



ACADIA NP • APPALACHIAN NST • BOSTON HARBOR ISLANDS NRA • MARSH-BILLINGS-ROCKEFELLER NHP • MINUTE MAN NHP
MORRISTOWN NHP • ROOSEVELT-VANDERBILT NHS • SAINT-GAUDENS NHS • SAUGUS IRON WORKS NHS • SARATOGA NHP • WEIR FARM NHS

Park Invaders: 2013 Invasive Species Early Detection

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 environment, economy, 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

controls 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).

2013 was the 4th year of the invasive species early detection (ISED) program and, for many parks, the second visit from the NETN forest health monitoring crew since the protocol was adopted. In many cases, having the

presence of field crews that venture beyond the front-country paths and roads has resulted in new detections of target invasive species. Program wide, early detection species were found in 29 different locations among all but two NETN parks during 2013. The numbers of reports have steadily increased in the last several years, compared with only six sightings in 2011 and 12 in 2012. In and of itself, this increase may not necessarily indicate higher prevalence of invasive species in NETN parks, but could be a reflection of higher skilled field crews that are using more efficient reporting tools.

Support of the ISED program from park staff and volunteers continues to enhance its efficiency and relevance. Successful rapid response when invasives are found remains crucial to maintaining its effectiveness within network parks.

Objectives and Methods

The main goal of this program is to detect invasive species in the early stages of establishment when the cost of eradicating them is still low. This is accomplished by first developing a modest list of target insect pest and exotic plant species that are specific to each park and 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 yet present in the park but 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 are using an off-the-shelf smartphone application (for Iphone and Android) called “What’s Invasive?” to record sightings of invasive/exotic species. 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 also available for use by park staff, volunteers, and the visiting public.

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.

EURASIAN WATERMILFOIL

Myriophyllum spicatum (L.)

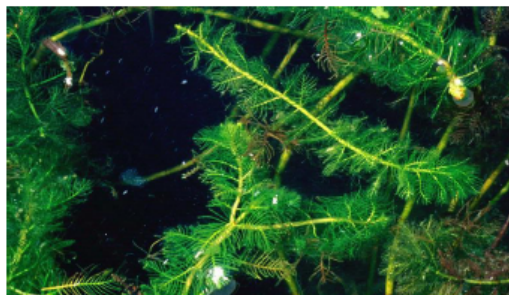


Fig. 4 UGA 5391694
Stems: EW can rapidly form dense mats of long submerged reddish-brown stems, 2-6 m in length, branching several times near the surface (Fig. 4).³

Flowers/ Fruit/Seeds: EW produces small, yellow to reddish flowers (4-parted) on a spike projecting 5-10cm above the water surface (Fig. 5).^{1,2} The fruit is a hard, segmented capsule, 2-3mm long, containing four seeds (Fig. 6).^{1,2}

Habitat: Prefers lakes, ponds, low flow rivers and streams. Also can tolerate a wide range of water quality conditions and brackish water of tidal areas.³

Similar Species: Native northern watermilfoil, *Myriophyllum sibiricum*, can be distinguished from EW with having fewer than 12 leaflet pairs per leaf, whereas EW usually has 14 or more pairs of leaflets.⁴ EW is known to hybridize with native northern watermilfoils.³



Fig. 5 UGA 5273022 Fig. 6 UGA 5308027

WANTED

JAPANESE HONEYSUCKLE

Japanese honeysuckle is a climbing perennial vine that twists its stems around vertical structures, including limbs and trunks of shrubs and small trees. In southern and mid-Atlantic states, Japanese honeysuckle often remains evergreen – its leaves remain attached through the winter. In colder places like Saugus, MA, the leaves will fall off after exposure to prolonged winter temperatures. Very few animals and insects feed on Japanese honeysuckle in North America, allowing it to spread widely and out-compete native plants. Its evergreen to semi-evergreen nature gives it an added advantage over native species in many areas. They can also directly kill shrubs and young trees by girdling when their vines twist tightly around stems and trunks, cutting off the flow of water through the plant. Dense growths of honeysuckle covering vegetation can also kill plants by blocking sunlight from reaching their leaves.



Chuck Barger photo

UGA2308103



Results and Findings

Early Detections

Two new early detection species, Japanese honeysuckle and perennial pepperweed were found on the east bank of the Saugus River in 2013. Park Natural Resource Stewardship staff hand pulled clusters of perennial pepperweed from the mudflat banks and rocky berm near the turning basin. The Japanese honeysuckle populations were dense and uniform in nature and were located south of the carpenter's shop and uphill of the nature trail as it bends near the eastern park boundary. The total population (approximately 278 m²) was identified as three, distinct segments with the segment nearest the carpenter's shop being the largest. The area is filled with other invasive plants that were hiding much of the honeysuckle vine.

In July 2014, the presence of emerald ash borer (EAB) was confirmed less than 20 miles from the park in Boston and Suffolk County following the discovery of the invasive insect at the Arnold Arboretum. A single adult beetle was found during a routine check of monitoring traps deployed in the Arboretum landscape. EAB was confirmed in North Andover, Essex County, Massachusetts in November 2013. USDA and APHIS are conducting coordinated surveys and working to define a quarantine area. There are now three counties in Massachusetts to have confirmed the presence of this destructive pest.

ISED Target List Review

After discovering three dense patches of Japanese honeysuckle, park staff and volunteers made great efforts to remove roughly half of the entire population. Now that it has been discovered and the extent of the population is being assessed, hopefully this species can be managed effectively into the future. Since it is likely that this vine is fairly well established in the park it has been taken off the 2014 target watch list.

Invasive Species Management

With help from volunteers and summer youth workers, park staff treated nine non-indigenous, invasive plant species on both sides of the Saugus river. Six of these species (common reed, oriental bittersweet, purple loosestrife, Japanese knotweed, multiflora rose and glossy buckthorn) were treated in previous years as well. Japanese honeysuckle, perennial pepperweed, and greater burdock were new invasive species controlled by the park in 2013. Management efforts were particularly focused on common reed and purple loosestrife, and with increasing attention, Japanese knotweed. Since the Turning basin restoration project in 2008, in which common reed was mechanically removed, the invasive grass has mounted a bit of a comeback, and has expanded its range and abundance in the last 6 years. The struggle to keep its population in check will undoubtedly continue in years to come.

More Information

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Saugus Iron Works NHS Invasives Field Guide:

http://science.nature.nps.gov/im/units/netn/monitor/programs/invasiveSpecies/earlydetection_guides.cfm

Full Report online at:

<http://irmafiles.nps.gov/reference/holding/493069>

"What's Invasive?" Website

<http://whatsinvasive.com/park.cfm>



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