

2015
Final Report
Croton-on-Hudson, NY Hardy Kiwi Control Project

Prepared for
The Lower Hudson Partnership for Regional Invasive Species Management

Prepared by
Trillium Invasive Species Management, INC

This document summarizes the deliverables completed towards the 2015 Croton-on Hudson Hardy Kiwi control project. Conception and execution of the project was made possible through a partnership between; Con Edison, Hudson National Golf Club, Saw Mill River Audubon and Trillium Invasive Species Management, INC.



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EVERYTHING
MATTERS



This project was contracted by the Lower Hudson Partnership for Regional Invasive Species Management (PRISM) using funds from the Environmental Protection Fund as administered by the New York State Department of Environmental Conservation



Project Introduction:

Hardy kiwi, *Actinidia arguta*, was identified in the Brinton Brook Sanctuary in Croton-on-Hudson, NY in the fall of 2014. The infestation is comprised of several distinct patches located throughout the sanctuary's 156 acres. Once brought to the attention of the LHPRISM, Trillium ISM and Karalyn Lamb (Board member of the SMRA) began a partnership to investigate and build a project tasked with eradication of the patch assemblage.

Subsequent surveys identified additional occurrences of the species on surrounding parcels. The owners of these parcels, Con Edison and Hudson National Golf Course, were contacted and asked to participate in a coordinated control effort with the ultimate goal of eradication. All landowners recognized the importance of this endeavor and committed to controlling all occurrences of hardy kiwi on their lands.

In 2015 the partnership engaged in community outreach, coordinated with researchers from SUNY ESF, established a management plan for the patch assemblage and implemented control measures using chemical and manual techniques.

Project Narrative:

A. Justification of project and its importance

Hardy Kiwi (*Actinidia arguta*) is an emerging invasive species in New York. Occurrences of this species warrant classic early detection/rapid response action. A perennial vine native to Japan, Korea, Northern China, and Russian Siberia hardy kiwi reproduces by rooting at nodes in contact with soil and via fruit production. The species is commonly distributed by planting for landscaping and agriculture. Up until recently it has been unusual to find escaped fruiting populations in the natural environment, but several populations have been discovered producing fruit and spreading in Westchester County NY and on Long Island.

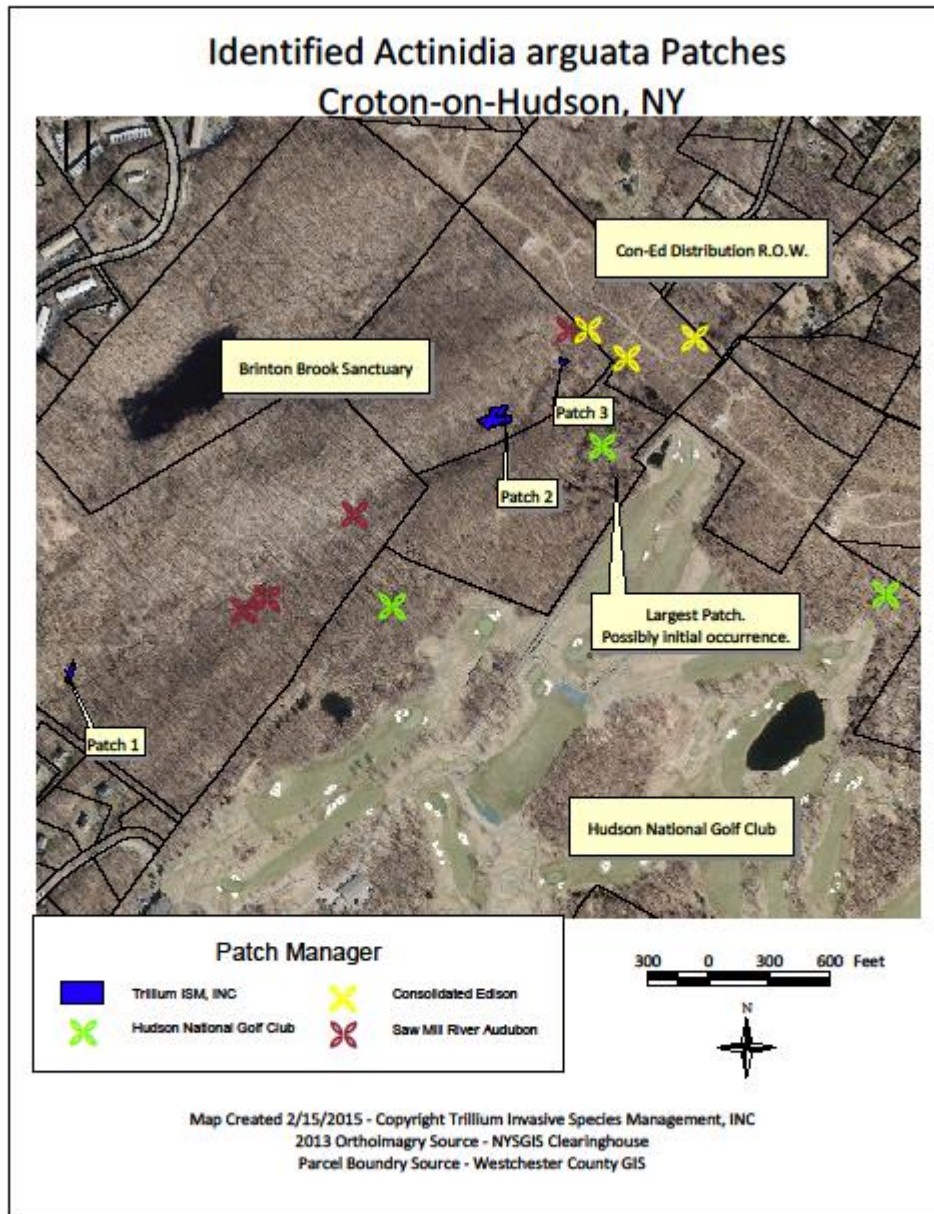
Kiwi is dioecious and individuals may have different numbers of chromosomes. As a result, Hardy Kiwi patches do not always produce fruit. However, several plants throughout the patch assemblage were observed producing fruit in 2015. With the exception of the patch adjacent to the Arboretum, all patches are downhill from the largest patch on Hudson National Golf Club property and in locations not likely to be remnant landscaping plantings. This suggests flood events and/or avian/mammalian dispersal has carried propagules from the largest patch.

B. Breadth of application/ Regional implications:

Upon identification of the species and the surveying of much of its extent, Karalyn Lamb reached out to the surrounding landowners in an effort to coordinate control of the entire patch complex. This has resulted in commitments from the Hudson National Golf Club and Con Edison to eliminate the patches on their lands. Furthermore, a volunteer effort in the Brinton Sanctuary has been cutting mature Hardy Kiwi vines that are growing up trees in instances where self-layering of the vine has not yet occurred.

This project was proposed to fill a gap in management by controlling patches of hardy kiwi on Brinton Sanctuary lands that have developed to a size beyond the volunteer's capacity, ie patches that are self-layering and/or growing within dense thickets of brush and felled trees.

Project Map:



Scope of work and Deliverables:¹

Saw Mill River Audubon

Press release issued March 2015:

<http://www.sawmillriveraudubon.org/news/Hardy-Kiwi-Grant-Saw-Mill-River-Audubon-March29-2015.pdf>

Resulted in Cortlandt Patch on-line newspaper article:

<http://cortlandt.dailyvoice.com/news/grant-aims-rid-cortlandt-sanctuary-invasive-vine>

- Additional surveys of power line right-of-way conducted with Con Edison staff, May 2015, to identify additional infestations (one located) and pinpoint treatment patches.
- Additional surveys of Hudson National Golf Course property conducted with course maintenance supervisor Ryan Oliver, June 2015.
- Assisted Professor Danilo Fernando of SUNY College of Environmental Science and Forestry in locating and taking samples of vine for DNA analysis, June 2015.
- Education and Outreach: Hardy kiwi vine featured at invasive plant display; Hudson to Housatonic Conservation Initiative event. September 2015.
- Provided supporting materials for Con Edison presentation about kiwi project; shown to Category- 6 pesticide applicators conference in Auburn New York. October 2015
- Continue to liaise with Steve Young, NYS Natural Heritage Program to identify additional survey locations. Have initiated surveys in new locations.
- Brinton Sanctuary infestations outwith the scope of Trillium ISM treatment continue to be controlled and monitored by SMRA volunteers.

Outreach will continue to be provided to the Jane E. Lytle Arboretum, Hudson National Golf Course and Con Edison to contain the spread of the vine. Additionally, a mailing will be sent to neighboring property owners informing them about the Hardy Kiwi infestation and providing information for species identification and relevant reporting information.

Monitoring of the treated infestation sites in the Brinton Brook Sanctuary will take place for a period of three years, 2017-2019. Documentation of monitoring will be communicated to LHPRISM and all other Hardy Kiwi project stakeholders.

The most visible and accessible infestation site in the Brinton Sanctuary (see Project Map, Trillium Control Patch 1) will be designated as a native woodland demonstration site for public education purposes; to be re-planted with native deer-resistant trees, shrubs and forbs after the kiwi vine has been eradicated. Appropriate signage will provide information about the eradication/restoration project, LHPRISM and links to further resources. An article about the eradication effort and the role of LHPRISM will also be placed in the Saw Mill Audubon Newsletter (approximate circulation 1,000 members) post-planting.

¹ Each partner has provided a summary of their involvement in the project.

Hudson National Golf Club

Hudson National Golf Club participated in the Hardy Kiwi Vine eradication efforts during the 2015 season in conjunction with Trillium Invasive Species Management. The golf club was able to help primarily with direct access to the sites of infestation around golf club property. Utility vehicles were provided Trillium to increase productivity and secure a remote location to work from. Of the three distinct patches of vines located on golf club property, mature vines were cut during the summer. We anticipate working in partnership with Trillium for further cutting and herbicide applications for the 2016 season if needed.

Consolidated Edison

Con Edison committed to control hardy kiwi patches on their right-of-way in 2015 with follow up efforts in 2016. Additionally, Con Edison supported continued survey efforts on their properties and presented on the project at an industry conference.

- 2/17: Performed a joint visual inspection of the impacted area or transmission Right-of-Way (ROW) with representatives from the collaborating parties (Trillium, Audubon, Con Edison)
- 5/29: Performed a more expansive inspection of the entire transmission corridor from Mount Airy Road to Furnace Dock Road with Con Edison Scientist, Con Edison Field Operations Planner, and Audubon Board Member
- 7/2: Initiated approximately 2 week hand-cutting and mechanical mowing project addressing all kiwi-infested areas. Mowed additional inspection pathways into difficult to assess areas.
- 7/9: identified (and removed) fruiting kiwi plant.
- 9/17: Applied low-volume foliar (LVF) herbicide to any kiwi regrowth identified.
- 10/16: Con Edison Field Operations Planner (Mike Amato) presented to approximately 300 people at an industry conference in Auburn NY. Audience consisted of DEC, PSC, Utility ROW managers, DOT Managers, MTA ROW Managers, Pesticide producers (e.g., DOW, DuPont, Nufarm, et al.), NY/NJ/PA/CT/MA Licensed herbicide applicators, technicians, apprentices, etcetera. Presentation topic covered how to identify kiwi, why it needs to be managed, and chemical/mechanical management techniques.

Trillium Invasive Species Management, INC

Trillium ISM provided mapping, 2ee request submittal, photo documentation, control plan development, control implementation and development of this final report. Mapping and a control plan were developed for the project proposal submitted to the LHPRISM. Deliverables included controlling three patches on the Brinton Brook Sanctuary.

- Submitted request to NYSDEC for 2ee recommendation to add hardy kiwi to several herbicide labels. Recommendations were forthcoming.
- Early June - mechanical cutting of patches within the Sanctuary
- Wetland Permit acquisition from Town of Cortlandt.
- August Monitoring visit to assess re-growth
- Mid-September and Late October – foliar application of herbicide (Glyphosate, 2% Rodeo EPA Reg. No. 62719-324, 9.8 oz of product)

Project Summary and Outlook for 2016

In 2015 all partners met their goals for the project. Outreach was conducted to neighbors immediately adjacent to the infestation and in the surrounding community. All patches within the assemblage experienced control efforts. There were some surprises during the season: one patch was found to be growing around a wetland thereby requiring permits. Furthermore, unexpected browsing of re-growth presented challenges for the chemical application. Continuing control will be required in 2016.

Initial mapping of the patch provided accurate locations and sizes of the project sites. When checked with the NYS DEC environmental mapper, no data layers intersected with the site, therefore no permits were sought from the NYSDEC. The project exists within both the Town of Cortlandt and the Village of Croton-on-Hudson, both of which have Wetland and Watercourse ordinances that require permitting for the application of pesticides. The site was surveyed in winter with 2 feet of snow on the ground, so the National Wetland Inventory was checked to verify that no wetlands were present in the pesticide application areas. None were indicated on any resources, however upon visiting the site in early June for the cutting phase the Patch 2 was clearly located surrounding a wetland. Patch 2 is located in the Town of Cortlandt, therefore a permit for the work was requested from the Town. The permit application and management plan was reviewed by an outside consultant, subsequently approved and the permit was provided well before any herbicide application was scheduled. Upon closing of the permit for the 2015 season, Town of Cortlandt officials determined that no future permits will be required for this project with the stipulation that they notified prior to any future herbicide application.

Site visits on the Brinton Brook Sanctuary and Con Edison right-of-way in September and October found significant browse of new stem growth that was to be targeted for spray applications. Stem growth hidden by other plant matter was not browsed and had grown to an anticipated length of greater than two feet. The browse undoubtedly reduced the efficacy of the herbicide uptake. Low mortality is expected for 2016.

The populations should be left uncut in 2016. Without a spring cutting it is hoped that the kiwi will not be browsed on preferentially allowing for enough growth for sufficient herbicide uptake. Visits for herbicide application should be scheduled for late summer or early fall, prior to fruit formation, allowing for a maximum use of root energy stores

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