City Stream Watch 2013

Summary Report











City Stream Watch 2013

Hunt Club Creek Cranberry Creek
Ramsay Creek Borthwick Creek Voyageur Creek

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Ecology Ottawa: Ecology Ottawa contributed $500 towards the Adopt-a-Stream Program.

Introduction

The City Stream Watch program was initiated in 2003 by the Heron Park Community Association, National Defence HQ – Fish and Game Club, Ottawa Flyfishers Society, Rideau Roundtable, City of Ottawa and Rideau Valley Conservation Authority.

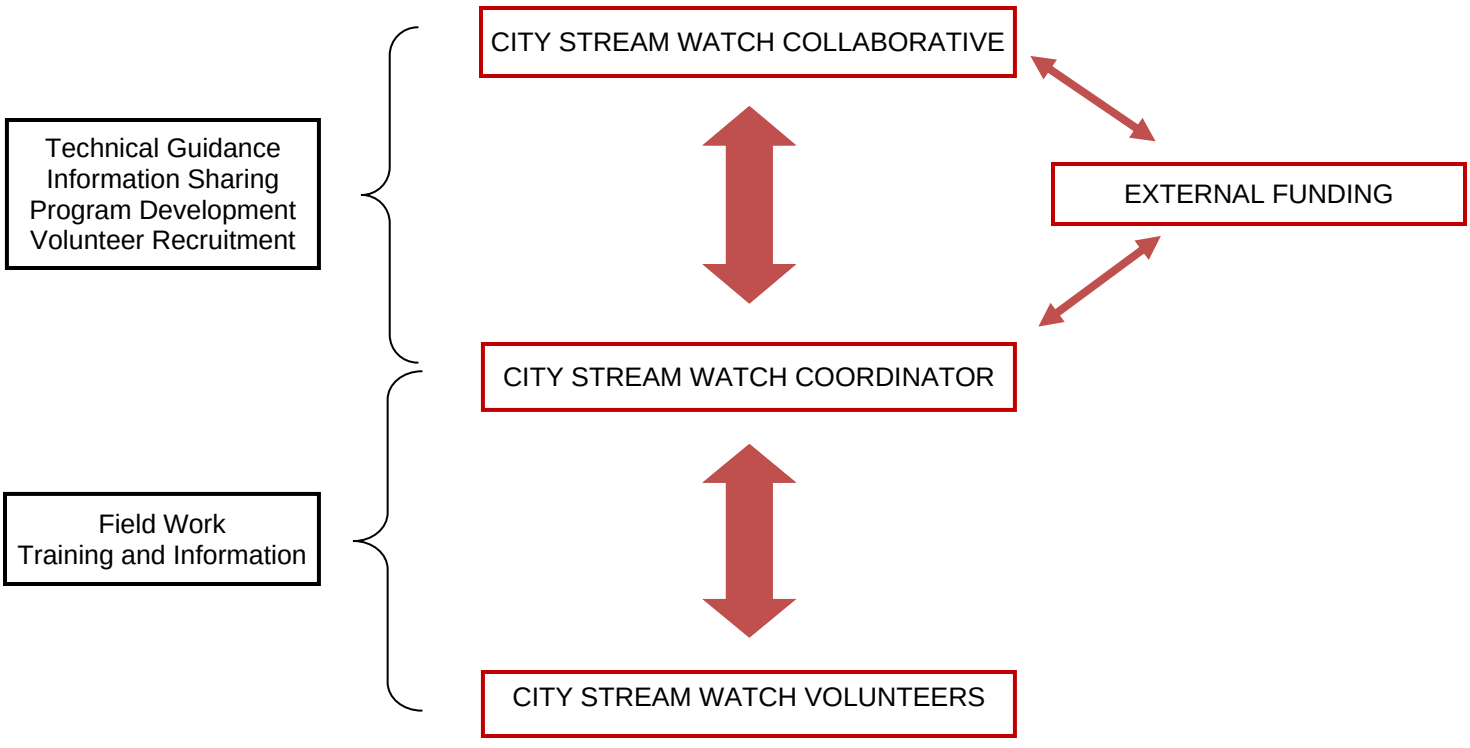
The program has two goals:

- To provide long-term documentation of the aquatic and riparian conditions in our watershed;
- To involve, inform and motivate the public so that our urban and rural streams are more valued, respected and cared for and to ensure that our streams remain a point of pride in our communities.

RVCA, in partnership with the City of Ottawa, National Capital Commission, OMAFRA, Parks Canada, Fisheries and Oceans, North Grenville, Ministry of Natural Resources and Ministry of Environment collaborated to develop the *Lower Rideau Strategy*. The *Lower Rideau Strategy* lists a number of environmental issues and/or threats along many of the tributaries, including poor water quality, loss of vegetation (including wetlands and forest), loss of biodiversity, changes in hydrology and stream alterations, such as channelization or shoreline hardening. The report recommends that to improve conditions along these tributaries, local agencies need a coordinated approach to promote good land stewardship practices and provide public educational opportunities. These recommendations are also the objectives of the City Stream Watch program. Although the *Lower Rideau Strategy* does not include all of the tributaries that City Stream Watch works on, the tributaries of the Ottawa River face the same issues and threats, and the same recommendations apply.

The program conducts stream habitat surveys on 25 watercourses in the City of Ottawa and each stream is monitored every six years. Volunteers, guided by an experienced coordinator and technician, help to collect field data and participate in other activities such as sampling fish communities through seining and electrofishing, aquatic invertebrate sampling, stream garbage clean-ups and habitat rehabilitation projects. Figure 1, on page 5, is a map with the stream locations and corresponding year that City Stream Watch monitors. In the years between survey cycles, streams can be monitored by volunteers through Adopt-A-Stream, an additional City Stream Watch program.

City Stream Watch Organizational Chart



Stream Habitat Assessment Methodology

The City Stream Watch program uses a stream characterization assessment protocol for surveying streams. The protocol was originally developed by the Ontario Ministry of Natural Resources (MNR), but has been modified by the RVCA to make it more effective for RVCA monitoring purposes.
In 2008, changes were made to the field sheets to provide more detail in the stream data. Each stream is monitored on a cyclical basis every six years to help track changes over the long term and measure success of stewardship and restoration efforts. Throughout the field season, for each stream being surveyed, staff and volunteers begin at the mouth of the stream and survey to its headwaters. The following data is recorded for each 100 metre segment:

- Stream width and depth, bankfull width and depth
- UTM coordinates for the start and end of each 100 metre section
- Water quality parameters: dissolved oxygen, conductivity, pH, temperature
- Air temperature
- Overhead cloud cover
- Photographs of start and end of section
- Human alterations, land use, bank stability, bank composition, shoreline vegetation types
- Instream morphology, instream habitat (substrate, vegetation abundance and type, woody debris, vascular plants, undercut banks)
- Details on beaver dams, stormwater outlets, tributaries and migratory obstructions to fish passage
- Pollution/garbage observed
- Wildlife observed
- Enhancement and restoration opportunities

Measuring wetted width

Measuring 50 metres upstream

Recording beaver dam features on Borthwick Creek

Measuring water quality parameters

Headwater Drainage Feature Protocol (OSAP)

The City Stream Watch program has added the Headwater Drainage Feature (OSAP) protocol to the program in 2013. This protocol measures zero and first order headwater drainage features (HDF). It is a rapid assessment method characterizing the amount of water, sediment transport, and storage capacity within headwater drainage features (HDF). RVCA is working with Toronto and Region Conservation Authority (TRCA) and the MNR to implement the protocol with the goal of providing standard datasets to support science development and monitoring on both the interim guideline for headwater drainage features and existing mitigation strategies.

Additionally, this module provides a means of characterizing the connectivity, form and unique features associated with each HDF (OSAP Protocol, 2013). An initiative is underway to evaluate how these data can help in understanding the cumulative contributions of individual headwater drainage features on the downstream watershed state (see Stanfield et al., 2013).

Headwater drainage features have not traditionally been a component of monitoring efforts, and as such, little is known about their form and function in the landscape (OSAP, 2013). These features may provide direct, both permanent and seasonal, habitat for fish by the presence of refuge pools, seasonal flow, or groundwater discharge. They may also provide indirect habitat through the contribution of exported food (detritus/invertebrates) (Wiplfi and Gregovich 2002). These features may be important sources, conveyors or storers of sediment, nutrients and flow, and may have an important role for terrestrial species, such as amphibians (OSAP, 2013).

HDFs include small streams, springs, wetlands, swales and ditches and have variable flow conditions from perennial to ephemeral streams. Regardless of the form of the HDF(natural or man made), new science is suggesting that they play an important role as the interface between land and water for water and sediment transport and as corridors for the migration of biota (OSAP, 2013). As a result of their importance and a lack of information for headwater drainage features the City Stream Watch program has incorporated monitoring of these systems for each catchment.

In 2013 the City Stream Watch program sampled 58 sites on the five systems that were studied. For more information regarding sample locations please see the individual 2013 catchment reports for each subwatershed.

A HDF sampling site in the Ramsay Creek catchment

Left: Measuring hydraulic head

Right: Pointing out sediment deposits

Fish Sampling Methodology

Due to different habitat characterizations along the length of a stream, a variety of fish sampling methods are used to identify which species are present at each site sampled. This allows a number of different habitat types to be sampled. Fish sampling is done in accordance with protocols or best practices in order to live-release the fish after sampling is finished.

Seine net (OSAP module)

- Rectangular, with a three-dimensional box in the middle
- One person holds net on shore and other pulls net through water column
- Fish are directed towards the purse in the middle and collect there

Windemere trap

- Resembles a lobster trap but has a metal frame covered in mesh
- Mesh funnels at either end guide the fish into the trap
- Used in shallow areas, with slow or fast moving water
- Used on electrofishing sites in peak spawning periods

Fyke net

- Modified hoop net (series of hoops and funnels covered in mesh, with a lead line and wings)
- Depending on size, can be used in shallow or deeper waters and are good alternatives in places that are difficult to seine or electrofish
- Nets can be set up from 24 hours to multiple weeks, but checked every 24 hours to release any fish that have been caught

Electrofishing (OSAP module)

- Effective way to sample fish in a variety of habitats
- One of the key tools used to effectively sample fish communities
- Electricity is passed through the water which causes a muscle response reaction in fish, temporarily stunning them
- Netters scoop fish from the stream and place in a recovery bucket
- Electrofishing very seldom kills fish if the correct procedures are used
- Electrofishing is completed by staff that have been certified according to provincial standards

Thermal Classification Methodology (OSAP module)

Temperature is an important parameter in streams as it influences many aspects of physical, chemical and biological health. Temperature dataloggers are deployed in each of the creeks from April to late September to give a representative sample of how water temperature fluctuates. Many factors can influence fluctuations in stream temperature including: springs, tributaries, precipitation runoff, discharge pipes and stream shading from riparian vegetation. Water temperature is used along with the maximum air temperature (using the Stoneman and Jones method) to classify a watercourse as either warmwater, coolwater or coldwater.

Status	Water Temperature
Cold	<19 Degrees Celsius
Cool	19-25 Degrees Celsius
Warm	>25 Degrees Celsius

Table 1. Water Temperature Classification (Minns et al. 2001)

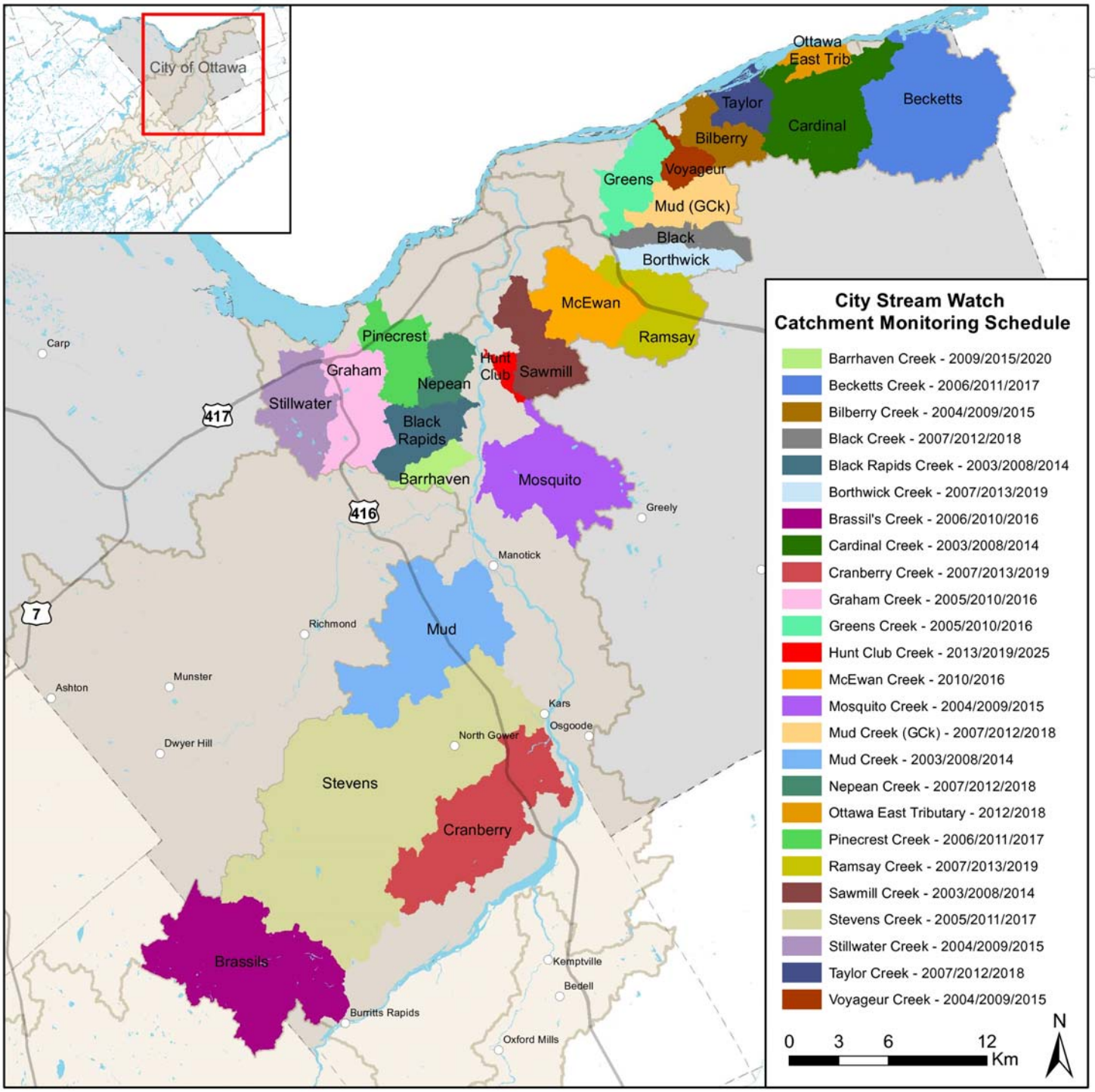


Figure 1. Locations and schedule of City Stream Watch monitoring activities

2013 Summary

The *City Stream Watch 2013 Summary Report* highlights accomplishments from the 2013 field season and describes the nature and extent of volunteer projects. To find information collected on the 2013 streams surveyed (Hunt Club Creek, Cranberry Creek, Ramsay Creek, Borthwick Creek, Voyageur Creek), please see their individual reports. These are shared on our website at: http://www.rvca.ca/programs/streamwatch/index.html
A total of **329** volunteers from the community participated in the program throughout the field season, contributing a total of **1,167** hours working on various projects. Approximately **27.8** kilometres of stream were surveyed in 2013.

Stream Study/Comparison

The following chart is a comparison summary of activities done on Ramsay Creek, Borthwick Creek, and Cranberry Creek in 2007 and 2013. Hunt Club Creek and Voyageur Creek were studied for the first time in 2013 so a comparison is not possible. Volunteer numbers and hours continue to increase as the program has incorporated more activities and gained greater recognition within the community. The exception in 2013 was Cranberry Creek where numbers decreased from 2007 based on a reduction in the number of sections where permission to access the creek was granted. In 2007, there were approximately 120 volunteers and over five years, that number has grown to over 250. Overall, each stream experienced changes within the stream cycle. Anthropogenic alterations have increased on Cranberry and Borthwick Creek but decreased on Ramsay Creek. The amount of garbage increased on Borthwick Creek but decreased on Ramsay and Cranberry Creek. There was an improvement in bank stability levels on all three creeks. The most notable change was an increase in number and types of invasive species on each creek. Since 2007, focus and knowledge on identification of invasive species has increased. This increased effort accounts for some of the increased observations, but overall, invasive species appear to be increasing on the streams surveyed.

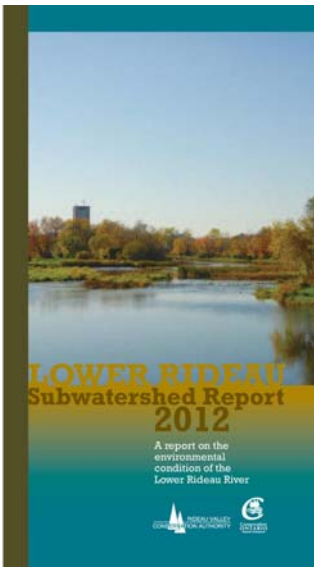
Activities	Ramsay Creek 2007	Ramsay Creek 2013	Borthwick Creek 2007	Borthwick Creek 2013	Cranberry Creek 2007	Cranberry Creek 2013
Number of sections surveyed	74	101	32	47	61	43
Number of volunteers	N/A	36	N/A	19	N/A	2
Total volunteer hours	69	140	30.5	92	37	21
Number of fish sampling events	2	9	1	5	16	10
Number of temperature probes	2	4	2	2	3	3

Table 2. Stream study comparison between 2007 and 2013
N/A: in 2007 volunteer numbers were not tracked by creek

Data Management

All data collected is maintained in the Rideau Valley Conservation Authority database. Data collected is valuable and is used on a variety of levels. Various agencies and community organizations throughout the City of Ottawa use City Stream Watch data for:

- RVCA lower Rideau catchment reports
- Identifying potential rehabilitation projects (riparian and instream)
- Analyzing program success
- Background data for RVCA *Fisheries Act* Review, RVCA *Planning and Regulations* Review and subwatershed plans
- Reports or information for other agencies (NCC, City of Ottawa, Fisheries and Oceans Canada, MNR, MOE, etc.), consultants and non-governmental organizations
- Other projects e.g. RVCA species at risk project
- Fish community information sent to MNR (stored in NHIC/NRVIS databases)
- Reports to public landholders on potential projects, important issues and current conditions
- Sharing with the public on our website
- Species at risk information sent to MNR (stored in NHIC database)



RVCA 2012 Lower Rideau Subwatershed Report

The Community Response

A total of 329 volunteers spent 1,167 hours with the City Stream Watch program in 2013. The volunteers are the backbone of the program. Many volunteers participated in surveys and events on more than one creek.

Creek name	Borthwick	Ramsay	Cranberry	Hunt Club	Voyageur	Sawmill	Greens	Taylor	Stillwater	Graham	Stevens	Nepean	Jock	Bilberry	Total
Sections surveyed	47	101	43	28	59	..	..	..	..	..	..	..	..	..	**278**
Fish sites	4	4	8	2	3	..	..	..	..	..	..	..	..	..	**21**
Fish sampling	5	9	10	2	3	..	..	..	..	..	..	..	..	..	**29**
Temp probes	2	4	4	2	3	..	..	..	..	..	..	..	..	..	**15**
Demonstration events	0	0	0	0	0	..	..	..	..	..	..	..	1	..	**1**
Training sessions	0	0	0	0	0	1	..	..	..	..	..	..	..	..	**1**
Stream garbage cleanups	0	0	0	0	0	2	1	1	..	..	..	..	..	1	**5**
Kilometres (km) Cleaned	0	0	0	0	0	1.5	0.5	0.5	..	..	..	..	..	0.5	**3**
Riparian plantings	0	0	0	0	0	0	1	..	2	..	..	..	..	..	**3**
Invasive species removal	0	0	0	1	0	0	1	2	1	1	1	1	..	..	**8**
Adopt a Stream	..	..	..	..	..	yes	yes	..	..	..	..	..	..	..	**2**
Restoration projects	0	0	0	0	0		..	..	..	1	..	..	..	..	**1**
Number of Volunteers (total for all events)	20	37	3	16	28	38	26	22	80	28	0	1	21	9	**329**
Number of Volunteer Hours	**92**	**147**	**21**	**53**	**117**	**101**	**63**	**70**	**273**	**107**	**0**	**3**	**84**	**36**	**1167**

Table 3. City Stream Watch Accomplishments 2013
.. Creek was not in the monitoring cycle for 2013; only special events were held on these creeks

Hunt Club Creek

Cranberry Creek

Ramsay Creek

Borthwick Creek

Voyageur Creek

Volunteer Projects

Volunteer projects are carried out either for educational or rehabilitation purposes. Volunteer projects include:

- Planting trees and shrubs along stream corridors
- Removing invasive species that will outcompete native plants
- Learning about and participating in fish sampling/identification
- Learning about and participating in benthic invertebrate sampling/identification
- Stream garbage clean ups
- Bioengineering (erosion control using structures made from native plant material)
- Learning about flyfishing

The following is a summary of volunteer projects carried out in 2013. Over the field season, City Stream Watch ran 19 special events outside of regular sampling.

Riparian Planting

Three shoreline planting projects took place in 2013. Each shoreline planting was done in partnership with RVCA's Shoreline Naturalization Program. Using monitoring data from City Stream Watch, several tributaries within the City of Ottawa were chosen as priority sites for shoreline plantings.

Working closely with private landowners, businesses and agencies, shorelines along Stillwater Creek and Green's Creek were naturalized with help from community groups and volunteers. Overall, 95 City Stream Watch volunteers spent 307 hours planting native shrubs and trees to improve the shorelines along these systems.

Volunteers planting along Greens Creek

- Riparian zones are the vegetated transition areas between aquatic and terrestrial habitat and are a critical aspect of stream health
- Riparian zones protect surface water from polluted runoff, siltation and help mitigate erosion and are referred to as the "ribbon of life" due to the high amount of biodiversity found along shorelines.
- Riparian zones offer very important habitat for many fish and wildlife species.
- It is crucial for landowners who live around water to leave a natural buffer of vegetation between their property and the water edge.
- For more information on how to naturalize your property, visit "Living By the Water Project" on the web at: http://www.livingbywater.ca/main.html.
- For more information on the RVCA's Shoreline Naturalization Program, visit: http://www.rvca.ca/programs/RVCA_Shoreline_naturalization.pdf

Young volunteers getting a planting demonstration at Stillwater Creek

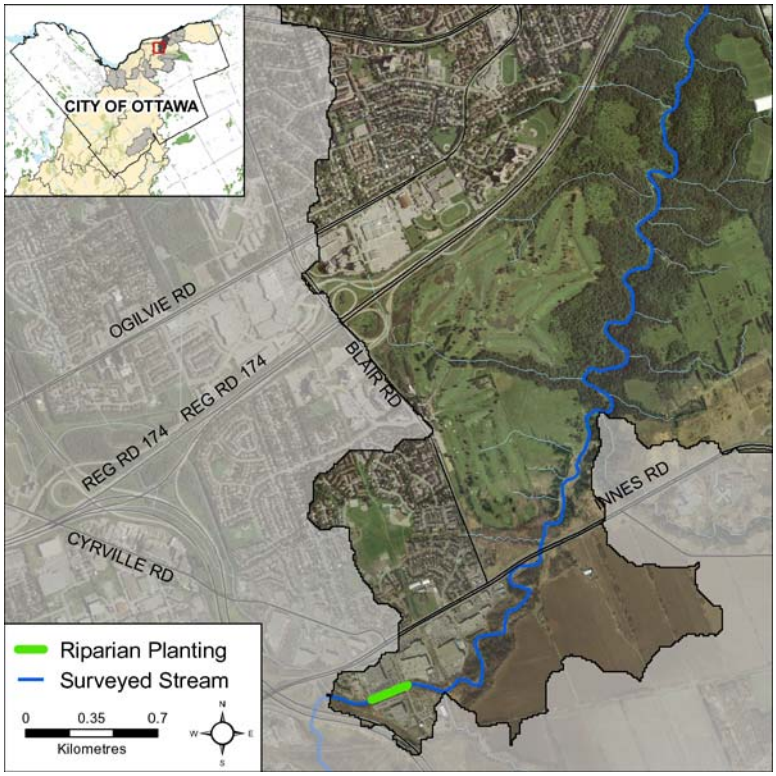


Figure 2. Greens Creek riparian planting

Greens Creek Riparian Planting

Approximately 520 native trees and shrubs were planted along Greens Creek near Innes Road. Fifteen City Stream Watch volunteers spent a total of 34 volunteer hours planting bare root seedlings to help re-vegetate the shoreline.

Tree planting volunteers at Greens Creek

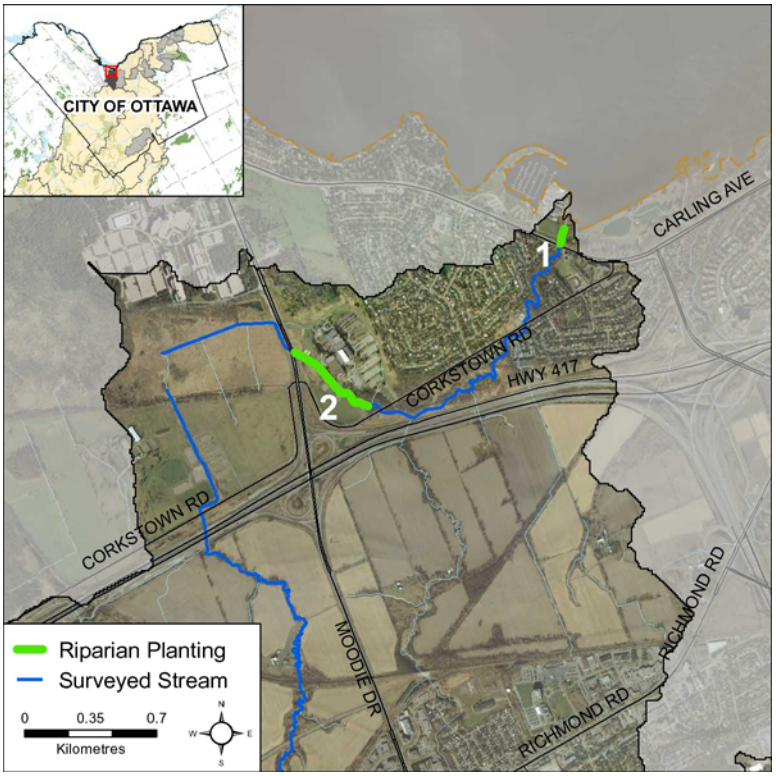


Figure 3. Stillwater Creek riparian planting

Stillwater Creek Riparian Planting

Approximately 15 City Stream Watch volunteers braved a chilly day in April to plant the shoreline at the mouth of Stillwater Creek (labeled as site 1 in Figure 3). A total of 45 volunteer hours were spent planting 600 trees and shrubs at the site in Andrew Haydon Park.

Planting trees and shrubs at Stillwater Creek

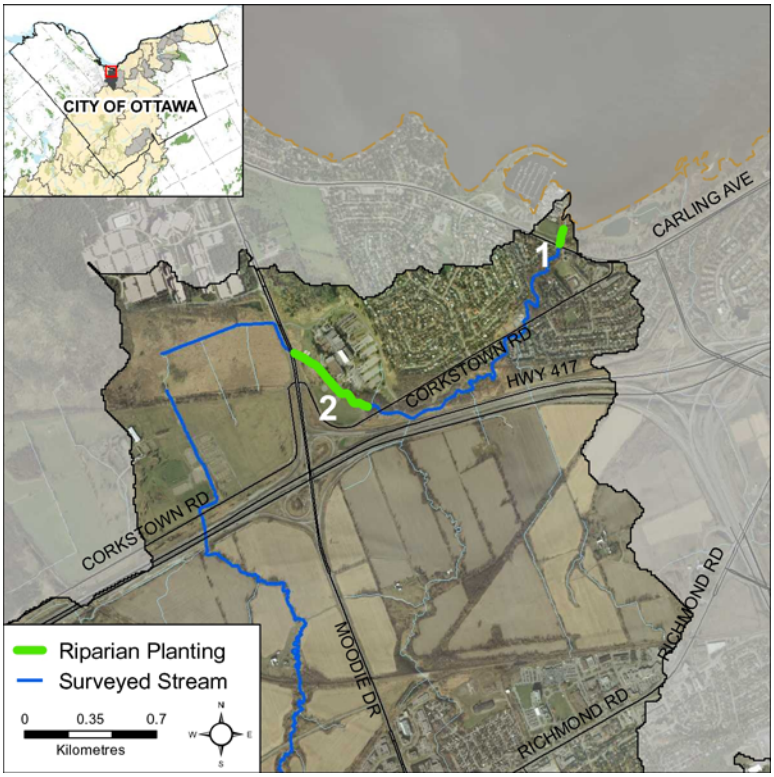


Figure 4. Stillwater Creek riparian planting

Red osier dogwood planted along Stillwater Creek

Stillwater Creek Riparian Planting
Abbott Point-of-Care Campus

City Stream Watch and RVCA's Shoreline Naturalization Program worked closely with the National Capital Commission and Abbott Point-of-Care to plant a large section of shoreline along Stillwater Creek this year (labeled site 2 in Figure 4). Planting took place over the course of three days and involved volunteers from the City Stream Watch Program, community groups, local high schools and Abbott Point-of-Care staff. In total, 65 volunteers spent 228 volunteer hours planting over 2,500 trees and shrubs on the property!

City Stream Watch staff and volunteer staff from Abbott Point-of-Care planting along Stillwater Creek

High school students get a planting demonstration on Stillwater Creek

Bioengineering/Restoration Projects

Bioengineering is an erosion control method that combines engineering with ecological function designed to mimic what nature already does. It is an old science that uses plant species with specific growth habits (willows, dogwoods) to create structures that form large root masses which stabilize soil and provide riparian habitat. The benefits of improving the riparian area are numerous and include improved aesthetics, better habitat for both instream and riparian areas (nesting, shelter, food), and improved water quality (filtration and uptake of contaminants and nutrients). In terms of structural benefits, bioengineering can be used on steep slopes and sensitive areas with limited access or in areas where machinery cannot be brought in.

Before

After

Graham Creek Restoration Project - Phase Two

The Graham Creek Shoreline Restoration Project was a partnership between City Stream Watch, RVCA's Shoreline Naturalization Program and the City of Ottawa. In 2013, phase two of the project was completed. The project's goal was to rehabilitate eroded sections of shoreline on both sides of Graham Creek in Andrew Haydon Park. The sites had been previously identified for restoration through City Stream Watch monitoring activities.

Phase two of the project was to restore the heavily eroded east bank of the creek using a bioengineering technique called a brush mattress. The eroded slope was re-graded and a fascine constructed of native willow and red osier dogwood was installed at the toe of the slope. Above the fascine, willow and dogwood cuttings were installed pointing uphill to form the brush mattress. The cuttings were covered with soil and compacted using heavy machinery. The final step in the construction was to lay down erosion control fabric along the base of the slope and secure the brush mattress in place using live stakes and jute. Brush mattresses stabilize eroding slopes while creating a rough surface that collects soil and native seeds facilitating new growth. In addition, as the cuttings begin to root and grow the underlying soil will be reinforced by a dense root mass. Twenty volunteers contributed 80 hours of hard work to phase two of this project.

Harvesting red osier dogwood

Installing the fascine and brush mattress

Securing the brush mattress

Invasive Species Removal

In 2013, an outstanding eight invasive species removals were carried out by the City Stream Watch Program. The species targeted for removal were Yellow Iris and Himalayan Balsam. The removal methods for invasive species were taken from the Ontario Federation of Anglers and Hunters (OFAH) website and local community members that have been involved in various types of removals.

Yellow Iris

Continuing with the Yellow Iris removal project started on three creeks in 2010, removals took place again this year at the mouth of Greens Creek, Graham Creek and Stillwater Creek. Yellow Iris amounts and concentrations continue to decrease on all three creeks and we have been able to expand the project to target patches of the invasive species further upstream. Monitoring results indicated that small patches of Yellow Iris had also been noted on a number of additional creeks in the area. In an effort to target the invasive species before it spreads, removal efforts were expanded to include Hunt Club Creek and Stevens Creek this year.

Himalayan Balsam

Himalayan Balsam is a prolific invasive species that is found on many of Ottawa's urban creeks. Although it is an annual, each plant produces close to 800 seeds which are ejected from seed pods, making it an aggressive invasive that can easily outcompete native perennial species. During stream monitoring in 2012, large amounts of Himalayan Balsam were noted on sections of Taylor Creek. This year a removal plan was developed and the process of removing this invasive species from the shoreline began. Starting at the farthest upstream section where the invasive species was noted, two days of removal events were scheduled. Himalayan Balsam removals also took place along Nepean Creek.

Yellow Iris flower

Himalayan Balsam flower

Yellow Iris plant

Himalayan Balsam plant

Invasive Species Facts

Invasive species originate from other countries and are introduced through:

- Global shipping containers
- Ship ballast water
- Pet trades
- Aquarium and horticultural activities
- Live bait industry
- Seeds, parts of plants and larvae can get caught on boats, boat trailers, fishing equipment, etc. (OMNR, 2008)

Left: City Stream Watch staff demonstrating the identification features of Yellow Iris

Invasive species are of concern because they:

- Have major implications for stream habitat
- Can outcompete native species, negatively effecting local wildlife, fish and plants
- Are one of the largest threats to ecosystems throughout Ontario
- Are costly to manage: it is estimated that spending on 16 invasive species amounts to between $13.3 and $34.5 billion (Government of Canada, 2004)
- Over 180 non-native species have been found in the Great Lakes area, with a new aquatic species arriving in the Great Lakes on average of every six to nine months (Government of Canada, 1999)

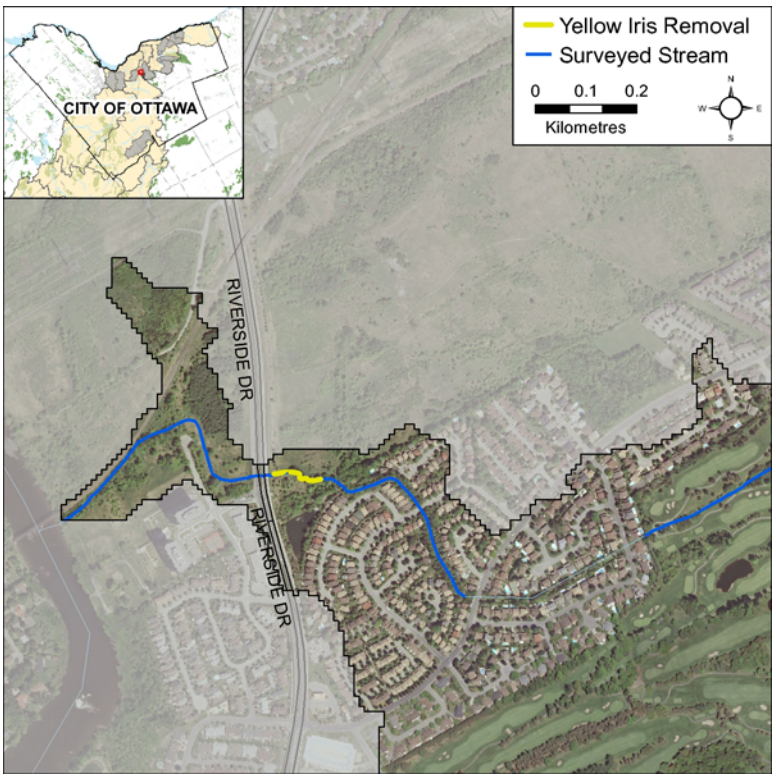


Figure 9. Yellow Iris removal on Hunt Club Creek

Hunt Club Creek Yellow Iris Removal

Two City Stream Watch volunteers joined staff to remove Yellow Iris from Hunt Club Creek near Riverside Drive. The invasive species was discovered on the creek during stream surveys this season. Volunteers spent six volunteer hours removing Yellow Iris from the creek. A second removal will be consider for next season as patches of Yellow Iris remain in the creek.

City Stream Watch staff and a volunteer at Hunt Club Creek

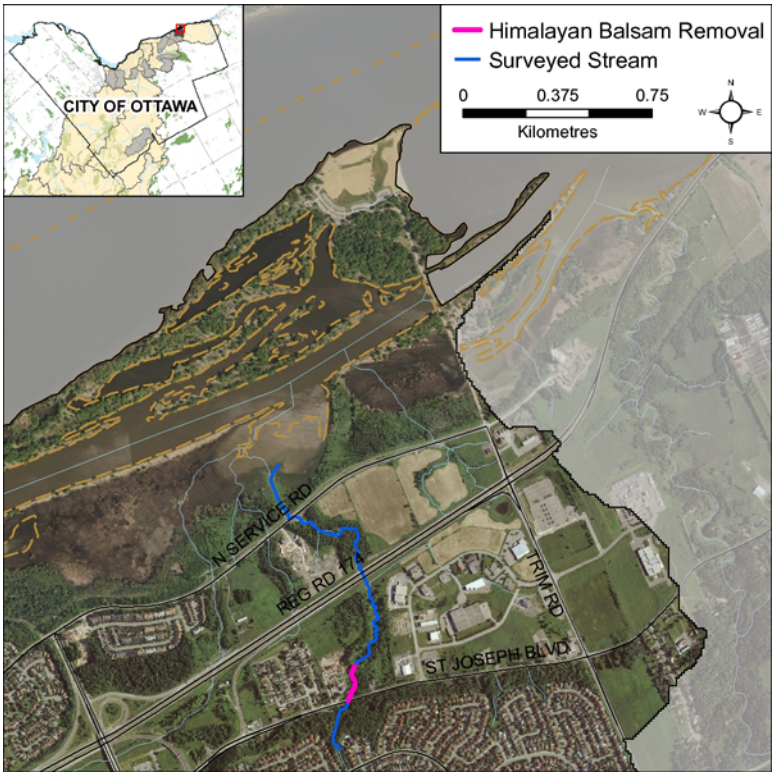


Figure 5. Himalayan Balsam removal on Taylor Creek

Taylor Creek Himalayan Balsam Removal
Over the course of two days 18 volunteers spent 58 hours removing Himalayan Balsam from a150m stretch of Taylor Creek starting at St. Joseph Boulevard. In total, 825 m² of balsam was removed and placed in compostable bags for proper disposal at a City facility.

Above and Below: Volunteers removing Himalayan Balsam from Taylor Creek

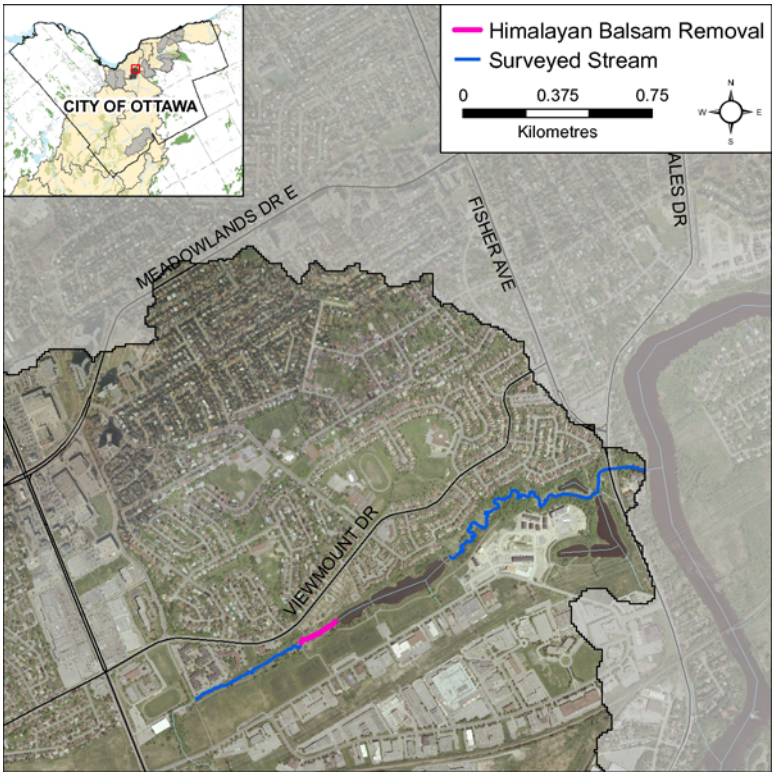


Figure 6. Himalayan Balsam removal on Nepean Creek

Nepean Creek Himalayan Balsam Removal
Following the Taylor Creek Himalayan Balsam removal event a volunteer contacted City Stream Watch staff after she noticed the same plant growing along Nepean Creek. Staff joined the volunteer to remove the invasive plant which had spread along a 150 meter stretch of the creek.

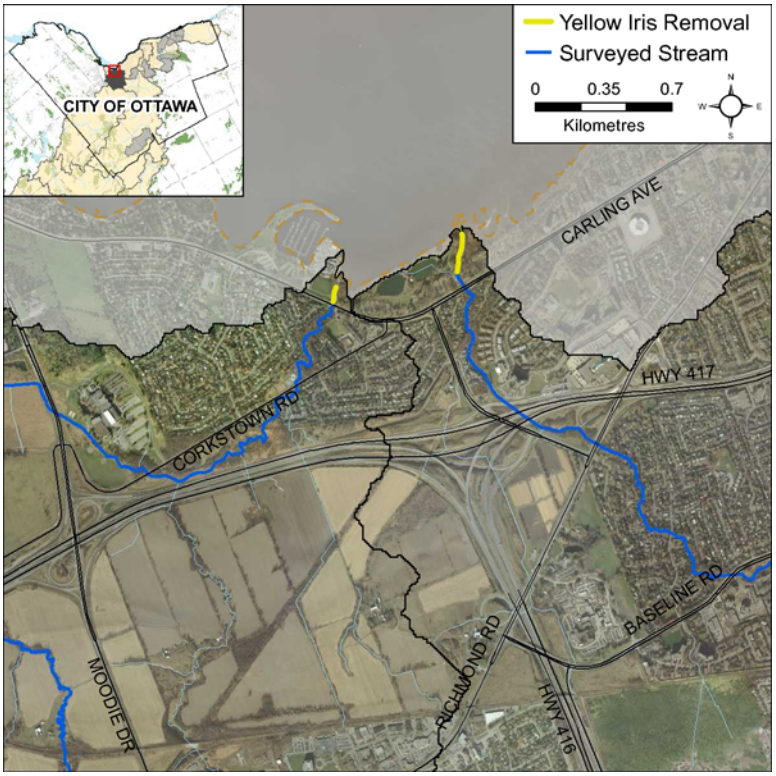


Figure 7. Yellow Iris removal on Stillwater and Graham Creek

Graham Creek & Stillwater Creek Yellow Iris Removal

City Stream Watch staff and volunteers got their hands dirty at Andrew Haydon Park removing Yellow Iris from the mouth of Graham Creek and Stillwater Creek. Nine volunteers spent 27 hours digging up plants and collecting them in compostable bags. In total, 20 m² of iris was removed filling 15 compostable bags.

Above and Below: Volunteers removing Yellow Iris from the mouth of Graham Creek

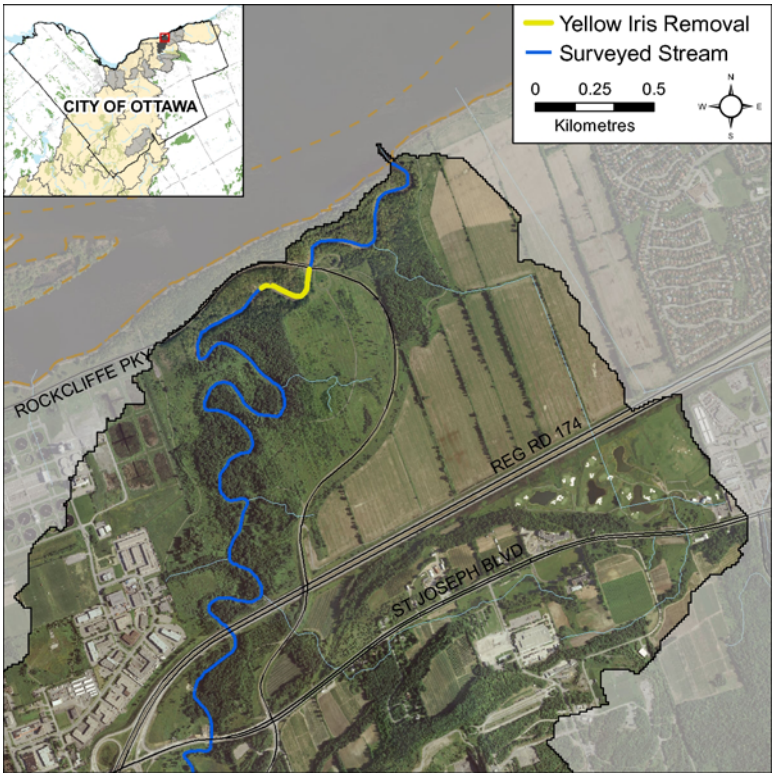


Figure 8. Yellow Iris removal on Greens Creek

Greens Creek Yellow Iris Removal

Six City Stream Watch volunteers spent a morning removing yellow iris from Greens Creek. Moving further upstream from last year, the removal took place upstream of the Rockcliffe Parkway. In total, the six volunteers spent 18 hours removing 15 m² of this invasive species from Greens Creek.

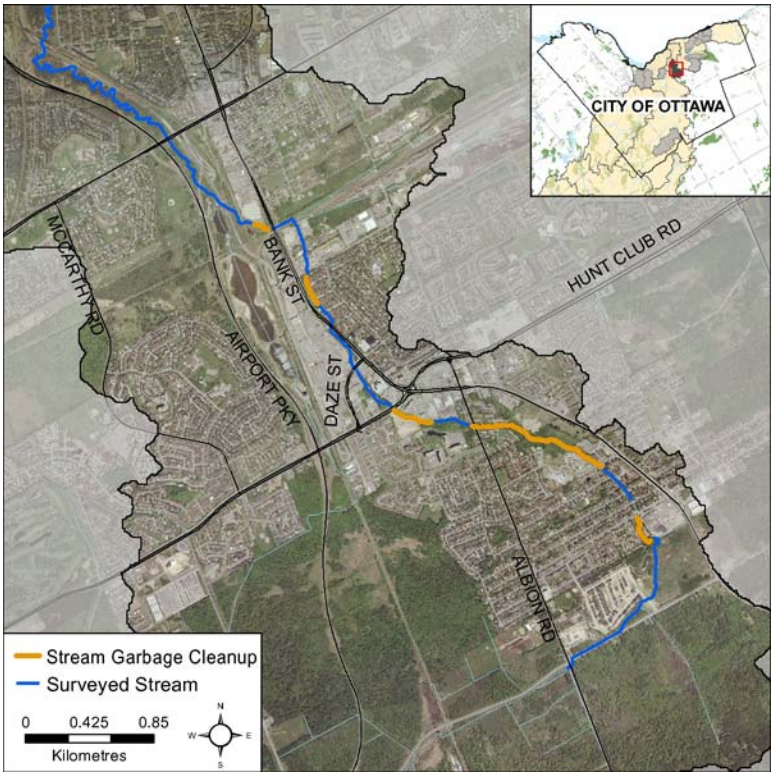


Figure 10. Stream garbage cleanup on Sawmill Creek

Stream Garbage Cleanups

City Stream Watch volunteers participated in five stream garbage cleanups in 2013. In total, approximately 2.5 kilometers of shoreline and stream were cleaned on Sawmill Creek, Greens Creek, and Taylor Creek.

Sawmill Creek Stream Garbage Cleanups

Sawmill Creek got a lot of much needed attention this fall with two separate cleanup events targeting five different sections at the South end of the creek. The NDHQ Fish and Game Club lead cleanups were supported by City Stream Watch and the City of Ottawa's Cleaning the Capital campaign. In total,15 volunteers dedicated 32 hours to clear debris of human origin from 1.5 kilometers of the creek.

Volunteers at the Sawmill Creek cleanup

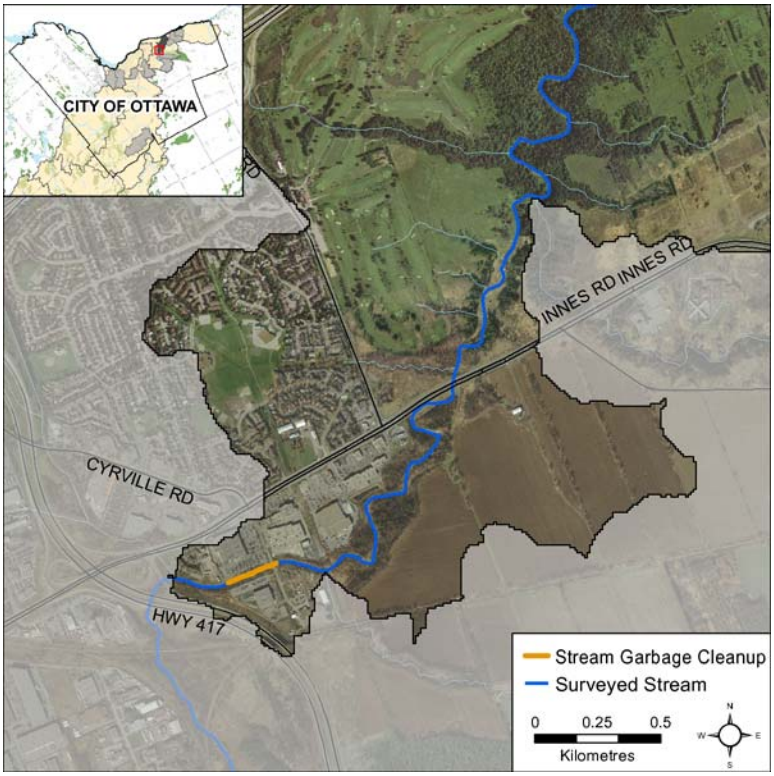


Figure 11. Stream garbage cleanup on Greens Creek

Greens Creek Stream Garbage Cleanup

Following a shoreline planting event on Greens Creek near Innes road, volunteers took it upon themselves to clean up debris that had accumulated on the shoreline over the course of the winter. In total five volunteers spent 11 volunteer hours cleaning garbage from a 200 meter stretch of shoreline.

CSW staff at the cleanup

Figure 12. Stream garbage cleanup on Taylor Creek

Taylor Creek Stream Garbage Cleanup

For the second year in a row City Stream Watch held a cleanup event at the end of the summer at Princess Louise Falls on Taylor Creek near St. Joseph Blvd. This unique site becomes polluted as debris of human origin accumulates at the base of the falls over the course of the summer. Four volunteers joined CSW staff and spent 12 volunteer hours cleaning from St. Joseph Blvd to the top of the falls.

Volunteers at the Taylor Creek cleanup

Figure 13. Stream garbage cleanup on Bilberry Creek

Bilberry Creek Stream Cleanup

In early October City Stream Watch supported CIMA+ Ottawa in a targeted cleanup along Bilberry Creek. The group chose to clean up a section of the creek where shopping carts frequently pile up. In an amazing effort nine volunteers spent 27 volunteer hours cleaning up the site. Along with some smaller debris, they managed to pull eight shopping carts, a washed up canoe deck chairs and a model boat out of the creek!

Volunteers from CIMA+ Ottawa

Workshops and Demonstrations

Workshops and demonstrations are an important and popular part of the City Stream Watch program because they give volunteers the opportunity to learn how to identify various fish species and benthic invertebrates that are present in our watershed as well as the sampling methods that RVCA staff use in the field.

The Ultimate Aquatic Workshop

On September 21th 2013, the sixth annual Ultimate Aquatic Workshop was held at the Jock River Landing Park. This event is a collaboration between City Stream Watch and the Ottawa Flyfishers Society (OFS) which gives volunteers the unique opportunity to learn about benthic invertebrate identification and fly fishing all in the same day. The Ottawa Flyfishers Society was formed in 1983 to unite local area fly fishers. The Society is dedicated to fostering and furthering the practice of activities associated with the art of flyfishing, conservation and resource renewal.

Despite a day of pouring rain, 21 volunteers, including OFS members, dedicated 84 hours to the workshop. Included in the workshop were the following contributions from RVCA staff and OFS members:

Rideau Valley Conservation Authority staff:

- Introduced the basics of the OBBN protocol (Ontario Benthos Biomonitoring Network), how to survey, process and identify benthos to order level.
- Assisted volunteers in sampling and identifying the benthic invertebrates

OFS members:

- Explained the relationship between stream functions, habitat, benthos and their importance to fish and fly fishing
- Gave an introduction to fly fishing and provided samples of fly ties
- Paired up with volunteers to provide hands on instruction in fly casting and experience

RVCA staff explaining how to identify benthic invertebrates

Example fly ties

Volunteers trying out casting

Learning how to cast in the pouring rain

Plans for 2014

In 2014, City Stream Watch will be sampling on the following creeks:

- Mud Creek (Manotick)
- Black Rapids Creek
- Sawmill Creek
- Cardinal Creek

There will be many opportunities to assist with:

- Stream habitat surveys
- Fish community sampling
- Bioengineering projects
- Stream garbage cleanups
- Riparian planting
- Invasive species removals
- Workshops and demonstrations

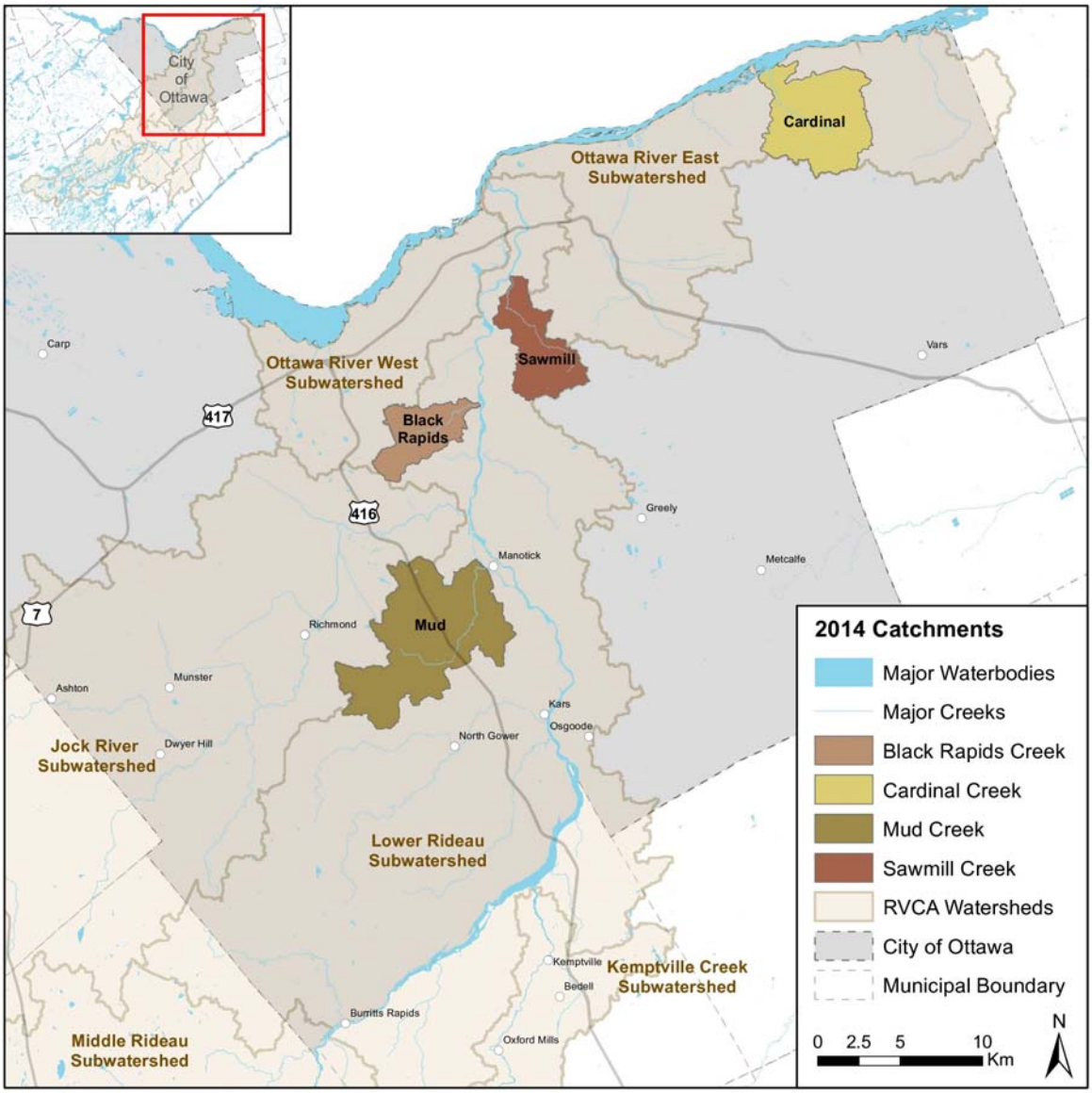


Figure 14. Location of 2014 monitoring activities

To volunteer with City Stream Watch, please contact:
City Stream Watch Coordinator
613-692-3571
citystreamwatch@rvca.ca
http://www.rvca.ca/programs/streamwatch/index.html

Acknowledgements

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