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On the Hunt for Invasives: 2012 Invasive Species Early Detection Report

Early detection is the key for controlling the spread of invasive/exotic pests and plants

Background

“Invasive species” are alien species that cause or are likely to cause harm to the economy, environment, and/or human health, and are considered to be one of the leading threats to the biodiversity and integrity of ecosystems worldwide. In broad terms, they are organisms that have been introduced deliberately or unintentionally into an environment where they did not evolve, are capable of establishing self-sustaining populations in “untransformed ecosystems”, and have no natural enemies to limit their reproduction and spread. These are among the reasons why early detection of invasive species was identified as a priority vital sign by several Inventory and Monitoring networks including the Northeast Temperate Network (NETN).

Objectives and Methods

The main goal of this program is to detect invasive species while they are still in the early stages of establishment when the costs of eradicating them are still low. This is accomplished by first developing a modest list of target insect pest and exotic plant species specific to each park. Species on the list must be recognizable to non-experts. The target list includes species that are either present in the park at low levels and of concern if new populations are detected, or not present in the park, but that threaten ecosystem health and function in the region. To aid with identification, NETN makes available laminated field guides and annual trainings to field crews and network parks. The field guides contain each park’s target list, identification cards for each species on the target list, and laminated pest and plant detection forms. As of the 2013 field season, field crews and even park visitors will be able to record sightings of invasive/exotic species into an off-the-shelf smartphone application (for iPhone and Android) called “What’s Invasive”. The app includes updated target lists for each park, and automatically stores important data associated with the detection including GPS location, photographs, and extent of population. Prompt reporting is expected to increase with the use of this app in the field, which is capable of documenting invasive species directly to a web-based system immediately following a detection. This is considered to be the pilot year for using this app, and projects organizers are eager for feedback as to how it works in the field and ways it may be improved.

An important note is that if a target invasive species is found on an NETN forest health monitoring plot, the plot must not be specifically targeted for invasive species removal. In order not to skew forest health data, forest monitoring plots need to be

treated the same as the surrounding area and invasive species removal should only occur when it is conducted in a larger management area that happens to include one or more plots.

VIBURNUM LEAF BEETLE [*Pyrrhalta viburni* Paykull]



Fig. 1

UGA 9005048

Problem: Native to most of Europe, the viburnum leaf beetle (VLB) (Fig. 1) feeds on, defoliates and can eventually kill viburnum shrubs.^{1,3,5} VLB only feeds on Viburnum species.^{1,4} Susceptible species include: the *V. dentatum* complex (arrowwood viburnums), *V. opulus* (European cranberry bush), *V. opulus* var. *americana* (American cranberry bush), and *V. rafinesquianum* (Rafinesque viburnum), and to a lesser extent, *V. lantana* (wayfaringtree viburnum), *V. lentago* (nannyberry), *V. prunifolium* (blackhaw viburnum), and *V. sargentii* (Sargent viburnum).^{3,4}

Identification: Larvae (Fig. 2) hatch in May^{1,3,5} and feed until mid-June, then pupate.^{1,4,5} Adults emerge in July and feed until leaf drop.^{1,5} Adults (Fig. 1) are 4.5 - 6.5 mm long,^{1,5} yellowish brown to light brown. Oviposition (egg laying) sites are arranged in straight rows on the undersurface of terminal twigs.^{1,4,5} A distinct protective “cap” covers each oviposition site.^{1,4,5} Mature larvae are larger than the adults about (10 - 11 mm),^{4,5} shiny, white or pale green to yellow/brown, and covered with dark spots and dashes.^{1,4}



Fig. 2

UGA 9005045

PEST

A look at the viburnum leaf beetle early detection field guide card for Morristown National Historical Park.

WANTED

AT MORRISTOWN NHP

ASIAN LONGHORNED BEETLE

The Asian longhorned beetle is a destructive wood-boring pest that was first discovered on several hardwood trees in the U.S. in Brooklyn, New York, in 1996. It is believed to have gotten here by residing in wood pallets and other wood packing material used in cargo ships from Asia. Shiny black with white spots, and with antennae longer than their bodies, the insects are partial to all species of maples, but are also known to attack horse chestnuts, willows, birches, elm, ash, pear and plum trees. Following substantial eradication efforts, it has been declared gone from several places where it once was spreading. After the completion of control and regulatory activities, and following confirmation surveys, it was declared eradicated in 2008 in Chicago, Ill. and in 2011 from Islip, NY.

In March of 2013, federal, state and local officials in New Jersey have also declared it eradicated. Eleven years after the first Asian Longhorned Beetle was found in Carteret, the pest responsible for destroying thousands of trees in the state is believed to have been completely eliminated.

Massachusetts, New York and Ohio are still battling the bug using a combination of techniques, including tree removal, insecticide injections, public education and surveillance. The beetle's life-cycle begins after the adults emerge in the early summer and begin their mating ritual. The females will look for a tree and lay eggs in tiny indentations they make in the bark. When the eggs hatch, the larvae bore into the center of the tree and feed on its heartwood all winter, ultimately destroying the tree.

In N.J., it took the removal or treatment of more than 50,000 trees, both infected and attractive to the insect, to eradicate the it; becoming only the second state in the nation to do so.

The state continues to do battle with another Asian visitor, the emerald ash borer, and several other non-native insects that threaten trees and plants in the country.



Results and Findings

Early Detections

Five new locations of species on the target list were observed in 2012. One detection of porcelainberry and two each of black jetbead and linden arrowwood were detected by park staff.

Invasive Species Target List Review

NETN staff removed three species from the target list in 2012. Siebold's arrowwood, oriental photinia and wisteria species have been found in several forest health plots or are managed elsewhere in the park, and were therefore removed from the target list. Two new shrubs, Japanese snowbell and amur honeysuckle, were added to the list. Amur honeysuckle is known to occur in Morris county and has a high invasive ranking from NatureServe. Japanese snowbell has been documented in isolated areas of the park near Cross Estates. Documenting the whereabouts of other locations of these two species will be helpful to resource managers. The stream alga species, didymo (also known endearingly as "rock snot"), was added to the aquatic invasive list for 2013. The remaining fifteen species will stay on the list because of their continued invasive potential and/or unknown status within the park.

Invasive Species Management

Several species were mechanically removed or treated with herbicide in 2012, including the following targeted species: Siebold's arrowwood, oriental photinia and black swallow-wort. In addition, an unknown species in the Photinia genus was also removed.

What's Next

The invasives program, now in its third year, has entered the stage of reviewing the original species target lists based on the number of detections and updated species ranges. Feedback from park managers has indicated that the target lists and field guides have increased awareness of priority invasive species, and have made identification of these species easier. Continued feedback about the *What's Invasive?* app will help to further enhance the effectiveness of the invasive species early detection program.

More Information

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Full Report online at:

<https://irma.nps.gov/App/Reference/Profile/2194335>

"What's Invasive?" Website

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