



Mid-Atlantic Forest Health Summary for 2013

Delaware, New Jersey, Maryland, Ohio, Pennsylvania, West Virginia, District of Columbia

The Mid-Atlantic Forest Health Summaries are assembled to provide forest health information and resources of regional interest. Information is obtained from State news releases, Web sites, reports from forest health specialists within the States and the Morgantown Field Office, and information presented at the 2013 Mid-Atlantic USDA Forest Service Cooperative Forest Health Program State Cooperators Meeting held October 2-4, 2013, at Budd Lake, New Jersey. The USDA Forest Service Morgantown Field Office serves a six-state area that includes the District of Columbia. This Field Office is one of three within the region served by the Northeastern Area State and Private Forestry.

Informational resources worth checking out:

Mid-Atlantic Region State Forest Health Highlights are enclosed with this summary and copies from previous years can be viewed at <http://fhm.fs.fed.us/fhh/fhmusamap.shtml>.

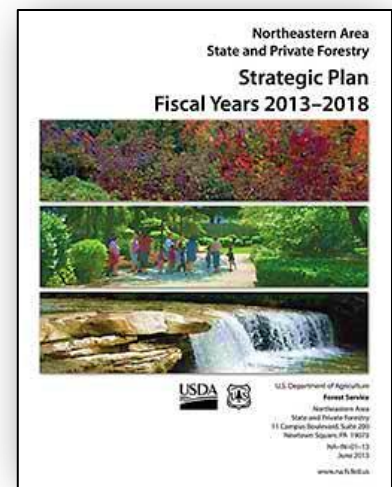
Title: Northeastern Area State and Private Forestry Strategic Plan Fiscal Years 2013–2018

Author: Northeastern Area State and Private Forestry, USDA Forest Service

Year: 2013

Publication: NA-IN-01-03. Newtown Square, PA: U.S. Department of Agriculture, Forest Service, Northeastern Area State and Private Forestry. 28 p.

Abstract: The Northeastern Area is fortunate to have a workforce with skills and expertise in some of the most important aspects of forest and program management—wood for energy, storm recovery, invasive species management, urban forestry, land protection, watershed forestry, forest stewardship, public outreach and education, and grants and information management. Besides capitalizing on the skills of our current workforce, the



Northeastern Area State and Private Forestry Strategic Plan 2013–2018.

new Strategic Plan is based on the Forest Service national priorities for State and Private Forestry: 1) Conserve and Manage Working Forest Landscapes for Multiple Values and Uses, 2) Protect Forests from Threats, and 3) Enhance Public Benefits from Trees and Forests. We added a fourth and equally important goal, Organizational Effectiveness, because technical expertise, technology, safety, workforce diversity, effective communications, and customer service are the fuels that make our achievements possible.

Online Access: http://na.fs.fed.us/pubs/strat_plan/na-strategic-plan-2013-2018-lr.pdf (PDF)

Hungry Pests is the U.S. Department of Agriculture's signature outreach initiative to raise public awareness about the invasive pest threat. Its goals include:

- Elevating the issue of invasive pests among the general public
- Educating the public about the threats that invasive pests pose
- Increasing awareness about safe and effective solutions to combat them

The pests targeted by the Hungry Pests initiative are federally regulated invasive species whose introduction into the United States and spread within the country is assisted by the activities of the general public. These pests have the ability to cause significant harm to U.S. agricultural and environmental resources. Through the Hungry Pests Web site and outreach materials, the public can learn how to Leave Hungry Pests Behind. Visit the Web site at <http://www.hungrypests.com/>.



Hungry Pests Web site.

Host Plants of the Brown Marmorated Stink Bug in the U.S

Researchers have published a list of 170 plants that the brown marmorated stink bug (BMSB) uses for food and reproduction, called *Host Plants of the Brown Marmorated Stink Bug in the U.S.*. This publication will be a living document that is updated regularly on the Web.

The list is a companion to five short Web videos about BMSB host plants that show growers how to monitor for damage and infestations. Topics span orchard crops, small fruit, vegetables, ornamental crops, and Pacific Northwest host plants and damage. The segments, which can also be watched as one 20-minute video, are the latest installment in the "Tracking the Brown Marmorated Stink Bug" series produced by the Northeastern Integrated Pest Management Center at Cornell University. Earlier videos explain history and identification, overwintering and spread, and monitoring and mapping.

BMSB has been detected in 40 States, posing severe agricultural problems in six States and nuisance problems in 13 others. The insect threatens an estimated \$21 billion worth of crops in the United States alone. Visit <http://www.stopbmsb.org/stink-bug-bulletin/host-plants/>.



Videos show how to monitor for damage and infestations. View at StopBMBS.org.

Title: Proposed BMPs for Invasive Plant Mitigation during Timber Harvesting Operations

Author: LeDoux, Chris B.; Martin, Danielle K.

Year: 2013

Publication: Gen. Tech. Rep. NRS-118. Newtown Square, PA: U.S. Department of Agriculture, Forest Service, Northern Research Station. 12 p.

Abstract: The invasion and spread of invasive plants is a major problem in forested ecosystems. Invasive plants can displace existing vegetation and in some cases take over the site. With the displacement of native vegetation come major ecosystem changes that may jeopardize ecological processes and functions as well as habitat for wildlife. The disturbance caused during timber harvesting processes creates conditions that encourage the establishment and spread of invasive plants. The machinery and traffic movement within a job site may introduce and spread seeds, roots, and plant parts from one job site to another. In this report, we address the timber harvesting processes and the disturbance that is created; explain how seeds, roots, and other parts of invasive plants can be spread; address the opportunity costs involved and those responsible; and propose voluntary BMPs for invasive plant mitigation during timber harvesting operations.

View or print this publication: http://www.nrs.fs.fed.us/pubs/gtr/gtr_nrs118.pdf.

The USDA Forest Service Rocky Mountain Research Station is pleased to announce a new Webinar series, Invasive Plants – Issues, Challenges, and Discoveries. This free interactive series will provide attendees with cutting-edge information about invasive plants and their management. We encourage land managers, professionals, scientists, and other interested people to attend.

Webinar Series Schedule (All Webinars will begin at 12:00 pm Mountain Time)

Date: Webinar Topic

March 27, 2014: *Hybridization in weedy species* - **Sarah Ward**

April 10, 2014: *Biogeography of plant invasions* - **Dean Pearson**

April 24, 2014: *Pathogen-based biological control of grassy weeds* - **Susan Meyer**

May 8, 2014: *Classical biological control of weeds* - **Sharlene Sing**

For more information, visit <http://www.fs.fed.us/rmrs/webinar-series/invasive-plants/>.

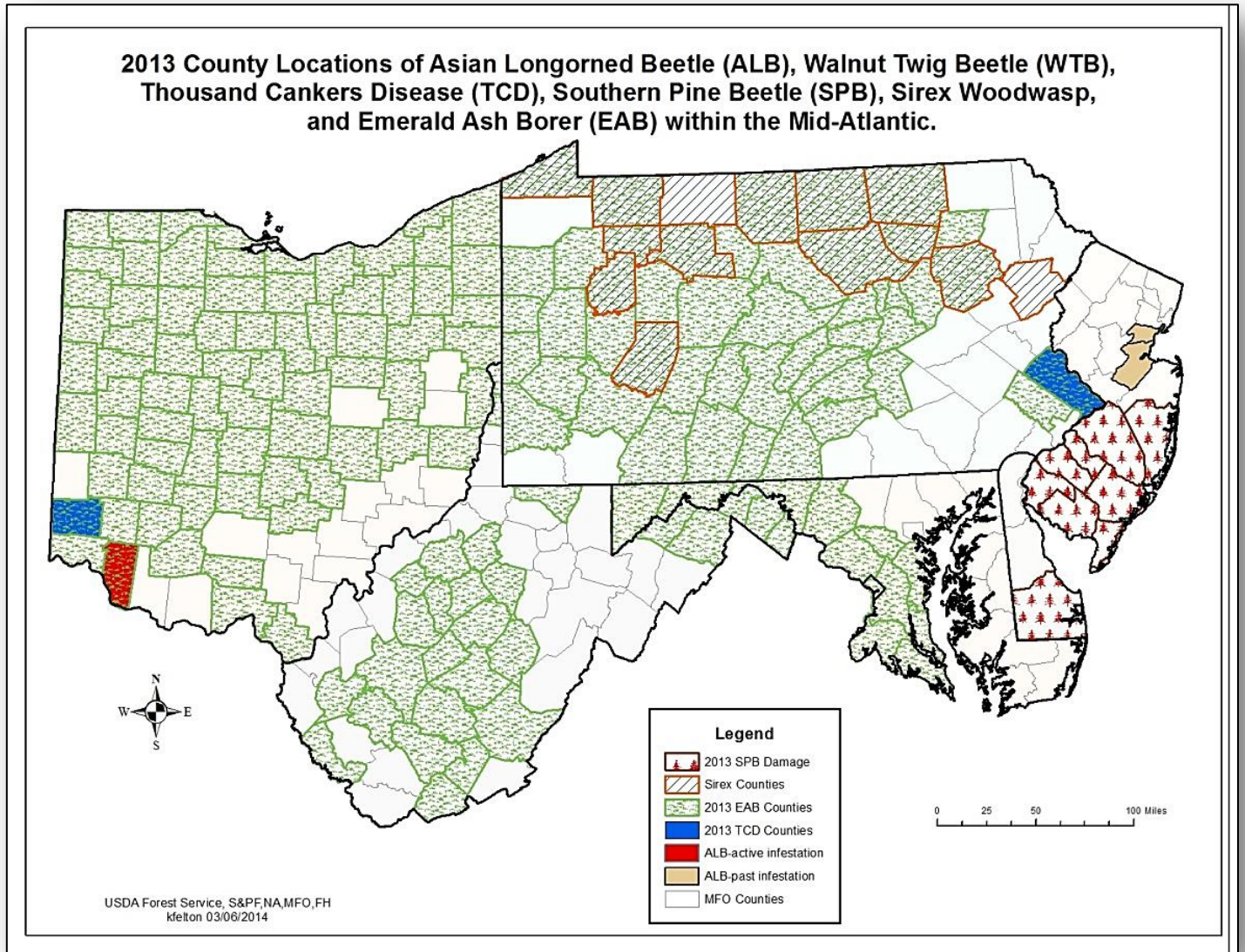
MAIPC White Paper from the Biological Control Working Group

The Mid-Atlantic Invasive Plant Council (MAIPC) provides regional leadership to effectively address the threat of invasive plants to the native flora, fauna, and natural habitats of the Mid-Atlantic. The council coordinates regional efforts to gather and share information on the identification, management, and prevention of invasive species; provide training and volunteer opportunities; and identify research needs. The council is represented by members from Delaware, Maryland, New Jersey, Pennsylvania, Virginia, West Virginia, and the District of Columbia. The MAIPC Biological Control Working Group has prepared a white paper for biological control.

Home: <http://www.maipc.org/>

White Paper: http://www.maipc.org/MAIPC_BiocontrolWG_Dec18.doc

The map below shows the county locations of six invasive pests within the Mid-Atlantic:



ASIAN LONGHORNED BEETLE (ALB)

As of February 28, 2014:

APHIS has published a notice in the Federal Register regarding a treatment evaluation document for heat treatment for Asian longhorned beetle (ALB). APHIS has determined that it is necessary to add a treatment schedule for Asian longhorned beetle in the Plant Protection and Quarantine Treatment Manual. APHIS has prepared a treatment evaluation document that discusses the existing treatment schedule and explains why this change is necessary. The treatment evaluation document is being made available to the public for review and comment until April 11. You can access the “Notice of Availability of a Treatment Evaluation Document for Heat Treatment for Asian Longhorned Beetle” (Docket No. APHIS-2013-0094) online at <http://www.regulations.gov/#!documentDetail;D=APHIS-2013-0094-0002>.

OHIO – First ALB detection in June 2011

Regulated Area: 61 sq. miles

Clermont County (Tate Township, Monroe Township, Stonelick/Batavia Township)

Infested Trees: 11,240

Removals: 32,950

- 10,644 Infested
- 22,306 High-risk hosts

Surveys: Ground and aerial survey crews continue to conduct delimiting surveys, inspecting all host trees throughout the regulated areas in Clermont County. Staffs continue to monitor regulated areas, respond to service calls, and conduct training sessions for compliance agreements. Infested trees are removed throughout the year as they are detected. To get specific information about eradication program activities, community members may also call the eradication program office directly at (513) 381-7180.

MASSACHUSETTS – First ALB detection in August 2008

Regulated Area: 120 sq. miles

- 110 sq. miles – Worcester County (Worcester, West Boylston, Boylston, Holden, Shrewsbury, Auburn)
- 10 sq. miles – Norfolk/Suffolk Counties (Boston, Brookline)

Infested Trees: 23,581*

Removals: 33,799*

- 23,549 Infested
- 10,250 High-risk hosts

Surveys:

** Please note that total numbers for detection and removal data are under review. Due to high-risk host removals and acreage cuts in Worcester County, the actual number of infested trees and the actual number of trees removed are unknown.*

Ground and aerial survey crews continue to conduct delimiting surveys, inspecting all host trees throughout the regulated areas in Worcester and Suffolk/Norfolk Counties. Staffs continue to monitor regulated areas, respond to service calls, and conduct training sessions for compliance agreements. Infested trees are removed throughout the year as they are detected. There are no removals taking place in Suffolk/Norfolk Counties.

NEW YORK – First ALB detection in August 1996

Regulated Area: 109 sq. miles*

- 26 sq. miles – Kings County (Brooklyn)
- 58 sq. miles – Queens County (Queens)
- 23 sq. miles – Nassau/Suffolk County (Amityville)

Infested Trees: 6,615**

Removals: 18,550

- 6,367 Infested
- 12,183 High-risk hosts

Surveys: Inspections continue

* *Manhattan (New York County, New York) and Staten Island (Richmond County) declared eradication in 2013, resulting in a reduction of the regulated area by 26 sq. miles to 109 sq. miles from 135 sq. miles. Islip (Suffolk County, New York) declared eradication in 2011, resulting in a reduction of the regulated area by 7 sq. miles to 135 sq. miles from 142 sq. miles.*

** *Due to high-risk host removals the actual number of infested trees is unknown.*

Ground and aerial survey crews continue to conduct surveys, inspecting all host trees throughout the regulated areas in Kings, Queens, and Nassau/Suffolk Counties. Staffs continue to monitor regulated areas, respond to service calls, and conduct training sessions for compliance agreements.

REMINDERS:

The mission of the eradication program is to help save trees and eliminate the beetle from each affected State. Residents in Asian longhorned beetle-regulated areas cannot move firewood or wood debris outside of the regulated area. Residents are also discouraged from moving firewood and wood debris inside the regulated area. In the event of inclement weather, surveys and infested tree removals may be delayed or cancelled.

If you think you've found an Asian longhorned beetle or signs of infestation, always record the area where the specimen was found. If possible, capture the insect you think is an Asian longhorned beetle, place it in a jar, and freeze it—this will preserve the insect for easy identification. Take digital pictures of the insect and damage to your trees in case officials request them, and please call **1-866-702-9938**.

More Information:

There are other ways to stay informed about Asian longhorned beetle eradication efforts:

ALB eNewsletter: <http://content.govdelivery.com/accounts/USDAAPHIS/bulletins/a83818>

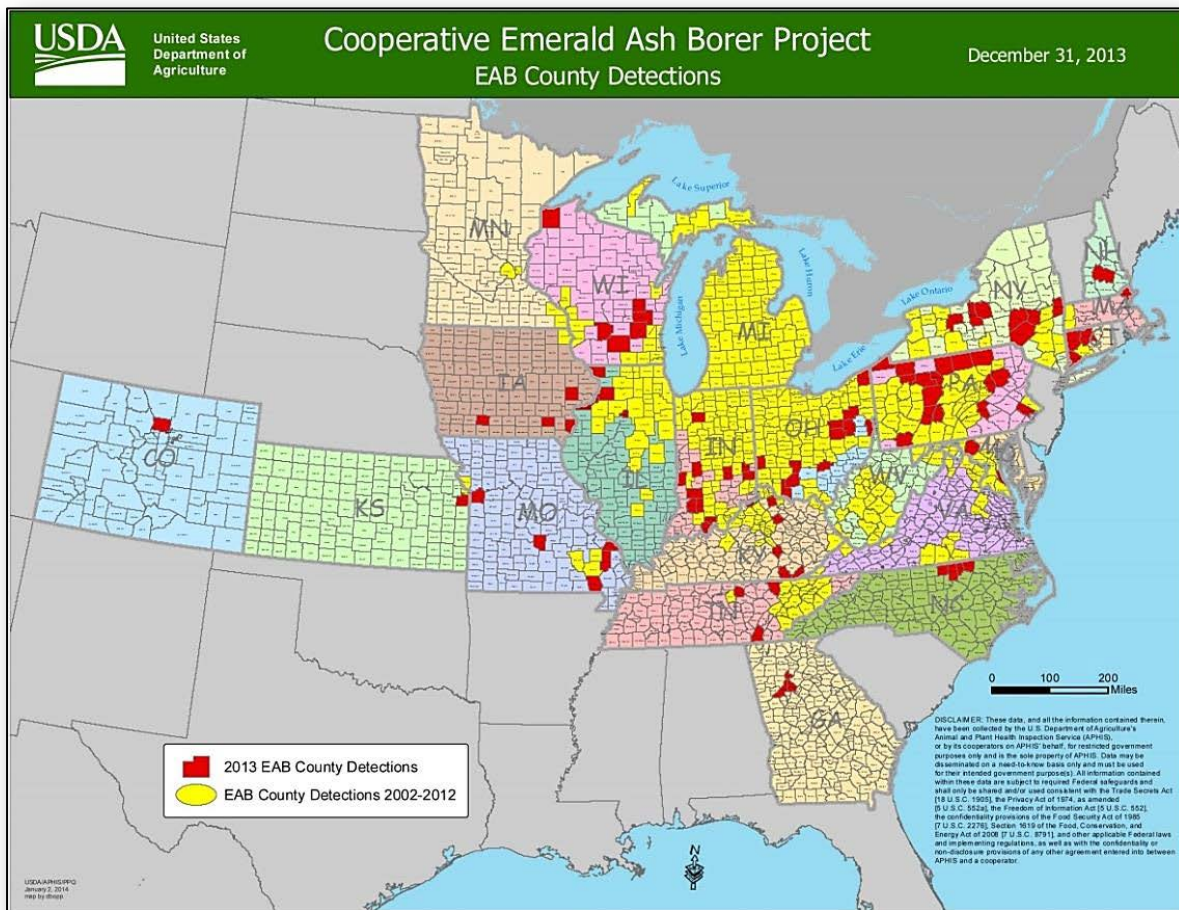
ON THE WEB: www.AsianLonghornedBeetle.com or [APHIS Asian longhorned beetle](http://APHIS.AsianLonghornedBeetle.com)

FACEBOOK: facebook.com/asianlonghornbeetle

YOUTUBE: youtube.com/user/BeetleBusters

Asian longhorned beetle eradication programs are cooperative programs. USDA's Animal and Plant Health Inspection Service (APHIS) works with the U.S. Forest Service, Agricultural Research Service, and partnering organizations in each affected State. In Ohio, the cooperative eradication program is comprised of the Ohio Department of Agriculture, Ohio Department of Natural Resources, Ohio State University Extension, and Clermont County. In Massachusetts, the cooperative eradication program is comprised of the Massachusetts Department of Conservation and Recreation; Massachusetts Department of Agricultural Resources; city of Worcester; towns of Holden, West Boylston, Boylston, Shrewsbury, and Auburn; city of Boston; and the town of Brookline. In New York, the cooperative eradication program is comprised of the New York Department of Agriculture and Markets, New York State Department of Environmental Conservation, and the New York City Department of Parks and Recreation.

EMERALD ASH BORER (EAB)



Emerald ash borer status as of December 31, 2013.

Teaming Up to Survey for Emerald Ash Borer Parasites at West Virginia State Parks 04/19/2013

Amy Hill and Rick Turcotte from the U.S. Forest Service, Northeastern Area State and Private Forestry joined Rachel Braud and Rachel Messineo (USDA Animal and Plant Health Inspection Service, Plant Protection and Quarantine) and Susan Burke (West Virginia Department of Agriculture, Plant Industries Division) at Cedar Creek and Cacapon State Parks to survey for emerald ash borer (EAB) parasites. Both parks currently have the emerald ash borer and were sites for the release of two parasitic wasps, *Spathius agrili* and *Tetrastichus planipennisi*, in 2011 and 2012. Surveys for the wasp include peeling EAB-infested trees and collecting



Peeling EAB-infested trees. Photo credit: USFS.

developing larvae or rearing the parasites out of EAB-infested ash logs (bolts). Both wasps are introduced larval parasitoids of the emerald ash borer, an exotic beetle from Asia that feeds on ash trees. This introduced beetle has caused extensive mortality of native ash wherever it is found.

Submitted by: Rick Turcotte, Entomologist, USDA FS, MFO, FHP



Ash logs (bolts) in insect rearing tubes. Photo credit: USFS.

Monitoring for Emerald Ash Borer and Other Wood Borers in the District of Columbia

On May 16, 2013, Rick Turcotte and Dan Twardus from the USDA Forest Service, MFO, FHP visited with Chris Carley and Sue Greeley of the National Arboretum (Agricultural Research Service). The purpose of the trip was to hang EAB detection traps. No EAB have been detected yet within the Arboretum, though EAB have been discovered within the District of Columbia. While at the Arboretum, Rick also checked on progress associated with the cryptic boring insect detection project. This project uses insect rearing tubes within which samples of dead and/or dying trees are placed. Collected insects are examined for the presence of potential threats, including exotics. This is a hands-on method of early detection and is a cooperative project with the Arboretum and MFO. A similar project has been initiated with the District of Columbia, Urban Forestry Administration.

During the same trip, Rick Turcotte placed EAB detection traps at the National Aquatic Gardens (National Park Service) within the District of Columbia. The Gardens have a considerable amount of ash, some of which is pumpkin ash. Some signs of EAB infestation already exist within the Gardens, including evidence of woodpecker activity. Rick will be working with the Gardens National Park Service Resource Manager to develop an EAB response plan that may include chemical treatment of ash determined to be of high value for protection.

Submitted by: Rick Turcotte, Entomologist, USDA FS, MFO, FHP



Hanging EAB detection traps. Photo credit: USFS.

GYPSY MOTH (GM)

Biological Evaluation of Gypsy Moth Populations on the Allegheny National Forest, 2013

During the spring of 2013, the Allegheny National Forest (ANF) experienced an outbreak of the gypsy moth, a non-native defoliator of forest, shade, and ornamental trees. Forest Disturbance Mapper data from the U.S. Forest Service Forest Health Technology Enterprise Team detected ~105,000 acres of detectable change during this time. Field personnel reported widespread refoleation of trees in the defoliated areas.

Personnel from the U.S. Forest Service, Northeastern Area State and Private Forestry, Forest Health Protection, Morgantown Field Office joined ANF personnel to conduct gypsy moth egg mass surveys at 35 areas across the ANF. The purpose of these surveys was to estimate gypsy moth population densities through fall egg mass counts and to assess the need for treatment in 2014. Average egg mass densities ranged from 0-1,020 egg masses/acre. Although extensive gypsy moth larval mortality was noted in all areas surveyed, three of the survey areas—Cornplanter Bay, Hodge Bay, and Hopewell Campground—contained egg mass densities sufficient to predict localized moderate to heavy defoliation in 2014. Light defoliation is predicted at Sugar Bay and Central Hodge Bay with the remaining 30 areas having egg mass densities sufficient to predict background or nuisance levels of gypsy moth defoliation.



Gypsy moth defoliation, Allegheny Reservoir, June 15, 2013. Photo credit: USFS.

Prepared by: *Tara M. Spinos, Biological Science Technician, and Richard M. Turcotte, Entomologist, USDA FS, MFO, FHP, October 2013*

HEMLOCK WOOLLY ADELGID (HWA)

Hemlock Treatments at Hocking Hills State Park, OH

A relatively small infestation of HWA was discovered in 2013 at Cantwell Cliffs in Hocking Hills State Park, near Logan, OH, as part of a joint Ohio Department of Natural Resources (ODNR) and Ohio Department of Agriculture forest health survey program. An extensive survey of the immediate surrounding area was conducted, and no additional infested trees were found. This area is one of the most important hemlock stands in the State of Ohio and receives approximately 2 million visitors or more a year.

Multiple chemical and nonchemical treatment options were explored, including treatments such as foliar sprays of horticultural oils or insecticidal soaps, systemic insecticides, and biological control.



Hemlock stem injections. Photo credit: USFS.

On April 22 and 23, 2013, Ivich Fraser and Bill Oldland from the U.S. Forest Service, MFO, FHP met with Stephanie Downs and Dave Apsley (ODNR) to assist with these treatments. Three types of treatments took place: soil drench (imidacloprid), basal spray (dinotefuran), and stem injections (imidacloprid). Ivich and Bill helped with the stem injections while other crews applied the soil drench and basal spray.

Due to the location of some of the hemlocks near or on the cliffs, trained climbers from the Ohio State Parks Division treated these trees. When possible, the climbers removed small seedlings and saplings from cliff crevices to reduce the amount of treatment needed in the future.

Submitted by: *Bill Oldland, Entomologist, USDA FS, MFO, FHP*

News Release April 8, 2013

Insect Threat to Hemlock Trees Discovered in Western Pa. State Parks

Harrisburg – A non-native, invasive insect that attacks and kills eastern hemlock trees has advanced westward across Pennsylvania to Clarion and Jefferson Counties where infestations have been confirmed in two State parks.

“The hemlock woolly adelgid, a pervasive insect threat that has killed thousands of hemlocks across the State, has been detected in both Cook Forest State Park, Clarion County, and Clear Creek State Park in neighboring Jefferson County,” Department of Conservation and Natural Resources Secretary Richard Allan said. “This discovery is especially unsettling due to the signature hemlocks in both parks’ forests.”

Home to the most significant eastern hemlock stand north of the Smoky Mountains, Cook Forest State Park is famous for its old-growth trees. Its “Forest Cathedral” of towering hemlock and white pine is a National Natural Landmark.

For this reason, and in the face of the insect’s steady, northwestward spread, DCNR entomologists, foresters, and park officials had ramped up early detection efforts at the two parks. Attempts to delineate woolly adelgid infestation and chart feasible methods to combat its spread are now under way, Allan said.

“Park staff members have been regularly monitoring for the pest, and those surveys paid off with early detection that will allow for greater treatment options and better success,” Allan said. “Weather and snow cover have hampered attempts to gauge the insect’s spread, but we know there is infestation along the Clarion River, which flows through both Cook Forest and Clear Creek State parks.”

DCNR will be embarking on a two-pronged treatment effort that relies on selective application of insecticides and the release of predatory beetles.

“We have seen 74 sites and 11,000 trees treated in 21 counties in recent years through the continued cooperative effort among our bureaus of forestry, state parks, and others,” Allan said.

DCNR is partnering with the USDA Forest Service, The Nature Conservancy, and other interested organizations to develop an eastern hemlock management plan for northwestern Pennsylvania. In addition, its Bureau of Forestry is drafting a hemlock conservation plan for Pennsylvania.

The Cook Forest State Park infestation area is home to some of the Eastern United States’ tallest hemlocks, including the celebrated Seneca Hemlock, the area’s third tallest at 147 feet and 4 feet in diameter. Although not

yet known to be infested, other old-growth stands at Cook Forest, including the “Forest Cathedral,” are in danger due to the close proximity to this area.

The woolly adelgid is a fluid-feeding insect, easily detected by telltale egg sacs resembling cotton swabs that cling to undersides of hemlock branches. Introduced into the United States from Asia, it first was discovered in southeastern Pennsylvania in 1969 and steadily has been spreading westward. It now is found in 56 of Pennsylvania’s 67 counties.

Homeowners and other private property owners can learn more about the woolly adelgid, damage it causes, and efforts to combat it at <http://www.dcnr.state.pa.us/forestry/insectsdisease/index.htm>. The Pennsylvania Parks & Forestry Foundation is accepting contributions to be used to combat the insect at Cook Forest and Clear Creek State Parks. Donation checks, payable to Pennsylvania Parks & Forestry Foundation (or PPF), can be sent to Cook Forest State Park, ATTN: HWA Fund, P.O. Box 120, Cooksburg, Pa., 16217.

For details on Cook Forest, Clear Creek, and Pennsylvania’s other 118 State parks, call 1-888-PA-PARKS between 7 a.m. and 5 p.m. Monday through Saturday, or visit www.dcnr.state.pa.us.

Hemlock Woolly Adelgid Identification and Monitoring Workshop, Cooks Forest State Park, PA May 06 2013

Rick Turcotte from Forest Health Protection (FHP) in Morgantown provided an hour-long training session on hemlock woolly adelgid (HWA) biology, control, monitoring, and identification at Cooks Forest State Park. This presentation/training and field visit was part of a larger session that introduced the public and local land managers to the hemlock resources and newly discovered HWA infestation at the park. Andrea Hille from the Allegheny National Forest provided information on the high Allegheny plateau hemlock conservation strategy, a project funded by the Northeastern Area State and Private Forestry. More than 70 State and private land managers attended along with the general public.

Submitted by: *Rick Turcotte, Entomologist, USDA FS, MFO, FHP*

Allegheny Portage Railroad Site Visit and HWA Treatments 5/8&9/2013

On May 8 and 9, 2013, Brad Onken, Karen Felton, Dan Twardus, and Rick Turcotte from the U.S. Forest Service met with Kathy Penrod of the Allegheny Portage Railroad Historic Site (NPS) in Blair and Cambria Counties, Pennsylvania, to treat hemlock woolly adelgid-infested hemlock trees. This historic site covers 1,249 acres. The Allegheny Portage Railroad was the first railroad constructed through the Allegheny Mountains of central Pennsylvania. During this trip, 226 hemlock trees were treated with CoreTect™ tablets. Over the past several years, Morgantown Field Office personnel have been working with the National Park Service to identify and protect high-value hemlocks throughout the site.

Submitted by: *Rick Turcotte, Entomologist, USDA FS, MFO, FHP*

MFO Activity Report: Flight 93 National Memorial

On September 24, 2002, Congress passed the Flight 93 National Memorial Act. The act established a memorial at the September 11, 2001, crash site of United Airlines Flight 93 in Somerset County, Pennsylvania, to honor the passengers and crew of Flight 93. The act also designated the national memorial as a unit of the National Park System. On September 10, 2011, the permanent Flight 93 National Memorial was dedicated and opened to the public.

Currently, the site includes a new entrance, approach road, memorial plaza, memorial plaza wall, and walkway. At the edge of the field is what remains of a hemlock grove damaged by the crash of Flight 93. A long, sloping black wall marks the northern edge of the larger crash site and debris field. The field and woods beyond is the final resting place of the passengers and crew. Unfortunately, hemlocks at the memorial have been infested with the introduced pest hemlock woolly adelgid. Through the efforts of the Morgantown Field Office of the Northeastern Area State and Private Forestry, a collaborative effort has been undertaken to work with the National Park Service to protect and preserve the hemlock groves that form an important backdrop to the crash site.

Rick Turcotte (Forest Entomologist, Forest Health Protection, Northeastern Area State and Private Forestry); Mary Ann Fajvan (Research Silviculturalist, Northern Research Station); and Jerry Jordan, Andrea Hille, and Brad Turberville (Silviculturalists and Forester of the Allegheny National Forest, respectively) visited the Flight 93 National Memorial on May 9, 2013, to begin helping the National Park Service develop a strategy to improve and sustain the health of hemlock trees at the Memorial. An 11-acre hemlock stand is highlighted on interpretive signs and maps as “the hemlock grove,” the focal point of visitors to the Wall of Names and Memorial Plaza. The hemlocks in this grove are integrated into the memorial site design, and a ceremonial gate by the Wall of Names is built from hemlock. It is desirable to maintain the “wall of hemlock” behind the impact site into perpetuity. Working collaboratively with the National Park Service, a silvicultural prescription and integrated pest management plan will be developed for this hemlock grove by U.S. Forest Service personnel to help the National Park Service maintain the longevity of the hemlocks at the site. This plan will also be used to implement various treatments for hemlock woolly adelgid at the site in coming years.



Ceremonial gate made of hemlock located at the Wall of Names at the Flight 93 National Memorial in Somerset County, PA; the view is looking towards the “wall of hemlock” grove beyond the impact site. Photo credit: USFS.

Submitted by: *Rick Turcotte, Entomologist, USDA FS, MFO, FHP (May 9, 2013)*

MFO HWA Activity Report: Monongahela National Forest

On June 30, 2013, the Decision Notice to implement hemlock woolly adelgid suppression in hemlock conservation areas within the Monongahela National Forest (MNF) was signed by the forest supervisor. Forty-five areas containing a component of hemlock trees with ecological and social/cultural values were designated as Hemlock Conservation Areas (HCAs). These HCAs join a statewide conservation network of hemlock sites that are already being treated for HWA on and adjacent to the MNF. At least 60 trees in each of the 45 HCAs will be treated with imidacloprid.

The MNF contracted with Trout Unlimited to implement this large-scale project. On September 25-26, 2013, Tim Tomon (West Virginia Department of Agriculture) and Amy Hill



Demonstrating the ArborJet IV system. Photo credit: USFS.

(Morgantown Field Office) conducted a training session for the MNF and Trout Unlimited on tree selection, data collection, treatment selection (soil vs. stem injection), and equipment used for each HWA treatment type. This project is a collaborative effort between the U.S. Forest Service Forest Health Protection unit, the Monongahela National Forest, West Virginia Department of Agriculture, and Trout Unlimited.

Submitted by: *Amy Hill, Entomologist, USDA FS, MFO, FHP*

Overwintering Mortality of HWA

Reports from most areas within the Mid-Atlantic region show significant HWA mortality due to very cold temperatures. Mortality in the range of 90-95 percent is not uncommon. Overwintering mortality is typically the largest cause of HWA mortality in our region. While these high rates of overwintering mortality will not eliminate HWA, they will slow the spread and impact of the adelgids.

BEECH BARK DISEASE (BBD)

Management of Resistant American Beech in Shelterwood Establishment Cuts, Allegheny National Forest, July 2013

Rick Turcotte, Dan Twardus, Danielle Martin, Al Iskra, and Karen Felton from the U.S. Forest Service, Northeastern Area State and Private Forestry, and Bill Jones from the U.S. Forest Service Southern Region met with several staff members from the Allegheny National Forest (ANF) from July 24 to August 1. The purpose of the visit was to collect data on a long-term beech bark disease project.

Beech bark disease is a complex affecting American beech (*Fagus grandifolia*) and involves both a scale insect (*Cryptococcus fagisuga*) and fungal (*Neonectria ditissima* and *N. faginata*) component. There are three temporal disease phases involved with BBD: the initial scale front phase, the second killing front phase, and the final aftermath phase. The final aftermath phase results in an ecological accommodation to the disease that may cause a change in tree species composition. While resistance to BBD has been observed, tree regeneration is difficult because susceptible trees sprout into thickets and prevent regeneration of other species or of resistant beech trees.

BBD was discovered on the ANF in 1985; since then it has killed many beech trees throughout the forest. It has been observed that a small percentage of individual beech trees remained disease free. To address how to promote these visually resistant trees and their offspring, a project was initiated in 2005 in three different stands on the ANF Bradford Ranger District. This project is examining how beech regeneration would be affected by the current shelterwood establishment cut methods used on the ANF.

The objective of this study is to compare beech regeneration characteristics in shelterwood establishment cuts where resistant beech (disease free) are retained as residuals and where the associated resistant offspring are either retained or killed with herbicide. This project is designed to test whether herbicides affect the sprouting potential of resistant trees and whether killing resistant advance regeneration puts beech at a competitive disadvantage after being killed by herbicide. This was the third post-treatment remeasurement trip for this project. The ANF is currently preparing these stands for the final removal cut. MaryAnn Fajvan, U.S. Forest Service Northern Research Station, and Andrea Hille, Silviculturist for the ANF, are cooperating on the project.

Submitted by: *Danielle Martin, Plant Pathologist, and Rick Turcotte, Entomologist, USDA FS, MFO, FHP (August 5, 2013)*

Beech Bark Disease (BBD) Evaluation Monitoring Progress Report 11/2013

As part of the continuing multistate BBD Evaluation Monitoring project, permanent BBD plots are being established throughout each Mid-Atlantic State. Establishment of these plots provides a means to more precisely measure and describe BBD occurrence. By utilizing newly developed BBD data queries, beech health within and between States can now be consistently and conveniently compared.

BBD plots have been established throughout New Jersey, West Virginia, and western parts of Maryland this year through cooperative work with Rosa Yoo of the New Jersey Forest Service, Jill Rose of the West Virginia Department of Agriculture, and Sally Cannon of the Maryland Department of Agriculture. Future plots will be established in other parts of Maryland and in the States of Ohio and Pennsylvania. In Ohio, Alan Iskra from the U.S. Forest Service Morgantown Field Office met with Tom Macy, Ohio Division of Forestry, and John Pogacnik, Biologist, Cleveland Lake Metro Parks, to examine potential northern Ohio plots. Alan also met with Isabel Munck, Plant Pathologist at the Durham Field Office, to examine beech stands within the Finger Lakes National Forest. Discussions of establishing permanent beech plots followed, and plans are now underway to establish similar plots within the national forests in New England.

Twenty American beech trees per plot are selected in both active disease areas and where the disease has not yet progressed. Only trees with full crowns; minimal dieback; and with no missing, broken, and decayed branches or stems are chosen. Descriptions of each plot include elevation, aspect, slope, site and soil conditions, percent beech, and other tree components. Diameters, canopy transparency, dieback, and amount of associated beech thicket are measured. Canopy leaf color and bark surface *texture* are described.

Trees with beech scale (*Cryptococcus fagisuga* or *Xylococculus betulae*) are measured for scale infestation using Houston's description for scale infestation (trace to heavy). Data protocols have been developed for this project to measure *Neonectria* species infection. Canker formations are described as active observing perithecial formation or inactive based on observations of raised calloused circular lesions or more definitive calloused pocket cankers. In addition, the occurrence of tarry spots (possible nonfruiting areas but active areas of fungal colonization), the asexual stage of the fungus (*Cylindrocarpon faginatum*), and the hyperparasite *Nematogonum ferrugineum* is noted. The *Neonectria* species found on the survey sites has yet to be determined as either native (*Neonectria ditissima*) or exotic (*Neonectria faginata*), so it is presently referred to as *Neonectria* sp. Observations are also noted for the common bark-inhabiting fungus *Ascodichaena rugosa*. In addition, any putative scale-resistant beech trees are identified using standard U.S. Forest Service protocols.

Submitted by: Alan Iskra, Plant Pathologist, USDA FS, MFO, FHP

DOGWOOD ANTHRACNOSE

Population Structure and Tree Health of Flowering Dogwood at Gettysburg National Military Park after 15 Years of Infestation by Dogwood Anthracnose

A cooperative project between the U.S. Forest Service, Forest Health Protection, and Gettysburg National Military Park (GNMP) was conducted to assess the survival and health of flowering dogwood (*Cornus florida*), an important ornamental and wildlife tree in Eastern North America. This project is a continuation of a similar survey conducted in 1989 and has revealed a decrease in the population of flowering dogwoods, presumably due to the dogwood anthracnose (*Discula destructiva*) at GNMP.

As of July 2013, there has been a significant reduction in the number of flowering dogwood trees per acre since the first study was conducted in 1989. Interestingly, an examination of the remaining live trees shows that tree health appears to be increasing. This is probably due to more susceptible trees dying off but could also be due to survival of trees growing in environments less suitable to disease development. Future studies should focus on tracking the health of individual trees versus areas where dogwood are regenerating because this would allow differentiation between susceptible and natural reproduction of resistant dogwood.

Managing flowering dogwood in the presence of dogwood anthracnose requires manipulation of disturbances, host resistance, and intensive husbandry of individual trees. In a forested setting, the only practical management options include host resistance (natural or planting resistant trees) and site manipulation.

If it is desirable to increase the proportion of dogwood, allowing disturbances such as fire or any other disturbance that shifts a mature, closed canopy to an earlier seral condition would be expected to also result in an increase in flowering dogwood. If desired, high-value trees can be treated individually to promote tree health using many different techniques singly or in combination: irrigation during drought periods, proper mulching, fungicide treatments using labeled chemicals, pruning of diseased host material, and liquid fertilization.

Although many trees appeared healthy, dogwood appears to have been functionally removed from the forested ecosystem at GNMP by a non-native exotic pathogen, similar to what has happened across Eastern North America over the past century with other species and diseases such as American and slippery elm (Dutch elm disease), American chestnut (chestnut blight fungus), and redbay (laurel wilt). Further losses of flowering dogwood may be expected at GNMP; without adequate regeneration, eventual extirpation of susceptible dogwood trees may be anticipated.

Submitted by: *Danielle K. Martin, Forest Pathologist, USDA FS, FHP, Morgantown, WV, and William E. Jones, Forest Pathologist, USFS, FHP, Asheville, NC*

MFO Activity Report: *Phytophthora cinnamomi* var. *cinnamomi*, Monongahela National Forest, West Cherry Planting Site

The Morgantown Field Office (MFO) received a request from Jane Bard of the Gauley Ranger District to evaluate the presence of *Phytophthora cinnamomi* in the soil of a recent hybrid chestnut planting site. The planting site, known as the West Cherry planting site, was located on the Monongahela National Forest in Nicholas County, West Virginia, at 2,480 feet elevation. The area had been planted with chestnut blight-resistant seed and container stock provided by the American Chestnut Foundation in April 2012. A mortality survey conducted in the autumn of 2012 revealed a 40 percent loss of seedlings. In addition, many of the overstory trees, which consisted of yellow-poplar, red oak, and white oak, were declining or dead. Although some mortality is expected due to natural causes, it was suspected that the presence of *P. cinnamomi* in the soil



Foliar symptoms of dogwood anthracnose (*Discula destructiva*) infection. Photo credit: Danielle Martin

was contributing to mortality. Many seedlings displayed symptoms of infection by the pathogen, including wilting of leaves and root necrosis.

In October 2012, pathologist Danielle Martin confirmed the presence *P. cinnamomi* in the soil at the West Cherry site; however, the presence of the pathogen does not confirm that the disease is contributing to seedling mortality. To address this question, a second survey was conducted in April 2013 to determine the distribution of *P. cinnamomi* throughout the site and if there was any significant correlation between presence of the pathogen and seedling mortality. We examined data on seedling family, source (seed vs. container stock), and aspect to see if any of these factors contributed to disease incidence.



Hybrid chestnut planting site with red and white oak overstory in the Monongahela National Forest. Photo credit: USFS.

The American chestnut (*Castanea dentata*) was once the dominant hardwood species in the Eastern United States, representing one-fourth of trees within the Appalachian region. The destruction of the American chestnut by *Cryphonectria parasitica*, the causal agent of chestnut blight, has been labeled as one of the worst biological disasters in history. Arriving in the United States in 1904 on imported Asian nursery stock, the pathogen quickly spread across the entire natural range of the American chestnut, killing 3.5 billion trees. By the 1950s, virtually all mature American chestnuts had succumbed to the disease, surviving only as sprouts from old stumps and root systems. The virulence of *C. parasitica* in the United States caused not only the loss of a treasured tree species, but the devastating loss of an entire ecosystem, one that depended upon the American chestnut to support abundant plant and animal life unique to Appalachia. One of the primary restoration efforts includes breeding for resistance to the pathogen.

Chestnut blight resistance screening involves a back-crossing breeding program that transfers blight resistance from Japanese and Chinese chestnut trees to American chestnuts. This method, which also retains desirable growth, form, and adaptability, has produced highly resistant progeny. Unfortunately, some of these resistant progeny are also susceptible to a root rot caused by *P. cinnamomi*.

P. cinnamomi is thought to be the most pervasive of all species of *Phytophthora*, with nearly 1,000 host species. It has been known to occur worldwide and throughout much of North America. Many important horticultural crops and forest tree species are affected by this pathogen, including pineapple (*Ananas comosus*), avocado (*Persea americana*), rhododendrons (*Rhododendron* spp.), beeches (*Fagus* spp.), walnuts (*Juglans* spp.), oaks (*Quercus* spp.), and the American chestnut. Inoculation tests have shown *P. cinnamomi* to be responsible for root rot of American chestnut nursery stock both in the field and in greenhouses. The presence of this pathogen has contributed to the demise of American chestnut restoration attempts in the United States. Hybrid chestnut varieties resistant to both chestnut blight and *Phytophthora* root rot are being developed.

P. cinnamomi-infected chestnut seedlings undergo a gradual to rapid wilting of leaves. Roots display extensive necrosis of the tap root that extends to the lateral roots and up the stem for some centimeters. The pathogen is spread by soil splash, windblown soil, or by water movement and in runoff in drainage/irrigation ditches. The most likely means of dispersal is by movement of contaminated soil or plants. Harvesting equipment and foot traffic have also been shown to be responsible for movement of contaminated soil.

Cultural control measures for *P. cinnamomi* include alleviation of high soil moisture levels and improving aeration by increasing drainage. Certain soil microflora have been shown to suppress this pathogen in some soils and may be potential biocontrol agents. While chemical control may be possible, the efficacy of these products is unclear, particularly on a forest-wide scale. It has been suggested that systemic fungicides, particularly fosetyl-aluminium and metalaxyl, can be applied by soil drench, foliar spray, or trunk injection. Calirus 150 has recently been labeled for use on chestnuts, although its consistency is uncertain.

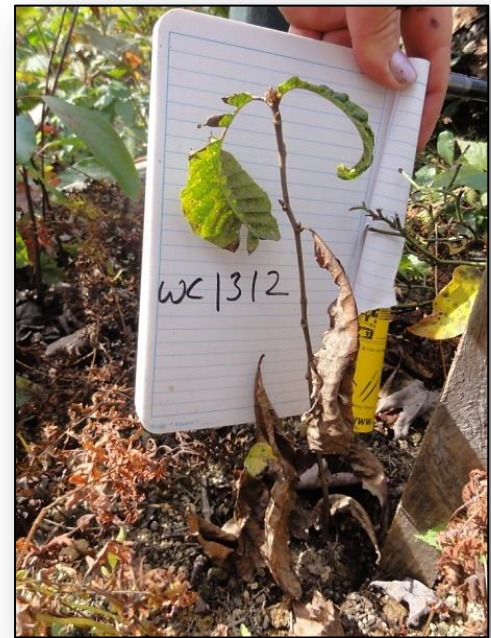
Phytosanitary measures are possible for reducing pathogen populations in the soil. *P. cinnamomi* populations can be reduced by leaving the land under nonsusceptible crops for a minimum of 4 years and by applying various control methods. The success of such measures varies with treatment intensity and vicinity to other infected soils because reinfection could occur.

On April 23, 2013, pathologist Danielle Martin visited the planting site to collect soil samples, and a soil baiting test was conducted at the MFO.

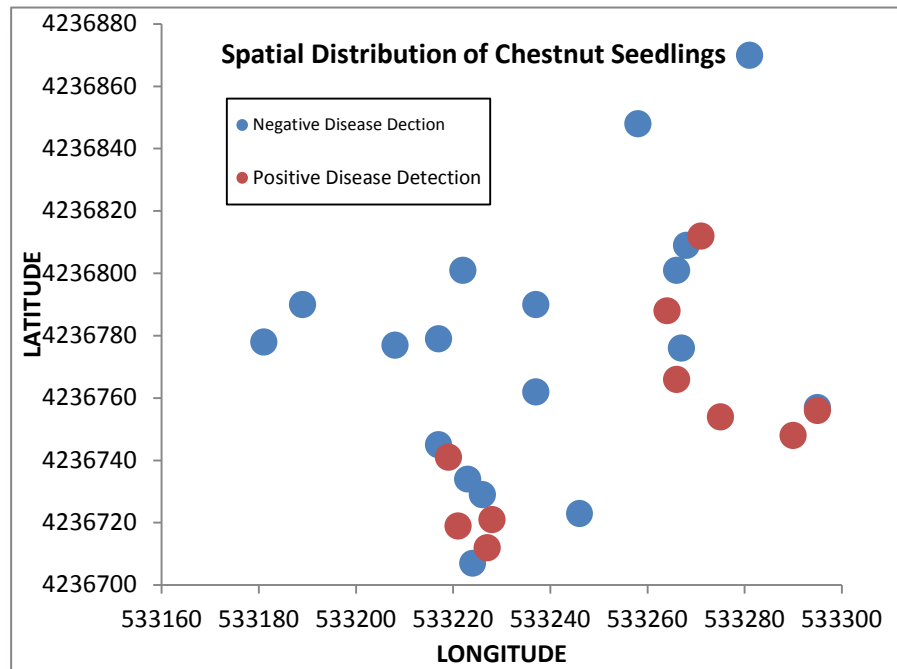
A spatial correlogram showed a trend that the positive samples were locally spatially isolated. However, within clusters or groupings of trees within a 50-foot radius, there was a tendency for a clustering of positive samples. In other words, a tree and its nearest neighbor were often different, but when considering a tree and several trees within a larger neighborhood, there was evidence of spatial clustering.

This data did not provide sufficient evidence that pathogen presence is influencing mortality at this site. There was an unexpected low frequency of pathogen presence in soil around dead seedlings. This may be due to the absence of host material, which caused the pathogen to seek a new host. Future studies should include samples from declining seedlings (rather than dead) to account for this factor.

While family was not shown to be a significant factor influencing disease, an increase in sample size may provide the replication needed to accurately estimate this association. There is not a sufficient amount of elevation change at this site to examine the association between elevation and disease incidence.



Hybrid chestnut seedling displaying symptoms of infection by *P. cinnamomi*.
Photo credit: USFS



Spatial distribution of hybrid American chestnut seedlings at the West Cherry planting. Soils around seedlings tested positive for the presence of *P. cinnamomi* are red; negative samples are blue.

The results of this survey suggest the presence of spatial clustering of the pathogen at this site. It is possible that environmental factors (such as elevation, soil conditions, soil moisture, and presence of live hosts) are influencing disease presence throughout this site. Additional data is needed to examine this further. Future surveys that including additional planting sites with different seed stock and from different elevations may also provide useful data.

Submitted by: *Danielle Martin, Forest Pathologist, USDA FS, FHP, MFO*

SITE VISITS

Site Visit to Tobyhanna Army Depot 7/9/2013

Rick Turcotte from the U.S. Forest Service met with Neil Kresge from the Tobyhanna Army Depot (TYAD). The visit was the result of a concern by depot personnel that several forest health issues may be present within the TYAD. A tour of the facilities revealed that the major overstory tree species is American beech with maple, birch, and a small grove of eastern hemlock and spruce. Numerous dead, large overstory beech trees were observed, and beech scale was present through the wooded areas of TYAD. It is likely that beech bark disease (BBD) is active at the site. Because of the limited species composition and heavy deer pressure, it was recommended that the TYAD develop a forest management plan to deal with the future impacts that BBD will have on the wooded areas.

The Tobyhanna Army Depot opened in 1953 and is the Department of Defense's largest full-service electronics maintenance facility. The depot covers 1,300 acres, with 398 acres in industrial areas and extensive wetlands.

Submitted by: *Rick Turcotte, Entomologist, USDA FS, MFO, FHP*

INVASIVE PLANTS

Cooperative Weed Management Area Workshops in West Virginia and Delaware

Cooperative Weed Management Area (CWMA) workshops were held in Shepherdstown, WV, and Dover, DE, on April 22 and 23. Donna Murphy and Karen Felton from the Morgantown Field Office of the Northeastern Area State and Private Forestry provided support in organizing and delivering the workshops. The workshops focused on essential leadership skills needed to develop important CWMA partnerships. About 120 individuals attended the two workshops.

Kate Howe from the Midwest Invasive Plant Network led the workshops with the support of Jil Swearingen, National Park Service and President of the Mid-Atlantic Invasive Plant Council.



Kate Howe, Midwest Invasive Plant Network, discusses the map of all Northeastern Area Cooperative Weed Management Areas while in Dover, DE. Photo credit: USFS.

Presenters spoke about collaborative projects supported by the Washington, DC Department of Transportation, State of West Virginia, State of Delaware, DC Fisheries & Wildlife Division, New Jersey Invasive Strike Team, The Nature Conservancy, Monongahela National Forest, University of Georgia's Bugwood Network, and the U.S. Fish and Wildlife Service.

CWMAs work on a landscape scale across all land ownership types to combat the impacts of invasive plants. They focus on increased awareness, inventory, volunteer efforts, and advocacy to promote their cause. There are 43 CWMAs in the region served by the Northeastern Area, 11 of which are actively supported through the Morgantown Field Office.

The workshops were partially funded through a grant provided by the Northeastern Area State and Private Forestry. Donna Murphy provided support to the workshops by helping with the grant, working with planners, reviewing workshop material, and giving a presentation on funding opportunities. Karen Felton developed a map for the handout, and both were present to answer questions related to the support that State and Private Forestry can provide.

Submitted by: *Donna Murphy, Landscape Architect, USDA FS, MFO, FHP*

Invasive Plant Project Update

Northeastern Area State and Private Forestry, Morgantown Field Office
April 5, 2013

Background

The U.S. Forest Service, Northeastern Area State and Private Forestry supports invasive plant management through a number of its programs. This update highlights the current efforts that the Morgantown Field Office (MFO), Forest Health Protection program supports. Each project works within a regional framework to build partnerships, foster education, and leverage resources to combat invasive plants and move restoration forward in the District of Columbia, Delaware, Maryland, Pennsylvania, Ohio, and West Virginia.

The MFO has also supported the work of the U.S. Forest Service Northern Research Station in the rearing and release of mile-a-minute weevils and other biological control agents with the Ohio Division of Forestry through a Redesign competitive award for the Ohio River Basin Stewardship project. This effort was supported by the Forest Stewardship and Fire and Aviation Programs of the Northeastern Area to support job skill development and invasive species management in southeastern Ohio. Project personnel worked collaboratively with the Wayne National Forest and the Natural Resources Conservation Service, and received a Chief's Partnership Award in 2010.

The MFO continues to support Cooperative Weed Management Area partnerships and provide leadership, coordination, technical assistance, resources, and grant administration. U.S. Forest Service resources support Cooperative Weed Management coordinators, technical assistance, training, outreach, mapping, assessment, inventory, planning, control, and restoration. Funds primarily come through the Forest Health Protection program, although there are currently active projects that are supported by the Northeastern Area's Fire and Aviation program and the Great Lakes Restoration Initiative.

Overview of Active Projects – Spring 2013

District of Columbia CWMA

The DC Department of the Environment leads efforts for the DC CWMA with support from the DC Urban Forestry Administration. The DC CWMA trains people on invasive plant control methods. A summer program with the Student Conservation Association taught inner-city high school students life skills and invasive plant control methods while providing them with summer jobs working in DC parks to control invasive plants. The CWMA created a Weed Warrior program that provides training to citizens committed to controlling invasive plants and restoring places in DC that are special to them. Through this program and others, they engaged more than 600 volunteers in invasive plant control events. CWMA activities continue to increase DC CWMA membership.

Delaware Cooperative Invasive Species Management and Wildfire Suppression

The Delaware Department of Agriculture Forest Service and Delaware Department of Natural Resources and Environmental Control, Delaware Invasive Species Council, Delaware National Estuarine Research Reserve, and local conservation districts have worked together to implement five model demonstration projects that reduce invasive species and flammable fuel sources as well as increase awareness about the impact invasive plants can have on fuels in South Bethany, Rehoboth, Delaware City, the Ardens, and the city of Newark. Newark will continue its work to focus on reducing fuels in a city composting site that was overtaken by invasive bamboo. A project with Kent County Parks focused on removing Phragmites as part of a trail development project where fire is also an issue.

Maryland Mapping Priority Invasive Plant Areas

The Maryland Department of Natural Resources has used its biodiversity ranking system (BioNet) to inventory more than 2,000 acres for invasive plants. They selected six sites more than 200 acres in size that have high biodiversity and rare species complexes; they have targeted these sites for selective control measures to protect critical habitat. Field professionals were trained on using selective control techniques. Two sites were treated using new and innovative control practices specifically designed for use in ecologically significant areas. Transfer of the control practices is a planned project deliverable.

Pennsylvania Sinnemahoning CWMA

The Sinnemahoning CWMA continues to build capacity through funding obtained with the Bucktail Watershed Association, its 501(c) partner. Methods were developed to treat 2 acres of oriental bittersweet and applied on a demonstration plot that was monitored for effectiveness in 2013. More than an acre of tree of heaven was controlled along the Driftwood and First Fork branches of Sinnemahoning Creek. Approximately 6 miles of Japanese knotweed was controlled along both sides of First Fork Creek in Potter County. The CWMA engaged 15 private landowners in mile-a-minute weed control on their properties. Sinnemahoning CWMA partners continue to work with the Pennsylvania Department of Agriculture, Pennsylvania Department of Conservation and Natural Resources (DCNR), and many others to ensure comprehensive approaches are being used, acquire grant funds, and develop their Invasive Plant Management Plan.

Pennsylvania Mile-a-Minute Vine Control in Sinnemahoning

In 2012, the Pennsylvania Department of Agriculture (PA DAG) hired a new State Ecologist who is working with the Sinnemahoning CWMA and PA DCNR to help with continued control of mile-a-minute vine, goat's rue, and giant hogweed in the Sinnemahoning CWMA and adjacent areas of Cameron, Elk, and Potter Counties. PA DAG is working with the Sinnemahoning CWMA and PA DCNR State Parks to prioritize these efforts and determine the resources that will be needed for control measures.

Pennsylvania Lake Erie CWMA

The Western Pennsylvania Conservancy partnered with the Pennsylvania Sea Grant program to support an invasive plant coordinator position. The new coordinator is leading the development of the Lake Erie CWMA management plan and organizing outreach and restoration activities. During the summer months, Weed Warriors logged hours of volunteer time controlling invasive plants. A partnership with Presque Isle State Park and Cleveland's Museum of Natural History made possible a Phragmites control project at Gull Point that is reclaiming 6.8 acres of nesting habitat for the federally endangered piping plover. Tree planting is planned this year in Erie Bluff State Park as part of the woodland restoration work occurring there.

Pennsylvania DCNR Invasive Plant Suppression and Native Plant Restoration on State Park Lands

Invasive plant control is being targeted in priority habitats and early successional areas in 20 Pennsylvania State Parks and/or State Forests. Golden winged warbler habitat at Bald Eagle State Park was enhanced, and a research plot was established at the park to evaluate reforestation techniques related to mile-a-minute weed suppression. More than 200 people learned about practices related to invasive control, habitat, and resource management at training events throughout the State.

Pennsylvania Laurel Highlands CWMA

The Fayette County Conservation District partnered with the National Park Service to lead efforts in the Laurel Highlands CWMA. Within the CWMA, 12 species of invasive plants have been treated on over 680 acres, and 353 native seedlings, saplings, and trees were planted as part of restoration efforts. Individuals were reached via educational events, and this outreach contributed to the engagement of volunteers who worked hours on invasive control and restoration. The MFO supported this effort by helping with a memorial reforestation planting in a lowland field once overgrown with invasive plants. All sites continue to be monitored and management plans are being updated accordingly.

West Virginia Potomac Highlands Cooperative Weed and Pest Management Area (CWPMA)

The Potomac Highlands CWPMA is supported by The Nature Conservancy, Monongahela National Forest, and U.S. Fish and Wildlife Service. The focus of their work is early detection and rapid response using GIS to map invasive plants that are found. Field crews treated invasive plants on eight sites and supported volunteer activities that engaged more than 250 local students. During the annual Garlic Mustard Pull, CWPMA volunteers pull garlic mustard. An educational program about invasive plants was developed and expanded to all elementary schools in Grant County in 2013. The West Virginia Division of Forestry and Department of Natural Resources, West Virginia Native Plants Society, and Future Generations are providing educational activities.

Upcoming Workshop:

July 28 & 29, 2014

2014 Biological Control Workshop: Managing Invasive Plants: Beyond Pull, Cut and Spray

Rock Creek Park, Washington, DC

Mid-Atlantic Invasive Plant Council

<http://www.maipc.org/>

Submitted by: *Donna Murphy, Landscape Architect, USDA FS, MFO, FHP*

FOR MORE INFORMATION:

USDA Forest Service
Northeastern Area State and Private Forestry
Forest Health
Morgantown, WV 26505

Group Leader for the Forest Health Staff in Morgantown, WV:
Dan Twardus: 304-285-1545

District of Columbia – Morgantown Forest Service Contact:
Rick Turcotte: 304-285-1544 / Al Iskra: 304-285-1553

Delaware – Morgantown Forest Service Contact:
Dan Twardus: 304-285-1545

Maryland – Morgantown Forest Service Contact:
Dan Twardus: 304-285-1545

New Jersey – Morgantown Forest Service Contact:
Bill Oldland: 304-285-1585

Ohio – Morgantown Forest Service Contact:
Bill Oldland: 304-285-1585
Ivich Fraser: 734-761-6722 x110, 304-376-8222

Pennsylvania – Morgantown Forest Service Contact:
Rick Turcotte: 304-285-1544

West Virginia – Morgantown Forest Service Contact:
Amy Hill: 304-285-1565

This newsletter and previous newsletters are available on the WWW at:
<http://na.fs.fed.us/fhp/fhw/>

STATE FOREST HEALTH COOPERATORS

Delaware Department of Agriculture

Delaware Forest Service
2320 South DuPont Highway
Dover, DE 19901-5515
302-698-4553

http://dda.delaware.gov/forestry/protec.shtml#forest_health_mon

Maryland Department of Agriculture

Forest Pest Management
Wayne A. Crawley, Jr. Building
50 Harry S. Truman Parkway
Annapolis, MD 21401-8960
410-841-5922

http://mda.maryland.gov/plants-pests/Pages/forest_pest_management.aspx

New Jersey Department of Environmental Protection

New Jersey Division of Parks and Forestry
New Jersey State Forestry Service
501 East State Street, Station Plaza 5
P.O. Box 404
Trenton, NJ 08625-0404
609-984-3861

http://www.state.nj.us/dep/parksandforests/forest/njfs_forest_health.html

Ohio Department of Natural Resources

Division of Forestry
2045 Morse Road
Building H-1
Columbus, OH 43229-6693
614-265-6694

<http://www.ohiodnr.com/Home/health/OhioForestHealth/tabid/5203/Default.aspx>

Pennsylvania Department of Conservation and Natural Resources

Bureau of Forestry, Division of Forest Pest Management
Rachel Carson State Office Building
400 Market Street, 6th Floor, P.O. Box 8552
Harrisburg, PA 17105-8552
717-783-2066

<http://www.dcnr.state.pa.us/forestry/insectsdisease/index.htm>

West Virginia Department of Agriculture

Plant Industries Division
1900 Kanawha Boulevard, East
Charleston, WV 25305
304-558-2212

http://www.wvagriculture.org/images/Plant_Industries/About_Us.html

Pesticide Precautionary Statement

Pesticides used improperly can be injurious to humans, animals, and plants. Follow the directions and heed all precautions on the labels.

Store pesticides in original containers under lock and key—out of the reach of children and animals—and away from food and feed.

Apply pesticides so that they do not endanger humans, livestock, crops, beneficial insects, fish, and wildlife. Do not apply pesticides when there is danger of drift, when honey bees or other pollinating insects are visiting plants, or in ways that may contaminate water or leave illegal residues.

Avoid prolonged inhalation of pesticide sprays or dusts; wear protective clothing and equipment if specified on the container.

If your hands become contaminated with a pesticide, do not eat or drink until you have washed. In case a pesticide is swallowed or gets in the eyes, follow the first-aid treatment given on the label, and get prompt medical attention. If a pesticide is spilled on your skin or clothing, remove clothing immediately and wash skin thoroughly.

Do not clean spray equipment or dump excess spray material near ponds, streams, or wells. Because it is difficult to remove all traces of herbicides from equipment, do not use the same equipment for insecticides or fungicides that you use for herbicides.

Dispose of empty pesticide containers promptly. Have them buried at a sanitary land-fill dump, or crush and bury them in a level, isolated place.

NOTE: Some States have restrictions on the use of certain pesticides. Check your State and local regulations. Also, because registrations of pesticides are under constant review by the Federal Environmental Protection Agency, consult your county agricultural agent or State extension specialist to be sure the intended use is still registered.

The use of trade or firm names in this Summary is for reader information and does not imply endorsement by the U.S. Department of Agriculture.

March 2014



USDA Forest Service
Northeastern Area
State and Private Forestry