St. Lawrence Eastern Lake Ontario Partnership for Regional Invasive Species Management

Salmon River Initiative – Year 1 – Progress Report
Managing Japanese Knotweed (*Polygonum cuspidatum)*
In the Salmon River and Salmon River Estuary

SLELO-PRISM Information Management

Figure 1. Salmon River near the Village of Pulaski

Report prepared by Rob Williams and Mike Parks, 10/7/13

Introduction and Background

In 2012, the St. Lawrence Eastern Lake Ontario Partnership for Regional Invasive Species Management (SLELO PRISM) conducted an assessment to determine the feasibility of suppressing Japanese Knotweed (*Polygonum cuspidatum*) along the corridor of the Salmon River. This report reflects the accomplishments made during the first year of a three year strategy recommended in the 2012 feasibility assessment.

The Salmon River, located along the eastern shore of Lake Ontario, is a valuable cultural and natural resource worthy of protection from the habitat-altering impacts of invasive species. As a cultural resource, the Salmon River is a multi-million dollar fishery hosting in excess of 100,000 angler visitors annually. As a natural resource, this 17-mile river system is rich in habitat and diversity and provides both in the upstream reaches and within the estuary, spawning and nursery grounds for pacific salmon (Chinook, Coho and Steelhead) and the native Atlantic salmon. The estuary provides shorebird nesting sites for species such as the Black Tern and the Least Bittern.

The increasing dominance of Japanese knotweed, an aggressive invasive plant present within the Salmon River corridor, has the potential to negatively impact the economic and ecological values of the Salmon River and Salmon River Estuary. Dense stands along the

upstream portion of the Salmon River interfere with angler access, making some areas of the river less attractive to anglers. Large-scale alteration of the plant structure within the estuary could have direct impacts on shorebirds and other organisms that rely on the unique composition of emergent and riparian plant communities for shelter, nesting materials and food.

Due to the widespread nature of existing Japanese knotweed populations on the river, eradication of knotweed is not a realistic goal. However, control and management options do exist to aid in suppression of Japanese knotweed, even on a river-wide scale. Our recommendation involves suppression of Japanese knotweed over the course of a minimum of three years using a combination of stem injection (Figure 2) and foliar application of herbicides as the primary suppression strategy.

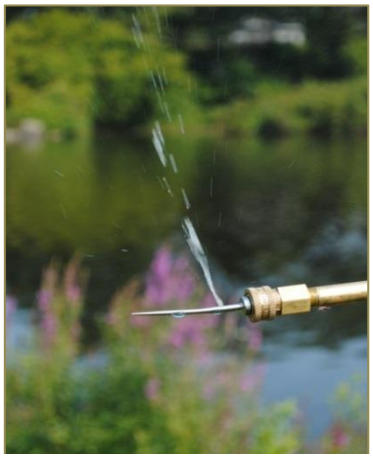

Figure 2: Showing delivery needle of stem injector - content water.

Objectives

Referencing the Managing Japanese Knotweed (*Polygonum cuspidatum*) in the Salmon River and Salmon River Estuary[1] document, the objectives of this initiative include; **1) Suppression of Japanese Knotweed** over the course of a minimum of three years using stem injection (Figure 3) and foliar application of herbicides. 2) **Native plant restoration**, which includes promoting natural regrowth and intentional plantings and 3**) Education and outreach** to occur as an on-going and important project component.

Figure 3: Showing delivery needle of stem injector inserted into knotweed cane.

Methods

To effectively incorporate both stem injection and foliar application, it was decided that knotweed populations less than 100 square feet in size and in close proximity to the water would be treated using the stem injection systems (Figure 3).

[1] Chapman, Gregory S. and Williams, Robert K. Managing Japanese Knotweed (*Polygonum cuspidatum*) in the Salmon River and Salmon River Estuary. St. Lawrence – Eastern Lake Ontario Partnership for Invasive Species Management. November 2012.

Larger populations would receive foliar applications. Additionally, it was decided to begin treatment immediately adjacent to the river bank **with subsequent treatments moving further inland**. Garmin hand held GPS systems were utilized along with reference maps prepared by the PRISM Coordinator to determine parcel boundaries and start, stop points.

Year 1 – Suppression Results

After receiving an Article 24 Permit from partners at the New York State Department of Environmental Conservation, Region 7, on August 9th treatment of knotweed began within four days on August 13th. Seasonal employee Mike Parks was assisted by Marcus Roggie from Miller's Turf whom was subcontracted by The Nature Conservancy. Permission to access private property was previously obtained.

Work began simultaneously along the south side of the Douglaston Salmon Run property and just east of the NYS Route 3 Bridge in Port Ontario. The Route 3 site was designated as a monitoring site with both stem injection and foliar application being used on the same knotweed stand divided into two sections.

Subsequent treatment continuing through September was completed along the north side of the Douglaston property and the upstream site near the hamlet of Altmar on the property owned by National Grid (Figures 4 and 5).

Figure 4: Shows the general areas treated in 2013 outlined in yellow. Pink line was targeted but permission from landowner (Village of Pulaski) was not received in time for treatment.

Figure 5: Shows a priority site further upstream near Altmar that was treated in 2013.

To estimate the treatment area, linear distances were recorded using Garmin GPS coordinates. These linear distances were then multiplied against an average depth of ten feet to calculate area. Approximately 239, 450.00 square feet of knotweed was treated equaling 5.49 acres. This represents 86% of the 6.37 acre knotweed estimate reported in the Feasibility Study [1].

In 2013 - 239, 450.00 square feet of knotweed was treated equaling 5.49 acres or 86% of the knotweed estimate reported in the 2012 Feasibility Study.

Effectiveness of treatment

Although a more valuable assessment of treatment effectiveness won't occur until next year (year-2 follow-up monitoring) initial results indicate that stem injection with a higher concentration of herbicide results in a higher efficacy verses a 1.5% solution foliar application.

Observations

One observation made during the treatment is a comparison of sites that were both treated with a foliar application with one site situated almost entirely within the shade and another situated almost entirely in direct sunlight. Figure 6 shows the sunny site three weeks post treatment. Figure 7, shows the adjacent shady site three weeks post treatment.

Figure 6: Three weeks post treatment of foliar application on a sunny site.

Figure 7: Three weeks post treatment of foliar application on a shady site.

Year 1 – Native Plant Restoration

Restoring treated sites to more native flora can occur in two ways. First is to allow native plants to naturally reestablish themselves in the areas treated for knotweed. The second is through intentional planting. In some cases it may be desirable to encourage native plant growth while at the same time stabilizing these riparian areas against potential erosion. In the event that intentional planting becomes desirable and to better prepare, a Native Plant Assessment[2] was completed in 2013. The purpose of this native plant assessment was to establish a list of desired species to be used to naturally or intentionally reclaim the areas treated for knotweed.

In 2013 no restoration was completed. It is likely that restoration efforts will commence in 2014 after first year monitoring occurs. **A likely candidate for stabilization and restoration of knotweed sites includes a mix of annual ryegrass and native Bluejoint Grass (*Calamagrostis Canadensis*)[3].**

Year 1 – Education & Outreach

In 2013, several educational and outreach component were undertaken. The intent of this project element is to educate anglers and visitors to the river about the identification and impacts of Japanese Knotweed along with measures that can be taken to reduce the spread if knotweed plants. Education and outreach also focused on providing anglers and visitors with an understanding of the treatment measures being taken by the SLELO PRISM. To achieve this, the following educational and outreach measures were initiated;

- The SLELO herbicide applicator acted as an on-site project steward by interacting with the public while treating knotweed.
- Laminated informational flyers were created and posted at all DEC kiosks along the river (with permission from NYS DEC).
- The Douglaston Salmon Run (DSR) corporation partnered with SLELO and The Nature Conservancy and created a post for the front page of the DSR website: http://www.douglastonsalmonrun.com/
- Press releases were sent to local newspapers.
- An informational piece was posted to the front page of the SLELO PRISM website: http://www.sleloinvasives.org/

[2] McHale and West. Salmon River Initiative – Native Plant Assessment. St. Lawrence Eastern Lake Ontario Partnership for Regional Invasive Species Management. July 2013.
[3] Taken from: http://www.bluestem.ca/calamagrostis-canadensis.htm