



WRIG

Field Crew Supervisors Report 2016

PREPARED FOR THE WHEATLEY RIVER IMPROVEMENT GROUP

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Introduction

The 2016 summer season for the Wheatley River Improvement Group (WRIG) field crew got under way June 22, 2016. The field crew consisted of myself, Brittany MacLean as supervisor and two others, Hailey Blacquiere as our Field Crew Technician and Emma Spence as our Riparian Health Technician. I am back at WRIG for my third summer and have just completed my first year at the university of New Brunswick this past term, after completing the Wildlife Conservation Technology program at Holland College here on PEI. I am now entering my final year at UNB completing my BSc of Environment and Natural Resources in the wildlife conservation section. Hailey Blacquiere has joined WRIG for her first summer this year, she has just completed her first year in the Wildlife Conservation Technology program at Holland college and is entering into her final year in the program.

Emma Spence has joined WRIG for her first Summer this year, she has graduated from the Wildlife Conservation Technology program this past term and is entering her first year at the University of Prince Edward Island. There she will complete her 2 plus 2 enrolled in the Wildlife Conservation degree.



Figure 1: Summer Field Crew 2016

WRIG is a not-for-profit watershed located in Cymbria PEI. Our goals as a Watershed is always to maintain the many different types of wildlife habitats we have in the area as well as the ecosystem as a whole. Improving passage to fish and the quality of habitat they live in, reducing the impact of agriculture and human activity on the environment, reducing the effects of erosion and improving diversity of native trees and shrubs to the island. Some of the things accomplished this season that attribute the list above is 966 native trees and shrubs were planted throughout the watershed, brush mats were constructed in streams along with alder and debris removal for improved fish habitat. Water quality monitoring was

conducted once every two weeks at the major bridges in the Watershed and many community involvement activities where the community got involved and learned about all that we do as an organization.

Tree planting

The first thing to be accomplished at the beginning of every summer season is tree planting. This is done first to ensure the trees get the best start possible and

Table 1 List of Tree Species Planted in 2016

Tree Species	Number of trees
White Pine	84
Balsam Fir	36
Eastern Hemlock	42
Red Oak	48
Sugar Maple	42
White Birch	42
White Spruce	78
White Ash	78
Red Spruce	36
Northern Bayberry	36
Wild Rose	72
Mountain Ash	42
Eastern Larch	54
Black Spruce	36
Blue Leaf Birch	42
Winterberry	48
Heart Leaf Willow	54
Red Osier Dogwood	42
Eastern Cedar	54
Total	966

to increase their odds of survival. All the planting is done in the month of July before the weather gets too hot and dry and the chances of the saplings survival dwindle. WRIG planted 966 native trees and shrubs at 11 different sites around the watershed, diversifying riparian areas, reforesting retired farm land and stabilizing banks after patch cutting. In total there was 19 different tree species that thriving in different habitats, in table 1 there is a list of the different species and the amount of which we received. In addition to the 966 trees and shrubs, WRIG planted 6 clonal dogwoods and 6 clonal willows, bringing the total to 978.

The first planting WRIG did was extending a hedge between properties off the New Glasgow Rd. This land owner wanted a better property line and wildlife corridor and approached us for trees; we planted 30 dry area shrubs on this property. There was a planting of retired agricultural land, off the Church Rd. There was a total of 252 trees and shrubs planted in this area that thrive in a mixture of wet and dry habitat. This area was a recently

retired hay field, and was an extension of the forested area beside it. There was a seasonal water drainage basin that ran through the middle of this section all the way to the stream below, so the more water tolerant plants were planted in that section. There was a planting in the riparian area next to the head water of the Little Bungay branch of the Wheatley River off the Little Bungay Rd. This planting

was done to further diversify the riparian area closest to the headwater, to help protect the stream from runoff off the neighboring fields. There was a total of 40 trees planted along this area. There was a tree replanting off the Winsloe Rd, this land owner contacted WRIG because few trees that were planted 2 years prior survived. The trees were planted in a heavily grassed riparian area with no long term or deep root systems for proper bank stabilization, 122 trees were planted in this area to replace the ones that had died. There was another tree planting off the Millboro Rd, 84 trees were planted in this area. This was a very wet riparian area with regular flooding of the flood plain in the fall and spring. There was a planting of 28 trees and shrubs off the Grand Pere Point Rd. This landowner wanted shrubs to help as wind blockers from the estuary just below. There was a planting off the Winsloe Rd. This area a total of 75 trees were planted, it was a retired pasture field that was on a steep hill so it was a very dry most of the year so less water tolerant species were planted.

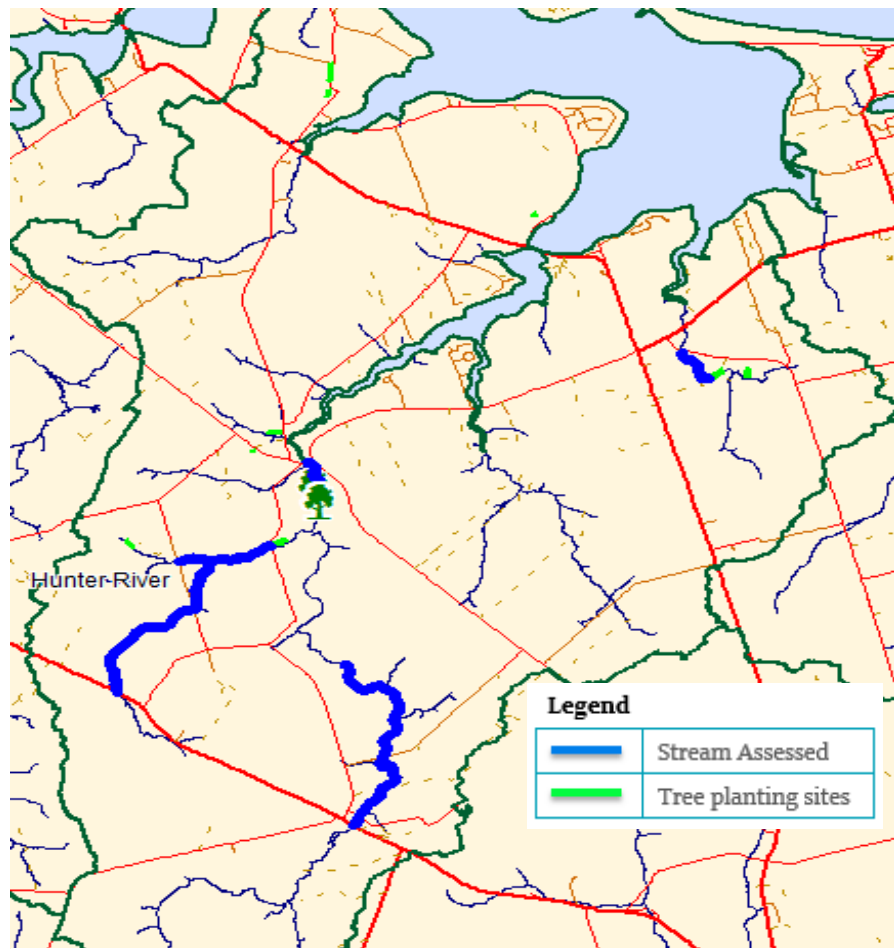


Figure 2 Map of Tree Planting and Stream Restoration for the 2016 Season

Stream Restoration

The second half of the summer work season is based around stream restoration. Trying to improve stream passage for fish and other animals, assess the health and flow of the stream, remove any large blockages that may impede spawning native fish. This season the WRIG field crew assessed and restored a total of 8.65km of stream in 3 major branches in the watershed. The First section the crew did was on the Little Bungay Branch of the Wheatley River, starting from the Millboro Rd and ending at the west fork at the Little Bungay Rd and

continuing on through the south fork of that branch and ending that section at Route 2. The West fork of the Little Bungay branch had a lot of old beaver sign where there once was a beaver dam several years prior, so this section had several old blockages created by these beavers. Along this stretch of stream has been turned into a beaver meadow from the flooding

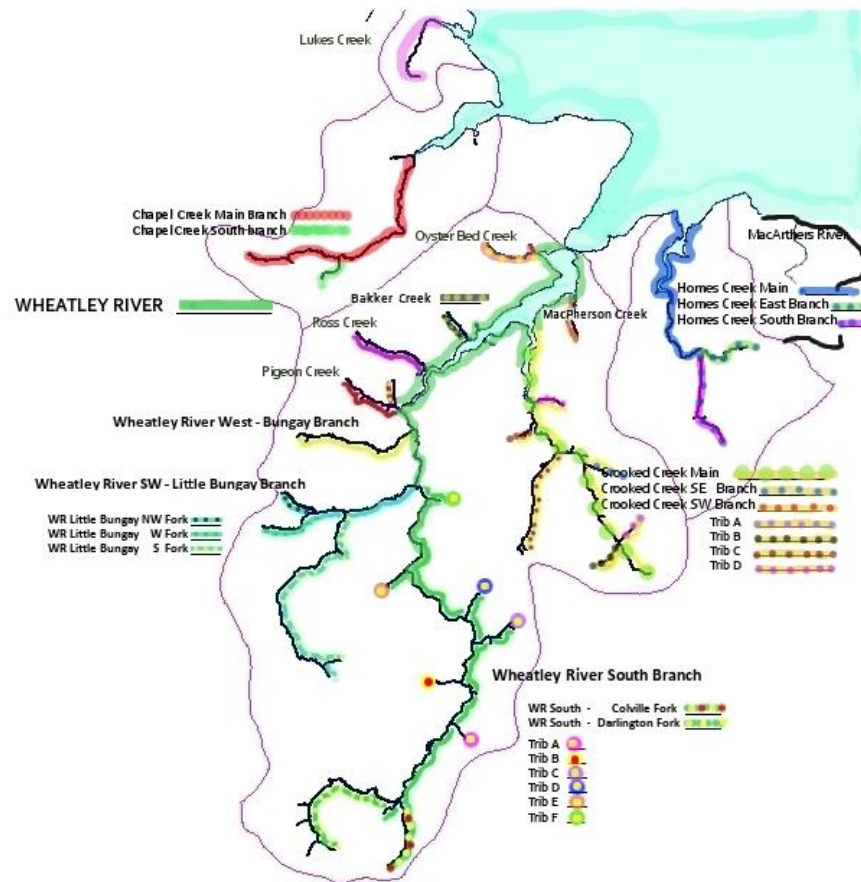


Figure 3 Map of all Wheatley River Watershed and Stream Branch names

caused by the beavers, this in turn makes the banks of the river very unstable and highly susceptible to erosion. All deep rooting vegetation has died from the high water. The second section the field crew restored was part of the Wheatley River South Branch, starting off Route 2 and ending just off the Millboro Road. The majority of this branch was very healthy, there was very little silt settling at the bottom and the cobble was completely visible. The banks along the section had a

lot of deep root structure to stabilize it, and very little erosion. There was plenty of in stream cover like large rocks and logs as well as canopy cover from the surrounding bank vegetation and springs for the fish to rest in during the hot summer months, if the water gets too hot the fish will start to stress. Further up the Wheatley River South branch the overall look and habitat of the stream started to dwindle and several blockages had to be removed. The third section the field crew assessed was a section of the Hornes Creek main branch. This land owner approached WRIG to come and asses the stream on their property,



Figure 4 Blockage impeding Fish Passage Through the Little Bungay Branch Before



Figure 5 Blockage Impeding Fish Passage Through the Little Bungay Branch After

over all there was very little debris and blockages in this section however there was a lot of silt collected on the bottom, as well as erosion of some of the banks. When bank erosion occurs watershed groups will try and stabilize and build up the bank by installing brush mats. Brush mats are made from branches of surrounding trees and placed on the eroding bank, the limbs collect the suspended sediment in the stream before it goes further down the water

system, and deposits it back to form a bank. In total WRIG installed 8 brush mats throughout the first two sections of stream.

Patch Cutting/Chainsaw

While walking through and assessing streams we come across blockages that are too big to remove with hand tools, these places require a chainsaw. Unfortunately, WRIG does not have a chainsaw at our disposal so we contacted Gary Loo, WRIG director; he came out into the field with us and assisted with two projects, patch cutting and fallen trees that were blocking flow and fish passage through the river. The patch cutting was done on a property adjacent to Hornes Creek. The banks and upland portion of this area had no diversity or deep rooting plants for bank stability, there was only alders. Alders are a very hardy water tolerant shrub species that chokes out other competing plants from growing and establishing themselves. Brush mats would not have worked in this area because the alder density was too thick, so a patch of alders was removed completely, at an area of 30m² to make room for native species of plants to be planted and grow for better bank stability and erosion protection. While performing stream work the field crew came across several fallen trees in a row that were too large to remove, these trees fell over the winter and spring and since have blocked fish passage to spawning areas and collected debris that floated down the river. In total there was 4 trees in this one blockage, after being cut away and removed from the water stream flow improved immediately.



Figure 6 Chainsaw Blockage on Little Bungay Branch After

Water Quality Monitoring

Anoxia is an ongoing problem in many of the island estuaries, especially in Wheatley River. This is when the dissolved oxygen in the water gets depleted due to decaying vegetation. Over the last couple years an estuary watch program has been put in place, where the surrounding residence of the estuary are given a log booklet to fill out each day of the state of the water, there is also an online option

to record their observations. WRIG also performs biweekly water quality monitoring at all the major bridge crossings in the watershed, in total there are 7 different locations where the samples are taken. We take the samples with a YSI water quality meter, this device takes several different readings of the water such as dissolved oxygen, pH, salinity, conductivity and turbidity. Dunk samples are also taken at each site and sent to the provincial lab for further analysis. Once every month we canoe the entire estuary to monitor the extent of the anoxic events and to take samples of its progress using the YSI meter, unfortunately this season after our first trip out canoe broke and we were unable to continue with the monitoring this season. We contacted Cindy Crane a biologist for the province to come take a look at the estuary when we noticed anoxic conditions and when they were reported to us.

Rackham's pond

Rackham's Pond is a community pond located in the center of the watershed, it is a great place for the community to enjoy nature and see wildlife in their natural habitat. WRIG is responsible for the maintenance and the health of the pond, for easy access by the community and good habitat for fish and other animals. The lawn area was cut every week along with trimming around signs and benches, tree pruning was also done. A path was maintained for access to the back more grassed section of the pond where fishermen would go for better access. WRIG was a part of a program put on by the Climate Lab and the Watershed Alliance where they were distributing clonal willow trees and Red Osier Dogwood throughout the province. WRIG received 12 of these genetically identical shrubs which were planted at Rackham's pond.



Figure 7 Rackham's Pond Depth Survey Transect Line 1, 2016

DEPTH SURVEY

Rackham's pond, along with most PEI waterways, has had a lot of problems with silt and sediment build up over the year, in 2009 the pond was dredged using an excavator to help build up the banks using the silt removed and improve fish habitat and passage through the Wheatley River. The pond was dredged 10ft and the grand opening was June 26, 2010. Since then has been gradually filling in with silt again at increasing rate each year and has essentially become a silt trap. One project this year for the pond was a depth survey; by performing this survey we will get a better idea how much sediment has actually built up over the years and by doing this survey every year and gathering data we will be able to spot trends and have a better understanding and idea of what the best plan of action for Rackham's pond will be. To start we measured the length of the pond which was 184m, we then divided that into 10 transects that we measured our depths from. Each transect was spaced 20m apart from one another and we used rope as the transect indicator, it was marked with tape every 5m and that would be the specific point where we took the depth of the water. What we found was the pond was not as deep as we predicted, the silt has accumulated significantly in just 6 years and has even risen above the water in a section that can be seen in table 2. This has created a very large sand bar, cutting off access to one of the channels to the upper portions of the river.

Length	Transect 1	Transect 2	Transect 3	Transect 4	Transect 5	Transect 6	Transect 7	Transect 8	Transect 9	Transect 10
0	0	0.1	0.01	0.02	0	0.03	0.01	0	0.1	0.26
5	0.77	1.72	0.67	0.65	0.6	0.85	0.64	0.7	0.6	0.9
10	0.83	1.75	0.58	0.82	1.02	1.36	0.4	0.55	0.37	0
15	0.46	0.65	0.7	0.94	0.4			0.68	0.52	0.2
20		0.65	0.3					0.63	0.05	
25		0.66								

Table 2 Rackham's Pond Depth Survey 2016

Community Involvement Activities

ENVIRONMENTAL FUN DAY

Another major goal of any watershed group is to increase public and community awareness of nature and some of the issues surrounding it today, as well as what the watershed group itself is accomplishing throughout the season. To start the summer WRIG along with the Hunter-Clyde watershed group invited grade 6 students from Gulf Shore, Central Queens and some home school children to Rackham's pond for an environmental education and appreciation day. There all the students were divided up into groups and rotated through 8 stations. Each station revolved around different things in nature including water quality, fish identification and habitat, wildlife identification, forest management and harvesting, tree identification and invasive species. The stations were run by members of the community and members from the Department of Forests, Fish and Wildlife. This event is a very good opportunity for the children to get out of the classroom and learn about their environment hands on.

YOUTH PROJECT

For this event WRIG alongside the Hunter-Clyde watershed invited 40 young people from the ages of 13-19 to the Cymbria area to teach the group all about native trees and shrubs and the importance of watershed work and keeping our environment healthy for future generations and us to enjoy. The students arrived on PEI from Thunder Bay, Ontario and other areas of Canada. To start off the afternoon the students were given a presentation on what watersheds do and what kind of environmental problems we face as a group on the island and how we try to mitigate them. After the group was split into three smaller groups, each group rotated between three different stations. One station toured around the farmer's bank which was the first bank made by the people for the people on PEI, and the Doucette house which is the oldest known house still standing in PEI, dating all the way back to 1773. The second station was at Ecole St-Augustin, where in previous years they planted a patch of fruit trees but the trees were not doing very well so Hunter-Clyde received mulch and a trench was dug around the trees and the mulch was placed around along with a tree guard. The third station was a hedge row planting along a field bordering the school property. There were 124 trees making up the hedge split between White Pine and White Spruce. The trees were already placed for the students when they arrived to this station, there was tree identification to start and after the telling them why hedges are important to farmers and wildlife all the students picked up a shovel and plant the trees for the hedge.

CELEBRATE OUR RIVER DAY

The celebrate our river day is an annual event hosted by WRIG each year to celebrate nature in our watershed. Members of the community are invited to come to Rackham's pond and enjoy a BBQ and then a yellow rubber duck race, which we release at the top of the pond and race to the finish line which is the Wheatley River bridge. People can buy a ticket and their duck will be entered into the race, there are cash prizes for the winners. This event all starts at the pond where there are booths with games for children to participate in, information boards for the public to read while they enjoy the BBQ which inform them about our watershed and Rackham's pond history along with all the work we completed over the summer. At 1:00pm is when the duck race begins, the ducks are released and then everyone makes their way to the finish line to see the winner. This is a good way to end the season with a fun day of duck racing and to get the community out and involved and aware of our group and the kind of work we do.

Collaborations

CANADA DAY TREE GIVEAWAY

Watershed often collaborate with each other because the goals amongst us are all the same, to help and restore the natural areas in our watersheds and raise public awareness. At the beginning of the summer season WRIG along with Hunter-Clyde watershed hold a native tree giveaway at the Canada Day celebrations in North Rustico. There are many booths there for businesses and groups to rent to promote what they are doing. At this booth both groups set up and promote their watershed we sell memberships and inform the public about the different things we do within our group and give away native trees. This year we had 180 trees to give away, 4 different species which were Green Ash, White Spruce, White Pine and Red Oak. These tree giveaways are usually a big success and we gave all the trees away.

ELECTRO FISHING

WRIG invited Rosie Macfarlane and her crew from Fish and Wildlife for a second year to electro fish a section of stream of the Millboro Road to continue collecting data on how many rainbow trout are getting to the upper reaches of the Wheatley River, how dense the population is and if there is a

sufficient breeding population. To perform this survey, we sectioned off a portion of the stream with Seine nets so the fish trapped in that section could not escape. In the netted off section a backpack electro fisher was used to remove the fish, there was 3 sweeps done to make sure all the fish were removed in order to calculate the population of the they river. After the fish were removed they were put in 3 different tubs for each sweep that was preformed, some vegetation was put onto of the tub to reduce the stress of the fish. The fish were then stunned by putting then in a bucket with clove oil and measured. In total where were 122 fish removed and measured from the stream section, all of them Brook trout which is an encouraging sign. After the data is collected and calculated Rosie will send WRIG the results.



Figure 8 Brook Trout from Electro Fishing on Millboro rd 2016

BEACH CLEAN UP

WRIG along with the Hunter-Clyde group both have extensive shoreline and beaches bordering both watersheds and are visited and enjoyed by many. To start off the summer season we do a shoreline and beach cleanup, this year we walked the Barachois beach to the inter-tidal portion and part of the shore of the Grand Pere Point Rd beside the Rustico Resort Golf course.

KESTREL BANDING

One of Hunter-Clyde major projects was their Kestrel nest box project, this is where the group put up a kestrel nest box up one year ago and outfitted it with camera where they could observe the chicks in the nest as they grew until fledging. There was also a live feed form the nest box camera on the Hunter-Clyde website where anyone could go and click and watch what was happening in the nest. After the eggs hatched but where not quite ready to leave

the group contacted Dwaine Oakley the instructor for the Wildlife Conservation Technology program at Holland College to come out and band the baby chicks for part of their banding program that they have at the college with their students. The banding program is part of the national migratory bird banding program. They invited us to help and observe the banding process.

CAVENDISH BOOTH

This was a community educational event held on the beach in Cavendish. Along with the Hunter-Clyde group WRIG and Parks Canada set up booths on the beach with information about everything we do as a watershed and parks. Beach goers were able to identify some native island trees, ask questions about wood duck and bat boxes.

Riparian Health Assessments/Crossing Assessments

Refer to 2016 Riparian Health Assessment Report.