



GRAND Actions

The Grand River watershed newsletter



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Cover photo

Trout have an especially hard time in hot, dry weather.



Hot weather is hard on fish

By Janet Baine
GRCA Communications Specialist

Most fish have a hard time weathering hot, dry summers, and the summer of 2016 is shaping up to be one of the most difficult.

GRCA research on climate change shows that warm summer weather is starting earlier in the spring and ending later in the fall and there will be more prolonged periods without rain. In other words, summers like this will be more common.

“Climate change experts suggest that with the changing climate, we are seeing more extremes, and 2016 is definitely an extreme year,” said Stephanie Shifflett, water resources engineer with the GRCA. We had dry years in 2012 and 2007, but this could be an even drier year than either of those two.

This is bad news for river ecosystems. Hot, dry weather generally causes river temperatures to soar. Water evaporates more quickly as temperatures rise and the sun beams down on

waterways.

This is very hard on fish. As water warms, it has a reduced ability to retain oxygen. That beautiful trophy fish you caught on your line on a hot summer afternoon in a catch-and-release area may have ended up dead hours later.

Or, it may be weakened and more susceptible to parasites, predators or disease because it has been hooked on a hot day, said Jack Imhof of Trout Unlimited Canada. A fish biologist and an avid angler, he is very concerned about the fish this year.

Fish in reservoirs are also impacted, as reservoir levels decrease.

Imhof says it is really important to let people know that fish have a more rudimentary metabolism than humans. Their body temperature doesn't adjust to heat very well, which means they cannot recover as well from stressful activity on hot summer days and evenings. Less rain also often means warmer rivers, because rain can have a cooling impact.





Photo by Steve May

Sometimes large rocks are placed into a hole that has been dug in a river to provide a deeper, cooler place for fish on a hot day.

Lack of rain means the Grand River watershed has been in Level One low water response since late June. Water users were asked to cut back on their water use by 10 per cent.

In early July, the Whitemans Creek area moved to Level Two, meaning that water users were asked to cut back on water use by 20 per cent and a voluntary fishing ban is in place in Whitemans Creek. Level 2 was

extended to McKenzie Creek on July 22.

This trend is expected to continue in other parts of the watershed due to predicted weather patterns for the summer.

Aquatic ecologists like Imhof worry about protecting species in the Grand River watershed and pay a lot of attention to water temperature and flows. They want to make sure that every native species has a home in the Grand and its tributaries.

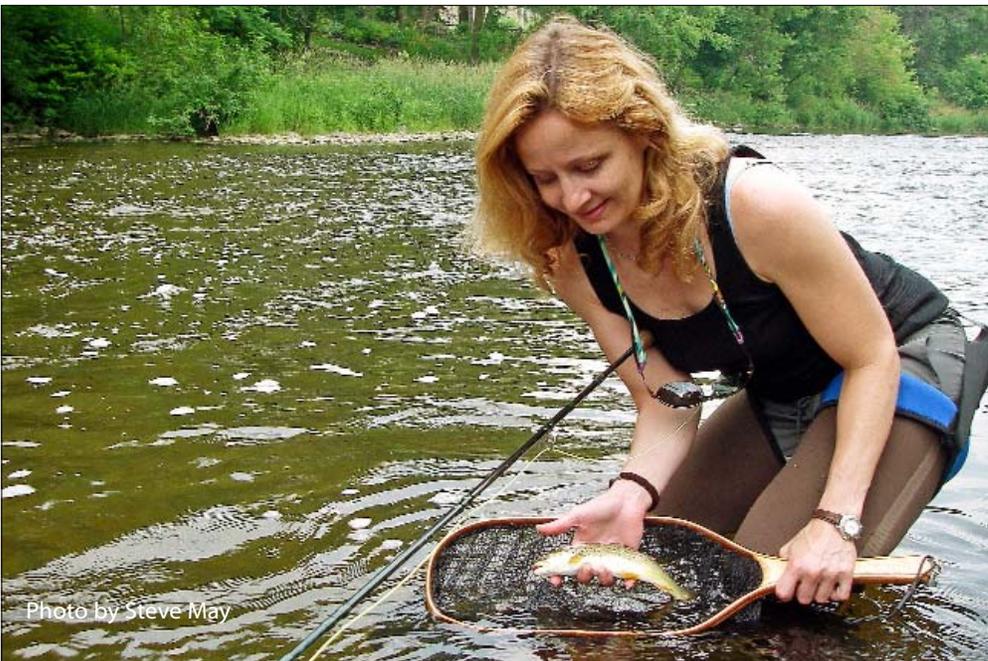


Photo by Steve May

It is important to keep a fish in or near the water while taking a photo and minimizing the time out of water as much as possible on a hot day.

The GRCA monitors water temperatures and posts some of this information in the river data section of the website at www.grandriver.ca/riverdata. This is updated every hour.

There will always be cold pockets and warmer pockets within a river. On hot days, fish seek relief from the heat by staying in cooler areas. These are locations where groundwater comes into the river, shade is provided by overhead vegetation and rocks within the river, or deeper water where the sun doesn't shine.

However, many areas of the Grand River have become as warm as 30 C. Warm water species, such as bass, can tolerate these temperatures, but many species cannot.

Brook trout, which are native to the Grand River watershed, are part of the arctic char family and struggle when water temperatures are above 20 C. Brown trout and rainbow trout, both not native to Ontario, can tolerate slightly higher temperatures, but not more than 22 C.

"Anglers can take many steps to minimize stress on fish, and you see that happening on the river," said Robert Messier, ecologist with the GRCA. "They can go fishing late in the evening, when temperatures are cooler. They can use different gear, so a fish can be caught with less of a fight. Or, they can go after warm water species, such as bass, instead of cold water species like trout."

A tailwater fishery

Water released from some large dams cools down the river below the dam by as much as eight degrees.

Two dams within the Grand River watershed, the Shand Dam and Conestogo Dam, are designed to discharge cold water from near the bottom of the reservoir into the river below. This creates a "tailwater fishery" by cooling the water for many kilometres downstream of the dam.

Both of these dams create good trout habitat, and they are considered world-class fishing areas.

The Grand River tailwater extends about 28 km downstream of the dam, through Fergus and Elora all the way to the covered bridge at West Montrose. Other dams, such as the one in Guelph, can't have this cooling impact because of the way they were designed and because the reservoirs are too



Fish seek shelter under a fallen tree, just as people enjoy a shade tree on a hot day.

shallow.

Dams such as the one at Guelph Lake, can't cool the river due to the way it was designed and the shallow reservoir.

Connecting oxygen and temperature

While humans breathe air from the atmosphere, fish get oxygen from water. Water contains oxygen, but cold water holds more dissolved oxygen than warm water.

In a laboratory setting, water that is 15C will hold about one-third more oxygen than water that is 30C. If there is too little dissolved oxygen in a river, organisms in the water will suffocate and die. Levels above 5 milligrams per litre (mgO₂/L) are considered optimal. Most fish cannot survive for prolonged periods at levels below 3 mgO₂/L. Levels below 1 mg O₂/L are often referred to as hypoxic and when O₂ is totally absent anoxic (often called anaerobic, which means without air).

The amount of dissolved oxygen in the river water can be affected by a range of factors and processes going on in the river. Aquatic plants are a big influence on dissolved oxygen. They produce dissolved oxygen during the day and consume dissolved oxygen overnight.

So, when aquatic plants are too abundant, they choke out fish and other species, making it hard for them to survive.

A combination of chemistry and biology is the reason different fish species live in water of different temperature range. Fish such as brook trout are more active and need a lot of oxygen. Carp are more sedate, so they don't need as much oxygen to live.

Temperature impacts on the river

- Groundwater seeping into the river is important as it cools the river during the hot summer
- Water released from reservoirs like Shand and Conestogo cools the rivers
- After the sun goes down, the air and water temperature goes down as well, so cool nights help reduce temperature
- Shade from trees and vegetation beside the river cools the water down
- Boulders make shade and cool spots where fish can rest and stay cool on hot summer days
- Rain that filters through the earth cools the river
- Rain hitting hot pavement and then entering the river can be very hot and even deadly for fish
- Hot summer days and hot summer nights don't give a river the chance to recuperate
- Lack of shade or boulders and fallen trees warm up the river
- Engineered streams that have been straightened provide very poor habitat and also warm the water
- Ponds within a stream can dramatically heat rivers and do not cool down at night
- Effluent from wastewater treatment plants can warm the water in winter but can cool the water in summer

WATERSHED AWARDS

River steward Barry Lee

Barry Lee has been a river steward and supporter of the Grand River watershed for decades.

He was the longest-serving GRCA board member when he retired at the end of 2014. By then, he had been on the board for 26 years, and he received a 2015 Watershed Award from the GRCA last October.

Lee was a farmer and a "tree hugger," who

took on a tree planting tradition started by his grandfather.

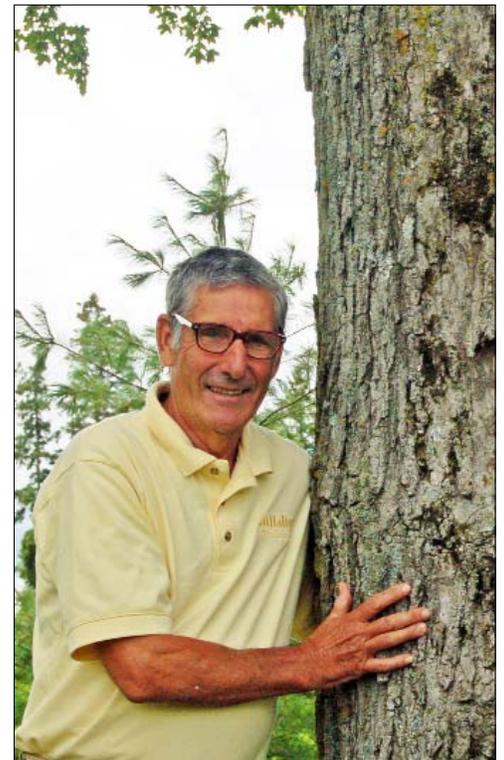
Blue Springs Creek flowed through his grandparents' farm, southeast of Guelph. Lee still lives on land in the same area. Like his grandfather, he plants lots of trees on his property. Over the years, he undertook environmental projects and worked with the GRCA on these. He is also a skilled woodworker with a love of heritage who enjoys breathing new life into heritage homes by restoring them.

Lee entered politics and joined Milton Council and also served as a member of Halton Regional Council. He lives in the small part of the Grand River watershed that is within Halton Region.

He joined the GRCA at a crucial time of change and helped the chair, Archie MacRobbie, to restructure the GRCA board, bringing in the structure of today that allows the equal participation of all board members in decisions.

Lee was the chair of the Eramosa-Blue Springs Creek Watershed Steering Committee, which took on this project in 1995 and took four years to complete.

"This process brought everybody together and onto the same page in making decisions



Barry Lee and tree he planted, following a practice he adopted from his grandfather.

about the future of the area,” he said.

“Blue Springs was federally recognized as one of the most pristine streams in southern Ontario,” he says, adding that this study was one of the things that led to the designation of the Grand River and its tributaries as Canadian Heritage Rivers.

The Grand was the first Canadian Heritage River to have its major tributaries, including the Eramosa River, designated, and Lee was a big supporter of designation. The Heritage River plaque for the Eramosa River is by a bridge where Blue Springs enters the Eramosa River.

The GRCA has a long history of listening and can turn a negative situation into a positive one, he says. For example, many people were breaking into the Elora Gorge illegally and tubing through the Gorge, which was a big liability issue for the GRCA. Instead of hiring extra security to stop people from tubing through the gorge, Lee, as a member of the GRCA board, suggested that staff find a way to make tubing legal. This was found to be feasible — and is the approach that has been taken for many years. It allows people to continue tubing with some safety restrictions.

Sometimes, due to high or low flows, tubing is closed, helping to minimize the danger. Tubing is a very popular activity and the Gorge is one of the GRCA’s busiest parks.



The Wonders of Nature Festival, Aug. 27, 11 a.m. to 2 p.m. at the Huron Natural Area in Kitchener is co-hosted by Waterloo Region Nature and Kitchener’s Natural Areas program. The festival includes kids’ crafts and activities, a guest speaker, guided hikes and free milkweed plants.



Originally called the Kitchener-Waterloo Field Naturalists, this group was formed in 1934. This photo was taken on an outing in May, 1947.

Waterloo Region Nature Fostering a passion for nature

By **Janet Baine**
GRCA Communications Specialist

Waterloo Region Nature has been going strong since 1934, providing a place for nature lovers to join together, share their interests with others and enhance nature in Waterloo Region.

For this long record of many conservation successes, the club (called the Kitchener-Waterloo Field Naturalists until a name change a couple of years ago) received a 2015 Watershed Award from the Grand River Conservation Authority last fall.

“Our club is taking new risks, going in new directions and working to build strength in our organization so that we remain a local source of knowledge, a voice for the birds and butterflies and a catalyst for environmental engagement in our community,” wrote President Josh Shea in a recent newsletter.

The initial club meetings in the ’30s allowed members to study birds and flowers together. The club has remained active since then, aside from a brief reduction in activities during World War II, when most members were in the armed forces. But they still kept up with the Christmas Bird Count, which continues each year.

In 1953 the club began to sponsor Audubon Wildlife Films at schools and collected 50 cents admission. The first film attracted 500 people. These films were

shown over many years and the money was used to purchase sensitive land.

The FWR Dickson Wilderness Area was purchased in cooperation with the GRCA and it was named after the founder of the club, Roy Dickson. In 1967 they bought Bannister Marsh and Wrigley Lake, which also became GRCA property.

For their 50th anniversary, they bought the F. H. Montgomery Sanctuary on the Nith River that is managed by a team of volunteers.

They continue to hold talks, workshops and conferences to learn and share information about nature. They document the plants and animals that live in the watershed. The club now has about 250 members.

They reintroduced peregrine falcons to the watershed in 1988 and keep a close watch on conservation issues.

Waterloo Region Nature took the lead in creating Kitchener’s innovative Natural Areas program several years ago. This environmental program is focused on the stewardship of natural areas in Kitchener and brings together volunteers to teach others about nature. It holds a series of nature events, including a very popular Earth Day event at the Huron Natural Area.

For more information about the club and activities, visit their website at www.waterlooregionnature.ca.

“Cover crops? Just try it!” farmers say of cover crops

By Karen Buschert
Conservation specialist

Cover crops? Just do it! So goes the advice of farmers recently interviewed about their experience of the “new again” farming practice known as cover crops.

Used for centuries until they were replaced by modern farming practices, cover crops are an important part of the crop rotation. They are planted off-season once the main crop has been harvested to protect the fields and soils during the late fall, winter and early spring.

As you drive through rural areas within the Grand River watershed, you’ll be seeing see more fields of green or brown plants in the off season, rather than fields with tilled dark soil exposed to the elements.

Hold soil in place

Instead of planting oats for harvest, a farmer may plant them as a fall cover crop, leaving them to die when the frost hits. It might seem counter-intuitive, but those dead plants actually are very useful.

The up-side of seeding fields with grains,

TAKING ACTION

legumes and other cover crops are numerous and varied. Most farmers notice a big improvement in soil structure, because the cover crops hold soil in place and minimize erosion due to the wind, rain and snow. With plants on the fields through the winter, water soaks into the ground more easily and is less likely to create gullies. Weeds have a much harder time taking root.

At the same time, they improve nutrients in the soil. In some cases, farmers use these crops to feed livestock and as a resource for late-season pollinators.

Cambridge-area producer Mark Hermann is pleased with the effect. “We always get a better yield where we’ve used cover crops. They improve the water-holding capacity of the soil, but they also hold onto nutrients from manure spread on wheat stubble,” he said.

St. George area producer Owen McIntyre is also pleased with the effects. “After winter wheat is an excellent opportunity for cover crop in the rotation – it gives the best chance

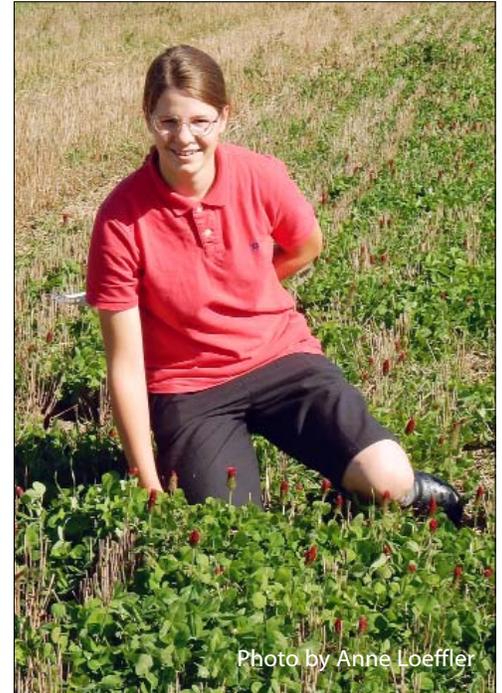


Photo by Anne Loeffler

Anna Kraayenbrink checks out the crimson clover cover crop that is growing among the wheat stubble in her field.

to feed the micro-organisms, increase resiliency to drought, and reduce weed seed set for the following crop,” says McIntyre. “It doesn’t have to be an expensive fancy mix.”

Different crops provide different benefits. For example, red clover, peas and vetch provide nitrogen to the soil. Radishes, alfalfa and sweet clover loosen up compacted soil. Grasses such as annual rye and oats can build up the organic matter and ‘scavenge’ extra nitrogen from manure applications, keeping it from running off into nearby streams and waterways. Careful species selection of cover crops can maximize the benefits for the intended goals.

Incentive program

An incentive pays farmers \$60 to \$100 an acre to plant cover crops. Over 100 producers in Waterloo and Wellington have received a cover crop incentive through the Rural Water Quality Program in the last three years. In Brant County, 16 producers received the cover crop incentive through the RWQP in the spring of 2016 — the inaugural year of the program.

Some farmers were using cover crops for the first time, while others have been using cover crops for several years. Some experienced cover crop users felt that the



Photo by Anne Loeffler

Used for centuries until they were replaced by modern farming practices, cover crops are becoming more common to improve soil health and resiliency to drought.

incentive program offered the opportunity to try something new – whether that be inter-seeding rye into corn or using a new seed mix. Meanwhile, new users mainly kept it simple and predominantly tried oats, rye or a two- or three-way seed mix.

This past spring, farmers were asked to share their experience and provide advice to other producers thinking about trying cover crops. Many responded with “just try it” and added that it was worth trying since farmers need to experiment to find what is best for each individual operation..

More information about the Rural Water Quality Program and the cover crop incentive is available on the GRCA website or by contacting the GRCA at 519-621-2761.

WHAT'S HAPPENING

Tell us what you think Take newsletter survey

Enclosed with this issue of Grand Actions is a survey about the GRCA's three newsletter, and we would really appreciate hearing what you think about these publications.

As part of the GRCA's commitment to open communication, the effectiveness of our three newsletters is being reviewed.

We are asking people to complete a brief online survey at www.svy.mk/2a0TbHo, or return the printed survey in the self-addressed envelope that is also enclosed so the survey can be mailed back to us.

The three GRCA newsletters are:

- **GRCA Current**, a monthly digest
- **Grand Actions**, an eight-page, bi-monthly newsletter distributed both electronically and in print format.
- **The Grand**, a tabloid-sized newsletter produced annually and distributed to more than 200,000 homes in the Grand River watershed by local newspapers.

More information about these newsletters and the other GRCA publications, as well as the link to the online survey, can be found on www.grandriver.ca/newsletters.



Volunteers attacked buckthorn at FWR Dickson Wilderness Area near Cambridge.

Makeover at Dickson Wilderness Area

This spring and summer, groups of volunteers including Toyota employees, members of the public and students, spent over 60 hours removing hundreds of invasive trees and shrubs at Dickson Wilderness Area.

It is essential to pull the shrubs when they are small, since they are a challenge at a later stage. Tools such as shovels and extractors (super-sized weed pullers) are used to uproot the invasive species.

Volunteer help is also critical in preparing the area for a prescribed burn, which will further enhance the rare fire-dependent prairie habitat found here. Participating is also great way to help nature, get fit and be part of team.

The work at Dickson is funded in part by the Region of Waterloo Community Environmental Fund and the Ontario Trillium Foundation. Dickson Wilderness Area is a well-known hikers' haven.

Photo contest gets a boost

The Grand River Conservation Authority's 2016 photo contest has received a big boost thanks to a partnership with Kitchener's Centre In The Square that now gives photographers another reason to enter their Grand River photos in the contest.

The overall Grand Prize winner will not only receive a \$500 gift certificate from a local camera retailer, but will also attend the National Geographic *Live Explorer Series* for 2016/2017. This prize is valued at nearly \$400 for two sets of tickets to hear four presentations by extraordinary explorers, filmmakers and photographers who are documenting and helping to preserve the world's natural beauty.

After the contest closes, on Oct. 28, prizes will be awarded for the best photos in three categories:

- Recreation
- Nature
- Panoramic photos

The first place in each category is a gift certificate for \$250 and second place in each category is a \$100 gift certificate.

Monthly draws

In addition, a Grand River Parks membership, valued at \$125, is given away at the end of each month. Each photographer who submits one or more photos during a calendar month is entered into this random draw.

So far, there have been three lucky winners — Gary Curran of Guelph (May), Ron Rhodes of Waterloo (June) and Joseph McPhail of Dundas (July). Random draws will also take place at the end of August, September and October. The Grand River Parks membership pass provides access to all Grand River Parks for one year and comes with vouchers valued at more than \$90.

This is the third time the GRCA has held a photo contest of this type. The winning pictures and a selection of other entries can be seen on the GRCA's Flickr page at www.flickr.com/grandriverconservation.

More information, including contest rules and information on how to submit photos, can be found on the GRCA website at www.grandriver.ca/photocontest. The photos will be used by the GRCA in publications and online.

Details of this new prize are available online at www.centreinthesquare.com.

FOUNDATION New chair and vice-chair

Robin-Lee Norris, a senior partner with the law firm Miller Thomson LLP in Guelph, is the new chair of the Grand River Conservation Foundation.

The Foundation held its annual general meeting in June and also elected Malcolm Matheson, president of Steed and Evans Limited in Heidelberg, as the new vice-chair.

“The Grand River watershed truly is a jewel in the heart of southern Ontario and the GRCA does an incredible job caring for this beautiful, natural asset,” said Norris. “I look forward to leading the GRCF in raising funds for projects that may not otherwise be possible without the generous support of our vibrant community of donors and supporters.”

A board member since 2010, Norris is active in her home community of Guelph. She has served for many years on boards including the University of Guelph and the Guelph Chamber of Commerce. She has received many awards, including the Alumni

Medal of Achievement from the University of Guelph in 1990, the Mayor's Award in 2007 and an Honorary Fellowship of the University of Guelph in 2009. When not busy with her practice and many community activities, Norris enjoys time at her cottage on Conestogo Lake.

Matheson has been on the board since 2013. He is the president of Steed and Evans, a construction, aggregate and maintenance company based in Heidelberg. In recent years, he has actively supported the Park Hill Dam hydro installation project as part of the Ontario Stone, Sand and Gravel Association and a member of the Foundation committee for this project. Matheson has also taken a lead in the Laurel Creek Trails project, which was featured in the March-April issue of Grand Actions.

“As an avid fly fisherman, I take every opportunity I can to get out on the river” says Matheson. “Helping support the GRCA secure donations for projects like Park Hill Dam in Cambridge gives me a great sense of stewardship and pride in knowing we're helping give back to a resource that gives so much to all of us.”

At the June meeting, the board welcomed new member George Lourenco of Capital Paving in Guelph for a three-year term. The previous chair, Joy O'Donnell of Brantford, has completed her two-year term and continues serving on the board as past chair.

The GRCF is a registered charity with a board made up of community leaders from throughout the watershed. Their role is to raise funds for GRCA projects that have few or no other sources of revenue, such as trails and outdoor education facilities.

Three long-standing directors who had each served terms as board chair — David Hales, Doug Brock and Crawford Reid — retired as a result of completing their terms.

Pinehurst Trail project

By Oct. 1, when the 15th annual Run for the Toad trail race takes place at Pinehurst Lake Park near Ayr, the first phase of a new trail that will eventually encircle the lake will be complete.

This Lakeside Trail is on the north side of the lake, along the race route — where stairs will be installed on a steep slope.

In addition, a stretch of trail will be made accessible, leading to a new lookout that



Foundation chair Robin-Lee Norris of Guelph is active in her community.



Foundation vice-chair Malcolm Matheson enjoys fly fishing.

overhangs the lake so that people can enjoy the unique view of the kettle lake. An interpretive sign will also be added.

The 25-km and 50-km Run for the Toad race attracts international participants each year.

Race directors George and Peggy Sarson have donated personally to the new trail and encourage race participants to make contributions as well. As champions of this project, they received a Watershed Award in 2013.

The funds they have raised will be augmented by the Taylor Fund, from a bequest made in 2013 for a range of conservation projects.



It is a great summer for families to enjoy the Grand River Parks, including Guelph Lake.

THE GRAND CALENDAR

Note: This calendar provides a selection of upcoming events. All events at the GRCA's conservation areas and nature centres are posted on www.grandriver.ca/events.

Friday Night Movies Under the Stars

Come watch movies under the stars every Friday night until mid-September in the new outdoor Toyota Amphitheatre at Shade's Mills Park on Avenue Road in Cambridge. Movies start shortly before sunset each Friday and are listed in the online calendar.

Rockwood Bat Night Aug. 19

Join bat experts at Rockwood as they search for bats, which are in decline. Derek Morningstar will have mist nets out, so if the bats cooperate we will see some up close and learn about bats. 8:30 p.m. to midnight

Give canoeing a try Aug. 22

The canoe is a Canadian icon and now the nature centres are starting to offer an evening of instruction for beginners.

Astronomy night Aug. 26

For the past several years, the Kitchener-Waterloo Astronomy Club has put on a star party at Conestogo Lake Park, starting at 9 p.m. The club will set up telescopes at the beach parking lot and park visitors are invited to join the club for a night of stargazing.

Pinehurst Discovery Day -Sept. 11

A free open house with lots of fun activities for everyone — including workshops, seminars, hikes and nature activities. Park admission and events are free. Food trucks of all kinds will be on site 10 a.m. to 4 p.m. Volunteer helpers are also needed for this event.

Youth Outdoors Day Sept. 17

Register now for a fun-filled day of outdoor activities at Luther Marsh Wildlife Management Area in Grand Valley. This annual event is free to youth 9 but registration is limited, so sign up in advance. Details at www.youthoutdoorsday.com.

Grand River Spey Clave Sept. 17 and 18

Takes place at Brant Park and explores this style of fishing. Details available on www.grandriverspey.ca Takes place both days 8 a.m. to 5 p.m. The cost is park admission (free with Grand River Parks Membership) and \$10 per day or \$15 for a weekend pass

Run for the Toad Oct. 1

This 25- and 50-km trail race is in its 15th year at Pinehurst Lake. Runners and walkers representing many provinces and states participate in this event, which is Canada's biggest trail event. More Information: is available online at www.runforthetoad.com.

About Grand Actions:

This newsletter is produced bi-monthly by the Grand River Conservation Authority.

Website:

Current and back issues as well as complete subscription information is available online at www.grandriver.ca/GrandActions.

Submission deadlines:

The 15th of February, April, June, August, October and December. Submissions may be edited for length or style. Photos and event information is also welcome. We do our best to publish items, but we are not able to guarantee publication.

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