

Final Report

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Control of Yellow Iris in Thorp Brook and Lewis Creek, Final Report

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A cluster of yellow iris that was flagged in Thorp Brook wetland complex



Executive Summary

This program is a continuation of efforts to improve plant composition of priority natural communities through the study, mapping, and treatment of *Iris pseudacorus* (yellow iris.) Specifically, this is a continuation of work initiated in 2015 under the LCBP grant “Aquatic Yellow Iris Removal and Spread Prevention Plan for Four Lake Champlain Tributaries” (NEI L-2015-018) to greatly reduce yellow iris populations in the Thorp/Kimball watersheds, and more generally, a continuation of ongoing stewardship efforts by the State of Vermont and Lewis Creek Association in area floodplain forests and associated wetlands.

In the Lower Thorp Brook floodplain, iris was mapped in June then treated with herbicide in October. In total, 73 iris clumps were treated. This floodplain likely serves as the primary iris seed source for the fifty-three-acre Thorp/Kimball wetland complex. This work employed control methods verified in previous work, and employed a volunteer mapping protocol for the first time. While the protocol was helpful, there are opportunities to improve it prior to future mapping and control efforts.

2015/2016 work in Lower Lewis Creek yielded infestation maps that identified iris extent, key natural features under pressure from iris, and seed production hot spots. In addition, this work yielded much understanding of propagation patterns and mechanisms. In 2017, this information was incorporated into a treatment plan that in turn was presented to key landowners (one public, one private) within the floodplain. Subsequent meetings with landowners provide the basis for iris control and stewardship strategies for 2018 and beyond.

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1. Project Introduction

Yellow iris (*Iris pseudacorus*) is an emerging threat to Lake Champlain wetlands and floodplain forests of Champlain Valley direct drainage streams, both priority natural communities. This grant was intended to fund work that builds on LCBP funded work in 2015-16 (NEI Job Code: 0100-306-010.) Specifically, it addressed two priorities:

1. fund treatment of iris in Thorp Brook floodplain, with a targeted 90% reduction of iris
2. engage landowners in Lower Lewis Creek, an area of high infestation, with the goal of establishing a common strategy for dealing with the infestation.

This work built upon two seasons of studying and mapping iris infestation and spread characteristics and validating control methods. Lower Thorp Brook is diverse beaver-influenced corridor, and serves as the primary iris seed source for the wetlands at the Lake Champlain Confluence. These Thorp/Kimball wetlands are considered state waters, a fifty-three-acre matrix of wetland natural communities, whose value has been acknowledged by both state and TNC experts. The lake-influenced lower reaches of Lewis Creek contain important floodplain forests, buttonbush swamps and a range of emergent plant communities. Lands are state-owned (Little Otter WMA) and private. While the extent and nature of the infestation are understood and mapped (2015-16), a coordinated response is needed to begin addressing this infestation.

This work represents a collaboration between Lewis Creek Association (LCA), Habitat Restoration Solutions, LLC (HRS) and Lake Champlain Basin Program.

2. Tasks Completed

Task 1 - development of management plan for *Iris pseudacorus* control in Thorp Brook Corridor. The plan was developed in two steps. First, a weed management plan was developed that identified site values, management goals (in light of the full extent of exotic/invasive plant populations), plant phenology, and range of treatment methods. The second phase was the development of a Treatment Plan for this season. It detailed treatment objectives and methods, regulatory compliance issues and work schedule (see Appendix 2 - Site Weed Management Plan for Lower Thorp Brook Floodplain.)

Task 2 - obtain permits and landowner consent for treatment of Thorp Brook. We worked with VT Fish & Wildlife and DEC Wetlands program to agree upon an herbicide application protocol that would minimize collateral damage and effectively reduce iris. We obtained approval letter from Tina Heath, District Wetland Ecologist (see Appendix 3 - Wetlands Approval Letter.) Landowner interests were represented by Austin Hart, Attorney, Dinse, Knapp and McAndrew P.C. With Mr. Hart, we executed an access and indemnity agreement.

Task 3 - update Thorp survey area and infestation maps. A survey was conducted on June 15, while iris was still in bloom. Two teams of two surveyors acquired GPS points and field notes for iris clumps found within the survey area, in accordance with the QAPP (see Appendices 4 and 5 - Survey Map, and Summary Field Report.) In addition, surveyors cut plants to reduce plant vigor and eliminate seed production for 2017 growing season.

Task 4 - identify Lewis Creek property management options. Based on survey and trial treatments in 2015/2016 seasons, a management plan was created that identified priority natural communities, extent of infestation, and likely seed source hotspots. This plan was discussed with the major private landowner, Kimball Brook Farm (Jan 4), and with management for Little Otter WMA (Jan 19) (see Appendices 6 through 8 - Yellow Iris Management Plan for Lower Lewis Creek, Lewis Creek Iris Control Targets Map, and Meeting Minutes for Lewis Creek Management.)

Task 5 - treat Thorp Brook iris. Treatment occurred on October 13, 18, 19. 73 clumps were treated, which should yield a significant reduction in seed production. While the lake water level was significantly lower than June 15 levels, water levels in the floodplain and associated wetlands remained high due to particularly ambitious beaver activity. As a result, some clumps identified in the June 15 survey could not be accessed for treatment.

Task 6 – publicity. A press release was written and submitted to The Addison Independent and The Citizen newspapers. Lewis Creek Association also posted about this project several times on their Facebook page, and the report will be added to the website. (appendix 9)

Task 7 - reporting and administration - Quarterly reports have been submitted. (appendix 10)

3. Methodology

Mapping; mapping was conducted using ANR Atlas platform and data layers. For Lewis Creek, field data from 2016 was incorporated. For Thorp Brook, GPS points from field assessments were uploaded.

Data Acquisition; location of iris clumps acquired as waypoints using iPhone and Motion X GPS app.

Treating Plan; employed HRS template, incorporating target-specific guidance from *Inter-Agency Guidelines for Implementing Best Management Practices to Control Terrestrial and Aquatic Invasive Species on DEC Administered Lands of the Adirondack Park, 2010*, Rodeo Specimen Label, and field results from 2016.

Iris Treatment: initial treatment occurred during survey. Foliage and peduncles were cut with handheld machete. Fall herbicide applied with Solo backpack sprayer. A formulation of Rodeo (Dow) aquatic formula glyphosate herbicide with LI700 non-ionic surfactant approved for wetland application was applied in a water-based spray. When appropriate, an absorbent backdrop was deployed to contain overspray.

4. Deliverables

Appendix 2.	Management Plan for Lower Thorp Brook, Task 1
Appendix 3.	Wetland Program Approval
Appendix 4.	Thorp Brook Survey Map, Task 3
Appendix 5.	Thorp Brook Summary Field Report, Task 5
Appendix 6.	Management Options for Lower Lewis Creek, task 4
Appendix 7.	Lewis Creek Target Map
Appendix 8.	Meeting Minutes for Lewis Creek Management, task 4
Appendix 9.	Volunteer Protocol
Appendix 10.	Press Release, Task 6
Appendix 11.	Quarterly Reports

5. Conclusions

Much was learned through this season's work. First and foremost, *Iris pseudacorus* is an emerging threat, rapidly gaining a foothold in Lake Champlain associated wetlands and floodplains. The focus of our survey and control efforts were on priority communities that are dynamic; experiencing shifts in hydrology, nutrient levels, canopy cover, and plant community component dominance. The second lesson learned focuses on outreach. Outreach requires effort and persistence, but the payoff can be significant. Our work has led to much greater community awareness of iris and has forged new working partnerships in these priority landscapes. Having eyes on the landscape has increased our awareness of current conditions and evolving ecological trends, which leads to the final lesson - the opportunity cost of Vermont's reticence in managing exotic/invasive species has a high opportunity cost. Each year of inaction closes the door on numerous Early Detection/Rapid Response (EDRR) opportunities, rendering control efforts more costly and less effective.

This project achieved two significant outcomes. First, it resulted in on the ground control of iris in the lower Thorp Brook floodplain and associated wetlands, improving that particular habitat and greatly reducing the iris seed source for the fifty-three-acre Thorp/Kimball wetland complex.

Secondly, this project lead brought experts, landowners, and decision makers to the table to discuss iris control in lower Lewis Creek. Iris control was presented in context of the range of stressors to the ecosystem, and took into consideration the differing land management priorities for each landowner. As a result, we have embarked on developing a detailed management plan for 2018-2019, and are working with stakeholders to secure funding.

This work has, and continues to address the following priorities in LCBP's *Opportunities for Action*:

II.A.1: Protect Important Riparian, Shoreland and Wetland Habitat Areas

Work with Lake Champlain management partners to conserve vulnerable lands by protecting important habitat areas including river corridors, shorelands, wetlands and other critical habitat areas.

Both focus areas are deemed biologically rich and contain priority natural communities including lakeside floodplain forests, deep bulrush swamp, and buttonbush swamps. Managing exotic/invasive plant populations within these communities will reduce competition for native species and increase resiliency in the face of climate change.

II.B.1: Develop and Support Programs that Improve Diversity of Aquatic and Riparian Species in the Basin

Under this strategy, LCBP will work with Lake Champlain management partners to improve our understanding of the functions and threats to the Lake Champlain ecosystem, and work toward protection and restoration of native species.

Both focus areas are deemed biologically rich and serve as important fish and waterfowl habitat. Both sites have a number of R,T& E citations associated with them. The Lewis Creek site hosts a population of *Carex lupuliformis*, or false hop sedge, which is of particular interest to VT Fish & Wildlife botanists. Iris is particularly prevalent in *Carex* identified range within the watershed.

II.C.1: Preventing New Invasions: Early Detection and Rapid Response (EDRR).

Under this strategy, LCBP will work with Lake Champlain management partners to monitor for and respond to invasions of aquatic species, and to educate different stakeholders about how their behavior can affect the spread of AIS.

Private landowners, state game managers, field naturalists, town conservation commissions, and local watershed groups have all come to the table to discuss the implication of this and other exotic/invasive plant infestations. These discussions have in turn encouraged consideration of local stewardship efforts that need to be both effective and sustainable.

II.C.3: Support and Conduct AIS Management and Research

Work with Lake Champlain management partners to support and conduct AIS management and research in the basin.

These efforts have lead to experience and refinement of control and treatment methods and has lead to innovation in the area of exotic/invasive surveys.

II.C.4: Conduct AIS Public Outreach

Under this strategy, LCBP will work with Lake Champlain management partners to deliver education and outreach behavior change campaigns targeted at the general public and targeted water user groups (aquarium owners, boat owners, water gardeners, etc.).

Lewis Creek Association is an established Watershed Organization and a recognized leader at state level. They have a robust membership and have foster strong working relationships locally and throughout the state. LCA actively promulgates activities and findings, through their website, newsletter and press releases.

6. References

1. *Inter-Agency Guidelines for Implementing Best Management Practices to Control Terrestrial and Aquatic Invasive Species on DEC Administered Lands of the Adirondack Park, 2010*
http://www.apa.ny.gov/State_Land/Appendix_F.pdf
2. *Wetland, Woodland, Wildland; A Guide to the natural Communities of Vermont*, Thomson and Sorenson, 2005.

8. Appendices

Appended Documents:

- Appendix 2 Lower Thorp Brook Management Plan
- Appendix 3 Wetland Program Approval
- Appendix 4 Lower Thorp Brook Survey/Treatment Map
- Appendix 5 Lower Thorp Brook Summary Field Report
- Appendix 6 Lower Lewis Creek Management Plan
- Appendix 7 Lower Lewis Creek Treatment Target Map
- Appendix 8 Meeting Minutes for Lewis Creek Management
- Appendix 9 Volunteer Protocol (updated)
- Appendix 10 Press Release
- Appendix 11 Quarterly Reports

Lower Lewis Creek project area

