GRAND COUNCIL TREATY #3
The GOVERNMENT of THE ANISHINAABE NATION in TREATY #3

Invasive Species Centre

ENVIRONMENTAL MONITORING SUMMARY REPORT

2024 Invasive Species Monitoring: Invasive *Phragmites*

REPORT PREPARED BY THE TERRITORIAL PLANNING UNIT OF GRAND COUNCIL TREATY #3

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PLEASE DIRECT ANY QUESTIONS OR COMMENTS REGARDING THE CONTENT IN THIS REPORT TO MICHAELA NOVAK, MICHAELA.NOVAK@TREATY3.CA.

Why We Monitor

Grand Council Treaty #3's (GCT3) Territorial Planning Unit (TPU) coordinates *Phragmites* monitoring and mapping across the Treaty #3 territory, following the guidance and traditional protocols of the Treaty #3 communities within the territory. The TPU works to protect, conserve, and defend the traditional lands and waters of the Anishinaabe Nation of Treaty #3.

WHAT ARE *PHRAGMITES*?

Phragmites are a genus of reed that is established worldwide. There are four* species of *Phragmites*, the most prevalent being *Phragmites australis* that is very common in North America. They are wetland plants, often found growing in roadside ditches. Above ground, *Phragmites* have a grass-like appearance; below ground, they form a vast network of roots and rhizomes. As they contain very little nutrients, predation is low. *Phragmites* are capable of sexual reproduction via seeds that disperse in the wind and stick to vehicles, and asexual reproduction via rhizomes.

Figure 1. Native and invasive *Phragmites* growing in Treaty #3 (samples PHRAG554 and PHRAG555). Pictured on the right are native [top] and invasive [bottom] seedheads

There are two relevant subspecies of *Phragmites australis*. The native subspecies is *Phragmites australis subsp. americanus*, often referred to as common reed. Native *Phragmites* can grow up to 2m tall and are yellow-green. Typically, the stem has a red-brown-coloured portion and a small, beige seed head. While native *Phragmites* can form a dense stand, they grow intermixed with other vegetation. The other relevant subspecies, *Phragmites australis subsp. australis*, is very invasive outside its native range of Eurasia. Invasive *Phragmites* can reach a height of 5m and are blue-green. Typically, the stem is beige with a large, dark purple seed head.

WHAT IMPACTS ARE CAUSED BY INVASIVE *PHRAGMITES*?

Invasive *Phragmites* that successfully spread into wetlands and roadside ditches can have significant environmental and economic impacts. Unlike native *Phragmites*, the invasive variety can release toxins from its roots to kill surrounding vegetation and take over the growing space. As strong competitors, they can outcompete native vegetation for space and nutrients, which alters the plants available for consumption by wildlife; ultimately, reducing overall biodiversity. Invasive

* Widely accepted; as of current taxonomy.

Phragmites have few predators to help control the population growth.

Large, established stands of invasive *Phragmites* can clog drains and alter wetland ecosystem services. The altered wetlands can cause reductions in flood control, nutrient cycling, access to waterbodies, water supply, agricultural yields, and the value of waterfront properties. Dead *Phragmites* are a fire hazard as the dry biomass easily catches flame. The tall, dense stands growing roadside can reduce visibility, which increases the risk of traffic collisions and collisions with wildlife, and can cover important signage.

WHERE ARE INVASIVE *PHRAGMITES* FOUND?

Invasive *Phragmites* are a threat faced by ecosystems worldwide. Presence of invasive *Phragmites* in Manitoba has been documented for at least 15 years (Invasive Species Council of Manitoba, 2010). Invasive *Phragmites* are well documented in Minnesota, with 2299 verified populations as of December 2024 (Minnesota Aquatic Invasive Species Research Center, 2025). While invasive *Phragmites* have been documented in Southern Ontario for seven decades, monitoring efforts began in 2015 to identify their presence in Northwestern Ontario, specifically the Thunder Bay Area (CBC News, 2015). In 2022, the Invasive Species Centre (ISC) approached the TPU about beginning *Phragmites* monitoring in gap areas; Treaty #3 Territory was a gap area. In 2023, the TPU's monitoring efforts confirmed 17 stands of Invasive *Phragmites*. A group of invasive *Phragmites* were identified in the Fort Frances Area, likely introduced from a Minnesota population. The majority of invasive *Phragmites* were identified along the TransCanada Highway, between Dryden and Upsala, which suggests incoming vehicles from Southern Ontario are the main source of introduction.

HOW CAN INVASIVE *PHRAGMITES* BE CONTROLLED?

The removal of invasive *Phragmites* challenging and demanding. The simplest form of control is prevention of spread. As *Phragmites* can spread via seeds or rhizomes, it is crucial to remove all plant matter, dirt and debris from all clothing and shoes, gear, equipment, and vehicles. Once a *Phragmites* are established, it can take multiple years and methods of intervention to control or remove. Physical removal requires cutting/mowing the plants and removing all plant matter to prevent spreading seeds. As *Phragmites* can grow/spread from rhizomes, removal of all roots is essential. Drowning and/or burning *Phragmites* are common control methods, but does not effect the underground rhizomes. Herbicides are effective at controlling invasive *Phragmites*; however, they must be used with great caution due to non-target effects. All plant matter requires proper disposal to ensure the invasive species cannot regrow.

How We Monitor

EQUIPMENT WE USED

- **GPS**
- **Ruler and Measuring Tape**
- **Plant Sheers**
- **Camera**
- **Safety Vests and Traffic Cones**
- **ISC *Phragmites* Sample Kit: includes envelopes for leaf samples, airtight storage bag, and a silica pack to dehydrate plant matter**

OUR MONITORING METHODS

In 2024, the TPU travelled throughout Treaty #3 and mapped the presence of all *Phragmites*. Stands of *Phragmites* that exhibited invasive *Phragmites* characteristics were sampled for DNA testing to confirm identities. At all accessible growing locations, the TPU documented the characteristics of the stand, leaves, and seed heads: colouring, measurements, densities, flowering stage, leaf retention, presence of fungal spots, and growing hydrological condition. When possible, a stand-representative leaf and seed head were collected and photographed. To prevent increasing seed spread by returning the cut seed head to the plant stand, the TPU placed the seed heads into a plastic bag to increase seed mortality followed by burning the dried plant matter. When the TPU suspected invasive *Phragmites*, a small section of leaf from 2 individual plants in the stand was collected for DNA testing. In the field, the *Phragmites* observations were uploaded to the application 'iNaturalist' when possible.

The TPU prioritized areas surrounding Treaty #3 communities, highways, and high-traffic municipal roadways. Treaty #3 communities were prioritized due to potential impacts on cultural keystone species, whereas highways and high-traffic roadways were considered a priority as they are the main spread pathway for *Phragmites*. The TPU began monitoring *Phragmites* in Treaty #3 in 2022 and has expanded the project each year since. Positive detections of invasive *Phragmites* by the TPU in 2023 influenced the 2024 DNA sampling as they were the first confirmed invasive *Phragmites* in the region. While continuing to fill in the *Phragmites* monitoring gap areas in Treaty #3 and build upon previous efforts, the TPU emphasized Eastern Highway 17 and Highway 11 near the previously confirmed invasive stands. Whenever possible, Treaty #3 youth and other youth groups were invited and participated in the sample collection process. All samples collected in 2024 were sent to the ISC to DNA confirm their identification, invasive or native variety of *Phragmites*.

SETTING UP SAFE MONITORING PROTOCOLS

To ensure monitoring efforts are safe and productive, the TPU followed protocols for safe roadside work and utilized appropriate PPE. When monitoring at a roadside location, the TPU maximized the visibility of staff by requiring Hi-Vis clothing when outside the vehicle recording data, as well as bright traffic cones in front and behind the vehicle and its hazard lights flashing.

The Treaty #3 territory is forested, has vast waterbodies and is situated on the Canadian Shield; the roadways are primarily hilly, littered with twists, turns and bridges. TPU staff exercised caution and relied on judgement to assess if the stand of *Phragmites* was safely accessible to monitor its characteristics and/or sample. For stands deemed inaccessible by staff, the coordinates were recorded.

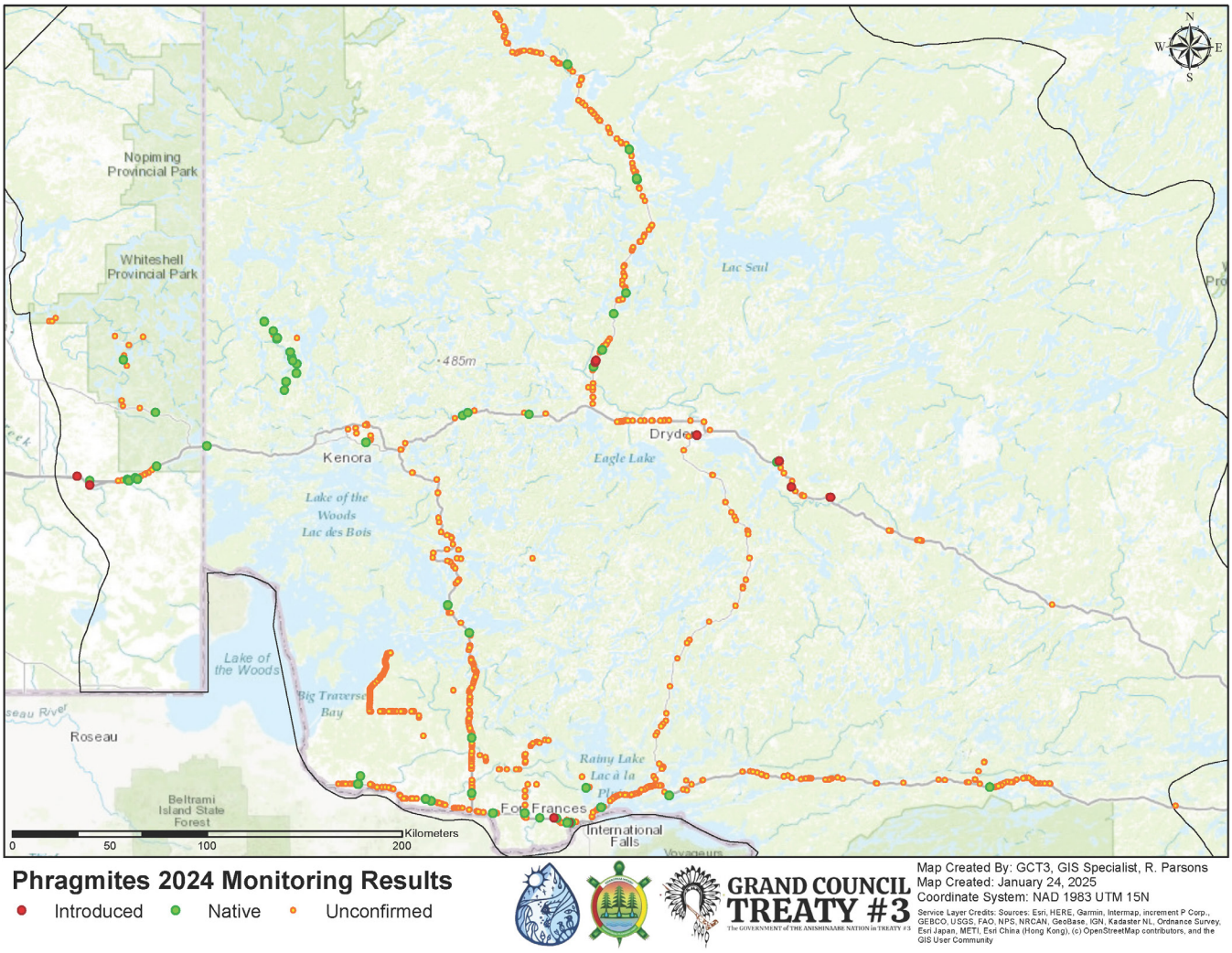
Findings

RESULTS FROM 2024 MONITORING EFFORTS

Between August 9th and October 8th, 2024, the TPU mapped ~1130 stands of *Phragmites* and collected 84 samples for DNA identification within the Treaty #3 territory. The samples were sent to the ISC for DNA analysis (PCR and Gel Electrophoresis) to confirm the identity of the *Phragmites*

stand, native or invasive. Due to issues in the shipping process, 77 of 84 samples were analyzed; 65 samples confirmed native *Phragmites*, 12 samples confirmed invasive *Phragmites*.

Unfortunately, the TPU cannot identify the location coordinates of two analyzed samples, one confirmed native and one confirmed invasive. Both samples were collected along Highway 17, between Vermillion Bay and the eastern boundary of the Treaty #3 territory.



In the Fort Frances area, along Highway 11, two samples were identified as invasive *Phragmites*. The location of one invasive stand align with the TPU's findings in 2023. One new stand of invasive *Phragmites* was identified. North of the Dryden area, collected along Highway 105, two samples were identified as invasive *Phragmites*. One stand was previously identified as invasive by the TPU in 2023. One new stand of invasive *Phragmites* was identified. From the Manitoba portion of Treaty #3, along TransCanada Highway 1, two samples were identified as invasive *Phragmites*. Prior, the TPU had not identified invasive *Phragmites* within the Manitoba Treaty #3 Territory. Collected along TransCanada Highway 17, from the Dryden area to the Upsala area, five samples were identified as invasive *Phragmites*. While one of the samples align with the TPU's 2023 findings, four of the samples identified new growing locations.

See **Appendix A** to view a table detailing the results of all *Phragmites* DNA testing.

Conclusion

SUMMARY OF THE 2024 MONITORING SEASON

Throughout the 2024 monitoring season, the TPU mapped ~1130 stands of *Phragmites* and collected 84 samples for DNA identification (native or invasive subspecies) within the Treaty #3 territory. Ultimately, the Invasive Species Centre's laboratory analyzed 77 samples; 65 samples confirmed native *Phragmites*, 12 samples confirmed invasive *Phragmites*. While the TPU cannot currently identify the origin of one confirmed invasive sample, the remaining 11 were collected along the major highways in Treaty #3, from the western, southern and eastern directions.

WHAT DO THE RESULTS MEAN?

Along Highways 71 and 105, the TPU increased sampling to assess the distribution of the invasive stands identified in 2023 to a higher degree. In both cases, a new stand of invasive *Phragmites* was confirmed nearby. This indicates that the newly identified invasive stands are likely recently established and are a result of the spread of the previously identified invasive stands. However, the possibility that the stand was simply missed during previous monitoring and sampling efforts cannot be dismissed.

The invasive *Phragmites* identified along Highway 1 are near the boundary of Treaty #3 territory. As invasive *Phragmites* in Manitoba are well documented, the identified stands indicate active spread that has reached Treaty #3. The sampling results of native *Phragmites* further into the territory along the highway are further evidence of the direction of spread, into Treaty #3 from the West.

Along Highway 17 and in eastern Treaty #3, multiple stands of invasive *Phragmites* were identified in 2023 and 2024. At a site in Dinorwic, in 2023, the TPU's sample results identified native *Phragmites*. The TPU resampled the same site in 2024; results found both native and invasive *Phragmites*. While the possibility remains that the invasive *Phragmites* identified in 2024 were simply missed during previous monitoring and sampling efforts, the risk of spread is high and the area requires more intensive sampling next season.

NEXT STEPS & FUTURE MONITORING EFFORTS

Since beginning *Phragmites*-related projects in 2022, the TPU noted a variance in the physical appearance of native *Phragmites* in Treaty #3 compared to southern Ontario. In southern Ontario, where most literature and information originates, the native and invasive *Phragmites* have distinct, separate appearances and are easily differentiated. In Treaty #3, the TPU noted that invasive *Phragmites* are much shorter and the native *Phragmites* near farmlands have large, dense and dark-coloured seedheads; the *Phragmites* are more difficult to differentiate without DNA analysis. This past season, the TPU recorded characteristics and photographs at all accessible stands. All pictures will be analyzed to document the physical variances between native and invasive *Phragmites* growing in Treaty #3 to improve in-field identification.

Further efforts are required concerning invasive species in Treaty #3. The TPU continues to expand and increase monitoring in gap areas across the territory for invasive *Phragmites*. While the TPU's 2024 sampling results found fewer invasive stands than the 2023 results, new stands

were identified indicating there are most likely more currently undiscovered. The TPU will continue to map and sample for invasive *Phragmites*, prioritizing Treaty #3 communities, and high-risk potential introduction and spread locations (e.g., near known invasive stands).

In collaboration with the Invasive Species Centre, the TPU is leading the formation of a Treaty #3 *Phragmites* Management Area Working Group. Together, members representing governments and organizations coordinate efforts to monitor and control invasive *Phragmites*. The Working Group ensures efforts are occurring in the proper/priority areas and reduces duplication of efforts.

In this upcoming 2025 field season, the TPU will continue to monitor and sample *Phragmites* in Treaty #3. The TPU will prioritize TransCanada Highways 1 (Manitoba) and 17 (Ontario). The TPU has begun exploring control options for the known stands of invasive *Phragmites*; however, no decisions have been made.

To increase the prevention and reduce the spread of aquatic invasive species within Treaty #3, the TPU will install and maintain three decontamination units (i.e. vehicle and boat wash stations) between the hub cities over the next few years. This upcoming summer, 2025, the TPU will deploy the first unit in the Kenora area. TPU staff and trained volunteers will operate the unit, and its use will be free of charge.

The TPU is progressing in the creation an information booklet of the invasive species present within the Treaty #3 territory! The booklet will be available in both Anishinaabemowin and English languages, and is on-track for release in summer 2025. Increased education on the pathways and the impacts of invasive species is required to prevent and slow their spread. As opportunities arise, the TPU will continue taking on new projects, partnerships, and monitoring methods as directed by the Nation.

REFERENCES

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Appendix A

DNA IDENTIFICATION RESULTS OF SAMPLED NATIVE AND INVASIVE *PHRAGMITES*

The results of DNA identification of sampled native *Phragmites* (*Phragmites australis subsp. americanus*) and invasive [introduced] *Phragmites* (*Phragmities australis subsp. australis*). For any further inquiries about the results or to inquire about the full list of sites, please send an email to Michaela.Novak@treaty3.ca.

SAMPLE ID	LATITUDE	LONGITUDE	RESULTS
PHRAG509	49.7498734	-94.4047445	Native
PHRAG512	49.179283	-93.928017	Native
PHRAG513	49.2633	-94.027617	Native
PHRAG516	49.99465	-95.521367	Native
PHRAG517	49.837883	-95.372983	Native
PHRAG520	49.639133	-95.50415	Native
PHRAG535	49.639133	-95.50415	Native
PHRAG537	49.6488	-95.734367	Introduced
PHRAG538	49.829617	-93.958667	Native
PHRAG539	49.83665	-93.9352	Native
PHRAG540	49.833167	-93.6527	Native
PHRAG541	49.635617	-95.67575	Native
PHRAG542	49.635167	-95.496467	Native
PHRAG543	49.6434	-95.467383	Native
PHRAG544	49.73975	-95.138033	Native
PHRAG545	49.73975	-95.138033	Native
PHRAG546	50.056433	-94.8144	Native
PHRAG547	50.0592	-94.81375	Native
PHRAG548	50.0009	-94.746017	Native
PHRAG549	50.003083	-94.746167	Native
PHRAG550	49.95575	-94.724733	Native
PHRAG551	50.017467	-94.753583	Native
PHRAG552	49.982917	-94.722633	Native
PHRAG553	49.973367	-93.356383	Native
PHRAG554	49.9865	-93.347633	Native
PHRAG555	49.9865	-93.347633	Introduced
PHRAG556	50.024867	-93.315017	Native
PHRAG557	50.1912	-93.206283	Native
PHRAG558	50.5244	-93.1558	Native
PHRAG559	50.8611	-93.476917	Native
PHRAG560	50.61345	-93.1907	Native
PHRAG561	50.529117	-93.1574	Native
PHRAG562	50.131067	-93.262033	Native
PHRAG563	49.99275	-93.344533	Introduced
PHRAG564	48.8633	-93.916017	Native
PHRAG565	48.71385	-91.52905	Native
PHRAG566	48.687417	-93.00835	Native

SAMPLE ID	LATITUDE	LONGITUDE	RESULTS
PHRAG567	48.672	-94.103083	Native
PHRAG568	48.672	-94.103083	Native
PHRAG569	48.672	-94.103083	Native
PHRAG570	48.672	-94.103083	Native
PHRAG571	48.618383	-93.5277	Native
PHRAG572	48.604783	-93.460933	Native
PHRAG573	48.651717	-93.3208	Native
PHRAG574	48.722133	-94.437417	Native
PHRAG575	48.677317	-94.1295	Native
PHRAG576	48.677067	-94.128283	Native
PHRAG577	48.7221	-94.44065	Native
PHRAG578	48.634033	-93.82025	Native
PHRAG579	48.634033	-93.82025	Native
PHRAG580	48.7108	-93.388983	Native
PHRAG581	48.634233	-93.673367	Native
PHRAG582	48.6047	-93.471483	Introduced
PHRAG583	48.604667	-93.477233	Native
PHRAG584	48.619514	-93.537232	Introduced
PHRAG585	49.771617	-92.8786	Introduced
PHRAG586	48.74677	-94.42934	Native
PHRAG587	49.992867	-94.741417	Native
PHRAG588	50.080183	-94.8309	Native
PHRAG589	50.108517	-94.872567	Native
PHRAG590	49.930783	-94.771817	Native
PHRAG591	49.903683	-94.779767	Native
PHRAG592	48.61935	-93.602783	Native
PHRAG593	48.61935	-93.602783	Native
PHRAG594	48.61935	-93.602783	Native
PHRAG595	48.694033	-93.91655	Native
PHRAG596	48.695183	-93.916533	Native
PHRAG597	49.679117	-95.368117	Native
PHRAG598	49.640783	-95.455733	Native
PHRAG599	49.62185	-95.676933	Introduced
PHRAG600	49.69000	-92.51091	Native
PHRAG601	49.693308	-92.49982	Introduced
PHRAG602	49.58515	-92.26494	Introduced
PHRAG603	49.58511	-92.26494	Introduced
PHRAG605	49.61630	-92.44452	Introduced
PHRAG608	49.45599	-91.84425	Unconfirmed
PHRAG610	49.45772	-91.86373	Unconfirmed
PHRAG613	49.264669	-91.241724	Unconfirmed
PHRAG614	49.48576	-91.98666	Unconfirmed
PHRAG617	49.458397	-91.857059	Unconfirmed
PHRAG618	49.588481	-92.272456	Unconfirmed
PHRAG633	49.59229	-92.394144	Unconfirmed