



APPENDIX 1

Suggested Forest Health Treatment and Management Objectives and Action Items

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1. Asian Longhorned Beetle (*Anoplophora glabripennis*)

Since the initial detection in the United States in 1996, Asian Longhorned Beetle (ALB) has been found infesting trees in New York, Illinois, New Jersey, Massachusetts, and Ohio. The infestations in Massachusetts and Ohio are of particular concern, given their proximity to large tracts of forests and watersheds. Additional infested trees are likely to be detected outside and around the current regulated areas in Massachusetts and Ohio.

Since FY 2009 APHIS and the Northeastern Area (NA) State and Private Forestry have annually funded a regional effort to coordinate public outreach and surveys for ALB (and other invasive pests) in New England and other states. The Northeast Forest Pest Outreach and Survey Project was a cooperative effort between State and Federal plant pest regulatory and forestry agencies oriented around two major components--ALB Awareness Month and a zip-code based assessment of wood movement into State and Federal campgrounds. NA funded zip-code based campground surveys in New York, New England and other states, while NA Forest Health Protection staff conducted surveys on Federal lands.

ALB is a federally regulated exotic pest for which the USDA APHIS and the state plant pest regulatory agencies have jurisdiction and the primary lead. The current USDA ALB program focuses on public information and outreach, detection of the insect, containment and eradication of infestations; survey, regulatory activities to minimize the artificial movement of the insect, and development of new technology and improvement of existing methods to survey, monitor and manage or control ALB. The ALB program is funded by USDA APHIS.

The Forest Service focus has and continues to be to support and complement the current efforts on ALB. The Forest Service goal is to help the lead agencies succeed in detecting and eradicating ALB so that it does not become a permanent resident in our hardwood forests. Other Forest Service priorities remain focused on coordinating a cooperative approach with the lead agencies and others to promote earlier detection of ALB in uninfested areas, with particular emphasis placed on survey and monitoring around the current regulated areas, and in other high risk areas.

Objective #1: Detect New Infestations of ALB where the insect has not yet been found

- a. Detect ALB infestations due to natural spread or movement of ALB in infested wood using the following:
 - Target areas in the immediate vicinity of ALB regulated areas (Top Priority).
 - Target surveys of at-risk communities identified, for example, by using zip-code based data on wood movement.
 - Demonstrate a well coordinated and cooperative approach with the lead federal and state agencies and others.
 - Collect and report survey data and information in conformance with the current ALB program standards; positive detections of ALB are to be reported to the Forest Service and to the lead federal and state agencies immediately.
- b. Implement targeted public outreach and awareness activities that demonstrate coordination and cooperation with, and that complement similar activities by the lead federal and state agencies and others to promote the goal of early detection of ALB.

Objective #2: Prepare for ALB Infestations in “at-risk” or “high risk” communities

- c. Provide technical assistance to “high or at risk” communities to help prepare for or minimize the likelihood of ALB infestations by taking preventative measures such as promoting diverse and healthy urban forests, developing preparedness plans, public awareness, etc. Project proposals may incorporate:
 - A public awareness plan
 - Use of risk assessment and inventory software such as i-Tree/IPED
 - Multiple agencies or cooperation across agencies (APHIS, State agriculture, State forestry, etc.)

2. Emerald Ash Borer (*Agrilus planipennis*)

The emerald ash borer (EAB) has killed tens of millions of ash trees, causing extensive environmental and economic damage throughout infested areas in the Northeastern United States and Canada. This insect was probably introduced into North America sometime in the 1990s. It was first reported killing ash (genus *Fraxinus*) trees in the Detroit and Windsor (Ontario) areas in 2002. Since then, infestations have been found in 16 states and in Ontario and Quebec. Due to poor survey and detection tools, by the time EAB is detected it has usually been established in an area for several years.

NA has supported EAB related work since it was detected in 2002. In the past, the work has been focused in four categories: Education and Outreach, Methods Development, Survey and Monitoring, and management-related activities.

Funding has previously been provided to States for targeted survey and monitoring. With the advent of a national survey funded through State Departments of Agriculture by the USDA Animal and Plant Health Inspection Service several years ago, the need for NA to fund additional early detection surveys is reduced. Furthermore, in 2012 there were major changes made in the USDA EAB regulatory program affecting detection surveys and response. In particular the federal quarantine for EAB has now been revised to permit movement of material between quarantined states without the need for compliance agreements and inspections. As a result USDA APHIS does not fund surveys within infested states, allowing for those resources to be dedicated to detecting EAB outside of the federally quarantined area. Forest Service funding could however be requested to conduct surveys within the quarantine area where those surveys are integral to an EAB management program. Proposals should provide significant detail as to why surveys are necessary and demonstrate coordination with federal and state agencies and others to avoid duplication of efforts.

In FY 2012 several funding sources contributed significant resources to helping to restore the urban canopy in communities affected by EAB. These funding sources may also be available in FY 2013. Specifically these funding sources included S&PF Redesign and funds from the US EPA through the Great Lakes Restoration Initiative.

Objective #1: Prevent the spread of EAB and prepare for outbreaks and infestations

- a. Preparedness and mitigation plans providing guidance on diversifying urban and community forest canopies, improving local tree resources, and addressing the potential adverse impacts of EAB on unique ecosystems or resources (example: effect of EAB on black ash used for basket making).

Prevention related proposals should focus on the following:

- b. Engaging a wide variety of audiences about the likelihood of moving EAB and building upon existing regionally (or nationally) focused “Don’t Move Firewood” information campaign that informs people of the risks associated with moving firewood. Proposals should encompass all 20 states served by the Northeastern Area State and Private Forestry; build upon existing “Don’t Move

Firewood” initiatives and investments, and demonstrate strong coordinated and collaboration with the appropriate Federal and State agencies.

- c. Engaging arborists, forest products businesses, and other industrial users of potentially EAB-infested wood about minimizing EAB spread.

Objective #2: Manage EAB infestations that will not be eradicated

- d. Reducing EAB impacts (suppression) using currently available tools may be justified in high-value areas and unique ecosystems where EAB infestations are known to be isolated or well removed from known generally infested areas and in urban areas (not general forested area). Treat high value ash on public lands. Assistance to communities to manage EAB infestations through infested ash removal and replacement of ash on public lands.
 - Management strategies and plans for high-value areas and unique ecosystems include the following:
 - (i) identification of high-value areas and unique ecosystems most susceptible to EAB-induced impacts
 - (ii) determination and evaluation of realistic options that could positively affect these areas/ecosystems
 - (iii) working with partners to implement management activities in the selected areas/ecosystems

Objective #3: Restore forest ecosystems altered by the loss of ash trees

- e. Promote and restore healthy, sustainable urban and rural forests and unique ecosystems affected by EAB
 - Demonstrate cooperative actions for forest landowners and communities negatively affected by EAB infestations using all available authorities including new authorities in the 2008 Farm Bill.

3. Hemlock Woolly Adelgid (*Adelges tsugae*)

Currently, the hemlock woolly adelgid (HWA) infests about one-half of the native range of hemlock in the East. It has been found in 19 states from New Hampshire to northeastern Georgia and west to eastern Ohio. In 2002 a national HWA Initiative supported by the Plant Boards and the State Foresters was initiated by the Forest Service through the Forest Health Protection program and research and development to address this serious problem. Since then the HWA initiative has guided the Forest Service’s response to HWA.

There is little we can do to affect natural spread, as HWA is commonly spread by birds. We can, however, influence how HWA is spread by people. In the last few years, HWA has been found in isolated locations in Maine, New Hampshire, and Michigan, and most recently in Ohio. Forestry and agriculture officials have undertaken eradication efforts. There is no Federal quarantine or regulatory program for HWA, but a number of states have implemented state quarantines and regulations focused on the movement of hemlock nursery stock. Eradication efforts to date have centered on multiple insecticide treatments to individual trees and where practical, removal and destruction of small hemlock trees, usually in landscape situations.

Areas of extensive tree mortality and decline are found throughout the infested area, but the impact has been most severe in the southern Appalachians and in West Virginia, New Jersey, and Connecticut. On high value or landscape trees the insect is easily controlled using insecticides. Such treatments (stem injection, soil drench), however, are limited to individual trees in readily accessible areas that are not environmentally sensitive. There are as of yet no practical or operational means for treatment of HWA in forests. In the long

run the overall management of HWA in forest environments will most likely to be accomplished through the establishment of biological control agents, which is a major focus area within the HWA Initiative.

Objective 1: Address continued spread of HWA to un-infested areas

- a. Enhanced detection and delineation surveys along the leading edge of the HWA infestation are a top priority in counties in the following states: Ohio, Pennsylvania, West Virginia, New York, New Hampshire, Maine, and Vermont, using HWA survey guidelines and reporting protocols. These annual data are critical to and support state HWA regulatory programs and to track the spread of HWA.
- b. Eradication of isolated infestations of HWA detected along the leading edge of the infested area is a top priority. Highest priority are eradication proposals that are linked to within-state HWA spread, and eradication of isolated infestations detected in states removed from the generally infested area (e.g. MI, OH). HWA eradication efforts should include all land ownerships. **Proposals must identify number of acres and sites to be treated** and be based upon completed biological evaluations. Proposals should also commit to conducting post treatment surveys of the treatment areas and the immediate vicinity for at least three survey cycles following treatment. Activities may also include establishment of state quarantines and inspection of hemlock nursery stock.
- c. Enhanced detection and delineation surveys are a high priority within the areas adjacent to eradication project sites (if post treatment surveys have not been previously funded, see b above). Proposals should clearly demonstrate why the enhanced survey is necessary.
- d. Slowing the artificial or human-aided spread of HWA is a high priority. Proposals must lead to the establishment of consistent state mechanisms to impede artificial spread from infested to non-infested areas in a coordinated approach. Highest priority project proposals are those that encompass a regional or multi-state emphasis or approach.

Objective 2. Address resource impacts caused by HWA

- e. Treat (suppress) HWA to reduce damage and protect high-value trees on public lands. **Project proposals must identify number of acres and sites to be treated** based upon completed biological evaluations. Insecticide treatments should include pre- and post-treatment monitoring. Note: Core funding should be used for general monitoring of HWA and to identify areas where further pretreatment survey and suppression treatments are needed.
- f. Restore high priority sites on public lands adversely affected by HWA, using existing tools and practices.

4. Thousand Cankers Disease

A newly discovered insect/disease complex called Thousand Cankers Disease (TCD) has been identified as a potential threat to native walnut throughout the forested range and walnut plantations. The cause is a previously unknown twig beetle-disease complex caused by an invasive pathogen (*Geosmithia 'morbidia'*) vectored by a native twig beetle (*Pityophthorus juglandis*). TCD was first discovered killing eastern black walnut trees that have been planted across many western states. In 2010 TCD was confirmed for the first time in the eastern US within the native range of eastern black walnut. In 2011 TCD was confirmed in VA and PA. The disease threatens the wood and veneer as well as the nut industries. Currently TCD is now known to occur in AZ, CA, CO, ID, NV, NM, OR, PA, TN, UT, VA, and WA.

A national interagency TCD working group has been established to formulate a national response to TCD. Forest Service and APHIS are funding TCD surveys in states across the US. The greatest needs at this point are to increase survey intensity and scope in order to characterize the geographical ‘footprint’ of TCD as well as the site conditions where TCD occurs across the 20 state Northeastern Area; continue development of survey traps and lures; learn more about the beetle and fungus and their interaction with host trees; learn more about the potential spread of TCD; and develop measures to minimize the spread of TCD and to manage it where it occurs. Focus areas for this RFP follow:

Objective #1: Detect, Monitor and Respond to New TCD Infestations

- a. Delimit newly found infestations and prepare an assessment of the resource at risk. Specifically the resource surrounding the infestation must be characterized to assess the potential for spread into the surrounding forests and trees.
- b. Continue existing surveys and expand survey efforts to other areas within NA to more fully discover the geographical ‘footprint’ of TCD across the 20 state area. Surveys must be implemented using the national TCD survey and diagnostic protocols. Survey data must be inputted into the national Forest Service TCD database.

Objective #2: Support activities to prevent new infestations through TCD outreach and awareness to industry and the public.

- c. Continue and redouble information and education campaigns including targeting non-traditional clients such as wood workers. In addition to prominent firms, local tree service companies should be contacted.
- d. Slowing the artificial or human-aided spread of TCD is a high priority. Proposals must lead to the establishment of consistent state mechanisms to impede artificial spread from infested to non-infested areas in a coordinated approach with federal and state plant pest regulatory and state forestry agencies, and others as appropriate. Project proposals should encompass a regional or multi-state emphasis.

5. Invasive Plants

Invasive non-native plant species are one of the major threats to the Nation’s forests, grasslands and watersheds. Currently, the Forest Health Protection program places emphasis on the development of Cooperative Weed Management Areas or similar entities to facilitate management of invasive plants across a broad landscape and often involving multiple ownerships. In addition, support has been provided to investigators who are developing biological control agents for invasive plants such as mile-a-minute weed, Japanese knotweed, garlic mustard and tree-of-heaven.

But the problem remains large and challenges, such as new invasive plant species introductions, growth of current invasive plant populations and new limits on certain treatment methods have emerged.

Objective #1: Prevent invasive plant threats to forest sustainability in priority issues or landscapes

- a. Promote implementation of existing and recently prepared best management practices for invasive plants.
- b. Inform the public on the importance of invasive plant threats to priority landscapes.

- Project proposals should address important education, prevention or early detection needs.
- If a project proposal requires a long term commitment there must be mechanisms in place (like a functioning CWMA) to ensure continuity of the effort beyond the period of Northeastern Area State and Private Forestry funding .
- The proposed action(s) will appreciably improve forest and ecosystem health and resilience over priority landscapes.

Objective #2: Build landscape level capacity for early detection of invasive plants

- c. Provide wide range of services that support invasive plant management.
- Projects include provision(s) for sharing project results thus communicating awareness of invasive plant issues. (Suggestions—“Success Stories,” web site, quarterly reporting, newsletter)
 - Project proposals should address important education, prevention or early detection needs.
 - Project proposals demonstrate a thorough understanding and knowledge of the biology, and ecology of the target plant species and considers the distribution of that species in the surrounding landscape.

Objective #3: Improve forest health by monitoring and controlling invasive plant infestations in priority landscapes

- d. Implement local and landscape-level efforts to predict and evaluate threats to natural resources caused by invasive plants.
- Project proposals identify the specific resource values threatened by the targeted species. Project proposals demonstrate a thorough understanding and knowledge of the biology, ecology and control of the target plant species and considers the distribution of that species in the surrounding landscape.
- e. Implement effective control options for regionally damaging invasive plants.
- Effective tools and methods exist for controlling the targeted species.
 - Control projects address whether site restoration is needed to reclaim the site.
 - Proposal utilizes an integrated vegetation management approach.
 - Proposal involves multiple agencies and/or landowners to foster a cooperative approach to invasive plant management

6. Treatment of native and exotic pests (excludes gypsy moth, oak wilt, & Hemlock Woolly Adelgid)

Objective 1: Reduce damage caused by outbreaks of native or established exotic forest pests

- a. Surveys have been previously completed and biological evaluations have been prepared supporting the need for direct intervention activities to protect resource values.

Objective 2: Eliminate isolated populations of non-federally regulated exotic forest pests detected outside of areas known to be generally infested.

- b.** Surveys have been completed and biological evaluations support the need for eradication activities

- c.** Follow up post-treatment monitoring is planned for at least three survey cycles following eradication treatments to assess and monitor success.