GEORGIAN BAY FOREVER PROTECTING WATER

Invasive *Phragmites* Eradication for the Health of our Water and Wetlands

2023 Report

Table of Contents

Authors

This report was prepared in 2023 by Georgian Bay Forever (GBF)

- Nicole Carpenter, Science Projects Manager

Acknowledgements

The *Phragmites* Coastal Eradication Program is funded by our donors and community supports:

This project was undertaken with the financial support of:
Ce projet a été réalisé avec l'appui financier de :
Environment and Climate Change Canada / Environnement et Changement climatique Canada

M-T-M Conservation Association

Severn Sound Environmental Association

Township of Georgian Bay Muskoka

BINCITY.ca BIN RENTALS

Township of the Archipelago

GREEN SHOVELS COLLABORATIVE

Ontario Federation of Anglers and Hunters

Township of SEVERN

GBF also wishes to acknowledge the support of these partners: The Ontario *Phragmites* Working Group, Severn Sound Environmental Association, Georgian Bay Biosphere, MTM Conservation Association, the Sans Souci and Copperhead Association, the Massasauga Provincial Park, Friends of The Massasauga Park, Georgian Bay Islands National Park, the Georgian Bay Association, Bluewater Marina, South Channel Association, Talpines Property Owner's Association, the Woods Bay Association, Pointe au Baril Islanders' Association, Twelve Mile Bay Cottage Association, the Manitou Association, the Wah Wah Taysee Association, West Carling Association and the Bayfield-Nares Islanders' Association. Thank you to all groups working on *Phragmites* in Georgian Bay, including these known to us: Nottawasaga Valley Conservation Authority, Blue Mountain Watershed Trust, Georgian Bay Land Trust, and the Nature Conservancy.

Executive Summary

Georgian Bay Forever has been working to remove invasive *Phragmites* along the eastern shorelines of Georgian Bay and Lake Huron for the past 11 years. Wetland ecosystems are extremely important habitats for animal foraging, spawning, and sheltering, as well as for absorbing carbon from the atmosphere. Disturbances such as urban development, agricultural activities, and the introduction of invasive species can be significant threats to these sensitive environments.

In 2019 an eradication plan was developed for each individual invasive *Phragmites* site along a large portion of the eastern shoreline of Georgian Bay. Individual site plans are crucial for successful eradication because each site differs in size, density, water depth, and surrounding ecosystem characteristics. This report features maps and tables developed

for each region to display the current status of sites and progress over the years. In 2021 we explored an entirely new area of Georgian Bay to identify invasive Phragmites and monitor species at risk (SAR) in partnership with the Severn Sound Environmental Association (SSEA) and MTM Conservation Association. Matchedash Bay, a provincially significant wetland, is one of the most highly biodiverse wetlands in Georgian Bay and is home to hundreds of migrating birds, mammals, amphibians, reptiles, species at risk and other organisms. By 2023, we had also begun work in Carling Township with the help of community members and the West Carling Association.

Reminder

Invasive *Phragmites* sites take 2-7 years of annual cutting to become nonviable (not visible) after which they are designated as in the monitoring/eradicated stage. GBF uses the word **'eradicated'** with the understanding that these sites do not need any further cutting before transitioning to a monitoring stage. This transition involves annually checking the site for a few years to verify that the invasive *Phragmites* are gone. The word **'controlled'** refers to these sites that have been eradicated or are being monitored, as well as sites that have been treated using the cut-to-drown method. Left untreated, invasive *Phragmites* grow into dense monoculture stands, up to 18 feet high, and spread rapidly, threatening biodiversity, habitat, and enjoyment of the shoreline.

In 2023, GBF continued invasive *Phragmites* removal, as well as education, knowledge-sharing, and training with communities throughout south-eastern Georgian Bay, which facilitated further development and building of new relationships.

Highlights

In 2019 GBF developed a 5-year plan to aim for 90% eradication by 2025 of the original 588 stands mapped. Due to GBF's success, we have been able to reallocate our time and efforts into new areas leading to the increase in number of mapped stands/sites. As of 2023, we are seeing 48% eradication across the Township of the Archipelago, Carling Township, Township of Georgian Bay, Matchedash Bay, and Tay Township shorelines to Georgian Bay with a plan of 90% eradication by 2025 for the original 588 stands identified in 2019. Since then, we have increased the total number of sites under our management plan and increased the area in which we are working. With this plan, *Phragmites* growth

could be reduced to a point where we can expect coastal communities to be well equipped to manage any leftover stands and new stands that may appear.

- GBF staff, volunteers and communities mapped a total of 1,020 invasive *Phragmites* sites in the summer of 2023.
- 137 new stands identified due to an increase in mapping efforts.
- 490 sites of the 1,020, or 48%, are being monitored (i.e., eradicated or on their way toward eradication).
- 208, or 20% of sites were cut by GBF staff and volunteers.
- 704, or 68% of sites are under control (eradicated/monitored and cut) by GBF staff and volunteers.
- >250 volunteer hours dedicated.
- 300 community members educated by GBF staff at local in-person events.

Thank you to our 2023 Phragbusters Jared McNabb, Claire Hendriks, Lilly Floerke, and Ashley McGuire for spending their summer removing invasive *Phragmites* from Georgian Bay, spreading awareness, and educating the community.

What does this report do?

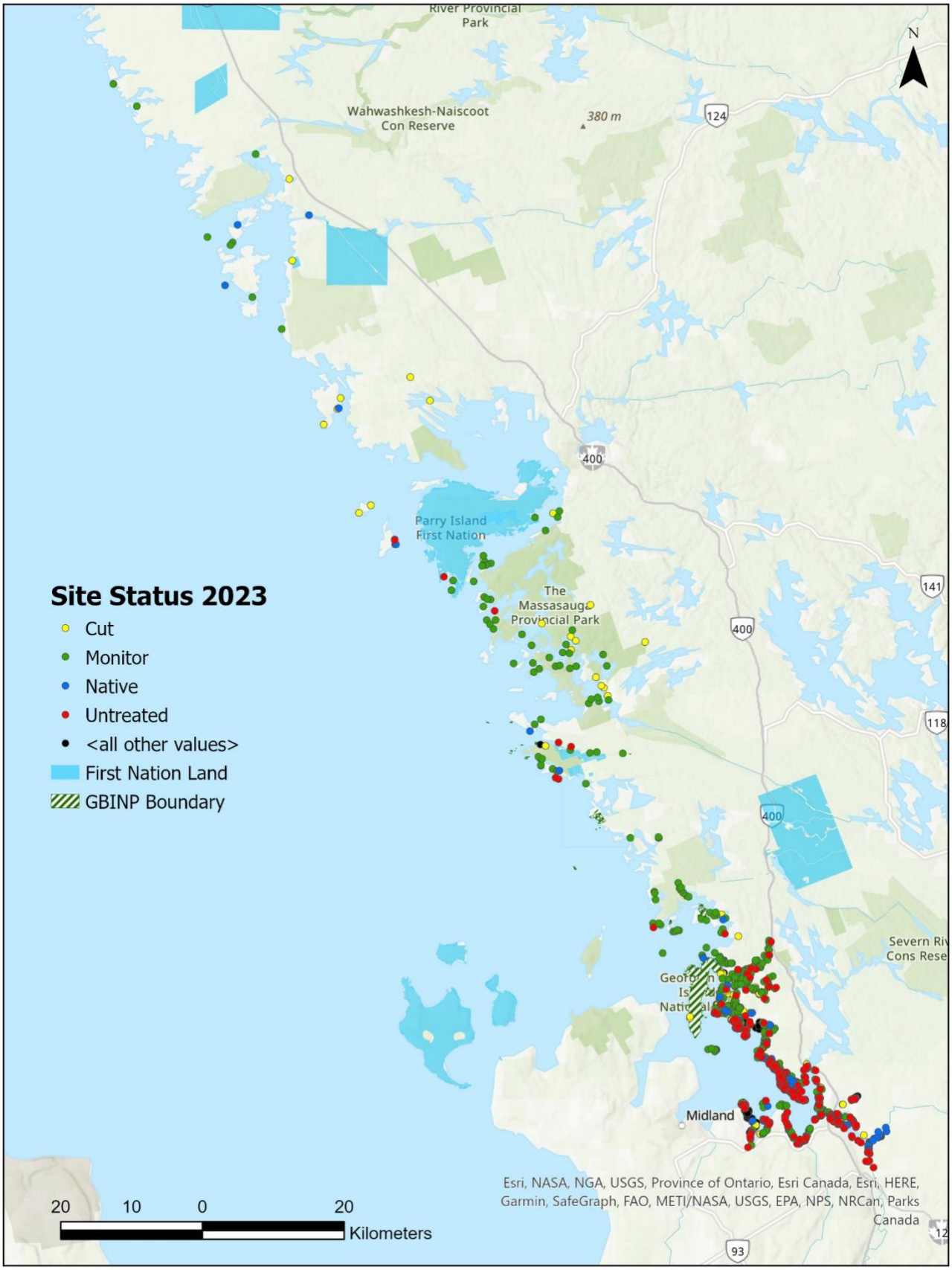
This report highlights the results of work completed by Georgian Bay Forever in the 2023 field season to remove invasive *Phragmites*. If you have questions about the current report, please contact Science Projects Manager Nicole Carpenter at Nicole.carpenter@gbf.org or 905-880-4945 ext.7.

Overview Table and Map

Table 1: Breakdown of invasive Phragmites sites by region in Georgian Bay in 2023, under GBF management.

Region	Total sites	New Sites	# of sites Eradicated/ Monitored	# of sites Cut	Area Cut (m^2)	# of sites Controlled (Eradicated/ Monitored + Cut)	# of sites Untreated	% Eradicated/ Monitored	% Cut	% Control
Township of the Archipelago	69	0	53	14	134 m^2	67	2	77%	20%	97%
Carling Township	10	10	0	9	1,980.1 m^2	9	1	0	90%	90%
Township of Georgian Bay	596	81	321	93	11,113.9 m^2	414	182	54%	16%	70%
Tay Township	243	24	98	62	6,393.9 m^2	167	83	40%	26%	66%
Matchedash Bay	102	22	18	30	691.6 m^2	48	54	18%	30%	48%
Overall Total	**1,020**	**137**	**490**	**208**	**20, 313.5 m^2**	**704**	**322**	**48%**	**20%**	**68%**

Southeastern Georgian Bay Phragmites 2023



Follow the link to an interactive map of all stands on the eastern shoreline of Georgian Bay in:
2021 https://arcg.is/4HaDa0
2022 https://arcg.is/0u0Kj
2023 https://arcg.is/vezrn

Introduction to invasive *Phragmites*

What is an invasive species?

Invasive species are non-native plants or animals that have been introduced to an ecosystem and have the ability to spread and disrupt the native wildlife. They are a threat to the environment and the broader economy. Non-native *Phragmites* along with many other invasive species are a significant threat to the Great Lakes.

Phragmites in Georgian Bay

Georgian Bay and Lake Huron are home to some of Canada's most pristine coastal wetlands. Many organisms depend on these wetlands for life-sustaining activities such as foraging, spawning, sheltering and more. *Phragmites* can be divided into two lineages: The native subspecies, *Phragmites australis americanus,* and the invasive subspecies, *Phragmites australis australis,* which are both found in Georgian Bay. We acknowledge that invasive *Phragmites* is a reed grass that unnaturally travelled from Europe to Canada in the 1800s through human activity and has developed as a significant threat to Georgian Bay's coastal wetlands. In its natural environment, *Phragmites* does not pose any threat to other organisms and encounters 140 fellow creatures that live in balance with each other. In North America, the invasive lineage does not have any natural threats or predators, which allows it to flourish in an unbalanced way by releasing toxins from its root system that disrupt the growth of neighbouring plants. Unfortunately, in the Great Lakes coastal ecosystems, invasive *Phragmites* grows quickly into extremely dense monocultures, outcompeting native vegetation and reducing biodiversity and habitat for native plants and animals. Furthermore, this growth impairs proper functioning of wetlands, which are significant for their ability to enhance water quality, provide shelter and food for other species, and sequester carbon, which helps to counter human-caused global heating.

Identification

Figure 1: Comparison of invasive (left) and native (right) Phragmites.

Invasive *Phragmites* can be identified by their connecting root system of hollow rhizomes, beige stems, and tall green stalks with alternating leaves. The stalks, if well-established, can grow up to 18 feet tall. Native *Phragmites* looks quite similar but does not grow as tall or dense and will co-exist amongst other native species. In late August, invasive *Phragmites* begin to develop large purple/reddish seed heads which eventually turn beige, unlike the native *Phragmites* that develop seeds earlier in the season. After seeds disperse in the fall, the stalks die and remain standing throughout the winter. The majority of native plants will fall under the weight of snow, break down, contribute nutrients back to the soil, and allow space for new vegetation to grow come spring. The remains of dried-out stalks of invasive *Phragmites* prevent new growth of native plants in the spring. During the summer, one can identify a stand of invasive *Phragmites* by the presence of leftover standing stalks and seeds from years previous. To find out more information on identification, visit our website or contact us.

Control Methodology

GBF maps the eastern shoreline of Georgian Bay in June, recording the location, hydrologic condition, size, density, and status of both recurring sites (from years previous) and newfound sites. GBF continues to return to sites that have been mapped and cut in previous years in hopes not to see any regrowth. In this case, the stand is put into the monitoring/eradicated category and remains to be checked for years to come.

1. **Location:** We identify the locations in which invasive *Phragmites* is present and record using ESRI GIS mapping software (i.e., FieldMaps). We record the geographic coordinates, size, density, and take other notes to help come up with a management plan.
2. **Timing:** The optimal cutting season is Mid-July to mid-August before seed heads emerge. At this time, we are cutting the plant under water during its primary growth stage.
3. **Equipment and Cutting:** We use raspberry cane cutters, long-reach powered hedge trimmers and snippers to cut the *Phragmites* via the cut-to-drown method (i.e., cutting the stalks below the water level as close to the bottom as possible).
    - Cut each stalk underwater as close to the sediment as possible.
    - Do not disturb the roots as they are able to fragment and develop new shoots.
4. **Prioritize:** Priority is given to small stands first to ensure early control before the stand gets large and dense. It often takes a few years of cutting to completely get rid of a *Phragmites* stand, therefore we give priority to stands that have been cut previously. Each year, the stand should get smaller, more sparse, and easier to tackle.
5. **Selective Cutting:** The selective cutting process means we only remove invasive *Phragmites* stalks, leaving native vegetation unharmed. If there are seed heads present, they are removed from the stalks and disposed of prior to cutting the plant.
6. **Clean-up:** We bundle the cut biomass and make sure we don't leave any viable pieces behind, specifically the roots.
7. **Disposal:** A designated spot near the stand is identified where the cut stalks can dry and decay. It is far enough from the waters edge that rising waters and storm waves will not pull the biomass back into the water. The disposal site is checked the following year to ensure there is no growth at the disposal site.
8. **Follow-up:** *Phragmites* is a perennial reed grass, meaning it will grow back every year. If left untreated, it will grow back larger and more dense. If treated (cut), the stand will grow back smaller and more sparse, until eventually there is no regrowth. This process can take 2-6 years of cutting activities depending on the size of the stand. Eventually native plants will return, and the habitat will be restored.

For more information or training on how to remove invasive *Phragmites* from shorelines in Georgian Bay, contact Science Projects Manager Nicole Carpenter at nicole.carpenter@gbf.org or 905-880-4945 ext. 7.

Interested in volunteering? Email here and let us know!

PHRAGBUSTERS
WWW.GBF.ORG

Breakdown by Area

Tay Township

Table 2: Status of the 243 invasive Phragmites stands in Tay Township in 2023

Region	Total sites	New Sites	# of sites Eradicated/ Monitored	# of sites Cut	Area Cut (m^2)	# of sites Controlled (Eradicated/ Monitored + Cut)	# of sites Untreated	% Eradicated/ Monitored	% Cut	% Control
Tay Township	243		98	62	6,393.9 m^2	167	83	40%	26%	66%

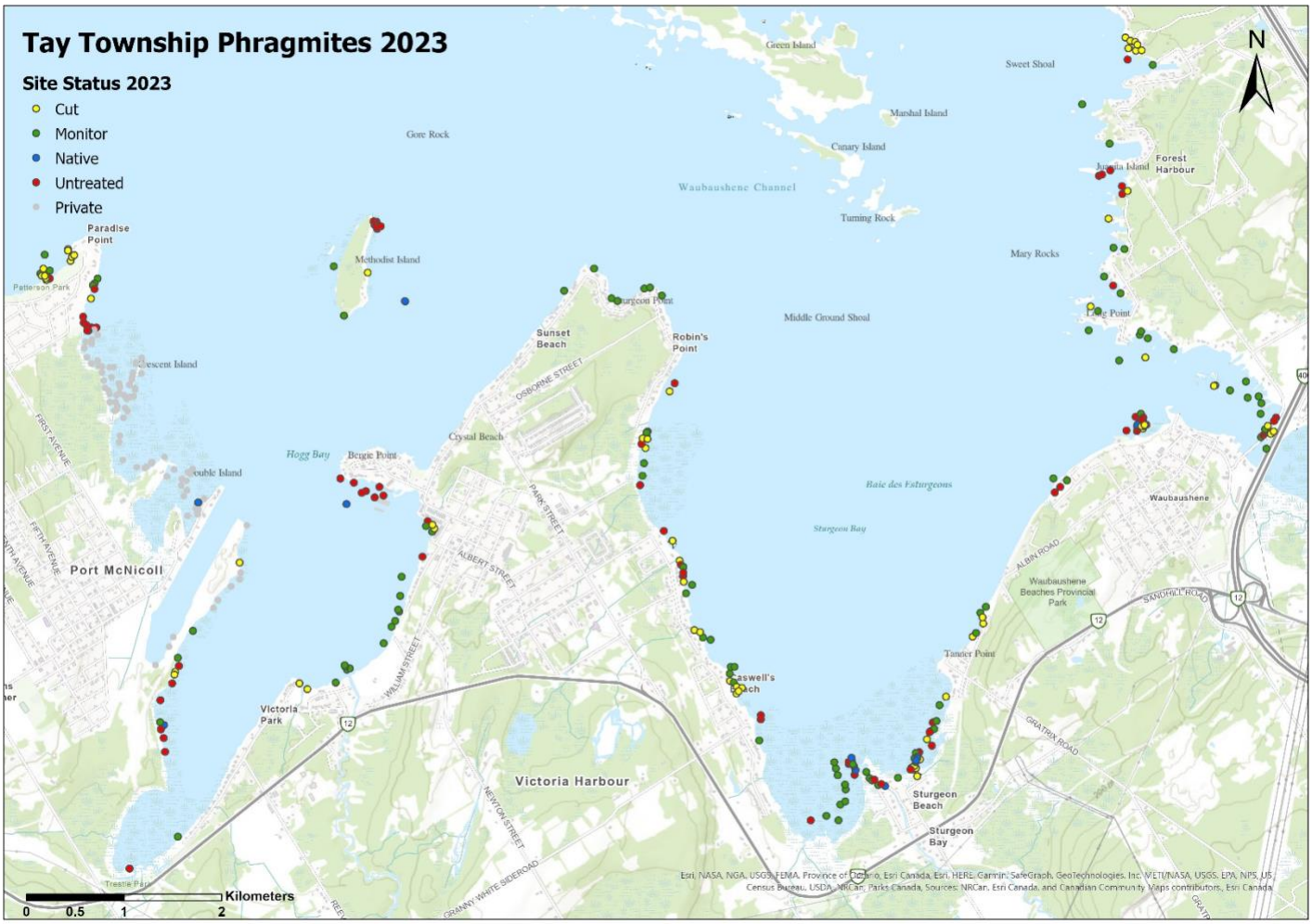


Figure 2: Map displaying the status and location of Phragmites in Tay Township in 2023.

In 2023, two local post-secondary students were hired to protect the shorelines of Tay through *Phragmites* removal activities, educating the public, and hosting community cut events. GBF staff mapped a total of 243 sites across 30km of Tay Township's shorelines on Georgian Bay, of which 34 of these were new. Ninety-eight of the total sites were not visible to GBF staff, putting these sites in the eradicated or monitoring stage. In just two months, GBF summer staff and volunteers cut a total of 62 sites, equating to 6,334.5 m^2. When totalling the number of sites eradicated, monitoring, and cut, we see an overall control of 66%, leaving 34% of sites untreated.

This year was the second year GBF used our newly purchased, fully electric 20HP outboard motor. This motor reduces our noise and carbon emissions while working on the water.

Figure 3: The 20HP fully electric outboard motor, manufactured by Torqeedo.

Community Cuts in Tay

GBF staff hosted 2 community cuts in Tay of which 100 volunteer hours were dedicated.

1. Waubaushene Dock/Beach

For the third year in a row, GBF hosted a community cut at the Waubaushene Dock/Beach Area at the bottom of Pine Street. Community members from Tay and surrounding regions came to learn about *Phragmites* and participate in removal and disposal. Thank you to all the volunteers and the Severn Sound Environmental Association who came out to attend! Since we started in 2021, there has been a significant decrease in the density of sites, but there is still work to be done. In 2024, we plan to host our fourth cut here.

Figure 4: GBF staff and volunteers at the Waubaushene Dock/beach area conducting a community cut.

‘Phrag Busters’ take second stab at annual Waubaushene ecothreat

With a hundred volunteers to help, ‘we would get that done in less than an hour, maybe 15 minutes,’ says local invasive phragmites removal coordinator

Derek Howard, Local Journalism Initiative Reporter
Jul 28, 2023 11:00 AM

1 / 2 The 'Phrag Busters' of Georgian Bay Forever all wore shirts to signify their status during their annual invasive phragmites 'cut to drown' session in Waubaushene. (Left to right): Lilly Florake, restoration conservation technician and summer student; Claire Hendriks, summer student; Jared McNabb, student lead for the GBF phragmites program; and Nicole Carpenter, GBF science project manager. | Derek Howard/MidlandToday

Figure 5: Article from Derek Howard, Midland Today, highlighting GBF’s phragmites efforts in Tay.

Forest Harbour Cut

One of the largest sites in Tay Township is found in a small bay within Forest Harbour near a few cottages. Due to the location and inaccessibility for members of the public, we did not host a community cut. Instead, five GBF staff members worked for two days straight (one fewer day than last year!) with the help of a local cottage owner and Bin City to remove this stand. Over 900 kg of *Phragmites* was removed, compared to the 1600 kg in 2022.

Figure 6: GBF Phragbusters filling the bin with cut Phragmites.

Figure 7: Before the Forest Harbour cut in 2023.

Figure 8: After the Forest Harbour cut in 2023.

Matchedash Bay

In 1996, Matchedash Bay Provincial Wildlife Area was designated a Ramsar Site, defining it as a Wetland of International Importance for the conservation and wise use of wetlands and their resources (https://www.ramsar.org). The marshes of Matchedash Bay are the largest and most diverse on Georgian Bay, Lake Huron. The year 2023 marked the third year GBF worked in Matchedash Bay and its tributaries in search of SARs and invasive *Phragmites*. With funding support from Habitat Stewardship Protection (HSP), Ontario Federation of Anglers and Hunters, The Township of Severn, and partnerships built with the Severn Sound Environmental Association (SSEA) and MTM Conservation Association, GBF mapped a total of 102 invasive *Phragmites* sites throughout the main bay proper, the tributaries, and surrounding marshes. GBF's main challenge in Matchedash Bay is the inaccessibility of many sites due to deep water and dense cattail marsh. To help combat these challenges, GBF acquired a canoe in 2022 to help in the accessibility of sites, and this year acquired a multispectral drone to conduct aerial surveys.

Aerial Surveys

Figure 9: Through the use of our multispectral drone, GBF conducted various aerial surveys over the cattail marshes of Matchedash Bay, around the North River.

Regions surrounding the North River and Lawson Line intersection were surveyed, as well as the Heron Pond, with the drone. Data is currently being processed and analyzed and we expect to share our results in 2024.

Table 3: Status of the 102 invasive Phragmites stands in Matchedash Bay in 2022.

Region	Total sites	New Sites	# of sites Eradicated/ Monitored	# of sites Cut	Area Cut (m^2)	# of sites Controlled (Eradicated/ Monitored + Cut)	# of sites Untreated	% Eradicated/ Monitored	% Cut	% Control
Matchedash Bay	102	22	18	30	691.6 m^2	48	54	18%	30%	48%

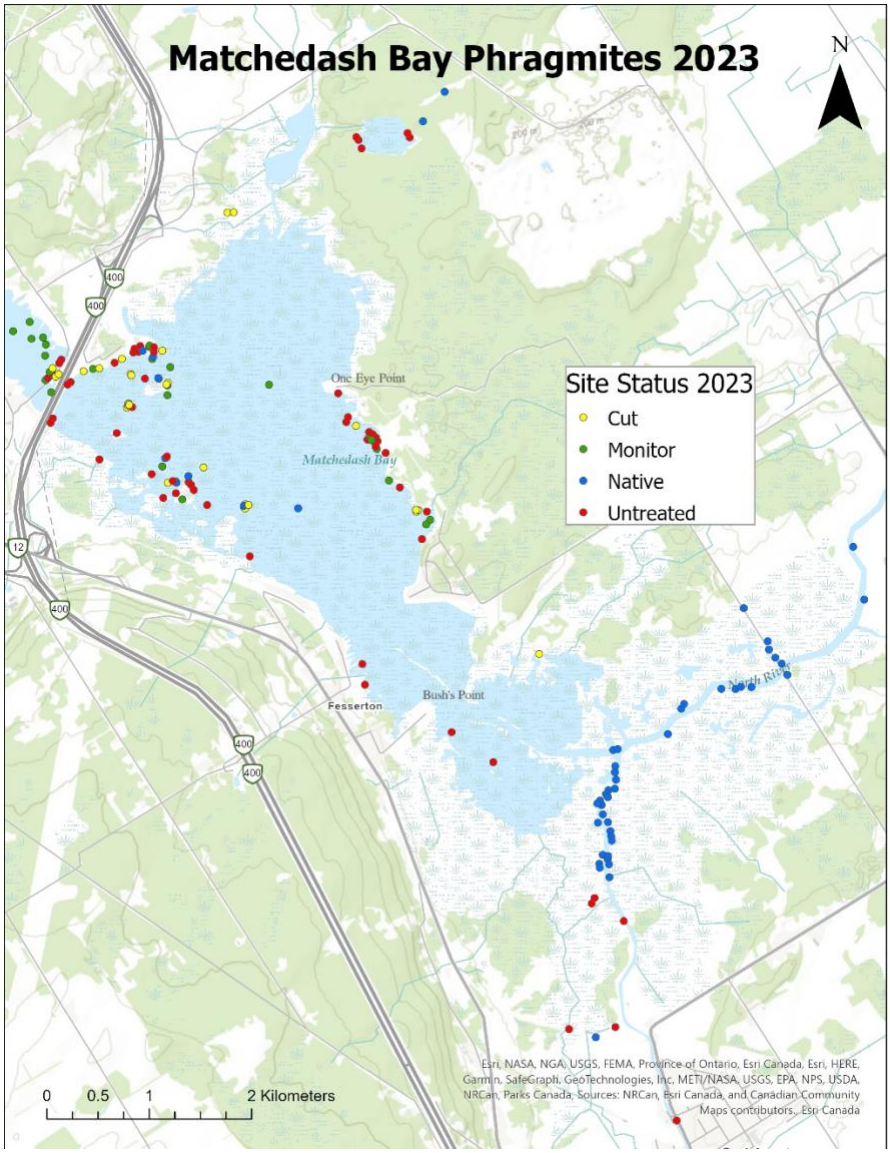


Figure 10: Map displaying the status and location of Phragmites in Matchedash Bay in 2023.

Table 4: *Breakdown of the Township of Georgian Bay invasive Phragmites sites by region.*

Region	Total sites	New Sites	# of sites Eradicated/ Monitored	# of sites Cut	Area Cut (m^2)	# of sites Controlled (Eradicated/ Monitored + Cut)	# of sites Untreated	% Eradicated/ Monitored	% Cut	% Control
Wah Wah/ 12 Mile/Go Home	22	2	17	1	11.2 m^2	18	4	77%	4.5%	81.5%
Cognashene	32	1	28	2	32 m^2	30	2	88%	6%	94%
Honey Harbour	235	17	160	54	2,079 m^2	214	21	68%	23%	91%
Present Island	9	0	9	0	0	9	0	100%	0	100%
Quarry Island	45	16	4	18	6,631.1 m^2	22	23	9%	40%	49%
Wolverine Beach/ Macey's Bay	68	2	49	2	202.8 m^2	51	17	82%	3%	85%
Port Severn	185	44	54	16	2,157.8 m^2	70	115	29%	9%	38%
TOTAL	**596**	**81**	**321**	**93**	**11,113.9 m^2**	**414**	**182**	**54%**	**16%**	**70%**

For the purposes of this report, the Township of Georgian Bay has been broken down into seven regions or communities: Wah Wah Taysee, 12 Mile Bay and Go Home Bay, Cognashene, Honey Harbour, Quarry Island, Present Island, Wolverine Beach to Macey's Bay and Port Severn. A total of 596 invasive *Phragmites* stands were mapped along these seven regions by the end of the 2023 season. GBF and community volunteers had nearly 70% of the Township of Georgian Bay under control. This year, GBF Phragbusters and volunteers cut 93 sites, put 321 in the monitoring/eradicated stage, and found 81 new sites across the Township of Georgian Bay, with half being in the Port Severn region.

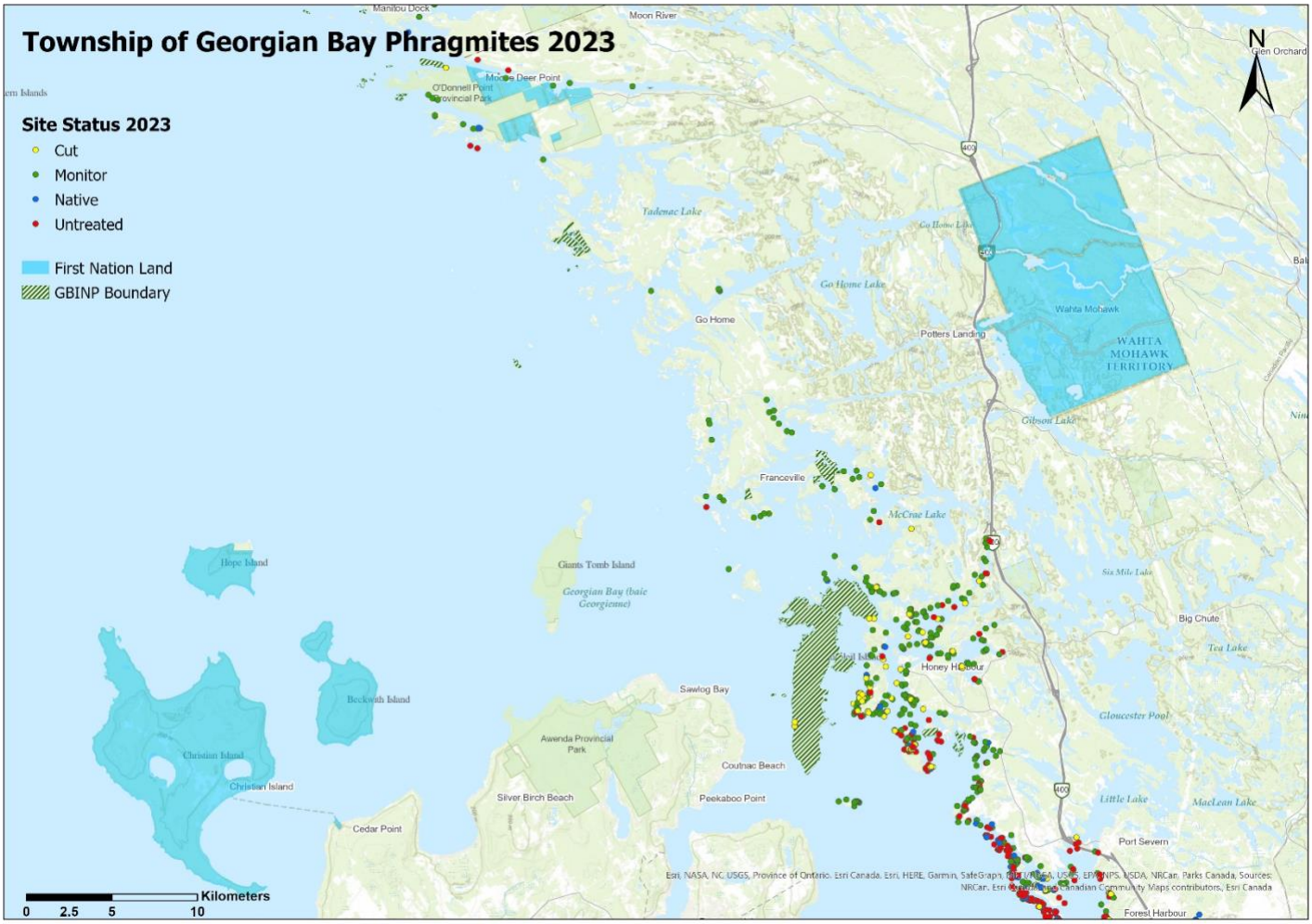


Figure 11: Map displaying the status and location of Phragmites in the Township of Georgian Bay in 2023.

Wah Wah Taysee/12 Mile Bay and Go Home Bay

Region	Total sites	New Sites	# of sites Eradicated/ Monitored	# of sites Cut	Area Cut (m^2)	# of sites Controlled (Eradicated/ Monitored + Cut)	# of sites Untreated	% Eradicated/ Monitored	% Cut	% Control
Wah Wah/ 12 Mile/Go Home	22	1	17	1	11.2 m^2	18	4	77%	4.5%	81.5%

A total of 22 sites were checked in Wah Wah Taysee, 12-mile Bay and Go Home Bay by community members and GBF. Go Home Bay used to have four sites, and upon investigation, all continue to be eradicated. This year, GBF finally made it up to Wah Wah Taysee and Twelve Mile Bay, which hadn't been done in a few years! Upon investigation, many of the sites continued to be in the eradicated stage, but we found three sites in need of treatment, one being off of O'Donnell Point, quite small, and we were able to cut it right away. Others were spotted on the north shore of the Bay and were either on private property, or inaccessible by our boat. Plans for 2024 will include reaching out to the property owner in hopes to work together to cut these sites.

Figure 12: Map displaying the status and location of Phragmites in Wah Wah Taysee, 12 Mile Bay, Go Home Bay and Cognashene in 2023.

Cognashene

Table 5: Status of the 32 invasive Phragmites sites in Cognashene.

Region	Total sites	New Sites	# of sites Eradicated/ Monitored	# of sites Cut	Area Cut (m^2)	# of sites Controlled (Eradicated/ Monitored + Cut)	# of sites Untreated	% Eradicated/ Monitored	% Cut	% Control
Cognashene	32	1	28	2	32 m^2	30	2	88%	6%	94%

Cognashene received 94% control, cutting two sites and leaving two untreated. Both of these sites are on land, on private property. In the case of one site, the property owner is aware of the site and will be controlling it on their own. The other appears to be on vacant land, cleared for future development, and wasn't spotted until our last day on the water for the season. Twenty-eight sites continue to stay in the monitoring/eradicated stage. It will be important to continue to monitor Cognashene next year and control small stands, if any, to prevent further growth or spread.

Figure 13: Map displaying the status and location of Phragmites in Cognashene in 2023.

Honey Harbour

Table 6: *Status of the 215 invasive Phragmites sites in Honey Harbour.*

Region	Total sites	New Sites	# of sites Eradicated/ Monitored	# of sites Cut	Area Cut (m^2)	# of sites Controlled (Eradicated/ Monitored + Cut)	# of sites Untreated	% Eradicated/ Monitored	% Cut	% Control
Honey Harbour	**235**	17	160	54	2,079 m^2	214	21	68%	23%	91%

Honey Harbour has 235 sites that have been mapped and managed over the years. Similar to Cognashene, Honey Harbour is a success story involving hundreds of hours from GBF staff and community volunteers to eradicate *Phragmites.* A total of 68% of the sites are in the monitoring/eradicated stage, and GBF staff and volunteers cut 54 sites throughout Honey Harbour. The sites left untreated were again due to inaccessibility from construction work and water levels too low for our boat to reach, as in 2021 and 2022.

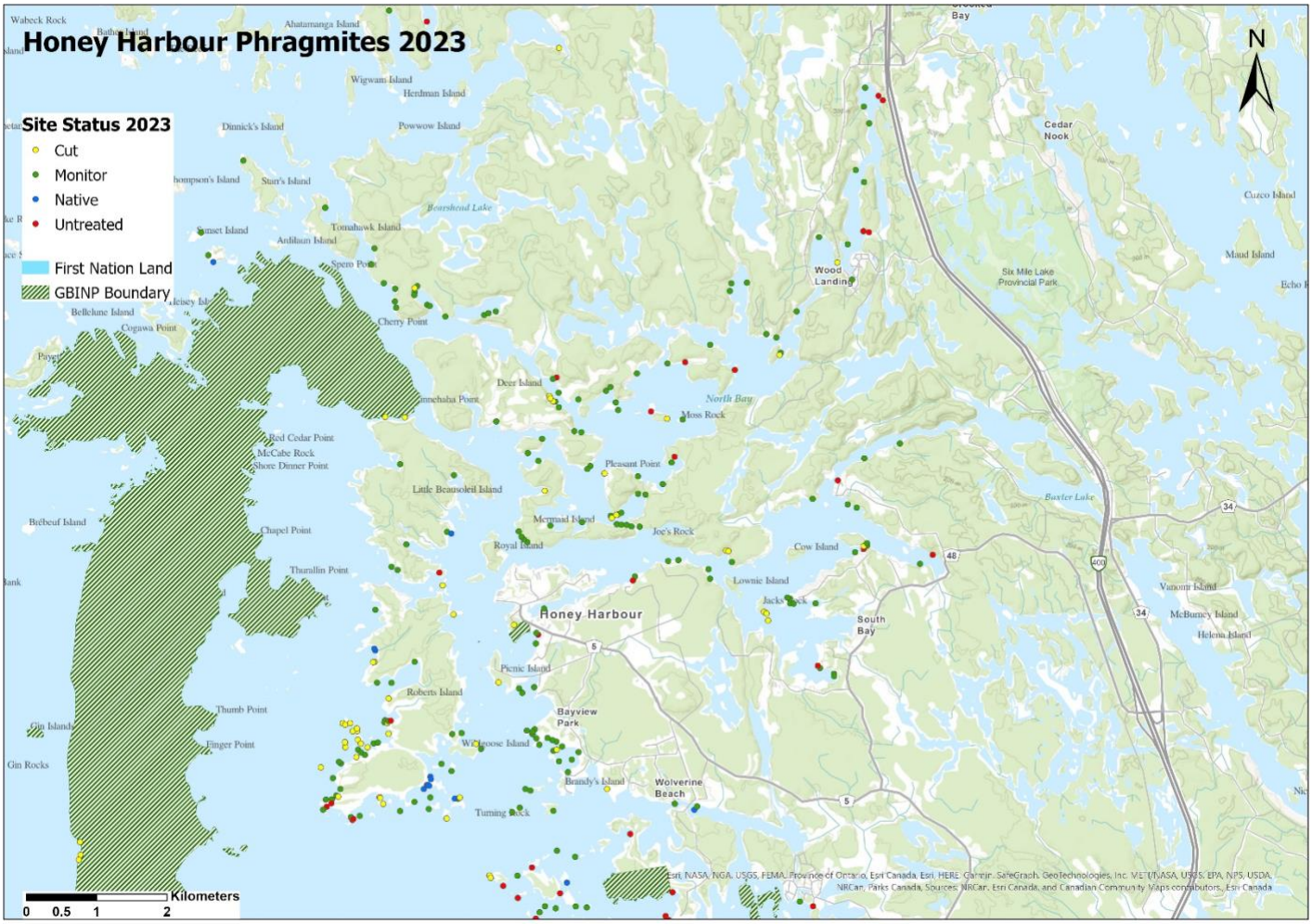


Figure 14: Map displaying the status and location of Phragmites in Honey Harbour in 2023.

Present Island

Table 7: *Status of all 9 invasive Phragmites sites on Present Island.*

Region	Total sites	New Sites	# of sites Eradicated/ Monitored	# of sites Cut	Area Cut (m^2)	# of sites Controlled (Eradicated/ Monitored + Cut)	# of sites Untreated	% Eradicated/ Monitored	% Cut	% Control
Present Island	9	0	9	0	0	9	0	100%	0	100%

Present Island has nine sites that we did not see any regrowth for the third year in a row. GBF will continue to monitor Present Island in 2024 to ensure there is no new establishment of invasive *Phragmites*.

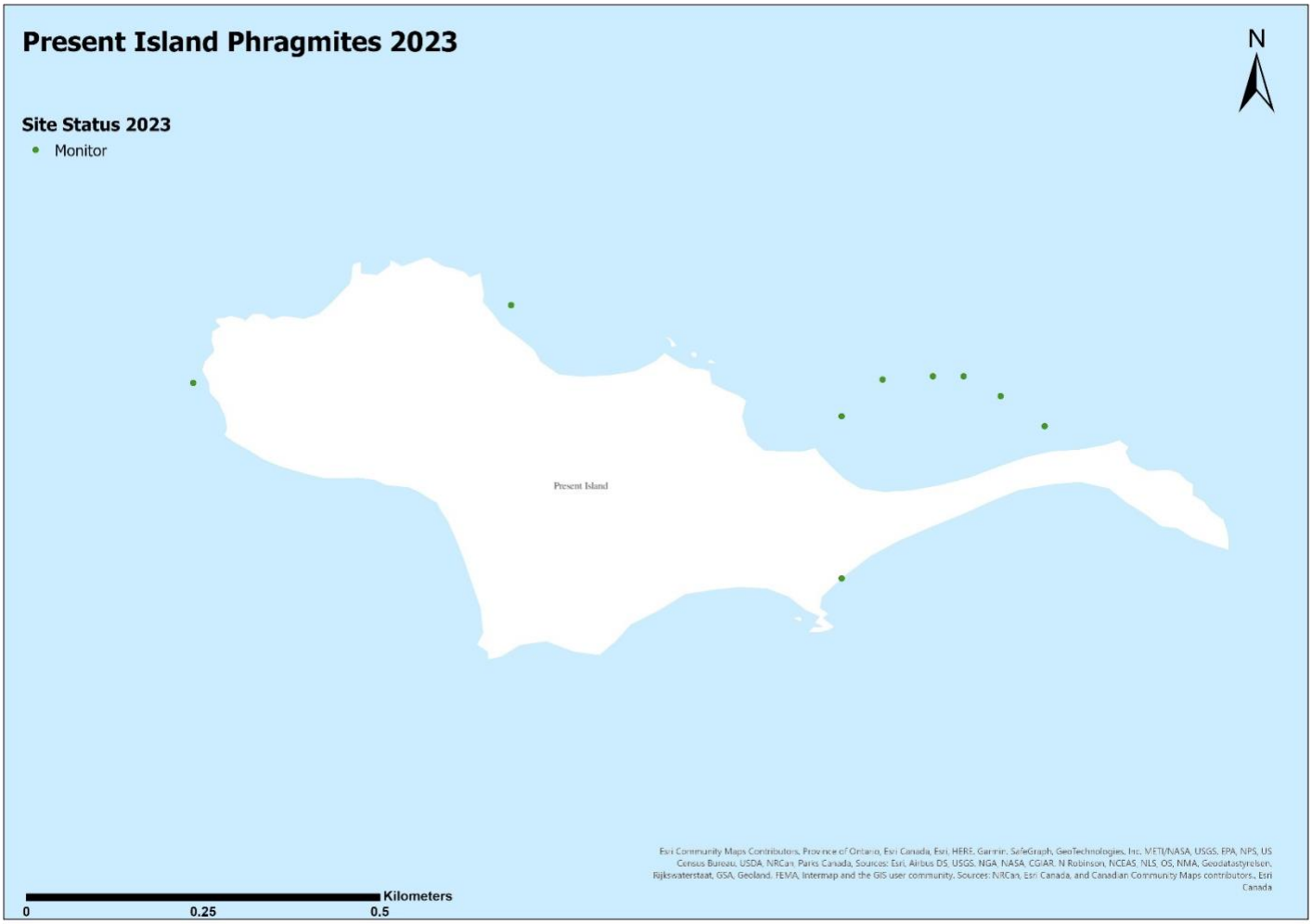


Figure 15: Map displaying the status and location of Phragmites around Present Island in 2023.

Quarry Island

Table 8: *Status of the 45 invasive Phragmites sites on Quarry Island.*

Region	Total sites	New Sites	# of sites Eradicated/ Monitored	# of sites Cut	Area Cut (m^2)	# of sites Controlled (Eradicated/ Monitored + Cut)	# of sites Untreated	% Eradicated/ Monitored	% Cut	% Control
Quarry Island	**45**	16	4	18	6,631.1 m^2	22	23	9%	40%	49%

In July of 2022, truxors were brought to the northeast shoreline of Quarry Island to remove some of the invasive *Phragmites* that have begun to rapidly take over the coastline. In 2023, we saw significant positive results from the removal. Sites did grow back, but at a much smaller density and area, making it manageable for our team.

Quarry Island Community Cut

GBF worked with the Nature Conservancy of Canada, Georgian Bay Islands National Park, and Severn Sound Environmental Association to coordinate two days of phragmites removal at Quarry Island. Thank you to staff from all these organizations who came out to help! Over 5,000 m^2 of phragmites was removed.

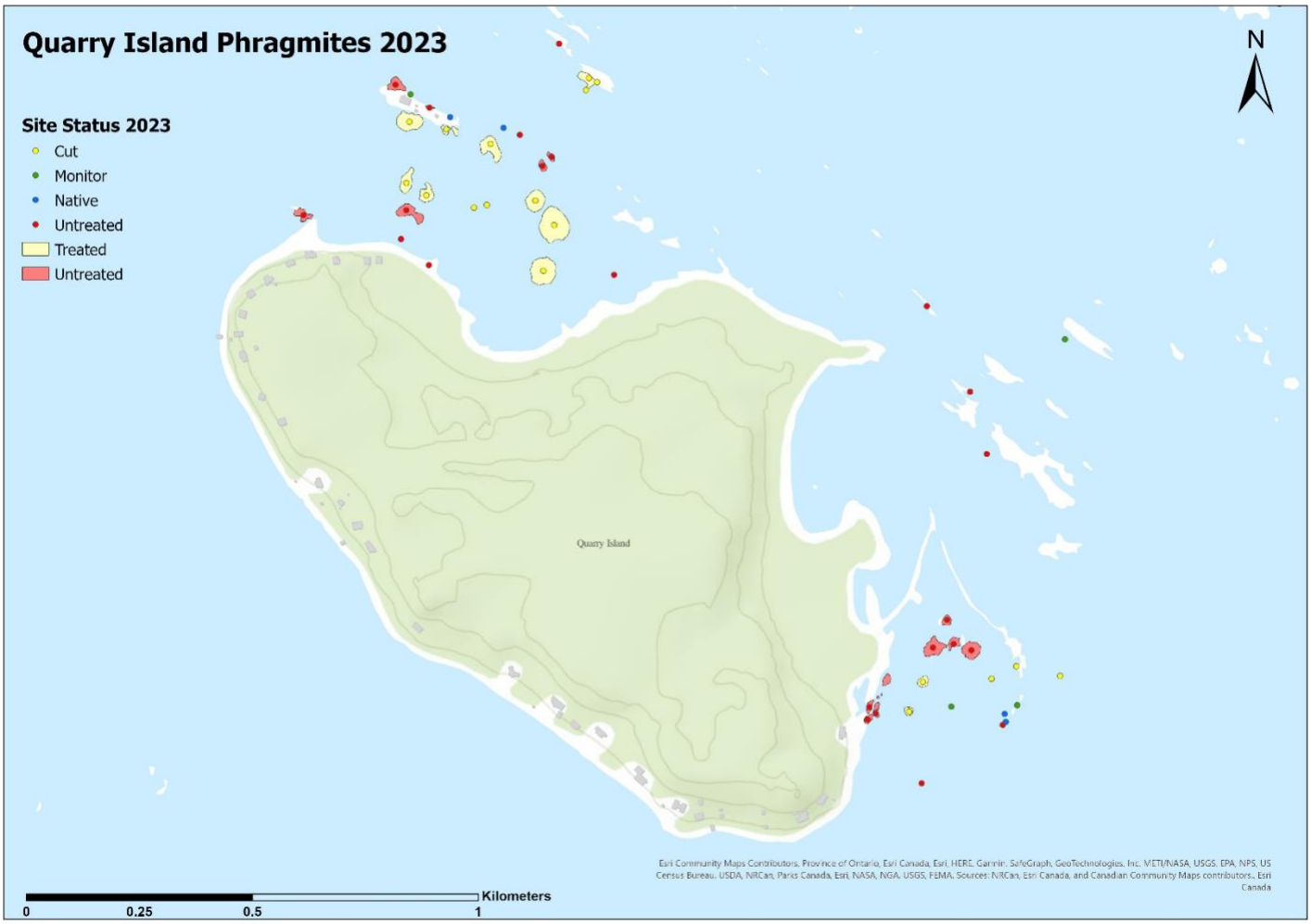


Figure 16: Map displaying the status and location of Phragmites around Quarry Island in 2023.

Figure 17: Phragmites Collaboration Day at Quarry Island with GBINP, SSEA and NCC staff.

Wolverine Beach to Macey's Bay

Table 9: Status of the 68 sites along Wolverine Beach and Macey's Bay.

Region	Total sites	New Sites	# of sites Eradicated/ Monitored	# of sites Cut	Area Cut (m^2)	# of sites Controlled (Eradicated/ Monitored + Cut)	# of sites Untreated	% Eradicated/ Monitored	% Cut	% Control
Wolverine Beach/ Macey's Bay	**68**	2	**49**	**2**	202.8 m^2	**51**	**17**	82%	3%	85%

The coastline from Wolverine Beach south to Macey's Bay is currently at 85% control, of which 82% is eradicated. Only two sites, or 3%, were cut this year with 17 left untreated. In this region, there are some sites found on Georgian Bay Islands National Park (GBINP) which are managed by Park staff. See page 27 for an update on GBINP invasive *Phragmites* management and control.

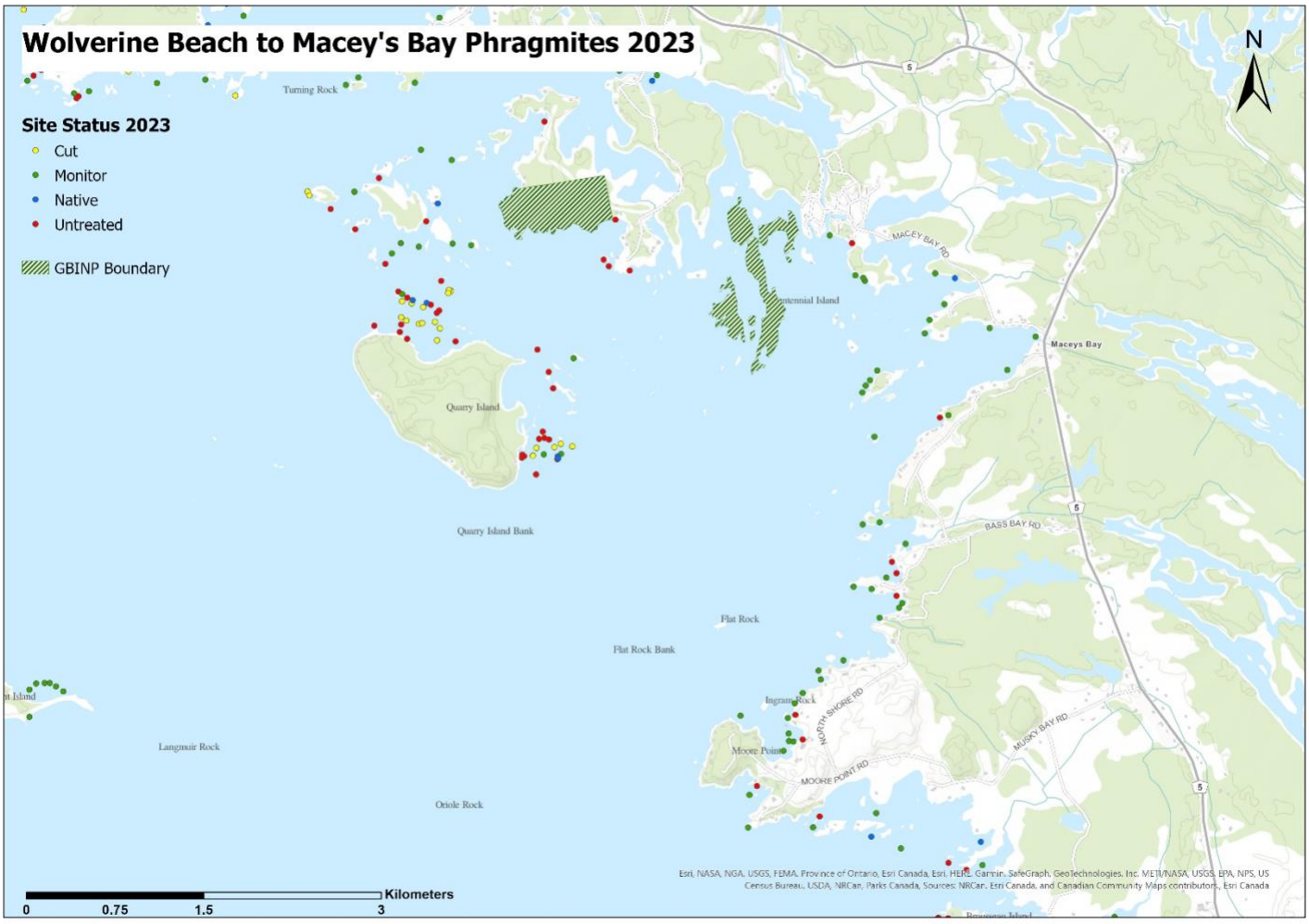


Figure 18: Map displaying the status and location of Phragmites off the coast of Wolverine Beach and Macey's Bay in 2023.

Port Severn

Table 10: Status of the 60 sites along the Port Severn region in 2023.

Region	Total sites	New Sites	# of sites Eradicated/ Monitored	# of sites Cut	Area Cut (m^2)	# of sites Controlled (Eradicated/ Monitored + Cut)	# of sites Untreated	% Eradicated/ Monitored	% Cut	% Control
Severn Sound/Port Severn	**185**		**54**	**16**	2,157.8 m^2	**70**	**115**	29%	9%	38%

Starting in 2020, Port Severn gained more attention due to the success GBF has had in other regions of Georgian Bay Township. In 2023, GBF staff and volunteers were able to control 38% of sites in Severn Sound. 44 new sites were mapped, compared to the seven in 2022, putting us at a total of 185 invasive *Phragmites* stands in the Port Severn to Severn Sound area. A large majority of these sites were found on the southwest side of Green Island growing amongst vast cattail wetlands.

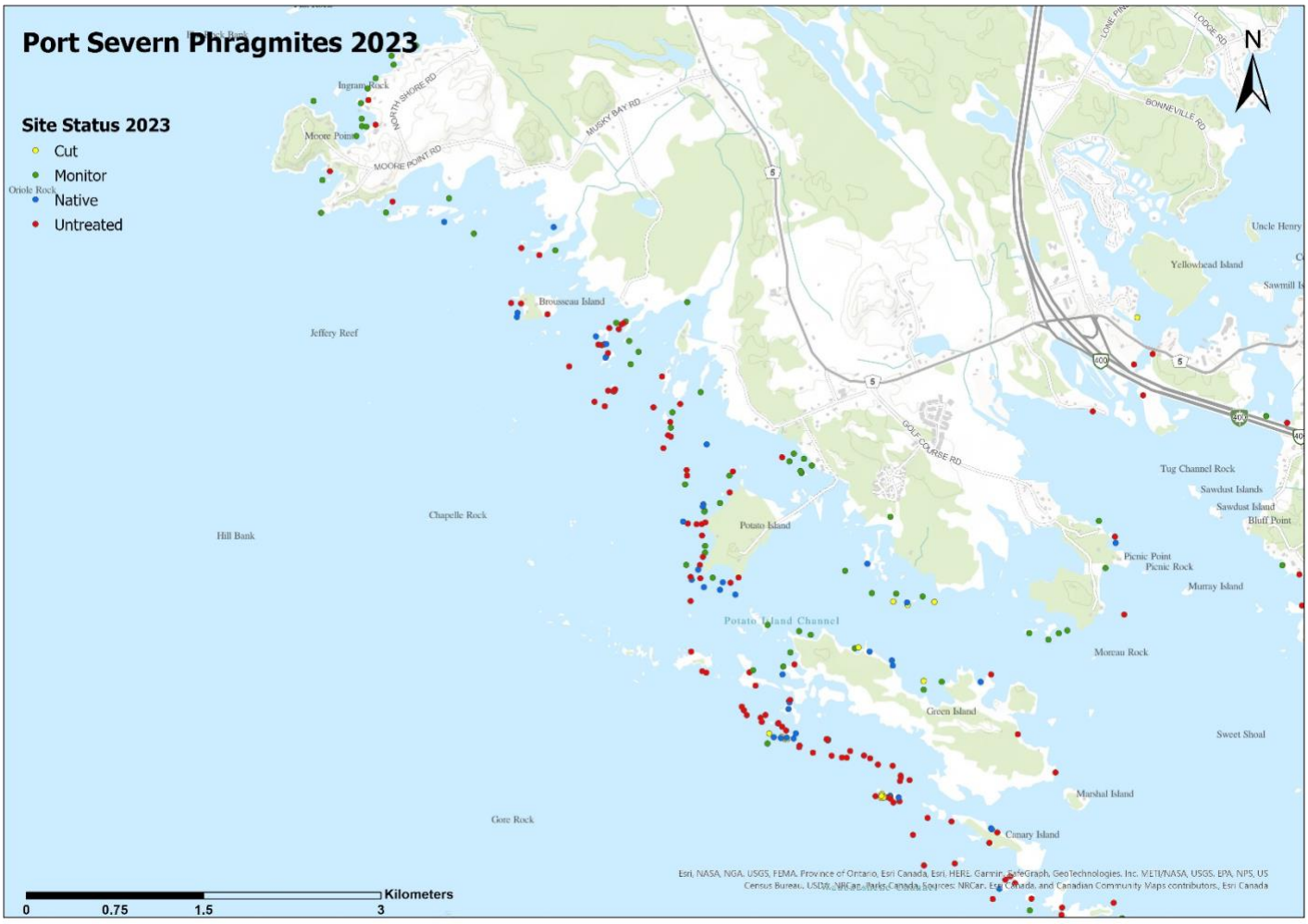


Figure 19: Map displaying the status and location of Phragmites in Severn Sound and Port Severn in 2023.

Carling Township

Table 11: Status of the 32 invasive Phragmites sites in Carling Township.

Region	Total sites	New Sites	# of sites Eradicated/ Monitored	# of sites Cut	Area Cut (m^2)	# of sites Controlled (Eradicated/ Monitored + Cut)	# of sites Untreated	% Eradicated/ Monitored	% Cut	% Control
Carling Township	10	10	0	9	1,980.1 m^2	9	1	0	90%	90%

The year 2023 was the first year GBF investigated the shores of Carling Township thanks to help from the West Carling Association. Over two days, Nicole and Claire joined Richard and Bruce from the WCA to map the entire shoreline of Carling Township and found 10 sites of invasive *Phragmites*. Sites were found at Franklin Island, Bateau Island and Deep Bay. Richard took it upon himself to also take note of some roadside patches along 559 and Dillon Road. In early August, GBF joined the Georgian Bay Biosphere and local volunteer Ian Fenton to remove a patch within Franklin Island. In mid-August, WCA pulled together a group of volunteers, and GBF joined the community on Franklin Island for a training workshop and community cut, resulting in all stands on Franklin Island being removed in 2023. The two sites in Deep Bay were removed by property owners and WCA, while the sites at Bateau Island were removed by WCA and associated volunteers. GBF and WCA plan to continue working together in 2024 to create “Phrag-Free Carling!”

Region	Total sites	New Sites	# of sites Eradicated/ Monitored	# of sites Cut	Area Cut (m^2)	# of sites Controlled (Eradicated/ Monitored + Cut)	# of sites Untreated	% Eradicated/ Monitored	% Cut	% Control
Township of the Archipelago	69	0	53	14	134 m^2	67	2	77%	20%	97%

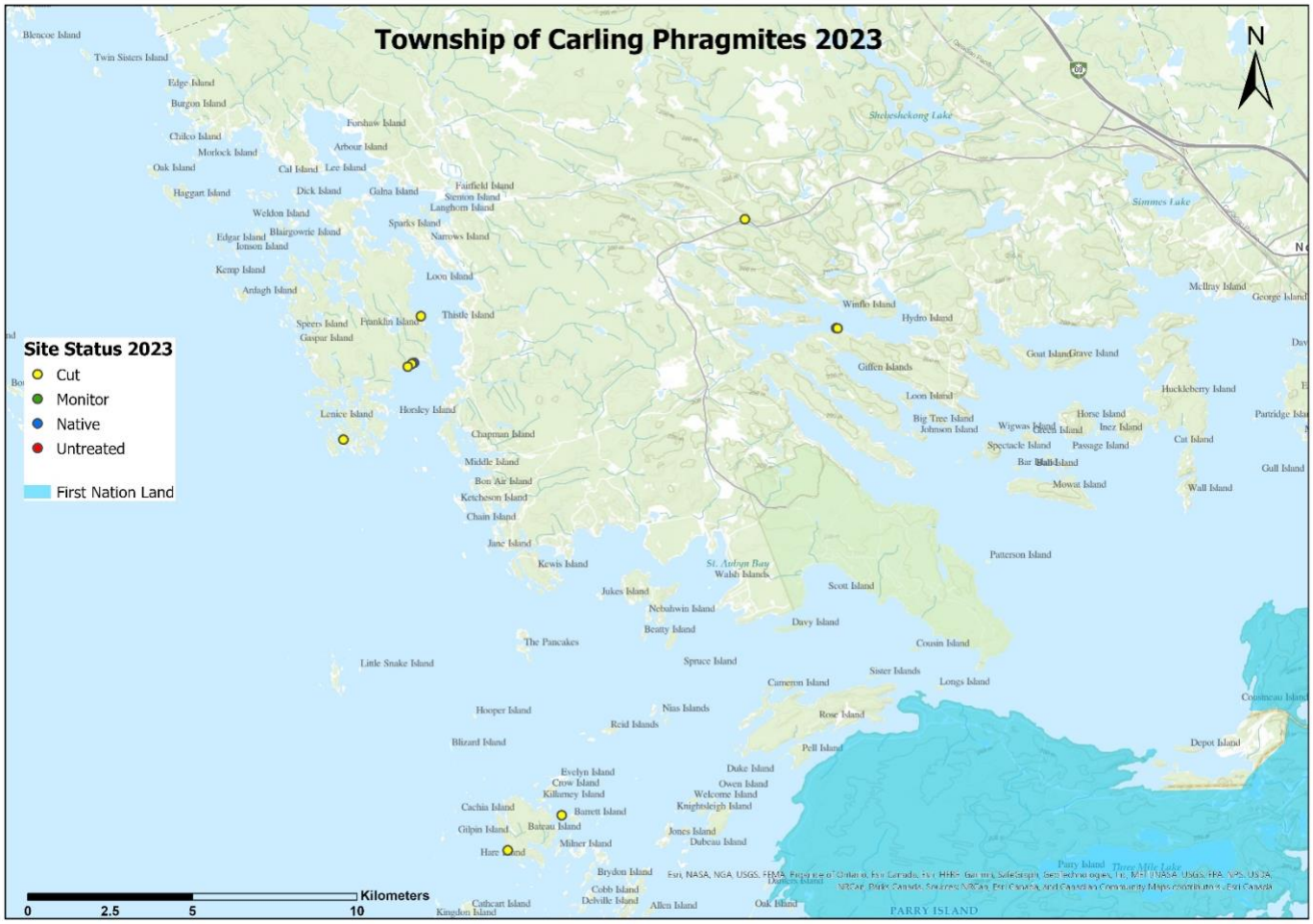


Figure 20: Map displaying the status and location of Phragmites in Carling Township in 2023.

Township of the Archipelago

***Table 12**: Status of all 67 sites in the Township of the Archipelago, including Massasauga Provincial Park in 2023.*

In 2023, the Township of the Archipelago (ToA) received 97% control on the 69 sites mapped. There are approximately 29 sites in the Park, with only about five in need of further control. Some sites are monitored by community members, such as Katherine Denune, who has been successfully monitoring sites throughout Sans Souci and Copperhead. Peter Adams, Ian Fenton, Steven Sprague, and the team have been monitoring and controlling invasive *Phragmites* along the

South Channel for many years as well. This year, all sites along the South Channel were monitored, and there was no regrowth seen, meaning they all have been put into the eradicated/monitoring stage! Thank you to Katherine, Peter, and all other community members for monitoring *Phragmites* in their area. GBF will work with these community groups in 2024 to provide any additional resources needed to ensure all sites in need of treatment get cut. Thank you, Katherine, Peter, Heather and all other volunteers for your hard work and dedication that has made control in the Archipelago so successful!

Figure 21: Township of the Archipelago shoreline to Georgian Bay.

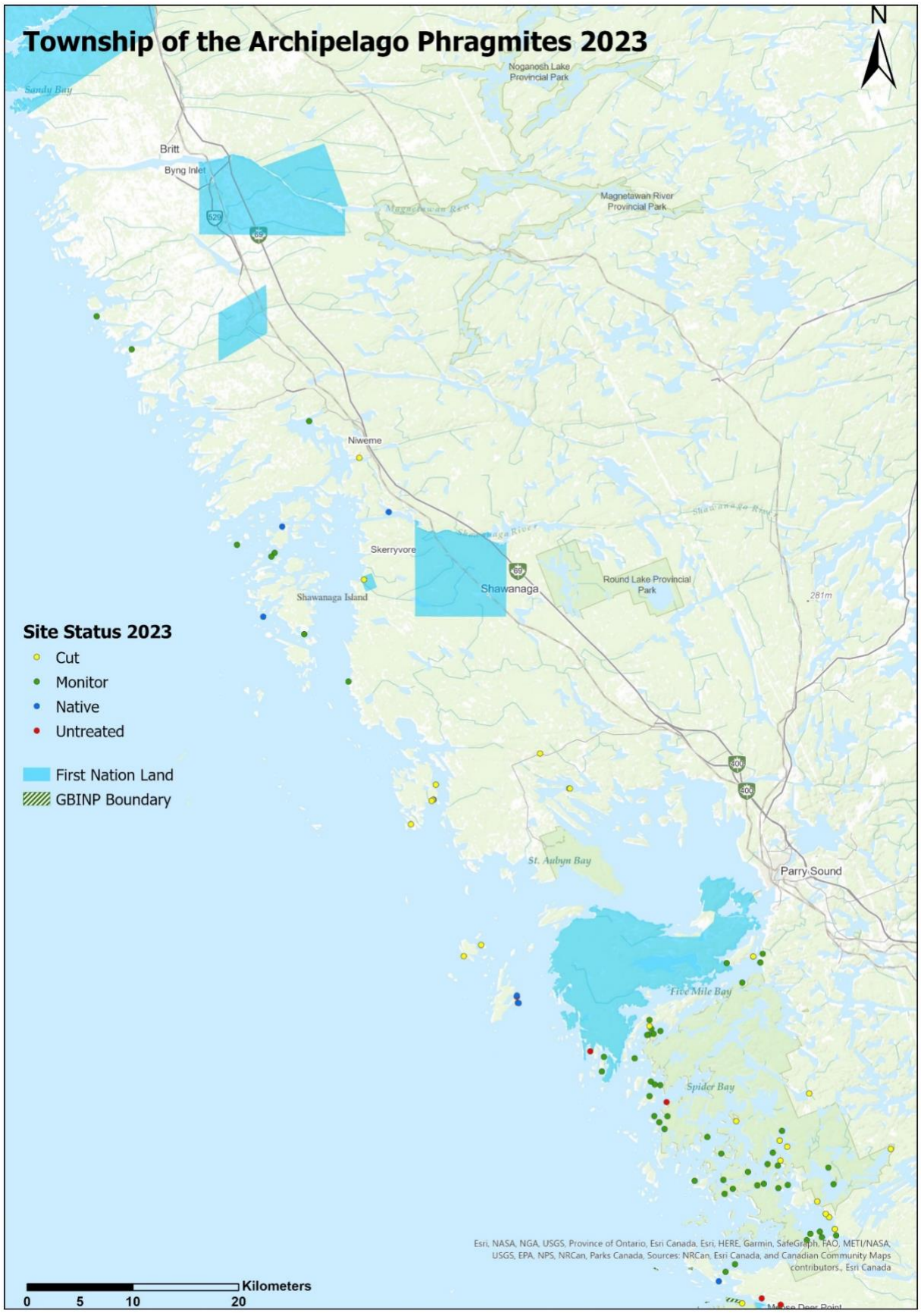


Figure 22: Map displaying the status and location of Phragmites in the Township of the Archipelago in 2023.

Pointe au Baril

GBF's Science Project Manager, Nicole, joined Pointe au Baril's Marine Patrol in June to conduct an invasive *Phragmites* training workshop with new Marine Patrol students (Abby and Alex) covering ID, proper removal, and disposal practises.

"Throughout the summer season, Patrollers monitored a total of 9 sites for invasive Phragmites. Out of all 9 sites only 2 were found to still have invasive phragmites, Desmasdons and Upper Shawanaga. Working with Georgian Bay Forever (GBF), we were trained on how to properly identify the species and protocols for cutting and disposal. This year's cut took place on August 16th and took only a total of 2 hours. From the first cutting of these sites in 2016 to now, Phragmites stands have significantly been reduced meaning this mitigation strategy is working very well…
In 2022, only 2 locations had stalks present and were cut, Desmasdons and Ojibway. This year we did not find any phragmites at the Ojibway site. From the first cuts in 2016, the size of stalks at each location has significantly reduced. The table below shows the 9 sites that we had monitored this year, the last year they had" – Abigail Mackle and Alex Wiseman (PaBIa Marine Patrol Report 2023 Overview)

The Pointe au Baril sites are included in our total Township of the Archipelago count.

Massasauga Provincial Park

Most of the sites in Massasauga Provincial Park have been previously controlled and there has been very little regrowth in the past. This season, staff removed five sites of various size and density throughout the park using both the cut-to-drown and spading method.

"Since 2018 The Massasauga Provincial Park has been working to manage and eradicate the invasive Phragmites infestation. In 2023 there was regrowth of phragmites in previous site locations, but also many previous Phragmites sites that did not have any regrowth at all. There continues to be a monitoring of phragmites within The Massasauga Provincial Park. With the continuation of proper monitoring, removal, and disposal of invasive Phragmites, as well as the help from the Georgian Bay Forever organization, we can manage and restore balance to the ecosystem within The Massasauga Provincial Park." – Sean Patrick Smith (Phragmites Report 2023 Overview)

The Massasauga Provincial Park sites are included in our total Township of the Archipelago count.

Collaborative

Georgian Bay Islands National Park (GBINP) – Beausoleil Island

"Georgian Bay Islands National Park (GBINP) is in its final year of the Impede the Reed program. This program began in 2019, to manage and control Phragmites on Beausoleil Island and its outer islands, owned by Parks Canada. In 2023, Parks Canada was able to map 9.2ha of Phragmites and removed 0.34ha. We dedicated 285 hours towards the mechanical removal of this invasive plant in key high priority areas such as Cedar Spring, Treasure Bay, Ojibway Bay, Little Dog Channel and Centennial Islands (Island 93 and 95). GBINP created volunteer agreements with Georgian Bay Forever (GBF) and the Nature Conservancy of Canada (NCC) to help manage Phragmites on Park land in future years beyond the Impede the Reed program. GBINP staff coordinated four collaborated cutting days with NCC and GBF along the shores of Quarry Island and Beausoleil Island. GBINP hosted six education and outreach programs on Beausoleil Island. A special grant with Lakehead University provided the opportunity for four local high schools, totalling 83 students, to come to Beausoleil Island and learn about Phragmites and take part in managing a patch in Cedar Spring." – Jeff Howard, Project Coordinator – Invasive Species Management, Georgian Bay Islands National Park

Figure 23: Photos of Parks Canada staff Phragbusting around Beausoleil Island. Photo Credit: Jeff Howard.

Figure 24: Map displaying GBINP 2023 Phragmites

Georgian Bay Land Trust

"This past summer we spent much of our time tackling 12 Mile Bay Road and the large patches at our Port Severn site. The Port Severn patches were not finished due to their size, but we hope to complete them next year. There was no regrowth at Giant's Tomb Island in our annual inspection. A property nearby our Port Severn property also has two patches, the smaller of which we cut separately and with plans to cut the larger one next year. The other location we cut was a small patch on one of the Alexander Islands, which was also cut last year and was smaller this year." – Aaron Rusak, Protected Areas Manager

Beausoleil First Nation (BFN)

In 2020, GBF conducted a presentation to BFN about invasive *Phragmites* identification and management. In 2021, GBF had the opportunity to join a Climate Change Committee meeting hosted by BFN to further discuss invasive *Phragmites* on Christian Island. With support from BFN and funding from the Green Shovels Collaborative, GBF worked with BFN to develop a management plan for invasive *Phragmites* removal on Christian Island. The plan began in 2022, involving mapping to understand the issue, obtaining the proper equipment for removal activities, conducting training workshops, recruiting volunteers, educating the community, and incorporating the plan into BFN Education Department's co-op program. Working with Water First, this summer was our second summer invited to work with student's in the Reach Ahead credit program on the Island. This collaboration involved both invasive *Phragmites* education, training, and removal at Douglas Lake, as well as plastic pollution education through our Microplastics in a Backpack program. To learn more about this program, reach out to our Diversion 2.0 Project Manager, Sean Mullin at sean.mullin@gbf.org.

Figure 25: Beausoleil First Nation students cutting at Douglas Lake.

Nature Conservancy of Canada

"Over the 2023 field season, the Nature Conservancy of Canada (NCC) has continued to expand our invasive phragmites control program in the Eastern Georgian Bay Coast and surrounding regions with the generous support from the Ganawenim Meshkiki's Eastern Georgian Bay Initiative and the Green Shovels Invasive Phragmites Control Fund.

Our 2023 activities can be summarized into three main categories:

***Collaboratively mapping invasive phragmites**: We continue to add data to the invasive phragmites FieldMaps database created in 2021 using NCC, Georgian Bay Land Trust, and Early Detection and Distribution (EDD) maps of phragmites locations. In 2022, the map was expanded to assist in future control efforts through the addition of new data fields, including stand maturity, density, and hydrological condition. In 2023, the map was further expanded to include control polygons for enhanced analysis and tracking of success across years. Additionally, all data and access to this map was provided via data sharing agreements with partner organizations Georgian Bay Forever, Georgian Bay Land Trust, Georgian Bay Biosphere, and Shawanaga First Nations. We are excited to work with Georgian Bay Forever as a partner and contributor to this landscape-scale invasive phragmites map and database.*

Figure 26: Phragmites removal collaboration day at Quarry Island with staff from GBF, NCC, SSEA and Parks Canada.

***Mechanical control of invasive phragmites**: Over seven days in August 2023, NCC staff joined Georgian Bay Forever, Georgian Bay Land Trust, Georgian Bay Island National Park, and Severn Sound Environmental Association staff and volunteers to cut submerged stands of invasive phragmites at five locations (Beausoleil Island, Quarry Island, Moose Deer Point First Nation, and two sites in the Port Severn Wetlands). No chemical control methods were used for this work in accordance with the Ganawenim Meshkiki's request. The primary goal of our invasive phragmites control work is to protect Georgian Bay and the surrounding habitats for species at risk, such as (Massasauga rattlesnake, eastern foxsnake, eastern hog-nosed snake, Blanding's turtle, and eastern musk turtle). In 2024, we plan to build more local partnerships and continue to participate in invasive phragmites control, with the additional goal of developing a long-term project sustainability plan after this final year of funding.*

***Education & Outreach**: The mechanical phragmites control video posted to YouTube in 2022 (Controlling invasive phragmites australis - YouTube) has been viewed over 7.5k times as of November 2023, indicating a strong interest in learning about invasive phragmites and best management practices for mechanical control by the general public. NCC has also continued to connect and share information with local inland lake cottager associations. Through this outreach, four associations have requested and received personalized support, either via virtual meetings or via connecting with Georgian Bay Forever for support with mechanical control. NCC appreciates the opportunity to connect these associations with GBF on an as-needed basis for on-the-ground phragmites control within the broader region. Additionally, NCC is engaging with Indigenous Communities along the Eastern Georgian Bay Coast to support their invasive phragmites control needs, including providing requested information to Moose Deer Point First Nations Lands Department to support capacity building within their team.*

NCC is thrilled to partner with Georgian Bay Forever as we work together to eradicate invasive phragmites. We look forward to improving regional collaboration and coordination as a next step for all invasive phragmites partners in the Eastern Georgian Bay Coast region in 2024 and beyond.

Written by: Carolyn Davies, Coordinator, Conservation Biology, Nature Conservancy of Canada, Ontario Region

Nipissing First Nation

Back in 2022, GBF heard about some very interesting drone work being done by Nipissing First Nation (NFN) to map invasive *Phragmites*. In 2022 and 2023, GBF travelled up to Lake Nipissing for a drone demonstration, *Phragmites* workshop and a community cut with NFN summer students. GBF looks forward to building a relationship with NFN, sharing knowledge, and learning from each other's experience managing invasive *Phragmites* in future years. Thank you, Curtis, Lucas, Sophia and team, for the drone demonstration and a fun day of cutting *Phragmites*!

Figure 27: Cutting invasive Phragmites with the Nipissing First Nation community, along the shores of Lake Nipissing.

Magnetawan First Nation

Magnetawan First Nation has been successfully managing invasive *Phragmites* on their lands and the Magnetawan River since 2020. The site on the river has been cut each year and has been found to decrease in size and density and is no longer seen. In 2022, a terrestrial site was found near the railroad and was cut for the first time. GBF staff joined Magnetawan First Nation in the summer to help with the removal of this site. In 2023, the Lands Department team continued to monitor and remove this site again with help from Georgian Bay Forever and Moose Deer Point First Nation. The site was definitely smaller and quickly managed in a half day! The team at Magnetawan First Nation also found a new site on the north side of the river in Britt with plans of management for the next five years. Additionally, a new patch was found back on the Lower Magnetawan River and has been added to the management list for next year.

Figure 28: Cutting Phragmites along the train tracks at Magnetawan First Nation.

We look forward to maintaining and building our relationship with the Magnetawan community in 2024.

Figure 29: Pile of Phragmites

Ministry of Transportation

Part of protecting management investments made is implementing or improved road management by all stakeholders**.** GBF and its partners have made many efforts on progressively increasing MTO participation over the years. 2021 efforts included "*Invasive Phragmites Road Management: A Webinar for Municipalities and First Nations in the Georgian Bay Area."* – hosted by GBF and Township of the Archipelago (ToA), which included Dr. J. Gilbert, Invasive Phragmites Control Centre, speaking about techniques, but also involved an update by MTO. In 2023, our partner at West Carling Association and Georgian Bay Association took it upon themselves to make contact with the MTO regarding roadside *Phragmites* around highway 559 and Dillon Rd, a highly trafficked area in the summer toward Killbear Provincial Park. They were advised that MTO would work to have roadside sites in the area addressed in the future. GBF will continue to encourage roadside control by MTO and local municipalities in 2024.

Conclusion

The year 2023 marks the eleventh year of Georgian Bay Forever's efforts in invasive *Phragmites* management on the eastern shores of Georgian Bay. Due to our generous funders, donors, dedicated staff, and volunteers from the community, GBF has been incredibly successful and thus able to start relocating efforts into regions of Georgian Bay that were never focused much on before. Because of these diversified efforts, we are seeing a large increase in the number of total sites mapped each year, but what is more significant is the number of sites we monitor with zero regrowth, which is 48%.

- Total of 1,020 invasive *Phragmites* sites in the summer of 2023
- 137 new stands identified.
- 490 sites, or 48% are eradicated.
- 208 or 20% of sites cut by GBF staff, volunteers, Ontario Parks, and PaBIA Marine Patrol
- 704, or 68% of sites are under control (eradicated/monitored and cut) by GBF
- >250 volunteer hours dedicated.

Thank you, Jared McNabb, Claire Hendriks, Lilly Floerke, and Ashley McGuire for all your hard work! Further thanks to all the communities that have supported Georgian Bay Forever initiatives and the volunteers that spent countless hours removing invasive *Phragmites* from Georgian Bay.

Follow the link to an interactive map of all stands on the eastern shoreline of Georgian Bay in:
2021 https://arcg.is/4HaDa0
2022 https://arcg.is/0u0Kj
2023 https://arcg.is/vezrn