

2016  
Final Report  
Esopus, NY Mile-a-Minute 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 Esopus Mile-a-Minute project during 2016. Conception and execution of the project was made possible through a partnership between Scenic Hudson and Trillium Invasive Species Management, INC.



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

In the fall of 2014 an infestation of Mile-a-minute (MAM) vine (*Persicaria perfoliata*) was identified in the Town of Esopus, NY. Subsequently, multiple patches were discovered along a railroad corridor and in neighboring private wooded and residential lands, some privately held, some under conservation easement through Scenic Hudson and others within Scenic Hudson's Shaupeneak Ridge Park. This infestation, an assemblage of patches, occurs within approximately 100 acres, is the first occurrence of MAM identified in Ulster County NY and is one of the most northern infestations in New York State. For these reasons this infestation is cause for significant concern: it represents a considerable threat to the yet-uninvaded Catskills region, and important conservation lands held by Scenic Hudson.

In 2014 a partnership was developed between Scenic Hudson, CRISP and Trillium ISM INC in order to develop and implement a strategy for management of the infestation. The partners surveyed the area and developed a proposal for action in 2015 that would: 1. develop a management plan; 2. continue survey efforts; 3. establish community outreach in the immediate area and; 4. initiate control of the infestation. Initial landowner outreach in the winter of 2014-2015 only connected with one property owner, the Peck property. LHPRISM funding was awarded to support planning, monitoring and management support for the Peck property.

In 2015 the partnership engaged in community outreach, established a management plan for a portion of the infestation and implemented control measures using chemical, biological and manual techniques<sup>1</sup>. Outreach to owners of land within the estimated infestation boundaries resulted in the engagement of two other landowners within the bounds of the infestation.

In 2016, a proposal was submitted to the LHPRISM to fund the continuation of control efforts. The proposal was awarded funding. Trillium ISM INC, Scenic Hudson, the NY/NJ Trail Conference Invasive Species Strike Force and all partnering landowners contributed to control efforts throughout the year.

- Four acres of land and two miles of access trails were brush cut
- Fourteen acres were treated with herbicide, not including area treated by landowners.
- 18.1 acres were controlled with hand-pulling and mechanical means.
- 1000 biocontrol weevils were released.

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<sup>1</sup> See 2015 final report at [lhprism.org](http://lhprism.org).

## **Project Narrative**

Mile-a-minute vine's invasiveness is ranked as "Very High" by NYS. While it is considered an established species by the LHPRISM, this patch is located in the northern area of the LHPRISM where it is still uncommon. The assembly is the first occurrence within Ulster County and is in close proximity to the LHPRISM/CRISP boundary. Given these factors, CRISP and Scenic Hudson engaged in an education and outreach campaign in 2015 to prevent further spread of the species from this location, Scenic Hudson and landowners have actively managed portions of the infestation and the LHPRISM has funded two years of control efforts.

Activities funded by the LHPRISM are part of a larger, collaborative effort to address the mile-a-minute infestation in this area by continuing suppressive control work initiated in 2015. This collaboration includes; effected landowners who contributed equipment rental and control implementation, the NY/NJ Invasive Species Strike Team hand-pulling and Scenic Hudson's contribution of control implementation, biocontrol procurement and general project assistance and

Over the winter of 2015/16, property owners Mance and Krayeski were contacted and their interest in the project was established. They provided permission for Trillium ISM, INC to work on their lands and funding for rental of a skid steer and brush cutting attachment. Ted Peck, owner of one of the properties within the extent of the infestation contributed significant efforts including brush cutting and herbicide treatment throughout his property

Trillium implemented control activities on the Peck, Krayeski and Mance properties. This was initiated with brush cutting in May that provided open areas where MAM seed germination and applicator access was facilitated. Additionally, trails were cut to allow for applicator movement around the site. Trails were primarily cut along the perimeter of the infestation. Trillium then applied herbicide on ~fourteen acres of dense infestation, choosing locations on the perimeter of the infestation near roads and developed areas where it was thought that control might reduce propagule movement by humans and reduce expansion of the infestation.

The NY/NJ Trail Conference Invasives Strike Force hand-pulled mile-a-minute in low-density areas within a floodplain on the Peck property. The four person crew covered 14.7 acres and pulled 2609 plants.

Scenic Hudson continued control efforts on the portion of the infestation in their adjacent Shaupeneak Ridge Park- a near 800 acre property known for its diversity of species, natural communities and habitats, as well as its recreational opportunities. Scenic Hudson recently documented a healthy population of a NYS endangered grass (side-oats grama, *Bouteloua curtipendula*) less than 1,200 feet from the nearest mile-a-minute patch.

## **Breadth of application**

This project is the second year of execution of a coordinated response to the first documented case of mile-a-minute vine in Ulster County. While this invasive vine is already present in much of the LH PRISM service area, it has not yet established in the most northern portions of the LH PRISM or in the Catskill Mountains. CRISP has invested considerable time, resources and effort in keeping mile-a-minute vine out of its service area and this infestation is currently the greatest known threat to that goal. Controlling this population is vital to protecting species and habitats in the Hudson Valley (e.g. a nearby occurrence of side-oats grama, a NY State endangered species)

and in the Catskill Mountains, where the ecological function of the natural communities protects a large portion of New York City's water supply.

## **Scope of Work and Deliverables**

### Scenic Hudson

As part of this project Scenic Hudson made the commitment to manage MAM populations on their property and to reach out to the largest neighboring landowners to connect them with PRISM approved educational materials and management options. Additionally, they also acquired permits for biocontrol release, purchased weevils and coordinated their release. Their staff has also created maps documenting the current known extent of mile-a-minute vine and has assisted in generating this proposal.

### Outreach and Management:

A description of Scenic Hudson's outreach and management actions may be found appended at the end of this document.

### Peck Property

The land owner of the 80 acre parcel implemented chemical and mechanical control efforts as recommended by the management plan. The land owner provided at least 80 hours of labor; beginning in May with brush cutting and post-emergent herbicide applications throughout June, July. The extent of the treatment area is not known, however while Trillium was on-site it appeared that the landowner had treated a large portion of the infestation on his land.

### Trillium Invasive Species Management, INC

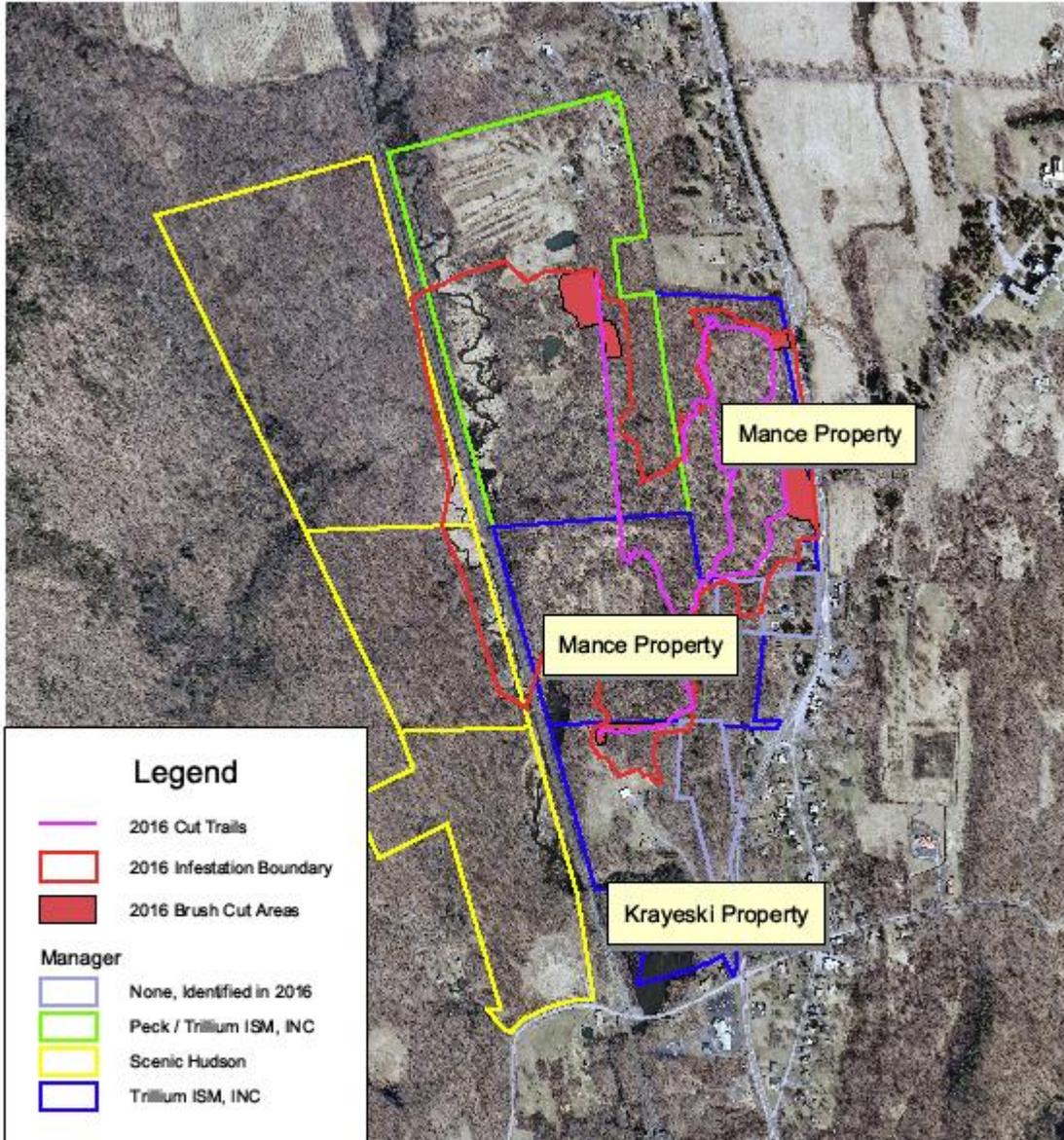
Trillium was responsible for delivering a management plan<sup>2</sup> for the infestation and aiding implementation of the management plan throughout the year to the extent that funding would allow. The LHPRISM funded brush cutting of ~4 acres, ~2 miles of trail cutting and application of herbicide over ~14 acres as outlined below.

- Early to mid-May – Delineation of project extent, flagging and gps collection of infestation boundary. Three two-person days on-site brush cutting (with rented brush cutter/skid steer and Trillium owned equipment) treatment areas and perimeter of infestation.
- Early June – Three-and-a-half two-person days on site applying herbicide. Foliar application of Accord XRT II, formulated at 1% v/v with the surfactant Cidekick II added at ½ oz/gallon.
- Late June – Three two-person days applying herbicide. Foliar application of Accord XRT II, formulated at 1% v/v with the surfactant Cidekick II added at ½ oz/gallon.
- 19 July – Biocontrol release with Scenic Hudson.

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<sup>2</sup> See appendix.

# Esopus Mile-a-minute Project Brush Cutting



Total estimated extent of MAM infestation, approximately 100 acres.

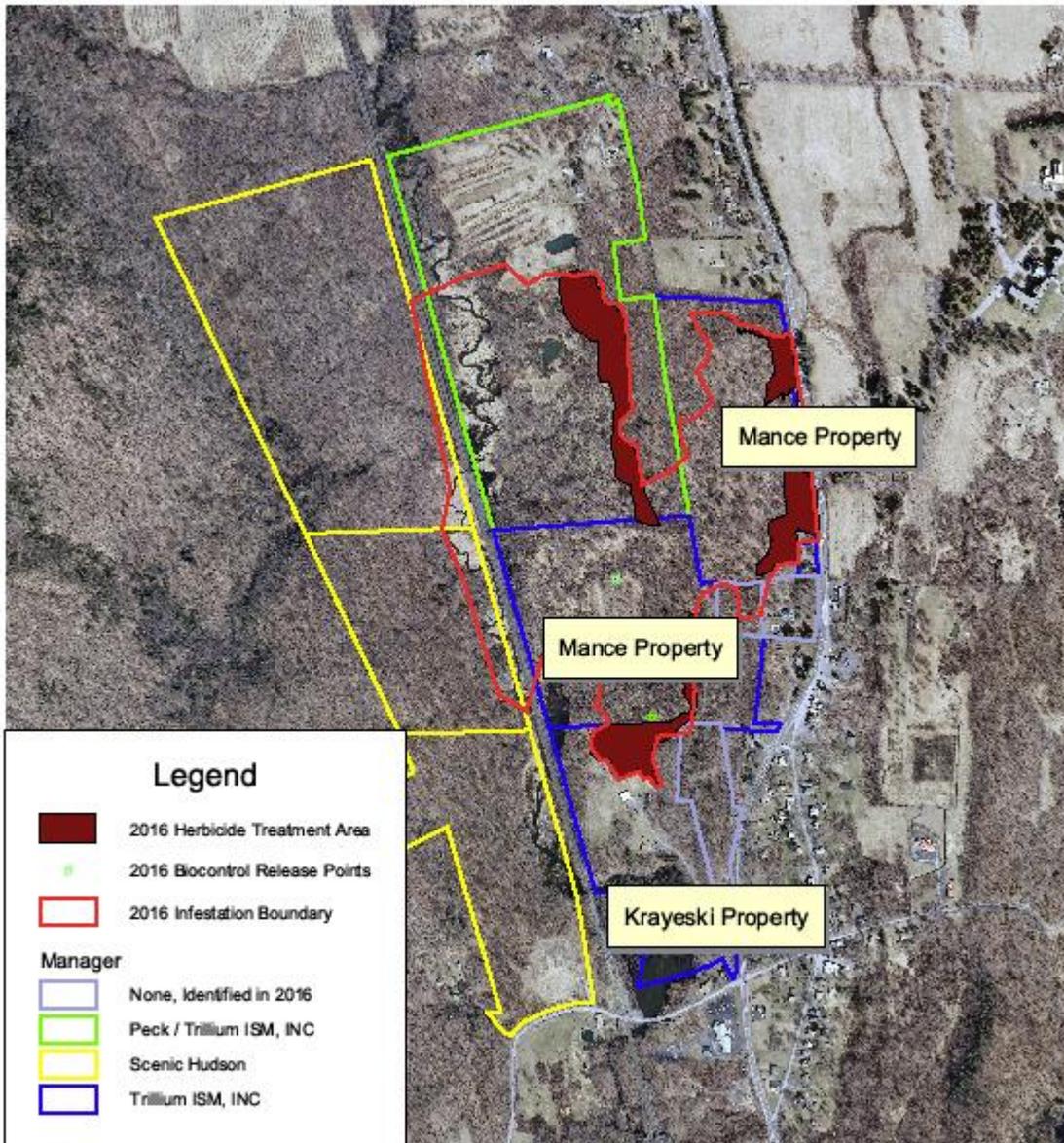
Manager boundaries represented by land property boundaries.

Cut trails - ~2miles

Brush Cut Areas - ~4 acres

Map Created November 2016 - Copyright Trillium ISM, INC

# Esopus Mile-a-minute Project 2016 Control Areas



Total estimated extent of MAM infestation, approximately 100 acres. 800 0 800 1600 Feet

Manager boundaries represented by land property boundaries.

~14 acres treated with herbicide

500 weevils released at each site.

Map Created November 2016 - Copyright Trillium ISM, INC

## **Summary and Considerations for 2017**

The 2016 season saw a significant increase in the area managed by this project. This was the result of outreach efforts connecting with landowners and a shift in responsibilities for the LHPRISM funded portion of the project.

In 2015 Trillium was responsible for photo monitoring, brush cutting, manual control and chemical control on the Peck property. In 2016, while pictures were still taken, formal photo monitoring was abandoned to provide more time for control activities. Furthermore, the duty of hand-pulling within the floodplain was shifted to the NY/NJ ISF. Additionally, some of the brush cutting cost was absorbed by the landowners. These changes in responsibilities allowed Trillium to exercise chemical control on a significantly larger portion of the infestation.

Education and outreach continues to be an extremely important aspect of this project. All but two landowners within the infestation boundary have committed to the project. Of these two, one was contacted by Scenic Hudson and Trillium in 2016 and will participate in 2017. The last landowner still needs to be contacted.

Education and outreach efforts resulted in the reporting of a new infestation ~1/2 mile from the project area. Scenic Hudson responded to the report, assessed the infestation (a summary may be found in appended report) and surveyed surrounding lands (owned by Scenic Hudson) but did not find more mile-a-minute. Given that the goal of this project has always been suppression, intended to reduce spread potential, continuation of the project must be carefully weighed.

The threats to adjacent regions (CRISP in particular) remain, however it is not known if more infestations remain undiscovered on nearby lands. It will be critical to continue education and outreach so that infestations may be reported. If the project is continued, the new infestation should be included in control efforts for 2017, this may require brush cutting for access and possibly a NYSDEC Article 24 wetland permit.

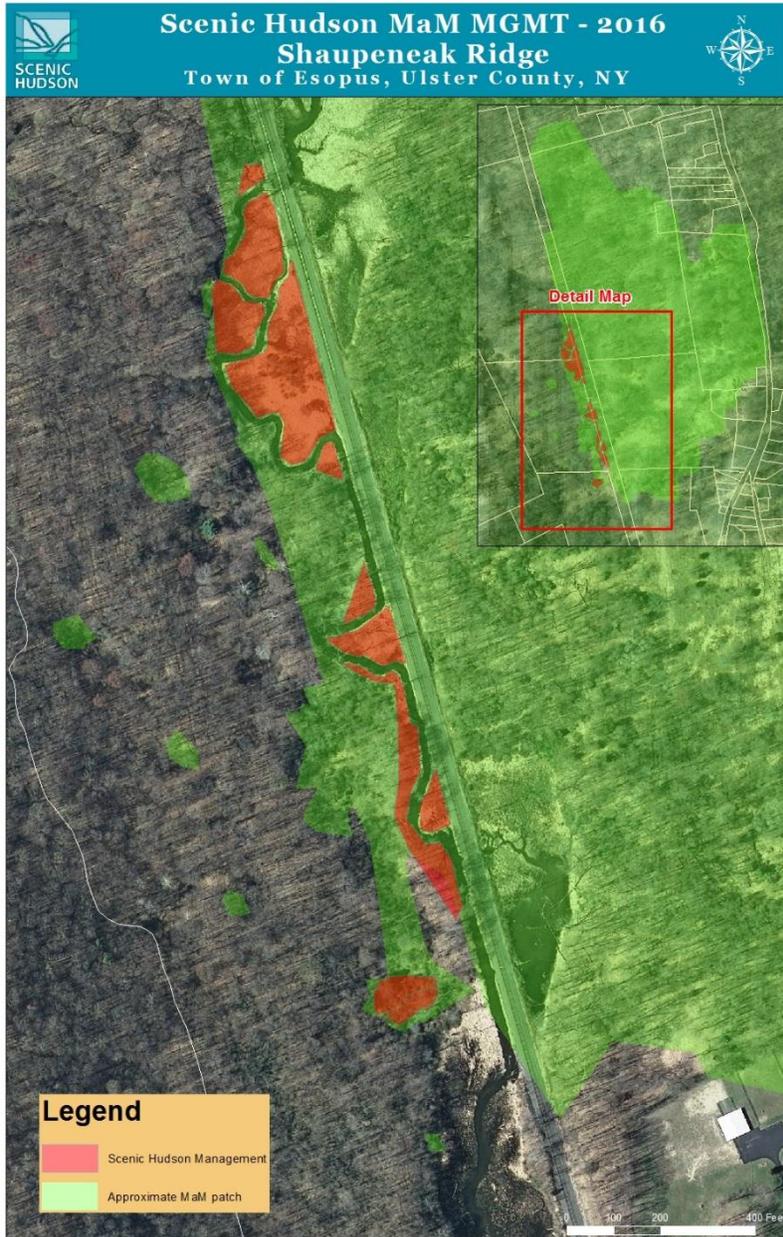
Scenic Hudson will be submitting the proposal for 2017 funding. This will allow a landowner to recoup costs (herbicide and fuel) incurred through his significant control efforts.

## **Appendices**

- Scenic Hudson Management Summary
  
- Project Management Plan

# Shaupeneak Ridge Mile-a-minute Vine Management 2016

Site Location:



## Management Actions:

A	B	C	D	E	F	G	H	I	J
Date	Invasive name	Property	Area Treated (m2)	Num Plants Treated	Treatment Type	Life Stage	Disposal Method	Disposal Site	
6/30/2016	Persicaria perfoliata	Shaupeneak Ridge	7556		Mechanical	Vegetative	compost	on site	
7/19/2016	Persicaria perfoliata	Shaupeneak Ridge	9851		Manuel	Vegetative	compost	on site	
7/19/2016	Persicaria perfoliata	Shaupeneak Ridge	N/A		Biocontrol	Vegetative			
7/22/2016	Persicaria perfoliata	Shaupeneak Ridge	77214		Manuel	Fruiting	Bagged	trash	
8/5/2016	Persicaria perfoliata	Shaupeneak Ridge	44687		Manuel	Fruiting	Bagged	trash	
9/7/2016	Persicaria perfoliata	Shaupeneak Ridge	3996		Manuel	Fruiting	Bagged	trash	
9/14/2016	Persicaria perfoliata	Shaupeneak Ridge	6158		Manuel	Fruiting	Bagged	trash	
			<b>149462</b>		<b>3.43 Acres</b>				

- Hand pulled & weed whacked 3.4 acres
- Released 1000 biocontrol weevils

**Outreach:**

- Provided outreach to a neighboring private property (100 acres) by giving 2 presentations and shaping a manual removal effort
- Reached out to a landowner who found a new MaM infestation on their property, mapped the infestation and provided technical assistance on its removal. This landowner learned about the ID of this plant through workshops held in 2015 under the previous LH PRISM grant.

Esopus Infestation  
*Persicaria perfoliata* (Mile-A-Minute)  
Management Plan

Prepared by  
Trillium Invasive Species Management, INC



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## Plant Profile

Mile-a-minute vine (MAM) is an herbaceous, annual vine with barbed stems native to East Asia. It is non-twining and uses barbs for grasping climbing structure rather than tendrils. Barbs are also present on the underside of the light green, triangle shaped entire leaves (1-3" across) which present alternately. Flowers are inconspicuous, small and white. Fruit are green when immature, turn deep blue when mature but seeds within are capable of germination even when fruit is green<sup>3</sup>. They are berry like, ~1/4" in size, produced in clusters and are produced from July until the first frost which kills the plant. Key character for identification is a round ocrea at the base of leaf and flower stems. The ocrea persists through the winter, along with most barbs on the reddish colored stems.

MAM gets its name from its reported ability to grow up to six inches in a day. It is a capable smothering vine that may grow 20-50' in a year. It is a prolific seeder and the seeds are dispersed by water, birds and animals. As an infestation develops over years it will create dense mats over any supporting structure, killing most if not all plants where it is growing and creating maintenance issues on any man-made structure.

## Context and Scope

A large assembly MAM patches was identified in 2014 by Scenic Hudson in the Town of Esopus, Ulster County, NY. This assembly extends along a rail road corridor and into private wooded and residential lands, some under conservation easement through Scenic Hudson, and into Scenic Hudson's Shaupeneak Ridge Park. This infestation of MAM represents the northern most patch known in the Hudson Valley and the only known patch in Ulster County, NY. The probable extent of the infestation is 100 acres<sup>4</sup>.

Wetland H-10, a 57.5 acre class two wetland, and an unnamed class C stream that feeds into Black Creek occur within the infestation bounds. Much of the land within the infestation is wooded (Cherry, Ash (with significant EAB kill), Black Locust, Maple) with an understory composed primarily of Japanese Barberry, Morrow's Honeysuckle, Privet, stiltgrass and multiflora. A dense patch of Star-of-Bethlehem (*Ornithogalum umbellatum* L) is growing in several wooded areas. Several areas within the boundary have been maintained as open meadows by the various landowners. The infestation occurs on the lands of six property owners.

The wide diversity of habitat types, along approximately ½ mile of stream frontage and rail corridor make the area an excellent site for many species of birds both migratory and indigenous that may be one of the primary vectors for MAM dispersal.

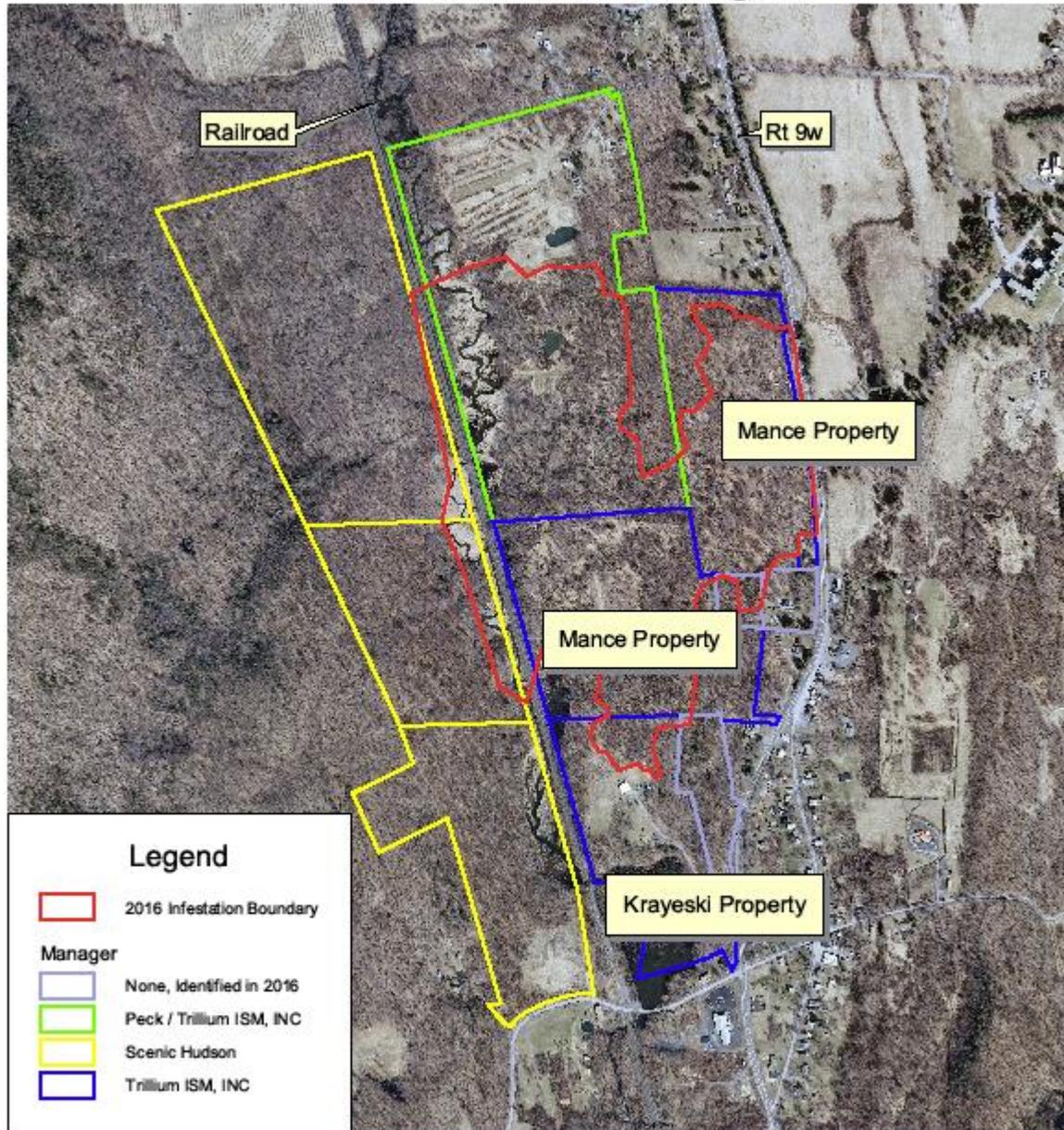
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<sup>3</sup> Biology and Biocontrol of Mile-A-Minute Weed, FHTET-2008-10, [http://www.fs.fed.us/foresthealth/technology/pdfs/Biocontrol\\_MAM\\_webfile.pdf](http://www.fs.fed.us/foresthealth/technology/pdfs/Biocontrol_MAM_webfile.pdf)

<sup>4</sup> Estimate based on 2016 survey.

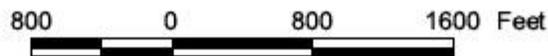
Infestation Map

# Esopus Mile-a-minute Project 2016 Extent and Managers



Total estimated extent  
of MAM infestation,  
approximately 100 acres.

Manager boundaries represented  
by land property boundaries



Map Created November 2016 - Copyright Trillium ISM, INC

## Management Plan

This document outlines a control strategy for the vine patches located within the Esopus Infestation. Initially the goal of this plan is to suppress seed production. However, given that this infestation is on the northern range of MAM's spread in the region and that the habitat is an ideal location for dispersal (railroad and stream vectors), the eventual goal for this plan may be elimination if implemented for a long period. Goals should be revisited on a continual basis depending on resources, MAM dispersal and biocontrol establishment and success.

A complete suite of tools is available for this control effort; chemical, manual and biocontrol (*Rhinoncomimus latipes*). Given the large size of the infestation, the extent of manual and chemical control to be exercised is dependent on available resources within any given year and it is possible that not all of the infestation will experience some level of direct control action. Therefore, resources should be primarily dedicated to the edges of the infestation, working inward over time.

The infestation was discovered in 2014 and soon thereafter it was determined that control should be exercised given the regional significance of the protected lands in the area and the infestation's potential threat to neighboring regions. Since that time three parties have been engaged to provide resources for control; the LHPRISM, Scenic Hudson and the landowners within the bounds of the infestation.

In 2015 funding was sought and awarded to enable Trillium I.S.M. INC to aid the control effort with an additional 88 labor hours of mechanical/manual/chemical control and monitoring. A commitment was given by Scenic Hudson to supply biocontrol and permitting for release. The landowners within the bounds of the infestation have committed to supplying extensive mechanical and chemical control for 2015, 2016 and possibly 2017.

In 2016 funding was again awarded to continue control activities. A perimeter trail was cut around the infestation for access and large areas were treated with herbicide. The areas near residences and roads were the primary targets for herbicide applications to reduce potential for humans to act as vectors. The NY/NJ Trail Conference Invasives Strike Force hand-pulled MAM in the floodplain along the train tracks.

The primary goal is reduction of propagule production and suppression of the overall patch while eliminating stems growing outside of the main high density cores. In general, as the biocontrol establishes itself and suppresses propagule production in some of the higher density areas, mechanical and chemical control will be implemented on outlier and isolated patches. In time, manual and chemical control efforts should move from the perimeter inward.

### Environmental and Permitting Considerations

Significant portions of the infestation occur within a wetland regulated by NYSDEC and regulated buffer. Should resources allow for chemical control efforts to occur within the wetland or its buffer, a permit will be required.

### Available Resources, implementation and Suggested Applications

Chemical – A 2(ee) recommendation exists for MAM for several glyphosate based products. Rodeo and Accord XRT II are glyphosate based products that are effective against MAM when applied at 1% v/v. Addition of a surfactant to the formulation will enhance spray droplet adhesion to leaves. Non-target herbicide kill is of low concern given that the MAM is primarily growing on invasive honeysuckle, privet and multiflora or around stiltgrass and other invasive plants. Care should be taken to identify native plants and avoid injury to them as best as possible.

Manual/Mechanical – Scenic Hudson employs non-chemical methods for control on their land; brush cutting for access and hand pulling. Additionally, hand pulling has been employed in 2015 and 2016 in

the floodplain of the unnamed creek along the train tracks. The low density MAM occurring in this floodplain have been targeted because the fruit is known to float.

Biocontrol - *Rhinocomimus latipes* is a weevil effective in the control or suppression of MAM. Upon project initiation in 2015, the weevil was found to be occurring throughout much of the infestation. Scenic Hudson elected to bolster the population and purchased 1000 weevils for release in 2015 (released on Peck property) and again in 2016 (released on Mance property).

### **Annual Control Schedule**

Control activities have followed a fairly simple schedule that is aimed at increasing access to patches and targeting plants prior to seed formation.

#### Spring

- Brush cutting and mowing to enable access for control activities later in the year.

#### June

- Implement control strategies appropriate for the location, including chemical and manual/mechanical controls outlined above.

#### Summer

- Monitor and follow-up control with strategies for each location, including chemical and mechanical controls outlined above.
- Biocontrol release.

### **Future Considerations**

Control methods and efficacy should be reviewed to determine best options for control. Many factors may alter the management plan including;

- Continued spread of MAM to surrounding areas,
- Discovery of new infestations in surrounding towns or counties,
- Establishment and spread of biocontrol.

Spread of MAM throughout the nearby area or into surrounding towns or counties may warrant halting manual/chemical control in order to aid and enhance biocontrol population growth. Conversely, if MAM isn't found to be expanding its range, control should be continued to constrict patch size with the goal of elimination.

### **Post Management Considerations**

This project has the potential to enhance habitat for many invasive plants, particularly Japanese stiltgrass. Where resources allow, late summer mowing and weed-whipping of stiltgrass is recommended. Given the extent of the site, restoration activities are warranted. Seeding is recommended for treated areas.

### **Clean entry and exit**

All persons and equipment entering and exiting the project area should be thoroughly cleaned to reduce seed dispersal. Special care should be taken with footwear and all equipment before leaving the site.

###