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

# Salmon River Initiative - Native Plant Assessment

SLELO-PRISM Information Management

July 30-31, 2013

**Figure 1:** Panoramic view of Salmon River

*Report prepared by Logan West and Mike McHale, 8/20/2013*

## Introduction and Background

The Salmon River and the Salmon River Estuary, located in Oswego County, New York (Figures 2 & 3), represent one of the priority conservation areas identified by the St. Lawrence Eastern Lake Ontario Partnership for Regional Invasive Species Management (SLELO PRISM). Thousands of anglers from around the world travel to the Salmon River for sport fishing, which in-turn boosts the local economy significantly. Many local businesses, including hotels, restaurants, tackle shops and others, depend on this seasonal revenue.

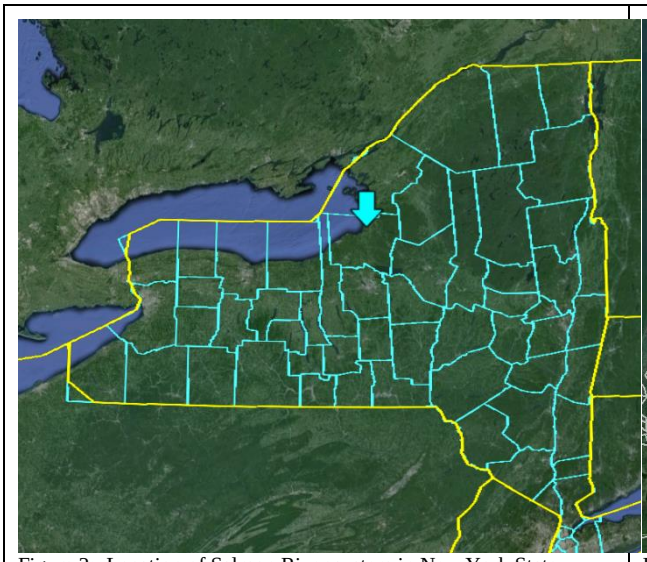

Figure 2: Location of Salmon River system in New York State

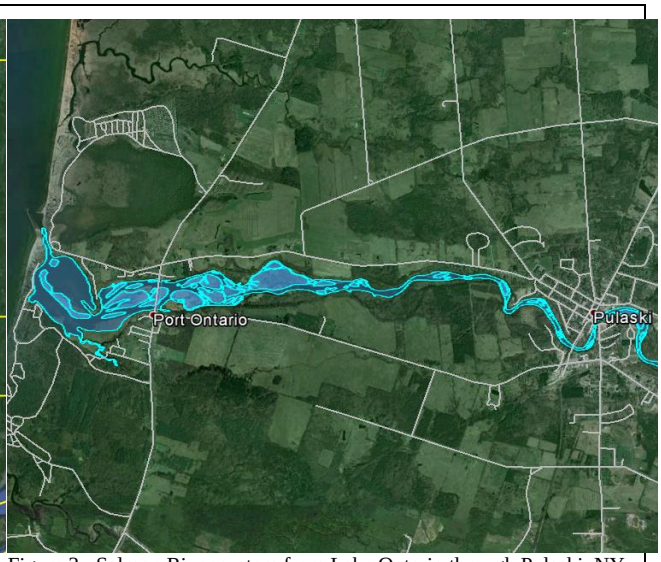


Figure 3: Salmon River system from Lake Ontario through Pulaski, NY

SLELO-PRISM
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Rob Williams, Coordinator

The 17-mile Salmon River system is rich in habitat and diversity, providing spawning and nursery grounds for Pacific Salmon, including Chinook, Coho and Steelhead, as well as native Atlantic Salmon. The estuary provides shorebird nesting sites for species such as the Black Tern and the Least Bittern, among others.

The increasing dominance of an aggressive invasive terrestrial plant species known as Japanese Knotweed (*Polygonum cuspidatum*) is threatening the integrity of the river system. Widespread populations of Japanese knotweed along the banks of the river negatively impact both the economic and ecological values of this important natural resource. This plant is native to Asia and has the potential to out-compete native species and create monocultures, impeding native biodiversity. Since Japanese knotweed has formed large, dense stands along the banks of the Salmon River, it makes it difficult for anglers to maneuver around these stands to access prime fishing spots. Angling enthusiast often cut down or trample knotweed stands creating fragmentation of the plants which enhances the spread of the plant to downstream areas.

In 2012 the SLELO PRISM prepared a Feasibility Study to determine if Japanese Knotweed suppression along the Salmon River would be feasible and further recommended that knotweed suppression be implemented. In 2013, an Article 24 Permit was issued for herbicide treatment of Japanese knotweed along the Salmon River. Both stem injection and foliar application strategies will be used.

> The purpose of this native plant assessment is to establish a list of desired species to be used to naturally or intentionally reclaim the areas treated for knotweed.

Since many non-native species tend to establish themselves in disturbed areas and since knotweed dieback has the potential to create such areas, partners of the SLELO PRISM realized the need to determine a list of desirable native species that will hopefully reestablish themselves in the treated areas. Both natural reestablishment and intentional planting of native seed will be considered at these sites.

## Objectives

Referencing the Managing Japanese Knotweed (*Polygonum cuspidatum*) in the Salmon River and Salmon River Estuary[1] document, Objective No. 2 is to: "Restore treated areas by allowing for native regrowth and by intentionally planting native species of riparian plants". Native plant restoration goals are to "restore treated (upstream) sites by planting and promoting riparian native plants. This effort will help stimulate regrowth of native plants along the river corridor. Purchasing certified native plants and planting via citizen science/community

[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.

volunteers would provide not only for native plant restoration but also provide for community awareness and appreciation for this resource".

In order to carry out this objective, a thorough assessment of the native plant community must be identified, researched and documented. This allows management to select the best native plant species to be intentionally planted in the areas that were once dominated by Japanese knotweed (post-treatment).

## Methods

SLELO PRISM field crew members spent multiple days in the field creating a plant inventory list (Figure 1). One day was dedicated to driving along the river, accessing it at several locations to identify and document species. One day was spent on the water in a canoe, accessing areas where Japanese knotweed was present and recording the species occurring in the vicinity. Additionally, a literature review was undertaken to unveil reports that describe the natural plant communities that occur along the Salmon River, primarily the New York Natural Heritage Program

**Figure 1**: Mike McHale conducting native plant identification along the Salmon River.

## Natural Heritage Communities and Species Occurring There:[2] [3]

Palustrine System: Open mineral soil wetlands

Table 1: Deep Emergent Marsh - Salmon River Pulaski (Howard 76) (Reschke 41)

| Common name | Latin name | Notes |
|---|---|---|
| Cattails | *Typha angustifolia*<br>*T. latifolia* | |
| Bur-Weeds | *Sparganium eurycarpum*<br>*S. androcladum* | |
| Pickerel Weed | *Pontederia cordata* | |
| Bulrushes | *Scirpus tabernaemontani*<br>*S. fluviatilis*<br>*S. heterochaetus* | |

[2] Howard, Timothy G. Salmon River Watershed Inventory and Landscape Analysis. New York Natural Heritage Program. June 2006.
[3] Reschke, Caroline. Ecological Communities of New York State. Second Edition. New York Natural Heritage Program. January 2002.

| | | |
|---|---|---|
| | *S. acutus*<br>*S. pungens*<br>*S. americanus* | |
| Arrowhead | *Sagittaria latifolia* | |
| Arrowleaf | *Peltandra virginica* | |
| Rice Cutgrass | *Leersia oryzoides* | |
| Bayonet Rush | *Juncus militaris* | |
| Water Horsetail | *Equisetum fluviatile* | |
| Bluejoint Grass | *Calamagrostis canadensis* | |

Table 2: Shallow Emergent Marsh - Salmon River Pulaski (Howard 109) (Reschke 42)

| Common name | Latin name | Notes |
|---|---|---|
| Bluejoint Grass | *Calamagrostis canadensis* | |
| Cattails | *Typha angustifolia*<br>*T. latifolia*<br>*T. x glauca* | |
| Sedges | *Carex spp.* | |
| Marsh Fern | *Thelypteris palustris* | |
| Manna Grasses | *Glyceria pallida*<br>*G. canadensis* | |
| Spikerushes | *Eleocharis smalliana*<br>*E. obtusa* | |
| Bulrushes | *Scirpus cyperinus*<br>*S. tabernaemontani*<br>*S. atrovirens* | |
| Three-Way Sedge | *Dulichium arundinaceum* | |
| Sweetflag | *Acorus americanus* | |
| Tall Meadow-rue | *Thalictrum pubescens* | |
| Marsh St. John's-Wort | *Triadenum virginicum* | |
| Arrowhead | *Sagittaria latifolia* | |
| Goldenrods | *Solidago rugosa* | |

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|---|---|---|
| | *S. gigantea* | |
| Eupatoriums | *Eupatorium maculatum*<br>*E. perfoliatum* | |
| Mmartweeds | *Polygonum coccineum*<br>*P. amphibium*<br>*P. hydropiperoides* | |
| Marsh bedstraw | *Galium palustre* | |
| Jewelweed (spotted touch-me-not) | *Impatiens capensis* | |
| native Loosestrifes | *Lysimachia thyrsiflora*<br>*L. terrestris*<br>*L. ciliata* | |

Palustrine System: Forested mineral soil wetlands

Table 3: Flood Plain Forest - East Fork Salmon River and Salmon River Gorge (Howard 82-83) (Reschke 56)

| Common name | Latin name | Notes |
|---|---|---|
| Spicebush | *Lindera benzoin* | |
| Ironwood | *Carpinus carolinianus* | |
| Bladdernut | *Staphylea trifoliata* | |
| Speckled Alder | *Alnus incana ssp. rugosa* | |
| Dogwoods | *Cornus sericea*<br>*C. foemina spp. racemosa*<br>*C. amomum* | |
| Viburnums | *Viburnum cassinoides*<br>*V. prunifolium*<br>*V. dentatum*<br>*V. lentago* | |
| Meadowsweet | *Spiraea alba* var *latifolia* | |
| Winterberry | Ilex verticillata | |
| Sensitive Fern | *Onoclea sensibilis* | |
| Jewelweeds | *Impatiens capensis*<br>*I. pallida* | |

| | | |
|---|---|---|
| Ostrich Fern | *Matteuccia struthiopteris* | |
| White Snakeroot | *Eupatorium rugosum* | |
| Wood Nettle | *Laportea canadensis* | |
| False Nettle | *Boehmeria cylindrica* | |
| Goldenrods | *Solidago gigantea*<br>*S. canadensis* | |
| Lizard's Tail | *Saururus cernuus* | |
| Jumpseed | *Polygonum virginianum* | |
| Skunk Cabbage | *Symplocarpus foetidus* | |
| Enchanter's Nightshade | *Circaea lutetiana spp. canadensis* | |
| Blue-Jointgrass | *Calamagrostis canadensis* | Often used to restore riparian areas |
| White Avens | *Geum canadense* | |
| Clearweed | *Pilea pumila* | |
| Jack-In-The-Pulpit | *Arisaema triphyllum* | |
| Rice Cutgrass | *Leersia oryzoides* | |
| Sedges | *Carex lacustris*<br>*C. intumescens*<br>*C. lupulina* | |

Terrestrial System: Open Uplands

Table 4: Calcareous Shoreline Outcrop - Salmon River Gorge and Salmon River Falls (Howard 72) (Reschke 74)

| Common name | Latin name | Notes |
|---|---|---|
| Wild Columbine | *Aquilegia canadensis* | |
| Sedges | *Carex eburnea*<br>*C. granularis* | |
| Silky Dogwood | *Cornus amomum* | |
| Red Osier Dogwood | *Cornus sericea* | |
| Meadow Rue | *Thalictrum spp.* | |

*bird's eye primrose, *Primula mistassinica*, is also found at Salmon River Falls

Table 5: Calcareous Cliff Community - Salmon River Gorge (Howard 71) (Reschke 79)

| Common name | Latin name | Notes |
|---|---|---|
| Eastern Red Cedar | *Juniperus virginiana* | |
| Hop Hornbeam | *Ostrya virginiana* | |
| Round-Leaf Dogwood | *Cornus rugosa* | |
| Canada Yew | *Taxus canadensis* | |
| Black Cherry | *Prunus serotina* | |
| Downy Arrow-Wood | *Viburnum rafinesquianum* | |
| Northern White Cedar | *Thuja occidentalis* | |
| Bulblet Fern | *Cystopteris bulbifera* | |
| Sedge | *Carex eburnea* | |
| Herb-Robert | *Geranium robertianum* | |
| Zig-Zag Goldenrod | *Solidago flexicaulis* | |
| Blue Bellflower (harebell) | *Campanula rotundifolia* | |
| Purple Cliff Brake | *Pellaea atropurpurea* | |
| Early Saxifrage | *Saxifraga virginiensis* | |
| Red Columbine | *Aquilegia canadensis* | |

Table 6: Shale Talus Slope Woodland - Salmon River and Salmon River Gorge (Howard 108) (Reschke 79)

| Common name | Latin name | Notes |
|---|---|---|
| Blunt-Lobed Woodsia | *Woodsia obtusa* | |
| Rusty Woodsia | *Woodsia ilvensis* | |
| Penstemon | *Penstemon hirsutus* | |
| Herb-Robert | *Geranium robertianum* | |
| Cyperus | *Cyperus filiculmis* | |

| | | |
|---|---|---|
| Little Bluestem | *Schizachyrium scoparium* | Often used to restore riparian areas |
| Panic Grass | *Panicum linearifolium* | |
| Pennsylvania Sedge | *Carex pennsylvanica* | |
| Eastern Red Cedar | *Juniperus virginiana* | |
| Wood-Vetch | *Vicia caroliniana* | |

## Native Species List from Field Observations:

Table 7**:** Small trees, bushes and shrubs observed along the Salmon River and Salmon River Estuary

| Common Name | Scientific name | Notes |
|---|---|---|
| Hawthorn | *Crataegus crus-galli* | Erosion control, bank stabilization |
| Alder (smooth or speckled) | *Alnus serrulata* *Alnus incana* | Nitrogen fixing |
| Black Elderberry | *Sambucus canadensis* | |

Table 8: Grasses/reeds observed along the Salmon River and Salmon River Estuary

| Common Name | Scientific name | Notes |
|---|---|---|
| Timothy Grass | *Phleum pratense* | |
| Orchard Grass | *Dactylis glomerata* | |
| Bunch Grass | *Spp.?* | |
| Cattail spp. | *Typha* spp. | |

Table 9: Herbaceous plants found along the Salmon River and Salmon River Estuary

| Common Name | Scientific name | Notes |
|---|---|---|
| Fleabane | *Erigeron spp.* | native, but often considered to be a nuisance |
| Horehounds | *Lycopus americanus*<br>*L. uniflorus* | |
| Goldenrods | *Solidago rugosa*<br>*S. gigante* | very common along the stream |
| Joe-Pye Weed | *Eupatoriadelphus maculatus* | very common along the stream |
| Green Arrow Arum<br>water arum | *Peltandra virginica*<br>*Calla palustris* | water arum more common in northern states |
| Milkweed (~10 native species) | *Asclepias* spp. | |
| Boneset | *Eupatorium perfoliatum* | |
| Cardinal Flower<br>Scarlet Lobelia | *Lobelia cardinalis* | only a few found, but beautiful |
| Sneezeweed | *Helenium autumnale* | grow close to knotweed in many areas |
| Cinnamon Fern | *Osmundastrum cinnamomeum* | |
| Sensitive Fern | *Onoclea sensibilis* | |

*Many other species were identified and recorded, however in this species inventory we are only including native species, excluding introduced or invasive species, even though they are often abundant.
**Shaded rows indicate that these species were also listed in the NY Natural Heritage Program documents

References

Bossart, A. (2010, October 3). Ask Mr. Smarty Plants. Wildflower.org. Retrieved August 20, 2013, from http://www.wildflower.org/expert/show.php?id=6218

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.

Howard, Timothy G. Salmon River Watershed Inventory and Landscape Analysis. New York Natural Heritage Program. June 2006.

Native Plant Database. Retrieved August 20, 2013 from http://www.wildflower.org/plants/

Native Plant Database. Retrieved August 21, 2013 from http://nativeplants.evergreen.ca/search/advanced.php

Native Plant Database. Retrieved August 21, 2013 from http://www.wildflower.org/plants/result.php?id_plant=CAPA for some info

Reschke, Caroline. Ecological Communities of New York State. Second Edition. New York Natural Heritage Program. January 2002.