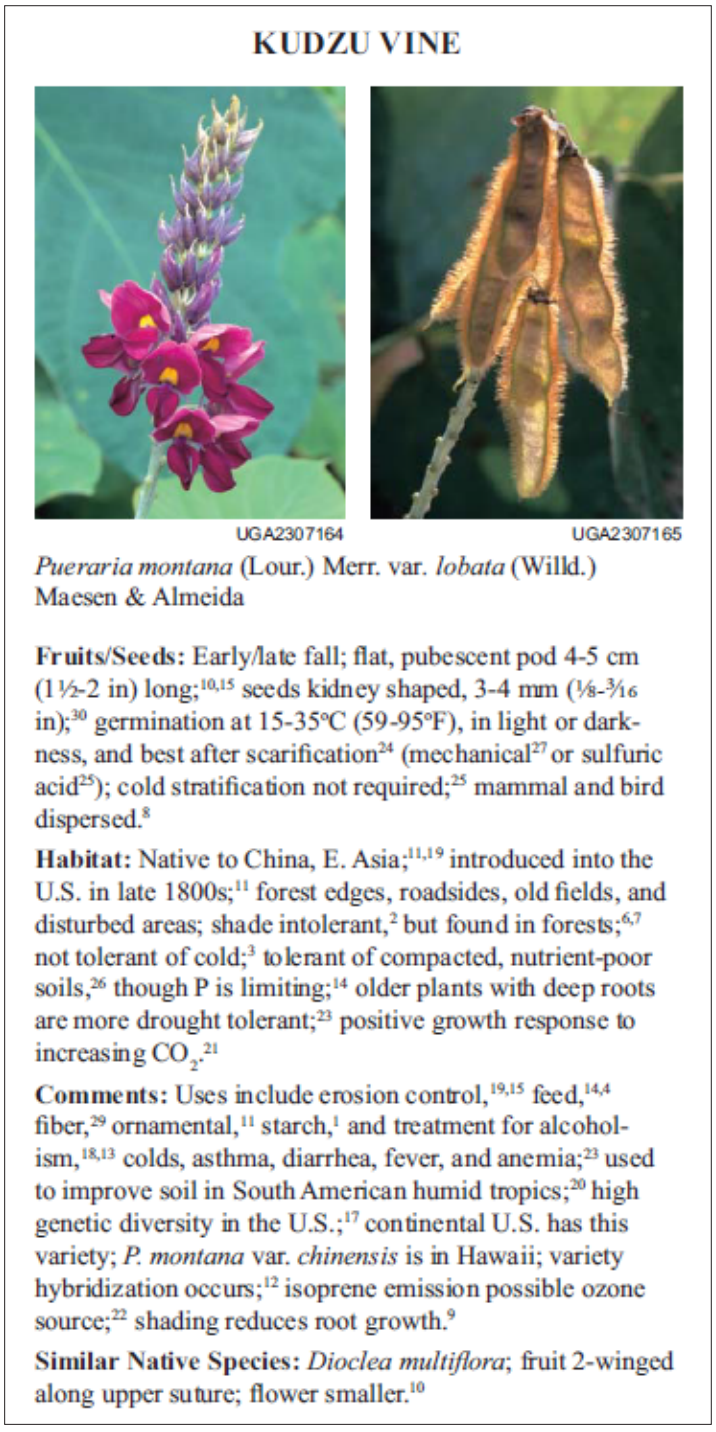
# Park Invaders: 2013 Invasive Species Early Detection

## 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).



**KUDZU VINE**



UGA2307164



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*Pueraria montana* (Lour.) Merr. var. *lobata* (Willd.) Maesen & Almeida

**Fruits/Seeds:** Early/late fall; flat, pubescent pod 4-5 cm (1½-2 in) long;[10,15] seeds kidney shaped, 3-4 mm (⅛-3⁄16 in);[30] germination at 15-35°C (59-95°F), in light or darkness, and best after scarification[24] (mechanical[27] or sulfuric acid[25]); cold stratification not required;[25] mammal and bird dispersed.[8]

**Habitat:** Native to China, E. Asia;[11,19] introduced into the U.S. in late 1800s;[11] forest edges, roadsides, old fields, and disturbed areas; shade intolerant,[2] but found in forests;[6,7] not tolerant of cold;[3] tolerant of compacted, nutrient-poor soils,[26] though P is limiting;[14] older plants with deep roots are more drought tolerant;[23] positive growth response to increasing $CO_2$.[21]

**Comments:** Uses include erosion control,[19,15] feed,[14,4] fiber,[29] ornamental,[11] starch,[1] and treatment for alcoholism,[18,13] colds, asthma, diarrhea, fever, and anemia;[23] used to improve soil in South American humid tropics;[20] high genetic diversity in the U.S.;[17] continental U.S. has this variety; *P. montana* var. *chinensis* is in Hawaii; variety hybridization occurs;[12] isoprene emission possible ozone source;[22] shading reduces root growth.[9]

**Similar Native Species:** *Dioclea multiflora*; fruit 2-winged along upper suture; flower smaller.[10]

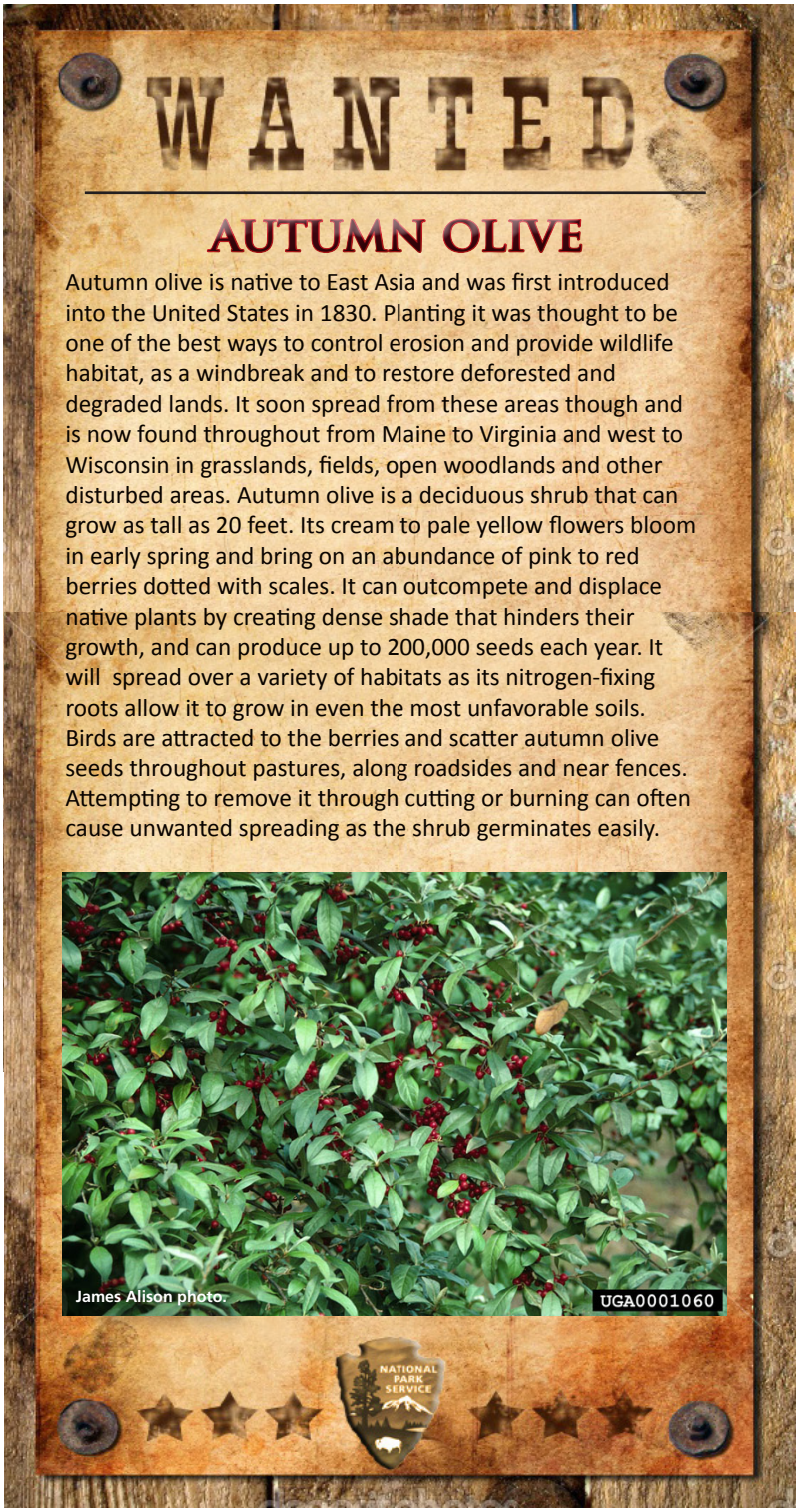
A look at the kudzu vine early detection card for the park.

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.

## Results and Findings

### Early Detections

Three early detection species were found by park staff and the forest health crew in 2013. Wine raspberry was found in four locations, three sites within or near forest health monitoring plots and one site in the vicinity of Weir Pond. Park staff found scattered patches of purple loosestrife at Truants meadow and some dense patches just below the western Weir house terrace. Park staff also noted Wisteria spp. in the park and will be keeping an eye on the vine's potential spread in the future.

### Invasive Target List Review

After multiple sightings of wine raspberry during the forest monitoring crew's visit in spring of 2013, it is likely that this shrub is fairly well established now in the park and it has been taken off the target watch list for 2014. Autumn olive and Japanese knotweed have been added to the watch list. Both species have recently been found in the park, though at low levels, and park staff eradicated all known occurrences of them in 2013. Because the invasive potential is so great (High Invasive Species Impact Rank for autumn olive and High/ Medium for Japanese knotweed), a rapid response is essential for any future populations that are identified.

### Invasive Species Management

For the first time in the park history, Japanese knotweed and autumn olive were found inside park borders. A patch of Japanese knotweed was treated with herbicide on the east side of Nod Hill road near the south visitor parking area. Autumn olive, an open field invader, had a few seedlings pulled out of the Burlingham field, west of South island.

## More Information

### Contacts and Websites


Jesse Wheeler
Project Lead Scientist
Phone/ E-mail
207-288-8722
jesse_wheeler@nps.gov

Brian Mitchell
NETN Program Manager
Phone/E-mail
802-457-3368 ext. 37
brian_mitchell@nps.gov


Weir Farm 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


Northeast Temperate Network
54 Elm Street, Woodstock, Vermont 05091
802-457-3368
*http:/www.science.nature.nps.gov/im/units/netn/*