OKLAHOMA
EMERALD ASH BORER
ACTION PLAN

2015

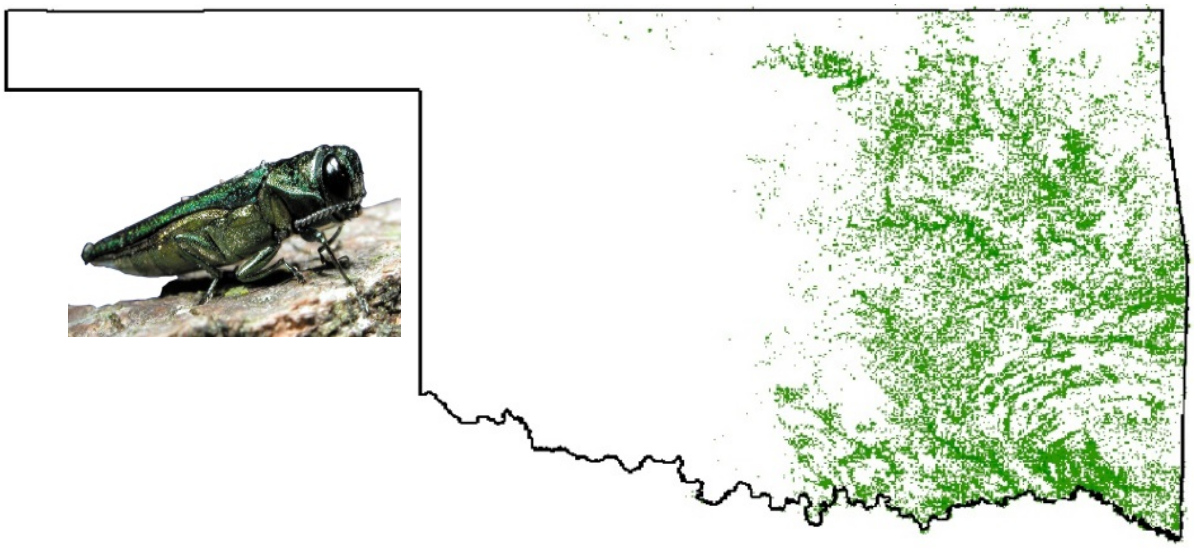

Figure 1 - 2013 National Insect and Disease Risk Map- Ash *spp*. Distribution Map; U.S. Department of Agriculture - Forest Service.

Approved by:

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OKLAHOMA EMERALD ASH BORER ACTION PLAN

I. INTRODUCTION

The emerald ash borer (EAB), *Agrilus planipennis,* is a significant threat to the urban landscape and forests of Oklahoma. This exotic beetle is an invasive species that has the potential to kill ash trees (*Fraxinus* spp.,) throughout North American forests and landscapes. Since identified in 2002 in Michigan, EAB has destroyed millions of ash trees across its known distribution in Arkansas, Colorado, Connecticut, Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Massachusetts, Maryland, Minnesota, Missouri, New Hampshire, New Jersey, New York, North Carolina, Ohio, Ontario, Pennsylvania, Tennessee, Quebec, Virginia, West Virginia, and Wisconsin (Appendix D. EAB Detections & Federal Quarantines map).

Since its discovery, EAB has:

- Caused regulatory agencies and the USDA to enforce quarantines (http://www.aphis.usda.gov/plant_health/plant_pest_info/emerald_ash_b/downloads/eab_quarantine_map.pdf) and fines to prevent potentially infested ash trees, logs, or hardwood firewood from moving out of areas where EAB occurs.

- Cost municipalities, property owners, nursery operators, and forest products industries tens of millions of dollars.

Concerns are raised that quarantine and containment are not adequate measures to stop the spread of this pest. Natural spread and the movement of infested firewood, logs, or nursery stock are sources of new outbreaks outside the infestation areas. Any outbreak will require swift, organized responses by government agencies and the cooperation of stakeholder groups.

II. PURPOSE

The Oklahoma Emerald Ash Borer Action Plan[1] has been developed to provide a statewide coordinated response, and to help local communities plan to respond to the potential negative effects of EAB. The primary goal of the Plan is to provide guidance when introduced or found in Oklahoma; through effective communication with the citizens of Oklahoma; and to mitigate impacts in Oklahoma. This plan is intended to clearly define federal and state agencies roles for Oklahoma's response to the findings of the Emerald Ash Borer.

III. Value-at-Risk

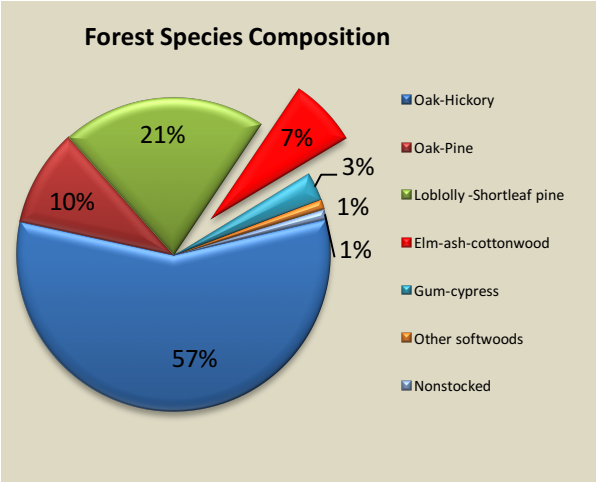

Figure 2 - Forest Resources of East Oklahoma, 2008 (USDA- Forest Service).

The forests and woodlands of Oklahoma cover approximately 12.3 million acres. They are comprised of a wide variety of tree species (Figure 2). Oak-hickory forest type is the predominant group, representing 57 percent of all forests. Loblolly-shortleaf pine is the second abundant at 21percent and Oak-pine forests are 10 percent of timberland. Elm-ash-cottonwood account for 7 percent of our state's forest, but the percentage of Ash species rises to over 10% in the heavily populated Tulsa and Oklahoma Counties where it has been widely planted as a street tree.

Oklahoma's forests support a vibrant wood products industry with annual revenues of $2.7 billion. This industry provides employment to over 10,000 people and represents an annual payroll of over $513 million dollars. Loblolly and shortleaf pine forest types provided more volume than any other tree species, accounting for 46.4 million cubic feet. The hardwood group provided approximately 36 million cubic feet of processed roundwood. Ash species accounted for two percent of this total or 720,000 cubic feet of processed round wood (Figure 3).

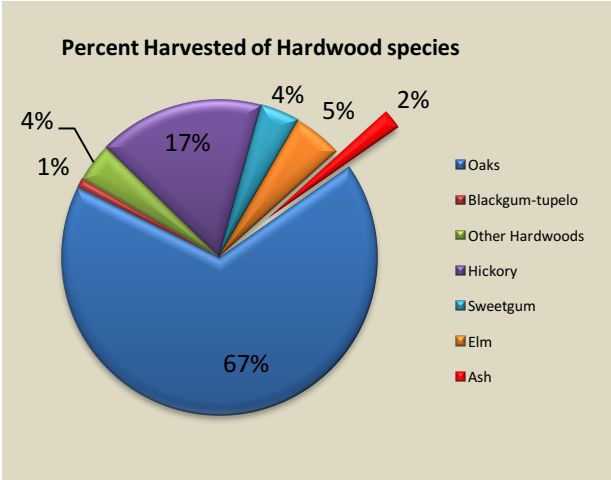

Figure 3 - Roundwood output by hardwood species group, Oklahoma's Timber Industry – Assessment of Timber Product Output and Use, 2009 (USDA –Forest Service).

[1] The Oklahoma Emerald Ash Borer Action Plan should be considered a dynamic and evolving document that may change as new research and management information becomes available.

In urban areas ash species have been widely planted as street trees. Urban forests provide numerous ecological and sociological benefits. Ecological impacts and economic costs associated with tree removal and replacement planting would be significant in urban areas.

IV. GENERAL READINESS

Objective: To minimize impact, and respond effectively to a possible infestation of EAB, and to partner towards overall health and sustainability of Oklahoma's natural resources.

A. Establish a network of agencies and organizations that may be affected by EAB. This will be the Emerald Ash Borer Action Team. The Team will be responsible for advising, advocating, and implementing of the Plan. The EAB Action Team will be comprised of a Technical Team and a Communications Team. The Technical Team has the leadership role and is responsible for planning, coordination, and prompt evaluation and action. The Communication Team supports the Technical Team by providing uniform and accurate information and education.

The following agencies have the responsibility and authority to manage an exotic plant pest introduction. See Appendix B for legal authorities.

- Oklahoma Department of Agriculture, Food, and Forestry
- USDA APHIS Plant Protection and Quarantine
- Affected local government(s) at sites of infestation.

1. **Technical Team** serves as the lead group in planning and coordinating all EAB readiness and response activities. Committee members are listed in Appendix A. The following shall serve as Committee Co-chairs:

- Oklahoma Department of Agriculture, Food, and Forestry (Consumer Protection Service)
- Oklahoma Department of Agriculture, Food, and Forestry (Forestry Services)

2. **Communication Team** supports activities of the Technical Team by communicating accurate information quickly and broadly in a manner that increases the effectiveness of efforts to prevent and control EAB infestations. Committee members are listed in Appendix A. The following serve as Committee Chair:

- Oklahoma Department of Agriculture, Food, and Forestry- Forestry Services.

B. Agency Roles and Responsibilities for major partners in the EAB Action Team include but are not limited to the following:

1. **Oklahoma Department of Agriculture, Food, and Forestry (ODAFF) Consumer Protection Services** is the lead State agency responsible for regulating the introduction and spread of harmful plant pests, such as insects and diseases, into and within Oklahoma and will:

a) Provide surveillance and detection, follow-up inspections on reported suspect invasive species, identification, assessment, and monitoring.
b) Notify and coordinate activities with the appropriate local, state, and federal agencies and other appropriate organizations related to program responsibilities and this Plan.
c) Confirm identification of samples and suspect organisms.
d) Cooperate with other members of the EAB Communications Team to develop specific messages and coordinate communication of invasive species information to the public, media, cooperators, and affected industries.
e) Implement and maintain appropriate state and federal quarantines.
f) Review and coordinate pest control activities to ensure compliance with federal, state, and local laws.
g) Condemn and seize materials when appropriate.
h) Oversee destruction of infested or potentially infested materials or vectors when appropriate.
i) Provide or assist with the procurement of funding for survey, outreach, monitoring, and containment when appropriate.
j) Provide pest management expertise and advice to all cooperators (including nursery operators) and the public.

2. **USDA APHIS Plant Protection and Quarantine (PPQ)** is the lead Federal agency responding to a harmful plant pest introduction and will:

a) Assist in all response activities including quarantine, evaluation, identification, disposal, disinfection, epidemiology, trace-backs and trace-forwards, permitting, inspection, transportation control systems, and survey activities.
b) Collect, collate, analyze, and disseminate technical and logistical information and distribute to field staff and cooperators.
c) Cooperate with other members of the EAB Communication Team to develop specific messages and coordinate communication of invasive species information to the public, media, cooperators, and affected industries.
d) Define training requirements for casual employees or support agencies involved in response operations. Training may consist of survey, sampling, diagnostic, and regulatory procedures.
e) Cooperate in the declaration of the emergency area and assist in defining the emergency area and control or quarantined zones.
f) Allocate funding for compensation to the owner of destroyed products, if an "Extraordinary Emergency" is declared by the Secretary of Agriculture.
g) Acquire necessary funding to support emergency program activities.
h) Provide investigations and support in cases of federal law violations.
i) Consult with State and local authorities regarding response operations.
j) Issue restrictions on interstate commerce.

3. **Oklahoma Department of Agriculture, Food, and Forestry- Forestry Services** is the lead State agency responsible for providing forest management information

and technical forestry assistance to the people of Oklahoma and protecting and managing Oklahoma's forests for long-term resource sustainability and will:

a) Provide forest management expertise and advice to private landowners, communities, forest products and tree care industries, consulting foresters, and the general public.
b) Provide information and assistance to Oklahoma communities in planning community preparedness and response to EAB and other invasive forest species.
c) Manage forest lands to mitigate the impacts of invasive forest pests.
d) Lead the EAB Communications Team and, in partnership with other agencies, develop specific messages and coordinate communication of invasive species information to the public, media, cooperators, and affected industries.
e) Provide liaison with the USDA Forest Service to request further assistance and funding.
f) Assist in surveillance, detection, follow-up inspections on reported suspect invasive species, identification, assessment, and monitoring.
g) Assist with containment, restoration, and mitigation activities.

4. **USDA Forest Service, State and Private Forestry (USFS)** assist in the detection, evaluation, monitoring, and management of invasive forest pests on all forest ownerships and will:

   1. Assist other agencies to identify and prioritize which invasive species to control and to effectively implement a management plan to minimize their impact and spread.
   2. Cooperate with other members of the EAB Communications Team to develop specific messages and coordinate communication of invasive species information to the public, media, cooperators, and affected industries.
   3. Provide education and outreach materials to increase public awareness of EAB and other invasive forest pests.

C. Administrative Readiness – to ensure that current, relevant, and achievable policies are in place that allows the actions described in this plan to occur quickly and unencumbered.

1. **Maintain EAB Action Plan.** [Technical Team]
   a) Distribute plan to stakeholders.
   b) ODAFF CPS and Forestry Services agree to implementation of the plan.
   c) Educate internal stakeholders within cooperating agencies to promote common approach to plan implementation.

2. **Identify resources and needs.** [Technical Team]
   Evaluate human and technical resources required to effectively monitor for EAB and responds to introductions.

3. **Educate the media to ensure accuracy of information.** [Communication Team]

1. Identify key contacts (core members) on Communications Team as sources of current information.

2. Develop a media strategy to publicize the final Action Plan.

D. Technical readiness – Ensure that policy decisions, actions, and education initiatives are guided by the best and most current science.

1. Review and distribute to stakeholders recommendations for remedial control actions developed from recent government and university research. [Technical Team]

2. When issued, operate under New Pest Response Guidelines for EAB, or other relevant USDA technical guidelines. [Technical Team]

3. Transfer technology to field foresters, consulting foresters, arborists, and nursery professionals as it becomes available. [Communications Team]

VI. RESPONSE TO DETECTION OF AN INFESTATION

Objective: To contain and manage EAB populations, when detected.

The Technical Team, with cooperation of affected local government(s), will implement coordinated efforts to contain the infestation according to current national policies and scientific information.

A. Plan and implement containment actions.

1. Issue an Emergency Quarantine for infested County (s).
   a) Schedule an emergency meeting with cooperators (e.g. regulated industries, city and county governments, utility companies, recreational areas, and other). [ODAFF- Consumer Protection Services (lead)]
   b) Release accurate information to the media. [Communications Team]

2. Organize and conduct a delimiting survey to determine the infestation boundaries. [ODAFF- Consumer Protection Services and USDA APHIS – Plant Protection and Quarantine].
   a) All ash trees within ½ mile of positive find will be identified and assessed for EAB activity within a reasonable time frame.
   b) If additional EAB-infested trees are detected in any area, an expanded survey will be initiated within ½ mile from the new find.
3. Initiate regulatory and control activities as necessary.

a) Administer provisional quarantine established by ODAFF consistent with CITE. Emergency rules will be issued describing the quarantined area and regulated articles. [ODAFF-Consumer Protection Services]
b) Determine if removal of potential host trees is appropriate. [ODAFF-Forestry Services (lead) and Technical Team]
c) Develop compliance agreements with stakeholders to restrict movement from EAB-infested (regulated) areas. [ODAFF Consumer Protection Services and USDA- APHIS Plant Protection and Quarantine]

B. Communicate information about response.

1. Provide accurate information and updates to the media through the core members of the Communication Team. [Communication Team]

2. Provide accurate information to affected residents. [Communication Team]
   a) Prepare information for customizing and distributing to affected area immediately after infestation is found.
   b) Cooperate with local governments to host local resident/landowner meetings to share information as soon as possible after finding an infestation.

3. Communicate with public and industry professionals to foster cooperation and maximize effective response. [Communication Team]

VIII. MITIGATION OF POTENTIAL IMPACTS

Objective: To develop processes and resources for mitigating potential impacts in the event of the establishment of EAB populations.

A. Response for urban forests.

1. Assist communities in developing local response plans. [ODAFF Forestry Services (lead) and Technical Team]

2. Conduct training programs for local government staff. [ODAFF Forestry Services (lead) and Technical Team]

3. Develop and distribute relevant information (print media, web, public service announcements, etc.) for homeowners. [Communication Team]

4. Provide updated information on EAB management techniques to arborists, landscape professionals, utility companies, and other green industry personnel through publications and periodic workshops. [Communications Team]

5. Explore opportunities for potential reforestation programs. [ODAFF Forestry Services (lead)]

APPENDIX A
Oklahoma EAB Action Team and Partners

TECHNICAL TEAM

Oklahoma Department of Agriculture, Food, and Forestry
(Co-chair: Plant Protection Program Administrator)
Oklahoma Department of Agriculture, Food, and Forestry
(Co-chair: Forestry Services)
USDA APHIS Plant Protection & Quarantine
USDA Forest Service, State & Private Forestry, Forest Health Program
Oklahoma State University Plant Disease & Insect Diagnostic Laboratory, Department of Entomology and Plant Pathology
Oklahoma Cooperative Extension Service
University of Oklahoma Department of Biology

COMMUNICATION TEAM

Oklahoma Department of Agriculture, Food, and Forestry
USDA APHIS Plant Protection & Quarantine
USDA Forest Service, Office of Communications
Oklahoma Cooperative Extension Service

COLLABORATORS

Oklahoma Nursery & Landscape Association
USDA Natural Resources Conservation Service

STAKEHOLDERS

Oklahoma Municipal League
Oklahoma Parks & Recreation
Local Arborists Associations
Municipalities
Nurseries
Commercial campgrounds
Oklahoma Emergency Management Agency
Oklahoma State University, Department of Agricultural Sciences and Natural Resources

APPENDIX B
Legal Authorities

The following agencies have, by law, the responsibility and authority to manage an exotic plant pest introduction:

- Oklahoma Department of Agriculture, Food, and Forestry, Consumer Protection Services, Horticulture Section
- CITE

- USDA APHIS Plant Protection and quarantine.
- Agriculture Bioterrorism Protection Act of 2002 (Public Law 107-188)
- Plant Protection Act of 2000 (Public Law 106-224; June 20, 2000)
- Federal Plant Protection Regulations (Title 7 Code of Federal Regulations 300-399)

- Affected local government(s) at sites of infestation.

APPENDIX C
Reporting Suspect Emerald Ash Borer Infestations

Reporting by the General Public:

1. If a suspect infestation is found, record date and description of location. If possible, collect suspect insects and a tree twig sample with leaves. Photos of suspect trees and insects can also be helpful in identification.

2. Suspect insects can be placed in a plastic container such as a pill bottle and killed by placing in a freezer overnight. Soft, worm-like insect larvae can be preserved by placing in container with rubbing alcohol.

3. Submit inquiries, samples, or suspect infestation reports to one of the following:

    - Oklahoma Department of Agriculture, Food, and Forestry
    - Oklahoma Cooperative Extension Service county offices
    - Oklahoma State University Plant Disease & Insect Diagnostic Laboratory
    - Department of Entomology and Plant Pathology

Reporting by Natural Resource Professionals:

Collect information and insect samples as described above and submit inquiries and reports to:

Oklahoma Department of Agriculture, Food, and Forestry
Consumer Protection Services, Plant Protection Section
2800 N. Lincoln Blvd.
Oklahoma City OK 73152-8804

APPENDIX D

Frequently Asked Questions

How big a problem is EAB?
EAB is now considered the most destructive forest pest ever seen in North America. The scope of this problem will reach the billions of dollars nationwide if not dealt with appropriately. State and federal agencies have made this problem a priority. Homeowners can also help by carefully monitoring their ash trees for signs and symptoms of EAB throughout the year. See more at:
http://pods.dasnr.okstate.edu/docushare/dsweb/Get/Document-9236/L-443%20Emerald%20Ash%20Borer.pdf

Has Emerald Ash Borer (EAB) been found in Oklahoma?
Currently, EAB has not been detected in Oklahoma. The most recent find (2014) in Arkansas has Oklahoma forest/tree managers concerned about the higher potential of the insect being found in Oklahoma.

What are Oklahoma's professional forest/tree managers doing to prepare for the EAB infestation?
Oklahoma forest and tree resource professionals collaborated on preparing a State Action Plan regarding an EAB infestation. The committee, Oklahoma Pest Action Council (OPAC), is composed of specialists from Oklahoma State University, University of Oklahoma, USDA Animal and Plant Health Inspection Service, and Oklahoma Department of Agriculture, Food and Forestry.

The State Action Plan can be viewed at: http://www.forestry.ok.gov/health

Where did the EAB come from?
The natural range of EAB is eastern Russia, northern China, Japan, and Korea. Before June of 2002, it had never been found in North America.

How did it get here?
We don't know for sure, but it most likely came in ash wood used for stabilizing cargo in ships or for packing or crating heavy consumer products.

What types of trees does EAB attack?
Trees in woodlots as well as landscaped areas are affected. Larval galleries have been found in trees or branches measuring as little as 1 inch in diameter. All species of North American ash appear to be susceptible.

What happens to infested ash trees?
The canopy of infested trees begins to thin above infested portions of the trunk and major branches because the borer destroys the water- and nutrient- conducting tissues under the bark. Heavily infested trees exhibit canopy die-back usually starting at the top of the tree. One-third to one-half of the branches may die in one year. Most of the canopy will be dead within two years of symptoms first appearing. Sometimes ash trees push out sprouts from the trunk after the upper portions of the tree dies. Although difficult to see, adult beetles leave a 1/8 inch diameter, "D"-shaped exit hole in the bark, when they emerge in June.

What does EAB look like?
The adult beetle is dark metallic green, and measures 1/2 inch long and 1/8 inch wide. There are several pictures of EAB in the Photo Album and EAB Life Cycle pages.

How is this pest spread, once established?
We know EAB adults can fly at least 1/2 mile from the tree where they emerge. Many infestations, however, were started when people moved infested ash nursery trees, logs, or firewood into uninfected areas. Shipments of ash nursery trees and ash logs with bark are now regulated, and transporting firewood outside of the quarantined areas is illegal, but transport of infested firewood remains a problem. ***PLEASE - do not move any ash firewood or logs outside of the quarantined area.***

Does it only attack dying or stressed trees?
Healthy ash trees are also susceptible, although beetles may prefer to lay eggs or feed on stressed trees. When EAB populations are high, small trees may die within 1-2 years of becoming infested and large trees can be killed in 3-4 years.

What should I do if I have ash trees on my property?
There are no simple answers to this question. Much will depend on the condition of your trees, your objectives for the property, and the current status of EAB in your area. You will need to explore your options with a professional forester or certified arborist and stay current on EAB regulations that affect your area. http://www.forestry.ok.gov/certified-arborist-in-oklahoma , http://www.forestry.ok.gov/county-contacts

- ***If your ash trees are too small for harvest.*** Many of the ash trees on your property may be too small for harvesting, or you may not want to get involved with harvesting and selling timber. However, you may want to consider cutting these trees to reduce the overall abundance of ash on the property and to reduce the density of EAB populations in your area.
- Ash makes excellent firewood – it is easy to split and burns hot. ***But PLEASE, remember that a single piece of infested ash firewood can start a new EAB infestation!*** Many regulations apply to ash firewood. Also, most campgrounds in the north central United States do not allow visitors to bring in firewood, particularly ash firewood that originated in infested states or areas. It's best to avoid transporting ash firewood off your property altogether.

Can I save my ash tree from being infested by EAB?
The good news is yes, you can save your ash tree from the EAB invasion. There are professional and over-the-counter insecticides available to protect ash tree from EAB. However, insecticide treatments could be costly, and other options should be considered prior to treating your tree. Contact a tree care professional to consult about applying insecticide to your tree.
http://www.emeraldashborer.info/files/multistate_eab_insecticide_fact_sheet.pdf