



ANNUAL REPORT | KETTLE CREEK CONSERVATION AUTHORITY

50 Years of Conservation

“Love My Watershed,” was the theme of Kettle Creek Conservation Authority’s (KCCA) 50th Anniversary celebrations in 2015. KCCA marked this milestone by planting 50,000 trees, offering camping for \$50 a weekend in September, and encouraging the community to post their own ways to #LoveMyWatershed on social media.

The celebrations culminated in a night of laughs on September 12, 2015 with comedian Graham Chittenden and musician John Milles. Current and past board members and staff, partners and the watershed community came together to reminisce about Kettle Creek’s accomplishments and how the local community has worked together to protect the natural resources of the Kettle Creek watershed over the past 50 years. The Silent Auction at the event raised over \$2,000 for KCCA’s tree planting program – a great way to turn a new leaf toward

the next 50 years of conservation.

The following is an excerpt from Bill Mackie’s (KCCA’s 2015 Chairman) speech during the night of the 50th Anniversary celebration.

“KCCA is a partnership; it’s the cornerstone of our success. KCCA brings together funders and landowners willing to undertake stewardship projects on their own lands. We work hard to educate youth about the importance of the environment. We partner with private organizations to develop tree planting programs and work with local universities to strengthen and modernize our environmental monitoring. Operating as a network allows KCCA to draw on the expertise and capacities of each partner, giving the community a chance to achieve a healthier environment.”

When the Authority formed in 1965 we were already 20 years behind the conservation authority movement in the province. Some of the original conservation reports paint a pretty bleak picture. The headwaters were severely drained, there was active erosion throughout the watershed with steep clay banks ranging from 10 to 50 feet high left bare. Lacking adequate vegetation, those steep slopes clogged the watercourses with erosion material.

No forestry program, no environmental monitoring, no recreational opportunities. But KCCA set to work and in no time we were making progress. By 1968 KCCA had mapped the entire floodplain and erosion prone areas protecting 585 residents and 278 structures from flooding and erosion. In 1971 alone, KCCA’s budget jumped from \$27,000 to \$164,000 solely to purchase Lake Whittaker – in hindsight a small price to pay for the beauty we

enjoy today. Dan Patterson and Dalewood soon followed until we had 1,304 acres of land in protection.

The bottom line is that the need to act together has never been greater – and KCCA has a unique role to play in strengthening our future. So, for what has been achieved in our past and the solid progress I know we will make in the future I would like on behalf of the current Board of Directors to thank you and the watershed community for your support and your vision.

50 years is an accomplishment that demonstrates the will and determination of our local community to work together to protect the natural resources of the Kettle Creek watershed.”



50th Anniversary Celebration



Fingerprint tree painting

Music by John Milles



Comedian Graham Chittenden

Silent Auction



2015 Board of Directors



2015 Staff (back row) Elizabeth VanHooren, Emily Fenn, Joe Gordon, Jennifer Dow, Lulza Moczarski, (middle row) Michael Buis, Rob Lindsay, Scott Pinnell, Jeff Lawrence, (front row) Jason Picard, Kathleen Sebestyen-Scott, Betsy McClure, Cliff Patterson.

Flood Forecasting and Low Water Response

By the end of February 2015, there was over 36.8 cm (14.5 in) of ice in the Port Stanley Harbour which is over the threshold for ice jamming conditions during a spring thaw/freshet event. As a result, KCCA prepared for another exciting spring flood season with the potential for ice jamming due to the extensive ice thickness and cover in Kettle Creek and Lake Erie. Although staff were prepared for the worst, the perfect combination of warm to cool days with cold nights and very little liquid precipitation resulted in an uneventful spring. In fact, March was unusually dry. The accumulated ice and snow slowly melted away leaving Kettle Creek and its tributaries open to the outer harbour in Port Stanley by March 23rd, 2015.

KCCA did not issue any low water advisories in 2015. The heavy snowpack throughout the winter and early spring helped to boost and maintain water levels moving into the summer months. Although water levels fluctuated over the course of the spring and summer months, regular storm events provided enough rainfall accumulation to keep the watershed out of a low water condition.

KCCA received \$10,675 in funding through the Water and Erosion Control Infrastructure (WECI) program administered through the Ministry of Natural Resources and Forestry to complete repairs and improvements to the Union Dam in the fall 2015. Stone was installed along the upstream earthen

embankments to repair erosion damage. Vegetation was removed from the upstream earthen embankments and the overflow spillway to allow for unobstructed views during routine inspections and to prevent damage to the embankments and spillway by roots. As well, a complete inspection of the low flow valve system was done which included a full lubrication of all parts, welding a new support brace onto the debris cage and operational testing to ensure the full functionality of this crucial dam component.

In 2015, KCCA became a member of the Community Collaborative Rain, Hail & Snow Network (CoCoRaHS Canada) which is part of the citizen scientist movement. CoCoRaHS Canada is a grassroots, volunteer network of weather observers of all ages and backgrounds measuring and mapping precipitation (rain, and snow) in their communities which uses low cost measuring tools and the internet. Weather enthusiasts can see KCCA's precipitation station (CAN-ON-334) on the CoCoRaHS website <http://www.cocorahs.org/Canada.aspx>.

For up-to-date flood information, watershed residents and businesses can visit the authority's website www.kettlecreekconservation.on.ca where they can register to receive automatic flood related emails, or connect with KCCA socially on Twitter @KettleCreekCA or on Facebook www.facebook.com/KettleCreekCA.



Lake Erie shown in this NASA MODIS (Moderate Resolution Imaging Spectroradiometer) satellite image captured on February 15, 2015 with almost 100% ice coverage.



Port Stanley pier



Union Dam repair



Port Stanley harbour



Blue Green Algae Day



Elgin County / Kettle Creek Agricultural Conservation Scholarship



Forest Festival Public Day



Lake Erie Student Conference

Outreach and Education

The Lake Erie Student Conference was held in Port Stanley, with more than 100 grade 11 and 12 students from high schools across the Thames Valley District School Board in attendance. The goal of the conference was to help the students build a stronger connection to the Great Lakes, especially to Lake Erie. The conference participants spent the day rotating between four seminars, learning from demonstrations on water quality, commercial fishing, birds of prey and the threat of invasive species. The conference was presented with support from KCCA, the Ontario Ministry of the Environment and Climate Change, the Thames Valley District School Board and the Upper Thames River Conservation Authority.

After eight years of success, the Carolinian Forest Festival expanded to host its first ever Public Day. The Public Day offered hands-on activities that illustrated the importance of the Carolinian Life Zone, species at risk, stewardship, and climate change to a broader audience than the school event. The Public Day was held on October 10, 2015 and had close to 500 people attending. The Public Day showcased Forest Festival activities, live species at risk presentations, displays by community organizations, kids' activities, archery, and a community barbeque.

Kassandra Merks was awarded the Elgin County/Kettle Creek Agricultural Conservation Scholarship. The \$500 scholarship is awarded each year to a student pursuing agriculturally-related studies at a post-secondary institution with emphasis on compatibility with the natural environment. KCCA, Elgin

County Junior Farmers Alumni and the Elgin Federation of Agriculture continue to fundraise to ensure the scholarship can be awarded in perpetuity.

Students from Port Stanley and Sparta Public Schools studied the complex issue of Blue Green Algae. The students presented their projects to KCCA staff, local politicians and other environmental agencies. The projects included computer demonstrations and artwork, each reflecting the passion the students had for the topic. This was an opportunity for students to investigate a real-life issue and share their findings with adults. It was a great learning experience for all involved.

KCCA is working with Central Elgin, Thames Centre, Malahide and the County of Elgin to raise awareness about the policies included in the recently approved Kettle Creek Source Protection Plan. Fact sheets on the Port Stanley Intake Protection Zone and Belmont Wellhead Protection Area were created and distributed to all landowners affected by the Plan. Staff also undertook a door to door campaign to talk to landowners in Belmont and Port Stanley about source water protection. Presentations to local service clubs, municipal councils and emergency services personnel are ongoing.

KCCA's social community continues to grow using the hashtag #LoveMyWatershed. At year end the @KettleCreekCA Twitter account had 852 followers, 501 active Facebook followers and 103 Instagram followers.

Planning and Regulations

In 2015, the Elgin County Shoreline Management Plan (ECSMP) was finalized and adopted by Kettle Creek Conservation Authority (KCCA). The ECSMP replaces the former 1989 Shoreline Management Plan and establishes the current projected extent of coastal flooding, erosion and dynamic beach hazards along the Lake Erie shoreline.

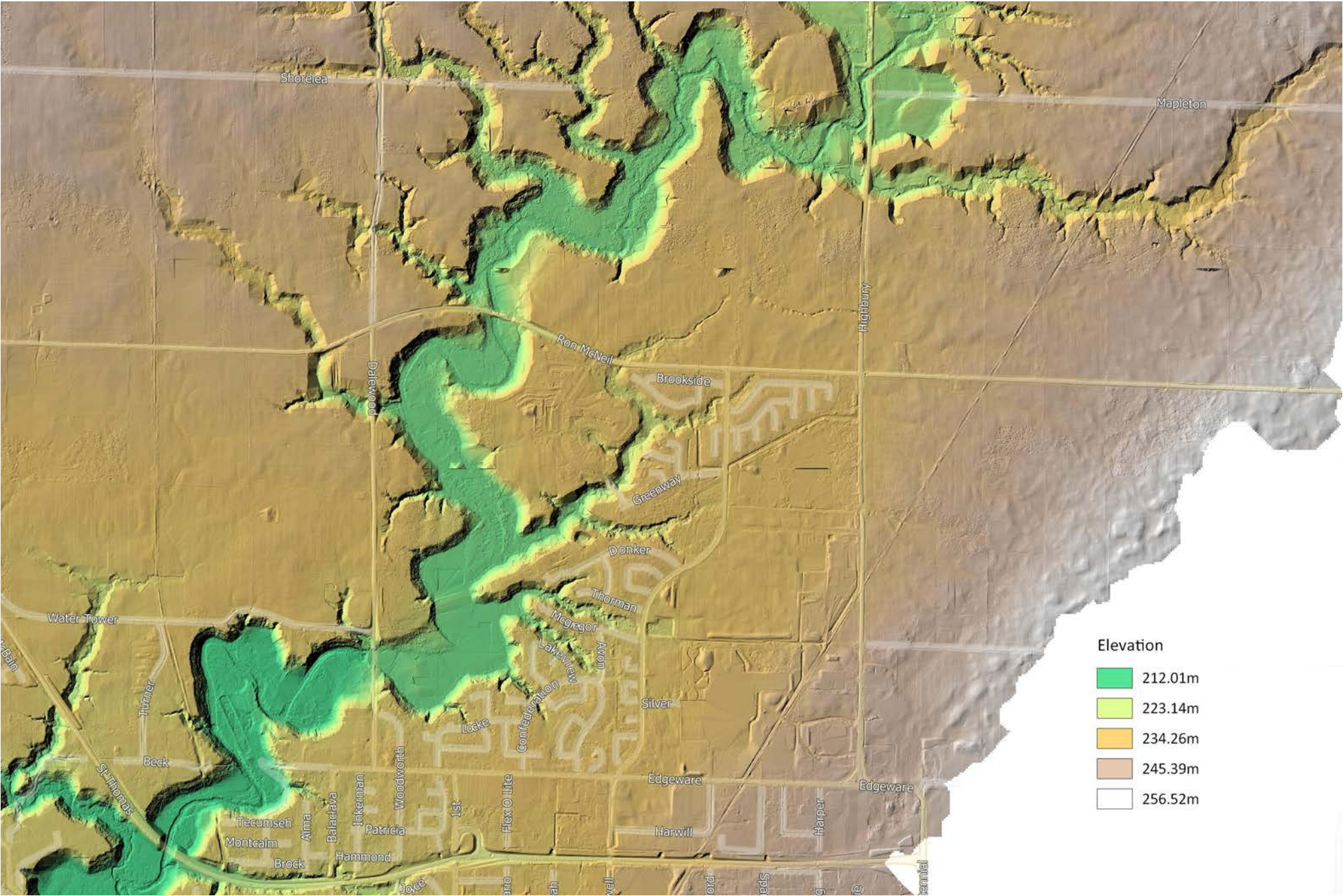
The new plan reconfirms that the high bluff reaches within Elgin County continue to erode at significant rates. The average annual erosion rates along the high bluff reaches within the Kettle Creek watershed range between 1.9m to 3.7m per year. Several recommendations are provided within the plan to assist decision-makers considering future development interests along the Lake Erie shoreline.

The ECSMP was prepared by W.F. Baird & Associates Coastal Engineers Ltd. and guided by a Technical Advisory Committee (TAC) consisting of technical representatives from four conservation authorities, the County of Elgin and its shoreline municipalities and townships – West Elgin, Dutton Dunwich, Southwold, Central Elgin, Malahide and Bayham. Although the plan is now complete, the collective agreed that the TAC should remain in place to collaboratively consider how the plan’s recommendations may be implemented.

KCCA works with its member municipalities to ensure that life and property is protected from flooding and erosion hazards by encouraging new development to occur away from hazard-prone areas. KCCA staff provided input into over 100 land-use planning and development applications (severances, minor variances, zoning by-law amendments, plans of subdivision, etc.) and issued 44 permits under Ontario Regulation 181/06. In addition, two Notices of Violation were issued in 2015.



Lake Erie shoreline



KCCA has been developing methods to produce high accuracy digital elevation models (DEMs) since 2014. In 2015, staff completed the Upper Kettle Creek DEM and used it to identify areas prone to higher rates of sheet and gully erosion. The DEM is also used as a planning tool within KCCA’s stewardship, forestry, and environmental monitoring departments. Moving forward, the Authority intends to digitize the rest of the watershed to gain a holistic understanding of erosion rates, flood potential, and the boundaries of its many catchment areas.



Loading the seed



Planting



Mowing



Forest City Castings employees plant prairie plugs

Stewardship

KCCA continued to work with the Ministry of Agriculture, Food and Rural Affairs on a project to reduce phosphorus loadings to Lake Erie. Through Geographic Information System (GIS) mapping and a high resolution digital elevation model, areas within the Kettle Creek, Catfish Creek, and Long Point Region watersheds were identified that are prone to high rates of sheet and gully erosion. Hundreds of high priority areas were identified that are likely contributing phosphorus to Lake Erie and will help to strategically target future BMP projects. This project also included various outreach and education components including a cover crop workshop held in March and a habitat restoration workshop and farm tour held in June.

KCCA undertook its first tallgrass prairie project, planting 5.5 acres of prairie on the Forest City Castings property in St. Thomas. Over 20 species of native grasses and wildflowers were planted in June with an additional 500 tree and shrub seedlings planted around the perimeter of the property.

The Green Your Ravine campaign, a partnership between KCCA and the City of St. Thomas to promote, protect and improve the health of the ravine systems in St. Thomas, was completed. Through a survey of ravine landowners, it was determined that 25% of residents surveyed dump yard waste in the ravine, unaware of its impact on slope stability or its ability to introduce non-native and invasive species to the ravine system. A factsheet was created and distributed to over 1,100 St. Thomas residents, and newspaper advertisements were also placed in local papers to reinforce the project's messaging. Informational signage was also created for installation in areas of the City with illegal dumping issues.

The Elgin Clean Water Program (ECWP) continues to be a great source of technical advice and funding for landowners. The Green Lane Community Trust Fund and Capstone Infrastructure provided \$35,000 and \$5,000 in funding respectively. In 2015, 19 projects were completed, totalling \$62,557 in ECWP grants and total project costs exceeding \$240,000.

Forestry

In partnership with Upper Thames River Conservation Authority, KCCA secured a contract with Ontario Power Generation to plant 60,000 trees annually until 2017 in the Kettle Creek/Upper Thames River region. Located in the heart of southwestern Ontario, the region has just 11.7% forest cover, well below the 30% forest cover recommended by Environment Canada. This tree planting program will help to enhance local biodiversity. In total, KCCA planted 50,000 seedlings in the watershed in 2015.

The Greening Communities program expanded to include the Township of Southwold. This program allows landowners to participate in tree planting by securing trees in smaller quantities than KCCA's seedling program. Landowners can access trees in quantities of 20 rather than 200, which means landowners with smaller tracts of land can contribute to the reforestation efforts. Over 2,000 trees were planted by landowners through this program throughout the Township of Southwold, the Municipality of Central Elgin, the City of St. Thomas and the Township of Malahide.

KCCA, in conjunction with the Municipality of Central Elgin, continued to plant trees along municipal roadsides to replace those that have been lost over the years. Two hundred native, large stock trees were planted in May 2015. KCCA also partnered with the Ministry of Transportation to plant 1,500 spruce seedlings along Highway #3 to act as a living snow fence.

A Landowner Workshop was held in Belmont in March 2015, to engage local landowners in tree planting. Presentations focused on site preparation and maintenance, the impacts of the emerald ash borer and funding programs.

Students from Central Elgin Collegiate Institute (CECI) helped to plant 2,000 trees at a riparian planting site that was inaccessible by machine. In partnership with KCCA and the Township of Southwold's Communities in Bloom Committee, Ferndale Meadows residents helped plant trees at their new neighbourhood park.



CECI students plant 2,000 trees



4,050 trees planted



Community planting event at Ferndale Meadows



Living Snow Fence on Highway #3



Conservation Areas

KCCA continues to invest in the improvement of the Authority's infrastructure. The administration centre's driveway and parking lot were refurbished and improvements were made to the shop area providing staff with safer loading and unloading zones. Improvements were also made to various facilities at Dalewood Conservation Area and Lake Whittaker Conservation Area.

KCCA challenged seasonal employees at both Dalewood Conservation Area and Lake Whittaker Conservation Area to impress customers with each interaction. In turn, customers were asked to provide feedback on staff's performance. At the end of the camping season, management considered the customer feedback, attendance, and overall performance of each seasonal employee to determine a KCCA Ambassador of the Year. Jessica Kirschner was named Ambassador of the Year for Lake Whittaker Conservation Area and Nichelle Howarth received the honour at Dalewood Conservation Area.

Evidence of the devastating Emerald Ash Borer is now prominent in all of KCCA's forests and significant areas. The destruction means additional staff time was dedicated to inspections and tree removal in the campgrounds and throughout KCCA's 22-kilometre trail system. Trees of concern and washouts due to erosion required staff to close the Dalewood North walking trail indefinitely due to safety concerns. A comprehensive plan will be developed, including possibly redirecting the trail in 2016.

Watershed Report Card Spotlight on Wetlands

In the 2013 Watershed Report Card, a stand-alone measurement of the wetland health in the watershed resulted in an F grade, reflecting the less than 1% wetland cover in the Kettle Creek watershed. To highlight the need for increased wetland cover, KCCA set a goal to increase the enhancement or restoration of existing wetlands, and the creation of new wetlands on local landowners’ properties throughout the watershed. These projects would be completed with the assistance of funding and incentives through our stewardship program over the next five years. Four wetland projects were completed in 2014 and 2015 and another five are scheduled for completion in 2016.

Wetlands are some of the most valuable and diverse ecosystems on Earth; they are the link between land and water. An immense variety of species of microbes, plants, insects, amphibians, reptiles, birds, fish, and other wildlife depend in some way on wetlands. These specialized habitats also play an important role in the ecological health of a watershed. Wetlands act like giant sponges during heavy rains, where they absorb excess water, limiting

the effects of flooding. Wetland plants play an integral role in the ecology of the watershed. They provide breeding and nursery sites, resting areas for migratory species, and refuge from predators. Decomposed plant matter (detritus) released into the water is an important food source for many invertebrates and fish both in the wetland and in associated aquatic systems.

To highlight these valuable habitats, Jennifer Dow, KCCA’s water conservation supervisor, made regular visits to a wetland that was created in 2014. The Clinton Wetland was created with financial and technical assistance provided by the Kettle Creek Clean Water Initiative, the Elgin Clean Water Program and Ducks Unlimited Canada. Just over one acre of marginal land, nestled between an agricultural field and a tributary of Dodd Creek was revitalized, transitioning from a dug pit into a vibrant and thriving wetland in just one year. The design incorporated shallow nursery and foraging areas, deeper water refuges, and several root wads and logs to provide cover and basking areas for wildlife.



Wetland construction



Al and Rob Clinton

“I’m very happy with how the wetland project turned out—from start to finish it was a great experience! It was a very easy process to get the project funded and completed. KCCA staff worked with us to design and implement the project and it’s great that even when the project was complete, staff returned to monitor its success. We wouldn’t have been able to build the wetland without the funding and technical help from KCCA and I definitely look forward to working with them again.”

“I think that every landowner should look at their land and try to find ways to do this kind of project where landowners can enhance their property and benefit the environment. We are looking forward to camping out at the site with the kids this summer and enjoying the birds and frogs and other wildlife.”

Rob Clinton

Spring



Clinton wetland in the spring

Replenished with melted snow and groundwater, this new wetland was a hive of spring activity. From the territorial calls of Red-winged Blackbirds, often cited as the “herald of spring” to the trilling calls of American Toads and the peeping of Spring Peepers it was apparent that this new wetland habitat was a welcome addition to the local ecosystem for many species.

Over 50 species of migratory songbirds use the wetland and surrounding area to forage, shelter and nest. Several species, including Eastern Kingbirds, and Cedar Waxwings could be seen carrying mouthfuls of nesting material gathered from around the wetland to build their nests.



Cedar Waxwing



Raccoon tracks

Although a glimpse of a mother Red Fox and her kits was recorded, most mammals, such as Raccoon, Muskrat and White-tailed Deer left tracks and scat behind as an indication of their visit to the wetland.

Summer



Burdock



Buttercup



Clinton wetland in the summer

Throughout the summer months, flowering plants such as Red Clover, Buttercup and Burdock brought a burst of colour to the wetland and helped to attract many insect pollinators like bees, bumblebees, butterflies and moths.

The Common Whitetail is a common and widespread dragonfly in the “skimmer” family that can often be found perched on rocks or logs in wetland habitats. They are strongly territorial, and males will elevate their abdomens in face to face flight displays. Over twelve species of dragonflies and damselflies were observed at the Clinton Wetland.



Common Whitetail



Green Frog

Six species of amphibians were observed, including American Toad, Leopard Frog, Green Frog and Grey Tree Frog. Wetlands serve as critical habitat to amphibians for breeding sites, habitat to aquatic tadpole development and a primary food source for the adults. Over the course of the year, all life stages from egg to tadpole to adult were observed for several species.

Fall



Clinton wetland in the fall

Water levels in the wetland dropped over the summer months and did not recover until late September when several rainstorms moved through the area. Insects and tadpoles could be seen seeking refuge in the deeper areas.



Goldenrod



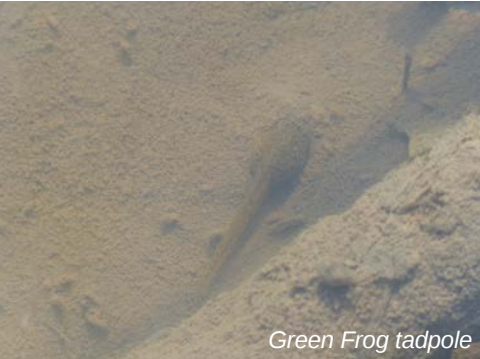
Water Plantain



Wild Red Currants

Wetlands naturally occur where the water table is close to, or at the surface. They are usually in low-lying areas or along the edges of lakes and rivers.

Winter



Green Frog tadpole

No snow cover until the very end of December. Visits in November and December still recorded dragonfly activity, and Green Frog tadpoles foraging for food in the shallows. Green Frogs overwinter as tadpoles and complete their metamorphosis in the spring.



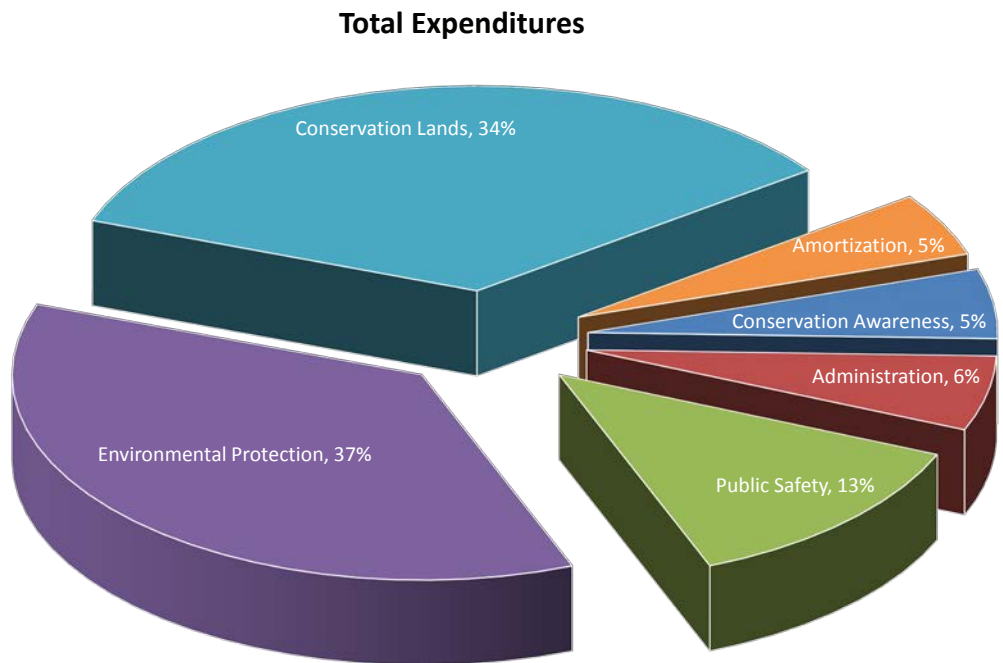
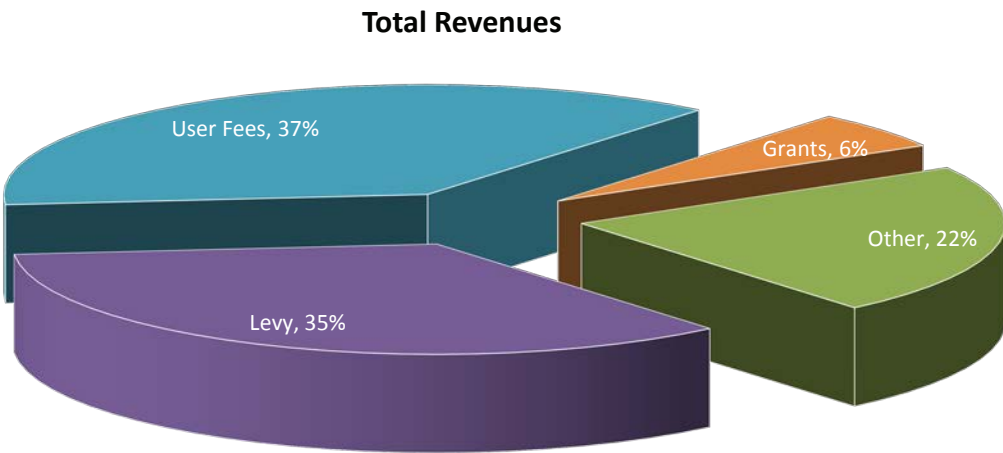
Clinton wetland in the winter



Black Walnut

Wetlands keep the water on the land instead of contributing to surface run-off and erosion downstream.

Financial Statements



Full financial statements are available at www.kettlecreekconservation.on.ca



Lake Erie

What is a watershed?

A watershed is an area of land drained by a creek, river or stream into a larger body of water. Similar to the branch of a tree, creeks empty into streams, which then empty into larger streams, eventually forming one main trunk. In the Kettle Creek watershed, there are three subwatersheds that drain into Lake Erie. Everything is connected in our watershed. What we do on our landscape influences our rivers, streams, beaches and eventually, our Great Lakes. In other words, actions which take place at the top of the system can and do affect those downstream.

The Kettle Creek Watershed

Situated entirely within the Carolinian Life Zone, the Kettle Creek watershed drains 520 square kilometres of agricultural, urban, and naturally vegetated lands to the north shore of Lake Erie at Port Stanley. Kettle Creek drops approximately 141 metres over its 80 kilometre length. The steep drop in elevation can cause flash flooding, fluctuating base flows and a high degree of erosion. The watershed is hourglass in shape and is made up of three subwatersheds: Dodd Creek, Upper Kettle Creek and Lower Kettle Creek. The main branch of Kettle Creek originates at Lake Whittaker, an 11 hectare groundwater-fed kettle lake. The physical geography of the Kettle Creek watershed is dominated by clay plain in the north and sand plain in the south. There are seven member municipalities associated with the Kettle Creek watershed: Middlesex Centre, London, Thames Centre, Malahide, Central Elgin, Southwold and St. Thomas.

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Lake Erie beach