

Invasive Species Early Detection

2009 RESOURCE BRIEF

National Park Service · Northeast Region
U.S. Department of the Interior

Eastern Rivers and Mountains Network
Inventory & Monitoring Program



Allegheny Portage Railroad NHS - Bluestone NSR - Delaware Water Gap NRA - Fort Necessity NB - Friendship Hill NHS - Gauley River NRA - Johnstown Flood NMem - New River Gorge NR - Upper Delaware SRR

IMPORTANCE

An “invasive species” is an alien species whose introduction does or is likely to cause economic or environmental harm or harm to human health. The known ecological impacts of invasive species include loss of threatened and endangered spe-



Emerald ash borer (*Agrilus plannipennis*)

cies, altered structure and composition of terrestrial and aquatic communities, and reduction in overall species diversity. Early detection followed by rapid response can detect and eradicate incipient populations of invasive species before they have a chance to become widely established, thus eliminating the need for costly and resource intensive control programs. Only when invasions are caught early will the chance of eradication remain high.

Damages associated with alien invasive species effects and their control amount to approximately \$120 billion/year.

-- Pimental et al., 2005

WHAT WE ARE DOING

Invasive plants and pests present on each park's invasive species early detection list are being sought during routine monitoring in the Eastern Rivers and Mountains Network (ERMN). Knowledgeable monitoring crew members provide an additional “set of eyes and ears” to detect incipient species occurrences while in the parks. Park natural resource managers, Exotic Plant Management Teams, and other National Park Service scientists are also used for their daily park presence. In May 2008, the ERMN vegetation monitoring crew began opportunistic sampling at ERMN parks.

“Every person working or recreating in a national park has the potential to serve as an early detector.”

-- Williams et al. 2007

WHAT WE ARE FINDING

During invasive species early detection surveillance monitoring in 2008 and 2009, 20 new invasive plant and pest occurrences were documented at five parks. New species occurrences included Japanese barberry (*Berberis thunbergii*), narrowleaf bittercress (*Cardamine impatiens*), privet (*Ligustrum* sp.), gypsy moth (*Lymantria dispar*), Amur cork-tree (*Phellodendron amurense*), Japanese knotweed (*Polygonum cuspidatum*), linden arrowwood (*Viburnum dilatatum*), emerald ash borer (*Agrilus planipennis*) and viburnum leaf beetle (*Pyrrhalta viburni*). Of the 15 new plant occurrences, 10 consisted of single specimens and/or small populations and were hand-pulled or chemically treated.

Pimental, D., R. Zuniga, and D. Morrison. 2005. Update on the environmental and economic costs associated with alien-invasive species in the United States. *Ecological Economics*. 52(3): 273-288.

Williams, A. E., S. O'Neil, E. Speith, and J. Rodgers. 2007. Early detection monitoring of invasive plant species in the San Francisco Bay Area Network: a volunteer-based approach. Natural Resource Report NPS/PWR/SFAN/NRR—2007/00N. National Park Service Pacific West Regional Office, Oakland, California.

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