Exploring an ecosystem at Enniskillen Conservation Area

2009 Year In Review

A Watershed Moment

Central Lake Ontario Conservation

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What we do on theland is mirrored in the water.

Welcome Message from the Chair

It is with great pleasure that I present the 2009 Year In Review Report of the Central Lake Ontario Conservation Authority (CLOCA). As you read through the document, you will see the many accomplishments and ongoing projects of this organization over the previous year.

2009 Milestones

~ In November CLOCA released the draft Existing Conditions Report for the Black/Harmony/Farewell Creek Watershed Plan providing the reader with a comprehensive description of the condition of this watershed.

~ On October 29th, 2009, CLOCA staff participated in "Operation Weather Woes" - a full communications exercise to practice and evaluate emergency response capabilities based on a mock severe weather event.

~ Completed floodplain mapping for Bowmanville/ Soper Creek watersheds, and initiated floodplain mapping for the Robinson Creek and Black/Harmony/ Farewell Creek watersheds.

~ CLOCA staff are excited about the discovery of several large patches (covering approximately 6 ha) of tallgrass prairie habitat at Long Sault Conservation Area. Tallgrass is a globally imperiled ecosystem and one of the most endangered ecosystems in Canada.

~A number of sightings of Northern River Otter at Bowmanville/Westside Conservation Area were confirmed.

~ In light of the threat of invasive species to CLOCA's watershed health, staff have developed a working group to develop a proactive management strategy to control invasive species.

~ From 2006 to 2009, CLOCA staff implemented 18 private land stewardship projects on the Oak Ridges Moraine.

~ The Royal Ashburn Golf Club recently undertook the creation of a large multi-cell wetland with assistance from CLOCA's Clean Water Land Stewardship Program. CLOCA, working together with the Royal Ashburn Golf Club, Ducks Unlimited Canada, the Ontario Federation of Anglers and Hunters and the Oak Ridges Moraine Foundation were able to design and implement this project. This partnership extended beyond the wetland project to include the first annual running of the Wetland Conservation Golf Event.

~ The Watershed Checkup Report entitled Protecting Our Watershed, Nature's Precious Resource, was completed, highlighting monitoring data collected by CLOCA staff to measure watershed forest, riparian and wetland cover, surface and groundwater quality as key indicators of watershed health.

~ In 2009 CLOCA purchased 183 acres of land. A 99 acre parcel was added to Lynde Shores Conservation Area and an 84 acre parcel added to Long Sault Conservation Area.

~ Heber Down Conservation Area received a facelift with funding from both the Recreational Infrastructure Canada and the Ontario Recreation Programs to refurbish, relocate and construct 6 kilometres of new trails and a new washroom building.

~ Wildlife and terrestrial monitoring got underway in the Bowmanville Soper Watershed with the establishment of 18 monitoring plots, most of which were established in the Conservation Areas.

~ CLOCA staff hosted the 11th, biannual Watershed Awards on December 1st at Camp Samac in Oshawa presenting 19 awards this year in recognition and to show our appreciation for outstanding environmental contributions made by our community for the stewardship and enhancement of our watersheds.

It is important to note that the projects within this report would not be possible without the support of our community partners: Region of Durham, member municipalities, community stakeholders and watershed residents.

Sincerely,

Gerry Emm
Chair, Central Lake Ontario Conservation

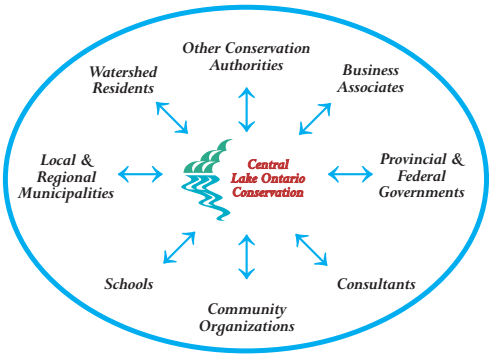
DURHAM REGION

Working In Partnership

Member of Conservation ONTARIO Natural Champions

Who Are We

The Central Lake Ontario Conservation Authority was established in 1958 by the Government of Ontario at the request of the municipalities located within the watersheds of the following creek systems: Bennett, Black, Bowmanville, Corbett, Darlington, Farewell, Goodman, Harmony, Lynde, Oshawa, Pringle, Robinson, Soper, Tooley and Westside.



Working in partnership with the community for healthy watersheds.

Our Mission

"To work towards the awareness, understanding, wise use and enhancement of our watershed resources for the benefit of the natural environment in partnership with the Region of Durham including: Cities of Oshawa and Pickering, Towns of Ajax and Whitby, Municipality of Clarington, Townships of Scugog and Uxbridge and our watershed communities."

Central Lake Ontario Conservation protects, through public ownership, over 2,271 hectares (5,612 acres) of environmentally sensitive land.

2009 Board of Directors

Chair: Councillor Gerry Emm, Town of Whitby
Vice-Chair: Councillor Rick Johnson, City of Pickering

Town of Ajax:
Councillor S. Crawford

Municipality of Clarington:
Councillor A. Foster, Councillor R. Hooper, Councillor M. Novak

City of Oshawa:
Councillor A. Cullen, Mayor J. Gray, Councillor J. Neal , Councillor B. Nicholson,

City of Pickering:
Councillor R. Johnson

Townships of Scugog & Uxbridge:
Mayor M. Pearce

Town of Whitby:
Councillor J. Drumm, Councillor G. Emm, Councillor D. Mitchell, Mayor P. Perkins

Back Row (left to right): R. Powell (CA0), Coun. R. Hooper, Coun. J. Neal, Coun. A. Cullen, Mayor P. Perkins, Mayor J. Gray, Coun. D. Mitchell

Front Row (left to right): Coun. J. Drumm, Mayor M. Pearce, Coun. R. Johnson (Vice Chair), Coun. G. Emm (Chair), Coun. M. Novak, Coun. A. Foster

Absent: Coun. B. Nicholson, Coun. S. Crawford

The Clean Water Act: Source Water Protection

The Clean Water Act (CWA) was introduced by the Ontario Government in 2006. The intent of this legislation is to ensure communities are able to protect their municipal drinking water supplies now and in the future, from overuse and contamination. These goals are to be pursued through the development of: technical assessment reports that identify and describe vulnerable areas and risks to drinking water; and source protection plans with recommendations regarding land use planning policies and risk reduction strategies in these identified vulnerable areas. The vulnerable areas identified in the CWA are Municipal Well head protection areas (WHPAs), Municipal water treatment plant Intake Protection Zones (IPZs), broader landscape Significant Groundwater Recharge Areas (SGRAs) and broader landscape Highly Vulnerable Aquifers (HVAs). The Province has outlined the accepted methodologies in delineation of these areas in the "Director's Rules" to ensure consistency and best science across the province. All studies must meet or exceed the requirements of the rules.

There are 3 stages in the Source Protection initiative, namely the Assessment Report Phase which evaluates the vulnerability and risk associated with drinking water sources (quality and quantity), the Source Protection Plan (SPP) Phase which identifies measures to reduce the highest risks (present and future) and the Implementation and Monitoring Phase where municipalities implement the SPP by utilizing planning and other developed tools to address the risks. Central Lake Ontario Conservation (CLOCA) is part of the CTC (Credit Valley, Toronto and Region, and Central Lake Ontario) Source Protection Region which is headed up by the Toronto and Region Conservation Authority. The Authorities in the CTC have been busy since 2005 working on several modules (technical chapters) of the Assessment Report. The Watershed Characterization Conceptual Water Budget components were completed between 2006 and 2007. Also, a Tier 1 water budget was completed in 2008.

CTC Source Water Protection Region

In 2009 Modules associated with the Lake Ontario intakes were completed by the Lake Ontario Collaborative group on behalf of the CTC region. Ground and Surface Water Vulnerability Analyses and reports were completed by CLOCA in the same year. These pieces include the identification of the significant groundwater recharge areas and highly vulnerable aquifers on the broader landscape. The reports are all thoroughly peer reviewed and approved by a team of external technical experts as well as provincial officials and the CTC Source Protection Committee, the overarching committee that is charged with the responsibility for completion of the Assessment Report and the Source Protection Plan. The Authority is currently working on the completion of its draft Assessment Report, which represents a compilation of all the legislatively required technical information that supports the delineation of the Source Water Protection vulnerable areas and risk assessment details, including threat inventories and hazard scoring regarding activities on the landscape. The Assessment Report serves to support policies that are being developed to monitor, manage and or mitigate documented or potential contamination or overuse. The Assessment Report deadline is August 17th, 2010. The Source Protection Plan has a legislated deadline for completion of August 20th ,2012. Work on the SPP was initiated in 2009 for the CTC SWP Region.

The Source Protection technical work is 100% funded by the Province. It is important to note that the products and tools such as the data, analyses, maps, and numerical models are continuously fed back into other CLOCA programs that serve to raise the bar on environmental management and conservation for watershed management plans, municipal plan review, permit to take water comments and monitoring plan review.

CAMC/ YPDT Groundwater Management Program

The Conservation Authorities Moraine Coalition (CAMC) / York-Peel-Durham-Toronto Group (YPDT) continues to improve the understanding of groundwater systems in the municipalities of York, Peel, Durham and the City of Toronto that share the Oak Ridges Moraine feature. Over the last year the CAMC/YPDT team has spear-headed several projects that serve to support the municipal development of new supplies and the protection of existing ones, source protection planning work, and groundwater information management, while successfully staying linked to professionals and academia to ensure their work is defensible and 'cutting edge' . The team works collaboratively with the technical municipal and conservation authority staff for input and dialogue as well as dissemination of information, technology and tools to ensure that the analyses filter back into the agencies tasked with the management of groundwater resources in the area.

In 2009, the team drilled and cored a well in the Queensville area in support of the development of York Region water supplies, performed geological work in support of the Orono municipal well field, conducted specialized water level monitoring across the CAMC region, made significant updates to the shared hydraulic database, initiated a geological 'carbon fingerprinting' program as well as a chemistry and isotope analysis to date the groundwater in the area. Work was also focused on the completion of geologic and numerical groundwater models for Durham Region. CLOCA groundwater staff continue to participate in the CAMC/YPDT initiative providing data and technical input while serving to utilize the products locally in support of all Conservation Authority based programs.

Provincial Groundwater Monitoring Network

The Provincial Groundwater Monitoring Network (PGMN) is a partnership program between the Ministry of Environment (MOE) and the Conservation Authorities through Conservation Ontario (CO). The program's objective is to collect ambient groundwater level and quality information from various key aquifers of the province from existing wells instrumented with state-of-the-art electronic logging equipment and communication system. The PGMN data is useful in supporting the Province's water management program.

In 2009, Central Lake Ontario Conservation (CLOCA) continued the operation and management of the PGMN program under a new agreement, which was updated to include the most recent policies and legislation, protocols and technologies. CLOCA is currently maintaining 16 of the more than 400 PGMN wells across Ontario. Since becoming operational in 2002, our agency has collected a substantial amount of data that is not only valuable at the provincial level, but aids in the resource management activities of the authority, municipal partners and other local stakeholders. Among the more notable uses of the PGMN data at the local level, is the use to support the calibration of numerical groundwater models for the Ontario's Source Water Protection (SWP) program as well as CLOCA based watershed management planning programs. PGMN data also serves as an indispensable tool for the evaluation of permit to take water applications, development plan reviews, watershed planning, ecosystems sustainability evaluation and municipal projects where groundwater availability and levels are critical factors. The data is often provided to municipal planning and operations divisions in support of site specific permits and complaint response.

A PGMN well is converted from a pit well to above ground. Removing of the well pit protects groundwater aquifers from surface contamination.

Planning & Regulations Summary

The Planning and Regulations Department provides environmental review of development proposals submitted by municipalities, developers and the general public.

Ontario Regulation 42/06: Development, Interference with Wetlands and Alteration to Shorelines and Watercourses, administered by the Authority, ensures residents are protected and the integrity of the watershed floodplains are maintained. By directing development away from flood and erosion prone areas, we reduce the risk to life and property, which result from flooding and erosion.

Statistics for 2009 (Ontario Regulation 42/06)

~ Issued 161 Permits

~ Issued 14 Violations

During 2009, Plan Review staff provided comments on:

~ 14 Official Plan Amendments

~ 31 Zoning Bylaw Amendments

~ 81 Site Plan Applications

~ 29 Plans of Subdivision

~ 36 Land Divisions

~ 26 Variances

~ 11 Special Studies
(Which includes
Class EA's/municipal
and private studies)

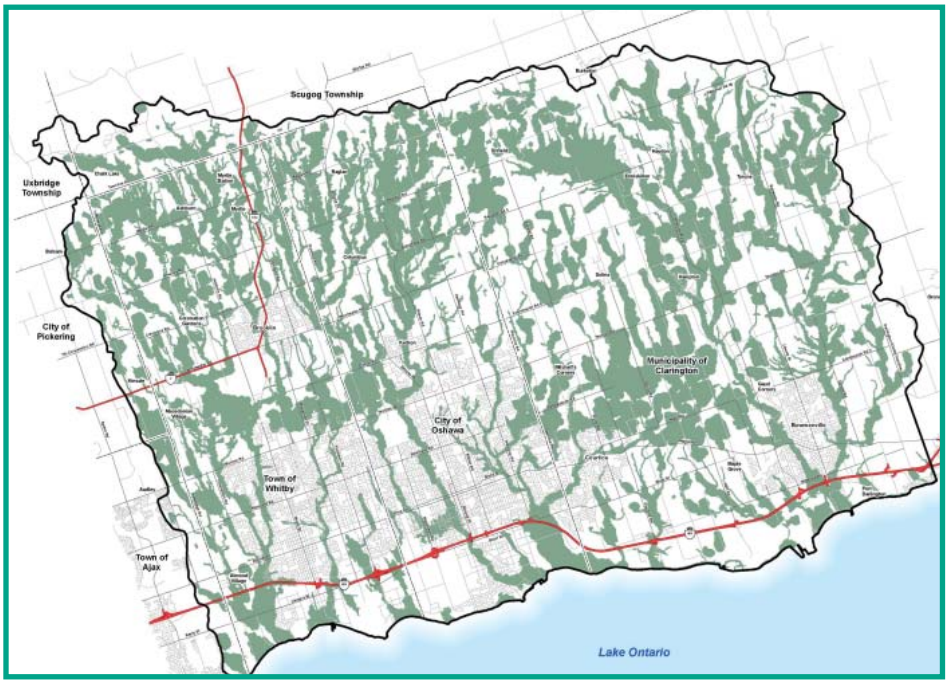
Special Plan Review Projects: Municipal Official Plan Review

In 2009, CLOCA staff provided comments on the Town of Ajax and the Township of Scugog Official Plan review. CLOCA also participated in Durham Region's Growth Plan conformity amendment, including providing comments on Growing Durham and Amendment #128 to the Regional Official Plan.

There were also a couple of municipal secondary plans underway which CLOCA has been, and is continuing to provide, comments and technical advice with respect to the protection of natural heritage and hazard features.

Provincial Policy and Environmental Assessment

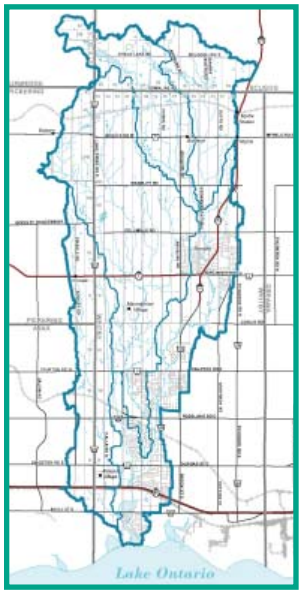
Staff participated in the review of a number of EBR postings, including participation in a coordinated Conservation Ontario response with respect to the "Draft Performance Monitoring Framework and Draft Indicators for the PPS, 2005" and Conservation Ontario review of the "Draft MNR Policies and Procedures for CA Plan Review and Permitting Activities", as well as a number of EA's including Highway 407 which is further detailed on page 10



The map illustrates areas of the watershed that fall under Ontario Regulation 42/06 Regulation of Development, Interference with Wetlands and Alteration to Shorelines and Watercourses and administered by Central Lake Ontario Conservation.

Watershed Planning

Lynde Creek Watershed (Whitby)



Map showing Lynde Creek watershed.

Work on Phase 2, the development of alternative management options, continued in 2009 with further refinement of future land uses, development and testing of an imperviousness model used specifically for watershed planning purposes, testing and incorporation of the Natural Heritage System Model *(see across page)* and some development of targets, goals, objectives and general recommendations

Black Harmony Farewell Creek Watershed Plan (Oshawa)

In November Central Lake Ontario Conservation (CLOCA) released the draft Existing Conditions Report for the Black/Harmony/Farewell Creek Watershed Plan and held a Public Information Centre on December 10th at the Courtice Community Centre. The report compiles 18 individual watershed components, providing the reader with a comprehensive description of the condition of this watershed. Watershed stakeholders, residents and agencies have been requested to provide their comments on this document.

Robinson Tooley Watershed (Clarington)

Central Lake Ontario Conservation (CLOCA) has been an active participant in the Municipality of Clarington's preparation of a watershed plan for the Robinson/Tooley Creek Watershed. In 2009, CLOCA participated in the preparation and review of a Terms of Reference, providing guidance in approach, information requirements, study components, and consultation as well as the necessary background data to get the project underway.

Natural Heritage System Methodology, Modeling & Refinement

Staff made significant progress in 2009, with the development of a tool designed to identify and maintain the Natural Heritage System for our watersheds. The first application of this science based product will be applied to support the outcomes of the Lynde Creek Watershed Management Plan. The process has been documented in a methodology, providing a consistent framework that will guide us through future iterations for the remaining watershed plans.

The methodology is comprised of three parts; the functional system, the targeted system and the ultimate system. The functional system is reflective of existing vegetation information, identified at the community series level using the Ecological Land Classification (ELC) system for comprehensive vegetation inventory. It also incorporates the necessary natural corridors required, with appropriate sized buffers, to connect the vegetation patches on the landscape. Most of these vegetation patches are associated with watercourses and valley lands. The second part of the methodology entails developing an appropriate targeted system using an existing product (Targeted Terrestrial Natural Heritage System) created by the neighbouring Toronto and Region Conservation Authority. This targeted system models our future goals through a computer exercise, that identifies the desired vegetation cover required to sustain ecosystem function. The third part which represents the ultimate Natural Heritage system takes part 1, the functional system and layers it over part 2, the targeted system, applying manual manipulations to balance the loss and gains associated with development and growth, with protection and restoration.

Our neighbouring CA's have been very interested in this approach and in 2009 staff met with one of these CA's, to share a detailed review of the development and implementation of the methodology.

Water Monitoring

Central Lake Ontario Conservation's (CLOCA) Water Monitoring Network is a collection of stream gauges, rain gauges, air and water temperature probes, groundwater monitoring wells, snow measurement sites and surface water and groundwater quality sites. This Water Monitoring Network and the valuable information it collects, helps us better understand and predict the impacts of land use activities on water quantity. This knowledge allows us to make informed decisions about the management and protection of our water resources. The data is catalogued and analyzed to develop effective watershed wide management programs and policies like our state of the art Flood Forecasting and Warning System, Water Response and Source Water Protection programs.

Precipitation water monitoring station.

The summer of 2009 was highlighted by a lack of warm temperatures and constant wet weather. Periodic thunderstorms provided enough rainfall each month to maintain our rainfall amounts within 80% of historic averages which kept stream baseflows at reasonable levels throughout the summer with no Low Water messages.

The summer ended with an extensive period without rain, starting August 30th and ending on September 20th.

We did experience a couple of heavy rainfall events this year through the northern portion of Clarington. Since the storms happened across rural areas, the major impacts were limited to eroded ditches, culvert wash outs and sediment movement. Southern Ontario broke all its previous records for the amount of tornadoes in 2009. On June 29th, a funnel cloud formed in the southern part of Whitby. Fortunately, it did not progress to a tornado.

Funnel cloud in southern Whitby. Picture taken by William Woudwyk.

With the severe rainfall events experienced through our watershed in 2008, we evaluated our network of rain gauges with respect to their location (spatial coverage), the type of equipment at each site and the ability to communicate in real-time to retrieve data. The result was the establishment of four new precipitation stations and the updating of two existing stations. The new stations are now located at Clarington Fire Station 5, Clarington Works Yard 42, Whitby Works Yard and at groundwater monitoring well (W0000043-3). The 2 existing stations at Purplewoods CA and Long Sault CA were updated. The additional stations now provide adequate spatial coverage to monitor rainfall within our watershed. The reallocation of equipment now allows us to communicate in real-time with several of the stations.

Durham Region Coastal Wetland Monitoring Project

Durham Region supports a distinct concentration of coastal wetlands on the north shore of Lake Ontario. Human-induced stressors ranging from encroaching urban development to Lake Ontario water level regulation, are taking their toll on these ecosystems. The importance of maintaining key wetland functions and values, combined with various human-induced stressors, make management of coastal wetlands in Durham Region a complex challenge.

Continued on page 8

Durham Region Coastal Monitoring Project - Continued from page 7

The first step towards determining management, restoration or enhancement possibilities, is to identify the sources and their degree of impact affecting these wetlands. This is best accomplished by monitoring indicators of wetland health. The Durham Region Coastal Wetland Monitoring Project evolved to address this need.

The eighth year of data collection for the DRWCMP was completed in 2009. This includes the monitoring of water levels, water quality and the amphibian, bird, fish and submerged aquatic vegetation communities of 18 coastal wetlands in Durham Region. Drafting of a year 6 technical report and a fact booklet is near completion and these documents are scheduled for release in 2010. In addition, this year's data is currently being analyzed and a summary report outlining the results of the 2009 field season will be completed in early 2010.

Also, in 2009, CLOCA conducted fish community monitoring of 5 coastal wetlands in the Bay of Quinte, supporting the Bay of Quinte Remedial Action Plan work. It is anticipated that this work will continue in 2010 with fish community monitoring conducted at 5 different coastal wetlands each year in the Bay of Quinte.

Flood Forecasting & Warning System

Throughout the year, Central Lake Ontario Conservation (CLOCA) monitored and reported water conditions through High Water Safety Bulletins and Flood Advisories. In total 9 notices were issued in 2009 and staff completed flood watch duties as per CLOCA's Flood Contingency Plan and conducted both remote monitoring from telemetry gauging stations, as well as field observations and recordings.

On October 29th, 2009, the Region of Durham and its eight local municipalities carried out a full communications exercise to practice and evaluate response capabilities of the Region of Durham, the Townships of Brock, Scugog and Uxbridge, the Cities of Oshawa and Pickering, the Towns of Ajax and Whitby, and the Municipality of Clarington along with the assistance of the GTA CA's and Environment Canada. The exercise was based on a mock severe weather event that swept through southern Ontario, including all of Durham Region. Respective municipal Emergency Operation Centres (EOC) and the Regional EOC were staffed and fully operational.

The Mock Scenario: The scenario incorporated the following conditions:

~ A period of significant rainfall earlier in the month of October and in the week leading up to October 29th.

~ The impact of the remnants of Hurricane Kate, now a tropical storm, passes close to the Lower Great Lakes producing significant rainfall amounts and strong winds.

~ Each municipality will suffer adverse effects that will require their respective EOC to be activated and staffed.

Since CLOCA has not been a regular participant in the REOC or many of their individual training exercises with the municipalities, this presented a perfect opportunity to get our staff involved in training Regional and Municipal staff with CLOCA's Flood Forecasting and Warning Program. It also allowed for the training of CLOCA representative(s) who will have a seat within the REOC during severe weather,

...Flood Forecasting continued

allowing them to experience the REOC operating during an emergency and an oportunity to work with the oganization group and promote CA tools. This was the first time that CLOCA staff acted as the representative on the REOC for the five Conservation Authorities within the GTA Flood Forecasting and Warning Group.

We were able to utilize new floodplain mapping for Lynde Cr, Bowmanville Cr and Soper Cr and mapping products from our Flood Vulnerable Database – Stage 5 Vulnerable Structure mapping within the Lynde and Oshawa Creeks.

CLOCA will continue to work with Durham Region and municipal staff in promoting our Flood Forecasting and Warning program along with our Vulnerable Structure mapping and database products.

Above: One of 35 staff stream gauges located around the watershed to assess conditions in the event of a flooding emergency.

Right: Flooding along a creek system in April of 2009.

Floodplain Mapping

Floodplain mapping is an important tool within Central Lake Ontario Conservation's (CLOCA) mandate for flood forecasting and warning, water monitoring, plan and development review. State of the art technology is used to update and replace 30 year old analog floodplain mapping with new more accurate digital information. CLOCA has been producing the components, including hydrology models, digital elevation models and associated digital data sets to allow for efficient completion of floodplain mapping. Newly developed digital elevation models reduce the staff time required to develop new flood line information. The resulting flood lines can then be presented on the aerial photos in a visually aesthetic and user friendly way. CLOCA staff complete much of the work internally and contract consultants to complete the floodplain mapping for larger watersheds. In 2009, CLOCA staff completed new floodplain mapping for the Robinson Creek watershed, within the Municipality of Clarington. Base mapping and hydrology models were also provided to an engineering consultant to allow for the completion of new floodplain mapping for the full Black, Harmony and Farewell Creek watershed. This project is anticipated to be complete early in 2010. In 2010, we will work with various consultants to initiate floodplain mapping for the complete Oshawa Creek watershed. Other small watershed floodplain mapping projects will continue to be undertaken by staff.

Highway 407 East Environmental Assessment and Preliminary Design

CLOCA staff from the natural heritage, planning and engineering departments, have invested considerable time over the past two years with the review and comments associated with the Highway 407 East Environmental Assessment. CLOCA has been a member of the Regulatory Agency Group, and has attended and hosted special purpose and routine monthly meetings to assess the impacts of the proposed undertaking on our natural systems.

On August 28, 2009, the Highway 407 East Environmental Assessment Report and supporting documents were submitted for public comment. The public commenting period expired on October 16, 2009, and CLOCA submitted the attached comments in this respect.

Our comments were:

1. The proposed Highway 407 and the Whitby and Courtice Hwy 407/Hwy 401 link roads will require more than 60 watercourse crossings, and removal of hectares of wetland and forest habitats. The Highway will also bisect our watersheds and will have an impact on natural corridors both in an east-west and north-south directions. Although MTO and the consultant teams have been receptive to comments and concerns from CLOCA, the project will have impacts on our natural systems that are too great to avoid, mitigate, or compensate. That being said, CLOCA and our neighbouring Conservation Authorities are committed to ensuring the project is completed in the most environmentally sensitive manner as is practical.

2. The Conservation Authorities need to remain involved through the design and construction stages of the project to ensure that the recommendations and directions provided are implemented. In Section 11 of the Draft EA Report, (Approvals Required); there is no mention of Conservation Authorities. The Conservation Authorities Act stipulates that no CA regulation "…shall interfere with any rights or powers of any board or commission that is performing its function for or on behalf of the Government of Ontario". Although the Conservation Authorities have no regulation over the work of the province, we have requested that the involvement of the CA's in the design and construction stages be clearly described in the EA document to ensure our role in the remainder of the project.

The Ganaraska Conservation Authority and the Toronto Region Conservation Authority provided consistent comments. The Minister of Environment is expected to approve or reply to the EA submission in the spring of 2010.

CLOCA continues to meet with the MTO consultant team to resolve outstanding comments and new submissions of preliminary design features.

Draft proposed route of HWY 407 through the Central Lake Ontario Conservation Watershed (From www.407eastea.com) .

Annual Monitoring Program

Central Lake Ontario Conservation's (CLOCA) annual monitoring program is fundamental to a number of Authority programs, providing valuable information regarding natural heritage features and functions as well as monitoring the response of these features to the impacts of changing landscapes and climate. In 2009, the Authority produced annual aquatic and wildlife reports, summarizing the monitoring work and findings from the 2008 field season, and developed the Terrestrial Monitoring Program. In response to the release on the annual monitoring reports at the request of the City of Oshawa Development Services Committee, Authority staff provided an overview of the various monitoring programs including how monitoring information can be of value to our municipal partners.

Aquatic Monitoring

During the aquatic field season of 2009, Central Lake Ontario Conservation (CLOCA) staff generally focused monitoring efforts on the Lynde Creek watershed. Baseline fisheries data was first collected by CLOCA in 2001 in this watershed. In 2009, monitoring included collecting information on water temperature, benthos (aquatic bugs) and fisheries in both creeks and marshes, the latter as part of the Durham Region Coastal Wetland Monitoring Project.

Data Logger

Temperature is an important factor with respect to habitat suitability for fish and other aquatic organisms. Approximately 76 portable water temperature data loggers were installed in various locations in May and remained in the creeks until late December. Temperature data is useful for understanding current conditions in our streams, but continued monitoring will allow us to track future trends resulting from landuse changes and pollution inputs.

Staff collected benthos from 17 stream locations mainly within the Lynde Creek watershed. These "Aquatic bugs" play an important role in monitoring water quality within our watersheds. Depending on the species and quantity of benthos found, we can determine whether or not the watershed is experiencing impacts from external stressors like pollution and landuse changes. This method of assessing water quality allows staff to survey large scale areas, yet provides insight on isolated sections of stream that may require more intensive monitoring to better understand a water quality issue.

Summer staff use a kick net to collect aquatic insects (benthos) such as a stonefly (top) and a scud (bottom).

Spawning surveys are conducted in the spring, and involves observing indicators of spawning, in a specific watershed. These indicators include: the presence of adult fish in a likely spawning area (e.g., rainbow trout), the occurrence of active spawning (e.g., fish present on redds or nests) and signs that spawning has taken place (i.e., spawning depressions or redds). These surveys are helpful in describing watershed health and identifying areas where restoration and protection efforts should be applied.

The light coloured area is a spawning redd created by a rainbow trout. Notice the lack of algae.

Aquatic Monitoring continued on page 12

Aquatic Monitoring - Continure from page 11

There are a number of limiting factors that can prevent a species of fish from reproducing successfully. These include poor water quality, migration barriers (i.e. dams and wiers), water temperature conditions, water levels and illegal in-streamworks. Spawning surveys provide useful information for identifying critical spawning habitat. This information is complimentary to standard fish community surveys. Spawning surveys were conducted in April and May within Lynde, Pringle, Harmony, Robinson, Tooley and Darlington Creeks.

In order to help determine aquatic ecosystem health and monitor it over time CLOCA conducts fisheries assessments in various watersheds each season. Ongoing annual aquatic monitoring is recommended in the Central Lake Ontario Fisheries Management Plan (CLOFMP; CLOCA/MNR 2007). Information collected during these programs supports the goals and objectives of the CLOFMP and allows for an adaptive management approach. Fisheries stream sampling took place during July and August at more than 50 locations generally within the Lynde Creek watershed.


Brook Trout

Trout are known to require good water quality; brook trout, also known as speckled trout (a cold-water species) in particular, occur in clear, cool, well-oxygenated waters (Scott and Crossman, 1973). Brook trout are commonly used as indicators of a healthy aquatic ecosystem.

Each season barriers are assessed and documented in various watersheds to allow for informed management decisions to be made. Instream barriers can restrict or impede fish from accessing upstream habitats, and are of particular management concern in the Lynde Creek watershed because of the annual run of salmonids that come from Lake Ontario to spawn.


Example of a potential barrier to fish.

Terrestrial Monitoring

In 2009 Central Lake Ontario Conservation (CLOCA) staff developed and implemented a Terrestrial Monitoring Program, which is divided into two parts, Terrestrial Watershed Monitoring and Special Monitoring Projects. The Terrestrial Watershed Monitoring is designed to monitor the ecological integrity of the watershed. The Special Monitoring Projects are more refined in scope and will be implemented when the need arises, subject to the availability of resources.

The Terrestrial Watershed Monitoring program focuses on Forests, Wetlands and Non-forested communities, including meadows and thickets. Within each of the community types there are five ecological indicators monitored: ground vegetation, non-native invasive species, biodiversity, tree health and regeneration of saplings. Tree health and regeneration of saplings are only monitored within the Forested and Wetland plots. This year, the monitoring program was established within the Bowmanville/Soper watershed, with plots located in Conservation Areas and Municipally owned lands. In total, there were 18 plots established, including 5 non-forested plots, 5 wetland plots and 8 forested plots.

In 2009, the following two pre-existing and one new Special Monitoring Project was implemented:

1) *In 2007 a new trail was created at Crow's Pass Conservation Area in partnership with the Oak Ridges Moraine Trail Association. Transects were set up to observe if the creation of a new trail will facilitate the spread of an invasive non native plant called Dog Strangling Vine (DSV) (Vincetoxicum nigrum). Presently no DSV has been found on the transects near the new trail, and DSV populations on the pre-existing trails do not appear to have spread further along the trail.*


Visitors enjoy a walk along the trail at Crow's Pass Conservation Area.

...Terrestrial Monitoring continued

2) *CLOCA conducts community stewardship tree plantings, through partnerships with a variety of organizations. As a condition of these programs, tree survival assessments are done every year on newly planted sites. CLOCA attempts to assess these sites until they have reached the "free to grow stage". This year, 5 previously planted sites were visited: Cranberry West Tract, Runnymede Tract, Bowmanville Westside Tract, Rowsell Tract and Sharp Tract. The survival rates ranged from 49% (Bowmanville Westside) to 83% (Cranberry West). These variable survival rates can be attributed to a variety of factors including, but not limited to, mammalian browsing, overgrown surrounding vegetation, site preparation, viability of specimens, quality of volunteer planting effort, amount of precipitation received, and number of trees found during the survey. This information is invaluable in sharing with our funders and developing and improving our planting strategies.*

3) *The 2009 Special Monitoring Project was the initiation of the monitoring of groundwater levels within the Heber Down wetland in the Heber Down Conservation Area. The intent of this monitoring effort, was to assess long-term changes. Four piezometers were installed at the major recharge and discharge areas of the wetland. Because different types of vegetation are associated with varying moisture regimes, vegetation monitoring plots were installed at each of the piezometer locations. These will be assessed over the long term to determine if there is a change in species composition and if there is a direct correlation with groundwater levels.*

Wildlife Monitoring

This year, annual bird monitoring was conducted at the Heber Down, Cane Tract, Hampton Pond, Stephen's Gulch, Bowmanville-Westside Marshes, and Long Sault Conservation Areas. Roadside bird monitoring also occurred throughout the Bowmanville/Soper Creek watershed as part of the development of the Bowmanville/Soper Creek watershed existing conditions report. Summer visitors to the Long Sault C.A. got the chance to get up close and personal with a pair of nesting Northern Goshawks. Their loud calls and swooping behavior caught the attention of more than one visitor and the trail along which the nest was located was temporarily closed to give this territorial pair a break!


Nesting Goshawks

Central Lake Ontario Conservation staff also participated in Red-shouldered Hawk surveys throughout the jurisdiction this year to identify nesting habitat for this species. These surveys were done in partnership with the Ontario Ministry of Natural Resources. No Red-shouldered Hawk nests were found.

Annual salamander monitoring continued in 2009 at the Lynde Shores and Heber Down Conservation Areas as well; however, no salamanders were observed at any of the monitoring plots.

River Otters at Bowmanville Westside Marshes Conservation Area


Northern River Otter

Since 2008, CLOCA has been receiving reports of Northern River Otter (Lontra canadensis) at the Bowmanville/Westside Marshes Conservation Area. The presence of this delightful species has been confirmed by staff, as well as independent consultants, and it appears that there may be as many as 4 individuals living in the marsh.

Northern River Otter is not at risk, but it is not a common occurrence in the CLOCA jurisdiction. Otters generally live in or along wooded rivers, ponds, and lakes, and frequently use abandoned Muskrat, Beaver or Woodchuck dens to rear their young. They feed on a wide variety of foods including crayfish, turtles, frogs and fish, but will occasionally supplement their diet with young birds, small mammals, and insects or earthworms.

Female otters bear 1-6 young in early spring, which will leave the den for the first time in early summer. If the troupe that has been observed at Westside Marsh includes a breeding pair, then we may expect to see some new additions to the family at Bowmanville/Westside Marshes Conservation Area in the future!

Ontario Endangered Species Act

On June 30th, 2008, Ontario's new Endangered Species Act came into effect. This legislation, which updated the previous Endangered Species Act, significantly expands the protection afforded to Species at Risk in Ontario, by protecting Extirpated, Endangered and Threatened species as well as the habitat of Endangered and Threatened species. It applies to all private and public lands in the province of Ontario. The assessment of Species at Risk in Ontario is carried out by the Committee on the Status of Species at Risk in Ontario (COSSARO).

In response to this new legislation Central Lake Ontario Conservation hosted an information session for our partner municipalities. At this session, a brief overview of the legislation was provided and the discussion focused on what the municipalities need to do to ensure compliance with this legislation. About 15 municipal representatives attended the session, representing Planning and Works/Engineering Departments from the various municipalities.

In 2009, CLOCA added 2 new species at risk sightings to its list: Milksnake (Special Concern) and Blanding's Turtle (Threatened). Both of these observations were made at the Long Sault Conservation Area.

Hiding in its shell for protection, this Blanding's Turtle was discoved at Long Sault Conservation Area. Blanding's Turtles are a threathened species.

Invasive Species In Our Watersheds

In 2009 the Invasive Species Working Group came together to address the problem of invasive species within Central Lake Ontario Conservation's watersheds. Consisting of members from Communications, Natural Heritage, and Field Operations, Central Lake Ontario Conservation (CLOCA) staff worked towards developing a Strategic Action Plan that will be completed in early 2010. The Plan's main focus is preventing the spread of invasive species through education and communication and management where feasible. Staff attended the Ontario Invasive Plant Council's (OIP) Annual General Meeting, and attended an Invasive Species Management Tour hosted by Credit Valley Conservation. These events were very informative, and gave attendees tips and hints on efficient invasive species management and tools to incorporate into the Strategic Action Plan.

Staff demonstrate a Puller-bear to remove an invasive species tree from a site.

New Kid on the Invasive Species Block

Giant Hogweed flower head.

This year Central Lake Ontario Conservation staff discovered a new intruder in the jurisdiction, Giant Hogweed (Heracleum mantegazzianum). As in many other jurisdictions, Giant Hogweed was a hot topic this year. An ornamental flower from East-Asia, which spreads prolifically when its large flower heads go to seed; it can reach heights of up to 4m (14ft), with leaves spreading up to 1½m (5ft) wide. Staff have learned how to differentiate this species from other native and non-plants found in CLOCA's jurisdiction, such as Cow Parsnip (Heracleum lanatum), Angelica (Angelica pupurea) and Queen Anne's Lace (Daucus carota).

Giant Hogweed is more than just an invasive species, as it poses a significant health risk. The sap contained in its stem and leaves, can cause phytophotodermatitis, causing blistering and skin irritations that react when exposed to sunlight, persisting for several years. While no specimens were found in CLOCAs Conservation Areas, there were sightings in ditches and on private property, a total of five sightings were confirmed, all of which are located in the Municipality of Clarington. A warning and fact sheet was posted on the CLOCA website, and staff fielded questions for the Oshawa Express. Correspondence to the Town of Clarington was issued from Natural Heritage staff to begin to work on a solution for addressing this plant and its management. Constituents in CLOCA's jurisdiction are being asked to report this plant to CLOCA and contact a licensed professional under the Ontario Pesticide legislation regarding its removal.

Summer staff sizing up a Giant Hogweed plant.

Veyance Dam Improved Fish Passage Update

In 2008, CLOCA staff initiated a project to investigate options to improve the upstream migration of fish at the Veyance Dam (formerly Goodyear) in Bowmanville. The vast majority of optimal spawning and rearing habitat is upstream of the dam. The dam is currently a barrier to fish migration, but incorporates a fishway to allow for jumping species like salmon and trout to pass while restricting the migration of non-jumping species. While the current fishway design allows for jumping species pass, it is unsuccessful at passing larger individuals and is difficult for fish to find.

A steering committee was developed to guide the selection of fishway options and included representation from the Ontario Ministry of Natural Resources, Fisheries and Oceans Canada, Valleys 2000, and local industry and angling clubs. Several options were investigated and evaluated using a decision matrix with a natural step-pool bypass channel coming out on top. A report is currently being developed to document the results of the project. CLOCA plans to move forward with our partners to begin raising funds to implement the design and construction of the fishway.

CLOCA staff created a rendering of the proposed fishway for fund raising purposes.

Land Acquisition

Lynde Shores Conservation Area – Schwartz, Weiss, Adler Tract

The Lynde Shores Conservation Area has long been a target for acquisition because of the provincially significant Lynde and Cranberry Marshes, and their contribution to the natural heritage systems within both the Lynde Creek watershed and across the Whitby waterfront. Land acquisition for the Lynde Shores Conservation Area commenced in 1972 and remained active until 1978, followed by a 20 year hiatus. The Lynde Shores Conservation Area Land Acquisition Project became active again in 1998, and over the following decade resulted in the acquisition of 169 hectares (417 acres) of contiguous sensitive natural heritage lands. In December 2009, the extremely important 40.2 hectare (99.29 acre) Schwartz, Weiss, Adler Tract was acquired with funding assistance from the Region of Durham, and the Town of Whitby. This recent acquisition brings the total landholdings within the Lynde Shores Conservation Area, to about 389 hectares (961 acres).

Durham Environmental Advisory Committee – Jessica Markland Partnership Award

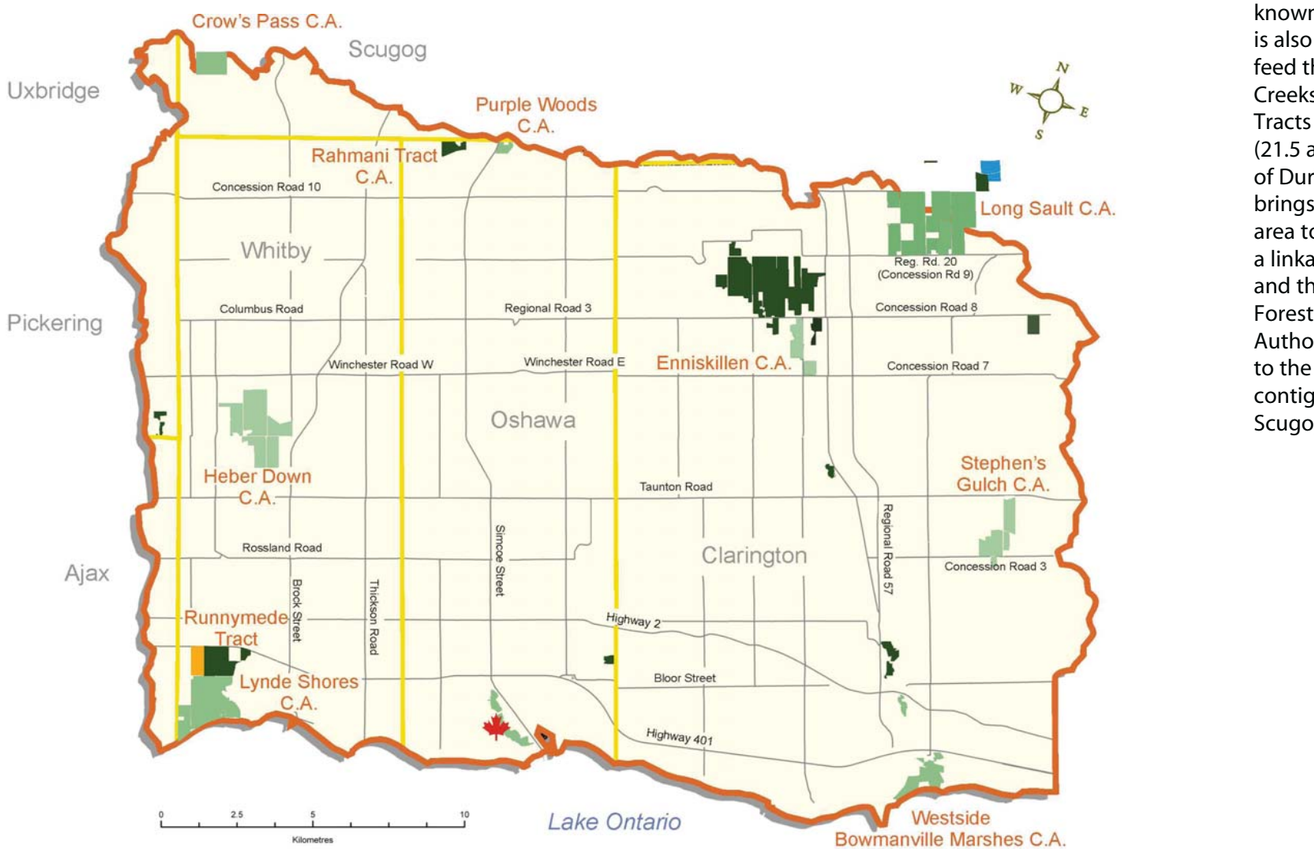
The Durham Environmental Advisory Committee (DEAC) is a volunteer advisory committee established by the Council of the Region of Durham to provide advice to Regional Planning Committee and staff on environmental issues affecting Durham Region. As part of its commitment toward community outreach and stewardship, DEAC established the Environmental Achievement Awards Program in 2003, to recognize and acknowledge the environmental achievements of individuals and organizations in the public, private and non-profit sectors within Durham Region.

In 2009, CLOCA, the Province of Ontario, and the Town of Whitby were honoured with the Jessica Markland Partnership Award for working together since 1998 to secure 146 ha (362 acres) of land in the Lynde Shores area of the Whitby waterfront.

Thank You!

The 2009 land acquisitions were made possible with support from:

Regional Municipality of Durham
Ducks Unlimited Canada
Nature Conservancy of Canada
(The Ontario Greenlands Program)
Town of Whitby
Central Lake Ontario Conservation Fund



A section of the Schwartz, Weiss, Alder Tract lands within Lynde Shores Conservation Area.

Long Sault 2009 Land Acquisition
Lynde Shores 2009 Land Acquisition
Municipality Border
Conservation Areas (Public Access)
Conservation Areas (Limited Public Access)
Central Lake Ontario Conservation Watershed Boundary
Central Lake Ontario Conservation Administrative Office

Long Sault Conservation Area – Hachey Tracts

The Long Sault area continues to be a major focus for acquisition efforts by CLOCA. Designated as Natural Core and Linkage Areas through the Oak Ridges Moraine Conservation Plan, the Long Sault area's large expanse of forest is regionally significant and provides core wildlife habitat where species of concern are known to occur. The area's groundwater significance is also demonstrated by the springs and seeps that feed the headwaters of the Bowmanville and Soper Creeks. In 2009, CLOCA acquired the adjacent Hachey Tracts – 24.7 hectares (60.99 acres) and 8.7 hectares (21.5 acres) with funding support from the Region of Durham. The acquisition of the Hachey Tracts brings total public landholdings in the Long Sault area to 540 hectares (1,335 acres). They also provide a linkage between Long Sault Conservation Area and the roughly 445 hectare (1100 acre) East Cross Forest lands owned by Kawartha Region Conservation Authority in the Township of Scugog immediately to the north. A total of 985 hectares (2435 acres) of contiguous natural heritage lands in Clarington and Scugog are the result of this linkage.

With more than 18km of trails, Long Sault Conservation Area offers passive recreational opportunities, such as, hiking, cross-country skiing and mountain biking.

Conservation Areas

Heber Down CA Recreation Infastructure Canada Trail Upgrades Funding

In July, 2009 it was announced that Authority staff were successful in solidifying a grant through a joint funding opportunity with both Recreational Infrastructure Canada and the Ontario Recreation Program. The funding has provided an injection of energy and enthusiasm within the area and has begun to spur a new vision and redevelopment aspirations associated with the Heber Down Conservation Area (HDCA).

Funding from the above programs have allowed for the following improvements:

Trail Refurbishing

Wet sections of the existing Railway Trail Loop were refurbished in order to permanently repair an approximate 300m (1000 foot) section of trail challenged by a high groundwater table. Other smaller trail sections within the HDCA, have also been repaired.

New Trail Construction

<u>Springbank Trail</u>

Several years ago the Springbank Trail was closed due to aging infrastructure, including unsafe boardwalks and wet unwalkable trails. Authority staff have worked in conjunction with Sustainable Trails a consultant and member of the Professional Trail Builder's Association, to relocate and construct a 450m (1500 foot) section of the Springbank Trail. The new trail location was constructed through challenging terrain and was carefully delineated in keeping with the preservation of environmentally sensitive features. Sustainable Trails addressed drainage issues during construction with French drains and underlay matting to separate the trail surface from the underlying soft ground conditions.

Along with a series of community and volunteer events to finish some of the trail details, we can now offer users a challenging hike for advanced trail enthusiasts with stunning panoramic views of the west Devil's Den / Lynde Valley.

Springbanks Trail

<u>Wagner Trail</u>

Another trail segment approximately 400m (1200 feet) in length was constructed to the east of the recently acquired Wagner parcel. The new trail section connects the Devil's Den Trail Loop with the Rail Trail Loop, just east of the access point to the group camping area. This creates a loop trail system that is safer and more accessible to a variety of visitors. The new section of trail will assist in diverting the public away from the Wagner home and mitigate potential lease related issues with Ontario Hydro imposed in recent years.

Wagner Trail

Devil's Den Trail – East of Pond

Approximately 250m (820) feet) of new "bench cut" trail construction was completed to the east of the Devil's Den pond. This trail segment provides area users with a unique trail and an alternative means of climbing the valley wall. The trail has already stirred significant interest in the hiking and biking community. The trail is intentionally narrow and provides the user with an excursion through cedar forest. Remnants of a former Grand Trunk Railway concrete pier are evident as the trail meanders up the valley wall.

Fencing

Fencing has been installed at the east end of Lyndebrook Road and along Cochrane Street to deter inappropriate activities. Conservation Area users are now being encouraged to start their trail experience in the main parking lot.

The Town of Whitby Operations Department completed significant ditching along the west side of Cochrane Road in an effort to deter illegal dumping and access to the Heber Down Conservation Area.

New Washroom Building

A new washroom building has been constructed near the main parking lot to provide our visitors with a highly visible and centrally located facility. The building consists of fully accessible male and female washroom stalls and is constructed of materials that will make the building sustainable in the long term. The four existing washroom vaults that are currently in a state of disrepair will be decommissioned in favour of the new building.

Purple Woods CA

Staff have been creating a plan for the rehabilitation and redevelopment of the Maple Syrup Festival infrastructure at the Purple Woods Conservation Area. The Festival attracts over 1,000 attendants daily during the event, and is no longer able to accommodate increasing public demand. Over the 35 years of the Festival's operation, the facility has not kept pace with the growing attendance numbers. Inadequate parking and road traffic problems plague the event, and visitors face crowding, and long line-ups, a cold tented eating area, and rustic outhouses. Most of the festival attractions are held around the sugar shanty, at the southern portion of the Conservation Area. Access from the parking area to the event areas is by a long walking trail down a steep slope – a challenge to able bodied people, not to mention those with disabilities.

Proposed building

The vision for the improved operation includes:

~ Adequate on site parking to eliminate traffic issues. The parking area will also include state of the art stormwater and groundwater recharge management works.

~ Purple Woods Heritage Centre will facilitate our pancake house in a building (approximately 370 m^2 (4,000 ft^2) that will house a kitchen facility, washrooms, retail store, and eating area. The building design and materials will be in keeping with the rustic nature of traditional maple syrup production. The location of the facility at the top of the hill, along with expansion of the parking lot, will allow us to serve our visitors in an accessible and central location. Recycled wood materials will incorporate barn features with views to the woodlot and from the top of the Oak Ridges Moraine.

~ Continued operation of the traditional maple syrup experience on the trail and at the sugar shack, engaging visitiors in 400 years of maple syrup production from First Nations to modern day through our interpretive stops. Wagon rides will continue at the bottom of the hill, but in a more open and uncongested setting.

~ Provision for extended year round use of the facility for conservation and community events and meetings.

Funding applications were submitted to an Infrastructure Stimulus Fund for Not For Profit Entities in Ontario and to the Southern Ontario Development Fund.

Conservation Area Management Planning

Stephen's Gulch Conservation Area Management Plan

The conservation area management planning process was initiated for Stephen's Gulch Conservation Area in 2009. As Bowmanville's population continues to expand, public use is expected to increase significantly at this property over the next several years. By developing an up to date management plan we can better protect the significant features of the property. Management planning activities in 2009 were focused on field data collection and background research. Staff conducted a number of natural heritage and public use inventories through the 2009 field season including inventorying over 60 vegetation communities, completing breeding bird surveys, undertaking water quality and fisheries assessments, and inventorying existing public use and associated infrastructure.

Heber Down Conservation Area Public Use Strategy

The provision and promotion of safe outdoor recreation activities, services and programs is something that invariably caters to the demand of rapidly growing communities situated within Durham Region. Safe, accessible and affordable recreation in a natural setting such as the Heber Down Conservation Area, will continue to enhance the quality of life for residents and will foster a much needed reconnection with nature. While providing opportunities for recreation is an important aspect within Heber Down Conservation Area, the area is also extremely sensitive. Large areas of Provincially Significant Wetland, provincial significant Areas of Natural and Scientific Interest, forested valleys adjacent to the Lynde Creek, and groundwater functions synonymous with the Iroquois Beach physiographic unit make Heber Down Conservation Area an important core area within the larger Lynde Creek watershed natural heritage system.

Kids' Fishing Day at Heber Down C.A.

For these reasons, CLOCA is developing the Heber Down Conservation Area Public Use Strategy in order to provide more effective management of the area (including better natural heritage protection), while catering to specific recreational needs, demands and users.

The following key components are being developed as part of this strategy:

~ Review of background information pertaining to the Heber Down Conservation Area

~ Natural heritage assessment

~ Public use assessment including a thorough review of existing infrastructure

~ An assessment of public issues, needs and provisions

~ Analysis of anticipated future conditions

~ Phased approach to the redevelopment and restoration of the Heber Down Conservation Area

Other Areas

Staff conducted a number of natural heritage and public use inventories for several other CLOCA properties through the 2009 field season. This will provide baseline data for future management plans within the Cane Tract and the Hampton Conservation Area, and assist in the interim review of the Long Sault Conservation Area Management Plan (2004).

Data collection within these properties included:

~ inventorying vegetation communities within the Cane Tract and newly acquired properties that are now part of Long Sault Conservation Area

~ completing breeding bird surveys within the Cane Tract, Hampton Conservation Area, and Long Sault Conservation Area

~ undertaking water quality and fisheries assessments within the Cane Tract

~ inventorying existing public use and associated infrastructure within Long Sault Conservation Area and the Cane Tract

Conservation Area Work Days

Long Sault Conservation Area

The Long Sault Management Plan recommended decommissioning of several sections of trail, and 15 volunteers, supported by CLOCA staff, worked on Saturday May 30th to fulfill this recommendation. Trail entrances were barricaded with branches and tree limbs, and trees were transplanted from the adjacent forest and replanted in the old trail alignment. Decommissioning these trail segments will help to enhance forest interior habitat within the Long Sault Conservation Area.

Taking a break for a group shot.

Heber Down Conservation Area

Close to 30 volunteers came out to Heber Down Conservation Area on Saturday October 24th to plant 500 native trees and shrubs. These plantings will better direct trail traffic and help with the Redside Dace Recovery Project in the Lynde Creek Watershed. Volunteers also helped to finish off a new section of the Devil's Den Trail. This conservation area workday was greatly enhanced as a result of funding support from the Ontario Ministry of Natural Resources Community Fisheries and Wildlife Improvement Program.

Tallgrass Communities Discovered At Long Sault Conservation Area

Central Lake Ontario Conservation (CLOCA) staff are excited about the discovery of several large patches, approximately 6 hectares (14.8 acres), of tallgrass prairie habitat at Long Sault Conservation Area. "Tallgrass communities", also known as tallgrass prairies and savannas, are natural grasslands with a great diversity of grasses, wildflowers, and animal life. The dominant tallgrass species found in these new locations include Big Bluestem (Andropogon gerardii) and Switchgrass (Panicum virgatum).

Tallgrass was once found throughout the central U.S. and in southern Ontario and Manitoba. Today, less than 1 percent of this North American grassland remains(1). In southern Ontario, tallgrass once covered approximately 1000 km^2 – less than 3 percent now remains(1). Most tallgrass communities have been lost over the past 200 years because of human activities associated with urbanization and agriculture.

Tallgrass is a globally imperiled ecosystem and one of the most endangered ecosystems in Canada; is part of Ontario's natural heritage; provides habitat for a wide range of wildlife species, including many that are officially designated as rare at the global, national or provincial level.

(1) Rodgers, L. 1998. Tallgrass Communities of Southern Ontario – A Recovery Plan. Prepared for the World Wildlife Fund Canada and the Ontario Ministry of Natural Resources. February, 1998.

Trafalgar Castle School

On Friday October 16, roughly 30 students and their teachers from Trafalgar Castle School in Whitby, volunteered their services to complete the construction of the new Springbanks Trail in Heber Down Conservation Area. These eager young women spent their day planting trees and hauling wheelbarrows of wood chips along the new trail. This Community Outreach program run by the school provides Trafalgar Castle students with the opportunity to give back to the local community. The students ended the successful day with a hike through the Conservation Area. In addition to their volunteer labour, the School presented CLOCA with a donation to go towards future projects within the conservation area.

Earth Day Activities

Lynde Shores Conservation Area

The public were invited to give nature a helping hand at CLOCA's annual Earth Day event that was held at Lynde Shores Conservation Area on Saturday April 25th. Close to 90 volunteers helped to plant over 2100 trees in an effort to transform a newly acquired regenerating meadow into a 1.6 hectare (4 acre) mixed forest habitat for wildlife and to enhance water quality. The eager volunteers also undertook some understory planting improvements adjacent to Cranberry Marsh. Participants were rewarded for their contributions with a barbecue lunch. It is expected that when mature, these trees will also help to improve air quality by absorbing roughly the equivalent amount of carbon dioxide produced by seven cars over the course of a year.

Come on, I got my trees lets get plantin!

Watershed Heros

Students from Tafalgar resurface the trails.

Bowmanville Westside Marshes Conservation Area

Without fail, the Enniskillen Scouts continued their long standing annual spring tradition of helping to plant trees on CLOCA lands within their home watersheds. This year as part of our Earth Day celebrations, over 40 scouts and parents helped to plant about 600 trees adjacent to the Soper Creek in Bowmanville Westside Marshes Conservation Area. Trees were planted in a meadow where reforestation was recommended in the Bowmanville Westside Conservation Area Management Plan (2006). Once mature, this forested area will help to buffer disturbances associated with the railway to the north, improve wildlife habitat, and enhance water quality.

CLOCA's 2009 Earth Day activities were greatly enhanced as a result of funding support from both the Evergreen Ministry of Natural Resources Community Tree Planting Grant Program and Trees Ontario Foundation.

As a Conservation Authority, we are very committed to engaging families and youth in experiential activities at our Conservation Areas. Funding from these programs went a long way to help us implement priority aspects of the Management Plans created for the Lynde Shores and Bowmanville Westside Conservation Areas. Their support helped us with the ultimate goal to enhance and maintain the ecological integrity of the adjacent provincially significant wetlands, their creeks and the watersheds which connect them.

...Bowmanville Westside Marshes continued

The funding we received was applied to the cost of purchasing 2,700 native trees and shrubs which restored 2 hectares (5 acres) of habitat through reforestation. In addition to this contribution, we engaged 100 individuals in these plantings and completed survivor monitoring assessments with summer student staff.

Watershed Awards & Environmental Expo

Central Lake Ontario Conservation (CLOCA) hosted the 11th, biannual Watershed Awards on December 1st at Camp Samac in Oshawa presenting 19 awards in recognition of our appreciation for outstanding environmental contributions made by our community toward the stewardship and enhancement of our watersheds.

The following is a list of **Watershed Award recipients.**

~ Cranberry Marsh Raptor Watch
~ Ontario Federation of Anglers and Hunters
~ Invading Species Awareness Program
~ Kids' Fishing Day Committee
~ The Royal Ashburn Golf Club
~ John Visser
~ Micheline Metropolyt
~ Gerald Ernest

Mr. John Visser accepts his award for volunteer service.

Project: Durham Children's Groundwater Festival

~ TD Friends of the Environment
~ Ontario Power Generation
~ Durham Region Works Department
~ Municipality of Clarington
~ Oshawa Power & Utilities Corporation
~RBC Foundation
~ Children's Water Education Council (CWEC)

Special Recognition

This award recognizes continuing leadership and contribution towards the health of CLOCA's watersheds. Recipients may be from any of the other categories and may not be presented every year.

2009 Special Recognition Recipients

~ Ducks Unlimited Canada
~ Oak Ridges Moraine Foundation
~ The Cane Family

Project: Durham Children's Groundwater Festival

~ Durham Region Health Department
~ TransCanada

Mr. Gary Down (centre) accepts Ducks Unlimited Special Recognition Award from CLOCA Chair Gerry Emm. Assisting with the presentation are CLOCA Directors Mayor Pearce, (far left) and Mayor Perkins.

HSBC Finance

Central Lake Ontario Conservation banked on the staff at HSBC Finance for a little assistance with trail and habitat improvements at the Lynde Shores Conservation Area Chickadee Trail in June. In 2008, the HSBC Finance Whitby office received a corporate environmental award in recognition of their efforts to green up their office. This award was part of the HSBC's Across Canada Recycling Challenge, designed to engage 43 office locations 1,121 staff over a four week period. The coveted prize consisted of $2,000 given to the top 3 offices to then donate to environmental charities of their choice.

Mr. Kemp (right) representing HSBC helps CLOCA staff Cathy Grant plant some native shrubs.

While the award demonstrates a commitment to their office environment, the staff at HSBC Finance in Whitby, are ensuring their community is a little greener by donating their winnings to Central Lake Ontario Conservation. But it came with a catch. They also wanted to engage their staff in some environmental volunteer work as part of the donation. A trail improvement day was hosted at Lynde Shores Conservation Area with HSBC Finance staff in June.

Deloitte & Touche LLP Impact Day

We had a great time on Saturday September 26th, with Deloitte & Touche employees, their friends and family as we made a few trail improvements and enhanced the forest cover at Heber Down Conservation Area. More than 40 volunteers rolled up their sleeves and dug in literally to add the finishing touches to the new Springbanks trail and artistically closed off the old trails.

Clean Water Land Stewardship Program

Private Land Tree & Shrub Program

Once again in 2009, CLOCA offered a successful Private Land Tree and Shrub program. The intent of the program is to encourage rural private land tree planting within the jurisdiction, as such the program remains revenue neutral. 2009 saw the participation of nearly 40 landowners planting in excess of 6,500 locally sourced and grown native trees and shrubs. Tree orders were collected during the months of February, March and April for May 1st pick up. Landowners picked their trees up from the Enniskillen Education Centre where they were able to get instruction on tree handling and planting as well as information on other best management practices for rural landowners.

Well Upgrade and Decommissioning Program

The Well Decommissioning and Upgrade Program is a stewardship program aimed at protecting the groundwater resources within and in the immediate vicinity of CLOCA jurisdiction. Under this program, CLOCA staff provides technical and financial assistance to private well owners who intend to properly decommission or upgrade their well, to meet standards set under the water wells regulation (O. Reg. 903). Proper decommissioning of an unused well and upgrading of poorly constructed or poorly maintained wells, can prevent contaminants from moving to deeper aquifers.

In 2009, CLOCA provided assistance in decommissioning 7 and upgrading 10 water wells and increased the number of assisted projects to a total of 62 wells since the program began in 2004.

Caring For the Moraine Landowner Contact Program

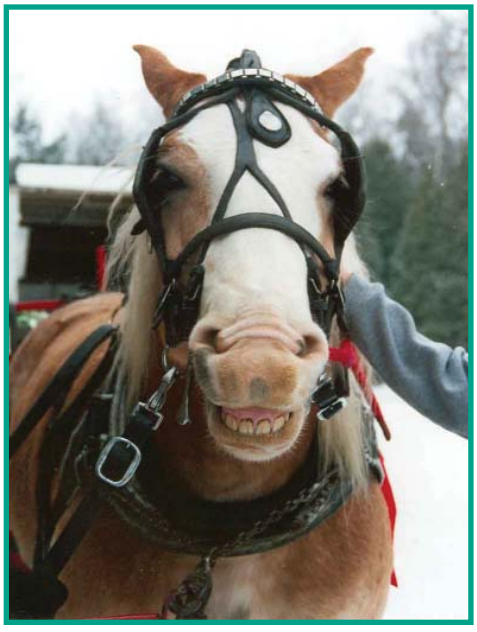
CLOCA once again worked in partnership with the Oak Ridges Moraine Foundation to deliver the Caring For the Moraine Project. As part of our 2009 commitments, we contacted 230 landowners in the headwaters of the Oshawa and Lynde Creeks in Whitby, Oshawa and Scugog Township. Landowners were provided with information on the Oak Ridges Moraine and a variety of stewardship programs available to landowners. They were given an opportunity to book a free site visit from stewardship staff. In 2009, we visited 18 landowners and implemented 4 projects through this program, restoring 2.8 hectares of forest cover, .5 hectares of wetland, protecting a headwater creek with a low level bed crossing for farm equipment and planted 750 metres of wind breaks. In addition to our landowner contact, we hosted a workshop at Enniskillen Conservation Area on the topic of tree identification. More than 35 landowners participated in the workshop, with a demonstration talk and walk by local forester, Ed Borczon. Workshops and private land stewardship projects will continue to be available to landowners in the Oak Ridges Moraine in 2010.

Staff taking soil samples.

Over 35 landowners participated in the Tree Identification Workshop held at Long Sault C.A.

Healthy Land, Healthy Horses

In 2008, Central Lake Ontario Conservation (CLOCA) joined Toronto and Region Conservation and 10 other partners in securing financial support for a proposal, entitled Healthy Farms for Healthy Horses. This GTA wide Equine Stewardship Program with partners in York, Durham and Peel Regions was successful in recieving funding from the Ontario Soil and Crop Association's Nutrient Management Beneficial Management Practices Demonstration Grant. The Grant required the partnership to establish a steering committee to provide technical advice to program development. The committee is well on its way to building capacity in the equine community. To date we have delivered a successful full day workshop to 60 equine owners and are working on the delivery of a second workshop in Peel Region in 2010. A number of literary resources, media articles and training programs are in development to bring environmental stewardship to the forefront of this growing industry in our regions.



Did you know?
Ontario is the 4th largest horse industry in North America with a horse population estimated at more than 375,000.

New Wetland Creation Project Leads to Fundraising Event at the Royal Ashburn Golf Course

The Royal Ashburn Golf Club recently undertook the creation of a large multi-cell wetland on their property with assistance from CLOCA's Clean Water Land Stewardship Program. The Paterson family, owners of the Royal Ashburn Golf Club, wanted to have a more permanent, sustainable wetland in place with manageable water levels. CLOCA, working together with Royal Ashburn Golf Club, Ducks Unlimited Canada, the Oak Ridges Moraine Foundation and the Ontario Federation of Anglers and Hunters, were able to design and implement this project to address the mandates of all the partners.

An existing basin formed the main anchor for the habitat work. Excavating deeper to create suitable fish habitat generated the necessary material used in the building of the earthen containment berms in the cells above and below the central habitat cell. Variable water level management devices were installed to optimize water depths within each cell to create ideal conditions for aquatic plant growth. The goal is to create a highly interspersed and diverse plant community with 50/50 ratio of water and aquatic plants. This will result in the highest value habitat for waterfowl, water birds and other wetland dependent wildlife such as amphibians and reptiles. These new wetland habitat features, will positively enhance this section of the Lynde Creek watershed over the long-term.

This partnership extended beyond the wetland project to include a media event highlighting the importance of wetland stewardship to all levels of government, and the running of the first annual Wetland Conservation Golf Event. This golf event raised just over $60,000 for wetland related youth education programs and future wetland conservation projects.

Durham Children's Groundwater Festival

The 12th annual Durham Children's Groundwater Festival was held at Camp Samac in Oshawa, during the week of Sept. 28th with more than 4,000 grade 4 students attending. Through the hands-on interactive learning centres, they discovered the importance of water in their every day lives, carrying important water conservation and protection messages back to their home and community.

Since 1998 approximately 50,000 Grade 4 students have participated in the event and 5,000 secondary school students have hosted the activity centres. Our secondary school volunteer program provides trained youth coordinators at the learning centres. Many of them participated as grade 4 students in the past and their return as activity leaders inspires them to share their knowledge in a fun and exciting atmosphere.

Various sponsors show the benefits of low flush toilets.

The Festival hosted the Children's Water Education Council (CWEC) workshop on "How to run a Groundwater Festival" for the fourth year in a row. The Festival is used by CEWC as a working model to give workshop participants the full perspective of how to run a festival. Enhancements to the Festival in 2009, included a new learning centre; So You Think You Can ENVIRO Dance, where students were presented with environmental questions in a verbal reality TV show format, and rewarded with the opportunity to dance when they got the correct answer.

The festival organizing committee is looking forward to 2010, continuing to enhance and provide the experience and tools for students, teachers and volunteers to become water stewards in their homes, school and community.

Purple Woods Maple Syrup Festival

The 2009 Maple Syrup Festival at the Purple Woods Conservation Area was another success,

celebrating 34 years of community outreach with just under 14,000 visitors in attendance this year. The festival was held from Saturday March 14 through to Sunday March 22nd and the weekends of March 28/29, and April 4/5.

A long time family tradition for Durham Region residents, visitors were able to see how syrup has been made over the past 400 years and compare that with the modern methods of today.

This year we were pleased to continue enhancing our Pioneer Schoolhouse, First Nations & Early Settlers features, as well as making general on site improvements for public enjoyment. Additional activities included wagon rides, demonstrations, nature crafts, shopping at our sugar shack store and tasting some real maple syrup on pancakes cooked up by a variety of community groups.

Corporate sponsorship continues to be a significant part of our program, helping offset the costs of special activities and promotion of the event itself. We continued to partner with local businesses, environmental and community groups to operate the Festival. On our list of growing partnerships, we continued to work with Ontario Power Generation, Ontario Works – Environmental Assistance Program, Oshawa Skeet and Gun Club, Superior Propane, Rogers Cable, Cameron's Coffee, Oak Ridges Moraine Foundation, CKDO 1350, 94.9 The Rock FM and KX96. The 5th annual Community Food Drive collected over 700 kilograms of food to donate to the Salvation Army and Feed the Need in Durham.

Pipeline used to collect maple sap at Purple Woods.

In Our Watershed & Outreach Education

In Our Watershed delivered curriculum based environmental programs to 5,300 elementary students across Durham Region. A total of 35 high school students participated in the Envirothon competition. With the new environmental education curriculum in place, staff are updating existing programs to meet Ministry of Education Expectations. Staff have met with the Ministry of Education's Environmental Education Lead and have given a presentation to outline what we can offer schools in our watershed. School boards are now required to have an appointed Environmental Education contact person. We continued to offer our seasonal programs throughout the year. These programs included Watershed in my Backyard (formerly In Your Watershed), Creek and Waterways Awareness (Free), Winter Watershed Walks, Snowshoeing and the Purple Woods Maple Syrup Education Program. We attended a variety of workshops and conferences to continue networking and building our knowledge base.

We hosted 7 Watershed Wilderness Nature Hikes in 2009 to watershed residents with over 200 participants attending. We also continued our partnership with Ontario Power Generation and participated in their Tuesday's on the Trail program in July.

Event	Location	Date
Annimal Tracking	Long Sault C.A.	Jan.
World/ Wetlands Day/ Snowshoeing	Lynde Shores C.A.	Feb
Hoot & Howl Hike	Enniskillen C.A.	Feb.
Earth Hour	Purple Woods C.A.	March
Amphibian Monitoring	Hampton C.A.	April
Mother's Day Hike & Tea	`Heber Down C.A.	May
Family Raptor Watch Day	Lynde Shores C.A.	Sept.

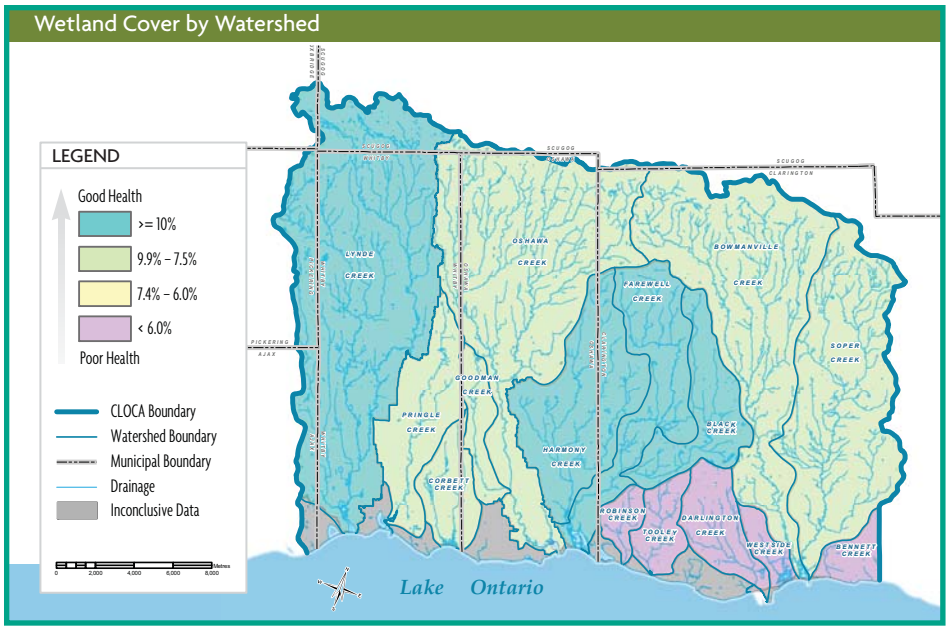
Watershed Lesson

Watershed Checkup

In 2007, using the Conservation Ontario guidelines for Watershed Reporting, Central Lake Ontario Conservation (CLOCA) embarked on The Watershed Checkup to determine the overall health of the natural land and water resources we find throughout our watersheds. The Watershed Checkup is designed to measure the impacts our living and lifestyles have had on our watersheds, and showcase steps we have taken to make improvements and opportunities to work with our communities towards healthy watersheds. The Watershed Checkup is a baseline or a starting point to help us better understand and communicate how water and land resources are affected on a watershed scale, providing an action plan for government, community leaders, residents and businesses to help us reinvest, protect, restore and enhance our watersheds "natural" capital. Our intent was not to point fingers and address blame, but to fairly identify the challenges of a growing community and provide solutions and new thinking along with the steps to improve the overall health of our watershed for the people and wildlife that live within it.

The Watershed Checkup was a longer process than anticipated, as we have never in the past, created a public document of this scale and scope from which to launch this Conservation Ontario initiative. It has been a collaborative effort between staff from multiple departments responsible for collection and analysis of data, mapping, writing and messaging along with the creative input of a local graphic designer.

The Watershed Check-up Report entitled Protecting Our Watershed, Nature's Precious Resource, explains verbally and visually what a watershed is and identifies aspects of our key indicators, forests, wetlands, creeks and groundwater. The health of these indicators is measured in graduated scales, using Conservation Ontario's adopted parameters. Each indicator is accompanied by an explanation, assessment of data collected and map that provides a quick visual reference for the health of each watershed. A comprehensive summary of specific CLOCA efforts and programs were further elaborated on in a separate section called, "What we are doing". This is followed by another section entitled "It's your turn" to engage our audiences at home, work, school and on the land, in some positive steps toward improving watershed health.



The Watershed Checkup Report is available online at www.cloca.com.

The Wetland Cover map from the report.

Raptor Watch Family Day

On Thursday September 3rd, Central Lake Ontario Conservation staff and The Cranberry Marsh Raptor Monitoring volunteers hosted the first ever Raptor Watch Family Day at Cranberry Marsh. Three sessions were hosted over the course of the day, engaging over 100 participants of all ages. The raptors identified in the count on that day included Northern Harrier, Osprey, Red-tailed Hawk, Turkey Vulture, Sharp-shinned Hawk and a Merlin. In addition to witnessing raptor migration, our participants saw many other birds including humming birds, roosting cormorants, chickadees who fed from their hands, warblers and nuthatches.

This project was designed to increase our community's appreciation of raptor migration at Cranberry Marsh, a Provincially Significant Wetland located within the Lynde Shores Conservation Area in Whitby, Ontario. The Raptor Watch Family Day provided an opportunity for a local group of dedicated naturalists to share their knowledge of raptor migration with our staff and the general public. We were able to provide our participants with a variety of hands-on resources to assist with the development of future raptor migration volunteers, maintaining the momentum of this program. These resources are now assembled and available to assist us with continuing this activity in the future.

A successful funding proposal was submitted to the James L. Baillie Memorial Fund to support this event. A full report to that foundation was submitted along with thank you and photos of the day.

Raptor watchers gather on the southeast viewing berm at Lynde Shores Conservation Area during the Raptor Watch Family Day.

Coop Student Program

Since 1988 Central Lake Ontario Conservation (CLOCA) staff have drawn on the human resources services provided by a number of secondary and post secondary cooperative education programs. At the secondary level, the Durham District and Durham District Catholic and the Pineridge Northumberland District School Boards support a number of high school Cooperative Education programs. University and College students from UOIT, Durham College and Sir Sandford Fleming are also engaged in our coop placement program. Students can earn credits and gain practical experience through a community placement location like CLOCA.

The benefits of engaging a coop student provide us with an opportunity to preview and train potential summer employees, develops the supervisory skills of our staff, create a sense of community involvement and provide us an opportunity to share our expertise and resources with local schools.

From 2006 to 2009, we engaged 14 coop students from secondary and post secondary institutions for a total of 1500 volunteer hours contributing to CLOCA deliverables. They worked on surface and groundwater quality monitoring, conservation area management, watershed stewardship, education and aquatic monitoring. We had 6 coop students in 2009 providing a range of services including data entry, program development, spawning surveys, conservation area management and the establishment of terrestrial monitoring plots in our Conservation Areas. We estimate the contribution from these students in 2009 to be 250 hours of volunteer time.

Did You Know?

Raptors have three eyelids! They have a top and bottom eyelid plus a third, transparent eyelid which closes laterally across the eye. This special eyelid is called a nictitating membrane and is used to; keep the eyes moist, protect the eyes during flight, and protect the eyes when feeding themselves or their young.

Install, Implement & Operate Enterprise GIS

In 2009 GIS/IS has been busy revamping CLOCA's existing system, to install, implement and operate Enterprise GIS. This is a multi-year program, with the first year focused on purchase, configuration and installation of new equipment.

CLOCA has purchased two new database servers which have been configured for Enterprise GIS, and will house the Authority's information in a failover environment. A hardware/software failure on one of the servers will automatically be taken over by the other server, thus eliminating a crash.

We have also been working on installing and configuring the ESRI Development Network software (EDN). The development server has been acquired, configured and EDN installed by the GIS Coordinator/Database Specialist.

The EDN includes the ESRI enterprise suite of software and provides the ability to create the enterprise spatial data repository, custom tools and web based mapping.

We are designing our geospatial repository in collaboration with Grand River, Lake Simcoe, Rideau Valley CAs and Conservation Ontario. The Spatial Data Engine (ArcSDE) has also been installed. The ArcSDE interfaces with the spatial data residing in the SQL Server Database.

Lastly, the ArcGIS Server has been installed and is presently being configured. The ArcGIS Server provides the application component of Enterprise GIS. There is a steep learning curve involved with this software and Geomatics staff are attending ESRI courses to obtain the skills needed to create, modify and customize ArcGIS Server applications.

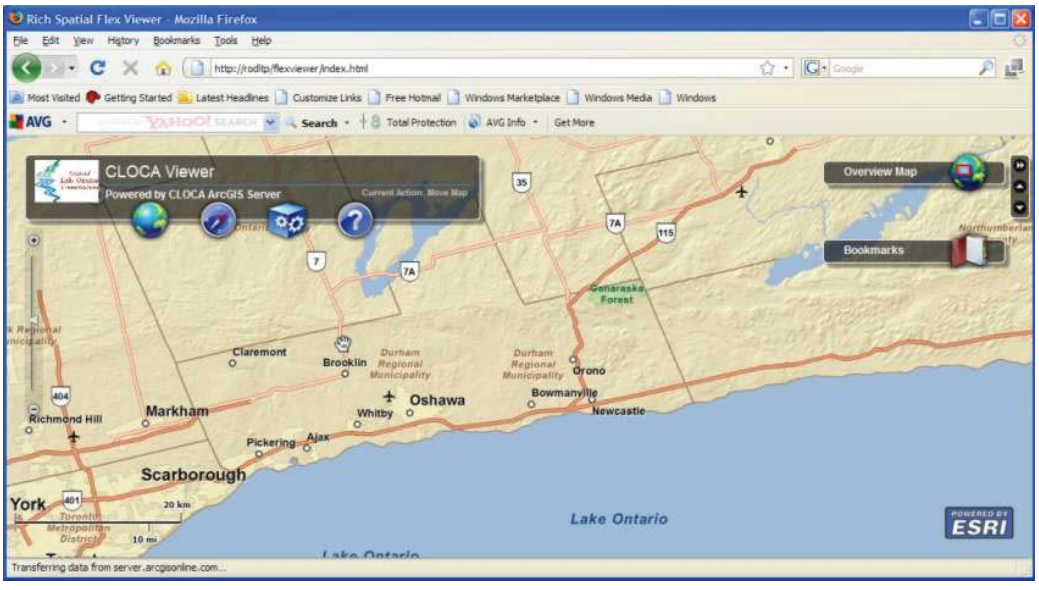
With these improvements, we are able to have all of our data in a fail safe capacity.

Further, this means that data, being located in a central location, can be accessed by designated staff at anytime. There is no longer a need for data to be stored in various locations making it difficult to share and maintain data standards.

Next Steps

The acquisition of the production server and licensed versions of ArcSDE and ArcGIS Server for deployment is next on the agenda. Starting in 2010, the migration of the development server custom applications and tools to the production server will be undertaken as well as the continued tuning, refinement and configuration of the database architecture. We also look forward to the deployment of the ArcGIS Server web interface and the deployment of ArcExplorer Server Edition to staff.

This will eliminate disruptions and loss of productivity for Authority staff, by allowing us to test updates, develop custom applications and software integration at the server.

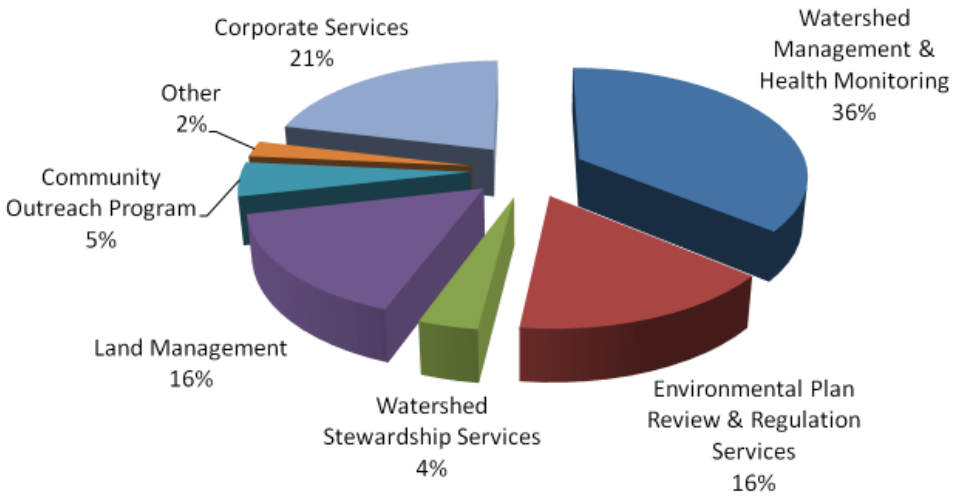


A sample of web based mapping.

2009 Budget Summary

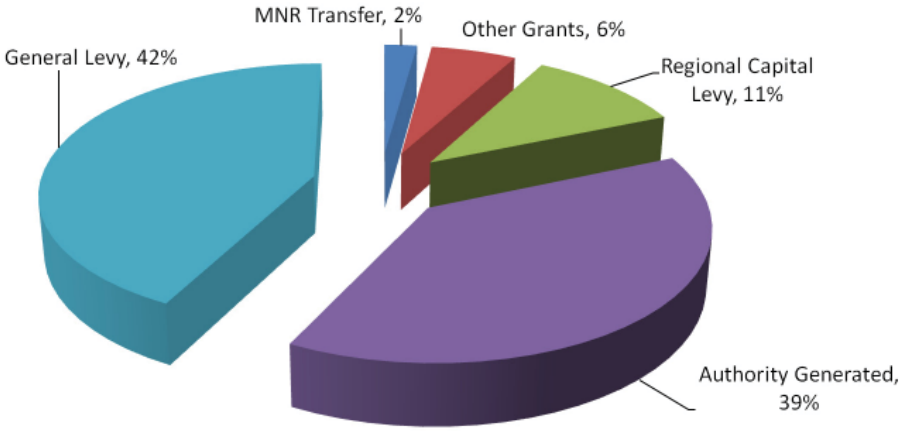
Expenditures

Total Expenditure: $5,660,774



Revenue

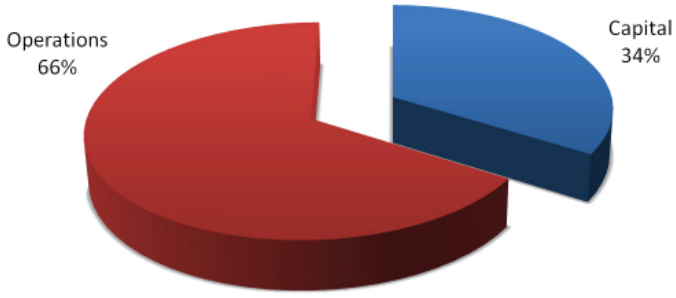
Total Revenue: $5,660,774



Capital & Operations

Total Capital: $1,913,330

Total Operations: $3,747,444



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Printed on sustainable forestry certified paper.