Promoting Awareness and Habitat Recovery through the Eradication of Water Soldier in the Trent-Severn Waterway

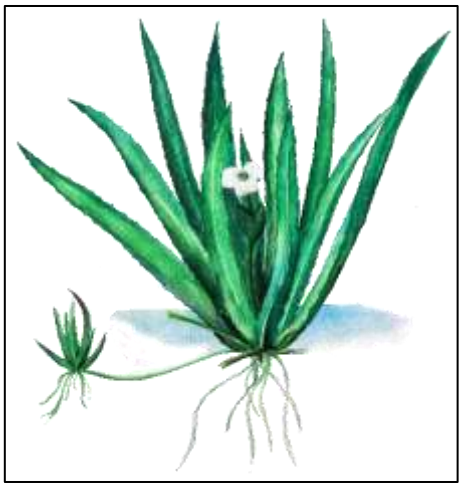
Final Report

Ontario Federation of Anglers and Hunters
02/23/2021

Project Background

Invasive species are a growing environmental and economic threat to Ontario. Invasive species are plants, animals, and micro-organisms introduced by human action outside their natural past or present distribution whose introduction or spread threatens the environment, the economy, or society, including human health (Government of Canada, 2004). Once established, invasive species are extremely difficult and costly to control and eradicate, and their ecological effects are often irreversible. For example, invasive species management and control in Canada has an approximate annual cost to be as much as $20 billion to the forest sector, $7 billion for aquatic invasive species in the Great Lakes and $2.2 billion in the agricultural sector (Environment Canada, 2010).

Water soldier (*Stratiotes aloides*) is an invasive perennial aquatic plant that is native to Europe and northwest Asia. In 2008, the first known wild population of water soldier in North America was found in the Trent-Severn Waterway (TSW) near the Hamlet of Trent River, ON. Water soldier forms dense mats of floating and submerged vegetation, and aggressively outcompetes native vegetation, threatens the diversity of aquatic ecosystems, and can significantly impede recreational activities. Since the discovery of water soldier in the TSW an inter-agency working group, known as the Water Soldier Working Group (WSWG), has been working to effectively approach the eradication of water soldier from a research driven, adaptive management viewpoint. Although this infestation of water soldier is completely contained within the TSW, it has spread approximately 50 kilometres downstream to immediately below Glen Ross lock station and has impacted approximately 350 hectares of habitat.



In 2017, to address the serious threat of this species, the inter-agency working group proposed a multi-year control plan to eradicate water soldier from Ontario within five years. The potential to increase this goal is greatly increased due to the observed efficacy of the diquat treatments in the TSW, as well as the scientific research that has shown the limited ability of turions to survive more than one season, and the plants are not seeding.

2020 was a critical year to continue entire population monitoring and control efforts, as subsequent years (2018 & 2019) had shown a significant reduction of water soldier after multiple years of wide-scale herbicide application. Some areas have seen a reduction of up to 70%, suggesting that the success of water soldier eradication depends on consistent monitoring and treatment of the entire infestation. With funding provided by the Ontario Wildlife Foundation (OWF), the Invading Species Awareness Program (ISAP) was able to continue to respond to water soldier in the TSW, with a focus on community engagement, monitoring and surveillance, and building capacity to work towards the goal of eradicating water soldier from Ontario.

Project Achievements

This project progressed as planned, with one deviation from the proposed budget. Due to COVID-19, a field truck rental was not required; therefore, OWF approved the reallocation of this funding to the purchasing of equipment to build the ISAP's capacity for continued response to water soldier in the Trent-Severn Waterway. Achievements are summarized below.

1. Outreach and Awareness

- ISAP Website and E-Newsletter

  The ISAP website continues to be an excellent source of information about invasive species, including information about water soldier in Ontario. Since April, the ISAP website has had 2,908 unique page views seeking information on water soldier. Program staff also distributed a monthly e-newsletter. Information on water soldier was included in two newsletters sent to 635 subscribers.

- Social Media

  Staff utilized social media to promote the website, and coordinated 14 posts (Facebook, Twitter, Instagram) on water soldier. These social media posts resulted in 36,401 impressions, and 1,317 engagements. Overall, between April and February, the program gained many new followers on Facebook, Twitter, and Instagram. Through these social media platforms, the ISAP achieved over 1.6 million digital impressions with our posts and got the conversation going with over 104,000 engagements. The ISAP YouTube channel had 6.9 thousand views, resulting in 224 total hours watched. In addition to the education and outreach delivered by the ISAP, program staff also produced an article on water soldier for Ontario OUT of DOORS magazine (April issue).

- Information Sessions

  The ISAP's Management Technician participated in a public webinar focused on water soldier hosted by the Invasive Species Centre. This webinar focused on the water soldier response in the TSW, as well as the ISAP's role in responding to populations reported in private waters. The ISAP will be hosting a webinar in March 2021 that will include a case study on water soldier in Ontario.

2. Monitoring and Eradication

The water soldier monitoring season on the Trent-Severn Waterway started with OFAH/ISAP staff hosting a training day with Parks Canada in early June. The day's activities included, safety protocols, including the newly introduced COVID-19 Protocol, boat safety, man overboard training and the revamped COVID-19 Water Soldier Monitoring Protocol. Due to the COVID-19 outbreak, there were limitations and protocols put into place to protect everybody's health and prevent the spread of COVID-19. The new protocol required OFAH to cut the number of staff in the car and boat to two.

From July – August, monitoring of Lake Seymour, Crowe Bay, Percy Reach, and Glen Ross was conducted. A 50m x 50m grid was overlaid and at each point intercept, the presence/absence and abundance of water soldier was recorded. The results from the monitoring have revealed the 2019 herbicide treatment was a success.

The results from monitoring efforts revealed:

- Lake Seymour: 41% reduction of water soldier (23.33ha in 2019 to 13.68ha in 2020)
- Crowe Bay: 68% reduction of water soldier (1.12ha in 2019 to 0.35ha in 2020)
- Percy Reach: 25% reduction of water soldier (60.06ha in 2019 to 44.85ha in 2020)
- Glen Ross: 58% reduction of water soldier (5.97ha in 2019 to 2.47ha in 2020)

3. Building Capacity

The success of water soldier eradication depends on consistent monitoring and treatment of the entire infestation. The ISAP remains committed to responding to this invader, and with funds provided by the OWF, the program was able to purchase new equipment to update and/or increase our capacity for monitoring, detection, and management. OWF approved the reallocation of funds to update equipment, including a tablet, depth finder (and battery), GPS booster, lifejackets, and monitoring rakes. This equipment will help existing crews with the monitoring and surveillance of the TSW, as well as provide the opportunity to add additional field crews when possible.

Conclusion

The achievements of this project would not have been possible without the funding provided by the Ontario Wildlife Foundation. The success of water soldier eradication depends on consistent monitoring and treatment of the entire infestation. With funding provided by the OWF, the ISAP was able to continue to respond to water soldier in the TSW, with a focus on community engagement, monitoring and surveillance, as well as build internal capacity to continue to work towards the goal of eradicating water soldier from Ontario.