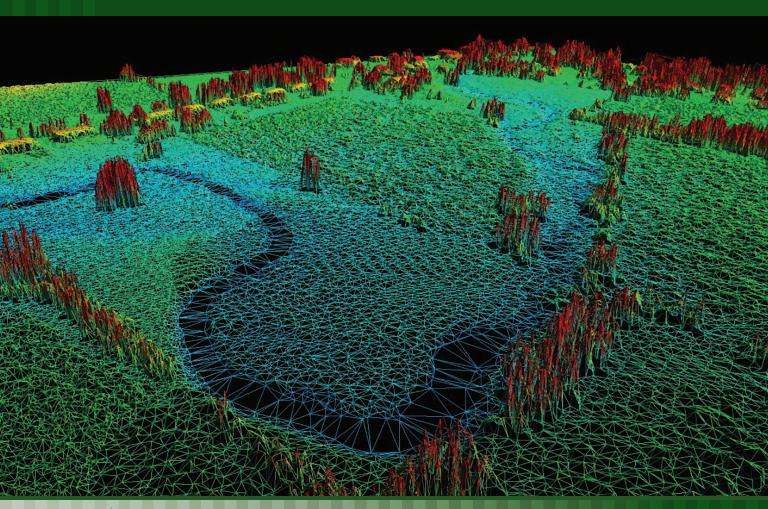
Ganaraska Region Conservation Authority 2019 ANNUAL REPORT















A YEAR IN REVIEW

2019 was a year full of ups and downs. The year began with ambition and excitement. Spring brought along the feeling of success for the 30th Annual Conservation Dinner in support of the Ganaraska Forest Centre outdoor education program; however, the day before this major fundraising event, the Province announced Conservation Authority funding would be cut by 50%. This came as very much of a surprise to all the conservation authorities, including the GRCA. In June, more unexpected change came with the Province's Bill 108 More Homes, More Choice Act, which included amendments to the Conservation Authorities Act. This left the GRCA feeling concerned and uncertain for the remainder of the year. Despite this, the Conservation Authority continued to push on. Continued to deliver stellar programs and services across the Ganaraska watershed. Continued to prosper within the community, thanks to the help and support of its watershed municipalities, government partners, community members, organized stakeholders, and individual landowners.

As the GRCA moves into its 74th year as one of the oldest conservation authorities in Ontario, it continues to plan for the future, enhancing and conserving across the watershed by serving, educating, informing, and engaging.

2020 looks bright.

Yours in Conservation.

Jeff Lees Chair, Board of Directors

Linda J. Laliberte, CPA, CGA CAO/Secretary-Treasurer

SPECIAL THANKS

Thank you to the TD Friends of the Environment Foundation for providing funding to support a unique outdoor education program for grade seven students that focused on the threat of invasive species to the health of our natural environment.

Special thanks goes out to Ontario Power Generation for their continued support of the Spring Water Awareness Program (SWAP) for grade 4 students across the watershed.

Thank you to Canada Summer Jobs for enhancing the wages of four summer students in support of their career pursuits.

A special thank you to the dedicated volunteer committee members, local businesses, organizations, artists and attendees of the annual Conservation Dinner in support of the Ganaraska Forest Centre outdoor education program.

Thank you to the Peterborough Trail Riders Association and the Ganaraska Forest Horse Club for their partnership and support of the Ganaraska Forest. Both clubs have taken on sections of the Forest to maintain, building a user friendly and safe system for mountain biking and horseback riding. The Conservation Authority is thankful of those who continue to support forest recreation and management. Without groups such as the Ganaraska Forest Recreational Users Committee, Ontario Federation of Trail Riders and the Ganaraska Snowmobile Club, as well as the volunteer forest patrollers, the 11,000 acre forest would not be what it is today.



GANARASKA FOREST CENTRE (GFC)

The GFC is home to the GRCA's outdoor education program, where thousands of students from across eight different school boards visit for a day or overnight to learn about their environmental footprint, become familiar with the natural world around them, and learn technical skills such as GPS training, wilderness first aid, and outdoor survival skills. Taught by the Conservation Authority's Ontario-certified teaching staff, students from Kindergarten to Grade 12 receive the life-long gift of nature by experiencing meaningful, hands-on learning in an outdoor classroom.

In 2019, the GFC completed the accreditation process with the Ontario Camps Association (OCA), a province-wide safety and quality assurance agency. More and more school boards are demanding OCA accreditation before permitting their students to participate in off-site activities. Receiving accreditation means that the GFC exceeds the Boards' standards for student safety, and provides Approved Excursion Vendor status for visiting teachers.

When students are not in residence, the Ganaraska Forest Centre is transformed into a magical wedding venue, where stunning outdoor ceremonies and low-key, do-it-yourself wedding receptions occur almost every summer weekend. The GFC hosted 18 weddings in 2019 and welcomed thousands of different individuals in the off-season, from Girl Guides to Air Cadets to corporate and recreational groups.

GANARASKA FOREST RECREATION

The Ganaraska Forest boasts over 680 kilometres of trails which incorporate unmaintained municipal roads, fire roads, and dual and single track. Through a user fee system, GRCA welcomes off-road vehicle enthusiasts, equestrians, cyclists, hikers and hunters alike. During the winter months, the Ganaraska Forest switches gears and staff operate a series of cross-country ski and snowshoe trails in the Central Forest, while Ontario Federation of Snowmobile Club's trails utilize the majority of the remaining forest.

2019 was a productive year with the implementation of several initiatives in the Ganaraska Forest. An online day pass and membership sales system was introduced in mid-summer which provides Forest users the option to purchase and print their passes from the convenience of their own home. To optimize user experience, staff began collecting GPS data and compiling an inventory of trails and forest signage.

In order to facilitate habitat restoration efforts, GRCA constructed a barrier that limits access to a small fishway at The Dell Road that is intended to assist with protecting the headwaters of the Ganaraska River. Also, a temporary closure of trails that access Lookout Hill and surrounding area was implemented preceding restoration efforts.

In 2019, the Peterborough Trail Builders Association and the Ganaraska Forest Horse Club took on leadership roles and signed into Trail Maintenance Agreements with GRCA. Look for the work that these dedicated groups are doing in designated areas of the Central Forest. In addition, Ontario Federation of Snowmobile Clubs and GRCA have performed trail surface work on over 48 kilometres of trail within the Ganaraska Forest.



Conservation Ontario regarding numerous proposed legislation changes, including Bill 108, the Provincial Policy Statement, Excess Soil Regulation and the recent Flood Advisory Report. The GRCA has further provided input into municipal initiatives such as the North Village Neighbourhood Plan, Cobourg Waterfront Management Plan, the Durham Region Tree By-law and Envision Durham. GRCA planning staff have continued to be on the Conservation Authority Section 28 Committee which seeks ways to improve service delivery standards. In addition, GRCA planning staff meet with the Greater Golden Horseshoe Planners. Northumberland Areas Planners and Conservation Authority Coastal Working Group to share ideas and ensure that staff have the most up-to-date knowledge on matters affecting conservation authorities.



clubs, schools and businesses within the Municipality of Clarington, Municipality of Port Hope, Township of Hamilton and Town of Cobourg. In 2019, through the Clean Water-Healthy Land Financial Assistance Program (CWHLFAP), a total of 39 environmental projects were funded for a total allocation of \$44,875.35. The total monetary value of these projects was approximately \$348,250.00. The CWHLFAP supports the implementation of recommendations of GRCA Watershed Plans, Natural Heritage Strategy and many other planning documents. This program is supported by the above mentioned, as well as the Regional Municipality of Durham and Lakefront Utility Services Inc.

Over 38,000 trees and shrubs were planted across local watersheds through various programs. Trees and shrubs are available for sale through the GRCA Tree Seedling Program, or are provided for free through the Trees for Rural Roads program offered in partnership with the Municipalities of Clarington and Port Hope. For those landowners with larger properties to plant, reforestation services were also delivered, with funding provided through the Durham 5 Million Tree Program and the provincial 50 Million Tree Program. Although 2019 saw changes in tree planting funding, the GRCA will continue to plant trees with funding support that remains available to landowners.

New partnerships were also formed in 2019 to support GRCA and regional land stewardship. The Northumberland County Emerald Ash Borer Replacement Tree Program, in partnership with Northumberland County is designed to replace trees removed as part of the County's 10-year plan to eliminate hazardous ash trees that have been killed by the emerald ash borer. For every one tree that is taken down, 10 trees will be planted, for a total of 12,000 trees per year for five years subsidized for Northumberland County landowners. The GRCA administered this program in 2019 and helped to distribute the 12,000 trees to 80 County residents.

GRCA continued to support the Highway of Heroes Tree Campaign, which has a goal to plant 2-million trees along the Highway of Heroes as a living tribute to the men and women who fought for Canada in our wars, and a living memorial to the 117,000 who died for freedom. Through this partnership April Stevenson, Tree Planting Stewardship Manager was hired through the partnership to assist in increased tree planting capacity within the project area and the GRCA.

DRINKING WATER SOURCE PROTECTION

In 2019, the GRCA worked in partnership with its member municipalities and other implementing bodies to implement the Ganaraska Source Protection Plan, which came into effect in 2015. This is the final year of implementation before updates occur to the Ganaraska Source Protection Plan. As a result of five years of dedicated implementation by municipalities, Provincial ministries, the GRCA and oil pipeline owners, all policies have either been implemented or are on their way to final full implementation.

A work plan to review and update the Ganaraska Source Protection Plan and the Ganaraska Assessment Report was accepted by the Ministry of Environment, Conservation and Parks for implementation, with an anticipated deadline of 2023. Updates will include revisions to Intake Protection Zones for Cobourg, Port Hope and Newcastle; updates to the Orono Wellhead Protection Area; updates to pipeline threat definitions and policies; and clarification to certain policies for improved implementation.

GRCA staff received training to become a Risk Management Official/ Inspector in order to continue ongoing municipal implementation support. Mr. Rob Franklin, Senior Planner at the Town of Cobourg was re-appointed to the Trent Conservation Coalition Source Protection Committee to represent member municipalities of the GRCA regarding source water protection matters. In addition, Mr. Jim Hunt was also re-appointed as Chair to the Committee.



WATERSHED MONITORING

In 2019, the GRCA continued to implement its watershed monitoring program to document watershed conditions, track trends in watershed health and identify priority areas in need of restoration. GRCA staff regularly monitor the quality and quantity of the water resources of the region as well as the terrestrial and aquatic organisms that inhabit our watersheds.

Over the summer, staff collected baseflow data from as many streams as possible during dry weather conditions to assess groundwater contributions (seeps and springs) that can vary from year to year. These seeps and springs provide all of the flow in our streams during the hot summer weather and are a constant source of high quality cold water providing a refuge for fish and aquatic insects.

GRCA continued to collect water quality samples to track conditions in our local streams as part of our Watershed Monitoring Plan. Through partnerships with the Toronto and Region Conservation Authority and the Ministry of the Environment, Conservation and Parks, GRCA also collected storm event samples to study the relationship between land-use and the water quality of Lake Ontario.

Monitoring the changes in baseflows from year to year is a good way to detect the impact of climatic variations on water resources, while changes in water quality can indicate how land use practices and other activities are impacting the health of our watersheds and Lake Ontario.

GROUNDWATER PROGRAM

Groundwater is a vital natural resource within the Ganaraska watershed, including private drinking water supplies, agricultural and industrial uses. In 2019, the GRCA contributed to a study carried out by Trent University Environmental and Life Sciences Graduate Program and school of the Environment, supported by Environment and Climate Change Canada. This study aimed to quantify land use/land cover changes within twelve Lake Ontario tributaries between 1971 and 2010 to determine nutrient enrichment in water courses. The enrichment of NO3-N in freshwaters is considered a fairly new issue. The study by Trent University found that on a watershed scale, increases in row crop agriculture co-occurred with regional trends of total phosphorous decreases and nitrate nitrogen increases. Increases in NO3-N levels were highest and most consistent in agriculture-dominated watersheds within the GRCA watershed and that continue to a shift from pasture/forage to row crops.

The GRCA groundwater program started to conceptually examine surface-groundwater connections of wetlands and other hydrological features to investigate the travel flow pathways and how climate variability may affect water quality in our streams. During drought conditions, when surface water flows are minimal and precipitation low, groundwater contributions to streamflow are crucial to people and the aquatic ecosystem in order to maintain health. Drawing upon this information combined with data that are available from a broad network of monitoring partnerships, including the geologic and hydrogeologic database established by the York-Peel-Durham-Toronto - Conservation Authority Moraine Coalition in 2002, and low flow (baseflow) monitoring, GRCA assess information on present major groundwater aquifers and aims to establish an understanding of ground-surface water interactions and trends within the watershed. This will help to establish flood and drought management plans in the future within our jurisdiction to best protect wildlife and the public, and to build resilience under a changing climate.



Two Watershed Conditions Statements were issued in the winter due to rain on snow events. Four more statements were issued in the spring as runoff contributed to rising lake levels. By May 13th, Lake Ontario was under a Flood Warning that did not end until August 22nd. Following that, three more Watershed Conditions Statements were issued for fall rain storms causing runoff.

Heavy spring rains started in late March and continued into May, leading to high water supplies in all water bodies. During this period, five separate rain storms caused flows on the Ganaraska River to rise over 25 m³/s and several more saw peak flows in the 15 to 25 m³/s range. While none were major floods, the steady supply of moisture was well above normal and contributed to widespread flooding, including on the shoreline of Lake Ontario.

Lake Ontario was not expected to reach the levels seen in 2017; however, persistently high water supplies were coming in from both the Niagara River and the Lake Ontario basin. Around the same time, the Ottawa River began rising sharply due to heavy precipitation and snowmelt. The outflows of Lake Ontario had to be reduced to prevent catastrophic flooding in Montreal (where the St. Lawrence River meets the Ottawa River). Ottawa River's peak flow exceeded previous records at the worst possible time as it coincided with extreme water supplies in Lake Ontario. Just as the Ottawa River began to finally decline in May, the outflows from Lake Ontario were rapidly increased in response. By this point, inflows from Lake Erie were at a record high due to the wet spring weather, and, as a result, Lake Ontario's water level climbed to a new record high of 75.92 meters above sea level on June 12th. Water levels began to decline after that, owing to the record high outflows that lasted for several months afterward to accelerate the recovery.

Another notable runoff event occurred on July 17th when approximately 100 millimetres of rain fell near the Lake Ontario shoreline where streams spilled their banks causing road damage and minor flooding. Overall, 2019 was a wetter than average year with total rainfall of 980 millimetres over the Ganaraska Region.

CLIMATE CHANGE

"Warmer, wetter and wilder" — this is the new tag line for our weather under climate change. Temperatures are increasing, we are seeing more intense localized storms and we are getting more precipitation, especially in the form of rain. The GRCA is seeing these changes first hand. Staff are issuing more flood messages during times of the year when they never had to in the past, such as the mid-to late summer or in mid-winter. The Conservation Authority is issuing more flood messages around impacts to the shoreline of Lake Ontario from increased water levels and strong winds.

Each spring, as staff are preparing for tree planting season, weather is factoring into operations more than ever. Intense spring rains can sometimes delay planting due to field flood conditions, and it is more common these days to have unusually warm temperatures when tree planting is occurring, putting added stress on the tree seedlings.

So what does all of this mean? It means the GRCA needs to adapt its programs and perhaps even how business is carried out. The GRCA is also looking to assist the natural environment in adapting to these changes — by continually ensuring that ecosystems remain healthy and resilient to change.

In order to accomplish some of the required adaptations, the GRCA set out to determine its climate projections up to the year 2100 using an ensemble modeling approach. This new modeling approach will allow regional climate models that factor in the Great Lakes to link with global climate change models, resulting in more locally appropriate predictions. Climate parameters that are changing, such as air temperature and precipitation, are leading to more frequent freeze-thaw cycles and may cause more severe and long lasting drought conditions. A more in-depth analysis of these parameters will enable the GRCA to create a climate model that is more accurate and specific to the Ganaraska Region, providing a basis for future climate mitigation and adaptation programs.



TERRESTRIAL ECOLOGY

A big focus of the terrestrial ecology program in 2019 was on invasive plants. The GRCA continued the monitoring of invasive species in its conservation areas, as well as roadside monitoring for the Municipality of Clarington. With the priority species determined through the monitoring program, the GRCA continued their annual invasive species walk which helps to educate the public about proper identification of species, best management practices for the removal of the species and alternative native species to plant instead.

Throughout 2019, approximately 1,500 stems of invasive plants were removed from GRCA properties. The majority of these stems were noxious weeds, such as wild parsnip and poison ivy. In addition to the removal of the noxious weeds, two pilot projects were initiated this year involving the method of removal and treatments. One of the projects consisted of different treatment types (herbicides or salt) after the removal of autumn olive and buckthorn. The second project included the removal of a small patch of Japanese knotweed in the west section of the Ganaraska Forest. These projects will help to better inform the GRCA and the public of best management practices that are suitable for these species.

In addition to invasive species work, the GRCA continued supporting the Durham Region Coastal Wetland Monitoring Program, sampling coastal wetlands for the presence of local bird and frog species. Monitoring at the long-term Forest Bird Monitoring Program stations at Thurne Parks, a partnership program with Bird Studies Canada, was also continued. Bird and frog species are great indicators for environmental stressors such as climate change and their monitoring is very important.

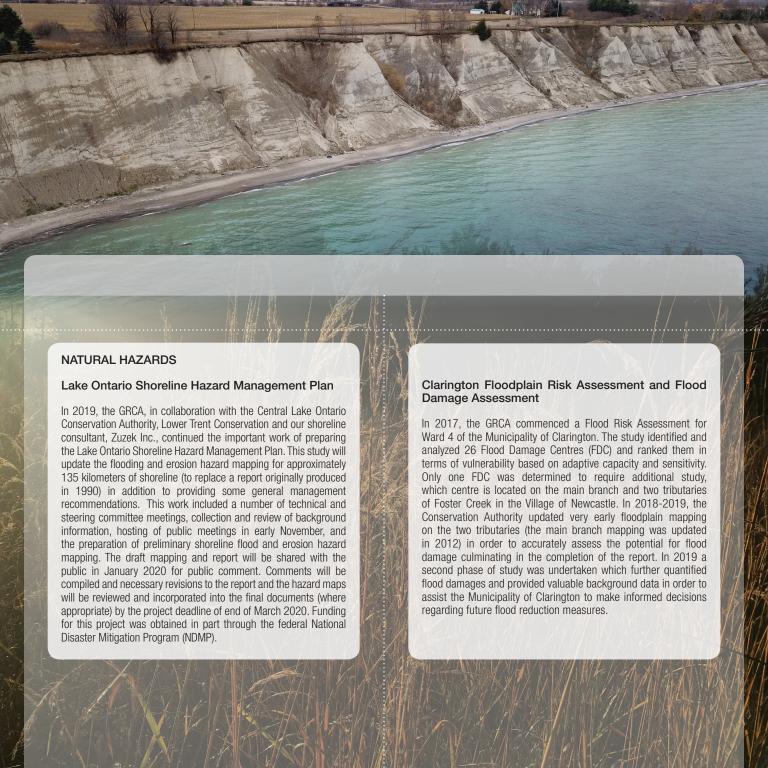
AQUATIC ECOLOGY

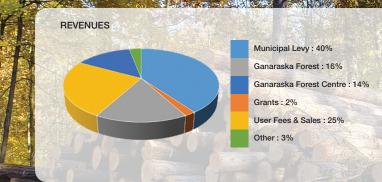
The GRCA collaborated in a variety of aquatic assessments, management and research in 2019. Assessments focused on monitoring and compiling aquatic resource information for Wilmot Creek, Cobourg Creek and Wesleyville Creek.

The GRCA monitored the six long-term fish community health assessment stations and supported the Durham Region Coastal Wetland Monitoring Program, sampling several coastal wetland in partnership with Central Lake Ontario Conservation Authority. During the field season, two Northern Pike were captured at one of the long-term fisheries stations; this species was last observed in Wilmot Creek in 1991.

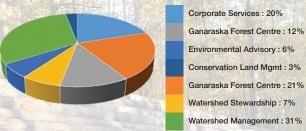
In partnership with the Sea Lamprey Control Center, GRCA captured a total of 3,366 fish composed of 26 different species at the sea lamprey weir on Cobourg Creek. GRCA staff also worked with University of Guelph masters students monitoring the sea lamprey's sensitivity to light. In addition to the monitoring that occurred at Cobourg Creek, the GRCA continued their partnership with the Bring Back the Salmon Program. This program educates children about the Cobourg Creek watershed, fish habitat, and Atlantic Salmon life cycle through a hands-on experience.

The partnership with Ontario Power Generation, Hydro One and GRCA continued in 2019. A detailed population study was conducted on Wesleyville Creek to examine Brook Trout and Rainbow Trout abundance and long-term population status. This study was conducted through tagging of individuals, collecting life history data, and monitoring seven long-term fish community sites, along with collecting water temperature data, benthic macroinvertebrate data and channel morphology data. The information gathered through this study will be used to determine limiting factor for brook trout populations and determining priority restoration areas.









FOREST MANAGEMENT

While no major outbreaks of insect or disease occurred in 2019, the Forest continues to see issues with red pine decline and terrestrial invasive species such as dog-strangling vine. Monitoring of these and future threats continues to be an important focal point of the forest's management.

In the fall, approximately 22,600 m² of colonizing poplar stems were removed from the Ochonski prairie site located in the Central Forest. The removal was a timely follow-up to 2016's prescribed burn and removal work is scheduled to continue in 2020. The Ganaraska Forest also hosted two events in the fall; a Certified Seed Collector training workshop led by the Forest Gene Conservation Association and a historical conservation tour led by the Forest Historical Society of Ontario. The latter retraced the route of a 1939 tour that highlighted some of the earliest established plantations in the area, including sites along Boundary Road in the West Forest.

Five timber harvest contracts were awarded in 2019. Moggie Valley Timber Inc. of Holland Centre completed two contracts for the thinnings of 87.7 hectares of red and white pine plantations in the East and West Forests. Lavern Heideman & Sons Ltd. of Eganville also completed a 31.8 hectares thinning of red and white pine in the Central Forest. The two remaining operations are scheduled to be completed early in 2020. Harvest inspections were carried out on a weekly basis to ensure that the conditions and guidelines of the harvest contracts were honoured and that logging damage was minimized.

A total of 142 hectares across all three sections of the Forest has been scheduled and marked for harvest in 2020. This area is predominantly red pine plantation thinnings/final removals for sawlogs and utility poles; however, one hardwood selective harvest has also been marked in the West Forest.

FINANCIAL SUMMARY

In 2019, the budget totaled \$4,102,257.00, which is an increase from 2018. The municipal general levy was increased by 2.5% and was adjusted in accordance with the current value assessment figures. The general levy for 2019 was \$1,133,476.00, which represents about 27% of the total budgeted revenues.

Of significant impact on the financial position of the GRCA was the cut in provincial funding. In the middle of April, about one third through the year, the Province announced there would be a 50% cut in funding to conservation authorities. The GRCA grant reduced from \$100,462.00 in 2018 to \$51,863.10 in 2019. While this had negative impact on the budget of the GRCA, the Conservation Authority was able to make some internal adjustments, by not filling a position that had recently become vacant, to account for that decrease in funding. The GRCA continues to partner with others on important initiatives. As well, the source protection planning program continued which is fully funded by the Province.

The chart above shows the actual revenues for 2019. The levy shown is a combined total of general and benefiting levy. The Ganaraska Forest timber sales of \$227,940.00 and memberships of \$306,109.00, as well as the revenues from Treetop Trekking of \$45,331.21 are included in the Ganaraska Forest revenue. The User Fees & Sales consist of the revenues from the stewardship program, watershed services, as well as the water resources fees. The category of "Other" includes directly funded projects of the Conservation Authority; including \$72,419.35 for the Trent Conservation Coalition Source Water Protection initiative.



2019 Ganaraska Region Conservation Authority Staff and Board

Corporate Services

Linda Laliberte CAO/Secretary-Treasurer Alvssa Butters GIS Technician

Amy Griffiths Marketing & Communications Officer

George Elgear General Superintendent Ian Jeffrey GIS/Remote Sensing Specialist

Jeff Moxley **GIS** Coordinator

Julie Verae Corporate Services Assistant

Kim Baldini Finance Clerk

Kody Beattie Programmer Analyst (as of May 2019) Matt Reaume GIS Technician (until April 2019)

Michelle Giddings Bookkeeper

Watershed Services

Watershed Services Coordinator Cory Harris

(as of August 2019)

Leslie Benson Interim Director of Watershed Services

(until August 2019) & Watershed Engineer (as of August 2019)

Jessica Mueller Watershed Hydrogeologist

Administrative Assistant. Joanne May Planning and Regulations

Planning and Regulations Coordinator Ken Thajer

Lindsay Champagne Watershed Biologist Water Resource Technician Mike Smith Nadeem Paracha Water Resource Engineer Pam Lancaster Stewardship Technician

Ganaraska Forest Centre/Ganaraska Forest

Linda Givelas GFC Property Manager Aaron Staples **Outdoor Education Instructor**

Brianna Bourke Gatehouse Keeper/Weekend GFC Technician (until July 2019)

Ed Van Osch Forest Recreation Technician (as of June 2019)

Gus Saurer Forester

Outdoor Education Instructor Megan Hennessy

Meghan Robinson Weekend GFC Technician (until June 2019) Paige Hannah Gatehouse Keeper (as of June 2019)

Rov (Andv) Foster Weekend GFC Technician (as of August 2019)

Rvan Goodall **Outdoor Education Instructor**

Shavne Pilgrim GFC Technician

Steve McMullen Forest Recreation Technician (until June 2019)

William Lemieux Conservation Lands Technician

Board of Directors

Jeff Lees Chair, Municipality of Port Hope Mark Lovshin Vice Chair, Township of Hamilton

Brian Darling Town of Coboura

Township of Alnwick/Haldimand (April – May 2019) Gail Latchford Greg Booth Township of Alnwick/Haldimand (as of June 2019)

Joe Neal Municipality of Clarington Margaret Zwart Municipality of Clarington Nicole Beatty Town of Cobourg

Rav Benns Township of Alnwick/Haldimand (until March 2019)

Tim Blech Township of Cavan Monaghan Tracy Richardson City of Kawartha Lakes Vicki Mink Municipality of Port Hope

Summer Students

Daniel Gibb Conservation Area Lands Technician

Emma Kamphorst Landscape Technician Evan Barton Water Resource Technician Jenny Shin Nature Nuts Camp Counsellor Roy (Andy) Foster Conservation Area Lands Technician

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