

ing program, and expressed interest in exploring the carbon offset aspect. A “carbon offset primer” has now been produced on CD, to be used by industry and in schools.

The group also took on a new project on Edinburgh Road North, “greening” a corridor packed with infrastructure. The group continues to solicit support from within the community and from funding agencies, to allow it to help others in the watershed adopt a similar approach in their areas.

Community Forestry Initiative

This program’s genesis was in Haldimand County, and now occurs in various forms throughout much of the watershed. Stewardship Councils in Haldimand, Oxford, Brant, Waterloo, and Wellington have all initiated a Community Forestry Initiative to engage students in growing native plants from seed, as a window on the larger world of restoration and watershed health. The Ontario Trillium Foundation has supplied funding for the Waterloo-Wellington Community Forestry Initiative to hire a coordinator for three years.

These programs increase awareness of the importance of indigenous species and local seed sources, enable hands-on learning by students and increase the availability of biologically appropriate stock for planting projects in the watershed.

Forest Gene Conservation Association

Efforts by this group to establish a certification program for Ontario seed are ongoing. Many seed collectors have become trained at workshops to collect seed from indigenous plants in the wild. Guidelines help collectors avoid harming the sometimes-fragile populations from which they may be collecting.

Biologically appropriate seed and stock is now generally more available than they were even just five years ago, but more remains to be done.



The Waterloo Wellington Ontario Stewardship Ranger Crew showing off some of the bicycles removed from the Grand River in Fergus.

Rangers give the Grand a cleaning

The Grand River has one less obstruction slowing its flow from Dundalk to Port Maitland. A portion of the Beatty Dam in Fergus unexpectedly failed in May and due to public safety concerns the entire dam was removed in July by the Township of Centre Wellington.

Originally, the dam at this site was built to supply power to local industry, however for the past several decades it's primary benefit has been aesthetic.

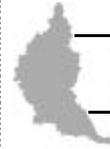
Water power was part and parcel of the development of the Grand River and today there are about 150 dams throughout its watershed though only a handful are needed for flood control and flow augmentation. (Several of these dams also generate power.)

With the Beatty Dam removed the river has taken on a new look. You can hear the water flowing through town and the natural tumble of the river over the shelf rock has brought a piece of the wilds to downtown Fergus. It is an unexpected change for many local residents to see the river flowing unimpeded through town.

To help beautify this portion of the river, the Waterloo Wellington Ontario Stewardship Ranger crew, Guelph District Ministry of Natural Resources staff and members of Friends of the Grand River have performed a clean-up in what was once the backwater of the dam.

It is amazing how much material can accumulate behind a dam in 50 years. Numerous road signs, pipes, cement blocks, assorted tools and machine parts were removed. A baby carriage, shopping carts, car transmission, truck bed and 20 bicycles were also taken away. There was even a bike rack in the river. In all more than 20 cubic metres of debris were removed from this short stretch of river. We don't know how these items end up in the water, but they are now disposed of properly thanks to the hard work of these individuals.

It is too early to tell how the community and river will respond, but there are already indications of improved water quality and fish habitat in the Grand River in Fergus.



MILESTONES

Milestones are progress or products of *The Grand Strategy* Joint Work Plan.

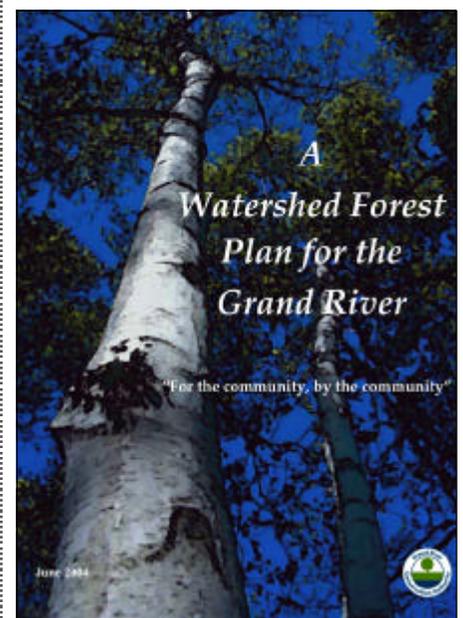
Watershed Forest Plan now available

The new Watershed Forest Plan for the Grand River, which was approved earlier this year by the GRCA General Membership, sets out goals and strategies for managing the terrestrial resources of the Grand River watershed.

It provides a road map to watershed residents, community groups, municipal officials and others to guide them in their efforts toward creating a sustainable watershed.

The Watershed Forest Plan for the Grand River is available on-line at www.grandriver.ca. It will also be available on CD. To obtain a CD contact Virginia Gauley, Watershed Forester, at Grand River Conservation Authority, (519) 621-2761, Ext. 245.

The Forest Plan is the second broad-based plan for resource management in the watershed. The first was the Grand River Fisheries Management Plan, which was completed in 1998.



Implementation of that plan has led to significant progress in improving and protecting fisheries on the Grand and its tributaries.

Both the forest and fish plans fit into the overall Grand Strategy, which is the watershed management plan adopted following the designation of the Grand River as a Canadian Heritage River in 1994.

The Watershed Forest Plan describes the historic condition of the watershed forest and explores the current issues and opportunities in today's forests.

The purpose of the Plan is to guide future efforts for forest restoration and improvement while encouraging community involvement and sustainable development.

Advice for landowners

Since close to 80 percent of the watershed forest falls under private ownership, the plan offers landowners ideas on how to maintain and improve the condition of their forest and provides background information about municipal by-laws and policies with respect to forest management. The plan is a valuable resource for landowners interested in learning more about the opportunities and programs available to them that offer support towards restoration and forest improvement on private property.

But the plan is not just meant for landowners. It also contains ideas and activities intended to spark an interest in all community members and encourage the watershed community as a whole to participate in and recognize the importance of a healthy future forest.

Some of the pressing forestry issues that are addressed in the plan include:

- the presence of invasive exotic species, such as the Asian long-horned beetle and the emerald ash borer;
- loss of forest cover and significant natural areas due to increasing development pressure and urban sprawl; and
- species-at-risk in the Grand River watershed forests.

The Watershed Forest Plan addresses

these issues in a local context with local examples. It capitalizes on the fact that citizens of the Grand River watershed have an inherent dedication to their environment and its healthy future.

The plan was created by a diverse steering committee consisting of individuals and groups from across the watershed with an interest in the future of our forests. Public input resulted in the creation of a community-based product with a strong level of support. For this reason, the Plan focuses on achieving watershed scale success through local level initiative and community support.

Over the next few months, an Implementation Committee will be brought together to identify several top priorities and begin taking action on executing key projects. The GRCA will serve as the lead on several initiatives and will provide support for others wishing to take action.

The overall success of the Watershed Forest Plan during implementation depends on the watershed community's level of involvement and support.



WHAT'S HAPPENING?

Grand inspirations

Two exceptional art shows, focused on the many moods and facets of the river, are being offered to watershed residents and visitors.

The art shows coincide with the 10th anniversary celebrations of the Grand River as a Canada Heritage River.

Rivers of the Grand is at the Wellington County Museum and Archives on County Road 18 between Elora and Fergus. It will be showing until Nov. 7.

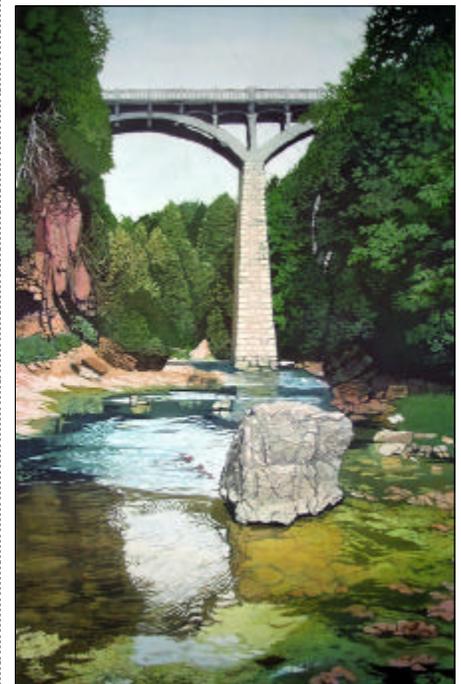
Featuring the work of Linda Risacher Copp, this exhibition depicts the river and its tributaries from the headwaters to the mouth at Lake Erie. This exhibit of 31 batik paintings explores the changing

river valley landscape focusing on the effect of light on the water and the luminous quality of the trees and fields along the riverbanks.

Each batik required six to eight weeks to complete with painstaking attention to colour, composition and detail. Copp's previous exhibition *A Year on the Grand* travelled to many art galleries and museums throughout the watershed in 1999.

The second exhibit, *River: Grand*, is at the Kitchener Waterloo Art Gallery, 101 Queen Street North, Kitchener.

It is the first in a series of contemporary exhibitions devoted to images of the Grand River. On view through Nov. 14, this exhibition includes both historical and contemporary paintings, prints, graphics, photographs and a video by Carl Hiebert that gives us a bird's-eye view of the Grand as it meanders through the landscape from the river's source to its mouth. The show features works by several important artists who



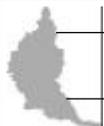
This batik painting of the David Street Bridge in Elora by Linda Risacher Copp is one of the artworks included in a new display of Grand River paintings at the Wellington County Museum and Archives.

spanned the late 18th to 20th centuries including Homer Watson and Robert Whale. In addition to Hiebert, other contemporary artists featured in the show include Sandra Martin, Shelley Niro and Peter Etril Snyder.

The exhibition includes works provided by the National Art Gallery of Canada, Art Gallery of Ontario, Museum

London, Wellington County Museum and Archives, Glenhyrst Art Gallery of Brant and the Kitchener-Waterloo Art Gallery.

In the future the *River: Grand! Chronicles*, a series of contemporary exhibition projects, will further record contemporary artistic responses to the theme.



The Grand Strategy Calendar

Canadian Chestnut Council Annual General Meeting, Oct. 30, 10 a.m. to 4:30 p.m. at the Tim Horton Children's Camp, Onondaga Farms, near St. George. The morning session includes tours of the chestnut planting site and a business meeting. Afternoon speakers are Dr. Mark Double of the University of West Virginia and Dr. Adam Dale of the University of Guelph who will discuss chestnut recovery work on both sides of the border. Lunch, \$12.

Workshop on Responsible Toxic Management for Manufacturing Facilities. Oct. 14, 7:30 a.m. to 3:30 p.m. at the Holiday Inn, 30 Fairway Rd. S., Kitchener. Sponsored by the Region of Waterloo, this workshop will provide you with the knowledge and tools you need to manage the hazardous materials used at your facility in a responsible manner. You will learn how to reduce your risk of a spill, protecting your company from potentially damaging consequences. \$75 including taxes, lunch and manual. 7:30 a.m. to 3:30 p.m. For more information contact Joanna Smedes, 2070 Hadwen Road, Suite 201A, Mississauga, ON L5K 2C9, (905) 822-4133, Ext. 237

River: Grand! An exhibit of images of the Grand River at the Kitchener-Waterloo Art Gallery, 101 Queen St. N., Kitchener. Runs until Nov. 14. Historical and contemporary paintings, prints, graphics photographs and video by artists such as Homer Watson and Robert Whale along with contemporary works by Sandra Martin, Shelley Niro, Peter Etril Snyder and Carl Hiebert. 519-579-5860

Rivers of the Grand. An exhibit of batik paintings by Linda Risacher Copp at the Wellington County Museum and Archives, County Road 18 between Elora and Fergus. Runs to Nov. 7. The exhibit of 31 batik paintings explores the changing river valley landscape focusing on the effect of light on the water and the luminous quality of the trees and field of the riverbanks. Website: www.wcm.on.ca. Phone: (519) 846-0916 ext. 22

A.D. Latornell Conservation Symposium, Nov. 17-19 at the Nottawasaga Inn and Convention Centre, Alliston. The symposium attracts a wide range of challenging speakers and more than 600 delegates from conservation authorities, federal and provincial governments, universities, private business and community groups. The theme this year is "Stewardship: Strategies to Actions." Early registration deadline is Oct. 15. Last date for registration is Nov. 1. For more information visit the website at www.latornell.ca



DID YOU KNOW?

- Ontario's official tree is the Eastern White Pine (*Pinus strobus* Linneaus)
- Two mature trees provide enough oxygen for a family of four.
- Trees help reduce the greenhouse effect by absorbing carbon dioxide. One acre of trees removes 2.6 tons of carbon dioxide per year.
- In 1965 the maple leaf was put onto the middle of Canada's flag. It wasn't until 1996 that the maple tree was officially recognized as Canada's national tree.

About this newsletter

This newsletter is produced bi-monthly as a communications tool by the Grand River Conservation Authority on behalf of the partners in *The Grand Strategy*. This newsletter can be seen at www.grandriver.ca

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Deadlines for submissions are the

15th of January, March, May, July, September and November. 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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