

Ganaraska Region Conservation Authority 2021 Annual Report

Celebrating 75 Years of Conservation

February 16, 2022

A year in Review

The 75th anniversary year of the Ganaraska Region Conservation Authority (GRCA) brought many successes and continued support from the public, Municipalities and other partners. It also brought many challenges as the worldwide pandemic continued to impact programs and services of the GRCA.

In 2021, many staff continued throughout the year to work remotely while providing professional programs and completing many projects. Programs delivered by the staff at the Forest Centre were adapted to required guidelines as laid out by local health officials. The Ganaraska Forest was booming with people getting out to enjoy nature and the great outdoors away from the pandemic.

Conservation Authorities across Ontario continued to work with the Ministry of the Environment, Conservation and Parks (MECP) in evolving the regulations that would further define the mandatory services referenced in the changes made to the Conservation Authorities Act in December 2020. After a consultation period, Phase 1, which consists of three regulations, was passed at the end of September 2021. One of the requirements is the development of a transition plan which GRCA completed prior to the end of the year deadline. The next document is the programs and services listing which staff are scheduled to complete in early 2022.

This past year, Jeff Lees was pleased to have the opportunity to serve as Chair of the Ganaraska Region Conservation Authority. Jeff would like to add his personal thanks to the members and staff for the successful past year.

As the GRCA moves into its 76th year, we continue to meet our mission of ‘Clean water healthy land for healthy communities’ by serving, educating, informing, and engaging the Ganaraska Region Watershed community. 2022 promises to be another rewarding year for the GRCA, which is excited to offer continuous environmental services and new projects. We extend thanks to our watershed communities, and we encourage you to review our 2021 undertakings highlighted in this report.

Yours in Conservation,

Jeff Lees
Chair, Board of Directors

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

Special Thanks

The Ganaraska Region Conservation Authority (GRCA) is always grateful to the citizens, companies and organizations that continue to help, support, and contribute their time and resources to maintain and preserve the GRCA properties.

Another year of thanks to the Peterborough Trail Builders Association and the Ganaraska Forest Horse Club for their continued support of the Ganaraska Forest, developing and maintaining trails. The GRCA is grateful for the Ganaraska Forest Recreational Users Committee, Ontario Federation of Trail Riders, Ganaraska Snowmobile Club, and those who volunteer their time as forest patrollers; your support is

invaluable.

A special thanks goes out Peter & Julie Moir and the team at Universal Protection Agency, who volunteered service to patrol in the forest.

Many Thanks to our summer students. The GRCA's Nature Nuts Summer Camp and Water Resources programs benefited from the extra sets of hands; while conservation lands, including the gardens at the Ganaraska Forest Centre, all were maintained by the hard-working students.

Thank you to R. Brooking Tree Service for their in-kind service in clearing the GFC's Main Hydro Line into the property.

In 2021, in recognition of Dr. Paul Hazel's retirement and contribution to health care in the community, over 900 tree seedlings were fundraised in celebration to be planted in the Ganaraska Forest.



Climate Change

During 2021, the GRCA continued to promote climate change mitigation and adaptation measures in several ways. The Ontario Climate Consortium provided a Climate Data Knowledge Transfer Session to staff as a follow up to the climate projections project for the watershed. This session had the following objectives:

- Provide an overview of the GRCA climate modeling project and the results of the climate projections for key variables.
- Provide GRCA staff with a better understanding of the methodological approach and how to understand the climate data.
- Provide local examples of how climate change data can be

integrated into GRCA's climate change initiatives.

The session was very helpful, and the information will be used in sharing the data with municipal partners and researchers. GRCA staff also continued to support the Regional Municipality of Durham in the implementation of the Durham Community Climate Adaption Plan (DCCAP) by participating in the Flooding Working Group and the Natural Environment Climate Change Committee. Staff also engaged and collaborated with other partners through ongoing dialogue and discussions and made presentations to the Municipality of Port Hope Centre of Excellence for Environmental Sustainability Working Group, the Town of Cobourg Sustainability & Climate Change Emergency Advisory Committee, and the Township of Hamilton Environment and Climate Change Advisory Committee.

GRCA staff continued to implement actions in day-to-day business operations as recommended in the approved GRCA Climate Change Strategy.



Natural Hazards

Wilmot and Graham Creek Flood Plain Mapping Updates

In 2021, the GRCA commenced an update to the flood plain mapping for the Wilmot and Graham Creek watersheds in the Municipality of Clarington. The project is a partnership with the GRCA, Municipality of Clarington and the Regional Municipality of Durham with matching funding from Public Safety Canada through the National Disaster Mitigation Program. Current mapping is nearly 45 years old and needs to be updated to provide the latest data to assist with emergency preparedness planning, including flood prevention and

mitigation. These efforts align with Priority 1 of Ontario's Flooding Strategy; 'Understand Flood Risks'.

Project tasks include developing new computer models to update watershed hydrology and river hydraulics. The latest available light detection and ranging (LiDAR) data is being used to represent the ground surface and is supplemented by field survey efforts to measure bridges, culverts, dams in addition to watercourse dimensions.

The new mapping will help guide planning to ensure that new development is directed to areas outside of flood susceptible areas thus protecting people and property from potential flood damages.

The study is scheduled to be completed by the end of March 2022.

Region of Durham Flood Risk Assessment

In 2021, the GRCA continued its work with the Regional Municipality of Durham and partner Conservation Authorities to support the Region's risk assessment efforts. This work aims to quantify flood risks associated with riverine (creek) systems at road and rail crossing locations. This information will be used in capital infrastructure planning and emergency management plans. GRCA staff collected survey data/elevations at over 230 sites within the Region to record and quantify details regarding relevant bridge, culvert and dam locations which will be summarized in data sheets for use in future detailed flood risk assessment projects. Staff also compiled flow data from existing hydrology models and summarized existing floodplain mapping data from hydraulic models. This information will be used in analyses, in addition

to identifying the remaining data gaps needed to be filled through future studies. The project is scheduled to be completed by the end of March 2022.



Conservation Areas

The GRCA maintains 9 conservation areas for passive public recreational uses. These areas are used regularly by residents and visitors alike, and offer a natural space to escape to, especially during the pandemic.

In 2021, GRCA staff and tree service contractors removed Ash

trees which succumbed to the Emerald Ash Borer that pose a risk to publicly used space within the conservation areas. Capital works were also carried out at certain conservation areas including replacement of stairs at Balls Mill Conservation Area and parking lot repairs at Garden Hill Conservation Area.

In late 2021, drainage issues at the entrance way to the Port Hope Conservation Area were addressed by the Ministry of Transportation, allowing the conservation area to be opened in 2022.

Quinte Farm Research and Stewardship Collaborative

During 2021, the GRCA continued its partnership with the Quinte Farm Research and Stewardship Collaborative (QFRSC). The QFRSC focus is on soil health and water quality and the establishment of a network of farmers that will look at modern agriculture, best management practices and effects on water quality and soil health/conservation. Partners include the Quinte Soil and Crop Improvement Association as well as farmers, university researchers and conservation authorities within Northumberland, Hastings, Prince Edward, and Lennox & Addington counties.

As part of QFRSC, the GRCA is undertaking a soil erosion and nutrient loss vulnerability assessment. The goal of this multi-year project is to understand and mitigate soil and nutrient loss from farm fields into local rivers and Lake Ontario.

Activities in 2021 include:

- 3D modelling of soil displacement experienced between 2008 and 2016.
- Conducting stream power index analysis to identify erosion areas of concern at the site level.

- Hosting of a municipal and conservation authority workshop regarding agricultural drainage interactions with right-of ways and watercourses.
- Participation in QFRSC meetings and events.
- Implementation of on farm stewardship projects (e.g., tree planting) and advisory services to help reduce field erosion.



Forest Management

The scheduled thinning of 206 hectares of Red Pine plantations in the Central and East Forests was completed in 2021. This area was distributed across two timber harvest

contracts that were both awarded to Robert Ritchie Forest Products of Elmvale, ON. In addition, two tenders that were held over from 2020 were also completed. A total of 38 harvest inspections were completed to ensure that the conditions and guidelines of the harvest contracts were honoured, and that logging damage was minimized.

Approximately 210 hectares of Red Pine and White Pine plantations are scheduled for thinning in 2022. This area is spread across the Central and West Forests, including the stands located directly north of the Horse Trailer parking lot by the Ganaraska Forest Centre. GRCA Forestry and Recreation staff will work together to ensure a smooth and safe operation with minimal impacts to recreational use in this popular area.

In partnership with Trees for Life and the federal 2 Billion Trees Program, 15,000 White Pine were planted across five Red Pine plantations in the fall of 2021; marking the second consecutive year of underplanting initiatives in the Ganaraska Forest. Additionally, over 5,000 previously planted stems were protected from competition with a shielded herbicide application in the spring. These plantings promote the regeneration process in these plantations, allowing the desirable White Pine time to establish ahead of these affected stands' next scheduled thinning.

The spring of 2021 also marked the second consecutive year of the LDD (Gypsy) Moth outbreak in southern Ontario. Nearly all oak stands across the Ganaraska Forest experienced complete defoliation from the moths' feeding activity. However, thanks to a period of consistent rain, the affected areas were able to re-flush with a healthy second crop of leaves. The extreme feeding activity also resulted in damage to some White Pine and other species found near these oak stands, which may result in minor localized tree mortality.

No other significant outbreaks of insect or disease were noted, apart from the Forest's normal challenges with persistent issues of Red Pine decline, white pine blister rust and weevil, 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.

Other contractors who completed work in the forest include Brinkman Reforestation Ltd., Restoration Artists, Moggie Valley Timber and Zimmer Air Services Inc.



Forest Recreation

The Ganaraska Forest is host to an extensive trail network incorporating forest roads, and dual and single-track trails. During the spring, summer and fall, the GRCA welcomes off-

road vehicle enthusiasts, equestrians, cyclists, hikers and hunters alike. During the winter months, the Ganaraska Forest is home to a series of cross-country ski and snowshoe trails within the Central Forest while Ontario Federation of Snowmobile Clubs trails utilize much of the remaining trail network.

In 2021 several changes were made to improve the Forest User experience at Ganaraska Forest. To address community safety in response to COVID-19 restrictions, the GRCA introduced a 24hr electronic point of sale kiosk at the Ganaraska Forest Centre. This kiosk allows Forest Users to purchase day passes while maintaining distancing restrictions. The kiosk displays information regarding trails conditions, events and GRCA news.

To optimize the membership system, the GRCA is phasing out membership cards and has introduced a QR code identification process. Both members and day pass holders alike are now issued QR Codes. This QR Code must be carried while visiting the Ganaraska Forest and upon request, be presented to GRCA staff or enforcement officers for compliance check. Additionally, guests must display a paper copy of the QR Code on the dash of a highway vehicle parked at the Ganaraska Forest.

To attract new winter users, GRCA constructed a 1.5 km novice cross-country ski trail near the Ganaraska Forest Centre (GFC). This trail follows a route with minimal slope and allows the skier to feel comfortable knowing they are not more than a few steps from the GFC.

A directive from the Ontario Federation of Snowmobile Clubs (OFSC) prompted the Ganaraska Snowmobile Club to make changes to the snowmobile trail system within the Ganaraska Forest. Starting in December 2021 all OFSC trails within the

Ganaraska Forest now carry two-way snowmobile traffic.



Ganaraska Forest Centre

The Ganaraska Forest Centre (GFC) is home to the GRCA's outdoor education program. As in 2020, the activities of the outdoor education program were significantly impacted by the ongoing global pandemic.

A new Nature Nuts School Program was offered in the spring which provided technical and educational expertise to support several elementary school students completing their online learning. Following local public health guidelines, instructors developed and taught an exciting yet physically distanced 8-week summer camp program to a cohort of 20

school-aged children. The fall saw a return of students to the GFC. These were primarily day visits by secondary students completing certification programs to fulfill the requirements for the Specialist High Skills Major (SHSM) seal on their diploma. The GRCA's SHSM program has proven a unique and popular program offering that is more resilient in challenging education climates.

Transportation to the GFC has become a barrier in recent months due to pandemic-induced bus driver shortages, the GRCA responded by offering a number of outdoor education programs in the yards of local schools. To reach an even wider audience, a series of virtual lessons centered on themes of climate change were created. The launch of these lessons was featured in the thirteenth PVNCCDSB Environmental Symposium to an audience of almost 900 students. These new program delivery models will make it possible for the GFC to quickly pivot to meet the emerging needs of the local community in the coming year.

When students are not present, the GFC is transformed into a magical wedding venue, where stunning outdoor ceremonies and low-key, do-it-yourself wedding receptions occur. As in 2020, the pandemic had many people postponing their weddings and non-profit group bookings at the GFC. In 2021, Pop-Up style weddings became a popular option and were introduced to allow couples to tie the knot in the company of their closest loved ones and to meet the much smaller outdoor and capacity limitations.

At the end of July, GRCA saw the first full facility wedding held at the GFC. In total there were 11 weddings held at the Ganaraska Forest. In addition, the GRCA saw a return of 6 non-profit groups to use our outdoor camping areas.



Environmental Advisory Planning and Regulations

In 2021, the GRCA provided input on 74 municipally circulated Minor Variances, Severance, Zoning and Official Plan amendments. Comments with respect to natural hazards and natural heritage, consistent with the Provincial Policy Statement, 2020 were provided to our partner municipalities for their consideration as an approval authority. GRCA staff reviewed and provided input on three new subdivisions and 10 ongoing subdivisions within the watershed. In addition, 40 site plan applications for major development proposals (i.e., commercial, industrial) were reviewed. The GRCA received and provided responses on a total of 234 formal Inquiries/authorizations and/or pre-consultation requests.

Furthermore, GRCA issued 126 permits under the GRCA Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulation (O. Reg. 168/06).

GRCA has provided input into municipal Official Plans and Zoning Bylaws. Input has also been given into several Environmental Assessments. GRCA planning staff have continued 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. GRCA continued to provide strong customer service responding to many telephone inquiries, particularly with respect to real estate throughout the watershed.



Drinking Water Source Protection

Nearly 45,000 people who live within the GRCA rely on municipal sources of drinking water. This includes the communities of Port Hope, Cobourg and Newcastle, where water comes from Lake Ontario; and the communities of Orono, Creighton Heights and Camborne which rely on municipal groundwater systems.

The sources of drinking water are protected, in part, by the Clean Water Act, and its requirement for the implementation of the Ganaraska Source Protection Plan. In 2021, work was undertaken to prepare for an update to build upon and improve the science and policies contained within the Plan and the Ganaraska Assessment Report. These updates (Section 36) are required under the Act to the Plan is adapted to meet future needs. In preparation for this update, changes were made to the Plan to correct errors and omissions (Section 51). This update occurred in December 2021.

Implementation of the Ganaraska Source Protection Plan policies can be seen in everyday actions. In August, two separate emergencies were responded to within the Municipality of Port Hope, both of which were considered to present potential risk to the Port Hope Drinking Water Intake. Emergency first responders and those involved in emergency notification have added additional source water protection measures into their emergency response processes.

Throughout 2021, the GRCA worked in partnership with its member municipalities and other implementing bodies (Provincial ministries, the GRCA and oil pipeline owners) to implement the Ganaraska Source Protection Plan, which came into effect in 2015. All policies have either been implemented or are on their way to final full implementation.



Stewardship

During 2021 and in spite of COVID-19, the GRCA was able to offer a full suite of stewardship programs to assist watershed residents in achieving their environmental restoration goals. Whether it is upgrading a water well to current standards, planting a pollinator shrub or conserving rainwater, the GRCA is able to lend a hand. Unfortunately, volunteer events and schoolyard tree plantings were unable to occur.

The GRCA continued to offer financial assistance to individuals, clubs, schools or businesses within the Municipality of Clarington, Municipality of Port Hope, Township of Hamilton and Town of Cobourg. Through the Clean Water-Healthy Land Financial Assistance Program (CWHLFAP), 25 environmental projects were funded for a

total allocation of \$38,463.50. The total monetary value of these projects was approximately \$248,000.00.

The CWHLFAP supports the implementation of recommendations of GRCA Watershed Plans, Natural Heritage Strategy and many other planning documents; and is supported by the above-mentioned municipalities, as well as the Regional Municipality of Durham and Lakefront Utility Services Inc.

In the spring, over 61,000 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 Municipality of Clarington and the Municipality of Port Hope. For those landowners with larger properties to plant, reforestation services were also delivered, with funding provided through Forest Ontario and the Highway of Heroes Tree Campaign. Unfortunately, drought like conditions shortly after planting resulted in less than desirable tree survival rates in some parts of the watershed. Climate change impacts such as these are becoming a challenge to GRCA tree planting programs.

The GRCA continued to support the Highway of Heroes Tree Campaign (a project of Trees for Life), 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 continued to support the various GRCA tree programs. In the fall of 2021 over 23,000 trees were planted on private properties within the GRCA as part of the federal 2 Billion Trees program in partnership with Trees for Life.



Geographic Information System (GIS)

The GRCA's GIS department supported many Watershed Services projects throughout the year. Including the Soil Vulnerability Project, Flood Forecasting and Warning, Fisheries and Ecology and other monitoring programs.

The GRCA continues to provide leadership and support in Geospatial Sciences to neighbouring partners and stakeholders. This important work is slated to grow steadily into 2022. The GIS department has implemented a full suite of web mapping applications to support existing workflows within different departments of the Authority including the

watershed services programs noted above as well as Stewardship, Forestry and Recreation.

The GRCA looks forward to continuing to investigate innovative and cost-effective ways of implementing 3D elevation and remote sensing GIS data to improve and maximize efficiency in daily workflows.

While working closely with federal, provincial, municipal and other partners, the GRCA will continue to develop effective technical solutions to pressing water resource issues, namely flood disaster mitigation and climate change.



Watershed Monitoring

In 2021, 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.

In 2021, the GRCA continued to collect water quality samples to track conditions in our local streams as part of our Watershed Monitoring Plan. Through a partnership with the Toronto and Region Conservation Authority, staff collected storm event samples, contributing to the study of Lake Ontario water quality.

Monitoring the changes in baseflows from year to year is a good way to detect the impact of climatic variations on water resources, as changes in water quality can indicate how land use practices and other activities are impacting the health of our watersheds and Lake Ontario. Good stewardship practices can be used to improve ecosystem health while making watersheds more resilient to climate change.



Flood Forecasting & Warning

A slow start to the winter of 2021 meant a lower-than-normal amount of snow had accumulated by March and with little rain in the forecast, the risk of spring flooding soon passed. Dry weather arrived as soon as the snow melted and raised fears that a serious drought could happen over the summer if things didn't turn around. The Ganaraska Region Water Response Team issued a Low Water Advisory on June 4th, 2021, to raise awareness of the early season drought conditions. According to guidelines of the Ontario Low Water Response program, GRCA watersheds had entered a Level 1 Low Water Condition based on low rainfall over the previous three months. About a month later, things did turn around. July 2021 was one of the wettest months in recent memory. While a more consistent precipitation pattern is always

preferred, the wet weather was much appreciated by many, and the Low Water Advisory was lifted on July 26th, 2021.

One storm to note in 2021 was the arrival of tropical storm remnants on September 22nd, 2021. The storm lasted nearly two days with light and moderate rains. With rainfall totals over 100mm in several locations, the stream flows were elevated but no flooding was reported due to the long duration of the event. This event caused the highest river flows of the year with a peak rate of 34m³/s on the Ganaraska River. Groundwater systems also received some much-needed recharge heading into fall.

Lake Ontario water levels started 2021 slightly above normal and with lower water supplies through winter, fell to their lowest level in several years. However, water levels started to rise again in March but at a relatively slow pace due to the lack of snowmelt. Lake Ontario water levels rose again in July with many rainstorms in the catchment area and consistent inflows from Lake Erie. By year-end, water levels were again, above normal by approximately 30cm.



Groundwater

The GRCA continues to participate in the Provincial Groundwater Monitoring Network (PGMN), a partnership program with the Ministry of Environment, Conservation and Parks (MECP), which monitors groundwater levels and water quality. Many landowners depend on groundwater as their source for drinking water from private wells within the watershed. Water Quality parameters that are measured include Chloride, Fluoride, Sulphate, Dissolved Solids, pH, Nitrogen, Phosphorus, Carbon, Silicon, Calcium, Magnesium, Sodium and Hardness. Among the metals that are analysed are Aluminum, Arsenic, Cadmium, Cobalt, Copper, Iron, Lead, Manganese, Nickel Selenium, Strontium, Uranium, Vanadium and Zinc. All these parameters occur naturally within the rock and sediments and enter streams or aquifers due to

weathering processes.

In recent years, winter application of road salt to maintain safe winter driving conditions has received more attention. Road salt storage, road salt application and snow storage are three activities that pose potential threats to the safety and quality of drinking water sources. Canada has been using road salt for winter maintenance since the 1940s, releasing approximately 5 million tonnes of Sodium Chloride (NaCl) into the environment every year (Environment Canada 2001). Groundwater quality measurements in this regard are carried out in partnership with the MECP and the water quality index of groundwater scores in local areas generally remain within the range of 'excellent to good'. Although some wells within our watershed show an increasing trend in chloride, their measured concentrations remain below the threshold values suggested by the Ontario Drinking Water Standard (ODWS). Higher chloride concentration in groundwater is observed mostly near roads or salt storage and de-icing facilities and mitigation efforts are being made by municipalities through the implementation of salt management plans.

The Region of Durham and County of Northumberland are currently undertaking updates to their Official Plan (OP) documents and collaborating with the GRCA and other Conservation Authorities to map water-based features as defined in the Provincial Policy Statement (PPS) including significant groundwater resources, recharge and contributing areas. These mapping efforts will inform future planning decisions, particularly where development has the potential to impact natural ecological features. Groundwater-dependent natural features such as wetlands, sensitive streams and selected woodland types, including their hydrological functions and pathways, are afforded protection by the PPS. Potential development impacts can include changes to groundwater quantity and quality. GRCA provides technical

support to municipalities in the review of development applications to ensure that negative impacts are mitigated or avoided, and any proposed changes do not exceed the water-based feature's capacity to respond and adapt. In 2021, the GRCA continued to partner and collaborate with the Oak Ridges Moraine

Groundwater Program in addition to the Conservation Authority Geoscience Group. This ongoing information sharing, and collaboration is essential in developing a robust groundwater management framework for the GRCA watershed. These efforts will position the GRCA and its municipal partners to have a thorough understanding of local groundwater resources such that future development guided by the Provincial Growth Plan will progress in a manner that ensures local communities remain resilient to climate change and growth pressures.



Aquatic Ecology

In 2021, the GRCA continued their partnership with the Sea Lamprey Control Center and the monitoring of the Cobourg Creek Sea Lamprey weir. During the field season the GRCA captured and recorded a total of 6,295 fish composed of 32 different species at the weir. In addition to the monitoring that occurred at Cobourg Creek, the GRCA continued their partnership with the 'Bring Back the Salmon' Program. The program followed a different platform with all of their classroom presentations being held online, making it easier to educate more students about Atlantic Salmon and the restoration efforts to bring them back to Lake Ontario and its tributaries.

Fisheries assessments continued at Wesleyville Creek; as in past years, a detailed population study was conducted to examine Brook Trout and Rainbow Trout abundance and long-term population status. The information gathered through this study has been used to determine limiting factors for Brook Trout populations and to identify priority restoration areas. In addition to the long-term monitoring sites, GRCA worked with the Ministry of Northern Development, Mines, Natural Resources and Forestry (formerly Ministry of Natural Resources and Forestry) to determine the best suited spawning locations of Brook Trout. Locations were used to capture ripe fish to collect gametes for research comparing life history traits of lake-origin populations to those of the hatchery strains to assist in future restoration efforts.

In addition to the Brook Trout works conducted on Wesleyville Creek, GRCA partnered with Trent University to conduct thermal threshold work on Brook Trout in the Ganaraska River. Brook Trout of a specific size requirement were captured and used in a stream side experiment to test

the threshold at which the water temperature becomes too warm and stresses the fish species. This experiment will help researchers begin to understand how climate change will impact Brook Trout as a species and determine which populations are more resilient to high water temperatures.



Terrestrial Ecology

With a changing climate, the monitoring of local flora and fauna is critical for understanding the distribution of our regional biodiversity. In 2021, GRCA continued their support to the Durham Region Coastal Wetland Monitoring Program. During the partnership programs, both birds and frogs were monitored at long-term stations to determine the health of the wetland and forest. The long-term data that has been gathered can be used to determine if there has been a decline in the

health of the natural feature.

In addition to our partnership programs, the GRCA continued with the monitoring of invasive species within Conservation Areas and along roadside habitats within the watershed. In 2021, the GRCA completed roadside invasive species monitoring for the Municipality of Port Hope and Hamilton Township. The information gathered indicated that the top three terrestrial invasive plant species in those municipalities are Dog-strangling Vine, Common Buckthorn and Vetch. The 2021 data also shows that there is an increase in Phragmites along the roadsides compared to previous monitoring years. The information gathered through both monitoring programs will inform what areas need the most attention in regard to invasive species control and/or removal.

In an effort to continue with the management of invasive species the GRCA completed several invasive species removal projects during 2021, including:

- Approximately 100 acres of the Ganaraska Forest underwent an aerial spray to protect a healthy, regenerating population of White and Red Oak from *Lymantria dispar dispar* (LDD) moth.
- The second year of targeted chemical treatment for an invasive Phragmites population located at Millennium Conservation Area.
- Approximately 400 Wild Parsnip stems were treated at the Administration Office. It is estimated that this number will be reduced further in 2022, which will allow for manual removal instead of chemical treatment.
- Treatment of approximately 400 stems of Japanese Knotweed within a population in the West Ganaraska Forest.
- The second year of invasive species removal in the Ganaraska Forest Centre (GFC) prairie demonstration plot.

This included the removal of seed producing stems and small sprouts of Buckthorn, Autumn Olive, Scots Pine, Euonymous and Dog-strangling Vine. There was a significant decline from the amount removed compared to last year, with only approximately 100 larger stems removed.



Financial Summary

2021 was another challenging year for the Ganaraska Region Conservation Authority (GRCA) as it was for the world. The unpredictability of COVID-19 continued to dominate the cancellations of most outdoor education programs as well as the cancellation/postponement of many weddings at the Ganaraska Forest Centre. This uncertainty on the programs was taken into consideration when developing the 2021

budget. As a result, the financial statements show a small surplus, due to increased revenues, in some program areas. The municipal general levy was increased by 2.0% and was adjusted in accordance with the current value assessment figures. The general levy for 2020 was \$1,185,049 which represents approximately 30% of the total budgeted revenues.

To counteract the ongoing impact the pandemic had on the GRCA's financial position, some programs were cut back, and staff were assigned to other program areas where revenues were not affected. The GRCA continues to engage with others on important initiatives. As well, the source protection planning program continues to be fully funded by the province.

The chart below shows the actual revenues for 2021. The levy shown is a combined total of general and Benefitting levy. The Ganaraska Forest timber sales of \$285,188.00 and memberships of \$378,532.00 as well as the revenues from Treetop Trekking of \$59,851.89 are included in the Ganaraska Forest revenue. The User Fees & Sales consist of the revenues from the stewardship programs, watershed services as well as the water resources fees. The category of "Other" includes direct funded projects of the Conservation Authority. This includes \$93,910.00 for the Trent Conservation Coalition Source Water Protection initiative.



2021 GANARASKA REGION CONSERVATION AUTHORITY STAFF AND BOARD

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- Linda Laliberte, CAO/Secretary-Treasurer
- Kim Baldini, Finance Clerk
- Kody Beattie, Programmer Analyst
- Alyssa Butters, GIS Technician
- Michelle Giddings, Bookkeeper
- Amy Griffiths, Marketing & Communications Officer (Until March 2021)
- Ian Jeffrey, GIS/Remote Sensing Specialist
- Jeff Moxley, GIS Coordinator

- Julie Verge, Corporate Services Assistant
- Jessica Wessels, Communications Specialist (From June 2021)

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- Leslie Benson, Watershed Engineer
- Lindsay Champagne, Watershed Biologist
- Cory Harris, Watershed Services Coordinator
- Joanne May, Administrative Assistant, Planning and Regulations
- Jessica Mueller, Watershed Hydrogeologist
- Mike Smith, Water Resource Technician
- Ken Thajer, Planning and Regulations Coordinator

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- Shayne Pilgrim, GFC Technician
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- Margaret Zwart, Municipality of Clarington

Summer Students

- Roy (Andy) Foster, Ganaraska Forest Centre Landscape Technician
- Olivia McIntyre, Technician, Geomatics – Land Surveying
- Emma McNeill, Technician, Geomatics – Land Surveying
- Amanda Merchant, Conservation/Restoration Technician
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