Mapping and Removal of *Phragmites australis* along Western Collingwood Shoreline through Community Action and Local Partnerships

2015

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Executive Summary

*Phragmites australis* (*European Common Reed*) is an invasive perennial grass that is spreading rapidly throughout Ontario causing severe impacts within our communities and ecosystems. The Collingwood shoreline has been infested with *Phragmites* over the past two decades. This infestation has driven community concern around shoreline aesthetics, shoreline access, property values and ecosystem degradation. One ecosystem in particular where *Phragmites* is becoming an increasing concern is the west shoreline of Collingwood, Ontario. This shoreline hosts globally rare coastal marshes that are home to a diversity of species, including Species at Risk and is a part of the larger Provincially Significant Silver Creek Wetland Complex.

Following an initial community stakeholder meeting in September 2014, Nottawasaga Valley Conservation Authority (NVCA) and Georgian Bay Forever (GBF) coordinated a community action plan for the West Collingwood shoreline and. In July 2015 NVCA received a grant of $29,039 from Environment and Climate Change Canada’s Lake Simcoe South-eastern Georgian Bay Clean-up Fund and GBF received a $50,000 grant from RBC Bluewater Project to assist the community with *Phragmites* monitoring, control and education.

NVCA and GBF staff worked with community groups to map the extent of *Phragmites* in the study area in May and June 2015. A community training session was held in July 2015 prior to control efforts. Control efforts in August 2015 engaged dozens of volunteers who contributed hundreds of hours toward *Phragmites* control. Follow-up monitoring was undertaken in fall 2015 to assess initial success of control efforts.

Community outreach and education was an important component of 2015 efforts. Several fact sheets were produced by the NVCA/GBF team and Blue Mountain Watershed Trust reported on project efforts. The project was promoted by various media outlets and outreach to local nurseries and garden centres was undertaken.

Following a successful 2015 effort, we will provide additional focus on *Phragmites* control on public lands in 2016 and look forward to adding another condominium association (Blue Shores) to our community partnership. We aim to make this project a long-term sustainable initiative in the Collingwood community through education and outreach, annual monitoring and large-scale cutting events on both private and public lands.
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1.0 Introduction

In 2005, researchers at Agriculture and Agri-food Canada ranked *Phragmites australis* (hereinafter referred to as *Phragmites*) as Canada’s worst terrestrial invasive plant (Catling, 2005). *Phragmites* forms a dense monoculture which prevents the growth of native species and therefore degrades habitat for Species at Risk such as the Blanding’s turtle (OMNR, 2011). It jeopardizes the continued persistence of globally rare endemic coastal marshes (part of provincially significant Silver Creek Wetland Complex) along with the Collingwood shoreline. *Phragmites* also poses concerns for tourism, property values, shoreline aesthetics and recreational opportunities (OMNR, 2011).

*Phragmites* has become established in many locations along the Georgian Bay shoreline and continues to spread. Being proactive in the removal of existing stands and managing new incursions will help control the invasion of *Phragmites*. This effort to map and remove *Phragmites* along Collingwood’s West shoreline was made possible through Environment and Climate Change Canada’s Lake Simcoe/ South-eastern Georgian Bay Clean-Up Fund. The project supports the goal of enhanced research and monitoring by mapping current stands and following the invading front of *Phragmites*. It will improve conservation of aquatic habitats and species by being a part of the province-wide effort to control *Phragmites* and provide a drive to protect a critical part of Ontario’s environment and economy. Significant control efforts are already present along portions of the Georgian Bay shoreline (Georgian Bay Forever and Wasaga Beach Provincial Park). This project aims to add on to these initiatives by educating local residents and empowering them to carry out the monitoring and control efforts within their community.

2.0 Phragmites

*Phragmites australis* or European Common Reed is a perennial grass native to Eurasia that is now spreading rapidly throughout Ontario (OFAH, 2015). Although it is unknown how *Phragmites* became established in Canada, research suspects it likely was transported in ballast waters between 1700 and 1800 (OFAH, 2015). It was also introduced through the horticultural trade and is still currently being sold at garden centres despite its invasive behaviour. *Phragmites* stands develop and expand quickly through seed dispersal, underground roots (rhizomes), and horizontal “runners” (stolons) (OMNR, 2011). Dispersal to new locations occurs as a result of environmental factors such as water, air, or animal movement, as well as human actions and equipment including the horticultural trade, boats, trailers, or ATVs (OMNR, 2011).

Along with shorelines and wetlands, *Phragmites* is also commonly found in disturbed areas such as road side ditches (OFAH, 2015). Key features for identifying *Phragmites* as shown below in Figure 1 include: height (up to 5 metres), dense stands (200 stems per square metre) and large seed heads which are brownish red in colour (Swearingen and Saltonstall, 2010). Other features to look for when identifying invasive *Phragmites* are the tan/beige stems, blue-green coloured leaves and rigid stem (culm) with tightly clinging leaf sheaths (Swearingen and Saltonstall, 2010).
Once established in a location, *Phragmites* is extremely difficult to eradicate due to its extensive root systems and proximity to water – which limits tools available for control. *Phragmites* infestations can result in loss of wildlife habitat and biodiversity, including impacts to Species at Risk (OMNR, 2011). *Phragmites* directly attacks surrounding vegetation by secreting toxins from its roots into the soil, preventing growth of native species and allowing the formation of dense stands (OFAH, 2015). It has a high metabolic rate, leading to higher transpiration rates which can alter local hydrology (drying out wetlands; OMNR, 2011). In addition to environmental factors there are also economic factors associated with *Phragmites* infestation such as: increased risk of fires, loss of agricultural land and lowered recreation and tourism (OMNR, 2011).

2.1 Controlling *Phragmites*

*Phragmites* is one of the most difficult invasive species to control due to its extensive root system, abundance, stand density, height and tendency to establish in or near water. There are both mechanical and chemical control options available, with the majority of best management recommendations promoting the combination of two methods. Mechanical options include excavation, mowing/rolling, hand cutting, flooding, prescribed burning, and tarping. Chemical options involve herbicide applications in the form of spraying or wicking. In Ontario, herbicide storage, use, transport, and sale is regulated under the Pesticides Act and Regulation 63/09. Under this legislation, *Phragmites* on dry land can be controlled with approved herbicides subject to approval by the Ontario Ministry of Natural Resources and Forestry. Landowners must contact their local MNRF for an application form and then submit their project proposal. MNRF may then issue a written opinion stating that the project is a natural resources management project. No herbicides are approved for over-water use in
Ontario – herbicide control is not an option for Phragmites stands in standing water (MNRF, 2015).

Phragmites is mostly found in close proximity to water along shorelines, wetlands and ditches. Most of the West Collingwood stands lie along shorelines that have been inundated with the recent rise in lake levels back to average water level conditions. Herbicide control is not an option in these stands. The Collingwood shoreline hosts globally rare coastal marsh habitat and Species at Risk, therefore ruling out large-scale mechanical options. Based on this assessment, the recommended control method for the West Collingwood sites is cutting Phragmites stalks as close to the ground as possible, whether on land or in water, in late summer (August). Timing of control is linked to the annual cycle of Phragmites. In mid to late August, the majority of the plant’s energy has moved from its root system into its stalks and leaves and continues to the top of the plant to facilitate seed production. Thus, cutting the stalks at this time is most effective as it ensures that nutrients will not be transported back into the roots to facilitate further growth. By cutting the stalks during this time frame every year, the roots will weaken and, over several treatments, the plant will eventually weaken and/or die. It is important to note that these techniques need to be repeated several years to be effective. Cut stalks should be removed from the site and spread out flat to dry for 1-2 weeks. Dry Phragmites stalks are then taken to an approved composting facility that meets the minimum temperature requirements as set by the Ontario Ministry of Environment Ontario Compost Quality Standards to destroy seeds and plant fragments, and prevent future propagation (OMOE, 2012). This process was verified with Ministry of Natural Resources and Forestry during 2009 Phragmites removal at Wasaga Beach Provincial Park and was reconfirmed by Simcoe County staff in 2015. The cutting method is very labour intensive and requires ongoing monitoring of regeneration and new stand development to assess the effectiveness of treatment.

3.0 Project Funding

3.1 Environment and Climate Change Canada’s Lake Simcoe/South-eastern Georgian Bay Clean Up Fund (LSGBCUF)

The initial Clean-Up Fund from 2007-2012 was focused on Lake Simcoe. This fund expanded for 2012-2017 to include South-eastern Georgian Bay and funding was increased to $29 million dollars. The LSGBCUF was created with the goal of improving environmental monitoring and promoting best management practices (BMP’s) in the watershed to reduce phosphorus loading, improve water quality and conserve critical aquatic habitat for species protection. Acceptable projects are those that involve research and monitoring to improve environmental information, as well as conservation projects such as ecological restoration, to improve critical aquatic habitat. This Phragmites project will receive $29,039 over two years (2015/2016). Funding was not approved until late June 2015 and significant in-kind work was undertaken by project partners prior to funding approval to keep the project moving forward.
3.2 RBC Bluewater Fund

The RBC Bluewater Fund launched in 2007 and has announced a $50 million charitable commitment to help support local communities working towards watershed protection and access to clean drinking water. $50,000 was generously donated by the RBC Blue Water Project to Georgian Bay Forever to help continue the work on monitoring and removal of *Phragmites* along the broader Georgian Bay shoreline (not limited to West Collingwood). This funding will help community partners and volunteers tackle priority stands and contain the spread of this devastating shoreline invader for the next two years (see article in the Appendices). The RBC Blue Water Project and RBC Royal Bank Collingwood are longstanding supporters of environmental projects in the Georgian Bay area.

4.0 Involved Organizations and Efforts

The success of many environmental projects relies on collaboration with local organizations and hard-working volunteers. The genesis of this project began with a meeting organized by local residents Gail Bascombe and Betty Beacon at the Collingwood Rod & Gun Club on September 24, 2014. This meeting brought together a number of stakeholders, all with a concern regarding *Phragmites* and an interest in community action. The meeting concluded with a commitment from Georgian Bay Forever (GBF) and Nottawasaga Valley Conservation Authority (NVCA) to facilitate a community action plan and to seek funding from the LSGBCUF to assist in its implementation. By the end of the year, important partnerships had been formed with:

- The Town of Collingwood
- Blue Mountain Watershed Trust (BMWT)
- GBF
- NVCA
- condominium associations
- community groups (Rod and Gun Club, Sunset Point Residents Association)
- Ontario Federation of Anglers and Hunters (OFAH)

A successful deputation to Town of Collingwood Council on January 19, 2015 (Gail Bascombe and Tim Morris) further cemented the community action plan and the Town’s support for the project. A stakeholder meeting on May 5, 2015 at Rupert’s Landing kicked off the 2015 project.

The *Phragmites* Planning Committee (Gail Bascombe and Betty Beacon) initiated this project out of concern for their shoreline health, recreational uses and property value. They spearheaded this campaign by rallying support and promoting the project within the shoreline community. They are involved with the outreach and education of the greater Collingwood community using media outlets.

*Phragmites* Champions from each condominium association and community group took the lead on organizing and implementing the annual removal of *Phragmites* at their respective locations. These champions in particular have dedicated a considerable amount of time organizing removals, meeting with NVCA and GBF staff, and liaising with residents. Two
condominium associations (Admiral’s Gate and Dockside) were able to mobilize private maintenance companies (trained by NVCA staff) to undertake control efforts on their properties.

We would like to recognize the following *Phragmites* Champions for their dedication:

- John Blais - Admiral’s Gate
- Bill Sutton - Admiral’s Gate
- Kathi Coyle - Rupert’s Landing
- Wendy Riggins - Rupert’s Landing
- Sharon Black - Collingwood Rod and Gun Club
- Al Black - Collingwood Rod and Gun Club
- Lannee Brown - Dockside
- Bruce Dodgson - Lighthouse Point
- Tim Morris - Lighthouse Point
- Raymond Chan - Whites Bay Development
- Ruthann Caroline - Blue Shores Ltd.

The Town of Collingwood played an important role by providing in-kind support to control *Phragmites* on Town property and to pick up and dispose of cut *Phragmites* from the various control sites. They provided a crew of six Parks and Recreation staff to cut and remove *Phragmites* at Harbourview Park and liaised with the condominium associations and community groups to collect and transport cut stalks to the Collingwood Transfer Station.

Blue Mountain Watershed Trust is a volunteer-run environmental, non-government organization focused on preserving and enhancing the ecology of the Blue Mountain Watershed. They contributed environmental expertise throughout the summer, assembled volunteers and promoted the control effort through reporting and website promotion to help educate the local community. The Trust led control efforts at Sunset Point Park (See George Powell’s Report in Appendix D).

GBF and NVCA acted as the overall coordinators and project managers ensuring stands were mapped and managed at the appropriate time using correct methodology. Mapping efforts were undertaken with NVCA staff and community groups in May and June, 2015. GPS units were used to identify the inside edge of *Phragmites* stands. The outside edge of these stands was mapped by NVCA staff in June 2015 via canoe. Following the monitoring effort, guidance, direction and delegation of tasks were provided to *Phragmites* Champions and volunteers through a training session led by GBF and NVCA staff on July 14, 2015. Control efforts were kicked off with a significant private/public removal event/BBQ on August 8, 2015. Control efforts by community volunteers at Rupert’s Landing and Lighthouse Point continued through August. NVCA, GBF and Town staff undertook work on public lands (between Dockside and Lighthouse point; Harbourview Park) on August 10 and 11. Follow-up monitoring was undertaken by NVCA and GBF staff in fall 2015 to provide an initial assessment of control efforts. NVCA staff developed the education and outreach materials (Appendix C) and produced the reporting for this project.

This project engaged 41 volunteers in its first year, who contributed approximately 468.5 hours of their time to *Phragmites* control. Approximately 4,480 kg of *Phragmites* was
removed and sent to the local waste facility (Collingwood Landfill – operated by County of Simcoe) for composting. NVCA staff verified with facility operators that composting temperatures were indeed hot enough to render all plant material inert.

5.0 Coastal Marshes and Provincially Significant Wetlands

The Collingwood shoreline was chosen as the current focus for *Phragmites* removal in part due to the threat it poses to Collingwood’s rare coastal marshes. Coastal marshes on the Great Lakes are transition zones between terrestrial and aquatic ecosystems. Endemic to the Great Lakes (found nowhere else in the world), they are characterized by shallowly sloping limestone shorelines, and relatively low nutrient inputs and are highly dependent on variable water levels to maintain their form and function (Midwood et al., 2012). The extent of the marshes expands and contracts with daily, seasonally and long-term water level cycles. Collingwood’s coastal marshes are home to a diverse array of flora and fauna including Species at Risk and provincially rare species (Featherstone and Fortini, 2011; Cvetkovic et al., 2010). They provide suitable spawning, nursery and feeding areas for many fish species. They are also used by migratory waterfowl for staging, nesting and feeding (Featherstone and Fortini, 2011; Cvetkovic et al., 2010).

Wetlands in the province of Ontario are classified by a science-based ranking system known as the Ontario Wetland Evaluation System (OWES). Each wetland can then be classified and given a designation, such as Provincially Significant (MNRF, 2015). The OWES framework is a standardized method of assessing wetland functions and societal values, enabling the province to rank wetlands relative to one another (MNRF, 2015). This information is provided to planning authorities to support the land use planning process and ensure the protection of these ecologically significant areas (MNRF, 2015). The Silver Creek Wetland Complex (Figure 2) has been evaluated as a Provincially Significant Wetland (PSW).

Portions of the Silver Creek Wetland Complex are present along the length of our study area. Human influences and invasive species are the primary threat to coastal wetlands in this area. Incompatible development along southern Georgian Bay has resulted in degradation and fragmentation of coastal ecosystems. *Phragmites* also threatens these coastal wetlands by impacting marsh plant biodiversity, degrading fish and wildlife habitat and altering wetland hydrology.

There are multiple authorities involved in the protection of these provincially significant wetlands, including: Department of Fisheries and Oceans, Ministry of Natural Resources and Forestry, Nottawasaga Valley Conservation Authority, The County of Simcoe and the Town of Collingwood. Activities in and around these wetlands are regulated by these agencies through a variety of legislation.
6.0 Education and Outreach

Community education and outreach are an essential component for the success and sustainability of many large scale projects. Media outlets such as the Bradford Times and Georgian Bay News (See Appendix A) were helpful to raise awareness about *Phragmites* and the Collingwood effort. David Sweetnam, David Featherstone and Gail Bascombe appeared on an episode of The Penny Skeleton Show (Rogers Cable), which focused on science and issues surrounding *Phragmites* in Collingwood.

The large scale cuttings were organized with the campaign name: “Fight the Phrag!” and the NVCA and partners produced a series of fact sheets for landowners on the topics. The “European Common Reed: *Phragmites australis*” and “Collingwood’s Globally Rare Coastal Marshes” were published in early summer 2015 while “Collingwood’s Dirty Dozen Invasive Species” and a “Landowner Guide for Controlling Invasive *Phragmites*”, were published in February 2016. These fact sheets can be found in Appendix C: Fact Sheets. We believe the fact sheets will be very helpful in empowering landowners to understand more about *Phragmites* and how they can control it on their property – not just in West Collingwood but along the entire Georgian Bay shoreline.

In July 2015 Adrienne Huston – an Ontario Federation of Anglers and Hunters Invasive Species Hit Squad summer student – spent a day visiting nurseries and garden centres in the Stayner/Collingwood area to raise awareness of invasive species and to promote the “Grow Me Instead” program. The “Grow Me Instead” program focuses on native alternatives to non-native, invasive plant species often used in home gardens (Ontario Invasive Plant Council, 2015).
7.0 Study Area

Western Collingwood is the study area, spanning approximately 6 km of shoreline from the east end of Dockside Drive to Sunset Point (see Figure 3). Shoreward land use in this location is dominated by condominium development. Sunset Point anchors the east end of the study area.

One of the first priorities of the project was to map the current extent of Phragmites and select those of most importance for removal. From May to June 2015 the Western Collingwood shoreline from Dockside Drive to Sunset Point Park was surveyed using GPS units on foot and by canoe by NVCA staff and Phragmites Champions. This was accomplished by taking waypoints around each stand, which could then be turned into a polygon using the GIS mapping software. Phragmites stands were then mapped and categorized based on density and size and prioritized for removal. Following our successful summer control efforts, another condominium association (Blue Shores) contacted BMWT to see how they could become involved. NVCA staff followed up with initial mapping efforts here in October 2015. NVCA staff also built on 2014 Blue Mountain Watershed Trust (Stella Juhasz) Phragmites mapping on Black Ash Creek in October 2015 with mapping now extending from its confluence with the Harbour upstream to Sixth Street.

![Figure 3. Study Area, West Collingwood](image-url)
8.0 Mapping Results

As shown below in Figure 4, *Phragmites* spans the majority of the Collingwood shoreline and is present throughout this portion of the Silver Creek Wetland Complex. Deep, heavily armoured shoreline areas associated with marinas and the Harbour represented the only non-infested areas. Size, density and status of stands are indicated on the map. Yellow, orange and red colours represent low, medium and high densities. Stands that were cut in the 2015 season are grey in colour. By mapping the areas of cut stands we can then determine the percent that has been removed and track these stands over time.

![Phragmites in Collingwood, ON](image)

**Figure 4. Density and Size of Phragmites Stands in West Collingwood, Ontario**

9.0 Control Areas 2015

After priority stands were established, the large scale cutting days were organized. The *Phragmites* mapping at each site can be found in Appendix B: Site Maps. On August 5th the inaugural cutting took place with Mayor Cooper of the Town of Collingwood, Norm Wingrove from BMWT, David Sweetnam from GBF and Dave Featherstone from NVCA. Large scale cuttings were planned for August 8th through the "Fight the Phrag!" campaign. Volunteers signed up for three hour shifts at specified cutting locations and gathered for a “volunteer appreciation” BBQ at the Collingwood Rod and Gun Club. NVCA and GBF staff were able to
assist with the control of stands at public locations and along condominium shorelines where extra help was needed.

9.1 Methodology

At each location the methodology has been consistent. Stands were cut using long handled trimmers (either gas or hand powered) or regular pruning shears. Gas-powered trimmer use was limited to areas of dense Phragmites monocultures where minimal native vegetation was present. The stands in deep water were cut as low to the substrate as possible, below predicted future water level in hopes to drown out the root systems and prevent regeneration. These cuttings were then placed in canoes or onto tarps and floated into shore where they transferred to the pickup locations. On land, or in areas of shallow water, stands were cut as low to the ground as possible. The cut stalks were left to dry out for 1-2 weeks, and then were picked up by the Town of Collingwood. Garden gloves were used for handling the cuttings and hip waders or heavy soled shoes were required as the remaining cut stalks were sharp.

9.2 Blue Shores

Blue Shores is the easternmost condominium association in the study area. This site was added to the project in the fall of 2015. Three large dense stands, three large sparse stands and some small stands are present along their shoreline. It will be important to target these young stands next summer to prevent them from transitioning into larger stands. There is also a perimeter stand of Phragmites along the edge of their internal storm water management pond that residents worked to cut last September. Removal of these stands is important to the residents for aesthetic reasons but it is recognized that this stand is connected to the shoreline and could be a source of infestation.

9.3 Sunset Point

George Powell from BMWT and Heather Powell of the Sunset Point Resident’s Association live in close proximity to Sunset Point. They took a leadership role for this site by rallying volunteers and organizing their own large scale removal of stands from the Town of Collingwood’s Sunset Point Park.

9.4 Harbourview Park

Three Phragmites stands from the Arboretum to the east end of the waste water treatment plant past Birch Street were cut by the Town of Collingwood, GBF and NVCA staff.

9.5 Hen and Chickens Island

Phragmites stands along this public shoreline trail within the Silver Creek Wetland Complex were mapped in the summer of 2015, but no management efforts were undertaken this year. This site will be the focus for public events in 2016. This area supports the best example of globally rare Great Lakes coastal marsh in the study area.
9.6 Admiral’s Gate

Admiral’s Gate is located in White’s Bay where it is open, experiencing strong wind and wave action. Inshore from the coastal marsh, there is an area of open deciduous and thicket swamp that has wet soils and can experience high water levels. In this vegetated area there is a mature stand of *Phragmites* mixed with cattails that was cut in August. Within the coastal marsh there is one very large, tall and dense stand of *Phragmites* that was not removed in its entirety because it was located off of Admiral’s Gate property. Several small stands throughout the marsh habitat were also removed. *Phragmites* is managed at this property by contractors and NVCA staff assisted with cutting and providing instruction to contractors.

9.7 Rupert’s Landing

Rupert’s Landing is located in White’s Bay just south of the marina. The ecosystem in the bay has changed over time due to shoreline development and changes in water levels. The bay is dominated by marsh habitat with organic soils, grass and cattail-dominated vegetation. A large scale cutting event was held on Saturday, August 8th at Rupert’s Landing where condo residents, NVCA and community volunteers removed a large stand of *Phragmites*. Volunteer work continued in this area throughout the month of August.

9.8 Lighthouse Point

Lighthouse Point is on the outside edge of White’s Bay where more wave and wind action is present. A mosaic of coastal marsh vegetation and shallow waters extend out approximately 60 m from shore. *Phragmites* stands of variable size and density lie within this shoreline area. Lighthouse Point was the location of a pilot project between residents and GBF in fall 2014, where residents removed *Phragmites* around their beach area. This inundated beach area remained relatively free of *Phragmites* through the summer of 2015. Both residents and environmental organizations were with this initial success as seen in Figure 4. In summer 2015, a group of dedicated residents continued to remove several stands of *Phragmites*. NVCA staff were also able to remove a number of small stands to the west of Lighthouse Point (between Dockside and Lighthouse Point).

9.9 Dockside

Dockside is located to the west of Lighthouse Point. The *Phragmites* stands at Dockside have been managed for several years by contractors and the stands are coming under control. A small stand on the east side of the property was removed by the contractors and NVCA staff in August.

9.10 Black Ash Creek

Following initial efforts by Stella Juhasz (BMWT), approximately 2.6 km of Black Ash Creek was mapped by NVCA staff on November 9, 2015. The headwaters of Black Ash Creek emerge south of Lake of the Clouds with additional tributaries arising on the Simcoe Lowlands. The Escarpment branch flows quickly off the Escarpment into the Simcoe Lowlands where it meanders northeastward, picking up flows from lowland tributaries through rural/agricultural lands. At Collingwood, Black Ash Creek descends into a recently-
constructed flood control channel which extends downstream to Collingwood Harbour. Black Ash Creek discharges into the Harbour and is associated with the provincially significant wetlands, making it important to monitor and control these stands as well, as fragments from the surrounding landscape are easily transported by water.

10.0 Preliminary Findings

Dense *Phragmites* stands appear to be associated with nutrient-rich sediments (i.e. Harbourview Park, Rupert’s Landing) as well as edges of developed shorelines. Fertilizer and stormwater runoff along developed shorelines may be associated with denser stands. Although stands are present along cobble/bedrock shorelines, they tend to be relatively sparse possibly due to the low nutrient environment.

Overall, mechanically controlled *Phragmites* stands on land have shown faster regeneration than stands cut in open water. For example, stands cut on land in early August were about 1.5 metres tall by late October, whereas those submerged in water had little to no regrowth. Preliminary assessment of results from Lighthouse Point (2014 and 2015) and 2015 control sites indicate that annual cutting of submerged stands shows the best results, as shown in Figure 5 below, taken at Lighthouse Point.

Shoreline areas with rocky substrate and strong wind/wave action generally had fewer and less dense stands compared to areas with less wave action and finer substrates. There is some evidence that *Phragmites* stands in more exposed, rocky contexts were being removed naturally via wind/wave action. Although this locally assists in reducing stand number, size and density, uprooted *Phragmites* fragments can then be moved to new shoreline habitats where they can colonize previously uninfested shoreline areas. Cutting of dry land stands appears to be less effective with significant regeneration and no reduction in stand density observed. Although stand vigour may decrease over time with continued cutting, we may wish to consider herbicide or other options (tarping) for control of dry land stands. Even though these stands are not under water, they are located near the water’s edge and herbicide use may not be appropriate/ permitted in these areas.
11.0 Lessons Learned

The 2015 Phragmites community action plan has been highly successful with a variety of community groups, organizations and agencies coming together in partnership to address a shared issue. Dozens of volunteers have contributed hundreds of hours of volunteer time to this project and literally tons of Phragmites has been removed from the shoreline. This has enhanced access to the Bay, improved shoreline aesthetics and enhanced provincially significant wetland habitats. As with all first year projects, we encountered unforeseen challenges and learned as we went along. Our “lessons learned” are documented below.

The condominium associations involved in the project have been very keen and organized as far as creating their own system for on-going management of Phragmites. Each association will determine what method works best for them and adjust their strategy for the following years.

NVCA and GBF will provide a stronger focus during training to ensure that volunteers have the appropriate identification skills to separate native vegetation from Phragmites. As part of the agreement between Environment and Climate Change Canada and NVCA, native vegetation must remain in the provincially significant wetlands along the shoreline. Although some minor incidental loss cannot be prevented – even with hand shears - we do
need to prevent larger scale removal of native marsh vegetation. We plan to offer more presentations/information on Collingwood’s provincially significant wetlands as well as plant identification and proper removal techniques as part of community training in 2016.

Other lessons learned:

- The gas powered trimmer with a long handled pruner was the most effective control means for dense stands with little native vegetation. It is a physically demanding task and users must have training/experience for safe and effective operation. NVCA has recently purchased a gas-powered trimmer which will assist with 2016 control efforts.
- The long-handled manual hedge trimmer (serrated blades) is the most effective alternative for lighter density stands in native marsh wetlands. Short hand shears, though cheaper, are less effective and ergonomically difficult to use over long periods of time.
- The most physically demanding part of controlling stands is the removal of cuttings off site, especially those sites in water. We believe that large scale cutting days with many volunteers is the most effective method because a lot of ground is covered in a short amount of time. It is helpful to have people assigned to different tasks to even out the workload.
- We need to establish an endpoint date for Phragmites cutting to facilitate in-kind pickup and disposal by Town of Collingwood staff.

12.0 Next Steps

With late announcement of funding for this project (in the midst of a busy field season), NVCA staff were unable to hire a contract staff position fully dedicated to this project. Existing NVCA staff with assistance from GBF carried the load and had to focus efforts accordingly.

The main focus for the 2015 season was on condominium developments, as they make up a large percentage of the shoreline and there was significant interest in moving forward with Phragmites control on their properties. We were successful in the first year at developing a rough plan with the condominiums involved and feel the residents have a grasp on timing and control methods going into the next season. We will continue to provide guidance, monitoring assistance and labour to our condominium association partners in 2016.

With funding firmly in hand for 2016, NVCA will be hiring a contract staff member for the summer of 2016 dedicated to this project. This position will augment the NVCA/GBF commitment to this project and will allow additional focus on Phragmites control on public lands with a focus on controlling stands in the globally rare coastal marshes. This additional focus will require the engagement of the general public in controlling these stands. This will involve more community based presentations and information sessions, as well as reaching out to local groups and schools. Working on public lands will also require close partnership with the Town of Collingwood, not only for media releases but also for scheduling the pick-up of cuttings at public areas.
A new condominium has also been added for the 2016 season. Blue Shores Ltd. will initiate their first year of work including rounding up volunteers and planning large-scale cutting days. On October 23, 2015 NVCA staff met with six people joining in an initial site assessment of the area. Blue Shores is located on the east side of the Collingwood Harbour, making it our most eastern control site to date. It has sensitive coastal marsh habitat where varying sizes of *Phragmites* stands are present in protected shoreline areas. Some NVCA staff time will need to be dedicated to this group to get them caught up with the other condominiums and provide direction.

We are open to adding more condominium associations and community groups to the project. We are also hoping that through the research and development of this project more of the Georgian Bay shoreline communities will be inspired to take on their own *Phragmites* efforts. We are willing to share our fact sheets and knowledge with these communities to further promote the greater *Phragmites* removal initiative.

### 13.0 Long Term Strategy

The first year of *Phragmites* removal in Collingwood’s West shoreline was a successful start and we will continue to build on this to ensure it becomes a sustainable initiative within the broader community. The baseline mapping and monitoring of the west shoreline is complete, but new stand developments will need to be mapped each year, as well as the cut percentage from the year before. We have seen a tremendous commitment to this project from our current partners, but would like to see more involvement from the general public to remove stands on their properties and public lands. NVCA and GBF will aim to build community capacity and momentum in 2016, taking on an advisory role. There will be continued support from NVCA and GBF to monitor, help with control efforts and organize large scale cutting events.

There are certain tasks that must be achieved at specific times given the weather and seasonal population of Collingwood. We propose the following plan each year in order to create project sustainability:

**January-April:** In this time there is not much ground work that can be done due to the weather and biology of *Phragmites*. BMWT will be taking the lead on education and outreach during this time to gain interest for the upcoming spring. Presentations will be delivered to Town Council, the general public and at local public and high schools. In conjunction with the *Phragmites* project, we could potentially add in an “adopt a stream” type program where a specific class from a local school or interest group such as a Rotary Club or field naturalist group can take ownership of one of the streams flowing into Georgian Bay. This would involve monitoring the banks for invasive species (with the focus on *Phragmites*) and hosting restoration days for removing invasive species and planting native vegetation. This component could be run by Ontario Streams or NVCA’s Nottawasaga Watershed Improvement Program (N-WIP).

The schools could have a more intensive program depending on the class, where stream chemistry and physical parameters can be measured as well. This could be a “field lab” style day where our water quality monitoring team could give a demonstration. This outreach would then encourage students to be involved with *Phragmites* removal in August as part of
their 40 volunteer hours required for graduation. We also hope to promote this project at BMWT and Elephant Thoughts film series: Be the Change.

April-July: An initial meeting with stakeholders will be held in April to discuss 2015 results and to lay out the plan for 2016 work. Spring monitoring will be conducted to remap *Phragmites* along the shoreline, assess the previous year’s cutting efforts and determine new growth. This monitoring will enable us to set priorities as to which stands should be targeted for cutting later in the summer. Educational materials can start to be handed out to the general public at this time to raise awareness about *Phragmites* in Collingwood. This outreach also includes visiting local greenhouses to stress the importance of selling native or non-invasive plants. Preparation for removal projects on public and private lands will begin. Removal dates will be secured and communications (including media) -to promote the cutting days and call for volunteers will begin.

Late July- August: Large scale cutting events need to be held during this time. There is a very short window to cover a lot of ground. We hope to get the Town of Collingwood, local newspapers and social media to promote this time as “Fight the Phrag Week” or *Phragmites* awareness month. Every year during these weeks, we hope to have a secure number of dedicated volunteers working on removal.

August-December: Fall will be the time to provide a preliminary assessment of cutting success as well as to map any stands that were missed during the spring. Analysis and reporting will begin and we will meet with stakeholders to discuss what went well and what could be improved for next year.
References


Appendix A: Media

RBC donates $50,000 to Nottawasaga Valley Conservation Authority

Submitted photo

The RBC Blue Water project recently presented $50,000 to the Nottawasaga Conservation Authority to help tackle invasive species. From left, RBC staff (in blue shirts) with Gail Bascombe, community advocate; Charlotte Wallis, RBC Regional Vice President Barrie & Area; Mary-Joe Million, RBC Branch Manager Collingwood; Amber Gordon-Bunn, Director of Development for Georgian Bay Forever; Gail Ardiel, Deputy Mayor of the Town of the Blue Mountains and Vice-Chair of the Nottawasaga Valley Conservation Authority (NVCA); David Sweetnam, Executive Director & Georgian Baykeeper for Georgian Bay Forever; Deb Doherty, Councillor for the Town of Collingwood and NVCA Board Member.

Collingwood Connection
By Erika Engel

The RBC Blue Water project recently presented $50,000 to Georgian Bay Forever, which is working with Nottawasaga Conservation Authority tackle invasive species.

Collingwood community partners tackle a shoreline invader *Phragmites*

by John Malloy | 0 Comments

The Collingwood community is coming together to tackle, *Phragmites*, also known as European common reed, an invasive grass that is threatening to take over wetlands and beaches along the shoreline. Growing up to 5 metres high, *Phragmites* destroys wildlife habitat and negatively affects recreational activities like swimming, boating and fishing. 

With funding from the RBC Blue Water Project and Environment and Climate Change Canada, Georgian Bay Forever, NVCA, Blue Mountain Watershed Trust, the Town of Collingwood and a very active group of community members are monitoring and removing *Phragmites* in the area. The first removal work party took place on August 8. More volunteer work days are being set-up for later in the summer.

From left to right: David Featherstone, Nottawasaga Valley Conservation Authority; David Sweetnam, Georgian Bay Forever; Mayor Sandra Cooper, Town of Collingwood; and Norman Wingrove, Blue Mountain Watershed Trust Foundation

The photo was taken at Rupert’s Landing along the Collingwood shoreline.
NEWS
Cutting *Phragmites* down to size

By *Miriam King*, Bradford Times
Monday, August 17, 2015 5:47:45 EDT PM

Introduced from Eurasia, *Phragmites australis*, or the Common Reed, aggressively invades a ditch and field along Yonge St. just north of the 2nd Line of Innisfil. Control includes mechanical cutting - before the seed heads are set. Miriam King/Bradford Times/Postmedia Network

The Common Reed, *Phragmites australis*, is beginning to live up to its name.

An introduced grass species that grows up to 6 metres in height, it has become increasingly common along roadsides and in wetlands in Central Ontario. Plants both produce seed and spread vegetatively, sending out rhizomes that can extend more than 3 metres in a single year.

In fact, says David Featherstone, of the Nottawasaga Valley Conservation Authority, “It’s one of the most invasive plants in Ontario. From a wetland perspective, it is the most invasive plant.”
*Phragmites* can form dense stands, choking out native species. The reed secretes phytotoxins from its root system, that help the invader take over to the exclusion of all other vegetation.

It's a particular problem along the shoreline of Georgian Bay in the Collingwood area, notes Featherstone, where *Phragmites* is threatening globally-rare coastal habitat – and interfering with the view from some shoreline condos.

That's why a new partnership has been created, to try to control if not eradicate *Phragmites* from the area.

The Bluewater Collingwood Trust, Georgian Bay Forever, NVCA and local condominium associations are partnering to attempt to mechanically control *Phragmites* – by cutting off the reeds just above the roots.

“This is a great time of year to do it,” Featherstone says: while the plant has “invested” its energy in leaf and stem growth, but before the seed heads form.

Herbicidal sprays can't be used, because of the proximity to water, and trying to dig up the plant or disturb the roots only causes *Phragmites* to spread. Cutting the plant, while it may be a “multi-year approach,” has been found to be “very effective” in controlling the reed and reducing the density of the stands, Featherstone says.

The shoreline *Phragmites* project received about $30,000 in funding from the federal Georgian Bay-Lake Simcoe Clean-up Fund, over 2 years. August 8 was a Work Day, that saw volunteers from all of the involved organizations involved in cutting down as many stands of *Phragmites* as possible.

There is also an educational component to the fight against *Phragmites* – educating landowners on the importance of cutting the stands of the reed in late July/early August; and Public Works crews with municipalities, Counties and the province, on the importance of cleaning off their excavating equipment, especially after working in an area infested with *Phragmites*.

In the long-term, there is ongoing research into the use of herbicides that might be used in wet habitats, especially where it is “unreasonable” to try to use mechanical harvesting, to provide another tool.

As Featherstone notes, “With these invasive species, it's a marathon, not a sprint.”

Appendix B: Site Maps from East to West
Phragmites at Sunset Point, Collingwood, ON, Part 1

Legend

Stand Density
- High
- Medium
- Low
- Cut

Nottawasaga Valley Conservation Authority
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Utopia, ON L0M 1T0
www.nvcc.on.ca

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Appendix C: NVCA Fact Sheets
Collingwood’s Globally Rare Coastal Marshes

The Unique Nature of Collingwood’s Great Lakes Coastal Marshes

What is a Great Lakes Coastal Marsh?
Coastal marshes on the Great Lakes are transition zones between terrestrial and aquatic ecosystems. Endemic to the Great Lakes (found nowhere else in the world), they are characterized by shallowly sloping limestone shorelines, and they are highly dependent on variable water levels—daily, seasonally and long term—to maintain their form and function. The extent of the marshes expands and contracts with long-term water level cycles.

The Town of Collingwood hosts globally rare Great Lakes marsh communities along its shoreline. These marshes are part of the larger provincially significant Silver Creek Wetland Complex which extends inland and includes forested swamps along former lake shorelines. Collingwood’s coastal marshes are home to a diverse array of flora and fauna including Species at Risk and provincially rare species. They provide suitable spawning, nursery and feeding areas for many fish. They are also used by migratory waterfowl for staging, nesting and feeding.

What is threatening the Coastal Marshes?
Human influences are the primary threat to our coastal wetlands. Incompatible development along southern Georgian Bay has resulted in degradation and fragmentation of coastal ecosystems.

Construction of shoreline protection and nearshore dredging removes coastal marsh habitat and degrades the connections between the lake, wetlands and terrestrial features. Sediment plumes from dredging can affect coastal marshes and their functions.

Sediments and excess fertilizers can enter the coastal marshes through rivers, streams and stormwater discharge. These sediments can cause high levels of turbidity (water cloudiness) that impact marsh features and functions. Excess fertilizers, or nutrients can cause noxious algae blooms.

In recent years, an invasive grass species, Phragmites australis, has colonized Collingwood’s coastal marshes. This species has impacted marsh biodiversity as well as human views and uses along the shoreline.
Did you know...

- Collingwood’s coastal marshes are considered globally rare.
- Groynes, structures that extend 150-300 meters into the water, are particularly disruptive to water flow and sediment transport.
- The east shore of Collingwood has more than 30 groynes per kilometre.
- Portions of Collingwood’s shoreline have more than 10 dredged areas/kilometer.
- More than 2/3 of all fish species in Georgian Bay reproduce in coastal wetlands.
- The invasive grass, *Phragmites australis*, can out-compete native species and can change the ecology and hydrology of the wetlands.
- Nottawasaga (Lighthouse) Island is an Important Bird Area that supports one of Canada’s few Great Egret colonies and provides nesting habitat for large numbers of

Check out Collingwood’s Coastal Marshes for Yourself!

The public is welcome to visit the coastal marshes on public lands for walking, bird-watching and other passive recreational activities. The coastal marshes can be viewed from trails maintained by the Town of Collingwood including the Hen and Chickens Trail and Boardwalk Trail (Harbourview Park). For more information, visit their website at: http://www.collingwood.ca/trails. Please remember that Collingwood’s coastal marshes contain rare vegetation, wildlife species and fragile habitats. Visitors are encouraged to keep to the trail, take only pictures and leave no trace of your presence in this rare coastal habitat.

Be Informed and Get Involved

Learn about water quality and habitat issues that affect the community in which you live and work. Visit or contact organizations involved with wetland protection. Become a citizen volunteer to participate in programs that help protect and restore coastal marshes.

If you are interested in participating in activities that contribute to the enhancement of the coastal marshes, contact Brittany Hope at bhope@nvca.on.ca or Kim Woodhouse at kim.woodhouse@georgianbayforever.org. For more information on invasive species visit http://www.nvca.on.ca/ or http://www.georgianbayforever.org/.
European Common Reed
*Phragmites australis* (subsp. australis)

*Invasive Grass Threatening Collingwood’s Shoreline!*

**Description**

European Common Reed, often referred to as *Phragmites* (pronounced frag-my-tees), is a tall, non-native perennial grass that has been spreading in Southern Ontario for decades. It grows up to 5 m in height and has large leaves which are beige to blue-green in colour. It has extremely dense seed heads that are spread by the wind. The grass also spreads outwards from existing stands by its persistent root and rhizome structure.

The native subspecies (*Phragmites australis* subsp. *americanus*) is not invasive, and is separated from its non-native counterpart by its sparse stand growth and smaller overall size. It also has reddish-brown stems with less-broad, yellow-green coloured leaves.

**Phragmites along Collingwood’s Shoreline**

*Phragmites* can aggressively spread over wetlands and shorelines and crowd out native vegetation. Dense stands of *Phragmites* provide poor habitat for wildlife species due to decreased availability of food and nesting sites. This may affect Species at Risk that currently occupy Collingwood’s coastal marshes. *Phragmites*’ prolific nature can disrupt views of and access to the shoreline by residents and visitors. It can also negatively impact recreational activities such as boating, angling and swimming.

Dense stands of *Phragmites* are encroaching on the globally rare coastal marshes that occur along Collingwood’s shoreline. These coastal marshes are endemic to Great Lake’s shorelines (found nowhere else in the world), and contain extremely sensitive habitats. The low nutrient regime associated with Collingwood’s coastal marshes may limit the initial distribution and growth of *Phragmites*. However, this does not mean that *Phragmites* will not spread over time.

**Did you know...**

- *Phragmites* can have a vertical stem growth of 4 cm per day and have a density of 200 stems per m².
- One seed head can produce up to 2,000 seeds per year.
- *Phragmites* can reestablish from a single fragment or seed! Clippings and roots should be dried and burned, never composted.
- *Phragmites* is a large water-suck! It transpires water much faster than native vegetation.
- Invasive *Phragmites* releases toxins from its roots that impedes the growth of and/or kills other plant species.
- There are no herbicides currently approved for over or near-water use.
Control methods

- Projects attempting to control invasive *Phragmites* should have a clear plan and reflect OMNR’s best management practices in order to maximize success and prevent further spread.
- Management options include: mechanical excavation, flooding, herbicide application (terrestrial only) and prescribed burning.
- Continued monitoring and control is required over several years for successful control.

A pilot project at Lighthouse Point Condominiums, spearheaded by Georgian Bay Forever and the condo association, took place in 2014. After the *Phragmites* was removed, residents noticed birds, wildlife and native vegetation returning to the area. Through continued monitoring and control, it is anticipated that habitat diversity, shoreline views and lake

What can you do?

- Be aware! Plant native species rather than the invasive species in your garden or yard.
- Become a citizen volunteer and participate in projects that aim to monitor and control this invasive plant species.

Due to the widespread distribution of *Phragmites* in Ontario, and specifically along Collingwood’s shoreline, the mapping, removal, and monitoring of this species is an extremely large project to undertake. Thus, the Nottawasaga Valley Conservation Authority, Georgian Bay Forever, the Blue Mountain Watershed Trust Foundation and the Town of Collingwood have formed a coalition with local condo associations to combat the spread of invasive *Phragmites* along the west Collingwood shoreline.

For more information about how you can get involved in the fight against *Phragmites* along Collingwood’s shoreline, please contact Brittany Hope at bhope@nvca.on.ca or Kim Woodhouse at kim.woodhouse@georgianbayforever.org. For more information on invasive species visit [http://www.nvca.on.ca/](http://www.nvca.on.ca/) or [http://www.georgianbayforever.org/](http://www.georgianbayforever.org/).
Controlling Phragmites

What is Phragmites?

*Phragmites australis* (European Common Reed) is an invasive perennial grass that is threatening Southern Ontario’s wetlands and beaches. It is also commonly found in disturbed sites such as road side ditches.

*Phragmites* is one of Ontario’s most aggressive invasive plants due to its ability to develop and expand quickly. *Phragmites* out competes native plant species for space, water, and nutrients. It also directly attacks native species by secreting toxins from its roots into the surrounding soil.

What does it look like?

This invasive grass can grow vertically 4 cm per day and can reach heights of 5 m. It creates stands so dense that there can be as many as 200 stems per square metre. Stems are tan or beige in colour with blue-green leaves and large seed heads which are red in colour.
How do I get rid of Phragmites?

Determine How Much You Have
It is important to know what you are dealing with. How big, and how dense is the stand you are hoping to remove? For example, removing a dense stand approximately 50 m² could take several hours with a gas-powered trimmer!

Gather the Materials
- Gardening gloves
- Chest waders
- Wheelbarrow
- Tarp
- Rope
- Truck/trailer
- Heavy-soled shoes
- Trimmers

Trimmers can be manual or gas powered. Gas powered trimmers have a long-handled pruning extension with serrated blades. When using a gas powered trimmer under water, be sure to oil blades with natural oil that will not contaminate water. Use olive or canola oil instead of WD40.

Properly Dispose of the Waste
Call your local waste facility to make sure they accept Phragmites, and discuss the drop off process and fees.

Load cuttings into a trailer or truck bed and tarp it down so that no fragments are able to fly out during transportaion. This is essential as Phragmites can reestablish from a single stalk fragment or seed!

When you arrive at the landfill site, tell the attendant that you have Phragmites or Common Reed Grass and they should direct you to the appropriate receptacle.

Safely & Effectively Remove
When? In August. This is when most of the plants energy is out of the roots and being used for flower and seed production. Removal during this time period also protects any nesting birds. If you do encounter any nesting birds, all work must be stopped.

Using a handheld or gas powered trimmer, cut as close to the ground as possible on land and in water. Over time and with repeated cuttings over several years this will cause the roots to weaken and eventually the plant will die.

Pile cut stalks on tarps to dry for 1-2 weeks. Turn piles regularly to ensure all stalks are dried out.

What NOT to do!

1. Do NOT apply herbicides! There are currently no herbicides approved for over-water application. Contact your local Ministry of Natural Resources office for more information on herbicide application processes for dry land.

2. Do NOT use heavy machinery like back hoes! This is very destructive to sensitive shoreline habitat and will also require a permit from your local conservation authority.

3. Do NOT remove native vegetation! This vegetation provides habitat and food for many species, and increases biodiversity.

4. Do NOT place in your backyard composter! Temperatures in backyard composters are not hot enough to destroy Phragmites seeds.

5. Do NOT disturb the roots! This could cause roots to become distressed, resulting in more "runners" being sent out.
Native Vegetation

It is important to have a buffer of native vegetation along the shoreline! This buffer plays a crucial role in aquatic ecosystems by filtering runoff from the surrounding landscape before it enters our waterways. It helps with bank stabilization, flood control, Canada Geese management and also provides habitat and food for wildlife!

Wild Rice

Cattail

Blue Flag Iris

Soft Stem Bulrush

Bur-reed

Canada Blue Joint

Native vegetation is used by many species at different stages of their life. It is important to keep wetland habitat for fish spawning, breeding amphibians and nesting birds!

2013

2014

2015

It's not a Sprint, it's a Marathon!

Cutting Phragmites stands needs to be repeated for several years, and results may vary. These photos were taken at Lighthouse Point in Collingwood over 3 years. The combination of continued cutting and increased water circulation has shown a positive result.
How can you help reduce the spread of invasive species?

- Learn to identify invasive species. Early detection is very important in the management process.
- Try gardening with native species. If that is not an option, be sure to ask garden centres about non-invasive plants.
- Stay on designated trails. Be sure to clean off clothing and any equipment after being in an area that may have invasive species.
- Properly bag and dispose of invasive species at your local landfill.
- Check species origins at invasiveplantatlas.org

Report invasive species!
- Ontario Invasive Species Program: invadingspecies.com
- Ontario Invasive Plant Council: ontarioinvasiveplants.ca
Invasive Species

A closer look at invasive species threatening aquatic and terrestrial ecosystems in Collingwood.

What are Invasive Species?

Invasive species are plants, animals or pests that are not native to Canada. They are typically introduced here through world trade and travel. When introduced they then spread rapidly throughout Canada via human movement, animals, wind and water.

Invasive species can spread through:

- Recreational and commercial boating
- Release of live bait
- Aquarium and water garden trade
- Horticulture and gardening
- Seed mixtures
- Firewood transport

Why are Invasive Species so Destructive?

- They are highly adaptable.
- They have few predators.
- They thrive in disturbed systems.
- They outcompete native species for food and habitat.
- They reproduce quickly.

The species in this guide are to be considered the most threatening invasive species in the Collingwood area. These species are severely impacting native species and their habitats. They pose a threat to the environment, the economy, and in some cases, human health.

Managing invasive species costs Canadian agriculture and forest industries $7.3 billion each year. (Government of Ontario, 2015)
Collingwood’s “Dirty Dozen” Invasive Species

Giant Hogweed
(*Heracleum mantegazzianum*)

This tall herbaceous plant (2-4 m) looks similar to Queen Anne’s Lace and Cow Parsnip. It has a hollow, hairy stem with purple spots and large white flower clusters. This plant contains toxins that cause severe burns when touched. Avoid contact! This plant can be found along the Oak St. canal.

Dog Strangling Vine
(*Vincetoxicum rossicum*)

This vine grows 1-2 m tall by entangling itself onto other plants. It has pinkish purple star-shaped flowers and bean-shaped seed pods. It can completely cover the forest floor, choking out all other species. Dog Strangling Vine can be found along the shores of White’s Bay.

Himalayan Balsam
(*Cortaderia selloana*)

This 1-2 m tall herbaceous plant has a fleshy-pink stem and distinctly jagged, opposite leaves. It has an irregular cone-shaped pink flower and can be found along stream banks, such as the Oak St. canal.

Garlic Mustard
(*Alliaria petiolata*)

First year plants have a rosette of dark green foliage. In its second year, white flowers appear on a stalk that is up to 1.2 m tall. In mid-summer narrow seed pods are present. Young plants produce a strong garlic odour when crushed. It can be found under the forest cover in Harbourview Park.

Wild Parsnip
(*Pastinaca sativa*)

This plant is in the same family as Giant Hogweed, but has yellow coloured flowers and only reaches 1.5 m tall. The dense stands can outcompete native species. Do not touch! Its sap causes severe burns. Wild Parsnip can be seen growing along the Pretty River.

Japanese Knotweed
(*Fallopia japonica*)

This plant is aggressive and has strong root systems. Stems are round, reddish-purple, smooth and have a bamboo-like appearance. Small flowers are greenish-white and ovate leaves. Japanese Knotweed is one of the hardest invasive plants to control. This plant can be seen along the boardwalk at Harbourview Park.
Collingwood Phragmites Report 2015

Phragmites
(*Phragmites australis*)

Also known as European Common Reed, this invasive grass can grow up to 5 m tall. It has tan stems and large red seed heads. It is very aggressive, creating dense monocultures and is commonly seen along shorelines and roadside ditches. Phragmites can be found inhabiting the shoreline of Georgian Bay.

Emerald Ash Borer (EAB)
(*Agrilus planipennis*)

The creamy white larvae (right) is between 26-32 mm, whereas the green metallic beetle (left) is 8.5 to 13.5 mm long. Signs a tree is infested include a yellowing or thinning canopy, young growth shoots, cracked bark and D-shaped exit holes. Beetles prefer to attack green, white and black ash trees.

Common Buckthorn
(*Rhamnus cathartica*)

This small tree grows between 3-6 m tall. It has smooth, dark green leaves that are finely toothed, and oppositely arranged along the stem. Most branches older than 1 year end in a thorn. It has small yellow flower clusters and berry-like black fruit in late summer and fall.

Common Carp
(*Cyprinus carpio*)

Common carp is not an invasive Asian carp, but were introduced here from Europe in the 1800s. Common carp impact our native fish species by eating aquatic vegetation used for habitat. They also muck up the shoreline which can smother native fish eggs.

Zebra/Quagga Mussels
(*Dreissena polymorpha & D. bugensis*)

Zebra mussels are black or brown with white or yellow zigzagged patterns. Quagga mussels have dark concentric rings on their shell with a pale color near the hinge. Zebra mussels sit flat, whereas quagga mussels do not. These mussels occur offshore of Georgian Bay.

Round Goby
(*Neogobius melanostomus*)

This invasive fish is established in the Great Lakes and Lake Simcoe. It is 6 to 16 centimetres long with a cylindrical body and a rounded, blunt snout. The most distinguishing feature is the black spot on its dorsal fin. Caution: can be confused with native Sculpins!
How can you help reduce the spread of invasive species?

- Learn to identify invasive species. Early detection is very important in the management process.
- Try substituting for native species. If that is not an option, be sure to ask garden centres about non-invasive plants.
- Stay on designated trails. Be sure to clean off clothing and any equipment after being in an area that may have invasive species.
- Do NOT dump your bait buckets and be sure to drain water from your boat, livewell, motor and bilge.
- Do NOT move wood. Buy firewood locally.
- Do NOT release aquarium or water garden pets or plants.
- When removing invasive species, properly bag and dispose at your local landfill.
- Check plant species origins at invasiveplantatlas.org

Report invasive species!

- Ontario Invasive Species Program: invadingspecies.com
- Ontario Invasive Plant Council: ontarioinvasiveplants.ca

Contact the NVCA if you require this document in an alternative format.
Ornamental Grasses

Invasive species to avoid and beautiful native species to try!

Ornamental grasses are a popular choice among gardeners. They add colour and texture as they sway in the wind and are great options for privacy or borders.

Become familiar with which grasses are considered invasive and try switching them for a native alternative! Make sure to ask your local garden centres about the plant you are purchasing and inquire about native species.

Benefits to Landscaping with Native Grasses

- Creates habitat for native birds, animals and pollinators
- Improves landscape connectivity
- Reduces soil erosion
- Improves water infiltration into the soil
- Low cost
- Low maintenance

For the Birds! Many tallgrass prairie birds such as the endangered Henslow’s Sparrow (top) and threatened Bobolink (bottom) rely on these grasses for survival. By switching to native grasses you are helping provide new habitat. Tall grasses conceal their ground nests from predators and seeds are a source of food!
Ornamental Grass to Avoid

There are many grasses that originate from Eurasia that are now becoming invasive in Ontario. Commonly found along shorelines and ditches, these plants threaten ecosystems by forming dense stands that crowd out native species. They also impact recreation and tourism by impeding shoreline views and access to water. Get to know which invasive grasses to avoid, and try substituting for native grasses.

- Chinese Silver Grass
  
  *(Miscanthus grasses)*
  
  Photo: Fox Hollow Farms

- Plume Grass
  
  *(Erianthus ravennae)*
  
  Photo: Pine Valley Greenhouse

- Pampas Grass
  
  *(Cortaderia selloana)*
  
  Photo: Pine Gardening

- Giant Reed Grass
  
  *(Arundo donax L.)*
  
  Photo: Joanne H. Potter

- Common Reed Grass
  
  *(Phragmites australis)*
  
  Photo: USDA

- Creeping Lily Turf
  
  *(Liriope spicata)*
  
  Photo: Lynn Doolbar
Ornamental Grass to Try

Little Bluestem
(Schizachyrium scoparium)
Height is between 60 cm and 1.2 m tall. It is a great option for a border or to add colour in the fall and winter. It grows from bluish-green roots which turn mahogany red in the fall with purple bronze seeds and white tufts. It requires full sun and can tolerate most soil types.

Photo: http://www.tribwiz.com

Switchgrass
(Panicum virgatum)
Colourful blue/green-burgundy foliage in the fall is known to attract birds. It has purple/brown-green flowers that bloom July-September. Switchgrass can reach heights of 2.5 m tall and requires full sun. It is found in a variety of habitats and soil types.

Photo: https://devinka.wordpress.com/

Big Bluestem
(Andropogon gerardii)
Growing to be 1-2.5 m tall, Big Bluestem is an excellent screening option. It has silvery-red flowers which are said to look like a “turkey foot.” Sparrows and other songbirds eat these seeds. It has distinct blue, grey to dark red and brown foliage and flower colour.

Photo: https://www.prairiemoon.com

Prairie Dropseed
(Sporobolus heterolepis)
A great groundcover, growing in clumps approximately 60 cm tall. Orange plumes appear in the late summer/early fall and foliage turns golden in the fall. It is drought tolerant and requires full sun. It attracts birds and is deer resistant.

Photo by Mike Perry, http://khavenoak.com

Indian Grass
(Sorghastrum nutans)
Indian Grass reaches heights of 1-2 m, ending in a golden seed head. This is an attractive grass in all seasons and is often used in landscaping. It is drought tolerant and useful for erosion control. Provides wildlife habitat.

Photo: https://karlennon.umass.edu/

Bottlebrush Grass
(Elymus hystrix)
A woodland grass that can tolerate more shade than other tall grass prairie grasses. It reaches heights of 1.5 m and requires well-drained soils. Its open, bristly spike looks like a bottle brush, hence the name. Flowers are a white/cream or green/brown colour that appear in June-August.

Photo: Ian Parker
How can you help reduce the spread of invasive species?

- Learn to identify invasive species. Early detection is very important in the management process.
- Try gardening with native species. If that is not an option, be sure to ask garden centres about non-invasive plants.
- Stay on designated trails. Be sure to clean off clothing and any equipment after being in an area that may have invasive species.
- Properly bag and dispose of invasive species at your local landfill.
- Check species origins at invasiveplantatlas.org

Report invasive species!

- Ontario Invasive Species Program: invadingspecies.com
- Ontario Invasive Plant Council: ontarioinvasiveplants.ca
Appendix D: Progress Report of “Fight the Phrag” by George Powell
Progress Report on “Fight The Phrag”

September 2015
Introduction

By now most of us are familiar with the invasive species Phragmites, known as *Phragmites australis* (subspecies *australis*). Its common name is *European Common Reed* and it is a tall non-native perennial grass that has been spreading across southern Ontario for decades and has now reached epidemic proportions.

Phragmites stand in Silver Creek Wetland
If left unchecked, Phragmites will cause serious damage to the biodiversity of our area as it out-competes native wetland species and creates a monoculture that compromises suitable habitat for wildlife and local native vegetation. Phragmites can impact species at risk such as the Blandings Turtle (threatened), which cannot pass through the dense reeds (up to 200 stems per square metre). Phragmites also releases toxins from its roots into the surrounding soil, which impedes the growth of, and even kills, of neighbouring vegetation.

Phragmites stand in the wetland east of Heritage Drive behind Sobey’s and the Provincial Courthouse
Fringed Gentian growing in the wetland east of Heritage Drive

*Phragmites* thrives in disturbed moist habitats and is often among the first species to colonize a new area. While it prefers areas of standing water, its stolons (horizontal stems or ground runners) and rhizomes (underground stems) allow its fine roots to reach out to find water. It can survive in depths of water up to 1.5 metres.
Stolon on garage door is over 6 metres long

Low-water conditions in Georgian Bay have provided a favourable environment for the rapid colonization and spread of Phragmites. It is increasingly found in protected shoreline areas, beaches and wetlands of Nottawasaga Bay examples are East Black Bass Bay, White’s Bay, Collingwood Harbour and Sunset Point.

Phragmites in Black Ash Creek at Mountain Road
While the recent increase in water levels may wash out the edges of established stands, it has moved viable Phragmites plant material to new locations.

Phragmites can tolerate areas of high salinity and is now frequently found in road-side ditches. As well it has now taken a foothold in our streams and wetlands in the Blue Mountain Watershed, examples are Black Ash, Silver and Townline creeks.

Phragmites in north ditch at Silver Creek Wetland and Highway 26

“Fight The Phrag!” Gets Organized

Last fall we received a phone call from Gail Bascombe, a condominium owner at Rupert’s Landing who was concerned with the rapid spread of Phragmites across the waterfront to the extent that recreational activities in White’s Bay were being seriously impacted. We recommended approaching the NVCA to advise them of the concerns of condominium owners. The result was a meeting last fall at the Collingwood Rod and Gun Club organized by Gail and a friend, Betty Beacon. Stakeholders were brought together to discuss how a
program could be initiated to try and control the invasion. Considerable experience was available from the NVCA, Georgian Bay Forever and Lighthouse Point Condominium owners who had the previous year cleared a stretch of their beach of Phragmites. They explained what worked, what didn’t work, when and how it should be cut. We provided to the stakeholders our article on “Invasive Phragmites” and NVCA’s David Featherstone and David Sweetman of Georgian Bay Forever found the needed funding to start the “Fight” from Environment Canada’s Lake Simcoe Southeastern Georgian Bay Clean-Up Fund, RBC Blue Water Fund and others were received.

NVCA provided Brittany Hope, a water-monitoring technician, to act as the program point person and manage the work in concert with Georgian Bay Forever, the Town of Collingwood, local condominium boards and the Blue Mountain Watershed Trust Foundation. Thus began the tough job of reducing the impact of Phragmites along the west Collingwood shoreline.

The Town’s cooperation was also greatly appreciated. Wendy Martin, Director of the Town’s Park Department provided staff to pick up and transport the cut Phragmites to the Simcoe County’s compost facility where it is proposed to be composted at high enough temperatures to destroy the seeds.
First Phase

One of the first phases of the projects was to map the current extent of Phragmites. Using GPS the Collingwood shoreline was surveyed for Phragmites from Sunset Point Park to White’s Bay and mapping Prepared.

Several meetings were held to make stakeholders aware of the extent and the method to be used to “Fight the Phrag! “.

The Fight Begins

Mayor Cooper attended the inaugural cutting event on August 5, 2015 supported by NVCA’s Dave Featherstone, Georgian Bay Forever’s David Sweetman and our Norm Wingrove (see photo on pg. 1 provided by Ian Adams of the Connection). The date of Saturday
August 8 was set for the first formal large-scale cutting.

There was good turnout from the Condominium Associations to help to cut the Phragmites on their property. BMWTF agreed to find volunteers for the Phragmites cutting at the Town of Collingwood’s Sunset Point Park.

NVCA provided us with gloves which were required to handle the Phragmites, prunning shears (not that effective for the larger stands); long-handled garden shears (effective but not as good as the long-handled gas powered pruning shears); tarps for dragging the Phragmites to the drop-off points; and a canoe to transport the off shore Phragmites cuttings to shore for off-loading onto tarps and dragging to the drop off points. The stems left are quit sharp and heavy-soled shoes should be worn.

On a cloudy but warm and calm Saturday morning we started cutting at the east end of Sunset Point Park. Volunteers included my Sunset Point neighbours the Cannings and Woolnoughs, the Donavan’s from Nottawa and three Collingwood Collegiate Institute students Minam Haughtan, Melissa Dosne and Shayna Donovan and my wife Heather.

We cut the Phragmites as close to the ground as possible and below the water surface in the flooded areas and then placed the Phragmites on a tarp and dragged it to the pick up points.

We moved westward the wetland east of Heritage Drive and started cutting stands out in shallow water. We placed the cuttings in the canoe and dragged it to shore and dumped the cuttings onto tarps which were dragged a long way to the drop off point at the foot of Niagara Street.
We were tired by noon after four hours of cutting and dragging and called it a day. On Sunday morning my neighbors Al and Lois Woolnough volunteered to help get rid of the last remaining stand of Phragmites in the park opposite the lookout and after two hours of cutting the deed was done thanks to their help.
Phragmites stand off-shore of Sunset Point Park near the Rotary Lookout.

Where Do We Go From Here

There are large stands of Phragmites that will continue to grow and spread. Efforts need to be made to prioritize and plan next year's cutting effort. In the Harbour, Silver Creek Wetland, Black Ash and Townline Creeks there are stands that will need to be taken out and those areas cut this year will need to be monitored to see the success of this year's cutting program. Re-cutting will be necessary, as it takes several years to make an impact.

We need public awareness of the issue. We need a champion to spearhead the activity. We require funding. We need volunteers to help out and high-school students would be a good recruitment resource, as they need 40 hours of volunteer time in a community-based activity to graduate.

Written by George Powell
Vice Chair
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