



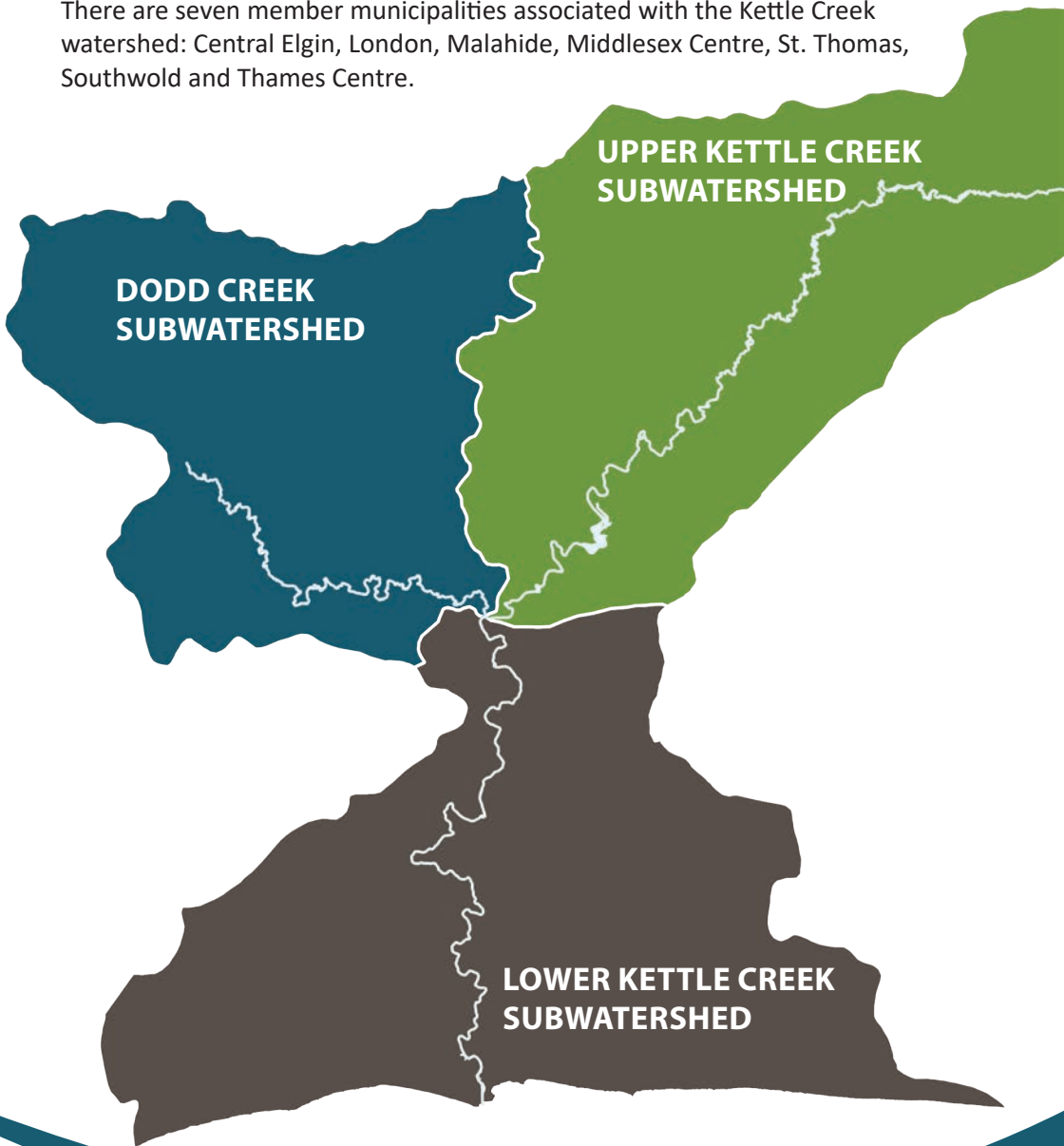
KETTLE CREEK CONSERVATION AUTHORITY

2018 ANNUAL REPORT

THE KETTLE CREEK WATERSHED

The Kettle Creek watershed is hourglass in shape and drains 520 square kilometers of land in the heart of the Carolinian Zone on the north shore of Lake Erie at Port Stanley. Kettle Creek drops approximately 141 metres over its 80 kilometre length. This steep drop in elevation can cause flash flooding, fluctuating base flows and a high degree of erosion. The main branch of Kettle Creek originates at Lake Whittaker, an 11 hectare spring-fed kettle lake. The watershed is comprised of three subwatersheds: Dodd Creek, Upper Kettle Creek, and Lower Kettle Creek.

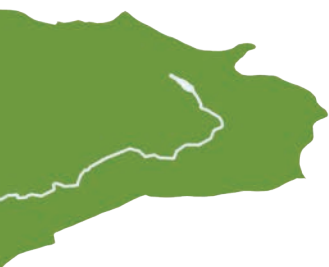
There are seven member municipalities associated with the Kettle Creek watershed: Central Elgin, London, Malahide, Middlesex Centre, St. Thomas, Southwold and Thames Centre.



~50,000
TREES
PLANTED ANNUALLY


13,000
VISITORS IN 2018


22
KILOMETRES
OF HIKING TRAILS



WHAT IS A WATERSHED?

A watershed or drainage basin is an area of land that drains into a river or a lake. The boundary of a watershed is based on the elevation (natural contours) of a landscape. A drop of water that lands anywhere inside this boundary will eventually end up draining into Kettle Creek before emptying into Lake Erie. This determination of boundaries is based on the natural shape of the land and therefore the watershed can fall across many municipal boundaries.

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Ice jam in Port Stanley

9.75m

FEBRUARY 20, 2018
MAX WATER LEVEL



211m³ PER SECOND
MAX FLOW IN
KETTLE CREEK ON
FEBRUARY 20, 2018



FEBRUARY 9, 2018
MAX ICE COVER ON
LAKE ERIE **95.07%**





FLOOD FORECASTING AND LOW WATER RESPONSE

Across Canada, the winter began early with a polar vortex that unleashed frigid air, cold wind chills, and record breaking temperatures across the country. Despite a cold La Niña at the start of the year, temperatures across Canada were 0.04°C above the baseline average. Overall, 2018 was the fourth-warmest year observed since nationwide recording began 135 years ago.

A January thaw prompted Kettle Creek Conservation Authority (KCCA) to issue its first flood warning on January 12, 2018. The watershed received an average of 40mm of rain over two days that combined with melting snowpack and double digit temperatures caused a major runoff and flooding event. There was also significant ice in the system. To help prevent an ice jam, the Municipality of Central Elgin brought in heavy equipment to help break up the ice. A second flood warning was issued on February 20, 2018, following three consecutive days of mild temperatures and 45.5-67.25mm of rain.

Flood prone areas throughout the watershed experienced high water levels and flooding. The main concern was ice jamming in the Village of Port Stanley where water could back up quickly with little notice. Staff provided constant on-the-ground field observations to the Municipality of Central Elgin as the ice jam moved through Port Stanley.

In June, a comprehensive inspection of the Dalewood Dam was completed by WATECH Services. The inspection concluded that the dam is generally in good condition with some areas of deterioration noted. In November 2018, new stone protection was installed along the upstream embankment to prevent further erosion.

For up-to-date flood information, watershed residents and businesses can visit the KCCA website at www.kettlecreekconservation.on.ca, or connect with KCCA socially on Twitter and Facebook.

GET SOCIAL WITH KCCA



@kettlecreekca



Dan Patterson Conservation Area



30 BENTHIC
SAMPLES
ANALYZED
IN 2018

OVERALL WATERSHED GRADE



2018
WATERSHED
REPORT
CARD



14 FISH SPECIES
IDENTIFIED IN

19 MUNICIPAL
DRAINS



SPOTLIGHT: 2018 WATERSHED REPORT CARD

On March 22, 2018 Conservation Authorities (CAs) across Ontario released updated Watershed Report Cards (WRC). Watershed Report Cards are used by CAs as a means of reporting on watershed health through the use of environmental indicators. The report card allows CAs and partners to monitor changes to watershed health and better target programs to the issues identified in the watershed.

WRCs use environmental health indicators divided into three resource categories: surface water quality, forest conditions and groundwater quality. These categories relate to two key Conservation Authority business functions: protecting and enhancing water quality, and preserving and managing natural areas. KCCA also includes a fourth category: wetland cover.

Nutrient loading of phosphorus is a key factor contributing to the D grade for surface water quality in the Kettle Creek watershed. In the last five years, 97.9 percent of the phosphorus samples collected have exceeded the Provincial Water Quality Objective of 0.02 mg/L. High levels of phosphorus can contribute to harmful algae blooms, low oxygen conditions and overall habitat loss and degradation.

Environment Canada recommends 30 percent forest cover in a watershed to support wildlife species. The current forest cover in the Kettle Creek watershed is 14 percent with grades ranging from D to C depending on the subwatershed. Based on 2015 aerial photography, the watershed is losing 7.32 hectares of forest per year.

Fortunately, KCCA's tree planting program is offsetting the negative rate of change, which is indicative of how critical planting 50,000 trees a year is to the watershed.

Groundwater is the water found beneath the earth's surface in layers called aquifers. Within the Kettle Creek watershed, groundwater quality is an A grade. Nitrate and chloride concentrations are better than the drinking water guidelines in all monitored wells.

Environment Canada recommends 10 percent wetland cover in a watershed to support wildlife species. Within the Kettle Creek watershed, wetland coverage is only 1.34 percent, giving the watershed an F grade. The Dodd Creek subwatershed has the lowest wetland cover with less than half a percent, making it an area of priority for restoration and wetland creation.

Since the release of the last Watershed Report Card in 2013, the Kettle Creek watershed has maintained a C grade overall meaning the health of the watershed remains fair. To address the issues highlighted in the Watershed Report Card, KCCA is working with local, provincial, and federal government agencies, community organizations and local landowners to improve the environmental conditions of the watershed. Ontario's Conservation Authorities report on watershed conditions every five years. To learn more about Ontario's Watershed Checkup, and compare KCCA's results with the rest of Ontario, please visit: www.watershedcheckup.ca.



Early Learning Centre campers release Snapping Turtles



OUTREACH AND EDUCATION

LANDSCAPES ON THE LAKE

In June, KCCA partnered with the Thames Valley District School Board and local artists to facilitate an art focused conference on the shores of Lake Erie in Port Stanley for 50 St. Thomas high school art students. This event allowed students to connect with their local environment and use nature to inspire their artwork. Students learned about and used a variety of mediums including photography, lino printing and watercolour to create a collaborative art piece that pairs nature and art. This event was showcased at the AD Latornell Conservation Symposium in November.

GET OUT IN NATURE

With funding from Ontario's Healthy Kids Community Challenge, staff led eight outdoor education programs for children attending the Early Learning Centre and City of St. Thomas summer camps. Each program had a different theme and included outdoor activities such as birdwatching, hiking and exploring Dalewood Conservation Area.

In June, staff saved 150 Snapping turtle eggs from nests located in unsafe areas within the watershed. With help from Upper Thames River Conservation Authority, the eggs were incubated and monitored.

In August, the hatchlings were safely released back into Dalewood Reservoir with the help of campers from the Early Learning Centre day camp.

GO WILD GROW WILD

Staff assisted Carolinian Canada with the organization of the Go Wild Grow Wild Expo. Staff led exhibitor registration and organized site logistics for the Expo. The Expo drew over 100 exhibitors, featured 25 speakers and workshops and attracted over 3,000 attendees.

CAROLINIAN FOREST FESTIVAL

KCCA coordinated the 11th annual Carolinian Forest Festival which engaged over 2,000 grade 6 and 7 students to learn about forest ecosystems and species at risk through hands-on activities linked to the Ontario Curriculum.

SOCIAL MEDIA

KCCA's social media community continues to grow using the hashtag #LoveMyWatershed. In 2018, KCCA's Facebook account was KCCA's fastest growing and most engaging social media platform and experienced a growth of 40% with over 1,000 followers. KCCA's Twitter account has 1,200 followers and Instagram has over 800 followers.



Lake Erie aerial photo captured with the KCCA UAV



PLANNING AND REGULATIONS

Ontario's long-term prosperity, environmental health and social well-being depend on reducing the potential for public costs or risk of Ontario's residents from natural or human-made hazards.

One objective of Ontario's planning and development policies is to direct development away from areas of natural or human-made hazards where there is an unacceptable risk of public health or safety, or of property damage, and not create new or aggravate existing hazards.

The KCCA is responsible for managing development within areas of natural hazards in the Kettle Creek watershed through 'Ontario Regulation 181/06 – Development, Interference with Wetlands and Alterations to Shorelines and Watercourses'.

To prevent future risk and protect the interests and liability of our member municipalities, O.Reg.181/06 requires landowners to obtain permission from KCCA prior to developing within natural hazard areas, associated river or stream valleys, shorelines, wetlands and watercourses.

Conservation Authorities also have provincially delegated responsibilities for natural hazard policies of the Provincial Policy Statement (PPS). With this responsibility, KCCA reviews and comments on municipal planning applications with regard to its responsibilities for natural hazard management. Through pre-consultation with proponents and member municipalities, natural hazard constraints are discussed and avoided up front in most cases.

In 2018, KCCA reviewed and commented on over 100 planning applications and issued 39 permits under Ontario Regulation 181/06. KCCA also responds to requests for property information from members of the public, lawyers, and real estate agents. These inquiries are very important so that prospective buyers of property or people wishing to undertake development in natural hazard areas have a prior understanding of the potential restrictions and risks involved.



Wetland creation project in the Lower Kettle Creek subwatershed



STEWARDSHIP

KCCA completed a 3 year contract with Ontario Power Generation to create and restore wetlands throughout the Kettle Creek and Upper Thames River watersheds. In total, 30 wetland projects were completed, totalling 45 wetland cells created/restored.

The Elgin Clean Water Program (ECWP) continues to be a great source of technical advice and funding for landowners. Since 2012, the ECWP has awarded over \$480,000 grants to 175 projects totalling over \$1,970,000 in total project costs that directly benefit the health of the local environment. In 2018, 45 projects were completed totalling over \$92,000 in grants.

New in 2018, the ECWP provided an incentive for farmers to plant cover crops that overwinter. Approximately 540 acres of cover crops were planted through this program, reducing erosion across the County and helping to build soil health. In addition, the ECWP partnered with the Elgin Soil and Crop Improvement Association to present the first Elgin Sustainability Award to Stan Campbell and Russtanda livestock farm.

KCCA worked with the Dalewood Glen Condo Corporation to plant a five acre site along the hydro corridor adjacent to Dalewood Conservation Area into tallgrass prairie.

KCCA staff was appointed to the newly formed St. Thomas Environmental Stewardship Committee, a group tasked with looking at the City's environmentally sensitive areas with an initial focus on Lake Margaret.

The Kettle Creek Environmental Youth Corps (EYC) was launched in 2018 with support from the Great Lakes Guardian Community Fund. A new program for KCCA, the EYC was developed to provide local high school students with meaningful experience in the environmental field through hands-on stewardship projects. Twelve students participated, providing over 170 volunteer hours to better the environmental conditions of the watershed. Projects included planting 500 shrubs around newly created wetlands, removing three invasive species from Dan Patterson Conservation Area, planting 2,000 wildflower plugs adjacent to the Dalewood reservoir, maintaining 6.4 kilometres of trails and assisting with environmental monitoring.



Tree planting at Fingal Wildlife Management Area



Community tree planting event with Scouts

FORESTRY

Over 50,000 tree and shrubs seedlings were planted throughout the watershed in 2018 with an additional 2,220 seedlings sold to landowners through the Greening Communities program. In partnership with the Ministry of Transportation and the Municipality of Central Elgin, KCCA planted nearly 4,000 trees along Central Elgin roadsides and Highway 3.

KCCA led a number of community tree planting events throughout the year with local organizations including the Elgin Scouts, St. Thomas Railway City Rotary Club and the St. Thomas Rotary Club.

Staff also engaged local students in tree planting. Students from Central Elgin Collegiate Institute helped to plant over 1,000 seedlings around newly created wetlands at Fingal Wildlife Management Area in partnership with the Elgin Stewardship Council. In addition, students from three local elementary schools planted 40 large stock trees in their school yards.

KCCA supported TD Friends of the Environment Foundation's TD Tree Days event by organizing and leading 60 volunteers to plant 300 large stock trees at Pinafore Park in St. Thomas in September.



30th Tall Tales Fishing Derby at Lake Whittaker Conservation Area



9% INCREASE
IN THE NUMBER OF
CAMPGROUND
VISITORS IN **2018**



2,803
DAY-USE PERMITS

FUN ON THE WATER
LAUNCHED IN **2018**
AND RESULTED IN
75 CANOE AND
KAYAK RENTALS



CONSERVATION LANDS

CAMPGROUNDS

The 2018 camping season was another successful year with revenues exceeding budget targets. This is representative of an ever increasing use of the conservation areas across all user groups. Day use passes were up 14 percent over 2017, transient camping was up two percent, seasonal campers increased by 12 percent with the overall number of visitors to the campgrounds increasing nine percent.

Infrastructure upgrades continued at both campgrounds. As a way to contain the rising cost of hydro, KCCA installed individual hydro metres on every seasonal site at Dalewood Conservation Area. Following the installation, overall hydro usage at the campground dropped by 35 percent. At Lake Whittaker, a substantial refurbishment of the Lakeshore washroom was completed and the campground pool's mechanical system was replaced.

FUN ON THE WATER

Thanks to financial support from the Healthy Kids Community Challenge a number of new initiatives were introduced at Dalewood Conservation Area in 2018. The Fun on the Water initiative included the installation of a publicly accessible platform on Dalewood reservoir that allowed community members water access to fish, canoe and kayak. In addition, two canoes and kayaks were purchased for users to rent.

The Fun on the Water initiative also introduced a Fish and Tackle loan program which offered visitors fishing rods, fully equipped tackle boxes and children under 16 also received a free fishing license.

In July, KCCA partnered with the Ministry of Natural Resources and Forestry to offer a free Learn to Fish program at Dalewood Conservation Area. Two sessions were offered with a total of 90 participants.

REWILD THE FAMILY

With support from the Kettle Creek Environmental Trust, KCCA offered four local families the opportunity to experience camping for the first time. Each family received a free campsite, camping gear and a mentor for the weekend. This year, KCCA included free canoe and kayak rentals to each family. Families emphasized that in addition to reconnecting with nature, the program allowed them to reconnect with one another.

INVASIVE SPECIES

Staff continued to address invasive species on Authority lands. Work continued on a 1-acre site at Lake Whittaker that was overwhelmed by the invasive *Phragmites australis*. In addition, KCCA received funding from the Land Stewardship and Habitat Restoration Program to control a multi-acre patch of phragmites in the Dalewood Reservoir.



Canoe and Kayak launch at Dalewood Conservation Area



Old Growth Trail launch at Dan Patterson Conservation Area

In 2018, staff re-established and created new hiking trails and trail connections throughout the watershed using sustainable trail building techniques. In June, KCCA launched the Old Growth Forest Trail at Dan Patterson Conservation Area, and in 2019 a new section of trail connected to the Dalewood Reservoir Trail will open for trail users to enjoy.

DAN PATTERSON TRAIL

With support from TD Friends of the Environment Foundation, Elgin St. Thomas Community Foundation and the Kettle Creek Environmental Trust, KCCA was able to hire a sustainable trail builder to rework the Dan Patterson Trail. A unique feature to the trail is a new connection under

Highbury Avenue that links Dan Patterson Conservation Area into the heart of the Dalewood Conservation Area tract. A trail launch event was held in June to thank project sponsors. Following opening remarks and a ribbon cutting ceremony, staff led a group of 30 attendees on a guided tour of the Old Growth Forest Trail.

DALEWOOD TRAIL EXTENSION

In November, staff began working on a new section of trail connected to the Dalewood Reservoir Trail. This portion of the trail is located south of Ron McNeil Line. KCCA will also reopen a previously closed parking lot connected to the trail that will offer trail users a convenient parking place.



UAV training and demonstration session held at the Kettle Creek office



GIS/IT TECHNOLOGIES

Geographic information systems (GIS) and information technology (IT) are integral components of CAs in the province. CAs are highly regarded provincially and nationally for their expertise in these fields, and are organized with local and provincial working groups. In this context, KCCA is a leader in geospatial science, especially with regards to elevation data analysis, UAV mapping, and erosion modelling.

In 2018, staff continued to work with various organizations and completed two major projects in collaboration with OMAFRA, the Canada-Ontario Agreement (COA), and researchers at the University of Guelph. As part of these projects, all watercourses and water bodies in the Kettle Creek, Catfish Creek, and Long Point Region watersheds were mapped at a 1:500 scale and a technique was developed to monitor ephemeral gully erosion using UAV imagery.

On an ongoing basis, staff represent Western Ontario CAs on the provincial Elevation Coordination and Consultation Committee (EC3), which helps plan the acquisition and dissemination of elevation data in the province.

Staff also sit on the St. Thomas Elgin Community Data Table, which strives to support and encourage data sharing between organizations within the region.

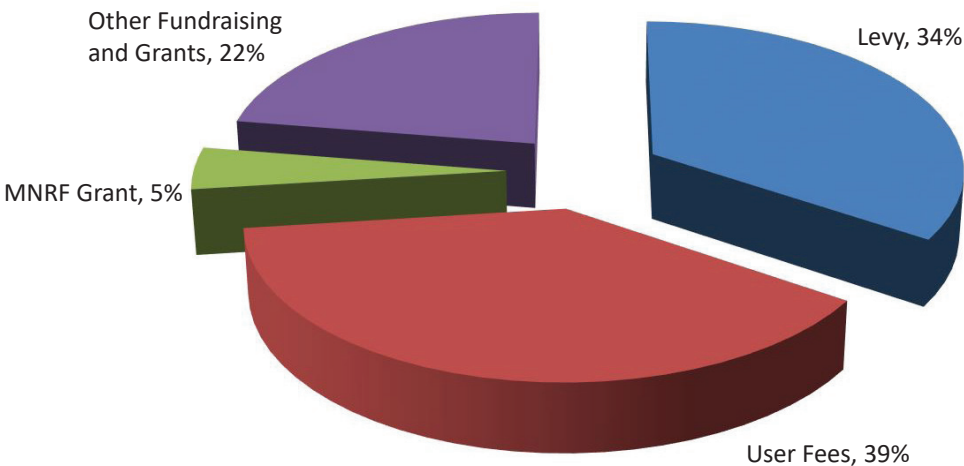
Given the Authority's expertise in mapping with unmanned aerial vehicles (UAVs), various flights were conducted to document stewardship projects and assistance was provided to other CAs who sought to develop their own UAV program.

Internally, staff leveraged new technologies to increase efficiencies, including supporting the surveying of tree planting sites, wetlands, hazard trees, linear assets, and woodlots. In addition, tasks that were previously completed manually were streamlined through the creation of new web applications, such as the Metadata Management System, Hydrometer Database, BMP Database, and an online application form for seasonal campers. The ongoing development of KCCA's enterprise database system means that in addition to improving internal operations, it will be easier and faster to supply quality data to staff, the public, and member municipalities.

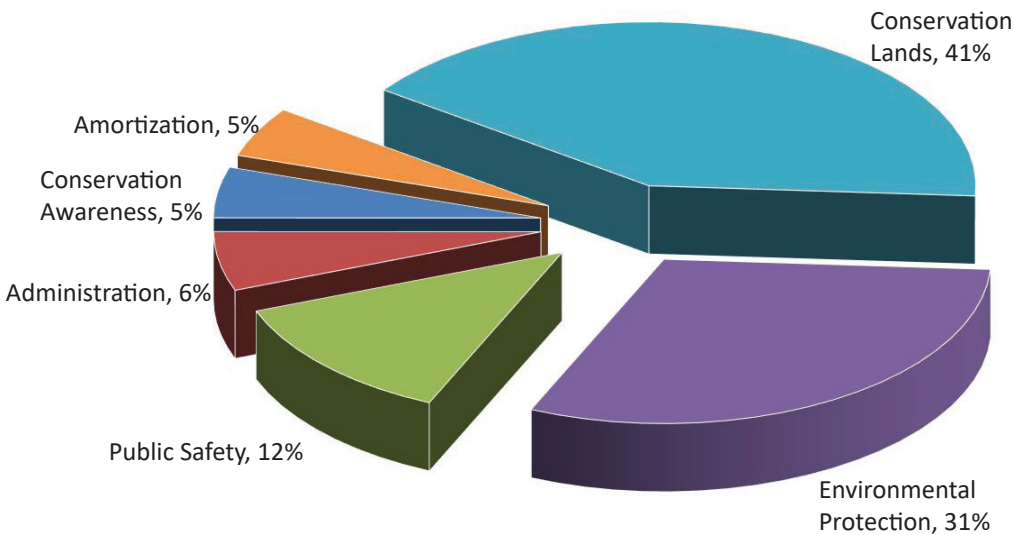


FINANCIAL STATEMENTS

TOTAL REVENUES



TOTAL EXPENDITURES





Old Growth Trail launch at Dan Patterson Conservation Area

OUR PARTNERS/DONORS

Thank you to the following for their financial and in-kind donations to Kettle Creek Conservation Authority in 2018.

Canadian National Sportfishing Foundation • Carolinian Canada • City of London • City of St. Thomas • Ducks Unlimited • Elgin County • Elgin-St. Thomas Community Foundation • Elgin Stewardship Council • Forests Ontario • Graham Scott Enns • Great Lakes Guardian Community Fund (MECP) • Green Lane Community Trust Fund • Huron Tractor St. Thomas • Kettle Creek Environmental Trust • Kettle Valley Pioneers • Land Stewardship and Habitat Restoration Program (MNRF) • Ministry of Transportation • Municipality of Central Elgin • Municipality of Middlesex Centre • Municipality of Thames Centre • New Era Grafix • Northern Casket • Ontario Ministry of Agriculture • Ontario Nativescape • Ontario Power Generation • Police Association of Ontario • Riggs Engineering • Southwestern Public Health • St. Thomas Field Naturalist Club Inc. • St. Thomas Railway City Rotary Club • TD Friends of the Environment • Thames Valley District School Board • Township of Malahide • Township of Southwold • Trillium Mutual Insurance Company • United Way of Canada

(Please notify our office of any errors or omissions.)

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