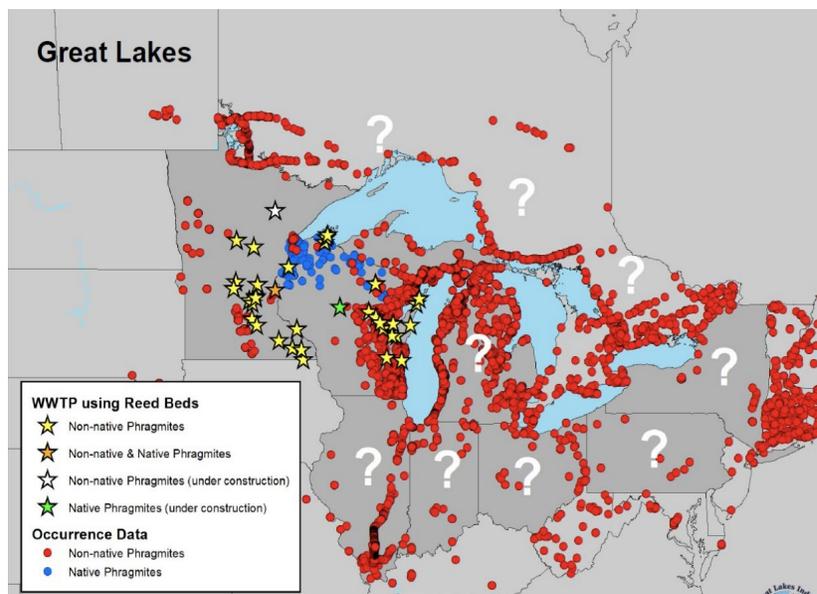


## Addressing Phragmites Management in Ontario through Outcomes-Based Financing: Project Update

August 2021

### Background

In Phase I of our work with the Invasive Species Centre and the Great Lakes St. Lawrence Governors & Premiers, we evaluated several invasive species to target through an outcomes-based financing approach, including aquatic weeds, Phragmites, and Asian carp. Based on growing existing efforts to manage Phragmites, new analyses on the cost-benefit of Phragmites eradication and prevention, and engagement on the Phragmites issue from key municipal and provincial government stakeholders, we selected this species to focus on in building an innovative and outcomes-based financing strategy. Invasive Phragmites populations have been established across states and provinces throughout the Great Lakes St. Lawrence region (see Figure 1), wreaking damage on ecosystems, infrastructure, and properties. Due to the pervasive spread of this species, regions without established populations (such as Northern Ontario) remain at risk into the future.



**Figure 1. Map of known invasive Phragmites populations (red).**

Source: Great Lakes Indian Fish & Wildlife Commission, Falck 2015

Local initiatives to eradicate invasive Phragmites are growing, and have yielded critical insights on the effectiveness and cost-benefit of various control approaches. However, given the propensity of Phragmites to spread, and that Phragmites cuts across different types of land owned and managed by different public and private entities, a regional-scale approach is needed to

meaningfully manage existing populations and prevent future ones. Such an approach would also ultimately lead to greater long-term cost-efficiency by mitigating the risk of re-establishment, spread, and re-treatment for Phragmites. To finance such a regional-scale program, we are working in Phase II to develop a creative, collaborative, and outcomes-based financing strategy.

## Financing approach

As highlighted above, controlling and eradicating Phragmites will require a multi-year, landscape- and regional-level integrated management approach. This approach will require, however, a robust source of multi-year funding that can accommodate a large-scale management program. While high-level cost estimates of Phragmites management can range from around \$800 – \$11,000 per hectare per year, depending on the type of intervention and land type, these costs are greatly outweighed by the expected value of environmental and economic benefits (Figure 2).

Category	Description of Impact	Estimated Value of Impact	Category	Description of Impact	Estimated Value of Impact
<b>Agriculture</b>	Reduced yields from delayed planting due to clogging of drains	\$10.2 million/year	<b>Wetlands</b>	Reduced ecosystem services such as flood control, water supply, and nutrient cycling	\$12.5 million/year
<b>Tourism and Recreation</b>	Reduced capacity for use of water bodies for recreational activities such as swimming, boating, and fishing; reduced habitat affects birdwatching and hunting	\$42.7 million/year	<b>Stormwater Management Ponds</b>	Reduced flood storage capacity	\$2.0 million/year
<b>Property Values</b>	Reduced aesthetic appeal for waterfront properties	\$357 million	<b>Road Safety</b>	Increased risk of traffic collisions due to reduced visibility at rural intersections	\$39.3 million/year
<b>Property Taxes</b>	Lower property values will result in reduced property tax revenue	\$4.3 million/year	<b>Fire Hazards and Power Outages</b>	Increased risk of fire due to dry biomass in transmission corridors, which can cause power outages	\$2.4 million/year

**Figure 2. High-level estimates of the value of various benefits of Phragmites management.**

*Source: Green Shovels Collaborative, 2021*

These benefits accrue to a range of public entities across different levels of government, as well as private sector stakeholders. Our hypothesis is that by articulating the value and outcomes of a large-scale treatment program, we can successfully engage with multiple of these beneficiaries to create a collaborative financing approach. Such an approach would involve upfront capital provided by investors, perhaps through a bond issuance by one or several government agencies, for a large-scale management program or, to enable greater flexibility and long-term capital, a revolving fund that would allow for Phragmites treatments into perpetuity. This initial investment could then be repaid by a multi-party entity representing several beneficiaries, and supplemented through available grants and/or appropriations, as well as other possible revenue streams we are exploring for this work (for example, the sale of credits for fish or Species at Risk (SAR) habitat mitigation). This approach would ensure that the financial burden is shared by multiple beneficiaries of the project, rather than relying on any one entity alone, and enable a better coordinated and regional scale management program. Quantified Ventures will build on its expertise and lessons learned from structuring other, similar collaborative conservation finance vehicles, for example for [wildfire risk mitigation](#) and [outdoor recreation infrastructure](#).

## **Current Status, Next Steps, and Replicability**

Through our work in Phase II so far and in partnership with the Invasive Species Centre and the Great Lakes St. Lawrence Governors & Premiers, we have highlighted Phragmites eradication in Southwest Ontario and prevention of spread in Northern Ontario as the two priority regions for a near-term management program, and are currently in the process of refining what the scale (in hectares) and financing need (in \$) would look like for such a program. At the same time, we are beginning our outreach to provincial ministries and other agencies in Ontario to explore how they see the value of such a regional program, their appetite to participate in this collaborative approach, and key priorities and constraints that would inform the design of the management program and financing vehicle, before seeking similar conversations with municipal government and private sector beneficiaries. Through the input we receive in this engagement, we will finalize what the near-term regional management program and financing vehicle could look like, and refine our cost-benefit, economic, and financial models.

Given the extent of the Phragmites issue across the Great Lakes St. Lawrence region, there is a strong case for replicability of this management and financing approach to other geographies. Through this phase, we will have gained a better understanding of best practices and how innovative public and conservation finance works in Canada, enabling us to effectively work in other provinces. Québec has already been identified as a target for future phases of work. With this new experience in Canada, and leveraging Quantified Ventures' existing expertise of innovative public and conservation finance within the United States, we can also look to replication within U.S. states and municipalities.